

PROPOSED MITIGATED NEGATIVE DECLARATION and INITIAL STUDY

Cassel-Fall River Road Bridge Replacement Project Shasta County, CA



Prepared for:
Shasta County Planning Department

March 2018
20-53

ENPLAN

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Redding, CA 96002

MITIGATED NEGATIVE DECLARATION

LEAD AGENCY:	County of Shasta 1855 Placer Street Redding, CA 96001
PROJECT PROPONENT:	County of Shasta
PROJECT NAME:	Cassel-Fall River Road Bridge Replacement
PROJECT SUMMARY:	The proposed project entails replacement of the existing Cassel-Fall River Road Bridge (No. 06C0039) over the Pit River with a new bridge located immediately south of the current bridge. The roadway approaches on both sides of the bridge would be shifted south. An approximately 165-foot-long retaining wall would be placed on the south side of the eastern approach, east of the abutment.
LOCATION:	<p>As shown in Figure 1, the proposed project is located in the unincorporated community of Fall River Mills.</p> <p>The project site is located along Main Street/Cassel-Fall River Road, from a point near Bridge Street to Dee Knoch Road in Section 31 of Township 37 North, Range 5 East of the U.S. Geological Survey's Fall River Mills 7.5-minute quadrangle; Latitude 41° 0' 3.54" N; Longitude -121° 26' 10.38" W.</p> <p>The soil Borrow Site is located approximately 0.75 miles south of the bridge on Cassel-Fall River Road in Section 6 of Township 36 North, Range 5 East of the U.S. Geological Survey's Hogback Ridge 7.5-minute quadrangle; Latitude 40°59' 27.18" N; Longitude -121° 25' 49.22" W.</p>

Findings / Determination

As documented in the Initial Study, project implementation could result in possible effects to special-status wildlife species, loss of riparian habitat, loss of wetlands, loss of oak woodland, disturbance of nesting migratory birds, impacts to cultural resources and tribal cultural resources, potential exposure to geologic and hydrologic hazards, temporarily increased risk of wildfires, temporarily increased risk of exposure to contaminated materials, temporarily increased air emissions, and temporarily increased noise and vibration levels.

Design features incorporated into the project would avoid or reduce certain potential environmental impacts, as would compliance with existing regulations and permit conditions. Remaining impacts can be reduced to levels that are less than significant through implementation of the mitigation measures presented in Section 1.9 of the Initial Study. Because the County of Shasta will adopt mitigation measures as conditions of project approval and will be responsible for ensuring their implementation, it has been determined that the project will not have a significant adverse impact on the environment.

Patrick J. Minturn
Director of Public Works

Date

INITIAL STUDY

COUNTY OF SHASTA

CASSEL – FALL RIVER ROAD BRIDGE REPLACEMENT

SHASTA COUNTY, CALIFORNIA

LEAD AGENCY:



County of Shasta
1855 Placer Street
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March 2018

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- ENPLAN Summary Report: *Potential for Special-Status State and Federal Species to Occur in the Project Area*
- California Natural Diversity Database RareFind Query Summary
- U.S. Fish and Wildlife Service List of Threatened and Endangered Species
- National Marine Fisheries Service (NMFS) Species List
- List of Vascular Plant Species Observed
- List of Wildlife Species Observed

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- Letter of Concurrence Regarding Completion of AB 52 Consultation

SECTION 1.0 INTRODUCTION

1.1 Purpose of Study

Shasta County (County), as Lead Agency, has prepared this Initial Study to provide the general public and interested public agencies with information about the potential environmental impacts of the Cassel-Fall River Road Bridge Replacement Project (Project; proposed Project). Details about the proposed Project are included in Section 3.0 (Project Description) of this Initial Study. This Initial Study has been prepared in accordance with the California Environmental Quality Act (CEQA) of 1970 (as amended), codified in California Public Resources Code §21000 et seq., and the State CEQA Guidelines in the Code of Regulations, Title 14, Division 6, Chapter 3. Pursuant to these regulations, this Initial Study identifies potentially significant impacts and, where applicable, includes mitigation measures that would reduce all identified environmental impacts to less-than-significant levels. This Initial Study supports a Mitigated Negative Declaration (MND) pursuant to CEQA Guidelines §15070.

The majority of funding for the proposed Project will be provided through the Caltrans Local Assistance Program, which is funded in part by the Federal Highway Administration (FHWA) Highway Bridge Replacement and Rehabilitation (HBRRP) Program; therefore, the proposed Project is also subject to National Environmental Policy Act (NEPA) review. Caltrans is the lead agency for NEPA review.

1.2 Evaluation Terminology

The environmental analysis in Section 4.0 is patterned after the Initial Study Checklist recommended in the State CEQA Guidelines. For the preliminary environmental assessment undertaken as part of this Initial Study, a determination that there is a potential for significant effects indicates the need to more fully analyze the proposed Project's impacts and to identify mitigation. For the evaluation of potential impacts, the questions in the Initial Study Checklist are stated and an answer is provided according to the analysis undertaken as part of the Initial Study. The analysis considers the long-term, direct, indirect, and cumulative impacts of the proposed Project. To each question, there are four possible responses:

- **No Impact.** The proposed Project will not have any measurable environmental impact on the environment.
- **Less-Than-Significant Impact.** The proposed Project has the potential to impact the environment; however, this impact will be below established thresholds of significance.
- **Potentially Significant Impact Unless Mitigation Incorporated.** The proposed Project has the potential to generate impacts which may be considered a significant effect on the environment; however, mitigation measures or changes to the proposed Project's physical or operational characteristics can reduce these impacts to levels that are less than significant.
- **Potentially Significant Impact.** The proposed Project will have significant impacts on the environment, and additional analysis is required to identify mitigation measures that could reduce these impacts to less than significant levels.

1.3 Organization of the Initial Study

This document is organized into the following sections:

- Section 1.0:** **Introduction:** Describes the purpose, contents, and organization of the document and provides a summary of the proposed Project.
- Section 2.0:** **CEQA Determination:** Identifies the determination of whether impacts associated with development of the proposed Project are significant, and what, if any, additional environmental documentation may be required.
- Section 3.0:** **Project Description:** Includes a detailed description of the proposed Project.
- Section 4.0:** **Environmental Impact Analysis (Checklist):** Contains the Environmental Checklist from CEQA Guidelines Appendix G with a discussion of potential environmental effects associated with the proposed Project. Mitigation measures, if necessary, are noted following each impact discussion.
- Section 5.0:** **List of Preparers**
- Section 6.0:** **Abbreviations and Acronyms**
- Appendices:** Contain information to supplement Section 4.0.

1.4 Project Summary

Project Title:	Cassel – Fall River Road Bridge Replacement
Lead Agency Name and Address:	Shasta County 1855 Placer Street Redding, CA 96001
Contact Person and Phone Number:	Shawn Ankeny, Supervising Engineer 530.245.6810
County's Environmental Consultant:	ENPLAN 3179 Bechelli Lane Redding, CA 96002

1.5 Project Location

As shown in **Figure 1**, the proposed Project is located in the unincorporated community of Fall River Mills. The **Bridge Site** is located along Main Street/Cassel-Fall River Road from a point near Bridge Street to Dee Knoch Road in Section 31 of Township 37N, Range 5E of the U.S. Geological Survey's (USGS) Fall River Mills 7.5-minute quadrangle; Latitude 41° 0' 3.54" N; Longitude -121° 26' 10.38" W. **Figure 2**, is an aerial photograph of the Bridge Site. The **Borrow Site** is located approximately 0.75 miles south of the bridge on Cassel-Fall River Road in Section 6 of Township 36N, Range 5E of the USGS Hogback Ridge 7.5-minute quadrangle; Latitude 40°59' 27.18" N; Longitude -121° 25' 49.22" W. An aerial photograph of the Borrow Site is shown in **Figure 3**.

Staging Areas: Two potential staging areas have been identified on the west side of the Pit River on land owned by PG&E. Staging on the west side would take place on gravel fill that overlies the original ground surface. Staging on the east side would be limited to the existing roadbed and shoulders.

Assessor's Parcel Numbers:

Bridge Site: 018-300-001; 018-540-013, -021, 023, -045; 018-550-004

Borrow Site: 018-700-004

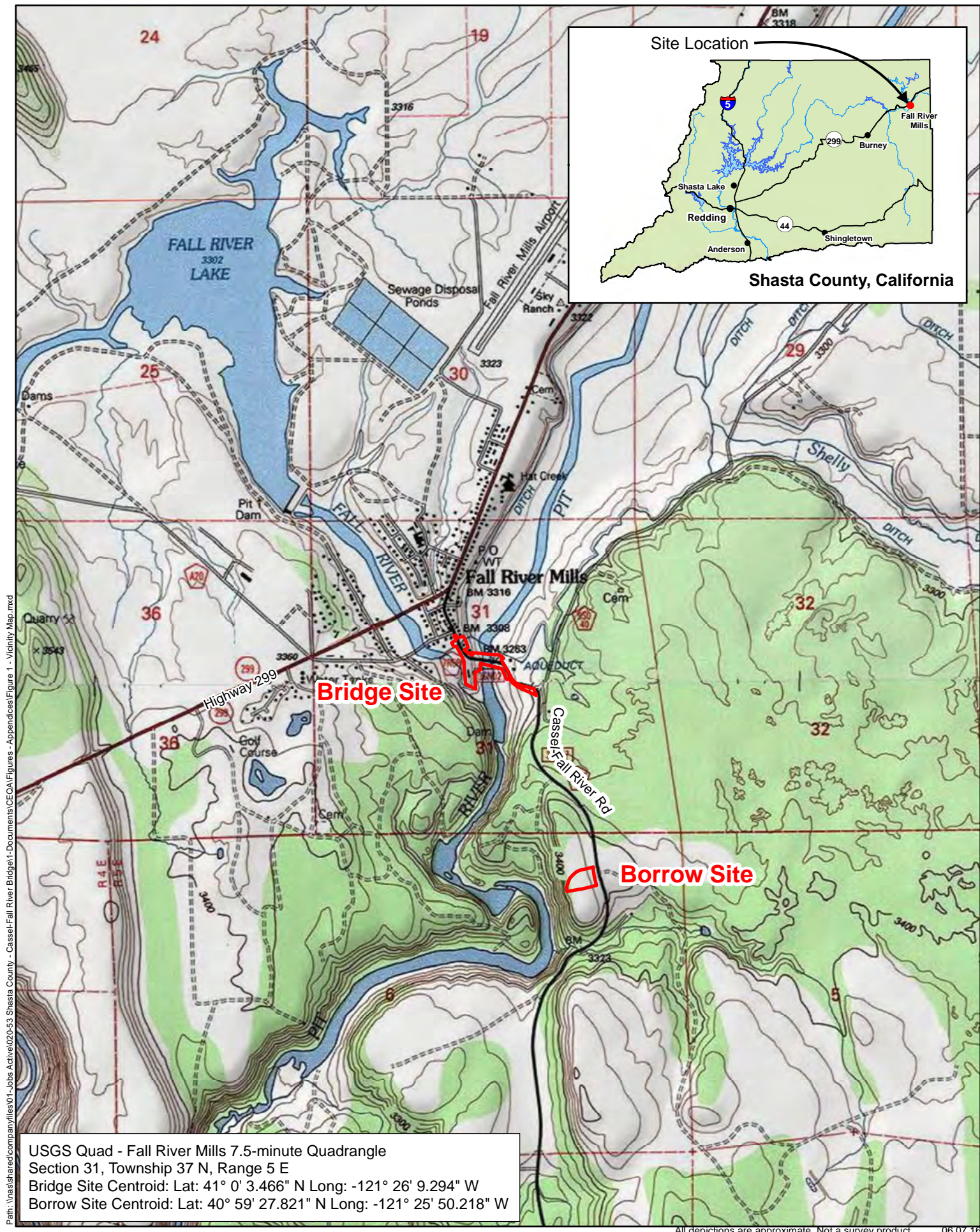
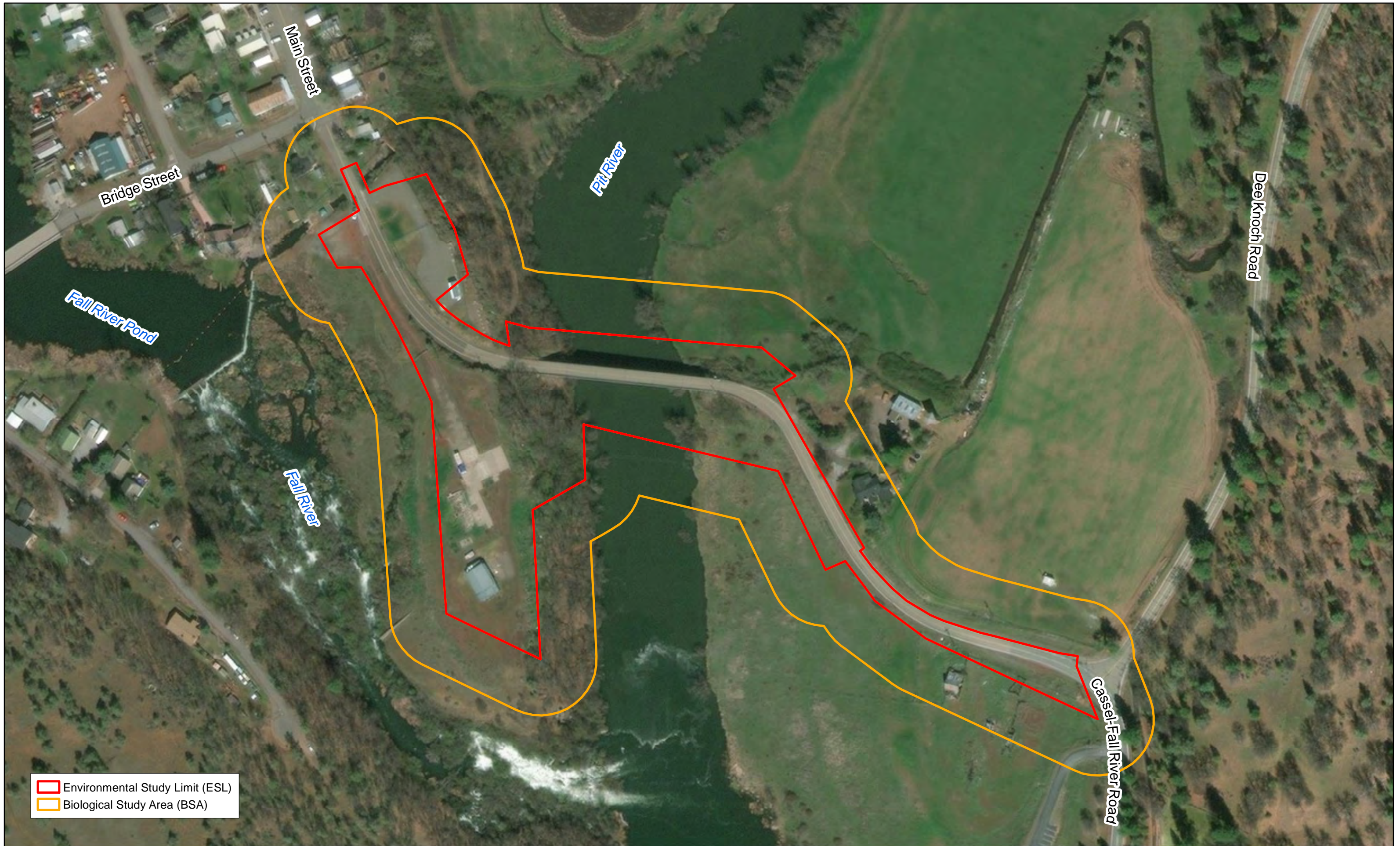


Figure 1
Project Vicinity



Feature and boundary locations depicted are approximate only.
This is not a survey product.

06.30.16

Figure 2
Bridge Replacement Site





All depictions are approximate. Not a survey product. 05.10.16

Figure 3
Borrow Site



1.6 Environmental Setting

General Plan Designations:	<p>Bridge Site: Properties north, east, and south of the Bridge Site are designated Agricultural (A-C - capable of supporting crop production by full-time operators). Properties west of the Bridge Site along Main Street are designated A-C, Commercial (C), and Urban Residential (UR).</p> <p>Borrow Site: The General Plan designation for the Borrow Site is Natural Resource Protection-Open Space (N-O).</p>
Zoning:	<p>Bridge Site: The Bridge Site is located in Open Space (OS), Exclusive Agriculture (EA), Exclusive Agriculture-Agricultural Preserve (EA-AP), and Commercial-Light Industrial (C-M) zones. Surrounding properties on the west side of the Pit River are zoned OS, C-M, Community Commercial (C-2), and Single-Family Residential (R-1). Surrounding properties east of the Pit River are zoned EA, EA-AP, and Rural Residential (R-R). See Figure 4.</p> <p>Borrow Site: The Borrow Site is zoned Open Space (OS). Nearby lands are zoned OS and R-R.</p>
Surrounding Land Uses:	<p>Bridge Site: Properties south and west of the study corridor on both sides of the river are currently vacant, with the exception of a storage building and a caretaker's residence on the west side of the river. Properties north and northeast of the study corridor are primarily used for crop production and grazing; a single-family residence is present east of the river and a storage building is present west of the river.</p> <p>Borrow Site: Surrounding properties are vacant and owned by Shasta County. The Fall River is located approximately 600 feet west of the Borrow Site.</p>
Topography:	<p>Bridge Site: The Bridge Site ranges in elevation between 3,300 and 3,350 feet above sea level. The western portion of the Bridge Site is higher in elevation and includes a steep slope adjacent to the Pit River. The eastern portion of the site is lower in elevation and includes a gradual slope adjacent to the river.</p> <p>Borrow Site: The Borrow Site is situated approximately 3,400 feet above sea level and slopes gently to the east toward Cassel-Fall River Road.</p>
Soils:	<p>Bridge Site: According to the U.S. Department of Agriculture, Natural Resources Conservation Service (U.S. Department of Agriculture, Natural Resources Conservation Service, 2010), four soil units have been mapped in the Bridge Site: Pittville sandy loam, 0-5 percent slopes; Henhill silt loam, partially drained, 0-2 percent slopes; Pit silty clay, drained, 0-2 percent slopes; and Winnibulli-Burman complex, 0-5 percent slopes. Only Pit silty clay is identified as a hydric soil (i.e., having the potential to support wetlands). Henhill silt loam, Pit silty clay, Pittville sandy loam, and Winnibulli-Burman contain inclusions of hydric soils.</p> <p>Borrow Site: One soil unit, Jellico-lava flows complex, 5-15 percent slopes, has been mapped within the Borrow Site.</p>

Vegetation:	Vegetation at the Bridge Site and adjacent areas is primarily comprised of agricultural lands and annual grassland, with a lesser component of woody vegetation. Typical herbaceous species include downy brome, Kentucky blue grass, cultivated timothy, star-thistle, common yarrow, and California poppy. The western bank of the Pit River supports woody vegetation, which is represented by Oregon white oak, western choke-cherry, and Sierra coffeeberry. A small amount of woody vegetation occurs east of the river and is represented by Oregon white oak, California rose, Oregon ash, and willows. With respect to the Borrow Site, typical herbaceous species include medusa-head, downy brome, and Kentucky blue grass. Woody species are represented by buckbrush, white-stemmed rabbitbrush, and western juniper.
Water Features:	<p>The Bridge Site is located immediately upstream of the confluence of the Pit and Fall Rivers. Aquatic habitats at the Bridge Site include the Pit River, a wet swale, and a seep. An off-site irrigation diversion and ditch are adjacent to the Bridge Site and convey irrigation water to lands on the east side of the bridge via a pipe attached to the bridge. The wet swale is located just north of the eastern bridge abutment and is supported by precipitation and stormwater runoff in the winter, and receives supplemental summer flow from irrigation runoff and long-term leakage from a waterline. The seep is located just south of the eastern bridge abutment. The seep is supported by long-term leakage from a waterline.</p> <p>No waters are present in the Borrow Site.</p>

1.7 Tribal Cultural Resources Consultation

Public Resources Code (PRC) §21084.2 (AB 52, 2014) establishes that “*a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment.*” In order to determine whether a project may have such an effect, a lead agency is required to consult with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project if the tribe requested to the lead agency, in writing, to be informed through formal notification of proposed projects in the geographical area; and the tribe responds, in writing, within 30 days of receipt of the formal notification and requests the consultation.

As discussed in Sections 4.5 (Cultural Resources) and 4.17 (Tribal Cultural Resources), consultation with the Pit River Tribal Council and Ajumawi Band of the Pit River Tribe has been conducted as provided in PRC §21080.3.1 and §21080.3.2, and consultation is considered concluded pursuant to PRC §21080.3.2(b).



Figure 4
Zoning Designations

1.8 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by the Proposed Project, involving at least one impact requiring mitigation to bring it to a less-than-significant level. Impacts to these resources are evaluated using the checklist included in Section 4.0. The Proposed Project was determined to have a less-than-significant impact or no impact without mitigation on unchecked resource areas.

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

1.9 Summary of Mitigation Measures

The following mitigation measures are proposed to reduce impacts of the proposed Project to less than significant levels.

AGRICULTURE AND FOREST RESOURCES

See Mitigation Measures **MM 4.4.8** and **MM 4.4.9**, below.

AIR QUALITY

MM 4.3.1 The County shall ensure through contractual obligations that the following measures are implemented throughout construction:

- a. All material excavated, stockpiled, or graded shall be sufficiently watered to prevent fugitive dust from leaving property boundaries and causing a public nuisance or a violation of ambient air quality standards.
- b. Unpaved areas with vehicle traffic shall be watered periodically or have dust palliatives applied for stabilization of dust emissions.
- c. All on-site vehicles shall be limited to a speed of 15 miles per hour on unpaved roads.
- d. All land clearing, grading, earth moving, and excavation activities on the project site shall be suspended if/when Shasta County's resident engineer determines that winds are causing excessive dust generation.
- e. The contractor shall be responsible for applying non-toxic stabilizers (according to manufacturer's specifications) to all inactive construction areas (previously graded areas

which remain inactive for 96 hours), in accordance with the Shasta County Grading Ordinance.

- f. All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least two feet of free board in accordance with the requirements of CVC §23114. This provision is enforced by local law enforcement agencies.
 - g. During grading and earth disturbance in undeveloped areas, the contractor shall provide a paved (or dust palliative treated) apron, at least 50 feet in length, onto the project site from the adjacent paved road(s).
 - h. Paved streets adjacent to construction areas shall be swept or washed at the end of the day to remove excessive accumulations of silt and/or mud which may have accumulated as a result of activities on the development site.
- MM 4.3.2** Prior to demolition of the existing bridge, a comprehensive asbestos survey of all suspect materials shall be completed. Sampling shall be conducted by a California Division of Occupational Safety and Health (DOSH)-certified Asbestos Consultant (CAC) or a Site Surveillance Technician (SST). Asbestos-containing material shall be removed by a DOSH-registered licensed asbestos abatement contractor and disposed of at a landfill approved to receive asbestos-containing waste material.
- MM 4.3.3** Prior to demolition of the existing bridge, or disturbance of traffic striping and pavement, a comprehensive survey shall be completed in locations where lead-based paint is suspected. If lead-based paint is identified, lead abatement shall be conducted by a qualified lead abatement contractor as defined by Title 17 CCR, Articles 5 and 7.
- MM 4.3.4** In the event previously undetected asbestos or lead-containing materials are discovered during construction or demolition, activities that may affect the materials shall cease until results of additional surveys are reviewed. Alternatively, the County can assume that the materials are hazardous. Any identified hazardous materials shall be disposed of in accordance with applicable hazardous waste regulations.

BIOLOGICAL RESOURCES

- MM 4.4.1** Avoid/Minimize Effects on Bats During Bridge Demolition.
Prior to bridge demolition, additional visual survey shall be conducted at each bridge pier where the deck spans join. If packing material is present in the joints and would prevent bat usage, or if the visual survey confirms that there are no signs of past or present bat activity, no further work is needed prior to demolition. If the packing material is no longer intact or no longer present, then humane bat eviction shall be undertaken during seasonal periods of bat activity as described below.
- If needed, humane bat eviction shall be conducted by a bat exclusion contractor or by the bridge contractor under direct supervision of a qualified bat biologist who is experienced in humane bat exclusion methods, materials, and techniques. Humane bat eviction shall consist of blockage of contiguous sections of the gap, and installation of one-way exits at all required locations to permit bats to escape from any roost crevices or non-contiguous portions of crevices. Humane bat eviction shall only be conducted during seasonal periods of bat activity, which in this region, are as follows:
 - Between March 1 (or after evening temperatures rise above 45°F, and/or no more than ½ " of rainfall within 24 hours occurs), and April 15; and
 - Between September 1 and October 15 (or before evening temperatures fall below 45°F, and/or more than ½ " of rainfall within 24 hours occurs).

MM 4.4.2 Replace Day and Night Bat Roosting Habitat.

Day and/or night bat roosting habitat present on the existing bridge shall be replaced with an equal or greater amount of in-kind habitat on the new bridge. A replacement plan shall be developed by a qualified bat biologist with experience in bridge structure bat roost habitat design.

MM 4.4.3 Avoid/Minimize Effects on Bats During Tree Removal.

Trees providing suitable bat habitat shall be removed only between March 1 and April 15, or between September 1 and October 15, subject to the weather conditions noted below. All trees proposed for removal shall be inspected in advance by a qualified bat biologist for the presence of cavities, crevices, exfoliating bark, and other features that may provide suitable bat roosting habitat. Trees with suitable bat roost features shall be removed only after implementation of one of the following:

- a. A night emergence survey of tree by a qualified bat biologist reveals no roosting bats, OR
- b. Trees are removed using the two-step process described below to permit bats the opportunity to abandon the roost prior to removal. Two-step removal of trees containing occupied bat roosts or providing suitable bat habitat, shall only be conducted during seasonal periods of bat activity, which in this region, are as follows:
 - Between March 1 (or after evening temperatures rise above 45°F, and/or no more than ½ " of rainfall within 24 hours occurs), and April 15; and
 - Between September 1 and October 15 (or before evening temperatures fall below 45°F, and/or more than ½ " of rainfall within 24 hours occurs).

The two-step removal of bat habitat trees shall be conducted over two consecutive days. The first day entails removal of non-habitat features on bat habitat trees (branches without cavities, crevices, or exfoliating bark), using chainsaws only for cutting, and chippers wherever possible to cause a level of noise and vibration disturbance sufficient to cause bats to choose not to return to the tree for a few days after they emerge to forage. No excavators, grinders, or other heavy equipment shall be used for first day trimming of habitat trees. A qualified bat biologist experienced with two-step removal procedures shall instruct and provide initial supervision of tree cutting crews on day 1 so that they do not accidentally remove potential habitat features, which could result in direct mortality of bats.

On the following day, the trees are removed. Any new tree cutting crew members added to the crew shall require instruction and initial supervision by a qualified bat biologist.

MM 4.4.4 Avoid/Minimize Effects on Bats During Swallow Nest Removal.

Abandoned cliff swallow nests on the bridge shall be removed by hand using an extension pole with a suitable scraper (no high-pressure water or air), between October 30 and January 31. If abandoned swallow nests cannot be removed during this period, nest interiors shall first be visually inspected by a qualified bat biologist, and then the nests shall be removed by hand using an extension pole with a suitable scraper (no high-pressure water or air), if unoccupied. If a nest is occupied by bats, removal shall be delayed until after dark. If exclusion netting will be installed on the bridge, netting (1/4" – 3/8" mesh size) or other chosen material shall be installed so that it fits tightly to the bridge with no gaps that may permit bats to enter, and which could trap bats.

MM 4.4.5 Inspect Dewatering Enclosures for Western Pond Turtles.

If in-stream dewatering enclosures are erected to facilitate pier or abutment construction, a qualified biologist shall be present during initial dewatering of each enclosure to ensure that no turtles are trapped. If turtles are present within the enclosure, they shall be relocated outside the work area by the qualified biologist.

MM 4.4.6 Avoid/Minimize Effects on Western Pond Turtles.

Prior to commencement of any earth disturbance, all construction personnel shall receive training from a qualified biologist on identification of western pond turtles and procedures to be implemented in the event that western pond turtles are encountered during construction activities.

In the event that western pond turtles enter a 100-foot buffer of on-going construction activities, a qualified biologist shall be contacted and construction activities shall be halted within 50 feet of the turtle until the turtle is confirmed to have left the project area or is relocated by the qualified biologist.

MM 4.4.7 Limit the Period for In-Water Work.

In-water work shall be limited to the period between April 15 and January 31, or as may otherwise be specified by CDFW, USACE, and/or the RWQCB. If work is proposed outside of the specified time period, the County shall obtain approval from these agencies prior to conducting the work.

MM 4.4.8 Construction Measures to Ensure Retention of Oak Trees.

The following measures shall be implemented to ensure retention of the oak trees that are designated for preservation. The County shall ensure compliance through the enforcement of contractual obligations:

- a. Fencing shall be provided at least 6 feet outside of the dripline of all trees to be preserved. The fencing is to remain throughout construction.
- b. No storage of materials that may be harmful to oak trees shall occur within the fenced area.
- c. No construction activities (grading, cutting or trenching), including vehicle parking or materials stockpiling, shall occur within the fenced area.

MM 4.4.9 Avoid/Minimize the Potential for Introduction and Spread of Noxious Weeds.

The potential for introduction and spread of noxious weeds shall be avoided/minimized by:

- a. Using only certified weed-free erosion control materials, mulch, and seed.
- b. Limiting any import or export of fill material to material that is known to be weed free.
- c. Requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering the County. If the equipment has most recently been used within the County, cleaning is not required.

MM 4.4.10 Avoid/Minimize the Potential for Introduction and Spread of Invasive Freshwater Mollusks.

The potential for introduction and spread of invasive freshwater mollusks (quagga mollusks and zebra mollusks) shall be avoided/minimized by utilizing only vessels that have been cleaned, drained of all standing water, dried thoroughly, and determined not to harbor mussels prior to placement into the Pit River. Vessels that harbor mussels shall undergo treatment to eradicate the mussels completely by being placed into dry storage for a minimum of five days prior to their next planned use.

MM 4.4.11 Avoid Disturbing Nesting Birds During Bridge Construction/Demolition.

Well in advance of project construction, abandoned swallow nests shall be removed from the bridge in accordance with the conditions prescribed in Mitigation Measure **MM 4.4.4**. After the nests are removed, and prior to April 15, bird nesting deterrents shall be installed on the bridge. Shasta County may utilize one or more types of deterrents to prevent birds from nesting on the bridge, including the use of bioacoustic deterrents (e.g., broadcast calls), installation of exclusionary materials (e.g., Teflon or plastic sheeting, mesh netting, or other materials that would not entangle birds) in the fall or winter prior to construction, and/or

removal of partially constructed nests following confirmation by a qualified biologist that no eggs or chicks are present (completed nests shall not be removed). Any installation of exclusionary materials to prevent bird nesting shall be coordinated with the bat biologist to ensure that day-roosting bats (if present) are not trapped inside the bridge.

MM 4.4.12 Avoid Disturbing Nesting Birds During Vegetation Removal or Ground Disturbance.

In order to avoid impacts to nesting migratory birds and/or raptors protected under the federal Migratory Bird Treaty Act of 1918 and California Fish and Game Code §3503, including their nests and eggs, the following measures shall be implemented:

- a. With the exception of trees providing suitable bat roosting habitat that shall be removed only between March 1 and April 15, or between September 1 and October 15, in accordance with **Mitigation Measure 4.4.3**, vegetation removal and other ground-disturbance activities associated with construction shall occur between September 1 and January 31 when birds are not nesting; or
- b. If vegetation removal or ground disturbance activities occur during the nesting season, a pre-construction nesting survey shall be conducted by a qualified biologist to identify active nests in and adjacent to the work area. The survey shall take into account acoustic impacts and line-of-sight disturbances occurring as a result of the project in order to determine a sufficient survey radius to avoid nesting birds. The results of the survey shall be submitted to the California Department of Fish and Wildlife upon completion. The survey shall be conducted no more than one week prior to the initiation of construction. If construction activities are delayed or suspended for more than one week after the pre-construction survey, the site shall be resurveyed.

If active nests are found, Shasta County shall consult with the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service regarding appropriate action to comply with the Migratory Bird Treaty Act and California Fish and Game Code §3503. Compliance measures may include, but are not limited to, exclusion buffers, sound-attenuation measures, seasonal work closures based on the known biology and life history of the species identified in the survey, as well as ongoing monitoring by biologists.

CULTURAL RESOURCES

MM 4.5.1 Prior to commencement of any ground disturbance, the *Programmatic Agreement between the California Department of Transportation and the California State Historic Preservation Officer Regarding the Cassel-Fall River Road Bridge Replacement Project in the Town of Fall River Mills, County of Shasta, California* (PA), shall be executed, with Shasta County as a signatory to the PA.

Shasta County shall continue to coordinate with Caltrans (the designated federal Lead Agency for the project) throughout the duration of Project construction to ensure that the County fulfills its responsibilities outlined in the PA.

MM 4.5.2 If any previously unevaluated cultural or paleontological resources (i.e., burnt animal bone, midden soils, projectile points or other humanly-modified lithics, historic artifacts, fossils, etc.) are encountered, all earth-disturbing work shall stop within 7.6 meters (25 feet) of the find until a qualified archaeologist, or paleontologist if the find is a paleontological resources, can make an assessment of the discovery and recommend/implement mitigation measures as necessary.

MM 4.5.3 If any human remains are encountered during any phase of construction, all earth-disturbing work shall stop within 20 meters (66 feet) of the find. The county coroner shall be contacted to determine whether investigation of the cause of death is required as well as to determine whether the remains may be Native American in origin. Should Native American remains be discovered, the county coroner must contact the Native American

Heritage Commission (NAHC). The NAHC will then determine those persons it believes to be most likely descended from the deceased Native American(s). Together with representatives of the people of most likely descent, a qualified archaeologist shall make an assessment of the discovery and recommend/implement mitigation measures as necessary.

GEOLOGY/SOILS

- MM 4.6.1** Recommendations included in the Final Foundation Report for the proposed Project shall be incorporated into the final improvement plans. The improvement plans shall be reviewed by a qualified geotechnical engineer to ensure all recommendations included in the final Foundation/Geotechnical Report are implemented. Applicable notes shall be placed on the attachment sheet to the Improvement Plans.
- MM 4.6.2** Site earthwork activities (including site preparation, placement of engineered fill and trench backfill, construction of slab and pavement subgrades, and all foundation excavations) shall be monitored by a certified engineering geologist or other qualified professional approved by the Shasta County Public Works Director, as recommended in the Final Foundation Report.
- MM 4.6.3** If blasting is proposed, all work shall be conducted under the direct supervision of a blaster holding a current license issued by Cal/OSHA; a blasting plan subject to approval by Shasta County shall be provided in advance so that the County can ensure that potential concerns with respect to noise, vibration, safety, and security are adequately addressed.

HAZARDS / HAZARDOUS MATERIALS

- MM 4.8.1** Treated wood waste shall be handled, stored, transported and disposed of in accordance with Section 14-11.14 (Treated Wood Waste) of Caltrans' Standard Specifications. All personnel that may come into contact with treated wood waste will receive, at a minimum, training on procedures for identifying and segregating treated wood waste; safe handling practices; requirements of 22 CCR, Division 4.5, Chapter 34 (Alternative Management Standards for Treated Wood Waste); and proper disposal methods.
- MM 4.8.2** During construction, all areas in which work will be completed using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a fire break.

HYDROLOGY AND WATER QUALITY

- MM 4.9.1** Final improvement plans shall be reviewed by the hydraulic engineer to ensure all recommendations included in the final hydraulic analysis are implemented. Applicable notes shall be placed on the attachment sheet to the Grading and Improvement Plans.

LAND USE AND PLANNING

Incorporation of all recommended mitigation measures will ensure that the proposed project is consistent with the Shasta County General Plan.

NOISE

- MM 4.12.1** Construction activities (excluding activities that would result in a safety concern to the public or construction workers due to interference with traffic) shall be limited to between the daytime hours of 7:00 A.M. and 7:00 P.M., Monday through Friday; and 8:00 A.M. and 5:00 P.M., on Saturdays, Sundays, and federal/state recognized holidays.

- MM 4.12.2** Pile driving and blasting activities shall occur only between the hours of 9:00 A.M. and 6:00 P.M.
- MM 4.12.3** Noise generated by pile-driving activities shall be minimized to the extent practicable, through the use of cushion blocks with impact hammer pile drivers; attaching acoustical insulation material to the inside of construction fencing or supports; installing temporary sound barriers between sensitive uses and the construction site; and/or pre-drilling holes for the piles. Sonic or vibratory pile drivers may be used where geological conditions permit their use.
- MM 4.12.4** Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.
- MM 4.12.5** When not in use, motorized construction equipment shall not be left idling for more than five minutes.
- MM 4.12.6** Stationary equipment (generators, compressors, etc.) shall be located at the furthest practical distance from nearby noise-sensitive land uses.

TRIBAL CULTURAL RESOURCES

See Mitigation Measures **MM 4.5.1** through **MM 4.5.3**, above.

SECTION 2.0 CEQA DETERMINATION

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 has been 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 significant effect(s) 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, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or Negative Declaration pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or Negative Declaration, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.


Patrick J. Minturn
Director of Public Works

May 16, 2018
Date

SECTION 3.0 PROJECT DESCRIPTION

3.1 Introduction

Shasta County, in cooperation with Caltrans, is proposing to replace the Cassel-Fall River Road bridge (06C0039) over the Pit River with a new bridge located immediately south of the current alignment. The existing bridge is a 300-foot-long by 23.7-foot-wide six-span structure. The new bridge would measure 300 feet long by 35 feet wide. The bridge would be a three-span, steel girder concrete slab structure, with each span measuring 100 feet in length. The new substructure would consist of two concrete seat-type abutments with cantilevered wingwalls, and two column bents. The new deck grade would be about two feet higher than the existing bridge at Abutment 1 (west side of the river), and about one foot higher than the existing bridge at Abutment 4 (east side of the river).

The roadway approaches would be shifted south to accommodate the new bridge alignment. The western approach would require approximately 390 feet of realignment and up to 60 feet of additional approach roadwork. The eastern approach would require approximately 220 feet of realignment and up to 130 feet of additional approach work. An asphalt overlay would continue from the end of the eastern bridge approach roadway work for 370 feet toward the intersection of Dee Knoch Road.

An approximately 165-foot-long retaining wall would be placed along the south side of the proposed road alignment at the eastern approach, east of Abutment 4. Specific improvements are described in detail in **Section 3.4** below.

Work is scheduled to commence in April 2019, weather permitting, and would be completed in approximately eight months. The existing bridge would remain open to traffic during construction.

For purposes of this Initial Study, “study area” and “Project area” shall mean the Project footprint, which encompasses approximately 6.5 acres and includes the Bridge Site, Borrow Site, and staging areas (total land disturbance would be approximately 1.2 acres). The biological study area was extended approximately 100 feet beyond this footprint and was inspected where accessible to evaluate potential indirect impacts to special-status species and/or their habitats.

3.2 Project Background, Need, and Objectives

The purpose of the Project is to provide a safe crossing over the Pit River for the traveling public. The project is needed because the existing bridge, constructed in 1922, is structurally deficient, functionally obsolete for width and loading, and does not meet current federal or local design standards.

The bridge is a vital link between the community of Fall River Mills and Big Eddy Estates, which is a large residential community on the east side of the Pit River. In September 2015, the bridge was temporarily closed when it was deemed to be unsafe following an inspection by Caltrans, which showed significant undermining and loss of footing bearing at multiple piers. The bridge closure increased emergency response time to Big Eddy Estates; school bus routes, trash disposal services, and postal delivery were also negatively impacted. As an interim measure, the County completed repair work in October 2016, which enables the bridge to remain in service until the new bridge is constructed, and also allows for safe removal of the existing bridge following completion of the new bridge.

3.3 Project Components, Physical Improvements

Table 3.0-1 identifies the type and depth of impacts associated with the proposed improvements.

**TABLE 3.0-1
Overview of Project Impacts**

Location	Type of Impact	Depth of Impact (feet)	Details
West Side	Road Cut	≤ 18	Cut into fractured rock
	Temporary Piles	≤ 30	Driven temporary piles
	Abutment 1	≤ 50	Steel driven H-piles with pile cap
	Utility Relocations	≤ 8	
	Water and Irrigation Line Relocations	≤ 8	
	Guardrail Posts	≤ 4	Placed in drilled holes
	Existing Bridge Demolition-	Minimal	Removal of western abutment
	Staging	Minimal	Existing fill over original ground surface
River Channel	Bent 2 and Bent 3	≤ 30	Cast-In Drilled-Hole (CIDH) pile
	Temporary Piles	≤ 20	Drilled temporary piles (e.g., trestle)
	Water and Irrigation Line Relocations	None	
	Falsework Bents	≤ 20	Placed on compacted engineered earthen pads or temporary drilled piles
	Existing Bridge Demolition	≤ 20	Remove existing bridge from new bridge or from a barge placed below the bridge
East Side	Abutment 4	≤ 40	Cast-In Drilled-Hole (CIDH) pile
	New Embankment Footprint	≤ 10	Replace native soil with engineered fill or build on compacted original soil
	Retaining Wall Road Cut	≤ 1	New structural section
	Existing Bridge Demolition-	To surrounding contour of channel	Embankment grading and abutment removal
	Staging	< 1	Limited to the existing road and graded/gravel shoulder
	Construction Trestle Bents	Minimal	Placed on compacted engineered earthen pads
	Guardrail Posts	None	Drilled into imported fill material
	Road Fill	None	From borrow location or commercial source and engineered material
	Utility Pole Relocations	≤ 8	
	Water and Irrigation Line Relocations	≤ 8	

Temporary Access Roads

A temporary access road would be located at the eastern bridge approach, on the south side of the road, adjacent to the existing fill slope. This temporary access road would facilitate construction of the new bridge. The route would be temporarily capped by manually installing geofabric over the existing ground and then covering the geofabric with a thick layer of gravel. A bulldozer and possibly a vibratory roller would be used to install the gravel, and construction equipment would remain on the gravel at all times. After the bridge is constructed, an excavator would be used to remove the gravel, and the geofabric would be removed manually with only foot traffic on the existing ground.

Approach Roadways/Embankments

Western Approach:

The western approach would require approximately 390 feet of realignment and up to 60 feet of additional approach roadwork. Permanent ½:1 cut slopes are required at the western approach.

As indicated in **Table 3.0-1**, cuts would be up to 18 feet in depth. The western cut would be in fractured rock material, but blasting is not expected to be required. If blasting is required, it would be conducted under the direct supervision of a blaster holding a current license issued by Cal/OSHA; a blasting plan subject to approval by Shasta County would be provided in advance so that the County can ensure that potential concerns with respect to noise, vibration, safety, and security are adequately addressed.

Eastern Approach:

The eastern approach would require approximately 220 feet of realignment and up to 130 feet of additional approach work. The eastern approach would be established on about 15 to 20 feet of new fill. Roadway excavation, where the new approaches taper into the existing roadway, would consist of the depth of the structural section of the roadway approach, which would be approximately ten inches, plus the roadside ditch, estimated at less than three feet in depth. An asphalt overlay would continue from the end of the eastern bridge approach roadway work for 370 feet toward the intersection of Dee Knoch Road.

Any unsuitable material, including clay and loose or disturbed soils, would be removed to full depth and replaced with an engineered fill to at least 90% relative compaction. Alternatively, it may be possible to remove the very loose surface soil and vegetation to an estimated depth of 0.5 feet, place an engineering fabric or geosynthetic reinforcement, and build the embankment on top. The embankment would be overbuilt and allowed to sit for approximately one to two months while the ground settles.

An approximately 165-foot-long retaining wall would be placed along the south side of the proposed road alignment at the eastern approach at Abutment 4.

Drainage would be directed away from slopes to prevent erosion of near-surface soils. Erosion control would be used to protect slopes. In addition, crown ditches and slope rounding at the top of cuts would be implemented to reduce slope erosion.

New Bridge Foundations

As recommended in the Final Foundation Report prepared by Crawford & Associates, Inc., in November 2017 (Final Foundation Report), foundation support for the new bridge is best achieved by use of driven steel H-piles at Abutment 1 and large (over 24-inch) diameter cast-in-drilled-hole (CIDH) piles socketed into the underlying rock at Bent 2, Bent 3, and Abutment 4. The use of conventional drilling (i.e., soil augers) for CIDH pile excavations may not be effective in advancing the hole within the underlying bedrock, and the use of “heavy duty” equipment specifically tooled for hard rock excavation (e.g., rock augers, core barrels, etc.) may be required.

New fill would be placed in accordance with Caltrans Standard Specifications. Where new fill is to be placed onto existing fill slopes steeper than 5:1, the fill would be fully bonded into the existing slope by placing it on discrete horizontal benches cut fully into the slope, and below any loose/soft or otherwise unsuitable materials.

Due to the anticipated presence of groundwater, CIDH piles would be installed by the “wet” method, including slurry drilling and concrete placed under slurry using tremie pipe. Installation of CIDH piles through granular soils overlying the rock is expected to require casing to help mitigate caving during construction. Casing within the upper portions of the underlying rock also may be required.

Rock Slope Protection (RSP) would be placed and maintained at the abutments to help mitigate scour.

Retaining Wall

Approximately 165 lineal feet of Caltrans Type 1 (Case 1) retaining wall would be constructed on the southern side of the east approach roadway east of Abutment 4. As stated in the Final Foundation Report, foundation support for the retaining wall appears most appropriately achieved by means of spread footing foundations established within a prism of engineered fill to provide uniformity of support below the spread footing.

All soil would be excavated to at least three feet below the base of the footing. Horizontal limits of excavation would be from the heel line to five feet in front of the toe of the retaining wall footing. If intact weathered rock is identified by the geotechnical engineer at plan footing levels, or within three feet below the footing, then the required depth of engineered fill prism may be reduced.

Excavated on-site materials would be excluded from use as engineered fill below the footing and behind the retaining wall. Imported materials used for backfill behind the retaining wall would meet Caltrans Standard Specifications for structure backfill.

Water and Utility Relocations

A circa-1988 10-inch water line is attached to the downstream (south) side of the bridge and a circa-1922 24-inch irrigation line is attached on the upstream (north) side. Both lines would be relocated onto the new bridge. Numerous utility poles also need to be relocated. New utility poles would be placed in holes up to eight feet deep, depending on the size of the poles required.

Guardrails and Signage

Guardrails along the western approach would be placed in holes drilled to a depth of approximately four feet. Guardrail posts on the eastern approach would be drilled into the imported fill material.

Temporary Piles

Due to the constant flow in the Pit River throughout the summer months, the contractor may need to construct a temporary work trestle for access over the river. Temporary piles may be pre-drilled and driven into the river bottom to support the trestle. Soldier piles, if used for the footing for Abutment 1, could extend as much as 30 feet below the existing ground surface and have a footprint of 12 to 18 square inches each. Soldier piles would be spaced four to ten feet apart around the limits of excavation for the abutment, and would be used in conjunction with timber lagging. This would create a retaining wall to keep the existing road in place during excavation of the foundation for the new bridge.

In areas where piles are not able to be driven, piles could be placed in pre-drilled holes up to 30 feet deep and 12 to 18 inches in diameter. It is also possible that the work trestle bents would be founded on compacted engineered earthen pads along the new bridge and retaining wall, and thus the only ground disturbance would be compaction of the existing soil. The use and design of temporary piles and work trestle would be left to the discretion of the contractor.

Existing Bridge Demolition

During demolition of the existing bridge, the bridge could be removed from the new bridge or from barges placed below it. The County anticipates the existing abutments would be removed to at least ground level and the existing embankments would be graded in order to be more consistent with the surrounding contour of the channel. Embankment fill would be removed from the site by the contractor and taken to a commercial borrow or disposal site. Bridge piers within the river would be removed to the channel bottom.

3.4 Regulatory Requirements

Permits and approvals that may be necessary for construction and operation of the Proposed Project are identified below.

Shasta County:

- Adoption of a Mitigated Negative Declaration pursuant to the California Environmental Quality Act (CEQA).
- Adoption of a Mitigation Monitoring Plan for the Project that incorporates the mitigation measures identified in this Initial Study.

State Water Resources Control Board, Central Valley Regional Water Quality Control Board (CVRWQCB):

- Obtain coverage under the NPDES permit for *Discharges of Storm Water Runoff Associated with Construction Activity* (currently Order No. 2009-009-DWQ) by submitting a Notice of Intent to the SWRCB. The permitting process requires the development and implementation of an effective Storm Water Pollution Prevention

Plan (SWPPP) that includes Best Management Practices (BMPs) to reduce pollutants and any additional controls necessary to meet water quality standards.

- Verify coverage under the NPDES *Statewide Storm Water Permit and Waste Discharge Requirements for the State of California, Department of Transportation (Caltrans Permit No. CAS000003)*; or obtain coverage under CVRWQCB General Order R5-2016-0076 (NPDES NO. CAG995002) *Waste Discharge Requirements - Limited Threat Discharges to Surface Water*. These General Orders include specific requirements for monitoring, reporting, and implementing BMPs for construction dewatering activities.
- Obtain a State Water Quality Certification (or waiver) per Clean Water Act Section 401.

U.S. Army Corps of Engineers:

- Obtain a Section 404 Permit under the Federal Clean Water Act.

California Department Fish and Wildlife:

- Obtain a Section 1600 Lake or Streambed Alteration Agreement.

U.S. Fish and Wildlife Service:

- Consultation pursuant to Section 7 of the Federal Endangered Species Act (FESA) if the proposed Project has the potential to impact federally-listed special status species.

State Historic Preservation Office:

- Due to federal funding, consultation pursuant to Section 106 of the National Historic Preservation Act (NHPA) regarding potential impacts to cultural resources (joint consultation with Indian tribes).

SECTION 4.0 ENVIRONMENTAL ANALYSIS (CHECKLIST)

4.1 AESTHETICS

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 type="checkbox"/>	<input checked="" type="checkbox"/>
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

REGULATORY CONTEXT

Shasta County General Plan: Chapter 6.8 (Scenic Highways).

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

- Setback requirements
- Regulations of building form, material, and color
- Landscaping with native vegetation, where possible
- Minimizing grading and cut and fill activities
- Requiring use of adequate erosion and sediment control programs
- Siting of new structures to minimize visual impacts from highway
- Regulation of the type, size, and location of advertising signs
- Utility lines shall be underground wherever possible; where undergrounding is not practical, lines should be sited in a manner which minimizes their visual intrusion.

California Scenic Highway Program

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

DISCUSSION OF IMPACTS

Questions A and C

Scenic vistas are defined as expansive views of highly valued landscapes from publicly accessible viewpoints. Scenic vistas include views of natural features such as mountains, hills, valleys, water courses, outcrops, and natural vegetation, as well as man-made scenic structures. Scenic resources in the Project area include the Pit River and surrounding trees, vegetation and open space. As shown in **Photo 4.1-1**, the west bank of the river is steep and supports an oak woodland, while the east bank has a gradual slope supporting grasses and shrubs. The Bridge Site is visible to individuals living and working in the area, travelers on the roadway, and recreational users on the Pit River.

Properties on the east side of the river are undeveloped south of the bridge and in agricultural use north of the bridge. A single-family dwelling and miscellaneous accessory structures are located north of the bridge at the eastern approach. Properties on the west side of the river include storage buildings north of the bridge and a caretaker's residence and storage buildings south of the bridge.



Photo 4.1-1: *Southeast of the bridge, looking northwest*

Eastern Approach

The eastern roadway approach (**Photo 4.1-2**) would be constructed mostly of fill material to a height of 15 to 20 feet above the original ground surface below the bridge. An approximately 165-foot-long retaining wall would be placed along the south side of the proposed road alignment, east of Abutment 4. The eastern approach would require approximately 220 feet of realignment and up to 130 feet of additional approach work. An asphalt overlay would continue from the end of the eastern bridge approach roadway work for 370 feet toward the intersection of Dee Knoch Road. Roadway excavation where the new approach meets the existing roadway would consist of the depth of the structural section of the roadway approach, which would be approximately ten inches, plus the roadside ditch, estimated at less than three feet in depth.



Photo 4.1-2: Eastern approach, facing northwest

Western Approach

The western approach (**Photo 4.1-3**) would require approximately 390 feet of realignment and up to 60 feet of additional approach roadwork. The bank on the right side of **Photo 4.1-3** will need to be removed to accommodate the new roadway alignment. This will necessitate the removal of approximately ten oak trees larger than 12-inch diameter at breast height (DBH). The total canopy to be impacted would be approximately 0.1 acres. Permanent 1½:1 cut slopes, with heights that vary from less than one foot to as much as 18 feet, are required at the western approach.



Photo 4.1-3: Western approach, facing southeast

The existing bridge shown in **Photos 4.1-4 and 4.1-5** would be demolished and a new bridge would be constructed immediately south of the existing bridge. Water and irrigation lines would be relocated onto the new bridge.



Photo 4.1-4 : *Bridge from east bank, looking west*



Photo 4.1-5: *Downstream of the bridge, looking north*

The County is considering alternatives for the bridge railing and will obtain community input before selecting a preferred alternative. **Figures 4.1-1a through 4.4.1d** are photosimulations showing four railing options for the new bridge (downstream of the bridge, looking northwest). As shown in the photosimulations, the retaining wall would be constructed as a component of the bridge and would not be visually obtrusive.

Recreational users on the Pit River would view the bottom of the deck span, the abutments and piers, and the retaining wall. As depicted in the photosimulations, the new piers would provide a more open view of the surroundings as compared to the existing solid piers. Further, the number of piers would be reduced from five to two. Because the retaining wall would be constructed in the fill slope east of Abutment 4, the wall would not obstruct the view of recreational users up and down the Pit River. In addition, embankments would be graded to blend with the surrounding contour of the channel, and slopes cleared of vegetation would be replanted as appropriate.

The proposed Project would have short-term visual impacts during construction due to grading activity required for the new bridge alignment and approaches to the bridge. However, construction practices will minimize temporary visual impacts. Such practices will include locating soil stockpiles away from viewers, in the fenced staging area, as feasible.

Therefore, because design features will be incorporated to minimize visual impacts of the new bridge, and impacts during construction would be temporary and cease at completion of the project, impacts would be less than significant.

Question B

The nearest officially designated State Scenic Highway is Route 151 (Shasta Dam Boulevard), located approximately 55 miles southwest of the Project area. Therefore, there would be no impact to scenic resources within a designated State Scenic Highway.

Question D

The proposed Project does not include the installation of any new permanent exterior lighting. Temporary lighting needed during construction activities would be required to comply with Shasta County Zoning Code Section 17.84.050 (Lighting), which states: *"All lighting, exterior and interior, shall be designed and located so as to confine direct lighting to the premises. A light source shall not shine upon or illuminate directly on any surface other than the area required to be lighted. No lighting shall be of the type or in a location such that it constitutes a hazard to vehicular traffic, either on private property or on abutting streets."* Compliance with this regulation will ensure that impacts are less than significant.

CUMULATIVE IMPACTS

Potential cumulative projects in the area include growth according to the build-out projections in the County's General Plan. The proposed Project replaces an existing bridge with similar features and would not significantly change the visual character of the area. Project-related lighting would include the possibility of construction lighting, but this would be temporary in nature and cease at the completion of construction. Therefore, the proposed Project's aesthetic impacts would not be cumulatively considerable.

MITIGATION

None necessary



Figure 4.1-1(a)
Photosimulation of Proposed Bridge

Optional 42" Steel Tube Railing



Figure 4.1-1(b)
Photosimulation of Proposed Bridge
Optional Concrete Parapet Railing



Figure 4.1-1(c)
Photosimulation of Proposed Bridge

Optional 32" ST-30 Steel Tube Railing



Figure 4.1-1(d)
Photosimulation of Proposed Bridge

DOCUMENTATION

Caltrans. 2015. California State Scenic Highway Mapping System. Shasta County.
http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm. Accessed October 2016.

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Shasta County. 2004. Shasta County General Plan, Chapter 6.8 (Scenic Highways).
http://www.co.shasta.ca.us/docs/Resource_Management/docs/68scenic.pdf?sfvrsn=0. Accessed October 2016.

_____. 2004. Shasta County General Plan, Chapter 6.9 (Open Space and Recreation).
http://www.co.shasta.ca.us/docs/Resource_Management/docs/69open.pdf?sfvrsn=0. Accessed November 2016.

4.2 AGRICULTURE AND FOREST RESOURCES

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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)) or result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

REGULATORY CONTEXT

Shasta County General Plan: Chapter 6.1 (Agricultural Lands)

Objective AG-5 Protection of agricultural lands from development pressures and or uses which will adversely impact or hinder existing or future agricultural operations.

Policy AG-h The site planning, design, and construction of on-site and off-site improvements for nonagricultural development in agricultural areas shall avoid unmitigable short- and long-term adverse impacts on facilities, such as irrigation ditches, used to supply water to agricultural operations.

California Farmland Mapping and Monitoring Program (FMMP)

The FMMP, which monitors the conversion of the State's farmland to and from agricultural use, was established by the California Department of Conservation (DOC), under the Division of Land Resource Protection. The FMMP is an informational service only and does not constitute state regulation of local land use decisions. The four categories of farmland, which include Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance, are considered valuable and any conversion of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland is typically considered to be an adverse impact.

Prime Farmland is land that has been used for irrigated agricultural production and meets the physical and chemical criteria for Prime Farmland as determined by the U.S. Department of Agriculture, Natural Resources Conservation Service. Unique Farmland is farmland of lesser quality soils used for the production of the state's leading agricultural crops. Farmland of Statewide Importance is similar to Prime Farmland but generally includes steeper slopes or less ability to store soil moisture. Farmland of Local Importance is land important to the local economy as determined by the County Board of Supervisors and a local advisory committee.

Williamson Act

The Williamson Act is a State program that was implemented to preserve agricultural land. Under the provisions of the Williamson Act (California Land Conservation Act 1965, §51200), landowners contract with the county to maintain agricultural or open space use of their lands in return for reduced property tax assessments. The contract is self-renewing; however, the landowner may notify the county at any time of intent to withdraw the land from its preserve status. Withdrawal from a Williamson Act contract involves a ten-year period of tax adjustment to full market value before protected agricultural/open space land can be converted to urban uses.

Forest Land and Timberland

Public Resources Code §12220(g) defines Forest Land as *"land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits."* Public Resources Code §4526 defines timberland as *"land, other than land owned by the federal government, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees."* Government Code §51104(g) defines Timberland Production Zone (TPZ) as *"an area which has been zoned pursuant to [Government Code] §51112 or §51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h)."*

DISCUSSION OF IMPACTS

Questions A, B, and D

According to the *Important Farmland in California* map, the easterly portions of Shasta County were not surveyed for inclusion in the FMMP. Section 21060.1(b) of the California Environmental Quality Act states *"In those areas of the state where lands have not been surveyed... 'agricultural land' means land that meets the requirements of 'prime agricultural land' as defined in paragraph (1), (2), (3), or (4) of subdivision (c) of Section 51201 of the Government Code."* "Prime agricultural land" means any of the following:

- (1) All land that qualifies for rating as class I or class II in the Natural Resource Conservation Service land use capability classifications.
- (2) Land which qualifies for rating 80 through 100 in the Storie Index Rating.

- (3) Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre (AUM) as defined by the United States Department of Agriculture.
- (4) Land planted with fruit- or nut-bearing trees, vines, bushes, or crops which have a nonbearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than two hundred dollars (\$200) per acre.

The Land Capability Classification (LCC) Rating.

The LCC indicates the suitability of soils for most kinds of crops. Groupings are made according to the limitations of the soils when used to grow crops, and the risk of damage to soils when they are used in agriculture. Soils are rated from Class I to Class VIII, with soils having the fewest limitations receiving the highest rating (Class I). The LCC also includes capability subclasses, which are soil groups that identify soil limitations that interfere with plant growth or cultivation. The subclasses are designated by the letters e (erosion), w (water), s (rooting zone issues), or c (very cold or very dry climate).

The Storie Index Rating.

The Storie Index provides a numeric rating (based upon a 100-point scale) of the relative degree of suitability or value of a given soil for intensive agriculture. The rating is based upon the character of the soil profile, surface texture, steepness of the slope, drainage, alkalinity, fertility, wind and water erosion, acidity, and microrelief.

Soil types present at the Bridge Site are shown on **Figure 4.2-1** and summarized in **Table 4.2-1**.

TABLE 4.2-1
Project Site Soils

Map Unit Symbol	Soil Name	NRCS Designation	LCC Class and Subclass	Storie Index	AUM (Irrigated)
Bridge Site					
184	Henhill silt loam, partially drained 0-2 percent slopes	Prime Farmland if irrigated and drained	IIw	Grade 2 Good (61 – 80)	7
279	Pit silty clay, drained 0-2 percent slopes	Not Prime Farmland	IVw	Grade 5 Very Poor (11 – 20)	8
282	Pittville sandy loam 0-5 percent slopes	Prime farmland if irrigated	IIIe	Grade 3 Fair (41 – 60)	0
332	Winnibullli-Burman complex 0-5 percent slopes	Prime Farmland if irrigated and drained	IIIw	Grade 2 Good (61 – 80)	0
Borrow Site					
194	Jellico-Lava flows, complex 5-15 percent slopes	Not prime farmland	VIIs	Not Applicable	Not Applicable

Source: Natural Resources Conservation Service, 2017

As indicated, the Henhill soil has an LCC classification that categorizes it as prime farmland. AUMs for the Henhill and Pit soils also categorize them as prime farmland. None of the soils have a Storie Index rating over 80.

The soils that are categorized as prime farmland are on property zoned Exclusive Agriculture (EA), and Exclusive Agriculture-Agricultural Preserve (EA-AP), and it is anticipated that 0.184 acres (8,015 square feet) in the EA zone, and 0.017 acres (740 square feet) in the EA-AP zone will be disturbed as a result of the proposed Project.

However, these small areas are not used for grazing and do not currently support agricultural crops. In addition, because these areas are adjacent to the existing bridge and road, they would not support agricultural uses in the future, either with or without implementation of the proposed Project. In addition, there are no Williamson contracts that apply to surrounding agricultural land, and the proposed Project does not include any components that would conflict with surrounding agricultural uses. Therefore, impacts are less than significant.

Question C

According to the Shasta County General Plan and County Zoning Map, there are no Timberland Production Zones or timberlands in the Project sites. The closest Timberland (TL) zone is east and southeast of the intersection of Cassel-Fall River Road and Dee Knoch Road. The purpose of the TL zone is to preserve lands suitable for forest management that are not in a Timber Production Zone district. The Project does not propose any work on the property zoned TL; therefore, there would be no impact to timberland.

As stated under Regulatory Context above, “forest land” is defined in Public Resources Code §12220(g) as land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

As discussed in Section 4.4 under Question B, an oak woodland is located on a steep slope along the west bank of the Pit River, south of the bridge. The canopy is dense and the woodland meets the definition of forest land.

Approximately ten oak trees larger than 12-inch diameter at breast height (DBH) would be directly impacted by the proposed Project. The total canopy to be impacted would be approximately 0.1 acre. In addition, earthwork in the area of oak trees has the potential for indirect impacts to trees. Tree removal would result in the loss of shaded riverine aquatic habitat, potential nesting habitat for migratory birds, potential roosting habitat for bats, and potential shelter and foraging habitat for various animals such as squirrels, skunks, rodents, snakes, and lizards. As described in Section 4.4, the level of impact is considered low due to the small number of oaks to be removed; therefore, direct impacts to oaks would be less than significant. In terms of potential indirect impacts, implementation of **Mitigation Measures MM 4.4.8** and **MM 4.4.9** would protect oak trees during construction. Therefore, the Project’s impact on forest land, as defined by Public Resources Code §12220(g), is less than significant.

CUMULATIVE IMPACTS

The County’s General Plan acknowledges that agricultural land uses are a major component of the County’s resource land base and are also a major element in defining the quality of life available to the residents of Shasta County. Were agriculture to lose its land-based prominence in the County, the rural character and country living valued by its residents and important to its economy would likely decline.

As stated above, the proposed Project would impact 0.201 acres (8,755 square feet) of land zoned for agricultural uses. However, these lands are not currently in agricultural use and are not conducive to agricultural uses due to their proximity to the bridge. Although there would be temporary impacts during construction, the proposed Project would not interfere with current agricultural uses in the area in the

long-term and would not detract from the rural character of the area. Therefore, the proposed Project's cumulative impacts to agricultural resources would be less than significant. In addition, implementation of **Mitigation Measures MM 4.4.8 and MM 4.4.9** would avoid, reduce, or mitigate potential impacts to oak trees. With these measures, the proposed Project's cumulative impacts to forest land would be less than significant.

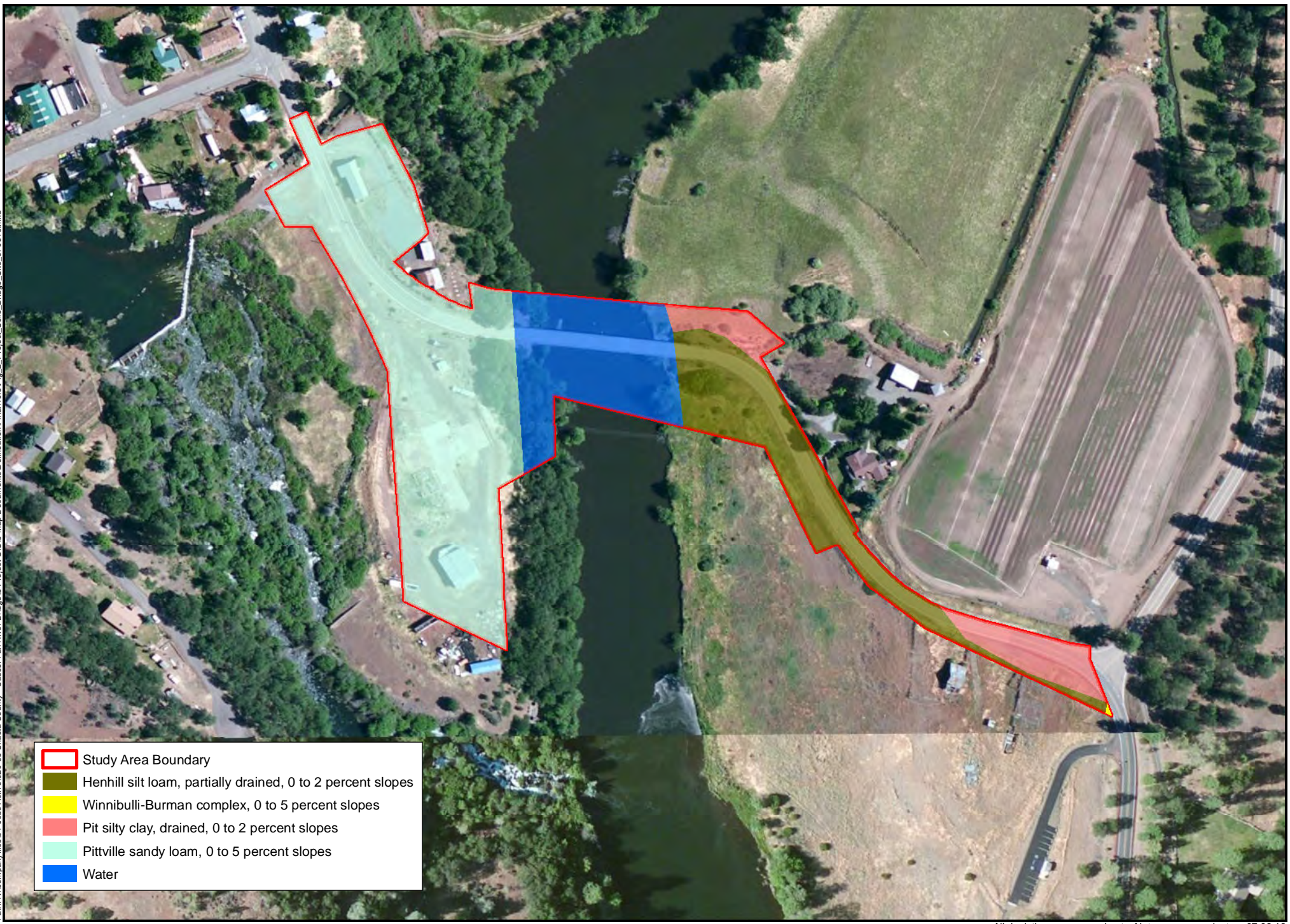
MITIGATION

Implementation of **Mitigation Measures MM 4.4.8 and MM 4.4.9.**

DOCUMENTATION

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Path: N:\company\files\01-Jobs Active\2020-53 Shasta County - Cassel-Fall River Bridge\3-Map Documents\Delination\Final\10.3\Fig. 2 - Project Soils - Bridge - Site_070616.mxd



All depictions are approximate. Not a survey product. 07.06.16

Figure 4.2-1
Project Soils - Bridge Site

Path: N:\company\files\01-Jobs Active\2020-53 Shasta County - Cassel-Fall River Bridge\3-Project\GIS\3-Map Documents\Delination\Final\10.3\Fig. 3. Project_Soils_Borrow_Site_070616.mxd



All depictions are approximate. Not a survey product. 07.06.16



Figure 4.2-2
Project Soils - Borrow Site

4.3 AIR QUALITY

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

ENVIRONMENTAL SETTING

Shasta County resides in the northern end of the Sacramento Valley surrounded by the Klamath and Coastal Mountains to the northwest and the Cascade Mountains to the north and east. Sea breezes flow over the San Francisco Bay Area and into the Sacramento Valley, transporting pollutants from the large urban areas. Pollutant concentrations may intensify when a temperature inversion layer traps air at lower levels below an overlying layer of warmer air. Due to relatively stable atmospheric conditions, pollutants will not disperse until atmospheric conditions become unstable. In Shasta County, the potential for significant air pollution is considered high.

REGULATORY CONTEXT

Shasta County General Plan: Chapter 6.5 (Air Quality).

As shown in **Table 4.3-1**, Shasta County has adopted air quality thresholds for determination of impact significance for projects subject to CEQA review in its Rule 2:1 New Source Review Part 300 for emissions of Reactive Organic Gases (ROG), Oxides of Nitrogen (NOx) and Particulate Matter, 10 microns in size (PM₁₀).

TABLE 4.3-1
Thresholds of Significance for Criteria Pollutants of Concern

Level	ROG	NOx	PM ₁₀
Level A: Indirect Source	25 lbs/day	25 lbs/day	80 lbs/day
Level B: Indirect Source	137 lbs/day	137 lbs/day	137 lbs/day
Direct Sources	25 tons/year	25 tons/year	25 tons/year

Source: 2004 Shasta County General Plan, Chapter 6.5 (Air Quality).

AMBIENT AIR QUALITY STANDARDS:

National:

The U.S. Environmental Protection Agency (USEPA), under the Clean Air Act (CAA) establishes maximum ambient concentrations for criteria air pollutants (CAP), known as the National Ambient Air Quality Standards (NAAQSs). The six CAPs are:

Ozone (O₃). Ozone is a highly reactive and unstable gas that is formed primarily from photochemical reactions between two major classes of air pollutants: reactive organic gases (ROG) and oxides of nitrogen (NO_x). ROGs are emitted from a variety of sources, including motor vehicles, chemical manufacturing facilities, refineries, factories, consumer and commercial products, and natural (biogenic) sources (mainly trees). Nitrogen dioxide emissions are primarily emitted from motor vehicles, power plants, and off-road equipment.

Nitrogen dioxide (NO₂). Nitrogen oxides (NO_x) include nitric oxide (NO), nitrogen dioxide (NO₂), and nitrous oxide (N₂O) and are formed when nitrogen (N₂) combines with oxygen (O₂). Nitrogen oxides are typically created during combustion processes and are major contributors to smog formation and acid deposition. Of the seven types of nitrogen oxide compounds, NO₂ is the most abundant in the atmosphere and is related to traffic density. Major sources: Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.

Sulfur dioxide (SO₂). Sulfur dioxide results mainly from burning high-sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO₂ oxidizes in the atmosphere, it forms sulfates (SO₄). Collectively, these pollutants are referred to as sulfur oxides (SO_x). Major sources: Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.

Carbon monoxide (CO). Carbon monoxide is produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. Because CO is emitted directly from internal combustion engines, motor vehicles operating at slow speeds are the primary source of carbon monoxide in the Northern Sacramento Valley Air Basin (NSVAB). Major sources: Motor vehicles and internal combustion engines.

Lead (Pb). Lead is a heavy metal that is highly persistent in the environment. In the past, the primary source of lead in the air was emissions from vehicles burning leaded gasoline. Currently, emissions of lead are largely limited to stationary sources such as lead smelters. Major sources: Lead smelters, battery manufacturing, recycling facilities, and combustion of leaded aviation gasoline by piston-driven aircraft.

Particulate Matter, 10 and 2.5 microns in size (PM₁₀ and PM_{2.5}). PM₁₀ is a major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols and is generated during grading and earth-disturbance activities. PM_{2.5} is formed in the atmosphere from primary gaseous emissions that include sulfates formed from SO₂ release from power plants and industrial facilities and nitrates that are formed from NO_x release from power plants, automobiles, and other types of combustion sources. Major sources: Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).

State

The California CAA establishes maximum concentrations for the six national CAPs, as well as the four additional air pollutants identified below. The four additional standards are intended to address regional air quality conditions, not project-specific emissions. These maximum concentrations are known as the California Ambient Air Quality Standards (CAAQSs). The California Air Resources Board (CARB) is part of the California EPA (CalEPA) and has jurisdiction over local air districts and has established its own standards and violation criteria for each CAP under the CAAQS.

Visibility-Reducing Particles. Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt. Major sources: Natural wildfires and biogenic emissions, dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).

Sulfates (SO₄). SO₄ is oxidized to sulfur dioxide (SO₂) during the combustion process and is then converted to sulfate compounds in the atmosphere. Major sources: Industrial processes and the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur.

Hydrogen Sulfide (H₂S). Hydrogen sulfide is a colorless gas with the odor of rotten eggs. Major sources: Decomposition of sulfur-containing organic substances. It can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation.

Vinyl Chloride (chloroethene). Vinyl chloride, a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Table 4.3-2 includes the National and State ambient air quality standards:

**TABLE 4.3-2
National and California Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standards	National Standards
Ozone (O ₃)	8 Hour	0.070 ppm (137 µg/m ³)	0.070 ppm (137 µg/m ³)
	1 Hour	0.09 ppm (180 µg/m ³)	–
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)
	1 Hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)
Nitrogen Dioxide(NO ₂)	1 Hour	0.18 ppm (339 µg/m ³)	100 ppb (188 µg/m ³)
	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	53 ppb (100 µg/m ³)
Sulfur Dioxide (SO ₂)	24 Hour	0.04 ppm (105 µg/m ³)	N/A
	3 Hour	–	N/A
	1 Hour	0.25 ppm (665 µg/m ³)	75 ppb
Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20 µg/m ³	N/A
	24 Hour	50 µg/m ³	150 µg/m ³
Particulate Matter – Fine (PM _{2.5})	Annual Arithmetic Mean	12 µg/m ³	15 µg/m ³
	24 Hour	N/A	35 µg/m ³
Sulfates	24 Hour	25 µg/m ³	N/A
Lead	Calendar Quarter	N/A	1.5 µg/m ³
	30 Day Average	1.5 µg/m ³	N/A
	Rolling 3-Month Average	–	(0.15 µg/m ³)
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	N/A
Vinyl Chloride (chloroethene)	24 Hour	0.01 ppm (26 µg/m ³)	N/A
Visibility-Reducing Particles	8 Hour (10:00 to 18:00 PST)	–	N/A

Source: CARB 2016. Notes: mg/m³=milligrams per cubic meter; ppm=parts per million; ppb=parts per billion; µg/m³=micrograms per cubic meter

NAAQS and CAAQS Attainment Designations

Shasta County has been designated a non-attainment area for State ozone standards and State PM₁₀ standards. However, the County is designated as an attainment or unclassified area for all other federal and State ambient air quality standards.

California State Implementation Plan

California's SIP is comprised of the State's overall air quality attainment plans to meet the NAAQS, as well as the individual air quality attainment plans of each Air Quality Management District (AQMD) and Air Pollution Control District (APCD). The California SIP is a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), AQMD and APCD rules, State regulations, and federal controls for each air basin and California's overall air quality. The California CAA identifies CARB as the lead agency for compiling items for incorporation into the California SIP and for submitting the items to the USEPA for approval.

California Regional Haze Plan

The United States Environmental Protection Agency (U.S. EPA) adopted the Regional Haze Rule in 1999, which lays out specific requirements to protect visibility in Class I areas, which are the largest national parks and wilderness areas across the United States. In 2009, CARB prepared the California Regional Haze Plan that sets forth the State's goals for improving visibility in Class I areas.

Toxic Air Contaminants

In addition to the California CAPs, Toxic Air Contaminants (TACs) are another group of pollutants regulated under the California CAA. TACs are less pervasive in the urban atmosphere than the CAPs, but are linked to short-term (acute) and long-term (chronic or carcinogenic) adverse human health effects. There are 244 chemicals listed by the State as TACs with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), grading (asbestos), and diesel motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death. Ambient air quality standards have not been set for TACs. Instead, these pollutants are typically regulated through a technology-based approach for reducing TACs. This approach requires facilities to install Maximum Achievable Control Technology (MACT) on emission sources.

Shasta County Air Quality Management District (SCAQMD)

The SCAQMD is designated by law to adopt and enforce regulations to achieve and maintain ambient air quality standards. The SCAQMD, along with other air districts in the Northern Sacramento Valley Air Basin (NSVAB), has committed to jointly prepare the NSVAB Air Quality Attainment Plan (AQAP) for the purpose of achieving and maintaining healthful air quality throughout the air basin. On November 1, 2016, the Shasta County AQMD Board adopted the Northern Sacramento Valley Planning Area (NSVPA) 2015 Triennial Air Quality Attainment Plan, which constitutes the region's SIP. The NSVPA 2015 AQAP includes updated control measures for the three-year period of 2016 through 2019. It is the County's goal to implement the 2015 Attainment Plan and attain the State ambient air standard for ozone at the earliest practicable date.

The SCAQMD adopts and enforces controls on stationary sources of air pollutants through its permit and inspection programs, and it regulates agricultural burning. Other responsibilities include monitoring air quality, preparing clean air plans, and responding to citizen complaints concerning air quality. All projects in Shasta County are subject to applicable SCAQMD rules and regulations in effect at the time of construction. Descriptions of specific rules applicable to future construction resulting from implementation of the proposed Project may include, but are not limited to:

- SCAQMD Rule 3-2 Specific Air Contaminants. No person shall discharge contaminants from any single source into the atmosphere in the amounts designated in the Rule.
- Cutback and emulsified asphalt application shall be conducted in accordance with SCAQMD Rule 3-15, Cutback and Emulsified Asphalt.
- SCAQMD Rule 3-16, Fugitive, Indirect, or Non-Traditional Sources, controls the emission of fugitive dust during earth-moving, construction, demolition, bulk storage, and conditions resulting in wind erosion.
- Architectural coatings and solvents shall be compliant with SCAQMD Rule 3-31, Architectural Coatings.

Methodology

Project emissions were estimated using Version 2016.3.2 of the California Emissions Estimator Model (CalEEMod). CalEEMod reports construction emissions as totals for the entire construction period, while the air quality standard is based on daily emission levels. CalEEMod provides default values when site-specific inputs are not available. For the proposed Project, site-specific inputs and assumptions include, but are not limited to, the following. Output files, including all site-specific inputs and assumptions, are provided in **Appendix A**.

- Emissions from construction are based on all construction-related activities, including but not limited to grading, use of construction equipment, material hauling, trenching, and site preparation.
- Construction would start in April 2019 and occur over a period of eight months.
- Total land disturbance would be approximately 1.2 acres. 1,750 cubic yards (CY) of dirt would be imported; 4,500 CY would be exported.
- The total area to be paved would be 0.7 acres.

DISCUSSION OF IMPACTS

Questions A and B

See discussion under Regulatory Context above and Section 4.7 (Greenhouse Gas Emissions).

As shown in **Table 4.3-1**, Shasta County has adopted air quality thresholds for determination of impact significance for projects subject to CEQA review in its Rule 2:1 New Source Review Part 300 for emissions of Reactive Organic Gases (ROG), Oxides of Nitrogen (NOx) and Particulate Matter, 10 microns in size (PM₁₀).

Construction

The proposed Project would result in the temporary generation of ROG, NOx, PM₁₀, and other regulated pollutants during construction. ROG and NOx emissions are associated with employee vehicle trips, delivery of materials, and construction equipment exhaust. PM₁₀ is generated during site preparation, excavation, road paving, and from exhaust associated with construction equipment.

To allow a direct comparison with SCAQMD's standards, emissions for each phase of construction (e.g., site preparation, excavation, construction, demolition, etc.) were averaged over the anticipated construction period for that specific phase of work. The values reflect SCAQMD rules and regulations, including implementation of Standard Mitigation Measures. In addition, the proposed Project is subject to the In-Use Off-Road Diesel Vehicle Regulation adopted by the California Air Resources Control Board (CARB). The off-road regulation:

- Imposes limits on idling
- Requires all vehicles be reported to CARB and subsequently labeled
- Restricts the adding of older vehicles into fleets starting on January 1, 2014
- Requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (VDECS) (i.e., exhaust retrofits).

Table 4.3-3 shows the highest daily levels regardless of construction phase.

TABLE 4.3-3
Projected Construction Emissions

Pollutants of Concern						
	ROG	NO _x	PM ₁₀	PM _{2.5}	CO	SO ₂
	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
2019	1.17	9.36	0.77	0.54	7.08	0.01
Level A Threshold	25	25	80	-	-	-
Level B Threshold	137	137	137	-	-	-

As shown in **Table 4.3-3**, construction of the proposed Project would not exceed the County's Level A or Level B thresholds. Therefore, impacts during construction would be less than significant.

Operational

The proposed Project is needed because the existing bridge is structurally deficient and does not meet current federal or local design standards. The improvements are not growth-related. Therefore, the proposed Project would not directly or indirectly increase the population or vehicle miles traveled that could result in a permanent increase in ROG, NO_x, or PM₁₀ emissions and does not include any other components that would increase long-term operational emissions. Therefore, operational emissions would be less than significant.

For both construction and operational emissions, the proposed Project would not result in significant impacts associated with ozone (O₃), hydrogen sulfide (H₂S), vinyl chloride or visibility reducing particles as discussed below.

Ozone. CalEEMod does not directly calculate ozone emissions. Instead, the emissions associated with ozone precursors (ROG and NO_x) are calculated. Because project construction would generate relatively low amounts of both ROG and NO_x, the potential for ozone production/emissions is less than significant.

Lead. Elevated levels of airborne lead at the local level are usually found near industrial operations that process materials containing lead, such as smelters and battery manufacturing/recycling facilities. As these conditions are not applicable to the proposed Project, the potential for lead emissions is less than significant.

Hydrogen Sulfide. Hydrogen sulfide is formed during the decomposition of organic material in anaerobic environments, including sewage treatment processes. However, the proposed Project would not result in an increase in the amount of wastewater treated at the WWTP or a change in the treatment process; therefore, the potential for an increase in hydrogen sulfide emissions is less than significant.

Vinyl Chloride. Vinyl chloride is used to manufacture polyvinyl chloride (PVC) plastic and other vinyl products. Approximately 98 percent of vinyl chloride produced in the United States is used during the manufacture of PVC. Additionally, vinyl chloride is produced during the microbial breakdown of chlorinated solvents (e.g., engine cleaner, degreasing agent, adhesive solvents, paint removers, etc.). The potential for vinyl chloride exposure is primarily limited to areas in close proximity to PVC production facilities. Because PVC manufacturing facilities are absent from the Project area, and project implementation would not result in an increase of chlorinated solvents, potential vinyl chloride emissions associated with the proposed Project would be less than significant.

Visibility-Reducing Pollutants. Visibility-reducing pollutants generally consist of sulfates, nitrates, organics, soot, fine soil dust, and coarse particulates. These pollutants contribute to the regional haze that impairs visibility, in addition to affecting public health. According to the California Regional Haze Management Plan, natural wildfires and biogenic emissions are the primary contributors to visibility-reducing pollutants. For the proposed Project, visibility-reducing pollutants (e.g., PM_{2.5} and PM₁₀), would be generated only during construction activities. Because only relatively low amounts of particulates would be generated, potential impacts with respect to visibility-reducing pollutants are less than significant.

Because the proposed Project would not exceed the County's Level A or Level B thresholds during construction, does not have any components that would increase long-term operational emissions, and would not result in significant impacts associated with O₃, Pb, H₂S, vinyl chloride, or visibility reducing particles, impacts would be less than significant, and the proposed Project would be in conformance with the applicable SIP.

Question C

See discussion under Questions A and B above and *Cumulative Impacts* below. Shasta County has been designated a non-attainment area for State ozone standards and State PM₁₀ standards. The proposed Project would result in the temporary generation of ROG, NO_x, and PM₁₀ during construction. Combined with future development within the Project area, the proposed Project would have a cumulative impact on criteria pollutants for which the County is designated non-attainment. However, pursuant to the Air Quality Element of the County's General Plan, Standard Mitigation Measures (SMMs) apply to all discretionary projects in order to reduce cumulative impacts. Implementation of **Mitigation Measure MM 4.3.1** would reduce cumulative impacts to a less than significant level.

Question D

See discussion under Questions A and B above. Land uses considered sensitive receptors typically include residences, schools, playgrounds, childcare centers, hospitals, convalescent homes and retirement homes. The proposed Project includes construction activities adjacent to single-family residences to the northwest and east of the Bridge Site.

As discussed above, the proposed Project may generate PM₁₀ and other pollutants during construction activities. Although these emissions would cease with completion of construction work, sensitive uses adjacent to the construction area could be exposed to elevated dust levels and other pollutants.

In addition, a Hazardous Materials Analysis-Initial Site Assessment (ISA) was completed by ENPLAN in January 2012; a subsequent ISA was completed by ENPLAN in January 2018. The 2018 ISA states that due to the age of the bridge, asbestos-containing materials and/or lead-based paint may be on the bridge, or within structural members of the bridge. Asbestos-containing materials, such as bolt thread compound, mastic, and sheet packing, are often present on bridges of this age. Further, lead-based paint is also frequently present in line markings on roadways.

Demolition of the bridge and other work in the roadway could release airborne lead and asbestos particles, which may affect construction workers, visitors to the site, and persons occupying areas adjacent to the site. Pursuant to the U.S. EPA's National Emissions Standards for Hazardous Air Pollutants (NESHAP) and CARB rules, asbestos and lead testing is required prior to demolition of the bridge. In addition, materials containing asbestos and/or lead must be disposed of at a facility that is specifically licensed to accept asbestos and/or lead. The work must be completed by a contractor qualified to complete sampling, handling, and disposal.

Compliance with federal, state, and local regulations, and implementation of **Mitigation Measures MM 4.3.2 through MM 4.3.4** ensures that construction workers and those in the Project area are not adversely affected; therefore, impacts would be less than significant.

Question E

During construction, odors from diesel equipment, paints, solvents, fugitive dust, asphalt, and adhesives would be emitted. Odors from construction would be intermittent and temporary, and generally would not extend beyond the construction area. Due to the temporary and intermittent nature of construction odors, impacts would be less than significant.

CUMULATIVE IMPACTS

Past, present, and future development projects contribute to a region's air quality conditions on a cumulative basis; therefore, by its very nature, air pollution is largely a cumulative impact. If a project's individual emissions contribute toward exceedance of the NAAQS or the CAAQS, then the project's cumulative impact on air quality would be considered significant.

In developing attainment designations for criteria pollutants, the USEPA considers the region's past, present, and future emission levels. In addition, AQMDs determine suitable significance thresholds based on an area's designated nonattainment status, which also considers the region's past, present, and future emissions levels.

Implementation of the proposed Project combined with future development within the Project area could lead to cumulative impacts to air quality. However, pursuant to the Air Quality Element of the County's General Plan, SMMs (refer to **Mitigation Measure MM 4.3.1**) apply to all discretionary projects in order to reduce cumulative impacts. In addition, as discussed in detail above, emissions resulting from the proposed Project would not exceed the SCAQMD's thresholds, and construction would be in conformance with CARB and SCAQMD rules and regulations, and the applicable SIP developed to address cumulative emissions of criteria air pollutants in the NSVAB. In addition, **Mitigation Measures MM 4.3.2, MM 4.3.3, and MM 4.3.4** are included to require appropriate sampling, handling, and disposal of asbestos and lead-based paint. Therefore, the proposed Project would have a less-than-significant cumulative impact on local and regional air quality with implementation of **Mitigation Measures MM 4.3.1 through MM 4.3.4**.

MITIGATION

MM 4.3.1 The County shall ensure through contractual obligations that the following measures are implemented throughout construction:

- a. All material excavated, stockpiled, or graded shall be sufficiently watered to prevent fugitive dust from leaving property boundaries and causing a public nuisance or a violation of ambient air quality standards.
- b. Unpaved areas with vehicle traffic shall be watered periodically or have dust palliatives applied for stabilization of dust emissions.
- c. All on-site vehicles shall be limited to a speed of 15 miles per hour on unpaved roads.

- d. All land clearing, grading, earth moving, and excavation activities on the project site shall be suspended if/when Shasta County's resident engineer determines that winds are causing excessive dust generation.
- a. The contractor shall be responsible for applying non-toxic stabilizers (according to manufacturer's specifications) to all inactive construction areas (previously graded areas which remain inactive for 96 hours), in accordance with the Shasta County Grading Ordinance.
- b. All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least two feet of free board in accordance with the requirements of CVC §23114. This provision is enforced by local law enforcement agencies.
- c. During grading and earth disturbance in undeveloped areas, the contractor shall provide a paved (or dust palliative treated) apron, at least 100 feet in length, onto the project site from the adjacent paved road(s).
- d. Paved streets adjacent to construction areas shall be swept or washed at the end of the day to remove excessive accumulations of silt and/or mud which may have accumulated as a result of activities on the development site.

MM 4.3.2 Prior to demolition of the existing bridge, a comprehensive asbestos survey of all suspect materials shall be completed. Sampling shall be conducted by a California Division of Occupational Safety and Health (DOSH)-certified Asbestos Consultant (CAC) or a Site Surveillance Technician (SST). Asbestos-containing material shall be removed by a DOSH-registered licensed asbestos abatement contractor and disposed of at a landfill approved to receive asbestos-containing waste material.

MM 4.3.3 Prior to demolition of the existing bridge, or disturbance of traffic striping and pavement, a comprehensive survey shall be completed in locations where lead-based paint is suspected. If lead-based paint is identified, lead abatement shall be conducted by a qualified lead abatement contractor as defined by Title 17 CCR, Articles 5 and 7.

MM 4.3.4 In the event previously undetected asbestos or lead-containing materials are discovered during construction or demolition, activities that may affect the materials shall cease until results of additional surveys are reviewed. Alternatively, the County can assume that the materials are hazardous. Any identified hazardous materials shall be disposed of in accordance with applicable hazardous waste regulations.

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4.4 BIOLOGICAL RESOURCES

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife 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, including oak woodland, identified 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"/>
c. Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.), through direct removal, filling, hydrological interruption or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

REGULATORY CONTEXT

Shasta County General Plan: Chapter 6.7 (Fish and Wildlife).

Objective FW-1 Protection of significant fish, wildlife and vegetation resources.

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

Wetlands and Waters

The U.S. Army Corps of Engineers (USACE) has primary federal responsibility for administering regulations that concern waters of the U.S. (including wetlands). Section 404 of the Clean Water Act (CWA), regulates the discharge of dredged or fill material into waters of the U.S. The USACE requires that a permit be obtained if a project proposes the placement of structures within, over, or under navigable waters and/or discharges dredged or fill material into waters below the ordinary high water mark (OHWM). The USACE has established a series of nationwide permits (NWP) that authorize certain activities in waters of the U.S.

Under CWA Section 401, an activity requiring a USACE Section 404 permit must obtain a State Water Quality Certification (or waiver) to ensure that the activity will not violate established State water quality standards. The Regional Water Quality Control Board (RWQCB) regulates waters of the State and has a policy of no-net-loss of wetlands. The RWQCB typically requires mitigation for all impacts to wetlands before it will issue a water quality certification.

Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) implement the federal Endangered Species Act (FESA) of 1973. Under FESA, threatened and endangered species on the federal list and their habitats are protected from “take” unless a Section 10 Permit is granted to an individual or a Section 7 consultation and a Biological Opinion with incidental take provisions are rendered from the lead federal agency. Under FESA, habitat loss is considered to be an impact to the species. Under Section 7 of the FESA, all federal agencies (including the USFWS and NMFS) are required to ensure that any action they authorize, fund, or carry out will not likely jeopardize the continued existence of a federally listed species or modify their critical habitat.

Federal Migratory Bird Treaty Act

Most bird species, (especially those that are breeding, migrating, or of limited distribution) are protected under federal and/or State regulations. Under the Migratory Bird Treaty Act (MBTA) of 1918, migratory bird species, their nests, and their eggs are protected from injury or death, and any project-related disturbances during the nesting period.

Federal Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act, also known as the Sustainable Fisheries Act (Public Law 104-297), requires that all federal agencies consult with NMFS on projects authorized, funded, or undertaken by that agency that may adversely affect Essential Fish Habitat of commercially managed marine and anadromous fish species.

Federal Bald and Golden Eagle Protection Act

This Act provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession, and commerce of such birds and their occupied and unoccupied nests.

California Fish and Game Code §1600-1616 (Streambed Alteration)

California Fish and Game Code §1600-1616 regulate impacts to State waters and stream and lake beds. §1602 requires notification before beginning any activity that may obstruct or divert the natural flow of a perennial, intermittent, or ephemeral river, stream, or lake; change or use any material from the bed, channel, or bank of a river, stream, or lake; or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. The Applicant and the CDFW must enter into an agreement prior to an action which will result in such an impact.

California Fish and Game Code §3503 and 3503.5 (Nesting Bird Protections)

These sections of the Code provide regulatory protection to resident and migratory birds and all birds of prey within the State and make it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the Code.

California Endangered Species Act

The California Endangered Species Act (CESA) prohibits the take of State-listed threatened and endangered species. Under CESA, state agencies are required to consult with the CDFW when preparing CEQA documents. The CDFW can authorize take if an incidental take permit is issued by the Secretary of the Interior in compliance with the FESA, or if the director of the CDFW issues a permit under §2080 in those cases where it is demonstrated that the impacts are minimized and mitigated.

California Native Plant Protection Act (NPPA)

The NPPA (California Fish and Game Code §1900 – 1913) includes measures to preserve, protect, and enhance rare and endangered native plants. The list of native plants afforded protection pursuant to the Native Plant Protection Act includes those listed as rare and endangered under the CESA. The NPPA states that no person will take, possess, sell, or import into the state, any rare or endangered native plant, except in compliance with provisions of the act.

Oak Woodlands Conservation Act

The State of California provides for oak protection through SB 1334, the Oak Woodlands Conservation Act (Act), last amended in 2005. The Act applies only when the lead agency is a county and the project is located in an unincorporated county area. The Act requires the county to determine whether the project may result in a conversion of oak woodlands that will have a significant effect on the environment and to implement one or more of the following oak woodland mitigation measures if necessary: 1) consider conservation easements as a vehicle for conservation; 2) enforce mitigation planting; 3) make an in-lieu contribution to the Oak Woodlands Conservation Fund. The Act also authorizes a county to impose mitigation measures other than those prescribed above, as long as substantial evidence supports the conclusion that the county's measures are equivalent or better.

The Act defines “oak woodlands” as “an oak stand with a greater than 10 percent canopy cover or that may have historically supported greater than 10 percent canopy cover.” Public Resources Code §21083.4 defines “oak” as “a native tree species in the genus *Quercus*, not designated as Group A or Group B commercial species pursuant to regulations adopted by the State Board of Forestry and Fire Protection pursuant to §4526, and that is 5 inches or more in diameter at breast height.”

DISCUSSION OF IMPACTS

Question A

The following evaluation of potential impacts on special-status species is based on records searches and field studies conducted by ENPLAN and Wildlife Research Associates biologists and detailed in the *Natural Environment Study (Minimal Impacts): Cassel-Fall River Road Bridge Replacement at Pit River* (ENPLAN 2018) and summarized below.

The records searches included review of California Natural Diversity Data Base (CNDDB) and USFWS records, critical habitat data presented in the USFWS species lists, and essential fish habitat (EFH) data maintained by NMFS. NMFS does not maintain a species list for the project quadrangle because construction of Shasta Dam and Keswick Dam prevented anadromous salmonids in the Sacramento River from accessing spawning/rearing habitat in the Pit River. In addition, botanical and wildlife surveys were completed by ENPLAN on multiple occasions between 2010 and 2016.

The project footprint, including disturbance areas, staging areas, and the Borrow Site, encompasses approximately 6.5 acres (total ground disturbance area is approximately 1.2 acres). The biological study area generally extended 100 feet beyond the project footprint and was inspected where accessible to evaluate potential indirect impacts to special-status species and/or their habitats.

Appendix B provides key biological data developed for the project, including the records search results, lists of plant and wildlife species observed during the field studies, and an evaluation of the potential for special-status plant and wildlife species to be affected by project implementation.

Special Status Plant Species

Review of the USFWS species lists for the Project area identified one federally listed plant species, slender Orcutt grass, as potentially being affected by the proposed Project at both the Bridge Site and Borrow Site. The Project area does not contain designated critical habitat for federally listed plant species. Review of CNDDB records found that three special-status plant species have been reported in the vicinity of the Bridge Site on one occasion each: watershield, tufted loosestrife, and water star-grass (in 1863, 1949, and 1955, respectively), but the location information is vague. No special-status plant species have been reported at the Borrow Site. Three other special-status plant species have been reported within a five-mile radius of the Project area: Boggs Lake hedge-hyssop, marsh skullcap, and Tracy's eriastrium. One non-status plant species, profuse-flowered pogogyne, also has been reported within the search radius.

To determine the presence/absence of special-status plant species, ENPLAN conducted initial field surveys of the Project area on the following dates in 2010: June 9, July 10, August 10, and August 27. A supplemental botanical field survey was conducted on May 19, 2016. A list of plant species observed during the field reviews is included in Appendix B. Also included in Appendix B is a summary report indicating the potential for state and federal special-status plant species to occur in the Project area. As indicated, no special-status plant species were observed or are expected to occur. Therefore, the proposed Project would have no impact on special-status plant species.

Special-Status Wildlife Species

Review of the USFWS species lists for the Project area identified three federally listed species (northern spotted owl, Shasta crayfish, and delta smelt) as potentially being affected by

construction activities at the Bridge Site; and one federally listed species (Shasta crayfish) at the Borrow Site. The Project area does not contain designated critical habitat for federally listed wildlife species. Review of CNDDDB records found that two special-status animal species, American badger and western pond turtle, have been reported at the Bridge Site; however, the location of the badger sighting is vague ("Fort Crook") and dates back to at least 1869, when the Fort closed. No special-status animal species have been reported at the Borrow Site. The following special-status animal species have been reported within a five-mile radius of the Project area: American badger, bald eagle, bank swallow, bigeye marbled sculpin, California wolverine, greater sandhill crane, hardhead, Oregon snowshoe hare, rough sculpin, Shasta crayfish, Townsend's big-eared bat, tricolored blackbird, and western pond turtle.

CNDDDB records show that the following non-status animal species also have been reported within five miles of the Project area: kneecap lanx, montane peaclam, nugget pebblesnail, osprey, scalloped juga, Sucker Springs pyrg, western pearlshell, and western ridged mussel.

To determine the presence/absence of special-status animal species, ENPLAN conducted focused wildlife surveys of the Project area on May 5, 2010, and May 17, 2016; wildlife observations made during other field visits to the site were also recorded. Some of the special-status animal species potentially occurring in the Project area would not have been evident at the time the fieldwork was conducted. However, determination of their potential presence could readily be made based on observed habitat characteristics.

In addition, a bat survey that consisted of a daytime habitat assessment and night emergence survey was completed by a qualified bat biologist in September 2016 to determine the presence of roosting bats on the bridge. The daytime habitat assessment consisted of a visual inspection of the bridge. Inaccessible portions of the bridge were viewed with binoculars; flashlights were used to inspect crevices atop bent caps. The night emergence survey was conducted using passive and active bioacoustic detectors to capture and record bat calls. Night-vision binoculars and an infrared-sensitive camera were used to record bat activity beneath the bridge.

The bat survey identified the bridge, several large trees adjacent to the bridge, and abandoned cliff swallow nests on the bridge as providing potential day and/or night roosting habitat. The nighttime emergence survey revealed no evidence that bats are using the bridge for day roosting.

The bat survey confirmed the presence of Townsend's big-eared bats, a special-status species, and five non-status bats: Yuma myotis, little brown bat, small-footed bat, big brown bat, and Mexican free-tailed bat. The non-status bats were observed using the bridge for night roosting. One Townsend's bat was observed during the nighttime emergence survey; it is possible that Townsend's bats use the bridge for night roosting.

As documented in Appendix B, in addition to Townsend's big-eared bats, two other special-status animal species were observed at the Bridge Site during the field surveys: greater sandhill crane and western pond turtle. Further information regarding these species is provided below. No other special-status animal species are expected to be present at the Bridge Site. No special-status animal species were observed or are expected to be present at the Borrow Site.

Townsend's Big-Eared Bat

Townsend's big-eared bat, a state Species of Special Concern, occurs in a variety of habitats from sea level to upper montane coniferous forest, and may be found in any season. Townsend's big-eared bat is nocturnal, and is most abundant in mesic habitats. Townsend's big-eared bat roosts in caves, buildings, mines, tunnels, or other cave-like man-made structures. Townsend's big-eared bats occasionally roost on bridges. This bat is especially sensitive to disturbance of roosting sites, and a single disturbance event may result in abandonment of the roost site. Mating occurs from November through February, and offspring are born in May and June. Young bats generally are capable of flight around three weeks after birth.

The bat survey revealed that gaps are present between bridge slabs where they abut on top of the piers. These gaps currently contain packing material that prevents bat access. However, it is possible that the expansion joint packing could decay prior to bridge demolition, allowing non-status bats to utilize the bridge for day roosting. To avoid direct impacts to bridge-roosting bats, **Mitigation Measure 4.4.1** requires inspection of the expansion joints prior to demolition. If the inspection reveals that bats are using the bridge for day roosting, humane bat eviction/exclusion should only be conducted during seasonal periods of bat activity, which in this region, are between March 1 (or after evening temperatures rise above 45°F and/or no more than 1/2" of rainfall within 24 hours occurs), and April 15, or between September 1 and October 15 (or before evening temperatures fall below 45°F and/or more than 1/2" of rainfall within 24 hours occurs).

Indirect effects could occur if the new bridge does not provide adequate bat roosting habitat. **Mitigation Measure MM 4.4.2** requires that loss of roosting habitat shall be offset by designing the new bridge to include an equal or greater amount of roosting habitat than is present on the existing bridge.

Several of the bat species observed in the study area may roost in large trees adjacent to the bridge, and the CDFW has recently been requiring bat surveys prior to removal of trees. **Mitigation Measure MM 4.4.3** ensures that potential effects on tree-roosting bats are avoided/minimized by implementation of a two-step process to permit bats the opportunity to abandon the roost prior to tree removal.

In addition, a number of cliff swallow nests are attached to the bridge, and the abandoned mud nests could be used by individual bats for day roosting outside the bird nesting season. Such nests are used primarily by bats dispersing from natal roosts, and in some cases, returning to natal roosts in the spring. Given the cold temperatures in Fall River Mills, it is unlikely that bats use the swallow nests as overwintering roosts. No direct impacts to bats using old swallow nests as roosting habitat are expected as long as the swallow nests are removed by hand (not using high-pressure air or water) during winter months and demolition occurs during daylight hours.

Implementation of **Mitigation Measure MM 4.4.4** ensures that bats using swallow nests are not adversely affected by project implementation.

Greater Sandhill Crane

Greater sandhill cranes were observed flying over the Project area; however, CNDDB records show that the closest reported greater sandhill crane nesting area is approximately 0.75 miles northeast of the Bridge Site. In addition, no suitable nesting habitat for the greater sandhill crane is present in or near the Project area. Due to frequent human activity in the area, the greater sandhill crane is not expected to nest in or near the Project sites.

Western Pond Turtle

Western pond turtles are found in a variety of habitats (e.g. ponds, reservoirs, streams, rivers, ditches, sloughs). The turtles prefer ponds or slow-flowing streams with deep pools. Western pond turtle can be found in relatively shallow waters (i.e., six inches) when migrating up and down drainages, but generally desire water deep enough so they can escape predators. Such habitats often have muddy bottoms. The presence of suitable basking sites is also an important habitat component for western pond turtles. Basking sites may include partially submerged logs, rocks, mats of floating vegetation, or open mud banks. Courtship and mating occur primarily in late April or early May. Most egg-laying occurs in May and June, although some females may deposit a second clutch of eggs later in summer. Nests are usually in open grassy areas with a southern exposure. Nests are usually located along

stream or pond margins, but may be over 100 meters (328 feet) from water on hillsides. Western pond turtles may also overwinter in upland habitats.

Western pond turtles were observed in the Project area on several occasions over the course of the biological studies. They were generally observed basking on partially submerged logs in the Pit River. Uplands in the project area could also potentially be occupied by western pond turtles at certain times of year.

Work in and adjacent to the Pit River has the potential to directly or indirectly affect the western pond turtle. Pond turtles are very wary and seek refuge in the water at any sign of threat. Therefore, it is unlikely that pond turtles would be adversely affected by installation of falsework, piles, gravel work pads or other in-water elements. However, there is a slight possibility that dewatering enclosures could trap turtles, leading to their death if they are not removed prior to construction within the enclosure. **Mitigation Measures MM 4.4.5** calls for a qualified biologist to inspect any dewatering enclosures for the presence of turtles during initial dewatering of each enclosure; any turtles present would be relocated outside the immediate work area.

Western pond turtles could attempt to nest in upland work areas in late spring or early summer. As called for in **Mitigation Measures MM 4.4.6**, construction personnel will receive training from a qualified biologist on identification of western pond turtles and procedures to be implemented if they are encountered in the construction area, and a biologist will be available to relocate any turtles that may be observed in or near the construction area.

Potential indirect effects on western pond turtles could occur if sediment-laden water or other contaminants enter the Pit River or downstream waters. However, implementation of Best Management Practices for spill prevention and erosion control (as required in the State Water Resources Control Board's Construction General Permit) will ensure that the potential for indirect impacts on pond turtles is negligible.

Question B

The principal terrestrial natural communities in the Project area include oak woodland along the west bank of the Pit River and annual grassland east of the Pit River. The western bank of the Pit River supports an Oregon oak woodland with an understory composed primarily of western choke-cherry, poison oak, and Sierra coffeeberry. A small amount of woody vegetation occurs east of the river and is represented by scattered individuals or clumps of California rose, Oregon ash, and willows. The willows are located immediately downslope of the leaking diversion pipe along the bridge approach fill. Typical herbaceous species at the Bridge Site include downy brome, Kentucky blue grass, cultivated timothy, yellow star-thistle, common yarrow, and California poppy. Because the river bank is very steep on the western side (roughly 2:1 slope) and has been cleared on the eastern side, there is no developed riparian community in the study area; however, scattered individuals of woody riparian species are present. The Borrow Site occurs in a disturbed juniper woodland. In addition to western juniper, common species at the Borrow Site include buckbrush, white-stemmed rabbitbrush, medusahead, downy brome, and Kentucky blue grass.

The USFWS does not identify any critical habitats within the Project area. The CNDDDB maps two sensitive natural communities within a five-mile radius of the Project area. One of these communities, *Pit River Drainage Rough Sculpin/Shasta Crayfish Spring Stream*, is mapped in the Fall River adjacent to the study site. The other, *Lower Pit River/Canyon River (Hardhead/Tule Perch River)*, is mapped approximately 2.5 air miles southwest of the Bridge Site. Based on the biological field studies, sensitive habitats at the Bridge Site were found to include the Pit River, wetlands, and oak woodlands, as described below. No aquatic habitats or other sensitive communities were observed at the Borrow Site. The following discussion describes the two sensitive natural communities mapped within five miles of the study area and evaluates potential effects on these communities. The Pit River and Oregon oak woodland are also described and potential effects of project implementation on these communities are evaluated, including potential indirect effects resulting from the possible

introduction of introduced species to natural communities in the project area. Wetland resources are discussed under Question C.

Pit River Drainage Rough Sculpin/Shasta Crayfish Spring Stream

Rough sculpins are restricted to the Hat Creek and Fall River drainages, as well as the Pit River upstream of Burney. Rough sculpins are generally found in large spring-fed streams where water is cool, deep, rapidly flowing, and clear. This sculpin is often found in areas with gravel or sand bottoms, and beds of aquatic vegetation. Nests are constructed in a variety of habitats, including riffles and pools in the vicinity of springs. Shasta crayfish are found in cool, clear, spring-fed lakes, rivers, and streams, usually at or near a spring inflow source, where waters show little annual fluctuation in temperature and remain cool during the summer. Most are found in still and slow to moderate flowing waters. They are found, almost without exception, under lava boulders or lava cobbles on either clean or sandy lava gravel.

The Pit River in the Project area, shown in **Photo 4.4-1**, does not provide potentially suitable habitat for the rough sculpin or Shasta crayfish. It has moderate flow velocities during winter and spring, but has much lower velocities during summer and fall. Water temperatures exhibit substantial seasonal fluctuation and often exceed 70°F during the summer months. The river banks are muddy, and the water is very turbid during summer and fall. Therefore, because suitable habitat for rough sculpin and Shasta crayfish does not exist in the Project area, there would be no impact.

Lower Pit River/Canyon River (Hardhead/Tule Perch River)

The Pit River is mapped by CNDDB as a Hardhead/Tule Perch River from the Pit River Falls (about five river miles downstream of the bridge site) to the headwaters of Shasta Lake. The proposed Project would have no impact on the *Lower Pit River/Canyon River (Hardhead/Tule Perch River)* natural community because Best Management Practices for erosion control and spill prevention will be implemented during project construction, and no long-term changes in water quality would occur as a result of the project.



Photo 4.4-1: *Northeast of the Bridge, looking southwest (May 17, 2016)*

Pit River

The Pit River historically supported a diverse fish fauna, which included anadromous salmonids and a variety of resident fish. Construction of Shasta Dam and Keswick Dam prevented anadromous salmonids in the Sacramento River from accessing spawning/rearing habitat in the Pit River. According to the Upper Pit River Watershed Assessment completed by VESTRA in 2004, resident fish native to the Pit River include Pit-Klamath brook lamprey, rainbow trout, Pit River tui chub, speckled dace, Sacramento sucker, Pit sculpin, Pit roach, bigeye marbled sculpin, hardhead, rough sculpin, tule perch, and Sacramento pikeminnow. Numerous non-native fish have been introduced into the Pit River and include golden shiner, carp, black bullhead, brown bullhead, channel catfish, brown trout, brook trout, mosquitofish, bluegill, Sacramento perch, green sunfish, spotted bass, largemouth bass, and smallmouth bass. The river reach in the

Project area supports various fish, turtles, and waterfowl, and may provide suitable foraging/dispersal habitat for frogs, toads, and garter snakes.

Adverse effects on this aquatic community could potentially occur if sediments or other pollutants enter the river and degrade habitat in the study area and/or downstream. However, as stated above, the County is required to implement BMPs to control erosion and sedimentation and prevent damage to streams, watercourses and aquatic habitats. BMPs may include, but are not limited to, limiting construction to the dry season; use of straw wattles, silt fences, and/or gravel berms to prevent sediment from discharging to the creek; and revegetating temporarily disturbed sites upon completion of construction.

As discussed with CDFW staff (A. McKannay, pers. comm.), adverse effects to the Pit River community and its aquatic resources can be minimized by limiting in-water work to the period from April 15 to January 31. This in-water work period is reflected in **Mitigation Measure MM 4.4.7**; however, it is recognized that permit conditions established by the USACE and/or the RWQCB could further limit the in-water work period. In addition, as discussed in Section 4.9 under Questions A and F, in accordance with Section 401 Water Quality Certification requirements of the RWQCB, water quality monitoring must be conducted when performing any in-water work, when Project activities result in any materials reaching surface waters, or when any activities result in the creation of a visible plume in surface waters.

Therefore, temporary impacts to aquatic habitats during construction would be less than significant because BMPs for erosion and sediment control would be implemented, in-water work would be limited in accordance with regulatory agency requirements, and water quality monitoring would be conducted when performing any in-water work. No permanent adverse impacts on the community are anticipated; the project would reduce the number of bridge piers from five to two, which would be a beneficial effect, and would have no effect on water quality following completion of construction.

Oak Woodlands

An Oregon oak woodland is located along the west bank of the Pit River, south of the bridge. The oak woodland occurs on a steep slope strewn with large boulders. The canopy is dense and is comprised primarily of Oregon oak. The understory includes poison oak, California rose, western chokecherry, and Sierra coffeeberry. Oak woodlands are considered sensitive habitats due to the diversity of plants and animals they may support.

Based on the site survey and engineering drawings, approximately 0.1 acre of oak woodland is within the new bridge footprint, including cut and fill slopes. This permanent impact area includes eight oak trees larger than 12 inches in diameter at breast height (DBH). In addition, earthwork in the vicinity of the oak trees has the potential for indirect impacts to trees. Tree removal would result in the loss of shaded riverine aquatic habitat, potential nesting habitat for migratory birds, potential roosting habitat for bats, and potential shelter and foraging habitat for various animals such as squirrels, skunks, raccoons, snakes, and lizards.

The effects of bridge replacement on the oak woodland have been evaluated in accordance with the *Oak Woodland Impact Decision Matrix*, which was prepared by the University of California Integrated Hardwood Range Management Program (IHRMP).

The first step is determining whether the ecological functions of the oak woodland are relatively "intact," "moderately degraded," or "severely degraded" and then determining whether the proposed Project would result in a low, moderate or high impact as described below.

Intact Site. An intact site is currently in a "wild" state being managed for grazing, open space, recreation, etc., where all of the ecological functions are still being provided; roads and buildings are rare on the site; trees (dead and alive) dominate the landscape, the site is capable of natural regeneration of oaks and other plant species; the site allows for movement

of wildlife; and the existing development is localized and limited to a small number of residences with service buildings or barns.

Moderately Degraded Site. A moderately degraded site has been altered from a “wild” condition, but is currently in a state where oak trees are present; natural regeneration is capable of occurring; limited ecological services are still being provided and the site still provides for utilization by wildlife; road and stream crossings are present, but limited or clustered; and developed areas are centralized and concentrated over a small percentage of the site.

Highly Degraded Site. A highly degraded site has been dramatically altered and is currently in a condition that has no trees, or very few remain; it is being managed in such a way that the natural regeneration is not possible or practical; the soil is compacted or contaminated; it has been used for residential, commercial, or industrial purposes; roads and stream crossings are commonplace; and fencing and other obstructions limit wildlife access and movement.

The criteria for determining the significance of impacts are as follows:

Low Impact. A low level of impact on a small site would result from removal of less than ten trees. On a larger site, a low impact would result in no change to the stand structure and immeasurable impacts on canopy cover.

Moderate Impact. A moderate level of impact on a small site would consist of both tree and non-tree components of an oak woodland being removed or altered, with removal of trees resulting in more edge impacts. On a landscape scale, moderate impacts would consist of creation of less than one kilometer (0.62 miles) of edge habitat or complete loss of less than three acres of woodland.

High Impact. A high level of impact on a small project site would result from the removal of a majority of existing trees or, on a larger site, from fragmentation of habitat within a larger continuous patch of woodland. High impacts could include a net loss of oak woodland acreage on the order of ¼ acre to 3 acres or more.

The oak woodland that would be affected by the proposed Project is considered “moderately degraded” because it has been fragmented by construction of the Cassel-Fall River Road and bridge, and the narrow woodland corridor has been bordered by developed uses for well over a century. In addition, previous clearing in this area has been completed for utility lines and adjacent uses. These activities have reduced the complexity of the understory, reduced natural regeneration of oaks, increased habitat fragmentation, and/or reduced species diversity; however, the site retains significant ecological functions.

The impact level is considered low due to the few number of oaks to be removed, the small disturbance footprint, and the limited amount of new edge effects. Therefore, according to the *Oak Woodland Impact Decision Matrix*, the effects of the proposed project on oak woodland are less than significant. In terms of potential indirect impacts, implementation of **Mitigation Measures MM 4.4.8** would protect oak trees during construction and ensure that indirect impacts are less than significant.

Potential Impacts from Invasive Weeds

The introduction and spread of noxious weeds during construction activities has the potential to adversely affect critical habitat and natural communities. Each noxious weed identified by the California Department of Agriculture receives a rating which reflects the importance of the pest, the likelihood that eradication or control efforts would be successful and the present distribution of the pest within the state. Below is a description of ratings categories that apply to the project area:

Category A. A pest of known economic or environmental detriment that is either not known to be established in California or is present in a limited distribution that allows for the possibility of eradication or successful containment. A-rated pests are prohibited from entering the state because they have been determined to be detrimental to agriculture.

Category B. A pest of known economic or environmental detriment and, if present in California, it is of limited distribution. B-rated pests are eligible to enter the state if the receiving county has agreed to accept them.

Category C. A pest of known economic or environmental detriment and, if present in California, it is usually widespread. C-rated organisms are eligible to enter the state as long as the commodities with which they are associated conform to pest cleanliness standards when found in nursery stock shipments.

Shasta County Department of Agriculture records show one A-rated noxious weed, squarrose knapweed, occurring near the Project area. Eight additional noxious weed species were observed in the Project area during the botanical field surveys:

B-Rated Weeds: Lens-podded hoary cress and jointed goatgrass

C-Rated Weeds: Yellow star-thistle, bull thistle, bindweed, Eurasian water milfoil, medusa head, and puncturevine

Noxious weeds observed in the Project area are of widespread distribution in the County, and further spread of these weeds is not anticipated. However, other noxious weeds could be introduced into the Project area if unwashed construction vehicles are used from outside of the County. With implementation of **Mitigation Measure MM 4.4.9**, impacts to oak woodlands and other sensitive natural communities as a result of the introduction and spread of noxious weeds would be less than significant.

Potential Impacts from Invasive Freshwater Mollusks

Quagga and zebra mussels are highly invasive freshwater mussels native to Asia. Quagga mussels were reported at Lake Mead in Nevada in 2007, and have since been reported at numerous locations in southern California. Zebra mussels were reported at San Justo Lake in San Benito County in 2008; they have not been reported at any other locations in California. Once established, these mussels can clog water intake and delivery pipes; foul dam intake gates and pipes; adhere to boats, pilings, and most substrates; displace native species; and alter plankton communities. Further, these mussels could impact public water delivery systems, and irrigation systems, and could require costly removal maintenance.

Although quagga and zebra mussels are not known to occur within the Project area, the use of vessels previously exposed to waters infested by these mussels could facilitate the spread of these species into the Pit River. California Fish and Game Code §2301 prohibits the transport of quagga and zebra mussels. The Project will comply with California Fish and Game Code §2301 by implementing measures recommended by the CDFW to avoid the spread of quagga and zebra mussels. As called for in **Mitigation Measure MM 4.4.10**, this includes utilizing only vessels that have been cleaned, drained of all standing water, dried thoroughly, and determined not to harbor mussels prior to placement into the Pit River. Vessels that harbor mussels must undergo treatment to eradicate the mussels completely by being placed into dry storage for a minimum of five days prior to their next planned use. With implementation of **Mitigation Measure MM 4.4.10**, impacts to sensitive natural communities as a result of the introduction and spread of invasive freshwater mollusks would be less than significant.

Question C

ENPLAN conducted field investigations on June 29 and August 10, 2010, and on February 12, May 17, and May 19, 2016, to identify potential U.S. Army Corps of Engineers (USACE) jurisdictional waters and other waters of the U.S.

The field investigation was conducted in accordance with technical methods outlined in the *USACE Wetlands Delineation Manual* (1987), *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (2008), and the *Field Guide for the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States*. Prior to undertaking the wetland field evaluation, the National Wetlands Inventory (NWI) mapper was reviewed to determine if any waters were identified in the Project area.

All waters of the U.S. identified during the field investigations are shown in **Figure 4.4-1**. As indicated, the Project site includes ± 0.873 acres of the Pit River, a ± 0.045 -acre wet swale, and a ± 0.014 -acre seep. No waters were mapped on the Borrow Site.

ENPLAN prepared a Pre-jurisdictional Delineation Report for the proposed Project, which was submitted to USACE with a request for a preliminary jurisdictional determination (PJD). On October 3, 2016, the USACE responded to the request and concurred with the amount and location of wetlands and other water bodies identified in ENPLAN's Pre-jurisdictional Report. Potential impacts to the three features are discussed below.

Perennial Stream (Pit River)

Installation of the new bridge piers would fill ± 0.001 acres of riverbed while removal of the existing bridge piers would restore ± 0.008 acres of riverbed; there would be no net loss of riverbed associated with the proposed work. Temporary impacts would occur from construction of the temporary gravel work pad and work trestles. The proposed construction would result in a short-term increase in turbidity.

Wet Swale

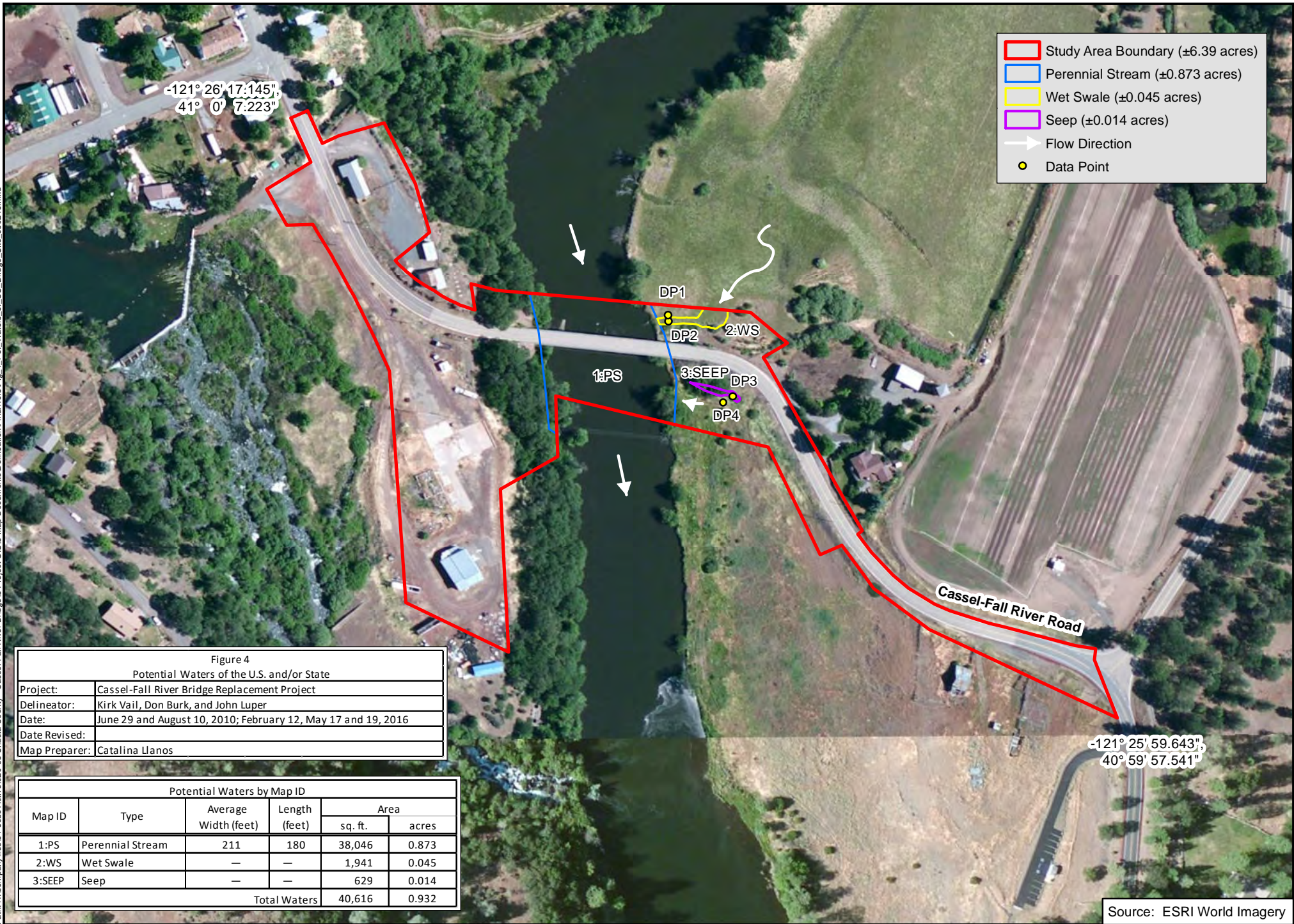
A wet swale is located just north of the eastern bridge abutment. The swale is supported by precipitation and stormwater runoff in the winter, and receives supplemental summer flow from irrigation runoff. The dominant plant species present in the swale is Nebraska sedge. Sandbar willows occur along the margin of the swale at the base of the fill slope for the bridge abutment. Project implementation would result in no permanent or temporary fill of the wet swale.

Seep

A seep is located just south of the eastern bridge abutment. The seep may be supported in part by long-term leakage from a waterline. Plant species present in the seep include Oregon ash and bitter dock. Installation of the new eastern bridge abutment and construction of the retaining wall would result in the permanent fill of ± 0.014 acres of seep.

The proposed Project qualifies for a USACE Nationwide Permit (NWP). NWP 14 applies to linear transportation projects that do not result in the loss of more than $\frac{1}{2}$ acre of non-tidal waters. For NWP 14, pre-construction notification (PCN) is required if the loss of Waters of the United States exceeds 0.1 acres or if there is a discharge into wetlands or other special aquatic sites. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. Areas affected by temporary fills must be revegetated, as appropriate.

Path: N:\company\files\01-Jobs Active\2020-53 Shasta County - Cassel-Fall River Bridge Replacement\3-Map Documents\Delination\Final\10.3\Fig. 4. Pot. Waters of U.S. Bridge Site 080216.mxd



1 inch = 200 feet

0 200 Feet

North American Datum 1988 Boundaries are preliminary until verified by the Army Corps of Engineers.

Feature and boundary locations depicted are approximate only. This is not a survey product. 08.02.16

Figure 4.4-1
Potential Waters of the U.S. and/or State

Pursuant to CWA Section 401, an activity requiring a USACE permit must obtain a State Water Quality Certification (or waiver) to ensure that the activity will not violate established State water quality standards. As discussed in Section 4.9 under Questions A and F, water quality monitoring must be conducted when performing any in-water work, when Project activities result in any materials reaching surface waters, or when any activities result in the creation of a visible plume in surface waters.

In addition, prior to any activities that would obstruct the flow of, or alter the bed, channel, or bank of any intermittent or ephemeral creeks, notification of streambed alteration shall be submitted to the CDFW and a streambed alteration agreement shall be obtained. If required by the USACE or CDFW, mitigation for the permanent loss of jurisdictional waters shall be achieved through payment of in-lieu fees to the Army Corps of Engineers, purchase of mitigation credits, or onsite/offsite habitat restoration.

Regulatory agency permits will be obtained by the County prior to commencement of construction. The bid specifications and contract documents will state that the contractor shall comply with the terms and conditions outlined in the permits. Compliance with regulatory agency permits will ensure that impacts to wetlands and other waters are less than significant.

Potential indirect effects on the aquatic environment will be avoided by implementing standard BMPs for erosion control and spill prevention and limiting the period for in-water work.

Question D

Wildlife movement patterns can be disrupted by barriers (e.g., dams, reservoirs, highways, altered stream flows, urban development, habitat conversion, etc.) that impede the movement of migratory fish, birds, deer, and other wildlife species. In addition, during construction, increased human activity in the Project area may impede the movement of wildlife.

Aquatic Species

As discussed under Question B above, the river reach in the Project area supports various fish, turtles, and waterfowl, and may provide suitable foraging/dispersal habitat for frogs, toads, and garter snakes. The Project entails replacement of an existing bridge in generally the same location. As stated in Section 4.1 under Question A, the number of bridge piers would be reduced from five to two. No additional structures that could permanently impede the movement of any aquatic species would be constructed.

Temporary effects on the movement of aquatic species could potentially occur if temporary in-water work platforms limit aquatic movement. However, as currently proposed, the in-water gravel work pad would not extend fully across the river, and culverts would be installed within the gravel pad to further facilitate hydrologic connectivity and aquatic movement. Therefore, temporary impacts on the movement of aquatic species during construction would be less than significant.

Terrestrial Wildlife Species

The Shasta County General Plan identifies areas approximately 1.5 miles west and 2 miles south of the bridge as critical deer winter ranges, which support migratory deer herds. No areas within 25 miles of the Bridge Site are identified as fall or spring holding areas or summer ranges. Therefore, there would be no impact to deer winter ranges or fawning grounds.

Although the proposed retaining wall east of the river on the south side of the road could be more of an obstacle to wildlife movement than the current fill slope, wildlife passage will remain available around both ends of the wall. No other structures that could permanently impede the movement of wildlife species would be constructed. Although daytime wildlife movement may be temporarily affected during the construction period, this impact would be of short duration and most animals can adapt by moving around the work area or moving during non-working hours.

Potential permanent and temporary effects of construction on terrestrial wildlife movement would be less than significant.

Migratory Birds

The Project area is located within the Pacific Flyway, and migratory birds are known to nest in and adjacent to the Project area. Nesting migratory birds, if present, could be directly or indirectly affected by construction activities. Direct effects could include mortality resulting from removal of a tree/shrub or demolition of the existing bridge containing an active nest with eggs or chicks. Indirect effects could include nest abandonment by adults in response to loud noise levels or human encroachment, or a reduction in the amount of food available to young birds due to changes in feeding behavior by adults.

The existing bridge is utilized seasonally for nesting by cliff swallows and may provide potential nesting habitat for other migratory birds. Over 100 active cliff swallow nests were observed on the bridge during the 2016 spring field inspections, and several bird nests were observed in adjacent vegetation. The cliff swallows are expected to return to the bridge to nest on an annual basis. Other migratory bird species could establish nests on the bridge and in vegetation adjacent to the Project area in future nesting seasons. Because the new bridge will be constructed within approximately five feet of the existing bridge, it is likely that, without use of nesting deterrents, nesting swallow would be adversely affected by construction. **Mitigation Measure MM 4.4.11** includes requirements for bird nesting deterrents that may include the use of bioacoustic deterrents (e.g., broadcast calls), installation of exclusionary materials (e.g., Teflon or plastic sheeting, mesh netting, and/or other materials that would not entangle birds).

In the local area, most birds nest between February 1 and August 31. As required by **Mitigation Measure MM 4.4.12**, the potential for adversely affecting nesting birds can be greatly minimized by removing vegetation and conducting construction activities either before February 1 or after August 31.

As stated under Question A above, bats also could potentially use surrounding vegetation for roosting. The timing for removing vegetation must be coordinated to avoid impacts to both birds and bats. As noted in **Mitigation Measure MM 4.4.3**, trees providing suitable bat roosting habitat shall be removed only between March 1 and April 15, or between September 1 and October 15, subject to the weather conditions and restrictions included in **Mitigation Measure MM 4.4.3**.

If construction occurs during the bird nesting season, a nesting survey would be conducted within one week prior to removal of vegetation and/or the start of construction. If active nests are found in the Project area, work would need to be postponed in the vicinity of the nests until after the young have fledged. Further, to prevent nest abandonment and mortality of chicks and eggs, vegetation removal and construction activities would not occur within 500 feet of an active nest unless a smaller buffer zone is authorized by CDFW and/or USFWS. If required by the agencies, a qualified biologist would monitor active nests during construction for signs of disturbance to the nesting birds.

Therefore, because construction activities that may impede the movement of wildlife are a temporary impact that would cease at completion of the Project, and **Mitigation Measures MM 4.4.11 and 4.4.12** would reduce the potential for adversely affecting nesting birds, the proposed Project would have a less than significant impact on the movement of any migratory fish or wildlife species and would not impact migratory wildlife corridors or impede the use of native wildlife nursery sites.

Question E

Chapter 6.7 (Fish and Wildlife Habitat) of the Shasta County General Plan addresses the need to preserve unique and important aquatic, fish, and wildlife habitats, and plant communities for their biological and ecological values, as well as for their direct and indirect benefits to the citizens of

Shasta County. **Mitigation Measures MM 4.4.1 through 4.4.12** are included to ensure consistency with General Plan policies and objectives. There are no other local policies or ordinances related to the protection of biological resources that would apply to the proposed Project. Impacts are considered less than significant with implementation of **Mitigation Measures MM 4.4.1 through 4.4.12**.

Question F

A Habitat Conservation Plan (HCP) is a federal planning document that is prepared pursuant to Section 10 of the Federal Endangered Species Act (FESA). A Natural Community Conservation Plan (NCCP) is a state planning document administered by CDFW. There are no HCPs, NCCPs or other habitat conservation plans in the Project area. Therefore, there would be no impact.

CUMULATIVE IMPACTS

Cumulative projects in the vicinity of the Project area, including growth resulting from build-out of the County's General Plan, are anticipated to permanently remove plant and wildlife resources. As development in the area continues, sensitive plant and wildlife species native to the region and their habitat, including state and federally-listed special status species, will be lost through conversion of existing open space to urban development.

Although mobile species may have some ability to adapt to modifications to their environment by relocating, less mobile species may be locally extirpated. With continued conversion of natural habitat to human use, the availability and accessibility of remaining foraging and natural habitats in this ecosystem would dwindle, and those remaining natural areas may not be able to support additional plant or animal populations. The conversion of plant and wildlife habitat on a regional level as a result of cumulative development would potentially result in a regionally significant cumulative impact on special-status species and their habitats.

Implementation of BMPs for erosion and sediment control, and implementation of **Mitigation Measures MM 4.4.1 through MM 4.4.12** avoid, reduce, or mitigate potential impacts to special-status species and their habitats. With these measures, the proposed Project's contribution to cumulative regional impacts to biological resources would be less than significant.

MITIGATION

MM 4.4.1 Avoid/Minimize Effects on Bats During Bridge Demolition.

Prior to bridge demolition, additional visual survey shall be conducted at each bridge pier where the deck spans join. If packing material is present in the joints and would prevent bat usage, or if the visual survey confirms that there are no signs of past or present bat activity, no further work is needed prior to demolition. If the packing material is no longer intact or no longer present, then humane bat eviction shall be undertaken during seasonal periods of bat activity as described below.

- If needed, humane bat eviction shall be conducted by a bat exclusion contractor or by the bridge contractor under direct supervision of a qualified bat biologist who is experienced in humane bat exclusion methods, materials, and techniques. Humane bat eviction shall consist of blockage of contiguous sections of the gap, and installation of one-way exits at all required locations to permit bats to escape from any roost crevices or non-contiguous portions of crevices. Humane bat eviction shall only be conducted during seasonal periods of bat activity, which in this region, are as follows:
 - Between March 1 (or after evening temperatures rise above 45°F, and/or no more than ½ " of rainfall within 24 hours occurs), and April 15; and
 - Between September 1 and October 15 (or before evening temperatures fall below 45°F, and/or more than ½ " of rainfall within 24 hours occurs).

MM 4.4.2 Replace Day and Night Bat Roosting Habitat.

Day and/or night bat roosting habitat present on the existing bridge shall be replaced with an equal or greater amount of in-kind habitat on the new bridge. A replacement plan shall be developed by a qualified bat biologist with experience in bridge structure bat roost habitat design.

MM 4.4.3 Avoid/Minimize Effects on Bats During Tree Removal.

Trees providing suitable bat habitat shall be removed only between March 1 and April 15, or between September 1 and October 15, subject to the weather conditions noted below. All trees proposed for removal shall be inspected in advance by a qualified bat biologist for the presence of cavities, crevices, exfoliating bark, and other features that may provide suitable bat roosting habitat. Trees with suitable bat roost features shall be removed only after implementation of one of the following:

- a. A night emergence survey of tree by a qualified bat biologist reveals no roosting bats, OR
- b. Trees are removed using the two-step process described below to permit bats the opportunity to abandon the roost prior to removal. Two-step removal of trees containing occupied bat roosts or providing suitable bat habitat, shall only be conducted during seasonal periods of bat activity, which in this region, are as follows:
 - Between March 1 (or after evening temperatures rise above 45°F, and/or no more than ½ " of rainfall within 24 hours occurs), and April 15; and
 - Between September 1 and October 15 (or before evening temperatures fall below 45°F, and/or more than ½ " of rainfall within 24 hours occurs).

The two-step removal of bat habitat trees shall be conducted over two consecutive days. The first day entails removal of non-habitat features on bat habitat trees (branches without cavities, crevices, or exfoliating bark), using chainsaws only for cutting, and chippers wherever possible to cause a level of noise and vibration disturbance sufficient to cause bats to choose not to return to the tree for a few days after they emerge to forage. No excavators, grinders, or other heavy equipment shall be used for first day trimming of habitat trees. A qualified bat biologist experienced with two-step removal procedures shall instruct and provide initial supervision of tree cutting crews on day 1 so that they do not accidentally remove potential habitat features, which could result in direct mortality of bats.

On the following day, the trees are removed. Any new tree cutting crew members added to the crew shall require instruction and initial supervision by a qualified bat biologist.

MM 4.4.4 Avoid/Minimize Effects on Bats During Swallow Nest Removal.

Abandoned cliff swallow nests on the bridge shall be removed by hand using an extension pole with a suitable scraper (no high-pressure water or air), between October 30 and January 31. If abandoned swallow nests cannot be removed during this period, nest interiors shall first be visually inspected by a qualified bat biologist, and then the nests shall be removed by hand using an extension pole with a suitable scraper (no high-pressure water or air), if unoccupied. If a nest is occupied by bats, removal shall be delayed until after dark. If exclusion netting will be installed on the bridge, netting (1/4" – 3/8" mesh size) or other chosen material shall be installed so that it fits tightly to the bridge with no gaps that may permit bats to enter, and which could trap bats.

MM 4.4.5 Inspect Dewatering Enclosures for Western Pond Turtles.

If in-stream dewatering enclosures are erected to facilitate pier or abutment construction, a qualified biologist shall be present during initial dewatering of each enclosure to ensure that no turtles are trapped. If turtles are present within the enclosure, they shall be relocated outside the work area by the qualified biologist.

MM 4.4.6 Avoid/Minimize Effects on Western Pond Turtles.

Prior to commencement of any earth disturbance, all construction personnel shall receive training from a qualified biologist on identification of western pond turtles and procedures to be implemented in the event that western pond turtles are encountered during construction activities.

In the event that western pond turtles enter a 100-foot buffer of on-going construction activities, a qualified biologist shall be contacted and construction activities shall be halted within 50 feet of the turtle until the turtle is confirmed to have left the project area or is relocated by the qualified biologist.

MM 4.4.7 Limit the Period for In-Water Work.

In-water work shall be limited to the period between April 15 and January 31, or as may otherwise be specified by CDFW, USACE, and/or the RWQCB. If work is proposed outside of the specified time period, the County shall obtain approval from these agencies prior to conducting the work.

MM 4.4.8 Construction Measures to Ensure Retention of Oak Trees.

The following measures shall be implemented to ensure retention of the oak trees that are designated for preservation. The County shall ensure compliance through the enforcement of contractual obligations:

- a. Fencing shall be provided at least 6 feet outside of the dripline of all trees to be preserved. The fencing is to remain throughout construction.
- b. No storage of materials that may be harmful to oak trees shall occur within the fenced area.
- c. No construction activities (grading, cutting or trenching), including vehicle parking or materials stockpiling, shall occur within the fenced area.

MM 4.4.9 Avoid/Minimize the Potential for Introduction and Spread of Noxious Weeds.

The potential for introduction and spread of noxious weeds shall be avoided/minimized by:

- a. Using only certified weed-free erosion control materials, mulch, and seed.
- b. Limiting any import or export of fill material to material that is known to be weed free.
- c. Requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering the County. If the equipment has most recently been used within the County, cleaning is not required.

MM 4.4.10 Avoid/Minimize the Potential for Introduction and Spread of Invasive Freshwater Mollusks.

The potential for introduction and spread of invasive freshwater mollusks (quagga mollusks and zebra mollusks) shall be avoided/minimized by utilizing only vessels that have been cleaned, drained of all standing water, dried thoroughly, and determined not to harbor mussels prior to placement into the Pit River. Vessels that harbor mussels shall undergo treatment to eradicate the mussels completely by being placed into dry storage for a minimum of five days prior to their next planned use.

MM 4.4.11 Avoid Disturbing Nesting Birds During Bridge Construction/Demolition.

Well in advance of project construction, abandoned swallow nests shall be removed from the bridge in accordance with the conditions prescribed in Mitigation Measure **MM 4.4.4**. After the nests are removed, and prior to April 15, bird nesting deterrents shall be installed on the bridge. Shasta County may utilize one or more types of deterrents to prevent birds from nesting on the bridge, including the use of bioacoustic deterrents (e.g., broadcast calls), installation of exclusionary materials (e.g., Teflon or plastic sheeting, mesh netting, or other

materials that would not entangle birds) in the fall or winter prior to construction, and/or removal of partially constructed nests following confirmation by a qualified biologist that no eggs or chicks are present (completed nests shall not be removed). Any installation of exclusionary materials to prevent bird nesting shall be coordinated with the bat biologist to ensure that day-roosting bats (if present) are not trapped inside the bridge.

MM 4.4.12 Avoid Disturbing Nesting Birds During Vegetation Removal or Ground Disturbance.

In order to avoid impacts to nesting migratory birds and/or raptors protected under the federal Migratory Bird Treaty Act of 1918 and California Fish and Game Code §3503, including their nests and eggs, the following measures shall be implemented:

- c. With the exception of trees providing suitable bat roosting habitat that shall be removed only between March 1 and April 15, or between September 1 and October 15, in accordance with **Mitigation Measure 4.4.3**, vegetation removal and other ground-disturbance activities associated with construction shall occur between September 1 and January 31 when birds are not nesting; or
- d. If vegetation removal or ground disturbance activities occur during the nesting season, a pre-construction nesting survey shall be conducted by a qualified biologist to identify active nests in and adjacent to the work area. The survey shall take into account acoustic impacts and line-of-sight disturbances occurring as a result of the project in order to determine a sufficient survey radius to avoid nesting birds. The results of the survey shall be submitted to the California Department of Fish and Wildlife upon completion. The survey shall be conducted no more than one week prior to the initiation of construction. If construction activities are delayed or suspended for more than one week after the pre-construction survey, the site shall be resurveyed.

If active nests are found, Shasta County shall consult with the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service regarding appropriate action to comply with the Migratory Bird Treaty Act and California Fish and Game Code §3503. Compliance measures may include, but are not limited to, exclusion buffers, sound-attenuation measures, seasonal work closures based on the known biology and life history of the species identified in the survey, as well as ongoing monitoring by biologists.

DOCUMENTATION

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4.5 CULTURAL RESOURCES

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 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 Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REGULATORY CONTEXT

Shasta County General Plan: Chapter 6.10 (Heritage Resources).

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

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

Section 106 of the National Historic Preservation Act (NHPA)

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

actions. Shasta County is applying for funding for the proposed Project through the Federal Highway Administration, Caltrans Local Assistance Program; therefore, the Proposed Project is subject to Section 106 review.

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

...any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in the National Register of Historic Places, including artifacts, records, and material remains related to such a property. (NHPA Sec. 301[5])

Section 106 of the NHPA prescribes specific criteria for determining whether an undertaking would adversely affect prehistoric or historic archaeological sites, structures, or objects that are National Register of Historic Places (NRHP) listed, or eligible for NRHP listing. An impact is considered significant if it results in any of the following:

- a. Physical destruction or damage to all or part of the property;
- b. Alteration of a property;
- c. Removal of the property from its historic location;
- d. Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- e. Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features; and/or
- f. Neglect of a property that causes its deterioration; and the transfer, lease, or sale of the property.

If it is determined that a project will adversely affect a historic property, feasible mitigation measures must be incorporated. The State Historic Preservation Officer (SHPO) must be provided an opportunity to review and comment on these measures prior to commencement of the proposed Project.

National Register of Historic Places (NRHP)

The eligibility of a resource for listing in the NRHP is determined by evaluating the resource using criteria defined in 36 CFR 60.4 as follows:

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

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

Sites younger than 50 years, unless of exceptional importance, are not eligible for listing in the NRHP. In addition to meeting at least one of the criteria outlined above, the property must also retain enough

integrity to enable it to convey its historic significance. To retain integrity, a property will always possess several, and usually most, of the seven aspects of integrity noted above.

California Environmental Quality Act (CEQA)

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

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

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

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

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

DISCUSSION OF IMPACTS

Questions A and B

The proposed Project involves funding from the Federal Highway Administration (FHWA) and federal permitting by the U.S. Army Corps of Engineers (ACOE). Pursuant to 23 U.S. Code §326, the Secretary of Transportation has assigned, and the State of California has accepted, federal Lead

Agency responsibility for environmental review, consultation, and coordination. Therefore, cultural resource studies for the proposed project were completed in coordination with the Caltrans Office of Local Assistance as the designated federal Lead Agency representative.

As further described below, work conducted by ENPLAN included establishment of an appropriate study area boundary, a records search, Native American consultation, and field evaluation, resulting in preparation of an Archaeological Survey Report (ASR).

Area of Direct Impact (ADI) / Area of Potential Effects (APE)

The Area of Direct Impacts (ADI) is a term used to describe known areas of planned direct impact, such as those depicted on engineering plans. The Area of Potential Effects (APE) is generally a broader geographic area, and may include additional properties that could be indirectly affected by visual, audible, or atmospheric intrusions; shadow effects; vibrations from construction activities; or change in access or use. Cultural resource studies for the proposed project focused on the broader APE; separate APEs were delineated for the Bridge Site and the Borrow Site, each encompassing enough area to satisfy the concerns of agencies that have cultural resources review responsibilities for the project.

The APE for the Bridge Site includes areas for staging, utility relocation, bridge demolition, and sufficient area for construction. The Bridge Site APE is approximately 20 acres in area, and measures approximately 1,730 feet in length and up to approximately 950 feet in width. The Borrow Site APE is approximately 2.9 acres in area, and measures approximately 525 feet in length and approximately 300 feet in width.

The vertical APE (i.e., that associated with the potential for buried cultural resources) is based upon the existing topography, geological history, site development history, and the engineering design of the project. The vertical APE of a project is related to the proposed excavations associated with the project. The maximum anticipated depth of vertical disturbance associated with bridge construction is 60 feet for installation of CIDH piles at Bent 2 and Bent 3. No vertical disturbance would occur at the Borrow Site.

Records Search

The following sources were consulted to obtain information concerning known archaeological sites, historic properties, and historic activities within and/or adjacent to the study area: the Northeastern Center of the California Historical Resources Information System at California State University, Chico (NEIC/CHRIS); National Register of Historic Places; the California Register of Historical Resources; California Inventory of Historic Resources; California Historical Landmarks; California Points of Historical Interest; Caltrans Historic Highway Bridge Inventory; Caltrans Cultural Resources Database; the California State Library; records on file at PG&E's Chico offices; the Shasta County Historical Society; the Fort Crook Museum; the Shasta County Planning Department; and the Shasta County Recorder's Office.

The records search identified the following:

- 12 cultural studies have been completed within a one-mile radius of the APE.
- 32 cultural resources have been mapped within one mile of the APE.
- An ethnographic village referenced in ethnographic accounts as *Ajumawi* or *Miyawyakse* was identified in the general project vicinity.
- The existing Pit River Bridge (6C0039) has been inventoried by Caltrans and determined not eligible for listing in the National Register of Historic Places.

Native American Consultation

Native American consultation was initiated in March 2010. In response to ENPLAN's request for information, on March 8, 2010, the Native American Heritage Commission (NAHC) indicated that a search of the Sacred Lands File revealed one known Native American cultural resource within the general vicinity of the APE. The NAHC also provided contact information for several Native American representatives and organizations, who were contacted by ENPLAN with a request to provide comments on the proposed Project. As further discussed in Section 4.17 (Tribal Cultural Resources), following approval of Assembly Bill 52 in September 2014, additional consultation was undertaken by Shasta County directly with the Pit River Tribe/Ajumawi Band.

Field Evaluation

Archaeological fieldwork undertaken by ENPLAN consisted of a survey of the Area of Potential Effects (APE) to identify cultural and historical resources that would be potentially affected by the proposed Project. Given the density of vegetation and limited ground visibility, surveys were conducted on several occasions to ensure that adequate coverage was provided.

Conclusions and Mitigation

As a result of the cultural resources survey and consultation efforts, it was determined that bridge construction has the potential to affect historic properties, as defined by the NHPA. Observed resources included historic buildings on both sides of the river, the Knoch diversion canal and pipeline, and other resources. In addition, research identified the former presence of various historic structures in and adjacent to the bridge APE, including a sawmill, grist mill, flour mill, powerhouse, PG&E buildings, ranch buildings, and associated features.

Further, consultation revealed that the Bridge Site and surroundings lands are included within a broadly mapped Traditional Cultural Property (TCP), known as the Ajumawi Settlement Area, which was designated to recognize Native American use of the region extending back to prehistoric times; the ADI includes a fraction of the extensive Ajumawi Settlement Area TCP. The cultural resource identified in the NAHC's Sacred Lands File is located well outside the APE and will not be affected by project implementation.

As stated above, the FHWA has assigned Caltrans responsibility for environmental review, consultation, and coordination for the proposed Project. In addition, pursuant to the January 1, 2014, *First Amended Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (Section 106 PA), Caltrans has on-going responsibilities for Section 106 compliance.

Caltrans has consulted with the State Office of Historic Preservation regarding the Project's potential to affect Traditional Cultural Properties; and has determined that preparation of a Programmatic Agreement (PA) for the proposed Project is the appropriate means to ensure identification and evaluation of inadvertent discoveries of historic properties within the APE; and to provide for the resolution of any adverse effects on identified historic properties subsequent to approval of the Project.

To this end, the *Programmatic Agreement between the California Department of Transportation and the California State Historic Preservation Officer Regarding the Cassel-Fall River Road Bridge Replacement Project in the Town of Fall River Mills, County of Shasta, California* (PA) was prepared for the proposed Project. Signatories to the PA include Caltrans, the Ajumawi Band of the Pit River Tribe, and Shasta County.

Mitigation Measure MM 4.5.1 requires the County to coordinate with Caltrans to ensure compliance with the approved PA; therefore, impacts to cultural resources would be less than significant.

Question C

A geomorphological study was completed by Far Western Anthropological Research Group (FWARG) to identify the potential for buried cultural soils within Caltrans District 2, including the Fall River Valley (Meyer 2013). Soils to the west and south of the confluence of the Pit and Fall Rivers (Jellycamp-Lassen-Longcreek complex, Jellycamp-Olloerivas complex, Lava Flow-Gassaway complex, and Rubble Land-Argixerolls-Rock Outcrop) were determined to date to the Late or Older Pleistocene (1.9 million – 25,000 B.P.). There is no evidence to indicate human occupation of the Fall River Valley prior to the Holocene; therefore, Pleistocene soils in the area of the Borrow Site have a low potential for buried cultural deposits. Soils north and east of the confluence date to the Early Holocene (Pittville soils and Winnibulli-Burman Complex), Late Holocene (Henhill soils), and Recent Holocene (Pit silty clay). Later, less-developed Holocene soils are much more likely to contain buried cultural deposits than are earlier Pleistocene soils.

Although no unique geologic features, or paleontological sites are known to exist in the Project area, implementation of **Mitigation Measure MM 4.5.2** would ensure that potential impacts to paleontological resources that may be inadvertently discovered during construction would be less than significant.

Question D

One privately owned cemetery is located in the general project vicinity. The cemetery is well outside the APE and will not be affected by project implementation. However, it is always possible that undocumented human remains could be encountered during subsurface excavations within the APE. Implementation of **Mitigation Measures MM 4.5.1 and MM 4.5.3** would ensure that impacts are less than significant.

CUMULATIVE IMPACTS

Cumulative projects in the vicinity of the Project area have the potential to impact cultural resources. Archaeological and historic resources are afforded special legal protections designed to reduce the cumulative effects of development. Cumulative projects and the proposed Project are subject to the protection of cultural resources afforded by the *CEQA Guidelines* Section 15064.5 and related provisions of the PRC. In addition, projects with federal involvement are subject to Section 106 of the NHPA.

Given the non-renewable nature of cultural resources, any impact to protected sites could be considered cumulatively considerable. However, **Mitigation Measures MM 4.5.1** through **MM 4.5.3** address the inadvertent discovery of cultural resources and human remains and provide for avoidance and/or mitigation of Project effects on such resources. Therefore, with implementation of the proposed mitigation measures, the Project would have less than significant cumulative impacts to cultural resources.

MITIGATION

MM 4.5.1 Prior to commencement of any ground disturbance, the *Programmatic Agreement between the California Department of Transportation and the California State Historic Preservation Officer Regarding the Cassel-Fall River Road Bridge Replacement Project in the Town of Fall River Mills, County of Shasta, California* (PA), shall be executed, with Shasta County as a signatory to the PA.

Shasta County shall continue to coordinate with Caltrans (the designated federal Lead Agency for the project) throughout the duration of Project construction to ensure that the County fulfills its responsibilities outlined in the PA.

MM 4.5.2 If any previously unevaluated cultural or paleontological resources (i.e., burnt animal bone, midden soils, projectile points or other humanly-modified lithics, historic artifacts,

fossils, etc.) are encountered, all earth-disturbing work shall stop within 7.6 meters (25 feet) of the find until a qualified archaeologist, or paleontologist if the find is a paleontological resources, can make an assessment of the discovery and recommend/implement mitigation measures as necessary.

- MM 4.5.3** If any human remains are encountered during any phase of construction, all earth-disturbing work shall stop within 20 meters (66 feet) of the find. The county coroner shall be contacted to determine whether investigation of the cause of death is required as well as to determine whether the remains may be Native American in origin. Should Native American remains be discovered, the county coroner must contact the Native American Heritage Commission (NAHC). The NAHC will then determine those persons it believes to be most likely descended from the deceased Native American(s). Together with representatives of the people of most likely descent, a qualified archaeologist shall make an assessment of the discovery and recommend/implement mitigation measures as necessary.

DOCUMENTATION

ENPLAN. 2012. Archaeological Survey Report for the Cassel-Fall River Road Bridge (6C0039) Replacement Project over the Pit River, Shasta County, California. Prepared for Shasta County (Confidential Document).

Meyer, Jack. 2013. A Geoarchaeological Overview and Assessment of Northeast California: Cultural Resources Inventory of Caltrans District 2 Rural Conventional Highways: Lassen, Modoc, Plumas, Shasta, Siskiyou, Tehama, and Trinity Counties. Vol. II. Far Western Anthropological Research Group, Inc. Report on file, Caltrans District 2 Office, Redding, California (Confidential Document).

4.6 GEOLOGY AND SOILS

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death, involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the 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 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 wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

REGULATORY CONTEXT

Shasta County General Plan: Chapter 5.1 (Seismic and Geologic Hazards).

Objectives:

- SG-1** Protection of all development from seismic hazards by developing standards for the location of development relative to these hazards; and protection of essential or critical structures, such as schools, public meeting facilities, emergency services, high-rise and high-density structures, by developing standards appropriate for such protection.
- SG-2** Protection of development on unstable slopes by developing standards for the location of development relative to these hazards.
- SG-3** Protection of development from other geologic hazards, such as volcanoes, erosion, and expansive soils.
- SG-4** Protection of waterways from adverse water quality impacts caused by development on highly erodible soils.

Policies:

- SG-d** Shasta County shall develop and maintain standards for erosion and sediment control plans for new land use development. Special attention shall be given to erosion prone hillside areas, including those with extremely erodible soils types such as those evolved from decomposed granite.
- SG-e** When soil tests reveal the presence of expansive soils, engineering design measures designed to eliminate or mitigate their impacts shall be employed.

California Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed to mitigate the hazard of surface faulting to structures. The act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The act addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. Before a project can be permitted in a designated Alquist-Priolo Fault Study Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

California Seismic Hazards Mapping Act

The California Seismic Hazards Mapping Act of 1990 (PRC §2690–2699.6) addresses seismic hazards other than surface rupture, such as liquefaction and induced landslides. The Seismic Hazards Mapping Act specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

National Pollutant Discharge Elimination System Permit (NPDES)

The SWRCB administers regulations and permitting for the USEPA for pollution generated from stormwater under the National Pollutant Discharge Elimination System (NPDES). The CVRWQCB implements these regulations and requires that an operator of any construction activities with ground disturbances of one acre or more obtain a General Permit through the NPDES Stormwater Program. The General Permit requires the implementation of Best Management Practices (BMPs) to reduce sedimentation into surface waters and to control erosion. The preparation of a Stormwater Pollution Prevention Plan (SWPPP) addresses control of water pollution that includes the effects of sediments in the water during construction activities.

California Building Standards Code

The State of California provides minimum standards for building design through the California Building Standards Code (CBSC). Where no other building codes apply, Chapter 29 regulates excavation, foundations, and retaining walls. The CBSC also applies to building design and construction in the state and is based on the International Building Code (IBC) used widely throughout the country. The CBSC has been modified for California conditions with numerous more detailed and/or more stringent regulations.

DISCUSSION OF IMPACTS

Question A

i and ii)

According to the Alquist-Priolo Earthquake Fault Zoning Map for Shasta County, there are no Alquist-Priolo Special Study Zones in the Project area. The California Geologic Map shows a north-striking fault trace approximately 0.5 miles west of the bridge. The California Fault Activity Map shows this as a Quaternary fault (age undifferentiated). These faults have not shown evidence of displacement within Holocene time (during the past 11,700 years). The closest active fault to the Project area is the McArthur fault, approximately 4.5 miles to the northeast.

According to the *Shasta County and City of Anderson Multi-Jurisdictional Hazard Mitigation Plan*, fault lines located in southern and eastern Shasta County could produce low to moderate ground shaking, which is the principal cause of damage in a seismic event and could catalyze dam failures, landslides, and fires. However, earthquake activity has not been a serious hazard in Shasta County's history. There has been no significant damage or loss of life due to earthquakes occurring near or in the County. To date, there have been no reported surface ruptures in the immediate Project area.

In addition, as stated in the Final Foundation Report (Crawford 2017), to ensure that potential seismically-induced hazards do not affect the proposed replacement bridge, Caltrans "Seismic Design Criteria" (SDC 1.7) are incorporated into the project design. Compliance with these standards ensures that potential impacts related to seismic ground shaking or seismic-related ground failure, are less than significant.

iii)

Liquefaction results from an applied stress on the soil, such as earthquake shaking or other sudden change in stress condition, and is primarily associated with saturated, cohesionless soil

layers located close to the ground surface. During liquefaction, soils lose strength and ground failure may occur. This is most likely to occur in alluvial (geologically recent, unconsolidated sediments) and stream channel deposits, especially when the groundwater table is high.

According to the Final Foundation Report (Crawford 2017), soils testing at the Bridge Site, which included drilled, sampled, and logged test borings, revealed that loose granular and soft soils that are potentially susceptible to liquefaction are present at the Bridge Site. However, based on the overall soil/rock and groundwater conditions encountered in the test borings, combined with implementation of recommendations for bridge foundations, the potential for liquefaction to adversely affect the proposed bridge is low. Therefore, impacts would be less than significant.

iv)

According to the *Shasta County and City of Anderson Multi-Jurisdictional Hazard Mitigation Plan*, landslides may occur throughout Shasta County but are more prevalent in the eastern and northern portions of the County and are commonly related to the sedimentary and volcanic rocks in these vicinities. However, as stated in the Final Foundation Report (Crawford 2017), there are no unique geologic conditions at the Bridge Site that make the area susceptible to landslides. Therefore, impacts would be less than significant.

Question B

Construction of the proposed Project would involve excavation, grading activities, dewatering, and installation of Project components, which would result in the temporary disturbance of soil and would expose disturbed areas to potential storm events. This could generate accelerated runoff, localized erosion, and sedimentation. In addition, construction activities could expose soil to wind erosion that could adversely affect on-site soils and the revegetation potential of the area. According to the Natural Resources Conservation Service, soils mapped within the Project Area are shown in **Table 4.6-1**. None are shown to have a high potential for erosion.

The County is required to comply with the SWRCB NPDES General Permit that requires completion of a SWPPP prior to construction. The SWPPP would include a detailed, site-specific listing of the potential sources of stormwater pollution and implementation of BMPs to control erosion and sedimentation and prevent damage to streams, watercourses and aquatic habitat.

Because BMPs for erosion and sediment control would be implemented in accordance with existing requirements, the potential for soil erosion and loss of top soil would be less than significant.

TABLE 4.6-1
Soil Type and Characteristics

Soil Name	Landform and Parent Material	Erosion Potential	Drainage	Surface Runoff	Permeability	Shrink-Swell Potential
Bridge Site						
Henhill silt loam, partially drained, 0-2% slope (184)	Stream terraces; alluvium derived from igneous rock	Slight	Somewhat poor	High	Moderately slow	Moderate
Pit silty clay, drained, 0-2% slope (279)	Basin floors; fine textured alluvium derived from igneous rock	Slight	Poorly drained	Low	Slow	High
Pittville sandy loam, 0-2% slope (282)	Stream terraces; alluvium derived from igneous rock	Slight	Well-drained	High	Moderately slow	Moderate
Winnibulli-Burman complex, 0-5% slopes (332)	Fan terraces; alluvium derived from igneous rock	Slight	Somewhat poor	High	Slow	Moderate to High
Borrow Site						
Jellico-Lava flows, complex, 5-15% slope (194)	Lava plateaus; tephra	None to Slight	Well-drained	High	Moderate	Low

Sources: U.S. Department of Agriculture, Natural Resources Conservation Service, 2017; U.S. Department of Agriculture, Soil Survey of Intermountain Area, California, 2000.

Questions C and D

The Final Foundation Report (Crawford 2017) presents the results of subsurface exploration, laboratory soils testing, and engineering analysis for structure foundations and roadway approaches, and concludes that no over-riding geologic hazards (e.g., faulting, landslides, severe erosion, subsidence, etc.) were identified by either published geologic mapping or site reconnaissance performed for the study. Although some of the soils in the Bridge Site have a moderate to high shrink-swell potential, the site is considered adequately stable with incorporation of recommendations included in the Final Foundation Report. The Report recommends that a Certified Engineering Geologist should observe rock excavations to evaluate the potential need to flatten (or otherwise modify) rock slopes if adverse discontinuity conditions are exposed during construction.

As required by **Mitigation Measure MM 4.6.1**, final bridge construction plans will be reviewed by a qualified geotechnical engineer to ensure all recommendations in the Final Foundation Report are incorporated. **Mitigation Measure MM 4.6.2** requires site earthwork activities (including site preparation, placement of engineered fill and trench backfill, construction of slab and pavement subgrades, and all foundation excavations) to be monitored by a certified engineering geologist or other qualified professional approved by the County.

In addition, although blasting is not expected to be required, work on the west side of the bridge would be in fractured rock material, and the need for blasting is a possibility. As called for in **Mitigation Measure MM 4.6.3**, if blasting is required, it would be conducted under the direct supervision of a blaster holding a current license issued by Cal/OSHA; a blasting plan subject to approval by Shasta County would be provided in advance so that the County can ensure that potential concerns with respect to noise, vibration, safety, and security are adequately addressed.

Incorporation of **Mitigation Measure MM 4.6.1 – 4.6.3** will ensure that impacts are less than significant.

Question E

The proposed Project does not include the installation or use of alternative wastewater disposal systems. Therefore, there would be no impact.

CUMULATIVE IMPACTS

Completion of the proposed Project and other potential cumulative projects in the region, including growth resulting from build-out of the County General Plan, could result in increased erosion and soil hazards and could expose additional structures and people to seismic hazards. However, these impacts can be fully mitigated with implementation of construction-related erosion control programs, incorporation of standard seismic safety measures, and adherence to recommendations included in the Final Foundation Report; therefore, cumulative impacts are less than significant.

MITIGATION

- MM 4.6.1** Recommendations included in the Final Foundation Report for the proposed Project shall be incorporated into the final improvement plans. The improvement plans shall be reviewed by a qualified geotechnical engineer to ensure all recommendations included in the final Foundation/Geotechnical Report are implemented. Applicable notes shall be placed on the attachment sheet to the Improvement Plans.
- MM 4.6.2** Site earthwork activities (including site preparation, placement of engineered fill and trench backfill, construction of slab and pavement subgrades, and all foundation excavations) shall be monitored by a certified engineering geologist or other qualified professional approved by the Shasta County Public Works Director, as recommended in the Final Foundation Report.
- MM 4.6.3** If blasting is proposed, all work shall be conducted under the direct supervision of a blaster holding a current license issued by Cal/OSHA; a blasting plan subject to approval by Shasta County shall be provided in advance so that the County can ensure that potential concerns with respect to noise, vibration, safety, and security are adequately addressed.

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4.7 GREENHOUSE GAS EMISSIONS

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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"/>

REGULATORY CONTEXT

Shasta County

Shasta County developed a draft Shasta Regional Climate Action Plan in August 2012. The plan shows that the County would achieve a reduction in GHG emissions in the year 2020 below 2008 business as usual (BAU) emissions with the implementation of state and federal reduction measures. The CAP provides additional GHG reduction measures to further reduce GHG emissions beyond 2020. The County has not adopted thresholds of significance for greenhouse gases. According to SCAQMD staff, the District's greenhouse gas policy is to quantify, minimize, and mitigate greenhouse gas emissions, as feasible.

Assembly Bill 32 (Global Warming Solutions Act of 2006)

In adopting the California Global Warming Solutions Act of 2006 (AB 32), the California state legislature established a cap on statewide GHG emissions and set forth a regulatory framework to achieve the corresponding reduction in statewide emission levels. The first GHG target called on the state to reduce emissions to 1990 levels by 2020. As required by AB 32, in 2008, CARB adopted the initial Climate Change Scoping Plan that identified how emissions reductions would be achieved via regulations, market mechanisms, and other actions. AB 32 requires that the Scoping Plan be updated every five years.

California Executive Order (EO) S-3-05

EO S-03-05 was signed by the Governor on June 1, 2005, and established the goal of reducing GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. CARB's first update to the Climate Change Scoping Plan (2014) set the groundwork to reach post-2020 goals set forth in the Executive Order and also identified the need for a 2030 mid-term target to establish a continuum of actions to maintain and continue reductions, rather than only focusing on targets for 2020 or 2050.

California Executive Order B-30-15

EO B-30-15 was signed by the Governor on April 29, 2015. It sets interim GHG targets of 40 percent below 1990 by 2030, to ensure California will meet its 2050 target set by EO S-3-05. It also directs CARB to update the Climate Change Scoping Plan to incorporate the 2030 target.

In November 2017, CARB released the final proposed 2017 Scoping Plan Update that includes the strategy to achieve California's 2030 GHG target. The 2017 Scoping Plan is scheduled for final approval by CARB on December 14, 2017.

Senate Bill 350 (SB 350)

SB 350, which was enacted in October 2015, codifies the 2030 GHG targets set by EO B-30-15. To help meet these goals, SB 350 requires that the amount of electricity generated and sold from eligible renewable energy sources be increased from 33 percent by 2020 to 50 percent by 2030.

Senate Bill 32/Assembly Bill 197

These two bills were signed into legislation on September 8, 2016. SB 32 requires CARB to reduce greenhouse gases to 40 percent below the 1990 levels by 2030 and requires that greenhouse gas emissions reductions be achieved in a manner that benefits the state's most disadvantaged communities.

AB 197 provides more legislative oversight of CARB by adding two new legislatively appointed non-voting members to the CARB Board and limiting the term length of Board members to six years; establishes reporting/transparency requirements; and requires protection of disadvantaged communities and the consideration of the social costs of GHG emissions.

Senate Bill 375 (Sustainable Communities and Climate Protection Act of 2008)

SB 375 supports the State's climate action goals to reduce GHG emissions through coordinated transportation and land use planning. Under SB 375, the CARB sets regional targets for the reduction of GHG emissions from passenger vehicle use.

CEQA Guidelines

Section 15064.4 of the CEQA Guidelines states a lead agency has the discretion to determine whether to use a model or methodology to quantify GHG emissions or to rely on a qualitative or performance-based standard. The GHG analysis should consider 1) the extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting; 2) whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project and 3) the extent to which the project complies with any regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

Greenhouse Gases Defined

Table 4.7-1 provides descriptions of the GHGs identified in California Health and Safety Code Section 38505(g).

**TABLE 4.7-1
Greenhouse Gases**

Greenhouse Gas	Description
Carbon Dioxide (CO ₂)	Carbon dioxide (CO ₂) is the primary greenhouse gas emitted through human activities. In 2014, CO ₂ accounted for about 80.9 percent of all U.S. greenhouse gas emissions from human activities. The main human activity that emits CO ₂ is the combustion of fossil fuels (coal, natural gas, and oil) for energy and transportation, although certain industrial processes and land-use changes also emit CO ₂ .
Methane (CH ₄)	Methane (CH ₄) is the second most prevalent greenhouse gas emitted in the United States from human activities. Methane is emitted by natural sources such as wetlands, as well as human activities such as the raising of livestock, the production, refinement, transportation and storage of natural gas, methane in landfills as waste decomposes, and in the treatment of wastewater.
Nitrous Oxide (N ₂ O)	In 2014, nitrous oxide (N ₂ O) accounted for about 6 percent of all U.S. greenhouse gas emissions from human activities. Nitrous oxide is naturally present in the atmosphere as part of the Earth's nitrogen cycle. Human activities such as agricultural soil management (adding nitrogen to soil through use of synthetic fertilizers), fossil fuel combustion, wastewater management, and industrial processes are also increasing the amount of N ₂ O in the atmosphere.
Hydrofluorocarbons (HFCs)	Hydrofluorocarbons (HFCs) are man-made chemicals, many of which have been developed as alternatives to ozone-depleting substances for industrial, commercial, and consumer products such as refrigerants, aerosol propellants, solvents, and fire retardants. They are released into the atmosphere through leaks, servicing, and disposal of equipment in which they are used.
Perfluorocarbons (PFCs)	Perfluorocarbons (PFCs) are colorless, highly dense, chemically inert, and nontoxic. There are seven PFC gases: perfluoromethane (CF ₄), perfluoroethane (C ₂ F ₆), perfluoropropane (C ₃ F ₈), perfluorobutane (C ₄ F ₁₀), perfluorocyclobutane (C ₄ F ₈), perfluoropentane (C ₅ F ₁₂), and perfluorohexane (C ₆ F ₁₄). Perfluorocarbons are produced as a byproduct of various industrial processes associated with aluminum production and the manufacturing of semiconductors.
Sulfur Hexafluoride (SF ₆)	Sulfur hexafluoride (SF ₆) is an inorganic compound that is colorless, odorless, nontoxic, and generally nonflammable. SF ₆ is primarily used in magnesium processing and as an electrical insulator in high voltage equipment. The electric power industry uses roughly 80 percent of all SF ₆ produced worldwide.
Nitrogen Trifluoride (NF ₃)	Nitrogen trifluoride is a colorless, odorless, nonflammable gas that is highly toxic by inhalation. It is one of several gases used in the manufacture of liquid crystal flat-panel displays, thin-film photovoltaic cells and microcircuits.

DISCUSSION OF IMPACTS

Question A

All greenhouse gases are not equal and each has a unique atmospheric lifetime and heat-trapping potential. For this reason, each GHG is assigned a global warming potential (GWP). Gases with a high GWP, such as HFCs, PFCs, and SF₆, are the most heat absorbent. For example, methane traps over 21 times more heat per molecule than CO₂, and N₂O absorbs 310 times more heat per molecule than CO₂. The atmospheric lifetime of methane is approximately 12 years, whereas perfluoromethane has an atmospheric lifetime of up to 50,000 years. The GWP metric is used to convert all GHGs into CO₂ equivalent (CO₂e) units, which allows policy makers to compare impacts of GHG emissions on an equal basis.

Because there are no local quantitative GHG thresholds, predicted Project-related GHG emissions were compared to thresholds established by the Bay Area Air Quality Management District and Sacramento Metropolitan Air Quality Management District as shown in **Table 4.7-2**. Both Shasta County and Sacramento County are located in the SVAB. These thresholds are tied directly to AB 32 and state-wide emissions reduction goals for 2020.

**TABLE 4.7-2
Greenhouse Gas Emissions Thresholds**

Category	Bay Area AQMD	Sacramento Metropolitan AQMD
Construction	None Recommended	1,100 tons/year CO ₂ e
Stationary Sources (Operation)	10,000 metric tons/year CO ₂ e	10,000 metric tons/year CO ₂ e
Land Use Projects	1,100 metric tons/year CO ₂ e or 4.6 tons CO ₂ e/service population/year	1,100 metric tons/year CO ₂ e

Shasta County has determined the more conservative and commonly adopted numeric threshold for land use projects of 1,100 metric tons CO₂e per year is appropriate for the proposed Project. If emissions exceed 1,100 metric tons of CO₂e per year, then the impact is considered significant.

Project GHG Emissions

GHG emissions for the proposed Project were estimated using the CalEEMod.2016.3.2 software. CalEEMod is a statewide model designed to quantify GHG emissions from land use projects. The model quantifies direct GHG emissions (including vehicle use), as well as indirect GHG emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. CalEEMod does not directly calculate ozone (O₃) emissions. Instead, the emissions associated with ozone precursors are calculated. Ozone precursors are quantified as ROG and NO_x which, when released, interact in the atmosphere and produce ozone.

The proposed Project would not result in long-term operational emissions. Construction activities would emit GHG emissions as shown in **Table 4.7-3**, primarily from the combustion of diesel fuel in heavy equipment. Because CO₂e associated with construction of the Proposed Project would not exceed the numerical threshold of 1,100 metric tons/year, impacts during construction would be less than significant.

**TABLE 4.7-3
Construction-Related Greenhouse Gas Emissions**

Project Phase	Maximum Emissions (Total Metric Tons)			
	Carbon Dioxide (CO ₂)	Methane (CH ₄)	Nitrous Oxide (N ₂ O)	Carbon Dioxide Equivalent (CO ₂ e)
2019	237.44	0.04	0	238.4

Question B

See discussion under Regulatory Context and Question A above. The proposed Project would generate minimal GHG emissions on a temporary basis during construction activities. However, CO₂e is well below the referenced threshold of 1,100 metric tons/year. This threshold is tied directly to AB 32 and state-wide emissions reduction goals for 2020. There are no other adopted plans that regulate GHG emissions that would apply to the proposed Project. Therefore, impacts would be less than significant.

CUMULATIVE IMPACTS

GHG emissions and global climate change are, by nature, cumulative impacts. However, the proposed Project would not create significant new sources of GHG emissions or significantly contribute to adverse impacts associated with cumulative GHG emissions.

MITIGATION

None necessary.

DOCUMENTATION

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4.8 HAZARDS AND HAZARDOUS MATERIALS

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. For a project located within an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REGULATORY CONTEXT

Shasta County General Plan: Chapter 5.6 (Hazardous Materials); Chapter 5.4 (Fire Safety and Sheriff Protection).

Objectives

HM-1 Protection of life and property from contact with hazardous materials through site design and land use regulations and storage and transportation standards.

HM-2 Protection of life and property in the event of the accidental release of hazardous materials through emergency preparedness planning.

FS-1 Protect development from wildland and non-wildland fires by requiring new development projects to incorporate effective site and building design measures commensurate with level of potential risk presented by such a hazard and by discouraging and/or preventing development from locating in high risk fire hazard areas.

Policies

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

Shasta County Hazardous Materials Area Plan, 2013

The Area Plan describes the County's pre-incident planning and preparedness for hazardous materials releases and clarifies the roles and responsibilities of federal, state, and local agencies during a hazardous materials incident.

California Code of Regulations (CCR), Title 22, Definition of Hazardous Material

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, State, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in Title 22, Section 66260.10 of the CCR as: *"A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed."*

U.S. Department of Transportation (USDOT)

The United States Department of Transportation (USDOT) regulates the interstate transport of hazardous materials and wastes through implementation of the Hazardous Materials Transportation Act. This act specifies driver-training requirements, load labeling procedures, and container design and safety specifications. Transporters of hazardous wastes must also meet the requirements of additional statutes such as the Resource Conservation and Recovery Act (RCRA).

Department of Toxic Substances Control

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

California Occupational Safety and Health Administration (Cal/OSHA)

California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing state workplace safety regulations, including requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations, which include identifying and labeling hazardous substances, communicating information related to hazardous substances and their handling, and preparing health and safety plans to protect workers and employees at hazardous waste sites.

Regional Water Quality Control Board

The SWRCB and RWQCBs regulate hazardous substances, materials and wastes through a variety of state statutes, including the Porter Cologne Water Quality Control Act and underground storage tank cleanup laws. The Regional Boards regulate all pollutant or nuisance discharges that may affect either

surface water or groundwater. Any person proposing to discharge waste within any region must file a report of waste discharge with the appropriate regional board. The proposed Project is located within the jurisdiction of the CVRWQCB.

DISCUSSION OF IMPACTS

Questions A and B

During construction, it is anticipated that limited quantities of hazardous substances, such as gasoline, diesel fuel, hydraulic fluid, solvents, oils, paints, etc., would temporarily be brought into areas where improvements are proposed. There is a possibility of accidental release of hazardous substances into the environment, such as spilling petroleum-based fuels used for construction equipment. However, construction contractors are required to comply with applicable federal and state environmental and workplace safety laws. Additionally, construction contractors are required to implement BMPs for the storage, use, and transportation of hazardous materials. Therefore, impacts during construction would be less than significant.

A Hazardous Materials Analysis-Initial Site Assessment (ISA) was completed by ENPLAN in January 2018. In addition to asbestos and lead discussed in Section 4.3 (Air Quality) above, the ISA identified the following potential hazard:

Treated Wood Products

The Pit River bridge does not contain wooden bridge girders, wooden posts or rails; however, there are timber posts supporting metal beam guardrail on the bridge approach roadways. Telephone poles and wooden posts are present along the project corridor and would be relocated as part of the proposed work. These wood products are often treated with preserving chemicals in order to protect them against insect attack and fungal decay. The preserving chemicals may include, but are not limited to, arsenic, chromium, copper, creosote, and pentachlorophenol. These chemicals are known to be toxic or carcinogenic and require specific handling prescribed by State and federal regulations.

When the treated wood has reached the end of its usefulness, it is regarded as treated wood waste (TWW). If TWW is not properly disposed of, the chemicals it contains can contaminate surface water and groundwater. This poses a risk to human health and the environment. TWW must be managed under full hazardous waste management requirements or under the Alternative Management Standards (AMS) adopted by DTSC.

TWW may be disposed of either at a hazardous waste landfill or in a composite-lined portion of a solid waste landfill approved to accept TWW by the appropriate RWQCB. In Shasta County, both the West Central Landfill on Clear Creek Road in Igo and the Anderson Landfill on Cambridge Road in Anderson, are RWQCB-approved TWW landfills.

The County will include provisions in the construction contract to ensure the proper removal and disposal of TWW. **Mitigation Measure MM 4.8.1** reduces environmental impacts that could result from TWW removal to a less than significant level.

In addition, although blasting is not expected to be required, work on the west side of the bridge would be in fractured rock material, and the need for blasting is a possibility. If blasting is required, it would be conducted under the direct supervision of a blaster holding a current license issued by Cal/OSHA; as called for in **Mitigation Measure MM 4.6.3**, a blasting plan subject to approval by Shasta County would be provided in advance so that the County can ensure that potential concerns with respect to noise, vibration, safety, and security are adequately addressed. Any storage of explosives must comply with the applicable provisions of Cal/OSHA's Construction Safety Orders and with Title 27, CFR 181, Part 55, Subpart K, Commerce in Explosives. Transportation of explosives to the Project site must be in accordance with current Federal Department of Transportation and California Highway Patrol regulations.

Because the contractor would comply with existing federal and State regulations pertaining to handling and use of explosives, as well as the mitigation measures recommended in this Initial Study, impacts would be less than significant.

Question C

According to the Shasta County Office of Education, the closest school is Fall River Elementary School on Curve Street, approximately 1,400 feet (0.26 miles) northwest of the Bridge Site.

As described under Question A above, project construction would involve use of relatively small quantities of materials such as diesel, gasoline, oils, and other engine fluids. However, existing State standards govern the transport, use, and disposal of hazardous materials. Because work would be conducted in accordance with these existing requirements, and potential impacts could occur only during construction activities, impacts would be less than significant.

Question D

The Cortese list is prepared in accordance with California Government Code §65962.5. The following databases were reviewed to locate "Cortese List" sites.

- List of Hazardous Waste and Substances sites from the Department of Toxic Substances Control (DTSC) EnviroStor database.
- SWRCB GeoTracker Database
- List of solid waste disposal sites identified by SWRCB with waste constituents above hazardous waste levels outside the waste management unit.
- List of "active" Cease and Desist Orders and Clean-Up and Abatement Orders from the SWRCB.

A search of the DTSC EnviroStor database indicates there are no active clean-up sites within a 50-mile radius of the Project area. The SWRCB GeoTracker database lists Roy's Chevron on Highway 299E as an open clean-up site due to an unauthorized release from an underground storage tank system. Corrective action is underway as ordered by the CVRWQCB. Roy's Chevron is located approximately 650 feet northwest of the Bridge Site; however, the proposed Project does not include any improvements in proximity to the Chevron Station.

The ISA completed for the Project in 2018 indicates that no obvious recognized environmental conditions (RECs) for the Project sites or immediately adjacent lands were identified from 118 government databases reviewed; no obvious potential off-site sources of contamination were identified within the ASTM-specified approximate minimum search distances (up to one-mile) of the Project sites.

A field reconnaissance of the Project sites was conducted by ENPLAN on July 13, 2017. The field survey identified a barn, approximately 350 feet southwest of the bridge abutment on the west side of the river, that was being used as an automobile repair shop. Three "service bays" were located along the west side of the barn, and one service bay was located inside the eastern portion of the barn. An open 5-gallon bucket of what appeared to be used motor oil was observed inside the barn, along with 5-gallon buckets of gear oil and transmission fluid, and two tanks of acetylene. The floor of the barn consists of particle board and plywood over a soil surface. The three service bays along the west side of the barn have a soil ground surface. Oil and grease stains were observed inside the barn, and on the ground surface along the southern end of the barn. PG&E reportedly gave a 30-day notice to the occupant to cease the automobile repair activities on the site in August 2017.

This property was previously subject to a Soil Removal Work Plan due to historical use of the property as a feed mill that included eight grain silos, milling machinery, and aboveground storage tanks (ASTs). The mill burned down in 2003, and all that remains is the barn and concrete foundations. Soil sampling activities were conducted on the site in 2009, 2010, 2012, and 2013.

Soil with elevated Total Petroleum Hydrocarbons (TPH) as diesel (TPH d) and motor oil (TPH mo) was identified in the area of the former feed store, in areas of former ASTs, and areas with visually stained soil. Additional soil samples were collected in 2013 and 2014 to further define the lateral and vertical extents of lead and TPH in the soil. Between June 30 and August 12, 2014, approximately 175 cubic yards (CY) of soil was excavated from the property and disposed of at an off-site facility. The excavations were backfilled with clean fill materials, compacted, and either covered with gravel or hydroseeded for erosion and sediment control. This work satisfied the requirements of the Soil Removal Work Plan, and no further action is required. Use of the barn as an automotive repair shop commenced after the 2014 cleanup.

A staging area for the proposed Project has been identified adjacent to the barn. Staging would occur on gravel fill that overlies the original ground surface, and no earth disturbance to establish the staging area would occur. Because it is not known whether recent use of the property as an automotive repair shop resulted in soil contamination, Shasta County may conduct additional soil sampling in this staging area prior to commencement of use, and again following the completion of use, in order to document any impact to the soil from use of the property as a staging area. Any required cleanup resulting from the County's use of the property would be conducted by the County in accordance with existing regulatory agency requirements.

Therefore, potential impacts to the public and the environment related to hazardous materials would be less than significant.

Questions E and F

According to the Shasta County General Plan, the Project area is not within an airport land use plan area. According to the Federal Aviation Administration (FAA), the nearest public airport is Fall River Mills Airport, approximately 3,200 feet (0.6 miles) north of the bridge area. The FAA also lists two privately-owned heliports in Burney, California: the Burney Service Center Heliport, owned by Pacific Gas & Electric, approximately 13 miles to the southwest; and the Burney Sheriff's Station Heliport, owned by Shasta County, approximately 14.5 miles to the southwest.

Although construction workers would be completing improvements 0.6 miles south of the Fall River Mills Airport, airport operations must comply with FAA Regulations, including the FAA Airport Safety Program, which addresses general aviation airport safety, runway safety, and safety management systems (SMS). These regulations were established, in part, to protect the health and safety of individuals living and working in proximity to an airport.

The proposed Project does not include any components that would introduce a substantial number of people to the area in the long-term or create a safety hazard; therefore, potential impacts are less than significant.

Question G

The proposed Project does not involve a use or activity that could interfere with long-term emergency response or emergency evacuation plans for the area. Although a temporary increase in traffic could occur during construction and could interfere with emergency response times, construction-related traffic would be minor due to the overall scale of the construction activities. Further, construction-related traffic would be spread over the duration of the construction schedule and would be minimal on a daily basis.

In addition, pursuant to Shasta County's conditions for issuance of an encroachment permit, which will be obtained by the County's contractor, temporary traffic control during completion of activities that require work in the public right-of-way is required and must adhere to the procedures, methods and guidance given in the current edition of the California Manual on Uniform Traffic Control Devices (MUTCD).

Controlled one- or two-way traffic must be able to pass at all times, except that temporary suspension of travel through the work area may be enacted when required due to the nature of the work. In such cases, the temporary suspension of travel through the work area may not exceed 10 minutes unless specifically authorized by the encroachment permit. Unimpeded two-way traffic shall be maintained during hours of darkness and at all times when there are no California MUTCD-approved temporary traffic control measures in place.

At the discretion of the County, the contractor may be required to submit a temporary traffic control plan for review and approval by the County prior to issuance of an encroachment permit. The plan must illustrate the location of the work, affected roads and types and locations of temporary traffic control measures (i.e., signs, cones, flaggers, etc.) that will be implemented during the work. These requirements ensure that impacts are less than significant.

Question H

The California Department of Forestry and Fire Protection (CAL FIRE) adopted Fire Hazard Severity Zone (FHSZ) Maps for State Responsibility Areas (SRA) in November 2007 (updated May 2008). Pursuant to California Government Code §51175-51189, CAL FIRE also recommended FHSZs for Local Responsibility Areas (LRA). According to CAL FIRE, areas adjacent to the Bridge Site include Very High FHSZs to the south and east and Non-Very High FHSZ to the north and west. The Borrow Site is in a Very High FHSZ. In addition, the Shasta County General Plan indicates all properties in the study area are within Very High FHSZs.

The proposed Project does not include any development or improvements that would increase the long-term risk of wildland fires or expose people or structures to wildland fires. However, equipment used during construction activities may create sparks that could ignite dry grass. Also, the use of power tools and/or acetylene torches may increase the risk of wildland fire hazard. Mitigation Measure **MM 4.8.2** will ensure that impacts are less than significant.

CUMULATIVE IMPACTS

Hazard-related impacts from the proposed Project are site specific and have the potential to affect only a limited area on a temporary basis during completion of the improvements. Use and storage of hazardous materials during completion of the improvements would take place in a limited area surrounding the Project site and in designated staging areas. Completion of the proposed improvements requires implementation of mitigation measures to reduce the potential for adverse impacts associated with hazards and hazardous materials. These measures ensure that impacts are less than significant and that activities do not result in impacts that would be cumulatively considerable.

MITIGATION

Implementation of **Mitigation Measures MM 4.3.2, MM 4.3.3, and MM 4.3.4.**

MM 4.8.1 Treated wood waste shall be handled, stored, transported and disposed of in accordance with Section 14-11.14 (Treated Wood Waste) of Caltrans' Standard Specifications. All personnel that may come into contact with treated wood waste will receive, at a minimum, training on procedures for identifying and segregating treated wood waste; safe handling practices; requirements of 22 CCR, Division 4.5, Chapter 34 (Alternative Management Standards for Treated Wood Waste); and proper disposal methods.

MM 4.8.2 During construction, all areas in which work will be completed using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a fire break.

DOCUMENTATION

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4.9 HYDROLOGY AND WATER QUALITY

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<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, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h. Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of a failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j. Inundation by seiche, tsunami or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

REGULATORY CONTEXT

Shasta County General Plan: Chapter 5.2 (Flood Protection); Chapter 6.6 (Water Resources and Water Quality).

Objectives

- FL-1 Protection of public health and safety, both on-site and downstream, from flooding through floodplain management which regulates the types of land uses which may locate in the floodplain, prescribes construction designs for floodplain development, and requires mitigation measures for development which would impact the floodplain by increasing runoff quantities.

Policies

- FL-c Whenever possible, flood control measures should consist of channel diversions or limited floodplain designs which avoid alteration of creeks and their immediate environs.
- FL-h The impacts of new development on the floodplain or other downstream areas due to increased runoff from that development shall be mitigated. In the case of the urban or suburban areas, and in the urban and town centers, the County may require urban or

suburban development to pay fees which would be used to make improvements on downstream drainage facilities in order to mitigate the impacts of upstream development.

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

Clean Water Act (CWA)

The CWA (33 USC §1251-1376), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality and was established to “*restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.*” Pertinent sections of the Act are as follows:

1. Sections 303 and 304 provide for water quality standards, criteria, and guidelines. Under Section 303(d) of the CWA, the USEPA publishes a list every two years of impaired bodies of water for which water quality objectives (WQOs) are not attained. Total Maximum Daily Loads (TMDLs) are established for contaminants of concern in order to ensure contamination levels decrease over time. Section 303(d) requires states to identify waters that do not meet, or are not expected to meet, water quality standards.
2. Section 401 (Water Quality Certification) requires an applicant for any federal permit that proposes an activity, which may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the Act.
3. Section 402 establishes the NPDES, a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the SWRCB and is discussed in detail below.
4. Section 404, jointly administered by the USACE and USEPA, establishes a permit program for the discharge of dredged or fill material into waters of the United States.

Federal Anti-Degradation Policy

The federal Anti-Degradation Policy is part of the CWA (Section 303(d)) and is designed to protect water quality and water resources. The policy directs states to adopt a statewide policy that includes the following primary provisions: (1) existing instream uses and the water quality necessary to protect those uses shall be maintained and protected; (2) where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and (3) where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

Safe Drinking Water Act

Under the 1974 Safe Drinking Water Act (SDWA) (Public Law 93-523), most recently amended in 1996, USEPA regulates contaminants of concern to domestic water supply, which are those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are classified as either primary and secondary Maximum Contaminant Levels (MCLs). MCLs and the process for setting these standards are reviewed triennially.

National Pollution Discharge Elimination System

Under Section 402(p) of the CWA, the USEPA established the NPDES to enforce discharge standards for both point source and non-point-source pollution. Dischargers can apply for individual discharge permits, or apply for coverage under the General Permits that cover certain qualified dischargers. Point source

discharges include municipal and industrial wastewater, stormwater runoff, combined sewer overflows, sanitary sewer overflows, and municipal separate storm sewer systems. NPDES permits impose limits on discharges based on minimum performance standards or the quality of the receiving water, whichever type is more stringent in a given situation.

NPDES Permit – Stormwater Drainage

Stormwater drainage is regulated under NPDES General Permit No. CAS000004, titled *Waste Discharge Requirements for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems*. The General Permit effectively prohibits the discharge of materials other than stormwater that are not authorized. Permittees must implement BMPs that reduce pollutants in stormwater runoff to the technology-based standard of Maximum Extent Practicable (MEP) to protect water quality.

NPDES Program – Construction Activity

Discharges from construction sites that disturb one acre or more of total land area are subject to the NPDES permit for *Discharges of Storm Water Runoff associated with Construction Activity* (currently Order No. 2009-009-DWQ). The permitting process requires the development and implementation of an effective SWPPP. The Project applicant must submit a Notice of Intent to the SWRCB to be covered by a NPDES permit and prepare the SWPPP prior to the beginning of construction. The SWPPP must include BMPs to reduce pollutants and any more stringent controls necessary to meet water quality standards. Dischargers must also comply with water quality objectives as defined in the Central Valley Basin Plan. If Basin Plan objectives are exceeded, corrective measures are required.

Porter-Cologne Water Quality Control Act

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

State Anti-Degradation Policy

In 1968, as required under the Federal Anti-Degradation Policy, the SWRCB adopted an Anti-Degradation Policy, formally known as the *Statement of Policy with Respect to Maintaining High Quality Waters in California* (State Water Board Resolution No. 68-16). The Policy restricts degradation of surface and ground waters and protects water bodies where existing quality is higher than necessary for the protection of beneficial uses.

Under the Anti-Degradation Policy, any actions that can adversely affect water quality in surface and ground waters must be consistent with maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial use of the water, and not result in water quality less than that prescribed in water quality plans and policies.

Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins (Basin Plan)

The CVRWQCB adopted a Water Quality Control Plan, Fourth Edition (revised July 2016), for the Sacramento and San Joaquin River Basins (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. WDRs were adopted in order to attain the beneficial uses listed for the Basin Plan area. Water quality objectives are established for numerous constituents, including bacteria; chemical constituents such as trace elements, mercury, and methylmercury; pH; dissolved oxygen; pesticides; and salinity.

The Basin Plan identifies the Pit River as one of the larger tributaries to the Sacramento River. Beneficial uses of the Pit River include municipal and domestic water supply, agriculture, recreation, freshwater habitat, warm and cold water spawning, and wildlife habitat.

DISCUSSION OF IMPACTS

Questions A and F

As stated above, Section 303(d) of the CWA requires states to identify waters that do not meet, or are not expected to meet, water quality standards. The Pit River in the Project area is included on the 303(d) list as a Category 5 impaired water body, which refers to a water body segment where at least one beneficial use is not supported and a TMDL is required, but not yet completed. A TMDL is the total maximum daily load(s) of a pollutant(s) that can be discharged into a given waterbody and still ensure the attainment of applicable water quality standards. RWQCBs are responsible for preparing TMDLs. The Pit River is identified as impaired due to nutrients, organic enrichments/low dissolved oxygen, and water temperature resulting from agricultural uses and grazing in the area. However, because the CVRWQCB has not yet adopted TMDLs for this segment of the Pit River, no specific actions related to the 303(d) listing are required. However, water quality is regulated under the CVRWQCB regulations identified below.

The proposed Project has the potential to temporarily degrade water quality due to increased erosion during project construction; however, as discussed under Question 4.6 B, BMPs would be implemented to control erosion and sedimentation and prevent damage to streams, watercourses and aquatic habitat.

In addition, the CVRWQCB regulates dewatering discharges to storm drains and surface waters. For the proposed Project, if the discharge from dewatering is less than 250,000 gallons per day and is less than four months in duration, construction dewatering would be subject to the requirements for dewatering discharges under the *NPDES Statewide Storm Water Permit and Waste Discharge Requirements for the State of California, Department of Transportation (Caltrans Permit No. CAS000003)*. If construction dewatering exceeds these limits, the Contractor may be required to obtain coverage under CVRWQCB General Order R5-2016-0076 (NPDES NO. CAG995002) *Waste Discharge Requirements - Limited Threat Discharges to Surface Water*. These General Orders include specific requirements for monitoring, reporting, and implementing BMPs for construction dewatering activities.

In accordance with Section 401 Water Quality Certification requirements of the RWQCB, continuous visual surface water monitoring must be conducted during active construction periods to detect accidental discharge or construction-related pollutants (e.g., oil and grease, turbidity plume, uncured concrete, etc.). Surface water sampling must be conducted when performing any in-water work, in the event that project activities result in any materials reaching surface waters, or when any activities result in the creation of a visible plume in surface waters. Monitoring would be conducted immediately upstream, out of the influence of the Project, and 300 feet downstream of the active work area.

In addition, pursuant to NPDES requirements of the State Water Resources Control Board, water quality sampling must be conducted a minimum of once per day during each “qualifying rain event” (defined as 0.5 inches or more precipitation with a 48 hour or greater period between rain events). Sampling must be conducted where storm water discharges from the site. If there are fewer than three discharge points, sampling must be conducted three times per day. If the impact thresholds of either permit are exceeded, the County shall immediately implement corrective actions to ensure compliance. Corrective actions would include implementation of additional soil stabilization and sediment control measures.

Compliance with CVRWQCB regulations for dewatering and water quality monitoring, and implementation of BMPs, would ensure impacts are less than significant.

Question B

The Fall River Mills Community Services District (FRVCSD) provides water and sewer services to residents and business in the area from the Fall River Golf Course to Mayers Memorial Hospital along SR 299. According to the FRVCSD Water System Master Plan, the District relies wholly on groundwater for potable water service. Currently, the only groundwater well serving the water system is Well No. 1 in McArthur, approximately 5.25 miles northeast of the Bridge Site.

There is one well in Fall River Mills (Well No. 2) located approximately 0.5 miles from the Bridge Site. However, groundwater from this well has exceeded National Secondary Drinking Water Standards due to high iron and manganese levels, and the well is designated as an emergency standby source only.

According to the Final Foundation Report (Crawford 2017), the presence of groundwater is anticipated during construction; however, as discussed under Question A above, dewatering activities would be conducted in accordance with existing State regulations. The proposed Project would not involve direct groundwater withdrawal or injection and would not significantly increase the amount of impervious surface in any area in a manner that would prevent the infiltration of water into the soil. In addition, any dewatering would be on a temporary basis during construction. For these reasons, impacts on groundwater supplies and recharge are less than significant.

Questions C and D

See discussion in Section 4.6 under Question B. The proposed Project includes work within the channel of the Pit River. Adequate control of surface water during construction is expected to be achieved by means of dewatering, diking, and diversion. Improvement plans will ensure positive surface drainage at all locations to keep surface water from ponding and infiltrating subgrade soils. Drainage will also be directed away from slopes to prevent erosion of near-surface soils. In addition, BMPs for erosion and sediment control would be implemented in accordance with existing requirements. Therefore, the potential for soil erosion, loss of top soil, or a substantial increase in the rate or amount of surface runoff would be less than significant.

Question E

See discussion in Section 4.6 under Questions B, C, and D. Construction activities would result in the temporary disturbance of soil and would expose disturbed areas to potential storm events, which could generate accelerated runoff, localized erosion, and sedimentation. However, this is a temporary impact during construction. Runoff would not exceed the capacity of stormwater drainage systems, and no long-term impacts to stormwater drainage systems would occur. Therefore, impacts would be less than significant.

Question G

The proposed Project does not involve the construction of any housing; therefore, there would be no impact.

Question H

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for Shasta County (Panels 06089C0500G and 06089C0800G, effective March 17, 2011), the Bridge Site is located within a 100-year special flood hazard area (Zone A – no base flood elevations determined). The Borrow Site is not located within a flood hazard area. Shasta County Code Chapter 17.70, Restrictive Flood (F-2) District, is intended to minimize or avoid hazards to life and property from flooding in the areas of special flood hazard. The Code states proposed development shall not increase the water surface elevation of the base flood more than one foot at any point. Any increase shall not result in an increased risk of damage to structures or other negative impacts.

In February 2017, a Design Hydraulic Study was prepared for the proposed bridge by Norman S. Braithwaite, P.E., with Pacific Hydrologic Incorporated. According to the Study, infrequent floods in the Pit River are substantially natural and not significantly influenced by land use activities within the drainage basin. There are no accounts of water overtopping Cassel-Fall River Road in recent times. As-built drawings of the bridge identify an elevation for “extreme high water” that is likely related to a flood event on March 19, 1907, which is the highest flow recorded in the Pit River since the time stream gages were installed.

The Study concludes the proposed Project is not expected to produce an increase in the water surface elevations of the most probable 100-year flood. In addition, the Study includes recommendations for minimum soffit elevation, piers, and abutments. **Mitigation Measure MM 4.9.1** requires that the final improvement plans for the bridge be reviewed by the hydraulic engineer to ensure that recommendations are incorporated into the Project design. This will ensure that impacts are less than significant.

Question I

According to Chapter 5.3 of the Shasta County General Plan (Dam Failure Inundation), more than 3,000 reservoirs are presently located in Shasta County. Of these, 35 are dams whose design, operation, and maintenance come under the authority of the California Department of Water Resources because of their size. The State Office of Emergency Services (CalOES) is responsible for developing Emergency Action Plans (EAPs) that identify potential emergency conditions at high-hazard potential (HHP) dams and actions to be followed to minimize property damage and loss of life should a dam failure occur.

According to the USACE National Inventory of Dams, the Pit No.1 Forebay (dam), constructed in 1947 and owned by PG&E, is mapped on the Fall River approximately 0.6 miles upstream of its junction with the Pit River. According to the Shasta County General Plan, if this dam failed, it could result in injury or loss of life. However, the proposed Project does not include any components that would increase the likelihood that this dam would fail. In addition, the proposed Project would not result in an increase in population that would bring additional people into a dam inundation area. Therefore, there would be no impact.

Question J

A seiche is a large wave generated in an enclosed body of water in response to ground shaking. The largest body of water to the Project site is Fall River Lake, which is approximately 0.6 miles northwest of the Bridge Site. Seismic activity could create a large wave, which could overtop the Pit No. 1 Forebay dam. However, the proposed Project does not increase the likelihood that this would occur.

A tsunami is a wave generated in a large body of water (typically the ocean) by fault displacement or major ground movement. The Project area is located approximately 140 miles east of the Pacific Ocean and is not at risk for inundation by tsunami. A mudflow is a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity. As stated in the Final Foundation Report (Crawford 2017), the site is considered adequately stable, and no site conditions were identified that indicate a potential for mudflow or landslide. Therefore, there would be no impact from inundation by seiche, tsunami or mudflow.

CUMULATIVE IMPACTS

All projects in Shasta County are required to comply with the State Water Board General Construction NPDES permit and/or the County’s regulations for stormwater runoff, and erosion and sediment control. These regulations are intended to reduce the potential for cumulative impacts to water quality during construction. Cumulatively considerable projects would be subject to subsequent environmental review. Mitigation measures for the proposed Project, in combination with compliance with County, State, and federal regulations, would reduce cumulatively considerable impacts to a less than significant level.

MITIGATION

- MM 4.9.1** Final improvement plans shall be reviewed by the hydraulic engineer to ensure all recommendations included in the final hydraulic analysis are implemented. Applicable notes shall be placed on the attachment sheet to the Grading and Improvement Plans.

DOCUMENTATION

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- United States Army Corps of Engineers.** 2017. National Inventory of Dams. http://nid.usace.army.mil/cm_apex/f?p=838:4:0::NO. Accessed March 2017.

4.10 LAND USE AND PLANNING

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

REGULATORY CONTEXT

Shasta County General Plan

The Shasta County General Plan includes objectives and policies designed for the purpose of avoiding or minimizing environmental impacts to the natural environment. The General Plan recognizes that major factors of the natural environment are landforms, water, climate, minerals, soils, vegetation and wildlife.

Shasta County Code:

The Shasta County Code implements the County's General Plan. The purpose of the land use and planning provisions of the Code (Title 17, Zoning) is to provide for the orderly and efficient application of regulations and to implement and supplement related laws of the state of California, including but not limited to the California Environmental Quality Act (CEQA).

DISCUSSION OF IMPACTS

Question A

Land use impacts are considered significant if a proposed project would physically divide an existing community (a physical change that interrupts the cohesiveness of the neighborhood). The proposed Project would not create a barrier for existing or planned development and there would be no impact.

Question B

As discussed in each resource section of this Initial Study, the proposed Project is generally consistent with applicable Policies and Objectives of the Shasta County General Plan and with regulations of the agencies identified in Section 3.6 of this Initial Study. Where necessary, mitigation measures are included to reduce impacts to less than significant levels. Therefore, the proposed Project would not conflict with any plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect.

Question C

A Habitat Conservation Plan (HCP) is a federal planning document that is prepared pursuant to Section 10 of the Federal Endangered Species Act (FESA). A Natural Community Conservation Plan (NCCP) is a state planning document administered by CDFW. There are no HCPs, NCCPs or other habitat conservation plans that apply to the proposed Project. Therefore, there would be no impact.

CUMULATIVE IMPACTS

Cumulative projects in the vicinity of the Project area, including population growth resulting from build-out of the County's General Plan, would be developed in accordance with local and regional planning documents. Thus, cumulative impacts associated with land use compatibility are expected be less than significant. In addition, with implementation of the recommended mitigation measures, the proposed Project is consistent with the General Plan land use designations, goals, and policies, and would not contribute to the potential for adverse cumulative land use effects.

MITIGATION

No additional mitigation necessary.

DOCUMENTATION

California Department of Fish and Wildlife. 2014. California Regional Conservation Plans Map. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=68626&inline>. Accessed November 2016.

Shasta County. 2004. Shasta County General Plan, Chapter 6.7 (Fish and Wildlife Habitat). http://www.co.shasta.ca.us/docs/Resource_Management/docs/67fish.pdf?sfvrsn=0. Accessed November 2016.

_____. 2004. Shasta County General Plan, Chapter 6.9 (Open Space and Recreation). http://www.co.shasta.ca.us/docs/Resource_Management/docs/69open.pdf?sfvrsn=0. Accessed November 2016.

_____. 2004. Shasta County General Plan, Chapter 7.1 (Community Organization and Development Pattern). http://www.co.shasta.ca.us/docs/Resource_Management/docs/7-1-communityorganizationamended-08-26-2014-gpa10-002.pdf?sfvrsn=2. Accessed November 2016.

_____. 2016. Shasta County Code of Ordinances. Title 17, Zoning. https://www.municode.com/library/ca/shasta_county/codes/code_of_ordinances?nodeId=CD_OR_D_TIT17ZO. Accessed October 2016.

4.11 MINERAL RESOURCES

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<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"/>

REGULATORY CONTEXT

Shasta County General Plan: Chapter 6.4 (Minerals)

Objective MR-1 To identify, conserve, develop, and utilize Shasta County mineral resources while protecting mineral resource sites and access routes from potential conflicts with incompatible land uses.

Surface Mining and Reclamation Act of 1975 (SMARA)

The Surface Mining and Reclamation Act (SMARA), Chapter 9, Division 2 of the Public Resources Code (PRC), requires the State Mining and Geology Board to adopt State policy for the reclamation of mined lands and the conservation of mineral resources. PRC §2710-2796 provide a comprehensive surface mining and reclamation policy to assure that adverse environmental impacts are minimized and mined lands are reclaimed to a usable condition. Mineral Resource Zones are classified according to the presence of significant mineral deposits and indicate the potential for an area to contain significant mineral resources as follows:

MRZ-1: Areas with little or no likelihood for presence of significant mineral resources.

MRZ-2a: Areas underlain by mineral deposits where geologic data indicate that significant resources are present. Lands classified MRZ-2a contain discovered mineral deposits and are of prime importance due to known economic mineral deposits.

MRZ-2b: Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present or are deposits that presently are sub-economic. Further exploration could result in upgrading areas classified MRZ-2b to MRZ-2a.

MRZ-3a: Areas containing known mineral occurrences of undetermined significance. Further exploration within these areas could result in the reclassification of specific localities as MRZ-2a or MRZ-2b.

MRZ-3b: Areas containing inferred mineral occurrences of undetermined significance. Land classified MRZ-3b represents areas in geologic settings that appear to be favorable for the occurrence of specific mineral deposits. Further exploration could result in the reclassification of all or part of these areas as MRZ-3a or specific localities as MRZ-2a or MRZ-2b.

MRZ-4: Areas of no known mineral occurrences where geologic information does not rule out the presence or absence of significant mineral resources.

DISCUSSION OF IMPACTS

Questions A and B

A mineral resource is land on which known deposits of commercially viable mineral or aggregate deposits exist. The designation is applied to sites determined by the California Geological Survey as being a resource of regional significance, and is intended to help maintain any mining operations and protect them from encroachment of incompatible uses. According to the Shasta County Zoning Map, there are no areas zoned Mineral Resource (MR) in the Fall River Mills area. In addition, the California Geological Survey has not designated any Mineral Resource Zones in the Project area. Furthermore, the proposed Project would not result in a change in land use patterns. Therefore, there would be no impact on mineral resources.

CUMULATIVE IMPACTS

As documented herein, the proposed Project would not result in impacts to mineral resources; therefore, the proposed Project would not contribute to adverse impacts associated with cumulative impacts to mineral resources.

MITIGATION

None necessary

DOCUMENTATION

Department of Conservation, California Geological Survey. 2007. SMARA Mineral Land Classification Maps. ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/OFR_97-03/OFR_97-03_Plate9B.pdf. Accessed March 2017.

Shasta County. 2004. Shasta County General Plan, Chapter 6.3 (Minerals).
http://www.co.shasta.ca.us/docs/Resource_Management/docs/63minerals.pdf?sfvrsn=0. Accessed October 2016.

_____. 2016. Shasta County Code of Ordinances, Title 17 (Zoning), Chapter 18.04 (Surface Mining and Reclamation).
https://www.municode.com/library/ca/shasta_county/codes/code_of_ordinances?nodeId=CD_OR_D_TIT17ZO. Accessed October 2016.

4.12 NOISE

Would the project result in:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. For a project located within an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a 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"/>
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

REGULATORY CONTEXT

Shasta County General Plan: Chapter 5.5 (Noise)

Objectives

- N-1** To protect County residents from the harmful and annoying effects of exposure to excessive noise.
- N-2** To protect the economic base of the County by preventing incompatible land uses from encroaching upon existing or programmed land uses likely to create significant noise impacts.
- N-3** To encourage the application of state-of-the-art land use planning methodologies in the area of managing and minimizing potential noise conflicts.

Policies

- N-b** Noise likely to be created by a proposed non-transportation land use shall be mitigated so as not to exceed the noise level standards of Table N-IV as measured immediately within the property line of adjacent lands designated as noise-sensitive. Noise generated from existing or proposed agricultural operations conducted in accordance with generally accepted agricultural industry standards and practices is not required to be mitigated.

Table N-IV

Noise Level Descriptor	Leq, or energy-equivalent noise level (hourly average)
Daytime (7:00 AM – 10:00 PM):	55 decibels
Nighttime (10:00 PM – 7:00 AM):	50 decibels

- N-i** Where noise mitigation measures are required to achieve the standards of Tables N-IV and N-VI, the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall be considered a means of achieving compliance with the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project.

California Department of Transportation

For local agency projects that receive federal funding, noise associated with construction is controlled by Caltrans Standard Specification Section 14-8.02, "Noise Control," which states the following:

- Do not exceed 86 dBA Lmax (highest instantaneous sound level) at 50 feet from the job site activities from 9 p.m. to 6 a.m.

- Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

DISCUSSION OF IMPACTS

Questions A, B, C, and D

Some land uses are considered more sensitive to noise than others. The General Plan identifies residential areas, parks, schools, churches, hospitals and long-term care facilities as noise sensitive areas and uses. A sensitive receptor is defined as any living entity or aggregate of entities whose comfort, health, or well-being could be impaired or endangered by the existence of noise.

Because the proposed Project would not induce population growth in the area, there would be no long-term increase in noise levels in the area.

Construction Noise

Construction of the proposed Project would temporarily increase noise levels and create vibration at nearby sensitive land uses, which include residences to the northwest and east of the Bridge Site, and a hotel to the northwest on Main Street. There are no sensitive uses in proximity to the Borrow Site or along the route from the bridge to the Borrow Site.

As shown in **Figure 4.12-1**, the nearest residence to the Bridge Site is adjacent to the eastern roadway approach, approximately 40 feet from the edge of existing pavement and 250 feet southeast of the bridge abutment. The nearest residence adjacent to the western roadway approach is approximately 50 feet northwest of the area where roadwork would commence and approximately 500 feet northwest of the bridge abutment. There is also a caretaker's unit approximately 150 feet southwest of the bridge abutment. A hotel is approximately 350 feet northwest of the area where roadwork would commence and approximately 800 feet northwest of the bridge abutment. Additional residences are located along Main Street and Merchant Street northwest of the bridge.

Temporary noise impacts would occur from an increase in traffic from construction crews and delivery of construction equipment and materials to the Project site. However, most heavy equipment would remain on-site for the duration of the construction season, and it is not anticipated that worker commutes would significantly increase daily traffic volumes. As shown in **Table 3.0-1** (Summary of Project Impacts), construction activities are proposed that would expose people to excessive noise levels during construction, including, but not limited to:

- Cutting into fractured rock
- Drilling for temporary piles and guardrail posts
- Steel driven H-piles (abutments)
- Cast-In Drilled-Hole (CIDH) piles
- Demolition of the existing bridge
- Use of heavy equipment during construction.

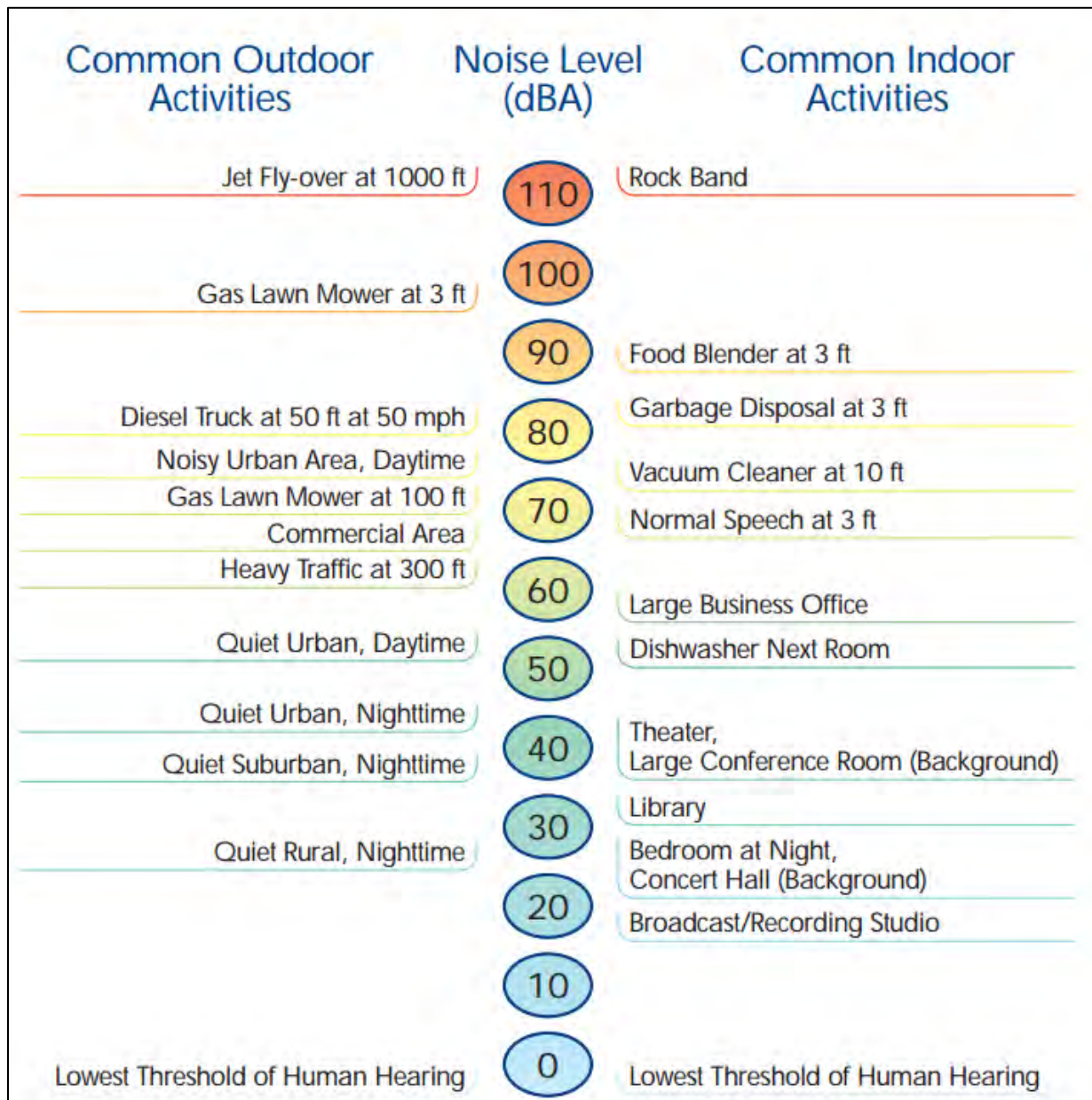
Although blasting is not expected to be required, work on the west side of the bridge would be in fractured rock material, and the need for blasting is a possibility.

Noise impacts resulting from construction activities would depend on: 1) the noise generated by various pieces of construction equipment; 2) the timing and duration of noise-generating activities; 3) the distance between construction noise sources and noise sensitive receptors; and 4) existing ambient noise levels. **Figure 4.12-2** shows noise levels of common activities to enable the reader to compare construction-noise with common activities.



Figure 4.12-1
Sensitive Receptors

FIGURE 4.12-2
Noise Levels for Common Activities



Source: Caltrans, 2016

Noise levels from construction-related activities would fluctuate, depending on the number and type of construction equipment operating at any given time. As shown in **Table 4.12-1**, construction equipment anticipated to be used for project construction typically generates maximum noise levels ranging from 76 to 101 decibels (dBA) at a distance of 50 feet.

TABLE 4.12-1
Examples of Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level (dBA) 50 ft from Source
Air compressor	81
Backhoe	80
Blasting	94
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Jack hammer	88
Loader	85
Paver	89
Pile-driver (Impact)	101
Pile-driver (Sonic)	96
Pump	76
Rock drill	98
Roller	74
Saw	76
Truck	88

Sources: Federal Transit Administration (2006), adapted by ENPLAN 2017

Noise from construction activities generally attenuates at a rate of 6 dBA per doubling of distance, assuming the intervening ground is a smooth surface without much vegetation, which it is in this situation. In the worst-case scenario, noise levels from pile driving could reach approximately 81 dBA at the nearest residence on the west side of the river and 95 dBA at the nearest residence on the east side of the river. At the caretaker's unit on the west side of the river, noise levels from pile driving could reach approximately 91 dBA. If blasting is required, it is estimated that noise levels could reach 76 to 85 dBA at the nearest residences, depending on the location of blasting operations. Roadway approach work, which would occur much closer to the residences, could reach 89 dBA.

Construction Vibration Impacts

Operation of heavy construction equipment creates seismic waves that radiate along the surface of the earth and downward into the earth. These surface waves can be felt as ground vibration. According to the Federal Transit Administration (2006), the effects of ground-borne vibration include perceptible movement of building floors, rattling windows, shaking of items on shelves or hangings on walls, and rumbling sounds. In extreme cases, vibration can cause damage to buildings. Both human and structural response to ground-borne vibration is influenced by various factors, including ground surface, distance between the source and the receptor, and duration.

The most common measure used to quantify vibration amplitude is the peak particle velocity (PPV). PPV is a measurement of ground vibration defined as the maximum speed (measured in inches per second) at which a particle in the ground is moving relative to its inactive state.

Although there are no federal, state, or local regulations for ground-borne vibration, Caltrans has developed criteria for evaluating vibration impacts, both for potential structural damage and for human annoyance. The Caltrans Transportation and Construction Vibration Guidance Manual (2013), was referenced in the analysis of construction-related vibration impacts.

Table 4.12-2 includes the potential for damage to various building types as a result of ground-borne vibration. Transient sources include activities that create a single isolated vibration event, such as blasting. Continuous, frequent, or intermittent sources include impact pile drivers, vibratory pile drivers, and vibratory compaction equipment.

TABLE 4.12-2
Structural Damage Thresholds from Ground-borne Vibration

Structure Type	Vibration Level (Inches per Second PPV)	
	Transient Sources	Continuous/ Frequent/ Intermittent Sources
Older residential structures	0.5	0.3
Newer residential structures	1.0	0.5
Historic and some old buildings	0.5	0.25
Newer industrial/commercial buildings	2.0	0.5

Source: Caltrans, 2013

Table 4.12-3 indicates the potential for annoyance to humans as a result of ground-borne vibration.

TABLE 4.12-3
Human Response to Ground-borne Vibration

Human Response	Vibration Level (Inches per Second PPV)	
	Transient Sources	Continuous/ Frequent/ Intermittent Sources
Barely Perceptible	0.04	0.01
Distinctly Perceptible	0.25	0.04
Strongly Perceptible	0.9	0.10
Disturbing	2.0	0.4

Source: Caltrans, 2013

Table 4.12-4 indicates vibration levels for various types of construction equipment that may be used for the proposed Project.

TABLE 4.12-4
Examples of Construction Equipment Ground-borne Vibration

Equipment Type	PPV at 25 feet (inches per second)
Bulldozer (small)	0.003
Bulldozer (large)	0.089
Jackhammer	0.035
Loaded trucks	0.076
Pile Driver (Impact)	0.65
Pile Driver (Vibratory)	0.17
Vibratory roller	0.210

Source: Caltrans Vibration Prediction and Screening Assessment for Construction Equipment, 2013.

Vibration levels from pile driving at varying distances from the source can be calculated using the following formula:

$$PPV_{\text{Impact Pile Driver}} = PPV_{\text{Ref}} \times (25/D)^n \times (E_{\text{equip}}/E_{\text{Ref}})^{0.5}$$

Where:

PPV_{Ref} = 0.65 in/sec for a reference pile driver at 25 feet

D = distance from pile driver to the receiver in feet

n = a value related to the vibration attenuation rate through ground¹

E_{Ref} = 36,000 ft-lbs (rated energy of reference pile driver)

E_{equip} = rated energy of impact pile driver in ft-lbs²

Using the footnoted assumptions, ground-borne vibration levels from impact pile driving could reach approximately 0.16 PPV inches per second at the caretaker's trailer on the west side of the river, and 0.08 PPV inches per second at the residence on the east side of the river. As shown in **Table 4.12-3**, these vibration levels would be Distinctly Perceptible at the residence on the east side of the river and Strongly Perceptible at the caretaker's trailer on the west side of the river, but, As shown in **Table 4.12-2**, would not approach levels that could result in structural damage to older residences. Vibration levels would be lower at all other structures in the vicinity.

Vibration levels from other equipment use at varying distances from the source can be calculated using the following formula:

$$PPV_{\text{Equipment}} = PPV_{\text{Ref}} \times (25/D)^n$$

Based on this equation, a vibratory roller at a distance of 40 feet would generate a PPV of 0.13 inches per second, while a large bulldozer would generate a PPV of up to 0.06 inches per second.

¹ The attenuation rate (n) for vibration impacts is based, in part, on site-specific soil conditions. The Caltrans Transportation and Construction Vibration Guidance Manual (2013), recommends using an attenuation rate of 1.0 for hard, competent rock (e.g., bedrock, freshly exposed hard rock that is hard to break with a hammer), which is expected to be encountered at the Bridge Site.

² The geotechnical engineer (E. Nichols, pers. comm.) for the project recommended using an E_{equip} value for a D36-32 hammer, which has a fully rated energy of 90,540 ft-lbs. The geotechnical engineer also noted that the actual energy will depend on the hammer selected; further, because of the presence of bedrock under the piers and Abutment 4, pilot holes will be drilled in these areas and the needed hammer energy will be approximately 75 to 80 percent of the fully rated energy.

As with pile driving, these vibration levels would be Distinctly Perceptible to Strongly Perceptible, but would not cause structural damage to older residences.

As noted above, blasting is not expected to be necessary but the potential need for blasting cannot be ruled out at this time; blasting may be needed to fracture the bedrock on the western side of the bridge. Blasting is considered a transient event and would be of short duration over a specified period of time. Noise and vibration levels associated with blasting can be highly variable depending on the methodology selected by the licensed blasting professional. If blasting is required, it would be conducted under the direct supervision of a blaster holding a current license issued by Cal/OSHA; a blasting plan subject to approval by Shasta County would be provided in advance so that the County can ensure that potential concerns with respect to noise, vibration, safety, and security are adequately addressed.

Mitigation Measure MM 4.12.1 would restrict construction activities to daytime hours and limit the exposure of nearby residents to noise and ground-borne vibration generated by construction activities. **Mitigation Measure MM 4.12.2** requires even more limited hours for pile driving and blasting activities. **Mitigation Measure MM 4.12.3** provides additional controls for noise and vibration caused by pile-driving. **MM 4.12.4, MM 4.12.5 and MM 4.12.6** would further reduce construction-related impacts. Additionally, as called for in **Mitigation Measure MM 4.6.3**, a blasting plan subject to approval by Shasta County would be provided in advance so that the County can ensure that potential concerns with respect to noise, vibration, safety, and security are adequately addressed.

Because increased noise and ground-borne vibration are temporary and would cease upon completion of Project construction, and mitigation measures would be implemented to reduce noise and ground-borne vibration during construction, impacts would be less than significant.

Questions E and F

According to the Shasta County General Plan, the Project area is not within an airport land use plan area. According to the Federal Aviation Administration (FAA), the nearest public airport is Fall River Mills Airport, approximately 3,200 feet (0.6 miles) north of the bridge area. The FAA also lists two privately owned heliports in Burney, California: The Burney Service Center Heliport, owned by Pacific Gas & Electric, approximately 13 miles to the southwest; and the Burney Sheriff's Station Heliport, owned by Shasta County, approximately 14.5 miles to the southwest.

Although construction workers would be completing improvements 0.6 miles south of the Fall River Mills Airport, exposure to noise from the airport would be minimal. The proposed Project does not include any components that would introduce a substantial number of people to the area in the long-term; therefore, potential impacts are less than significant.

CUMULATIVE IMPACTS

The proposed Project would result in a temporary increase in daytime noise levels during construction activities. Other projects within the study area would also contribute to increases in noise levels during construction, and in some cases construction periods may overlap. However, all construction would take place in compliance with applicable policies governing noise levels. Therefore, cumulative noise impacts are considered less than significant.

MITIGATION

- MM 4.12.1** Construction activities (excluding activities that would result in a safety concern to the public or construction workers due to interference with traffic) shall be limited to between the daytime hours of 7:00 A.M. and 7:00 P.M., Monday through Friday; and 8:00 A.M. and 5:00 P.M., on Saturdays, Sundays, and federal/state recognized holidays.
- MM 4.12.2** Pile driving and blasting activities shall occur only between the hours of 9:00 A.M. and 6:00 P.M.

- MM 4.12.3** Noise generated by pile-driving activities shall be minimized to the extent practicable, through the use of cushion blocks with impact hammer pile drivers; attaching acoustical insulation material to the inside of construction fencing or supports; installing temporary sound barriers between sensitive uses and the construction site; and/or pre-drilling holes for the piles. Sonic or vibratory pile drivers may be used where geological conditions permit their use.
- MM 4.12.4** Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.
- MM 4.12.5** When not in use, motorized construction equipment shall not be left idling for more than five minutes.
- MM 4.12.6** Stationary equipment (generators, compressors, etc.) shall be located at the furthest practical distance from nearby noise-sensitive land uses.

DOCUMENTATION

California Department of Transportation. 2013. Transportation and Construction Vibration Guidance Manual. http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf. Accessed March 2017.

Federal Transit Administration. 2006. *Transit Noise and Vibration Impact Assessment*. FTA-VA-90-1003-06. Washington, DC: Office of Planning and Environment. http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf. Accessed October 2016.

Shasta County. 2004. Shasta County General Plan, Chapter 5.5 (Noise). http://www.co.shasta.ca.us/docs/Resource_Management/docs/55noise.pdf?sfvrsn=0. Accessed October 2016.

_____. Shasta County Department of Public Works. Personal communications with ENPLAN. October - December 2016.

4.13 POPULATION AND HOUSING

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., 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 housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION OF IMPACTS

Question A

The proposed Project is needed because the existing bridge, constructed in 1922, is structurally deficient, functionally obsolete for width and loading, and does not meet current federal or local design standards. The improvements are not growth-related. Therefore, the proposed Project would not induce substantial population growth in the area, either directly or indirectly, and there would be no impact.

Questions B and C

No houses would be demolished to accommodate the proposed improvements; therefore, there would be no impact.

CUMULATIVE IMPACTS

Cumulative growth in the area has been addressed in the County's General Plan. Because the purpose of the proposed Project is to repair aging infrastructure, it would not increase growth beyond that projected in the General Plan; therefore, no cumulative impacts would occur.

MITIGATION

None necessary

DOCUMENTATION

Shasta County. 2011. Shasta County General Plan, Housing Element.
http://www.co.shasta.ca.us/index/drm_index/planning_index/housing_element.aspx. Accessed November 2016.

4.14 PUBLIC SERVICES

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

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION OF IMPACTS

Questions A and B

The proposed Project would not result in the need for additional long-term fire protection services. In the event of an emergency during construction activities, fire protection services would be provided by the Fall River Mills Fire Department. No new facilities related to fire protection would need to be constructed. The proposed Project would not result, either directly or indirectly, in an increase in population or new commercial development requiring additional law enforcement services. Therefore, there would be no impact.

Questions C, D, and E

The proposed Project would not result, either directly or indirectly, in an increase in population requiring additional schools, parks, or public facilities, or the expansion of existing schools, parks, or other public facilities. Therefore, there would be no impact.

CUMULATIVE IMPACTS

As described above, the proposed Project would not increase the demand for long-term public services; therefore, no cumulatively considerable impacts would occur.

MITIGATION

None necessary

DOCUMENTATION

Shasta County. 2004. Shasta County General Plan, Chapter 5.4 (Fire Safety and Sheriff Protection).
http://www.co.shasta.ca.us/docs/Resource_Management/docs/54firesafety.pdf?sfvrsn=0.
Accessed March 2017.

4.15 RECREATION

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. 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"/>

DISCUSSION OF IMPACTS

Questions A and B

The proposed Project does not include the construction of houses or businesses that would increase the number of residents or employees in the area. Therefore, the proposed Project would not result in

an increased demand for recreational facilities. Likewise, Project implementation would have no adverse effects on the nearby PG&E fishing access point or other existing recreational facilities.

CUMULATIVE IMPACTS

The proposed Project would not impact any existing recreational facilities; therefore, no cumulatively considerable impacts to recreational facilities would occur.

MITIGATION

None necessary

DOCUMENTATION

Shasta County Department of Public Works. Personal communications with ENPLAN.
November 2016.

4.16 TRANSPORTATION/TRAFFIC

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Conflict with adopted policies, plans or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

REGULATORY CONTEXT

Shasta County General Plan: Chapter 7.4 (Circulation).

Objective C-6 Formulate and adopt circulation design standards that:

- are uniformly applied on a Countywide basis according to development type;
- respond to public safety and health considerations, especially vehicle and pedestrian safety, emergency access, evacuation routes, and the existing noise environments of communities;

- address all modes of transportation; and
- will not result in substantial deterioration of air quality.

DISCUSSION OF IMPACTS

Questions A and B

The proposed improvements would not, either directly or indirectly, result in an increase in housing or commercial/industrial development that would cause an increase in traffic in the area. As such, implementation of the proposed Project would not substantially affect the surrounding transportation network in the long term, and would not conflict with existing plans, ordinances, policies, or programs.

There would be short-term increases in traffic in the area associated with construction workers and equipment; however, as discussed in Question 4.8 G, temporary traffic control is required and must adhere to the procedures, methods, and guidance given in the current edition of the California Manual on Uniform Traffic Control Devices (California MUTCD). Impacts would be less than significant.

Question C

The proposed Project does not involve any aviation-related uses and would not increase the need for air travel that would result in aviation-related safety risks. Therefore, there would be no impact.

Questions D and E

See Question 4.8 G for a discussion of potential construction-related impacts. The proposed Project would not result in a permanent alteration of public access routes or an increase in hazards due to transportation design features or incompatible uses. Emergency access would be maintained throughout construction. Therefore, impacts would be less than significant.

Question F

The proposed Project would not result in the need for additional long-term parking. Parking for construction equipment and employees would be provided throughout construction at designated staging areas. Therefore, there would be no impact.

Question G

The proposed Project does not include any components that would remove or change the location of any sidewalk, bicycle lane, ride sharing or public transportation facility. There are no adopted policies, plans or programs related to alternative transportation that would apply to the proposed Project. Therefore, there would be no impact.

CUMULATIVE IMPACTS

The proposed Project would not result in a permanent increase in traffic. Traffic impacts would occur temporarily during construction activities. However, no significant concurrent construction activities near the roadway network are anticipated. Therefore, no cumulative impacts would occur.

MITIGATION

None necessary

DOCUMENTATION

Shasta County. 2004. Shasta County General Plan, Chapter 7.4 (Circulation).

http://www.co.shasta.ca.us/docs/Resource_Management/docs/74circ.pdf?sfvrsn=0. Accessed October 2016.

4.17 TRIBAL CULTURAL RESOURCES

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code (PRC) 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:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. A resource listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k)?	<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 PRC section 5024.1? In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REGULATORY CONTEXT

Assembly Bill 52 (2014)

Public Resources Code §21084.2 establishes that *“a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment.”* In order to determine whether a project may have such an effect, a lead agency is required to consult with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project if:

1. The California Native American tribe requested to the lead agency, in writing, to be informed through formal notification of proposed projects in the geographical area; and
2. The tribe responds, in writing, within 30 days of receipt of the formal notification and requests the consultation.

The consultation must take place prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report. Pursuant to PRC §21084.3, lead agencies must, when feasible, avoid damaging effects to a tribal cultural resource and must consider measures to mitigate any identified impact. PRC §20184.3 (b)(2) provides the following examples of mitigation measures that lead agencies may consider:

1. Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

2. Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - a. Protecting the cultural character and integrity of the resource
 - b. Protecting the traditional use of the resource
 - c. Protecting the confidentiality of the resource
3. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places
4. Protecting the resource

Definition of Tribal Cultural Resource

PRC §21074 states:

- (a) "Tribal cultural resources" are either of the following:
 - (1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
 - (A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
 - (B) Included in a local register of historical resources as defined in subdivision (k) of §5020.1.
 - (2) 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 §5024.1. In applying the criteria set forth in subdivision (c) of §5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.
- (b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.
- (c) A historical resource described in §21084.1, a unique archaeological resource as defined in subdivision (g) of §21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of §21083.2 may also be a tribal cultural resource if it conforms to the criteria of subdivision (a).

DISCUSSION OF IMPACTS

Questions A and B

Shasta County Planning Department staff (W. Walker, pers. comm.) confirmed that, as of November 1, 2017, only one Native American group, the Pit River Tribe, has filed a request for AB 52 notification with the County. Pursuant to AB 52, the County notified the Pit River Tribe regarding the proposed Project. The Tribe requested AB 52 consultation regarding the subject Project.

Based on direction from the Pit River Tribal Council, Shasta County conducted consultation with representatives of the Ajumawi Band of the Pit River Tribe. The objective of consultation was to ensure that project implementation would not adversely affect tribal cultural resources.

As noted under Section 4.5 (Cultural Resources), consultation revealed that one traditional cultural property (TCP) has been designated in the area. The TCP, known as the Ajumawi Settlement Area TCP, has been broadly mapped to include the entirety of the bridge APE and extensive surrounding

lands; a fraction of the TCP is within the ADI. The geographic area is of cultural significance to the Ajumawi Band of Pit River Indians and is a NRHP-eligible TCP.

As documented in Section 4.5, implementation of the PA, as called for in **Mitigation Measure MM 4.5.1**, will ensure that the proposed Project would not adversely affect the TCP as a whole and would not diminish the characteristics that make the overall property eligible for NRHP listing. **Mitigation Measures MM 4.5.2 and 4.5.3** address the inadvertent discovery of cultural resources and human remains to ensure that impacts are less than significant.

As documented in **Appendix C**, following review of Project plans, the Ajumawi Band has concurred that the proposed Project, within implementation of **MM 4.5.1** through **MM 4.5.3**, would not adversely affect tribal cultural resources.

CUMULATIVE IMPACTS

Cumulative projects in the vicinity of the Project area have the potential to impact tribal cultural resources. Tribal cultural resources are afforded special legal protections designed to reduce the cumulative effects of development. Potential cumulative projects and the proposed Project would be subject to the protection of tribal cultural resources afforded by Public Resources Code §21084.3. Given the non-renewable nature of tribal cultural resources, any impact to tribal cultural sites, features, places, landscapes or objects could be considered cumulatively considerable.

Although the proposed Project may affect the NRHP-eligible Ajumawi Settlement Area TCP and/or other cultural elements, **Mitigation Measures MM 4.5.1** through **MM 4.5.3** address the inadvertent discovery of cultural resources and human remains and provide for avoidance and/or mitigation of Project effects on such resources. Therefore, with implementation of the proposed mitigation measures, the Project would have less than significant cumulative impacts to tribal cultural resources.

MITIGATION

Implementation of **Mitigation Measures MM 4.5.1** through **MM 4.5.3**.

DOCUMENTATION

ENPLAN. 2012. Archaeological Survey Report for the Cassel-Fall River Road Bridge (6C0039) Replacement Project over the Pit River, Shasta County, California. Prepared for Shasta County (Confidential Document).

Shasta County. 2004. Shasta County General Plan, Chapter 6.10 (Heritage Resources).
http://www.co.shasta.ca.us/docs/Resource_Management/docs/6_10heritage.pdf?sfvrsn=0.
Accessed November 2016.

4.18 UTILITIES AND SERVICE SYSTEMS

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Result in a determination by the wastewater treatment provider that 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"/>
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Comply with federal, state and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

REGULATORY CONTEXT

Shasta County General Plan: Chapter 7.5 (Public Facilities).

Objectives

PF-1 Development of a comprehensive, long-term plan for wastewater treatment within the County, coordinated with community development objectives and designed to provide this service in a manner making the most effective use of public resources.

PF-3 Develop the Shasta County solid waste program in accordance with the adopted management plans.

DISCUSSION OF IMPACTS

Question A

The proposed Project would not generate the need for wastewater treatment or induce population growth either directly or indirectly that would increase the demand for wastewater treatment. Therefore, there would be no impact.

Question B

The proposed Project does not include the construction of new facilities other than the improvements discussed in this Initial Study. Therefore, there would be no impact.

Question C

Completion of the proposed Project would not require the construction or expansion of permanent storm water drainage facilities other than roadside ditches and pipes, which are addressed in this Initial Study. In addition, as discussed in Section 4.9 under Questions C and D, adequate control of surface water during construction is expected to be achieved by means of dewatering, diking, and diversion. Improvement plans will ensure positive surface drainage at all locations to keep surface water from ponding and infiltrating subgrade soils. Drainage will also be directed away from slopes to prevent erosion of near-surface soils. Because the improvement plans would be prepared by a licensed engineer, and standard engineering design measures and construction methods would be implemented, impacts from the proposed drainage improvements would be less than significant.

Questions D and E

Relatively small amounts of water would be used during project construction, but this is a temporary impact. As discussed under Question 4.13 A, the proposed Project would not induce population growth either directly or indirectly that would require additional long-term water supplies or increase the demand for wastewater treatment. Therefore, impacts would be less than significant.

Questions F and G

The proposed Project would generate a large amount of solid waste, mainly from demolition of the existing bridge. Construction and demolition materials would be recycled to the extent feasible. Solid waste that remains after recycling would be disposed of at a landfill within the region. **Mitigation Measures MM 4.3.2, MM 3.3.3, MM 4.3.4, and MM 4.8.1** require disposal of materials containing asbestos, lead or TWW at a facility that is specifically licensed to accept these hazardous waste materials. In the long-term, the proposed Project would not result in a long-term demand for additional solid waste services.

The construction contractor would be responsible for disposing of all construction waste. The County would ensure through contractual obligations that the contractor complies with all federal, State and local statutes related to solid waste disposal. Therefore, impacts would be less than significant.

CUMULATIVE IMPACTS

Utility and service systems in the area would not experience a permanent increase in demand for services over existing conditions. Therefore, the proposed Project would not contribute to cumulative impacts to utility and service systems.

MITIGATION

None necessary

DOCUMENTATION

Shasta County. 2004. Shasta County General Plan, Chapter 7.5 (Public Facilities).
http://www.co.shasta.ca.us/docs/Resource_Management/docs/75pubfac.pdf?sfvrsn=0.
Accessed November 2016.

4.19 MANDATORY FINDINGS OF SIGNIFICANCE

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

b. Does the 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Does the project have environmental effects that 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"/>

DISCUSSION OF IMPACTS

Question A

As discussed in the applicable environmental resource section above, the proposed Project could result in possible effects to special-status wildlife species, loss of riparian habitat, loss of wetlands, loss of oak woodland, disturbance of nesting migratory birds, impacts to cultural resources and tribal cultural resources, potential exposure to geologic and hydrologic hazards, temporarily increased risk of wildfires, temporarily increased risk of exposure to contaminated materials, temporarily increased air emissions, and temporarily increased noise and vibration levels. However, mitigation measures are included to reduce all potential impacts to a less than significant level.

Question B

The potential cumulative impacts of the proposed Project have been analyzed within the discussion of each environmental resource area above. Mitigation measures are included to reduce all potential impacts to a less than significant level.

Question C

As discussed in the applicable environmental resource sections above, the proposed Project could result in adverse effects on human beings due to temporarily increased risk of wildfires, temporarily increased risk of exposure to contaminated materials, temporarily increased air emissions, and temporarily increased noise and vibration levels. However, mitigation measures are included to reduce all potential impacts to a less than significant level.

SECTION 5.0 LIST OF PREPARERS

ENPLAN

Donald Burk Environmental Services Manager
Carla L. Thompson, AICP Senior Environmental Planner
John Luper Environmental Scientist
Heidi Shaw Petyo Senior Archaeologist
Jacques Peltier Archaeologist
Teresa Baarts Production Coordinator

County of Shasta

Shawn Ankeny Supervising Engineer
Stuart Davis Associate Engineer

SECTION 6.0 ABBREVIATIONS AND ACRONYMS

AB	Assembly Bill
AF	Acre Feet
AQAP	Air Quality Attainment Plan
AQMD	Air Quality Management District
APCD	Air Pollution Control District
APE	Area of Potential Effects
AST	Aboveground Storage Tank
BAU	Business as Usual
BMP	Best Management Practice
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalARP	California Accidental Release Prevention
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CAP	Criteria Air Pollutants
CARB	California Air Resources Board
CBSC	California Building Standards Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDP	Census Designated Place
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH ₄	Methane
CIDH	Cast-in-drilled-hole
CNDDDB	California Natural Diversity Data Base
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO _{2e}	Carbon Dioxide Equivalent
County	Shasta County
CRHR	California Register of Historical Resources
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
CWSRF	Clean Water State Revolving Fund
CY	Cubic Yards

dBA	Decibels
DBH	Diameter at Breast Height
DCB	Density Current Baffles
DOC	Department of Conservation
DPS	Distinct Population Segment
DTSC	California Department of Toxic Substances Control
EHD	Environmental Health Department
EO	Executive Order
ERM	Environmental Resources Management
FEMA	Federal Emergency Management Act
FESA	Federal Endangered Species Act
FHSZ	Fire Hazard Severity Zone
GHG	Greenhouse Gas Emissions
GWP	Global Warming Potential
H ₂ S	Hydrogen Sulfide
HCP	Habitat Conservation Plan
HFC	Hydrofluorocarbons
HSC	California Health and Safety Code
IBC	International Building Code
IS	Initial Study
LRA	Local Responsibility Area
MACT	Maximum Achievable Control Technology
MCL	Maximum Contaminant Level
MEP	Maximum Extent Practicable
mg/m ³	Milligrams per Cubic Meter
MND	Mitigated Negative Declaration
MRB	Mining Resource Buffer
MRZ	Mineral Resource Zone
MUTCD	California Manual on Uniform Traffic Control Devices
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan

NEIC/CHRIS	Northeast Information Center of the California Historical Resources Information System
NEHRA	National Earthquake Hazards Reduction Act
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Policy Act
NF ₃	Nitrogen Trifluoride
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
N ₂	Nitrogen
N ₂ O	Nitrous Oxide
NO	Nitric Oxide
NO ₂	Nitrogen Dioxide
NO _x	Oxides of Nitrogen
NPDES	National Pollutant Discharge Elimination System
NPPA	California Native Plant Protection Act
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSVAB	Northern Sacramento Valley Air Basin
NSVPA	Northern Sacramento Valley Planning Area
NWP	Nationwide Permit
O ₂	Oxygen
O ₃	Ozone
OHWM	Ordinary High Water Mark
OSHA	Occupational Safety and Health Act
Pb	Lead
PCN	Pre-Construction Notification
PF	Public Facilities
PFC	Perfluorocarbons
PG&E	Pacific Gas and Electric
PM _{2.5}	Particulate Matter, 2.5 microns in size
PM ₁₀	Particulate Matter, 10 microns in size
PPB	Parts per Billion
PPM	Parts per Million
PPV	Peak Particle Velocity (PPV)
PRC	Public Resources Code
Project	Cassel-Fall River Bridge Replacement
PVC	Polyvinyl Chloride
PWWF	Peak Wet Weather Flow

RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Conditions
RMP	Risk Management Plan
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAQMD	Shasta County Air Quality Management District
SCS	Sustainable Communities Strategy
SDWA	Safe Drinking Water Act
SF ₆	Sulfur Hexafluoride
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMARA	The Surface Mining and Reclamation Act
SO ₂	Sulfur Dioxide
SO ₄	Sulfates
SO _x	Sulfur Oxides
SRA	State Responsibility Area
SRTA	Shasta Regional Transportation Agency
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
SVAQEEP	Sacramento Valley Air Quality Engineering and Enforcement Professionals
TAC	Toxic Air Contaminants
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Loads
TPH	Total Petroleum Hydrocarbons
TPQ	Federal Threshold Planning Quantity
TPZ	Timberland Production Zone
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWA	United States Fish and Wildlife Service
USGS	United States Geological Survey
VDECS	Verified Diesel Emission Control Strategies
VMT	Vehicle Miles Travelled
VOC	Volatile Organic Compounds
WAS	Waste Activated Sludge
WDRs	Waste Discharge Requirements

WQO	Water Quality Objectives
$\mu\text{g}/\text{m}^3$	Micrograms per Cubic Meter

APPENDIX A

CalEEMod.2016.3.2 Emissions Reports

Cassel-Fall River Bridge - Shasta County AQMD Air District, Annual

Cassel-Fall River Bridge

Shasta County AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.00		1.20	52,272.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	82
Climate Zone	3			Operational Year	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Information provided by Morrison Structures, Inc.

Construction Phase - Construction schedule provided

Off-road Equipment - No architectural coatings per Morrison Structures, Inc.

Grading - Information provided by Morrison Structures, Inc.

Demolition -

Area Coating - No parking involved.

Land Use Change -

Construction Off-road Equipment Mitigation -

Cassel-Fall River Bridge - Shasta County AQMD Air District, Annual

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	3136	0
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	200.00	142.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	4.00	10.00
tblConstructionPhase	NumDays	2.00	3.00
tblConstructionPhase	PhaseEndDate	3/23/2020	3/9/2020
tblConstructionPhase	PhaseEndDate	2/24/2020	11/15/2019
tblConstructionPhase	PhaseEndDate	5/10/2019	12/6/2019
tblConstructionPhase	PhaseEndDate	5/20/2019	5/1/2019
tblConstructionPhase	PhaseEndDate	3/9/2020	9/13/2019
tblConstructionPhase	PhaseEndDate	5/14/2019	4/17/2019
tblConstructionPhase	PhaseStartDate	5/21/2019	5/2/2019
tblConstructionPhase	PhaseStartDate	4/15/2019	11/18/2019
tblConstructionPhase	PhaseStartDate	5/15/2019	4/18/2019
tblConstructionPhase	PhaseStartDate	2/25/2020	9/2/2019
tblConstructionPhase	PhaseStartDate	5/11/2019	4/15/2019
tblGrading	AcresOfGrading	3.75	1.20
tblGrading	AcresOfGrading	1.50	0.00
tblGrading	MaterialExported	0.00	4,500.00
tblGrading	MaterialImported	0.00	1,750.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

Cassel-Fall River Bridge - Shasta County AQMD Air District, Annual

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					
2019	0.2136	1.7091	1.2926	2.7300e-003	0.0927	0.0838	0.1765	0.0302	0.0803	0.1105	0.0000	237.4399	237.4399	0.0384	0.0000	238.3991
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	0.2136	1.7091	1.2926	2.7300e-003	0.0927	0.0838	0.1765	0.0302	0.0803	0.1105	0.0000	237.4399	237.4399	0.0384	0.0000	238.3991

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					
2019	0.2136	1.7091	1.2926	2.7300e-003	0.0569	0.0838	0.1407	0.0174	0.0803	0.0977	0.0000	237.4397	237.4397	0.0384	0.0000	238.3990
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	0.2136	1.7091	1.2926	2.7300e-003	0.0569	0.0838	0.1407	0.0174	0.0803	0.0977	0.0000	237.4397	237.4397	0.0384	0.0000	238.3990

	ROG	NOx	CO	SO2	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	38.65	0.00	20.30	42.42	0.00	11.59	0.00	0.00	0.00	0.00	0.00	0.00

Cassel-Fall River Bridge - Shasta County AQMD Air District, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	4-15-2019	7-14-2019	0.7511	0.7511
2	7-15-2019	10-14-2019	0.6931	0.6931
3	10-15-2019	1-14-2020	0.4317	0.4317
		Highest	0.7511	0.7511

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2.2 Overall Operational

Unmitigated Operational

[illegible]

Mitigated Operational

[illegible]

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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
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.3 Vegetation

Vegetation

	CO2e
Category	MT
Vegetation Land Change	-11.1000
Total	-11.1000

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/15/2019	4/17/2019	5	3	
2	Grading	Grading	4/18/2019	5/1/2019	5	10	
3	Building Construction	Building Construction	5/2/2019	11/15/2019	5	142	
4	Paving	Paving	9/2/2019	9/13/2019	5	10	
5	Demolition	Demolition	11/18/2019	12/6/2019	5	15	
6	Architectural Coating	Architectural Coating	3/10/2020	3/9/2020	5	0	

Acres of Grading (Site Preparation Phase): 0

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Acres of Grading (Grading Phase): 1.2**Acres of Paving: 1.2****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 3,136
(Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	0.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	6.00	187	0.41
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

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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
Architectural Coating	0	4.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	22.00	9.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	5	13.00	0.00	247.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	781.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

3.2 Site Preparation - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.9000e-003	0.0000	7.9000e-003	4.3400e-003	0.0000	4.3400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5700e-003	0.0292	0.0118	3.0000e-005		1.3200e-003	1.3200e-003		1.2200e-003	1.2200e-003	0.0000	2.3200	2.3200	7.3000e-004	0.0000	2.3384
Total	2.5700e-003	0.0292	0.0118	3.0000e-005	7.9000e-003	1.3200e-003	9.2200e-003	4.3400e-003	1.2200e-003	5.5600e-003	0.0000	2.3200	2.3200	7.3000e-004	0.0000	2.3384

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3.2 Site Preparation - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	7.0000e-005	6.2000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1381	0.1381	1.0000e-005	0.0000	0.1382
Total	8.0000e-005	7.0000e-005	6.2000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1381	0.1381	1.0000e-005	0.0000	0.1382

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					3.0800e-003	0.0000	3.0800e-003	1.6900e-003	0.0000	1.6900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5700e-003	0.0292	0.0118	3.0000e-005		1.3200e-003	1.3200e-003		1.2200e-003	1.2200e-003	0.0000	2.3200	2.3200	7.3000e-004	0.0000	2.3384
Total	2.5700e-003	0.0292	0.0118	3.0000e-005	3.0800e-003	1.3200e-003	4.4000e-003	1.6900e-003	1.2200e-003	2.9100e-003	0.0000	2.3200	2.3200	7.3000e-004	0.0000	2.3384

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3.2 Site Preparation - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	7.0000e-005	6.2000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1381	0.1381	1.0000e-005	0.0000	0.1382
Total	8.0000e-005	7.0000e-005	6.2000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1381	0.1381	1.0000e-005	0.0000	0.1382

3.3 Grading - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0237	0.0000	0.0237	0.0126	0.0000	0.0126	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.1000e-003	0.0802	0.0330	7.0000e-005		3.6800e-003	3.6800e-003		3.3900e-003	3.3900e-003	0.0000	6.3339	6.3339	2.0000e-003	0.0000	6.3840
Total	7.1000e-003	0.0802	0.0330	7.0000e-005	0.0237	3.6800e-003	0.0274	0.0126	3.3900e-003	0.0159	0.0000	6.3339	6.3339	2.0000e-003	0.0000	6.3840

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3.3 Grading - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.5200e-003	0.1193	0.0169	3.2000e-004	6.5500e-003	5.8000e-004	7.1300e-003	1.8000e-003	5.5000e-004	2.3600e-003	0.0000	30.2969	30.2969	1.8000e-003	0.0000	30.3418
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	2.3000e-004	2.0800e-003	1.0000e-005	4.9000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4602	0.4602	2.0000e-005	0.0000	0.4606
Total	3.7800e-003	0.1195	0.0190	3.3000e-004	7.0400e-003	5.8000e-004	7.6200e-003	1.9300e-003	5.5000e-004	2.4900e-003	0.0000	30.7571	30.7571	1.8200e-003	0.0000	30.8024

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					9.2400e-003	0.0000	9.2400e-003	4.9000e-003	0.0000	4.9000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.1000e-003	0.0802	0.0330	7.0000e-005		3.6800e-003	3.6800e-003		3.3900e-003	3.3900e-003	0.0000	6.3339	6.3339	2.0000e-003	0.0000	6.3840
Total	7.1000e-003	0.0802	0.0330	7.0000e-005	9.2400e-003	3.6800e-003	0.0129	4.9000e-003	3.3900e-003	8.2900e-003	0.0000	6.3339	6.3339	2.0000e-003	0.0000	6.3840

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3.3 Grading - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.5200e-003	0.1193	0.0169	3.2000e-004	6.5500e-003	5.8000e-004	7.1300e-003	1.8000e-003	5.5000e-004	2.3600e-003	0.0000	30.2969	30.2969	1.8000e-003	0.0000	30.3418
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	2.3000e-004	2.0800e-003	1.0000e-005	4.9000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4602	0.4602	2.0000e-005	0.0000	0.4606
Total	3.7800e-003	0.1195	0.0190	3.3000e-004	7.0400e-003	5.8000e-004	7.6200e-003	1.9300e-003	5.5000e-004	2.4900e-003	0.0000	30.7571	30.7571	1.8200e-003	0.0000	30.8024

3.4 Building Construction - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1613	1.1346	0.9576	1.5700e-003		0.0650	0.0650		0.0628	0.0628	0.0000	129.9811	129.9811	0.0250	0.0000	130.6058
Total	0.1613	1.1346	0.9576	1.5700e-003		0.0650	0.0650		0.0628	0.0628	0.0000	129.9811	129.9811	0.0250	0.0000	130.6058

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3.4 Building Construction - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2400e-003	0.0821	0.0192	1.7000e-004	3.7600e-003	6.2000e-004	4.3800e-003	1.0900e-003	5.9000e-004	1.6800e-003	0.0000	16.4152	16.4152	1.5500e-003	0.0000	16.4539
Worker	0.0100	8.8100e-003	0.0813	2.0000e-004	0.0190	1.4000e-004	0.0191	5.0500e-003	1.3000e-004	5.1800e-003	0.0000	17.9707	17.9707	6.8000e-004	0.0000	17.9878
Total	0.0133	0.0909	0.1005	3.7000e-004	0.0227	7.6000e-004	0.0235	6.1400e-003	7.2000e-004	6.8600e-003	0.0000	34.3859	34.3859	2.2300e-003	0.0000	34.4416

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	0.1613	1.1346	0.9576	1.5700e-003		0.0650	0.0650		0.0628	0.0628	0.0000	129.9809	129.9809	0.0250	0.0000	130.6056
Total	0.1613	1.1346	0.9576	1.5700e-003		0.0650	0.0650		0.0628	0.0628	0.0000	129.9809	129.9809	0.0250	0.0000	130.6056

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3.4 Building Construction - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2400e-003	0.0821	0.0192	1.7000e-004	3.7600e-003	6.2000e-004	4.3800e-003	1.0900e-003	5.9000e-004	1.6800e-003	0.0000	16.4152	16.4152	1.5500e-003	0.0000	16.4539
Worker	0.0100	8.8100e-003	0.0813	2.0000e-004	0.0190	1.4000e-004	0.0191	5.0500e-003	1.3000e-004	5.1800e-003	0.0000	17.9707	17.9707	6.8000e-004	0.0000	17.9878
Total	0.0133	0.0909	0.1005	3.7000e-004	0.0227	7.6000e-004	0.0235	6.1400e-003	7.2000e-004	6.8600e-003	0.0000	34.3859	34.3859	2.2300e-003	0.0000	34.4416

3.5 Paving - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.5200e-003	0.0459	0.0445	7.0000e-005		2.6100e-003	2.6100e-003		2.4100e-003	2.4100e-003	0.0000	6.0105	6.0105	1.8700e-003	0.0000	6.0572
Paving	1.5700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	6.0900e-003	0.0459	0.0445	7.0000e-005		2.6100e-003	2.6100e-003		2.4100e-003	2.4100e-003	0.0000	6.0105	6.0105	1.8700e-003	0.0000	6.0572

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3.5 Paving - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.7000e-004	3.3800e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.7478	0.7478	3.0000e-005	0.0000	0.7485
Total	4.2000e-004	3.7000e-004	3.3800e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.7478	0.7478	3.0000e-005	0.0000	0.7485

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	4.5200e-003	0.0459	0.0445	7.0000e-005		2.6100e-003	2.6100e-003		2.4100e-003	2.4100e-003	0.0000	6.0105	6.0105	1.8700e-003	0.0000	6.0572
Paving	1.5700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	6.0900e-003	0.0459	0.0445	7.0000e-005		2.6100e-003	2.6100e-003		2.4100e-003	2.4100e-003	0.0000	6.0105	6.0105	1.8700e-003	0.0000	6.0572

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3.5 Paving - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.7000e-004	3.3800e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.7478	0.7478	3.0000e-005	0.0000	0.7485
Total	4.2000e-004	3.7000e-004	3.3800e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.7478	0.7478	3.0000e-005	0.0000	0.7485

3.6 Demolition - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0272	0.0000	0.0272	4.1100e-003	0.0000	4.1100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0172	0.1701	0.1117	1.8000e-004		9.6500e-003	9.6500e-003		9.0100e-003	9.0100e-003	0.0000	16.0621	16.0621	4.0900e-003	0.0000	16.1643
Total	0.0172	0.1701	0.1117	1.8000e-004	0.0272	9.6500e-003	0.0368	4.1100e-003	9.0100e-003	0.0131	0.0000	16.0621	16.0621	4.0900e-003	0.0000	16.1643

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3.6 Demolition - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.1100e-003	0.0377	5.3600e-003	1.0000e-004	2.0700e-003	1.8000e-004	2.2500e-003	5.7000e-004	1.7000e-004	7.5000e-004	0.0000	9.5817	9.5817	5.7000e-004	0.0000	9.5959
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3000e-004	5.5000e-004	5.0800e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.1217	1.1217	4.0000e-005	0.0000	1.1228
Total	1.7400e-003	0.0383	0.0104	1.1000e-004	3.2500e-003	1.9000e-004	3.4400e-003	8.9000e-004	1.8000e-004	1.0700e-003	0.0000	10.7035	10.7035	6.1000e-004	0.0000	10.7187

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					0.0106	0.0000	0.0106	1.6000e-003	0.0000	1.6000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0172	0.1701	0.1117	1.8000e-004		9.6500e-003	9.6500e-003		9.0100e-003	9.0100e-003	0.0000	16.0621	16.0621	4.0900e-003	0.0000	16.1643
Total	0.0172	0.1701	0.1117	1.8000e-004	0.0106	9.6500e-003	0.0203	1.6000e-003	9.0100e-003	0.0106	0.0000	16.0621	16.0621	4.0900e-003	0.0000	16.1643

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3.6 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.1100e-003	0.0377	5.3600e-003	1.0000e-004	2.0700e-003	1.8000e-004	2.2500e-003	5.7000e-004	1.7000e-004	7.5000e-004	0.0000	9.5817	9.5817	5.7000e-004	0.0000	9.5959
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3000e-004	5.5000e-004	5.0800e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.1217	1.1217	4.0000e-005	0.0000	1.1228
Total	1.7400e-003	0.0383	0.0104	1.1000e-004	3.2500e-003	1.9000e-004	3.4400e-003	8.9000e-004	1.8000e-004	1.0700e-003	0.0000	10.7035	10.7035	6.1000e-004	0.0000	10.7187

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

[illegible]

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3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

[illegible]

Mitigated Construction On-Site

[illegible]

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3.7 Architectural Coating - 2020**Mitigated Construction Off-Site**

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

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile****4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.492890	0.035147	0.185855	0.121278	0.042705	0.008074	0.013315	0.088366	0.001379	0.001401	0.006397	0.001350	0.001844

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

[illegible]

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5.2 Energy by Land Use - NaturalGas

Unmitigated

[illegible]

Mitigated

[illegible]

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5.3 Energy by Land Use - Electricity**Unmitigated**

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

Mitigated

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

6.0 Area Detail**6.1 Mitigation Measures Area**

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[illegible]

6.2 Area by SubCategory

Unmitigated

[illegible]

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6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.3800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.3800e-003	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

7.0 Water Detail

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste

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Category/Year

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

8.2 Waste by Land UseUnmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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8.2 Waste by Land Use**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

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

10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

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

Boilers

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

User Defined Equipment

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

11.0 Vegetation

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	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	-11.1000	0.0000	0.0000	-11.1000

11.1 Vegetation Land Change**Vegetation Type**

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Trees	0.1 / 0	-11.1000	0.0000	0.0000	-11.1000
Total		-11.1000	0.0000	0.0000	-11.1000

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

Cassel-Fall River Bridge

Shasta County AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.00		1.20	52,272.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	82
Climate Zone	3			Operational Year	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Information provided by Morrison Structures, Inc.

Construction Phase - Construction schedule provided

Off-road Equipment - No architectural coatings per Morrison Structures, Inc.

Grading - Information provided by Morrison Structures, Inc.

Demolition -

Area Coating - No parking involved.

Land Use Change -

Construction Off-road Equipment Mitigation -

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	3136	0
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	200.00	142.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	4.00	10.00
tblConstructionPhase	NumDays	2.00	3.00
tblConstructionPhase	PhaseEndDate	3/23/2020	3/9/2020
tblConstructionPhase	PhaseEndDate	2/24/2020	11/15/2019
tblConstructionPhase	PhaseEndDate	5/10/2019	12/6/2019
tblConstructionPhase	PhaseEndDate	5/20/2019	5/1/2019
tblConstructionPhase	PhaseEndDate	3/9/2020	9/13/2019
tblConstructionPhase	PhaseEndDate	5/14/2019	4/17/2019
tblConstructionPhase	PhaseStartDate	5/21/2019	5/2/2019
tblConstructionPhase	PhaseStartDate	4/15/2019	11/18/2019
tblConstructionPhase	PhaseStartDate	5/15/2019	4/18/2019
tblConstructionPhase	PhaseStartDate	2/25/2020	9/2/2019
tblConstructionPhase	PhaseStartDate	5/11/2019	4/15/2019
tblGrading	AcresOfGrading	3.75	1.20
tblGrading	AcresOfGrading	1.50	0.00
tblGrading	MaterialExported	0.00	4,500.00
tblGrading	MaterialImported	0.00	1,750.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

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					
2019	3.7971	39.2910	24.8602	0.0796	6.2061	1.4501	7.0575	2.9236	1.3773	3.7360	0.0000	8,253.617 3	8,253.617 3	0.8414	0.0000	8,274.173 8
2020	0.0000	0.0000	0.0000	0.0000	0.0000	3.5000e-004	0.0000	0.0000	3.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	3.7971	39.2910	24.8602	0.0796	6.2061	1.4501	7.0575	2.9236	1.3773	3.7360	0.0000	8,253.617 3	8,253.617 3	0.8414	0.0000	8,274.173 8

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					
2019	3.7971	39.2910	24.8602	0.0796	3.3171	1.4501	4.1685	1.3813	1.3773	2.1687	0.0000	8,253.617 3	8,253.617 3	0.8414	0.0000	8,274.173 8
2020	0.0000	0.0000	0.0000	0.0000	0.0000	3.5000e-004	0.0000	0.0000	3.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	3.7971	39.2910	24.8602	0.0796	3.3171	1.4501	4.1685	1.3813	1.3773	2.1687	0.0000	8,253.617 3	8,253.617 3	0.8414	0.0000	8,274.173 8

	ROG	NOx	CO	SO2	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	46.55	0.00	40.94	52.75	0.00	41.95	0.00	0.00	0.00	0.00	0.00	0.00

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0185	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0185	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 Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0185	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0185	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

[illegible]

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/15/2019	4/17/2019	5	3	
2	Grading	Grading	4/18/2019	5/1/2019	5	10	
3	Building Construction	Building Construction	5/2/2019	11/15/2019	5	142	
4	Paving	Paving	9/2/2019	9/13/2019	5	10	
5	Demolition	Demolition	11/18/2019	12/6/2019	5	15	
6	Architectural Coating	Architectural Coating	3/10/2020	3/9/2020	5	0	

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 1.2****Acres of Paving: 1.2****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 3,136 (Architectural Coating – sqft)****OffRoad Equipment**

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	0.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	6.00	187	0.41
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

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
Architectural Coating	0	4.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	22.00	9.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	5	13.00	0.00	247.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	781.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

3.2 Site Preparation - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.2693	0.0000	5.2693	2.8965	0.0000	2.8965			0.0000			0.0000
Off-Road	1.7123	19.4821	7.8893	0.0172		0.8824	0.8824		0.8118	0.8118		1,704.9189	1,704.9189	0.5394		1,718.4044
Total	1.7123	19.4821	7.8893	0.0172	5.2693	0.8824	6.1517	2.8965	0.8118	3.7082		1,704.9189	1,704.9189	0.5394		1,718.4044

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

3.2 Site Preparation - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0598	0.0420	0.5076	1.1400e-003	0.1022	7.2000e-004	0.1029	0.0271	6.7000e-004	0.0278		113.3093	113.3093	4.4500e-003		113.4205
Total	0.0598	0.0420	0.5076	1.1400e-003	0.1022	7.2000e-004	0.1029	0.0271	6.7000e-004	0.0278		113.3093	113.3093	4.4500e-003		113.4205

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					2.0550	0.0000	2.0550	1.1296	0.0000	1.1296			0.0000			0.0000
Off-Road	1.7123	19.4821	7.8893	0.0172		0.8824	0.8824		0.8118	0.8118	0.0000	1,704.9189	1,704.9189	0.5394		1,718.4044
Total	1.7123	19.4821	7.8893	0.0172	2.0550	0.8824	2.9374	1.1296	0.8118	1.9414	0.0000	1,704.9189	1,704.9189	0.5394		1,718.4044

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

3.2 Site Preparation - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0598	0.0420	0.5076	1.1400e-003	0.1022	7.2000e-004	0.1029	0.0271	6.7000e-004	0.0278		113.3093	113.3093	4.4500e-003		113.4205
Total	0.0598	0.0420	0.5076	1.1400e-003	0.1022	7.2000e-004	0.1029	0.0271	6.7000e-004	0.0278		113.3093	113.3093	4.4500e-003		113.4205

3.3 Grading - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.7361	0.0000	4.7361	2.5104	0.0000	2.5104			0.0000			0.0000
Off-Road	1.4197	16.0357	6.6065	0.0141		0.7365	0.7365		0.6775	0.6775		1,396.3909	1,396.3909	0.4418		1,407.4359
Total	1.4197	16.0357	6.6065	0.0141	4.7361	0.7365	5.4725	2.5104	0.6775	3.1879		1,396.3909	1,396.3909	0.4418		1,407.4359

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

3.3 Grading - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.6933	23.2133	3.2016	0.0644	1.3678	0.1142	1.4821	0.3751	0.1093	0.4844		6,743.917 2	6,743.917 2	0.3760		6,753.317 4
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	0.0598	0.0420	0.5076	1.1400e-003	0.1022	7.2000e-004	0.1029	0.0271	6.7000e-004	0.0278		113.3093	113.3093	4.4500e-003		113.4205
Total	0.7531	23.2553	3.7092	0.0655	1.4700	0.1149	1.5850	0.4022	0.1099	0.5121		6,857.226 5	6,857.226 5	0.3805		6,866.737 9

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					1.8471	0.0000	1.8471	0.9791	0.0000	0.9791			0.0000			0.0000
Off-Road	1.4197	16.0357	6.6065	0.0141		0.7365	0.7365		0.6775	0.6775	0.0000	1,396.390 9	1,396.390 9	0.4418		1,407.435 9
Total	1.4197	16.0357	6.6065	0.0141	1.8471	0.7365	2.5835	0.9791	0.6775	1.6566	0.0000	1,396.390 9	1,396.390 9	0.4418		1,407.435 9

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

3.3 Grading - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.6933	23.2133	3.2016	0.0644	1.3678	0.1142	1.4821	0.3751	0.1093	0.4844		6,743.917 2	6,743.917 2	0.3760		6,753.317 4
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	0.0598	0.0420	0.5076	1.1400e-003	0.1022	7.2000e-004	0.1029	0.0271	6.7000e-004	0.0278		113.3093	113.3093	4.4500e-003		113.4205
Total	0.7531	23.2553	3.7092	0.0655	1.4700	0.1149	1.5850	0.4022	0.1099	0.5121		6,857.226 5	6,857.226 5	0.3805		6,866.737 9

3.4 Building Construction - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846		2,018.022 4	2,018.022 4	0.3879		2,027.721 0
Total	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846		2,018.022 4	2,018.022 4	0.3879		2,027.721 0

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

3.4 Building Construction - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0450	1.1357	0.2500	2.4800e-003	0.0552	8.6100e-003	0.0638	0.0159	8.2400e-003	0.0241		258.6643	258.6643	0.0228		259.2346
Worker	0.1645	0.1155	1.3959	3.1300e-003	0.2810	1.9900e-003	0.2830	0.0745	1.8300e-003	0.0764		311.6006	311.6006	0.0122		311.9064
Total	0.2095	1.2512	1.6458	5.6100e-003	0.3362	0.0106	0.3468	0.0904	0.0101	0.1005		570.2649	570.2649	0.0350		571.1410

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	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846	0.0000	2,018.0224	2,018.0224	0.3879		2,027.7210
Total	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846	0.0000	2,018.0224	2,018.0224	0.3879		2,027.7210

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

3.4 Building Construction - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0450	1.1357	0.2500	2.4800e-003	0.0552	8.6100e-003	0.0638	0.0159	8.2400e-003	0.0241		258.6643	258.6643	0.0228		259.2346
Worker	0.1645	0.1155	1.3959	3.1300e-003	0.2810	1.9900e-003	0.2830	0.0745	1.8300e-003	0.0764		311.6006	311.6006	0.0122		311.9064
Total	0.2095	1.2512	1.6458	5.6100e-003	0.3362	0.0106	0.3468	0.0904	0.0101	0.1005		570.2649	570.2649	0.0350		571.1410

3.5 Paving - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815		1,325.0953	1,325.0953	0.4112		1,335.3751
Paving	0.3144					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2182	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815		1,325.0953	1,325.0953	0.4112		1,335.3751

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

3.5 Paving - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0972	0.0682	0.8248	1.8500e-003	0.1661	1.1700e-003	0.1672	0.0440	1.0800e-003	0.0451		184.1276	184.1276	7.2300e-003		184.3083
Total	0.0972	0.0682	0.8248	1.8500e-003	0.1661	1.1700e-003	0.1672	0.0440	1.0800e-003	0.0451		184.1276	184.1276	7.2300e-003		184.3083

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815	0.0000	1,325.0953	1,325.0953	0.4112		1,335.3751
Paving	0.3144					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2182	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815	0.0000	1,325.0953	1,325.0953	0.4112		1,335.3751

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

3.5 Paving - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0972	0.0682	0.8248	1.8500e-003	0.1661	1.1700e-003	0.1672	0.0440	1.0800e-003	0.0451		184.1276	184.1276	7.2300e-003		184.3083
Total	0.0972	0.0682	0.8248	1.8500e-003	0.1661	1.1700e-003	0.1672	0.0440	1.0800e-003	0.0451		184.1276	184.1276	7.2300e-003		184.3083

3.6 Demolition - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.6223	0.0000	3.6223	0.5485	0.0000	0.5485			0.0000			0.0000
Off-Road	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017		2,360.7198	2,360.7198	0.6011		2,375.7475
Total	2.2950	22.6751	14.8943	0.0241	3.6223	1.2863	4.9086	0.5485	1.2017	1.7502		2,360.7198	2,360.7198	0.6011		2,375.7475

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

3.6 Demolition - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1462	4.8943	0.6750	0.0136	0.2884	0.0241	0.3125	0.0791	0.0230	0.1021		1,421.892 9	1,421.892 9	0.0793		1,423.874 9
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	0.0972	0.0682	0.8248	1.8500e-003	0.1661	1.1700e-003	0.1672	0.0440	1.0800e-003	0.0451		184.1276	184.1276	7.2300e-003		184.3083
Total	0.2434	4.9625	1.4999	0.0154	0.4545	0.0253	0.4797	0.1231	0.0241	0.1473		1,606.020 5	1,606.020 5	0.0865		1,608.183 2

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					1.4127	0.0000	1.4127	0.2139	0.0000	0.2139			0.0000			0.0000
Off-Road	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017	0.0000	2,360.719 7	2,360.719 7	0.6011		2,375.747 5
Total	2.2950	22.6751	14.8943	0.0241	1.4127	1.2863	2.6990	0.2139	1.2017	1.4157	0.0000	2,360.719 7	2,360.719 7	0.6011		2,375.747 5

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

3.6 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1462	4.8943	0.6750	0.0136	0.2884	0.0241	0.3125	0.0791	0.0230	0.1021		1,421.8929	1,421.8929	0.0793		1,423.8749
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	0.0972	0.0682	0.8248	1.8500e-003	0.1661	1.1700e-003	0.1672	0.0440	1.0800e-003	0.0451		184.1276	184.1276	7.2300e-003		184.3083
Total	0.2434	4.9625	1.4999	0.0154	0.4545	0.0253	0.4797	0.1231	0.0241	0.1473		1,606.0205	1,606.0205	0.0865		1,608.1832

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

[illegible]

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

[illegible]

Mitigated Construction On-Site

[illegible]

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

3.7 Architectural Coating - 2020**Mitigated Construction Off-Site**

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

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile****4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.492890	0.035147	0.185855	0.121278	0.042705	0.008074	0.013315	0.088366	0.001379	0.001401	0.006397	0.001350	0.001844

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

5.2 Energy by Land Use - NaturalGas**Unmitigated**

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

Mitigated

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

6.0 Area Detail**6.1 Mitigation Measures Area**

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0185	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0185	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0185					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0185	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0185					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0185	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

7.0 Water Detail**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Cassel-Fall River Bridge - Shasta County AQMD Air District, Summer

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

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

Equipment Type	Number
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11.0 Vegetation

APPENDIX B

ENPLAN Summary Report: *Potential for Special-Status State and Federal Species to Occur in the Project Area*

California Natural Diversity Database RareFind Query Summary

U.S. Fish and Wildlife Service List of Threatened and Endangered Species

National Marine Fisheries Service (NMFS) Species List

List of Vascular Plant Species Observed

List of Wildlife Species Observed

ENPLAN Summary Report: Potential for Special-Status State and Federal Species to Occur in the Project Area

Common Name	Scientific Name	Status	General Habitat Description	Species Present (Y/N/POT.)	Critical Habitat Present (Y/N)	Habitat Present (Y/N)	Rationale/Comments
Plants							
Boggs Lake hedge-hyssop	<i>Gratiola heterosepala</i>	SE, 1B.2	Boggs Lake hedge-hyssop occurs in marshes, swamps, and vernal pools. The species is reported from sea level to 7,800 feet in elevation. The flowering period is April through August.	No	No	No	Marshes, swamps, and vernal pools do not occur in the ESL. Boggs Lake hedge-hyssop was not observed during the botanical surveys and is not expected to be present.
Marsh skullcap	<i>Scutellaria galericulata</i>	2B.2	Marsh skullcap is a perennial member of the mint family. It occurs in meadows, along streambanks and in other wet places at elevations of 3,000 to 7,000 feet. The flowering period is June through September.	No	No	Yes	Suitable habitat for marsh skullcap occurs along the Pit River, in a wet swale just north of the eastern bridge abutment, and in a seep just south of the eastern bridge abutment. However, marsh skullcap was not observed during the botanical surveys and is not expected to be present.
Profuse-flowered pogogyne	<i>Pogogyne floribunda</i>	4.2	Profuse-flowered pogogyne occurs in clay-bottomed vernal pools within sagebrush scrub or pine-juniper woodlands. The species is reported between 3,100 and 5,800 feet in elevation. The flowering period is May through September.	No	No	No	No vernal pools or other potentially suitable habitats for profuse-flowered pogogyne are present in the ESL. Profuse-flowered pogogyne was not observed during the botanical surveys and is not expected to be present.
Slender Orcutt grass	<i>Orcuttia tenuis</i>	FT, SE, 1B.1	Slender Orcutt grass is an annual herb that occurs in vernal pools and similar habitats, occasionally on reservoir edges or stream floodplains, on clay soils with seasonal inundation in valley grassland to coniferous forest or sagebrush scrub. The species is found between 100 and 5,800 feet in elevation. The flowering period is May through September.	No	No	No	No vernal pools or other potentially suitable habitats for slender Orcutt grass are present in the ESL. Slender Orcutt grass was not observed during the botanical surveys and is not expected to be present.
Tracy's eriastrum	<i>Eriastrum tracyi</i>	SR, 3.2	Tracy's eriastrum is an annual herb that occurs in chaparral and cismontane woodland. The species is reported between 1,000 and 5,400 feet in elevation. The flowering period is May through July.	No	No	Yes	Oak woodland along the west bank of the Pit River provides potentially suitable habitat for Tracy's eriastrum. However, Tracy's eriastrum was not observed during the botanical surveys and is not expected to be present.

ENPLAN Summary Report: Potential for Special-Status State and Federal Species to Occur in the Project Area

Common Name	Scientific Name	Status	General Habitat Description	Species Present (Y/N/POT.)	Critical Habitat Present (Y/N)	Habitat Present (Y/N)	Rationale/Comments
Tufted loosestrife	<i>Lysimachia thyrsiflora</i>	2B.3	Tufted loosestrife occurs in meadows and along lakes and streams, between 3,200 and 5,500 feet in elevation in Plumas and eastern Shasta counties. The flowering period is May through August.	No	No	Yes	The CNDDDB has broadly mapped an occurrence of tufted loosestrife recorded in 1949 to include the ESL. Although the Pit River in the ESL provides potentially suitable habitat for tufted loosestrife, the species was not observed during the botanical surveys and is not expected to be present.
Water star-grass	<i>Heteranthera dubia</i>	2B.2	Water star-grass occurs in marshes and swamps and requires a water PH of 7 or greater. The species is reported between sea level and 5,000 feet in elevation. The flowering period is July through October.	No	No	Yes	The CNDDDB has broadly mapped an occurrence of water star-grass recorded in 1955 to include the Pit River and adjacent uplands in the ESL. Although the Pit River in the ESL provides potentially suitable habitat for water star-grass, the species was not observed during the botanical surveys and is not expected to be present.
Watershield	<i>Brasenia schreberi</i>	2B.3	Watershield, a perennial rhizomatous herb, occurs in marshes and swamps. The species is reported between sea level and 7,300 feet in elevation. The flowering period is June through September.	No	No	Yes	The CNDDDB has broadly mapped an occurrence of watershield recorded in 1863 "Near Fort Crook, Pit River" to include the ESL. Although the Pit River in the ESL provides marginally suitable habitat for watershield, the species was not observed during the botanical surveys and is not expected to be present.
Mammals							
American badger	<i>Taxidea taxus</i>	SSSC	Badgers are most commonly found in dry, open areas in shrub, forest, and herbaceous habitats, with friable soils. Badgers dig burrows in dry, sandy soil, usually in areas with sparse overstory.	No	No	No	The CNDDDB has broadly mapped an occurrence of the American badger to include the entirety of Fall River Mills and the ESL. However, no dry, sandy soils are present in the ESL, nor were badgers or badger dens observed during the wildlife surveys. The American badger would not be present.

ENPLAN Summary Report: Potential for Special-Status State and Federal Species to Occur in the Project Area

Common Name	Scientific Name	Status	General Habitat Description	Species Present (Y/N/POT.)	Critical Habitat Present (Y/N)	Habitat Present (Y/N)	Rationale/Comments
California wolverine	<i>Gulo gulo</i>	FPT, ST, SFP	Wolverines are dependent on areas in high mountains, near the tree-line, where conditions are cold year-round and snow cover persists well into the month of May. Female wolverines use birthing dens that are excavated in snow. Persistent, stable snow greater than 1.5 meters deep appears to be a requirement for birthing dens. Birthing dens consist of tunnels that contain well-used runways and bed sites and may naturally incorporate shrubs, rocks, and downed logs as part of their structure. Birthing dens may occur on rocky sites, such as north-facing boulder talus or subalpine cirques. Wolverines are very sensitive to human activities and often abandon den sites in response to human disturbance.	No	No	No	No suitable habitat for the California wolverine is present in the ESL. No California wolverines or wolverine dens were observed in the ESL during the wildlife surveys, nor is the species expected to be present.
Oregon snowshoe hare	<i>Lepus americanus klamathensis</i>	SSSC	Oregon snowshoe hares inhabit alder and willow thickets and young conifer stands in upper montane coniferous forests and subalpine coniferous forests.	No	No	No	Several young willows and wild rose bushes are present at the base of fill slopes along the eastern approach to the bridge and along the Pit River. However, these shrubs are isolated from other larger tracts of willow thickets along the Pit River and are frequently disturbed by human activities. No Oregon snowshoe hares were observed during the wildlife surveys, nor is the species expected to be present.
Townsend's big-eared bat	<i>Corynorhinus townsendii pallescens</i>	SSSC	Townsend's big-eared bat is found throughout California except in subalpine and alpine habitats, and may be found at any season throughout its range. The species is most abundant in mesic habitats. The bat requires caves, mines, tunnels, buildings, or other human-made structures for roosting.	Present	No	Yes	The bat habitat assessment found that the Cassel-Fall River Road bridge and buildings in the ESL provide suitable roosting habitat for Townsend's big-eared bats. A Townsend's big-eared bat was observed in the vicinity of the bridge during the night emergence survey for bats.

ENPLAN Summary Report: Potential for Special-Status State and Federal Species to Occur in the Project Area

Common Name	Scientific Name	Status	General Habitat Description	Species Present (Y/N/POT.)	Critical Habitat Present (Y/N)	Habitat Present (Y/N)	Rationale/Comments
Birds							
Bald eagle	<i>Haliaeetus leucocephalus</i>	FD, SE, SFP	Bald eagles nest in large, old-growth trees or snags in mixed stands near open bodies of water. Adults tend to use the same breeding areas year after year and often use the same nest, though a breeding area may include one or more alternate nests. Bald eagles usually do not begin nesting if human disturbance is evident. In California, the bald eagle nesting season is from February through July.	No	No	Yes	Review of CNDDDB records found that a bald eagle nest is located approximately 0.3 miles east of the ESL. Although trees along the Pit River provide marginally suitable nesting habitat for bald eagles, frequent human disturbance may preclude eagles from nesting in or adjacent to the ESL. No bald eagles or eagle nests were observed during the wildlife surveys, nor is the species expected to nest in or adjacent to the ESL.
Bank swallow	<i>Riparia riparia</i>	ST	Bank swallows require vertical banks and cliffs with fine-textured or sandy soils near streams, rivers, ponds, lakes, or the ocean for nesting.	No	No	No	Review of CNDDDB records found that bank swallows have been reported approximately 0.1 miles north of the ESL. However, no vertical cliffs with fine textured or sandy soils occur in or adjacent to the ESL. The bank swallow would thus not nest in or adjacent to the ESL.
Greater sandhill crane	<i>Grus canadensis tabida</i>	ST, SFP	Greater sandhill cranes nest in wetland habitats near grain fields in northeastern California. Nests consist of large mounds of vegetation in shallow water, natural hummocks, or muskrat houses. Shallow islands bordered by tules and cattails are ideal nesting sites.	No	No	No	Review of CNDDDB records found that the nearest reported greater sandhill crane nest is approximately 0.75 miles north of the ESL. Sandhill cranes were observed flying over the ESL. However, no suitable nesting habitat for the greater sandhill crane is present in or adjacent to the ESL. Further, the ESL is frequently disturbed by human activities. The greater sandhill crane is thus not expected to nest in or adjacent to the ESL.
Tricolored blackbird	<i>Agelaius tricolor</i>	SSSC	Tricolored blackbirds are colonial nesters and generally nest near open water. Nesting areas must be large enough to support a minimum colony of about 50 pairs. Tricolored blackbirds generally construct nests in dense cattails or tules, although they can also nest in thickets of willow, blackberry, wild rose and tall herbs.	No	No	No	Several young willows and wild rose bushes are present at the base of fill slopes along the eastern approach to the bridge and along the Pit River. However, given that the willows and roses do not form dense thickets, they do not provide suitable nesting habitat for the tricolored blackbird. No tricolored blackbirds or evidence of colonial nesting by blackbirds were observed during the field inspections. The tricolored blackbird is thus not expected to nest in the ESL.

ENPLAN Summary Report: Potential for Special-Status State and Federal Species to Occur in the Project Area

Common Name	Scientific Name	Status	General Habitat Description	Species Present (Y/N/POT.)	Critical Habitat Present (Y/N)	Habitat Present (Y/N)	Rationale/Comments
Reptiles							
Western pond turtle	<i>Emys marmorata</i>	SSSC	The western pond turtle associates with permanent or nearly permanent water in a variety of habitats. This turtle is typically found in quiet water environments. Pond turtles require basking sites such as partially submerged logs, rocks, or open mud banks, and suitable (sandy banks or grassy open fields) upland habitat for egg-laying. Nesting and courtship occur during spring. Nests are generally constructed within 500 feet of a waterbody, but some nests have been found up to 1,200 feet away. Pond turtles leave aquatic sites in the fall and overwinter in uplands nearby. Pond turtles return to aquatic sites in spring.	Present	No	Yes	Review of CNDDDB records found that the western pond turtle has been mapped to occur in the Pit River within the ESL. Field inspections confirmed the presence of western pond turtles in the ESL near the bridge and the irrigation ditch.
Fish							
Bigeye marbled sculpin	<i>Cottus klamathensis macrops</i>	SSSC	Bigeye marbled sculpins generally inhabit large, clear, cold, spring-fed streams in the Pit River and Fall River basins, and are occasionally found in reservoirs. Bigeye marbled sculpins are often found in areas with aquatic vegetation and coarse substrates.	No	No	No	Review of CNDDDB records found that bigeye marbled sculpin have been reported approximately 11 miles downriver of the ESL, and in Fall River Lake, approximately one mile upstream of the confluence of the Fall River and Pit River. However, the Pit River in the ESL does not provide suitable habitat for the bigeye marbled sculpin because during summer and fall, the period when construction would occur, the river reach has almost no flow, is eutrophic, very turbid, and has low levels of dissolved oxygen. The irrigation ditch in the ESL does not provide suitable habitat for the bigeye marbled sculpin because it conveys water from Fall River Pond, which in summer and fall, is often stagnant, eutrophic, and has warm water temperatures and low levels of dissolved oxygen. Given these findings, the bigeye marbled sculpin would not be present.
Delta smelt	<i>Hypomesus transpacificus</i>	FT, SE	Delta smelt primarily inhabit the brackish waters of Sacramento-San Joaquin River Delta. Most spawning occurs in backwater sloughs and channel edgewater.	No	No	No	The ESL is well outside the range of the Delta smelt. Delta smelt would thus not be present.

ENPLAN Summary Report: Potential for Special-Status State and Federal Species to Occur in the Project Area

Common Name	Scientific Name	Status	General Habitat Description	Species Present (Y/N/POT.)	Critical Habitat Present (Y/N)	Habitat Present (Y/N)	Rationale/Comments
Hardhead	<i>Mylopharodon conocephalus</i>	SSSC	Hardhead inhabit low to mid-elevation streams in the Sacramento River, San Joaquin River, and Russian River watersheds. Hardhead spawn in clear, deep pools, with rock substrate and low water flow.	No	No	No	Review of CNDDB records found that hardhead have been reported approximately one mile downriver of the ESL, and in Fall River Lake, approximately one mile upstream of the confluence of the Fall River and Pit River. However, the Pit River in the ESL does not provide suitable habitat for the hardhead because during summer and fall, the period when construction would occur, the river reach has almost no flow, is eutrophic, very turbid, and has low levels of dissolved oxygen. The irrigation ditch in the ESL does not provide suitable habitat for the hardhead because it conveys water from Fall River Pond, which in summer and fall, is often stagnant, eutrophic, and has warm water temperatures and low levels of dissolved oxygen. Given these findings, the hardhead would not be present.
Rough sculpin	<i>Cottus asperimus</i>	ST, SFP	Rough sculpins are restricted to the Hat Creek and Fall River drainages, as well as the Pit River, from Lake Britton to just downstream of the Pit 1 Powerhouse. Rough sculpins are generally found in large spring-fed streams where water is cool, deep, rapidly flowing, and clear. This sculpin is often found in areas with gravel or sand bottoms and beds of aquatic vegetation. Nests are constructed in a variety of habitats, including riffles, pools, and in the vicinity of springs.	No	No	No	Rough sculpin have been reported in the Pit River approximately seven miles downriver of the ESL, and in Fall River Lake, approximately one mile upstream of the confluence of the Fall River and Pit River. The Pit River in the ESL does not provide suitable habitat for the rough sculpin because during summer and fall, the period when construction would occur, the river reach has almost no flow, is eutrophic, very turbid, and has low levels of dissolved oxygen. The irrigation ditch in the ESL does not provide suitable habitat for the rough sculpin because it conveys water from Fall River Pond, which in summer and fall, is often stagnant, eutrophic, and has warm water temperatures and low levels of dissolved oxygen. Given these findings, the rough sculpin would not be present.

ENPLAN Summary Report: Potential for Special-Status State and Federal Species to Occur in the Project Area

Common Name	Scientific Name	Status	General Habitat Description	Species Present (Y/N/POT.)	Critical Habitat Present (Y/N)	Habitat Present (Y/N)	Rationale/Comments
Invertebrates							
Shasta crayfish	<i>Pacifastacus fortis</i>	FE, SE	Shasta crayfish inhabit sections of the Pit River, Fall River, Hat Creek, and tributary streams and springs characterized by cool, clear water, low gradient, and substrate consisting of volcanic rubble on sand and/or gravel.	No	No	No	Shasta crayfish have been reported approximately 4.5 miles downriver of the ESL, and in Fall River Pond, approximately 0.25 miles upstream of the confluence of the Fall River and Pit River. At the latter location, the species is presumed to be extirpated because Fall River Pond is often stagnant, eutrophic, has large seasonal fluctuations in water temperature and daily fluctuations in dissolved oxygen, and supports abundant populations of known predators/competitors. The Pit River in the ESL does not provide suitable habitat for the Shasta crayfish because during summer and fall, the period when construction would occur, the river reach has almost no flow, is eutrophic, very turbid, and has low levels of dissolved oxygen. The irrigation ditch in the ESL does not provide suitable habitat for the Shasta crayfish. Given these findings, the Shasta crayfish would not be present.

FE = Federally Listed – Endangered
 FT = Federally Listed – Threatened
 FC = Federal Candidate Species
 FPT = Federal Proposed – Threatened
 FD = Federally Delisted
 FSC = Federal Species of Concern

SFP = State Fully Protected
 SR = State Rare
 SE = State Listed – Endangered
 ST = State Listed – Threatened
 SCT = State Candidate – Threatened
 SD = State Delisted
 SSSC = State Species of Special Concern

CDFW Rare Plant Rank

- List 1A = Presumed extirpated in California and either rare or extinct elsewhere
- List 1B = Rare or Endangered in California and elsewhere
- List 2A = Presumed extirpated in California, but more common elsewhere
- List 2B = Rare or Endangered in California, but more common elsewhere
- List 3 = Plants for which we need more information - Review list (generally not considered special-status, unless unusual circumstances warrant)
- List 4 = Plants of limited distribution - Watch list (generally not considered special-status, unless unusual circumstances warrant)

Threat Ranks

- 0.1 = Seriously Threatened in California
- 0.2 = Fairly Threatened in California
- 0.3 = Not Very Threatened in California

Rarefind (CNDDDB) Report Summary

Five-Mile Radius of Project Area

Cassel-Fall River Mills Bridge Replacement Project
March 2018

Listed Element	Quadrangle ¹						Status ²
	DA	CA	CM	FRM	HR	P	
ANIMALS							
American badger				•			SSSC
Bald eagle		•		•	•		FD, SE, SFP
Bank Swallow				•			ST
Bigeye marbled sculpin				•			SSSC
California wolverine				•			FPT, ST, SFP
Greater sandhill crane				•			ST, SFP
Hardhead				•	•		SSSC
Kneecap lanx		•			•		None
Montane peaclam					•		None
Nugget pebblesnail				•	•		None
Oregon snowshoe hare					•		SSSC
Osprey		•			•		None
Rough sculpin		•		•			ST, SFP
Scalloped juga		•			•		None
Shasta crayfish		•		•	•		FE, SE
Sucker Springs pyrg		•					None
Townsend's big-eared bat		•					SSSC
Tricolored blackbird	•			•			SCE, SSSC
Western pearlshell					•		None
Western pond turtle		•		•	•		SSSC
Western ridged mussel					•		None
PLANTS							
Boggs Lake hedge-hyssop			•	•		•	SE, 1B.2
Marsh skullcap				•			2B.2
Profuse-flowered pogogyne				•			4.2
Tracy's eriastrum					•		SR, 3.2
Tufted loosestrife				•			2B.3
Water star-grass				•			2B.2
Watershield				•			2B.3

HIGHLIGHTING DENOTES THE QUADRANGLE IN WHICH THE PROJECT SITE IS LOCATED

¹QUADRANGLE CODE

DA	Dana	FRM	Fall River Mills
CA	Cassel	HR	Hogback Ridge
CM	Coble Mtn.	P	Pittville

²STATUS CODES

Federal

FE	Federally Listed – Endangered
FT	Federally Listed – Threatened
FC	Federal Candidate Species
FP	Federal Proposed Species
FD	Federally Delisted
FSC	Federal Species of Concern

State

SFP	State Fully Protected
SR	State Rare
SE	State Listed – Endangered
ST	State Listed – Threatened
SC	State Candidate Species
SD	State Delisted
SSSC	State Species of Special Concern
WL	Watch List

Rare Plant Rank

1A	Plants Presumed Extinct in California
1B	Plants Rare, Threatened or Endangered in California and Elsewhere
2	Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere
3	Plants About Which We Need More Information (<i>A Review List</i>) (generally not considered special-status, unless unusual circumstances warrant)
4	Plants of Limited Distribution (<i>A Watch List</i>) (generally not considered special-status, unless unusual circumstances warrant)

Rare Plant Threat Ranks

0.1	Seriously Threatened in California
0.2	Fairly Threatened in California
0.3	Not Very Threatened in California



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Klamath Falls Fish And Wildlife Office
1936 California Avenue
Klamath Falls, OR 97601
Phone: (541) 885-8481 Fax: (541) 885-7837



In Reply Refer To:

March 01, 2018

Consultation Code: 08EKLA00-2018-SLI-0038

Event Code: 08EKLA00-2018-E-00117

Project Name: Cassel-Fall River Bridge Replacement Project 20-53

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as designated and proposed critical habitat that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). For anadromous fish species (i.e., salmon), please contact the National Marine Fisheries Service at http://www.westcoast.fisheries.noaa.gov/protected_species/species_list/species_lists.html.

Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat. These provisions apply to non-Federal lands when there is a Federal nexus (e.g., funding or permits).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally threatened, endangered, proposed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*; <http://www.fws.gov/midwest/eagle/protect/laws.html>). The Service developed the National Bald Eagle Management Guidelines (<http://www.fws.gov/northeast/ecologicalservices/eaglenationalguide.html>) to provide guidance on measures that may be used to avoid and minimize adverse impacts to bald eagles. Projects affecting bald or golden eagles may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds, including bald and golden eagles, and bats.

The Migratory Bird Treaty Act (16 U.S.C. 703-712; <http://www.fws.gov/midwest/eagle/protect/laws.html>) implements protections for migratory birds. Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any correspondence about your project that you submit to our office.

For projects in California, the office shown in the letterhead may not be the lead office for your project. Table 1 below provides lead Service field offices by county and land ownership/project type for northern California. Please refer to this table when you are ready to contact the field office corresponding to your project; a map and contact information for the Pacific Southwest Region field offices is located here: <http://www.fws.gov/cno/es/>.

Table 1: Lead Service offices by County and Ownership/Program in Northern California

County	Ownership/Program	Office Lead*
Lassen	Modoc National Forest	KFFWO
	Lassen National Forest	SFWO
	Toiyabe National Forest	RFWO
	BLM Surprise and Eagle Lake Resource Areas	RFWO
	BLM Alturas Resource Area	KFFWO
	Lassen Volcanic National Park	SFWO
	All other ownerships	By jurisdiction

		(see map)
Modoc	Modoc National Forest	KFFWO
	BLM Alturas Resource Area	KFFWO
	Klamath Basin National Wildlife Refuge Complex	KFFWO
	BLM Surprise and Eagle Lake Resource Areas	RFWO
	All other ownerships	By jurisdiction
		(see map)
Shasta	Shasta Trinity National Forest except Hat Creek Ranger District (administered by Lassen National Forest)	YFWO
	Hat Creek Ranger District	SFWO
	Whiskeytown National Recreation Area	YFWO
	BLM Alturas Resource Area	KFFWO
	Caltrans	SFWO/ AFWO
	Ahjumawi Lava Springs State Park	SFWO
	All other ownerships	By jurisdiction
		(see map)
Siskiyou	Klamath National Forest (except Ukonom District)	YFWO
	Six Rivers National Forest and Ukonom District of Klamath National Forest	AFWO
	Shasta Trinity National Forest	YFWO
	Lassen National Forest	SFWO
	Modoc National Forest	KFFWO

	Lava Beds National Volcanic Monument	KFFWO
	BLM Alturas Resource Area	KFFWO
	Klamath Basin National Wildlife Refuge Complex	KFFWO
	All other ownerships	By jurisdiction (see map)
All	FERC-ESA	By jurisdiction (see map)

***Office Leads:**

AFWO=Arcata Fish and Wildlife Office

BDFWO=Bay Delta Fish and Wildlife Office

KFFWO=Klamath Falls Fish and Wildlife Office

RFWO=Reno Fish and Wildlife Office

YFWO=Yreka Fish and Wildlife Office

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Migratory Birds
 - Wetlands
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Klamath Falls Fish And Wildlife Office

1936 California Avenue
Klamath Falls, OR 97601
(541) 885-8481

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Sacramento Fish And Wildlife Office

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

Project Summary

Consultation Code: 08EKLA00-2018-SLI-0038

Event Code: 08EKLA00-2018-E-00117

Project Name: Cassel-Fall River Bridge Replacement Project 20-53

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

Project Description: Replacing the Cassel-Fall River Bridge

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/41.00062173476806N121.43529197667834W>



Counties: Shasta, CA

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Crustaceans

NAME	STATUS
Shasta Crayfish <i>Pacifastacus fortis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8284	Endangered

Flowering Plants

NAME	STATUS
Slender Orcutt Grass <i>Orcuttia tenuis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1063	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

REFUGE INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED.
PLEASE CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see maps of where birders and the general public have sighted birds in and around your project area, visit E-bird tools such as the [E-bird data mapping tool](#) (search for the name of a bird on your list to see specific locations where that bird has been reported to occur within your project area over a certain timeframe) and the [E-bird Explore Data Tool](#) (perform a query to see a list of all birds sighted in your county or region and within a certain timeframe). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

NAME	BREEDING SEASON
Black Swift <i>Cypseloides niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Brewer's Sparrow <i>Spizella breweri</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9291	Breeds May 15 to Aug 10
Clark's Grebe <i>Aechmophorus clarkii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Dec 31
Golden Eagle <i>Aquila chrysaetos</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31
Green-tailed Towhee <i>Pipilo chlorurus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9444	Breeds May 1 to Aug 10
Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Lewis's Woodpecker <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Long-billed Curlew <i>Numenius americanus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5511	Breeds Apr 1 to Jul 31
Marbled Godwit <i>Limosa fedoa</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31

NAME	BREEDING SEASON
Pinyon Jay <i>Gymnorhinus cyanocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15
Sage Thrasher <i>Oreoscoptes montanus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9433	Breeds Apr 15 to Aug 10
Tricolored Blackbird <i>Agelaius tricolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
White Headed Woodpecker <i>Picoides albolarvatus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9411	Breeds May 1 to Aug 15
Willet <i>Tringa semipalmata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 5
Williamson's Sapsucker <i>Sphyrapicus thyroideus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8832	Breeds May 1 to Jul 31
Willow Flycatcher <i>Empidonax traillii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/3482	Breeds May 20 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in your project's counties during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to

How is the probability of presence score calculated? The calculation is done in three steps:

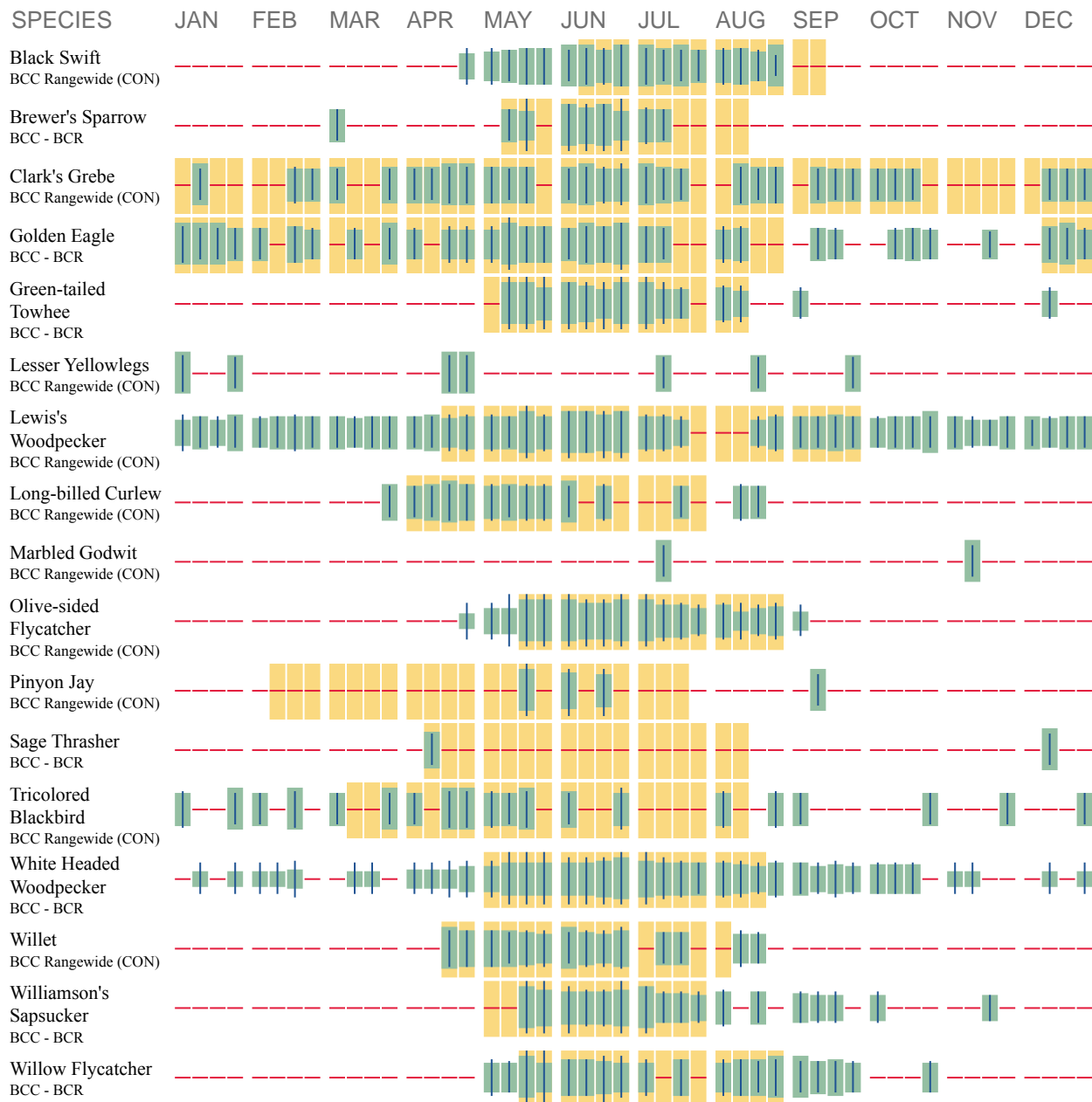
- ### Breeding Season (■)

Survey Effort (I)

No Data (—)

Survey Timeframe

[illegible]



Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the counties which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [E-bird Explore Data Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird

of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird entry on your migratory bird species list indicates a breeding season, it is probable that the bird breeds in your project's counties at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the BGEPA should such impacts occur.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

FRESHWATER EMERGENT WETLAND

- [PEMC](#)
-



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

Phone: (916) 414-6600 Fax: (916) 414-6713



In Reply Refer To:

March 01, 2018

Consultation Code: 08ESMF00-2018-SLI-1366

Event Code: 08ESMF00-2018-E-03942

Project Name: Cassel-Fall River Bridge Replacement Project 20-53

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Klamath Falls Fish And Wildlife Office

1936 California Avenue

Klamath Falls, OR 97601

(541) 885-8481

Project Summary

Consultation Code: 08ESMF00-2018-SLI-1366

Event Code: 08ESMF00-2018-E-03942

Project Name: Cassel-Fall River Bridge Replacement Project 20-53

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

Project Description: Replacing the Cassel-Fall River Bridge

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/41.00062173476806N121.43529197667834W>



Counties: Shasta, CA

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Birds

NAME	STATUS
Northern Spotted Owl <i>Strix occidentalis caurina</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Crustaceans

NAME	STATUS
Shasta Crayfish <i>Pacifastacus fortis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8284	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Klamath Falls Fish And Wildlife Office
1936 California Avenue
Klamath Falls, OR 97601
Phone: (541) 885-8481 Fax: (541) 885-7837



In Reply Refer To:

March 01, 2018

Consultation Code: 08EKLA00-2018-SLI-0039

Event Code: 08EKLA00-2018-E-00119

Project Name: Cassel-Fall River Bridge Replacement Borrow Site 20-53

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as designated and proposed critical habitat that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). For anadromous fish species (i.e., salmon), please contact the National Marine Fisheries Service at http://www.westcoast.fisheries.noaa.gov/protected_species/species_list/species_lists.html.

Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat. These provisions apply to non-Federal lands when there is a Federal nexus (e.g., funding or permits).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally threatened, endangered, proposed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*; <http://www.fws.gov/midwest/eagle/protect/laws.html>). The Service developed the National Bald Eagle Management Guidelines (<http://www.fws.gov/northeast/ecologicalservices/eaglenationalguide.html>) to provide guidance on measures that may be used to avoid and minimize adverse impacts to bald eagles. Projects affecting bald or golden eagles may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds, including bald and golden eagles, and bats.

The Migratory Bird Treaty Act (16 U.S.C. 703-712; <http://www.fws.gov/midwest/eagle/protect/laws.html>) implements protections for migratory birds. Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any correspondence about your project that you submit to our office.

For projects in California, the office shown in the letterhead may not be the lead office for your project. Table 1 below provides lead Service field offices by county and land ownership/project type for northern California. Please refer to this table when you are ready to contact the field office corresponding to your project; a map and contact information for the Pacific Southwest Region field offices is located here: <http://www.fws.gov/cno/es/>.

Table 1: Lead Service offices by County and Ownership/Program in Northern California

County	Ownership/Program	Office Lead*
Lassen	Modoc National Forest	KFFWO
	Lassen National Forest	SFWO
	Toiyabe National Forest	RFWO
	BLM Surprise and Eagle Lake Resource Areas	RFWO
	BLM Alturas Resource Area	KFFWO
	Lassen Volcanic National Park	SFWO
	All other ownerships	By jurisdiction

		(see map)
Modoc	Modoc National Forest	KFFWO
	BLM Alturas Resource Area	KFFWO
	Klamath Basin National Wildlife Refuge Complex	KFFWO
	BLM Surprise and Eagle Lake Resource Areas	RFWO
	All other ownerships	By jurisdiction
		(see map)
Shasta	Shasta Trinity National Forest except Hat Creek Ranger District (administered by Lassen National Forest)	YFWO
	Hat Creek Ranger District	SFWO
	Whiskeytown National Recreation Area	YFWO
	BLM Alturas Resource Area	KFFWO
	Caltrans	SFWO/ AFWO
	Ahjumawi Lava Springs State Park	SFWO
	All other ownerships	By jurisdiction
		(see map)
Siskiyou	Klamath National Forest (except Ukonom District)	YFWO
	Six Rivers National Forest and Ukonom District of Klamath National Forest	AFWO
	Shasta Trinity National Forest	YFWO
	Lassen National Forest	SFWO
	Modoc National Forest	KFFWO

	Lava Beds National Volcanic Monument	KFFWO
	BLM Alturas Resource Area	KFFWO
	Klamath Basin National Wildlife Refuge Complex	KFFWO
	All other ownerships	By jurisdiction (see map)
All	FERC-ESA	By jurisdiction (see map)

***Office Leads:**

AFWO=Arcata Fish and Wildlife Office

BDFWO=Bay Delta Fish and Wildlife Office

KFFWO=Klamath Falls Fish and Wildlife Office

RFWO=Reno Fish and Wildlife Office

YFWO=Yreka Fish and Wildlife Office

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Migratory Birds
 - Wetlands
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Klamath Falls Fish And Wildlife Office

1936 California Avenue

Klamath Falls, OR 97601

(541) 885-8481

Project Summary

Consultation Code: 08EKLA00-2018-SLI-0039

Event Code: 08EKLA00-2018-E-00119

Project Name: Cassel-Fall River Bridge Replacement Borrow Site 20-53

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

Project Description: Borrow Site for Replacement of the Cassel-Fall River Bridge

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/40.991050306734245N121.43068032711732W>



Counties: Shasta, CA

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Crustaceans

NAME	STATUS
Shasta Crayfish <i>Pacifastacus fortis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8284	Endangered

Flowering Plants

NAME	STATUS
Slender Orcutt Grass <i>Orcuttia tenuis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1063	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

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1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see maps of where birders and the general public have sighted birds in and around your project area, visit E-bird tools such as the [E-bird data mapping tool](#) (search for the name of a bird on your list to see specific locations where that bird has been reported to occur within your project area over a certain timeframe) and the [E-bird Explore Data Tool](#) (perform a query to see a list of all birds sighted in your county or region and within a certain timeframe). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

NAME	BREEDING SEASON
Black Swift <i>Cypseloides niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Brewer's Sparrow <i>Spizella breweri</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9291	Breeds May 15 to Aug 10
Clark's Grebe <i>Aechmophorus clarkii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Dec 31
Golden Eagle <i>Aquila chrysaetos</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31
Green-tailed Towhee <i>Pipilo chlorurus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9444	Breeds May 1 to Aug 10
Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Lewis's Woodpecker <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Long-billed Curlew <i>Numenius americanus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5511	Breeds Apr 1 to Jul 31
Marbled Godwit <i>Limosa fedoa</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31

NAME	BREEDING SEASON
Pinyon Jay <i>Gymnorhinus cyanocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15
Sage Thrasher <i>Oreoscoptes montanus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9433	Breeds Apr 15 to Aug 10
Tricolored Blackbird <i>Agelaius tricolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
White Headed Woodpecker <i>Picoides albolarvatus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9411	Breeds May 1 to Aug 15
Willet <i>Tringa semipalmata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 5
Williamson's Sapsucker <i>Sphyrapicus thyroideus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8832	Breeds May 1 to Jul 31
Willow Flycatcher <i>Empidonax traillii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/3482	Breeds May 20 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in your project's counties during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to

How is the probability of presence score calculated? The calculation is done in three steps:

- ### Breeding Season (■)

Survey Effort (I)

No Data (—)

Survey Timeframe

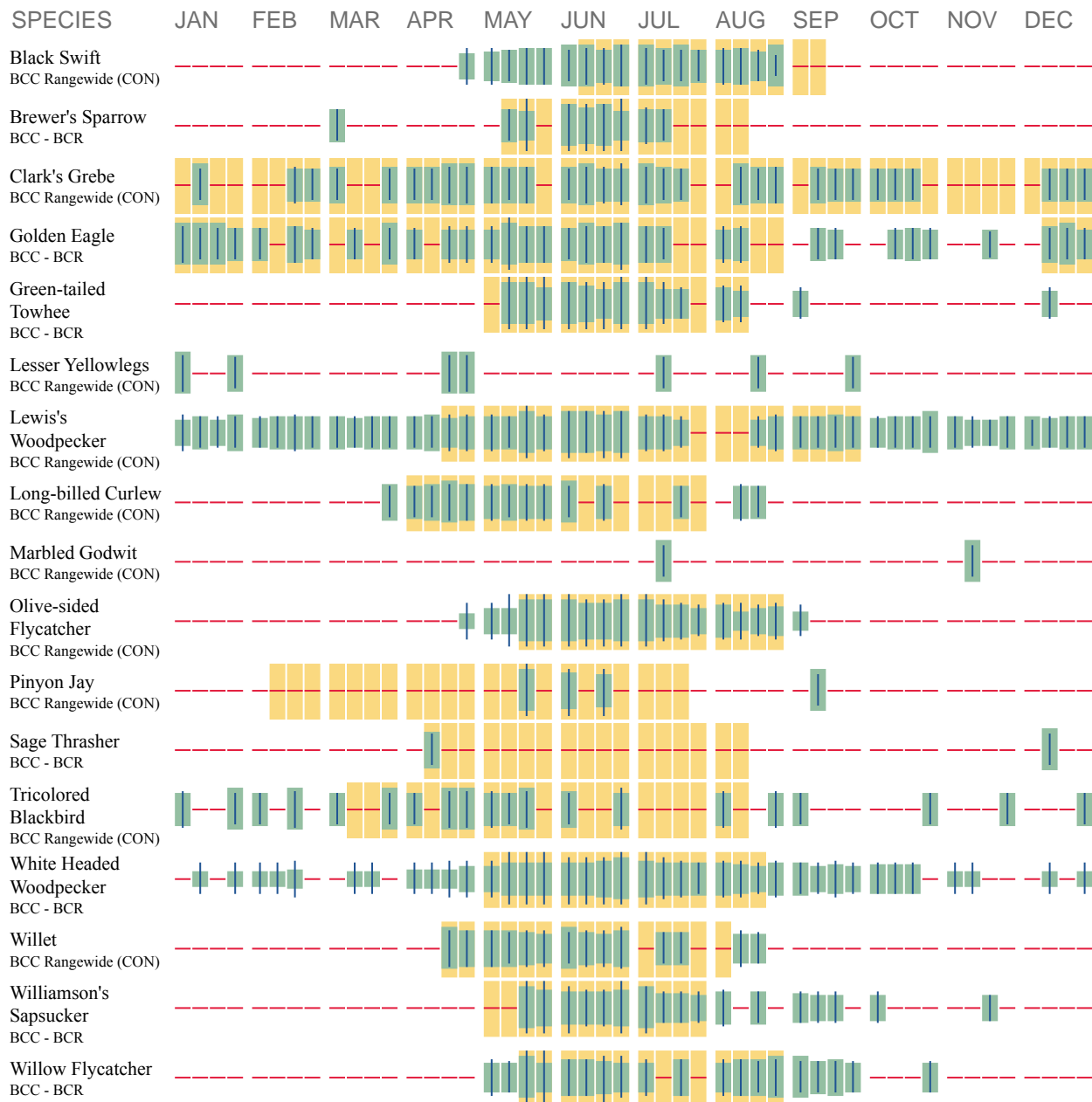
Figure 1 is a chart showing the probability of presence, breeding season, and survey effort for Bald Eagle and Non-BCC Vulnerable species across the months of the year. The chart uses a grid where green bars represent probability of presence, yellow bars represent breeding season, and blue bars represent survey effort. Red lines indicate areas with no data.

Legend:

- probability of presence (green bar)
- breeding season (yellow bar)
- survey effort (blue bar)
- no data (red line)

Species: Bald Eagle, Non-BCC Vulnerable

Months: JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC



Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the counties which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [E-bird Explore Data Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird

of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird entry on your migratory bird species list indicates a breeding season, it is probable that the bird breeds in your project's counties at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the BGEPA should such impacts occur.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Cassel-Fall River Bridge Replacement

June 9, July 10, August 10 and 27, 2010, and May 19, 2016

Amaranthaceae

Amaranthus albus
Amaranthus powellii

Amaranth Family

Tumbleweed
Green amaranth

Anacardiaceae

Rhus tribolata

Sumac Family

Squaw bush

Apiaceae

Anthriscus caucalis
Arctium minus
Conium maculatum
Osmorhiza chilensis
Torilis arvensis

Carrot Family

Bur-chervil
Burdock
Poison hemlock
Mountain sweet-cicely
Field hedge-parsley

Apocynaceae

Apocynum cannabinum

Dogbane Family

Indian-hemp

Asclepiadaceae

Asclepias fascicularis

Milkweed Family

Narrow-leaved milkweed

Asteraceae

Achillea millefolium
Anthemis cotula
Artemisia douglasiana
Aster chilensis
Aster eatonii
Bidens sp.
Centaurea cyanus
Centaurea solstitialis
Chamomilla suaveolens
Chrysothamnus nauseosus spp. *albicaulis*
Cichorium intybus
Cirsium vulgare
Conyza canadensis
Crepis occidentalis
Eriophyllum lanatum
Grindelia camporum var. *camporum*
Iva axillaris ssp. *robustior*
Lactuca serriola
Lagophylla ramosissima var. *ramosissima*
Madia citriodora
Madia sp.
Madia gracilis
Taraxacum officinale
Tragopogon dubius
Tragopogon porrifolius
Wyethia angustifolia

Sunflower Family

Common yarrow
Mayweed
Mugwort
California aster
Eaton's aster
Sticktight
Bachelor's button
Yellow star thistle
Pineapple weed
White-stemmed rabbitbrush
Chicory
Bull thistle
Canadian horseweed
Western hawks-beard
Woolly sunflower
Great Valley gumplant
Poverty weed
Prickly lettuce
Common hareleaf
Lemon-scented tarweed
Madia
Slender tarweed
Dandelion
Goat's beard
Purple salsify
Narrowleaf mule ears

Berberidaceae

Berberis aquifolium

Barberry Family

Barberry

CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Cassel-Fall River Bridge Replacement

Boraginaceae

Amsinckia menziesii var. *menziesii*
Lithospermum arvense

Borage Family

Menzies' fiddleneck
 Gromwell

Brassicaceae

Alyssum desertorum
Capsella bursa-pastoris
Cardaria chalapensis
Descurainia sophia
Draba verna
Lepidium campestre
Sisymbrium altissimum

Mustard Family

Alyssum
 Shepherd's purse
 Lens-podded hoary cress
 Flixweed
 Whitlow grass
 English peppergrass
 Tumble-mustard

Caprifoliaceae

Lonicera interrupta

Honeysuckle Family

Chaparral honeysuckle

Caryophyllaceae

Arenaria serpyllifolia ssp. *serpyllifolia*
Holosteum umbellatum ssp. *umbellatum*

Pink Family

Thymeleaf sandwort
 Jagged chickweed

Chenopodiaceae

Chenopodium sp.

Goosefoot Family

Goosefoot

Convolvulaceae

Calystegia occidentalis
Convolvulus arvensis

Morning Glory Family

Western morning-glory
 Bindweed

Cupressaceae

Juniperus occidentalis var. *occidentalis*

Cypress Family

Western juniper

Cyperaceae

Carex aquatilis
Carex lanuginosa
Carex nebrascensis
Carex praegracilis
Carex stipata var. *stipata*
Cyperus acuminatus
Scirpus acutus
Scirpus microcarpus

Sedge Family

Water sedge
 Woolly sedge
 Nebraska sedge
 Clustered field sedge
 Stiped sedge
 Short pointed cyperus
 Common tule
 Small-fruited bulrush

Dipsacaceae

Dipsacus fullonum

Teasel Family

Wild teasel

Equisetaceae

Equisetum laevigatum

Horsetail Family

Smooth scouring rush

Fabaceae

Lathyrus latifolius
Lotus corniculatus
Lotus purshianus
Lupinus bicolor

Legume Family

Perennial sweet pea
 Birdsfoot trefoil
 Spanish lotus
 Bicolored lupine

CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Cassel-Fall River Bridge Replacement

Lupinus microcarpus var. *microcarpus*
Medicago lupulina
Medicago sativa
Melilotus sp.
Melilotus alba
Robinia pseudoacacia
Trifolium dubium
Trifolium fragiferum
Trifolium hirtum
Trifolium pratense
Trifolium repens
Vicia sativa
Vicia villosa

Chick lupine
 Black medick
 Alfalfa
 Sweetclover
 White sweetclover
 Black locust
 Little hop clover
 Strawberry clover
 Rose clover
 Red clover
 White clover
 Garden vetch
 Winter vetch

Fagaceae

Quercus garryana var. *garryana*

Oak Family

Oregon oak

Geraniaceae

Erodium cicutarium

Geranium Family

Red-stemmed filaree

Grossulariaceae

Ribes velutinum

Gooseberry Family

Desert gooseberry

Haloragaceae

Myriophyllum spicatum

Water-Milfoil Family

Eurasian water-milfoil

Juglandaceae

Juglans californica var. *hindsii*

Walnut Family

Northern California black walnut

Juncaceae

Juncus balticus
Juncus ensifolius
Juncus mexicanus
Juncus occidentalis

Rush Family

Mexican rush
 Sword-leaved rush
 Mexican rush
 Western rush

Lamiaceae

Marrubium vulgare

Mint Family

Horehound

Lemnaceae

Lemna sp.

Duckweed Family

Duckweed

Liliaceae

Asparagus officinalis
Smilax californica

Lily Family

Garden asparagus
 California greenbrier

Loasaceae

Mentzelia dispersa

Loasa Family

Nada stickleaf

Malvaceae

Malva sp.

Mallow Family

Mallow

CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Cassel-Fall River Bridge Replacement

Oleaceae

Fraxinus latifolia

Olive Family

Oregon ash

Onagraceae

Camissonia sp.

Epilobium brachycarpum

Epilobium ciliatum ssp. *ciliatum*

Evening-Primrose Family

Suncup

Tall annual willowherb

Fringed willowherb

Papaveraceae

Eschscholzia californica

Poppy Family

California poppy

Plantaginaceae

Plantago lanceolata

Veronica anagallis-aquatica

Plantain Family

English plantain

Water speedwell

Poaceae

Aegilops cylindrica

Agrostis sp.

Bromus carinatus var. *carinatus*

Bromus diandrus

Bromus hordeaceus

Bromus tectorum

Dactylis glomerata

Elymus elymoides

Elymus glaucus ssp. *glaucus*

Elytrigia elongata

Elytrigia intermedia ssp. *intermedia*

Eragrostis cilianensis

Festuca arundinacea

Holcus lanatus

Hordeum murinum

Leersia oryzoides

Leymus triticoides

Lolium perenne

Phalaris arundinacea

Phleum pratense

Poa bulbosa

Poa pratensis

Poa secunda ssp. *secunda*

Polypogon monspeliensis

Secale cereale

Taeniatherum caput-medusae

Vulpia myuros var. *myuros*

Grass Family

Jointed goatgrass

Bentgrass

California brome

Ripgut grass

Soft chess

Downy brome

Orchard grass

Squirreltail

Blue wild rye

Tall wheatgrass

Intermediate wheatgrass

Stinkgrass

Tall fescue

Common velvet grass

Foxtail barley

Rice cutgrass

Alkali ryegrass

Perennial ryegrass

Reed canary grass

Cultivated timothy

Bulbous bluegrass

Kentucky bluegrass

One-sided bluegrass

Annual beardgrass

Rye

Medusa head

Rattail fescue

Polemoniaceae

Allophyllum sp.

Phlox Family

Allophyllum

Polygonaceae

Eriogonum vimineum

Polygonum sp.

Polygonum arenastrum

Buckwheat Family

Wicker buckwheat

Polygonum

Common knotweed

Dock

CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Cassel-Fall River Bridge Replacement

Rumex obtusifolius

Bitter dock

Portulacaceae

Claytonia parviflora ssp. *parviflora*

Purslane Family

Small-flowered miner's lettuce

Ranunculaceae

Ranunculus orthorhyncus

Ranunculus sceleratus

Ranunculus uncinatus

Buttercup Family

Straight-beaked buttercup

Cursed buttercup

Hook-seeded buttercup

Rhamnaceae

Frangula californica ssp. *tomentella*

Rhamnus rubra

Buckthorn Family

Hoary coffeeberry

Sierra coffeeberry

Rosaceae

Amelanchier utahensis

Crataegus douglasii

Malus sp.

Potentilla gracilis

Prunus sp.

Prunus cerasifera

Prunus virginiana var. *demissa*

Rosa californica

Rosa eglanteria

Rosa woodsii var. *ultramontana*

Rubus discolor

Rose Family

Utah service-berry

Douglas crabapple

Apple

Slender cinquefoil

Prunus

Cherry plum

Western choke-cherry

California rose

Sweetbriar

Interior rose

Himalayan blackberry

Rubiaceae

Galium aparine

Madder Family

Cleavers

Salicaceae

Populus fremontii ssp. *fremontii*

Salix exigua

Salix lasiolepis

Salix lucida

Salix scouleriana

Willow Family

Fremont cottonwood

Sandbar willow

Arroyo willow

Pacific willow

Scouler's willow

Scrophulariaceae

Mimulus guttatus

Verbascum blattaria

Verbascum thapsus

Snapdragon Family

Common monkey-flower

Moth mullein

Woolly mullein

Solanaceae

Solanum dulcamara

Nightshade Family

Climbing nightshade

Themidaceae

Dichelostemma multiflorum

Many flowered brodiaea

Typhaceae

Typha sp.

Cattail Family

Cattail

CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Cassel-Fall River Bridge Replacement

Vitaceae

Parthenocissus sp.

Grape Family

Virginia creeper

Zygophyllaceae

Tribulus terrestris

Caltrop Family

Puncture vine

**Checklist of Wildlife Species Observed
Cassel-Fall River Road Bridge Replacement Project**

Common Name	Scientific Name	Status
BIRDS		
Acorn woodpecker	<i>Melanerpes formicivorus</i>	None
American crow	<i>Corvus brachyrhynchos</i>	None
American robin	<i>Turdus migratorius</i>	None
Barn owl	<i>Tyto alba</i>	None
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	None
Canada goose	<i>Branta canadensis</i>	FD
Cliff swallow	<i>Hirundo pyrrhonota</i>	None
Eurasian collared dove	<i>Streptopelia decaocto</i>	None
Great blue heron	<i>Ardea herodias</i>	None
Green-winged teal	<i>Anas crecca</i>	None
Gopher – unidentified		
Killdeer	<i>Charadrius vociferus</i>	None
Mountain chickadee	<i>Parus gambeli</i>	None
Mourning dove	<i>Zenaida macroura</i>	None
Red-tailed hawk	<i>Buteo jamaicensis</i>	None
Red-winged blackbird	<i>Agelaius phoeniceus</i>	None
Rock dove	<i>Columba livia</i>	None
Greater sandhill crane	<i>Grus canadensis tabida</i>	ST, SFP
Western scrub-jay	<i>Aphelocoma californica</i>	None
AMPHIBIANS		
Pacific treefrog	<i>Hyla regilla</i>	None
MAMMALS		
Big-brown bat	<i>Eptesicus fuscus</i>	None
Black-tailed deer	<i>Odocoileus hemionus</i>	None
California ground squirrel	<i>Spermophilus beecheyi</i>	None
Gray fox	<i>Urocyon cinereoargenteus</i>	None
Little brown bat	<i>Myotis lucifugus</i>	None
Mexican free-tailed bat	<i>Tadarida brasiliensis</i>	None
Muskrat	<i>Ondatra zibethicus</i>	None
Small-footed myotis	<i>Myotis ciliolabrum</i>	None
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	SSSC
Yuma myotis	<i>Myotis yumanensis</i>	None
REPTILES		
Western fence lizard	<i>Sceloporus occidentalis</i>	None
Western pond turtle	<i>Emys marmorata</i>	SSSC
Western terrestrial garter snake	<i>Thamnophis elegans</i>	None
FISH		
Common carp	<i>Cyprinus carpio</i>	None
INVERTEBRATES		
Western pearlshell	<i>Margaritifera falcata</i>	None

ST = State Threatened
SFP = State Fully Protected
SSSC = State Species of Special Concern
FD = Federally Delisted

APPENDIX C

Letter of Concurrence Regarding Completion of AB 52 Consultation



Shasta County

DEPARTMENT OF PUBLIC WORKS

1855 PLACER STREET
REDDING, CA 96001-1759
530.225.5661 530.225.5667 FAX
800.479.8022 California Relay Service at 700 or 800.735.2922

PATRICK J. MINTURN, DIRECTOR
C. TROY BARTOLOMEI, DEPUTY
SCOTT G. WAHL, DEPUTY

No. 703919

April 17, 2018

Mickey Gemmill, Tribal Chairman
Pit River Tribe
36970 Park Avenue
Burney, CA 96013

Subject: Cassel-Fall River Road at Pit River Bridge (06C-0039) Replacement Project;
Tribal Cultural Resources Consultation (AB 52)

Dear Chairman Gemmill:

Shasta County, as lead agency, has prepared an Administrative Draft Initial Study/Mitigated Negative Declaration (IS/MND) for the proposed Cassel-Fall River Road Bridge Replacement Project (Project) in accordance with the California Environmental Quality Act (CEQA - California Public Resources Code, Division 13).

Pursuant to CEQA §21084.2 (AB 52, 2014), the County notified the Pit River Tribe of the Project. The Tribe requested formal consultation with the County. On June 8, 2016, the Pit River Tribal Council designated the Ajumawi Band as the Tribal representative for conducting such consultation.

Band representatives have met with County staff and consultants on various occasions to discuss the proposed project, project alternatives, and mitigation measures. During the consultation process, changes have been incorporated into the Project at the request of the Ajumawi Band.

CEQA §21084.2 requires that any mitigation measures agreed upon in the consultation process must be recommended for inclusion in the IS/MND and in an adopted mitigation monitoring and reporting program (MMRP), and must be fully enforceable. County staff is recommending that the mitigation measures listed below be included in the IS/MND and MMRP, which are public documents that will be distributed for review by regulatory agencies and the general public.

Because of the need for federal funding and federal permits, similar but separate consultation has concurrently been ongoing pursuant to Section 106 of the National Historic Preservation Act. The Federal Highway Administration (FHWA) is the federal funding agency. Pursuant to 23 U.S. Code §326, the Secretary of Transportation has assigned, and the State of California has accepted, federal Lead Agency responsibility for environmental review, consultation, and coordination. Therefore, cultural resource studies for the proposed project were completed in coordination with the Caltrans Office of Local Assistance as the designated federal Lead Agency representative.

Section 106 consultation extends through the project construction phase, while AB 52 consultation must be completed prior to adoption of the CEQA document (Initial Study and (Mitigated) Negative Declaration or EIR) by Shasta County. Because of the potential for buried cultural resources to be encountered during project construction, Mitigation 4.5.1 references a Programmatic Agreement developed under the Section 106 process. The Programmatic Agreement places continuing requirements on Shasta County with respect to cultural resources.

MM 4.5.1 Prior to commencement of any ground disturbance, the *Programmatic Agreement between the California Department of Transportation and the California State Historic Preservation Officer Regarding the Cassel-Fall River Road Bridge Replacement Project in the Town of Fall River Mills, County of Shasta, California* (PA), shall be executed, with Shasta County as a signatory to the PA.

Shasta County shall continue to coordinate with Caltrans (the designated federal Lead Agency for the project) throughout the duration of Project construction to ensure that the County fulfills its responsibilities outlined in the PA.

MM 4.5.2 If any previously unevaluated cultural or paleontological resources (i.e., burnt animal bone, midden soils, projectile points or other humanly-modified lithics, historic artifacts, fossils, etc.) are encountered, all earth-disturbing work shall stop within 7.6 meters (25 feet) of the find until a qualified archaeologist, or paleontologist if the find is a paleontological resources, can make an assessment of the discovery and recommend/implement mitigation measures as necessary.

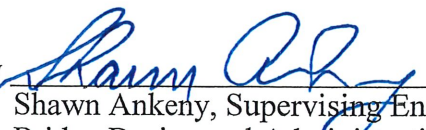
MM 4.5.3 If any human remains are encountered during any phase of construction, all earth-disturbing work shall stop within 20 meters (66 feet) of the find. The County coroner shall be contacted to determine whether investigation of the cause of death is required as well as to determine whether the remains may be Native American in origin. Should Native American remains be discovered, the County coroner must contact the Native American Heritage Commission (NAHC). The NAHC will then determine those persons it believes to be most likely descended from the deceased Native American(s). Together with representatives of the people of most likely descent, a qualified archaeologist shall make an assessment of the discovery and recommend/implement mitigation measures as necessary.

Please provide your concurrence that consultation on the Project is concluded by signing below and returning this letter to my attention.

Should you have any questions please contact Shawn Ankeny of this office at (530) 245-6810.

Sincerely,

Patrick J. Minturn, Director

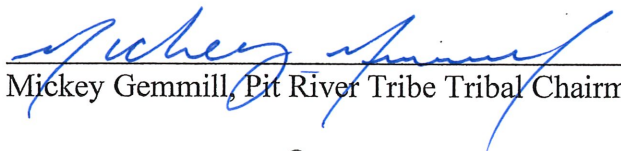
By 
Shawn Ankeny, Supervising Engineer
Bridge Design and Administration

SRA/ldr

Pit River Tribe & Ajumawi Band Concurrence:

Pursuant to CEQA §21080.3.2(b), the Pit River Tribe and the Ajumawi Band agree that the proposed project as described in the Administrative Draft IS/MND dated March 2018, with adoption of the mitigation measures identified above, will adequately avoid and/or mitigate potentially significant effects on tribal cultural resources.

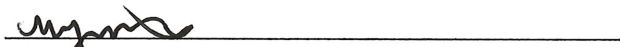
Provided that the Project proposal and mitigation measures identified in the Administrative Draft IS/MND are not substantially altered, the Pit River Tribe and Ajumawi Band concur with Shasta County that AB 52 consultation is now concluded.


Mickey Gemmill, Pit River Tribe Tribal Chairman

4/18/18
Date


Ignacio Venegas, Ajumawi Council Representative

4/24/18
Date


Mary Mike, Ajumawi Cultural Representative

4-20-18
Date

c: Ignacio Venegas
Pit River Tribe
36970 Park Avenue
Burney, CA 96013

Mary Mike
P.O. Box 3
Fall River Mills, CA 96028

Figure 4.12-1 Sensitive Receptors

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MITIGATION MONITORING AND REPORTING PROGRAM SHASTA COUNTY CASSEL - FALL RIVER ROAD BRIDGE REPLACEMENT

Introduction

This Mitigation Monitoring and Reporting Program (MMRP) has been prepared pursuant to the California Environmental Quality Act (CEQA) and the CEQA Guidelines to provide for the monitoring of mitigation measures required of the County's Cassel-Fall River Road Bridge Replacement Project (Project) as set forth in the Initial Study/Mitigated Negative Declaration (IS/MND) prepared for the Project.

Section 21081.6 of the California Public Resources Code and Sections 15091(d) and 15097 of the CEQA Guidelines require public agencies to adopt a program for monitoring or reporting on revisions to the project and the measures it has imposed to mitigate or avoid significant environmental effects. An MMRP is required for the proposed project because the IS/MND for the project identified potentially significant adverse impacts related to the implementation of proposed activities, and mitigation measures have been identified to reduce those impacts to a less-than-significant level.

Shasta County Adoption of the MMRP

As lead agency, the Shasta County Board of Supervisors will adopt this MMRP when they approve the Project. This MMRP will be kept on file at the Shasta County Department of Public Works, 1855 Placer Street, Redding, CA 96001.

Purpose of the MMRP

The purpose of the MMRP is to ensure the effective implementation and enforcement of adopted mitigation measures. Mitigation is defined by CEQA Guidelines Section 15370 as a measure that does any of the following:

- Avoids impacts altogether by not taking a certain action or parts of an action.
- Minimizes impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifies impacts by repairing, rehabilitating or restoring the impacted environment.
- Reduces or eliminates impacts over time by preservation and maintenance operations during the life of the project.
- Compensates for impacts by replacing or providing substitute resources or environments.

Roles and Responsibilities

Unless otherwise specified herein, the County is responsible for taking all actions necessary to implement the mitigation measures according to the specifications provided for each measure and for demonstrating that the action has been successfully completed. The County will be responsible for monitoring implementation of the mitigation measures and for verifying that County staff or a qualified contractor has completed the necessary actions for each measure. The County will designate a project manager to oversee the MMRP during the project implementation period. Duties of the project manager include the following:

- Ensure that routine inspections of the project's actions are conducted.
- Serve as liaison between the County and the County's contractor regarding mitigation monitoring issues (if appropriate).
- Complete forms and maintain records and documents required by the MMRP.
- Coordinate and ensure that corrective actions or enforcement measures are taken, if necessary.

MMRP Summary Table

The MMRP table identifies the mitigation measures proposed for the project. These mitigation measures are reproduced from the Initial Study and are conditions of approval for the project. The table has the following columns:

- Mitigation Measure: Lists the mitigation measures identified within the Initial Study for a specific impact, along with the number for each measure as enumerated in the Initial Study.
- Monitoring Action: Identifies what actions the County shall take to comply with the mitigation measure.
- Monitoring Timing/Frequency: Identifies at what point in time, review process, or phase the mitigation measure will be completed.
- Date Checked/By Whom: Space to be initialed and dated by the individual designated to verify adherence to a specific mitigation measure.

Conclusion

The MMRP contained herein will provide for monitoring of construction activities as necessary, on-site identification and resolution of environmental problems, and proper reporting by the County. The MMRP is to be used by County staff, participating agencies, project contractors, and mitigation monitoring personnel during implementation of the project. The MMRP and any related supporting documentation shall be maintained in the project file and be made available to the public upon request.

SHASTA COUNTY CASSEL-FALL RIVER ROAD BRIDGE REPLACEMENT

Mitigation Monitoring and Reporting Program

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
Air Quality				
<p>MM 4.3.1</p> <p>The County shall ensure through contractual obligations that the following measures are implemented throughout construction:</p> <p>a. All material excavated, stockpiled, or graded shall be sufficiently watered to prevent fugitive dust from leaving property boundaries and causing a public nuisance or a violation of ambient air quality standards.</p> <p>b. Unpaved areas with vehicle traffic shall be watered periodically or have dust palliatives applied for stabilization of dust emissions.</p> <p>c. All on-site vehicles shall be limited to a speed of 15 miles per hour on unpaved roads.</p> <p>d. All land clearing, grading, earth moving, and excavation activities on the project site shall be suspended if/when Shasta County’s resident engineer determines that winds are causing excessive dust generation.</p> <p>e. The contractor shall be responsible for applying non-toxic stabilizers (according to manufacturer’s specifications) to all inactive construction areas (previously graded areas which remain inactive for 96 hours), in accordance with the Shasta County Grading Ordinance.</p> <p>f. All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least two feet of free board in accordance with the requirements of California Vehicle Code §23114. This provision is enforced by local law enforcement agencies.</p>	<p>BC</p> <ul style="list-style-type: none">Confirm mitigation measure is included in construction contract.	<p>BC</p> <ul style="list-style-type: none">One-time check of construction contract. <p>DC</p> <ul style="list-style-type: none">Field check as needed to ensure compliance with the mitigation measure.		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
<p>g. During grading and earth disturbance in undeveloped areas, the contractor shall provide a paved (or dust palliative treated) apron, at least 50 feet in length, onto the project site from the adjacent paved road(s).</p> <p>h. Paved streets adjacent to construction areas shall be swept or washed at the end of the day to remove excessive accumulations of silt and/or mud which may have accumulated as a result of activities on the development site.</p> <p>Responsibility: Shasta County</p>				
<p>MM 4.3.2</p> <p>Prior to demolition of the existing bridge, a comprehensive asbestos survey of all suspect materials shall be completed. Sampling shall be conducted by a California Division of Occupational Safety and Health (DOSH)-certified Asbestos Consultant (CAC) or a Site Surveillance Technician (SST). Asbestos-containing material shall be removed by a DOSH-registered licensed asbestos abatement contractor and disposed of at a landfill approved to receive asbestos-containing waste material.</p> <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. Complete pre-demolition survey for asbestos. <p>DC</p> <ul style="list-style-type: none"> Field check and check documentation to confirm that, if present, asbestos is handled, removed, and disposed of in accordance with applicable regulations and guidelines. 	<p>BC</p> <ul style="list-style-type: none"> One-time check of construction contract. One-time check of asbestos survey report/documentation. <p>DC</p> <ul style="list-style-type: none"> Field check as needed to confirm compliance with mitigation measure. 		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
<p>MM 4.3.3</p> <p>Prior to demolition of the existing bridge, or disturbance of traffic striping and pavement, a comprehensive survey shall be completed in locations where lead-based paint is suspected. If lead-based paint is identified, lead abatement shall be conducted by a qualified lead abatement contractor as defined by Title 17 CCR, Articles 5 and 7.</p> <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. Complete pre-demolition survey for lead-based paint. <p>DC</p> <ul style="list-style-type: none"> Field check and check documentation to confirm that, if present, lead-based paint is handled, removed, and disposed of in accordance with applicable regulations and guidelines. 	<p>BC</p> <ul style="list-style-type: none"> One-time check of construction contract. One-time check of lead-based paint survey report/documentation. <p>DC</p> <ul style="list-style-type: none"> Field check as needed to ensure compliance with the mitigation measure. 		
<p>MM 4.3.4</p> <p>In the event previously undetected asbestos or lead-containing materials are discovered during construction or demolition, activities that may affect the materials shall cease until results of additional surveys are reviewed. Alternatively, the County can assume that the materials are hazardous. Any identified hazardous materials shall be disposed of in accordance with applicable hazardous waste regulations.</p> <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. <p>DC</p> <ul style="list-style-type: none"> Field check/check documentation to confirm that, if encountered during demolition, asbestos and lead-containing materials are handled, removed, and disposed of in accordance with applicable regulations and guidelines. 	<p>BC</p> <ul style="list-style-type: none"> One-time check of construction contract. <p>DC</p> <ul style="list-style-type: none"> Field check/check documentation as needed to confirm compliance with the mitigation measure. 		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
Biological				
<p>MM 4.4.1</p> <p><u>Avoid/Minimize Effects on Bats During Bridge Demolition.</u> Prior to bridge demolition, additional visual survey shall be conducted at each bridge pier where the deck spans join. If packing material is present in the joints and would prevent bat usage, or if the visual survey confirms that there are no signs of past or present bat activity, no further work is needed prior to demolition. If the packing material is no longer intact or no longer present, then humane bat eviction shall be undertaken during seasonal periods of bat activity as described below.</p> <ul style="list-style-type: none">If needed, humane bat eviction shall be conducted by a bat exclusion contractor or by the bridge contractor under direct supervision of a qualified bat biologist who is experienced in humane bat exclusion methods, materials, and techniques. Humane bat eviction shall consist of blockage of contiguous sections of the gap, and installation of one-way exits at all required locations to permit bats to escape from any roost crevices or non-contiguous portions of crevices. Humane bat eviction shall only be conducted during seasonal periods of bat activity, which in this region, are as follows:<ul style="list-style-type: none">Between March 1 (or after evening temperatures rise above 45°F, and/or no more than ½ " of rainfall within 24 hours occurs), and April 15; andBetween September 1 and October 15 (or before evening temperatures fall below 45°F, and/or more than ½ " of rainfall within 24 hours occurs). <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none">Complete pre-demolition visual survey for bats.If visual survey shows that bats may be using deck span joints for roosting, review contract to ensure that a bat exclusion contractor has been retained to conduct humane bat eviction. <p>DC</p> <ul style="list-style-type: none">If bats may be present, field check/check documentation to confirm that bats are humanely evicted in accordance with mitigation measure.	<p>BC</p> <ul style="list-style-type: none">One-time review of pre-demolition report.One-time review of bat specialist’s contract, if necessary. <p>DC</p> <ul style="list-style-type: none">If bats may be present, field check prior to bridge demolition to confirm installation of humane bat eviction materials.		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
MM 4.4.2 <u>Replace Day and Night Bat Roosting Habitat.</u> Day and/or night bat roosting habitat present on the existing bridge shall be replaced with an equal or greater amount of in-kind habitat on the new bridge. A replacement plan shall be developed by a qualified bat biologist with experience in bridge structure bat roost habitat design. Responsibility: Shasta County	BC <ul style="list-style-type: none"> Complete bat habitat replacement plan. Review final bridge construction plans to ensure bat habitat is provided. DC <ul style="list-style-type: none"> Field check to ensure implementation of mitigation measure. 	BC <ul style="list-style-type: none"> One-time check of bat habitat replacement plan. One-time check of bridge construction plans. DC <ul style="list-style-type: none"> Field check as needed to confirm compliance with the mitigation measure. 		
MM 4.4.3 <u>Avoid/Minimize Effects on Bats During Tree Removal.</u> Trees providing suitable bat habitat shall be removed only between March 1 and April 15, or between September 1 and October 15, subject to the weather conditions noted below. All trees proposed for removal shall be inspected in advance by a qualified bat biologist for the presence of cavities, crevices, exfoliating bark, and other features that may provide suitable bat roosting habitat. Trees with suitable bat roost features shall be removed only after implementation of one of the following: a. A night emergence survey of tree by a qualified bat biologist reveals no roosting bats, OR b. Trees are removed using the two-step process described below to permit bats the opportunity to abandon the roost prior to removal. Two-step removal of trees containing occupied bat roosts or providing suitable bat habitat shall only be conducted during seasonal periods of bat activity, which in this region, are as follows: <ul style="list-style-type: none"> Between March 1 (or after evening temperatures rise above 45°F, and/or no more than ½ " of rainfall within 24 hours occurs), and April 15; and 	BC <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. Complete tree inspection report prior to tree removal. <i>Option A</i> <ul style="list-style-type: none"> Complete night emergence survey, if needed. <i>Option B</i> <ul style="list-style-type: none"> Confirm completion of worker awareness training by a qualified bat biologist in accordance with mitigation measure. DC <i>Option B</i> <ul style="list-style-type: none"> Provide field supervision of tree cutting crews in accordance with the mitigation measure. 	BC <ul style="list-style-type: none"> One-time check of construction contract. One-time check of tree inspection report. <i>Option A</i> <ul style="list-style-type: none"> One-time check of night emergence survey report, if necessary. <i>Option B</i> <ul style="list-style-type: none"> Check bat biologist's documentation of worker awareness training as needed to ensure compliance with the mitigation measure. DC <i>Option B</i> <ul style="list-style-type: none"> One-time check of contract to confirm retention of bat biologist to supervise tree removal. 		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
<ul style="list-style-type: none"> Between September 1 and October 15 (or before evening temperatures fall below 45°F, and/or more than ½ " of rainfall within 24 hours occurs). <p>The two-step removal of bat habitat trees shall be conducted over two consecutive days. The first day entails removal of non-habitat features on bat habitat trees (branches without cavities, crevices, or exfoliating bark), using chainsaws only for cutting, and chippers wherever possible to cause a level of noise and vibration disturbance sufficient to cause bats to choose not to return to the tree for a few days after they emerge to forage. No excavators, grinders, or other heavy equipment shall be used for first day trimming of habitat trees.</p> <p>A qualified bat biologist experienced with two-step removal procedures shall instruct and provide initial supervision of tree cutting crews on day 1 so that they do not accidentally remove potential habitat features, which could result in direct mortality of bats.</p> <p>On the following day, the trees are removed. Any new tree cutting crew members added to the crew shall require instruction and initial supervision by a qualified bat biologist.</p> <p>Responsibility: Shasta County</p>	<p><i>Option B</i></p> <ul style="list-style-type: none"> Field check as needed to ensure compliance with the mitigation measure. 	<p><i>Option B</i></p> <ul style="list-style-type: none"> Field check as needed to ensure compliance with the mitigation measure. 		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
<p>MM 4.4.4</p> <p><u>Avoid/Minimize Effects on Bats During Swallow Nest Removal.</u></p> <p>Abandoned cliff swallow nests on the bridge shall be removed by hand using an extension pole with a suitable scraper (no high-pressure water or air), between October 30 and January 31. If abandoned swallow nests cannot be removed during this period, nest interiors shall first be visually inspected by a qualified bat biologist, and then the nests shall be removed by hand using an extension pole with a suitable scraper (no high-pressure water or air), if unoccupied. If a nest is occupied by bats, removal shall be delayed until after dark. If exclusion netting will be installed on the bridge, netting (1/4" – 3/8" mesh size) or other chosen material shall be installed so that it fits tightly to the bridge with no gaps that may permit bats to enter, and which could trap bats.</p> <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. If nest removal occurs between February 1 and October 29, check pre-construction survey report provided by biologist regarding the presence/absence of bats in the nests. <p>DC</p> <ul style="list-style-type: none"> Field check during nest removal. Field check installation of exclusionary netting/materials. 	<p>BC</p> <ul style="list-style-type: none"> One-time check of construction contract. If nest removal occurs between February 1 and October 29, one-time check of biologist's documentation. <p>DC</p> <ul style="list-style-type: none"> Field check as needed to ensure compliance with the mitigation measure. 		
<p>MM 4.4.5</p> <p><u>Inspect Dewatering Enclosures for Western Pond Turtles.</u></p> <p>If in-stream dewatering enclosures are erected to facilitate pier or abutment construction, a qualified biologist shall be present during initial dewatering of each enclosure to ensure that no turtles are trapped. If turtles are present within the enclosure, they shall be relocated outside the work area by the qualified biologist.</p> <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. <p>DC</p> <ul style="list-style-type: none"> Check biologist's inspection reports to ensure compliance with the mitigation measure, or document that in-stream dewatering enclosures are not used. 	<p>BC</p> <ul style="list-style-type: none"> One-time check of construction contract. <p>DC</p> <ul style="list-style-type: none"> One-time check of biologist's report or field check as needed to confirm absence of in-stream dewatering enclosures. 		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
<p>MM 4.4.6</p> <p><u>Avoid/Minimize Effects on Western Pond Turtles.</u> Prior to commencement of any earth disturbance, all construction personnel shall receive training from a qualified biologist on identification of western pond turtles and procedures to be implemented in the event that western pond turtles are encountered during construction activities.</p> <p>In the event that western pond turtles enter a 100-foot buffer of on-going construction activities, a qualified biologist shall be contacted and construction activities shall be halted within 50 feet of the turtle until the turtle is confirmed to have left the project area or is relocated by the qualified biologist.</p> <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. <p>DC</p> <ul style="list-style-type: none"> Conduct training for all construction personnel by a qualified biologist. Field check as necessary to ensure adherence to the mitigation measure. 	<p>BC</p> <ul style="list-style-type: none"> One-time check of construction contract. <p>DC</p> <ul style="list-style-type: none"> Conduct training for construction personnel by a qualified biologist as needed. Field check as need to ensure compliance with the mitigation measure. 		
<p>MM 4.4.7</p> <p><u>Limit the Period for In-Water Work.</u> In-water work shall be limited to the period between April 15 and January 31, or as may otherwise be specified by CDFW, USACE, and/or the RWQCB. If work is proposed outside of the specified time period, the County shall obtain approval from these agencies prior to conducting the work.</p> <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. <p>DC</p> <ul style="list-style-type: none"> Obtain authorization from applicable regulatory agencies if work occurs between February 1 and April 14. 	<p>BC</p> <ul style="list-style-type: none"> One-time check of construction contract. <p>DC</p> <ul style="list-style-type: none"> If work is proposed between February 1 and April 14, obtain approval from CDFW, USACE, and/or RWQCB. Field check as needed to ensure compliance with the mitigation measure. 		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
<p>MM 4.4.8</p> <p><u>Construction Measures to Ensure Retention of Oak Trees.</u> The following measures shall be implemented to ensure retention of the oak trees that are designated for preservation. The County shall ensure compliance through the enforcement of contractual obligations:</p> <ol style="list-style-type: none"> Fencing shall be provided at least 6 feet outside of the dripline of all trees to be preserved. The fencing is to remain throughout construction. No storage of materials that may be harmful to oak trees shall occur within the fenced area. No construction activities (grading, cutting, or trenching), including vehicle parking or materials stockpiling, shall occur within the fenced area. <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. <p>DC</p> <ul style="list-style-type: none"> Field check as necessary to ensure exclusionary fencing is installed and maintained throughout construction. 	<p>BC</p> <ul style="list-style-type: none"> One-time check of construction contract. <p>DC</p> <ul style="list-style-type: none"> Field check as needed to ensure compliance with the mitigation measure. 		
<p>MM 4.4.9</p> <p><u>Avoid/Minimize the Potential for Introduction and Spread of Noxious Weeds.</u> The potential for introduction and spread of noxious weeds shall be avoided/minimized by:</p> <ol style="list-style-type: none"> Using only certified weed-free erosion control materials, mulch, and seed. Limiting any import or export of fill material to material that is known to be weed free. Requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering the County. If the equipment has most recently been used within the County, cleaning is not required. <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. 	<p>BC</p> <ul style="list-style-type: none"> One-time check of construction contract. <p>DC</p> <ul style="list-style-type: none"> Field check as needed to ensure compliance with the mitigation measure. 		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
<p>MM 4.4.10</p> <p><u>Avoid/Minimize the Potential for Introduction and Spread of Invasive Freshwater Mollusks.</u></p> <p>The potential for introduction and spread of invasive freshwater mollusks (quagga mollusks and zebra mollusks) shall be avoided/minimized by utilizing only vessels that have been cleaned, drained of all standing water, dried thoroughly, and determined not to harbor mussels prior to placement into the Pit River. Vessels that harbor mussels shall undergo treatment to eradicate the mussels completely by being placed into dry storage for a minimum of five days prior to their next planned use.</p> <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. 	<p>BC</p> <ul style="list-style-type: none"> One-time check of construction contract. <p>DC</p> <ul style="list-style-type: none"> Field check as needed to ensure compliance with the mitigation measure. 		
<p>MM 4.4.11</p> <p><u>Avoid Disturbing Nesting Birds During Bridge Construction/Demolition.</u></p> <p>Well in advance of project construction, abandoned swallow nests shall be removed from the bridge in accordance with the conditions prescribed in Mitigation Measure MM 4.4.4. After the nests are removed, and prior to April 15, bird nesting deterrents shall be installed on the bridge. Shasta County may utilize one or more types of deterrents to prevent birds from nesting on the bridge, including the use of bioacoustic deterrents (e.g., broadcast calls), installation of exclusionary materials (e.g., Teflon or plastic sheeting, mesh netting, or other materials that would not entangle birds) in the fall or winter prior to construction, and/or removal of partially constructed nests following confirmation by a qualified biologist that no eggs or chicks are present (completed nests shall not be removed). Any installation of exclusionary materials to prevent bird nesting shall be coordinated with the bat biologist to ensure that day-roosting bats (if present) are not trapped inside the bridge.</p> <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. Review bat biologist's report (see MM 4.4.1) to determine if bats are present or absent. If bats may be present, confirm that exclusionary materials are installed in coordination with the bat biologist. Confirm that exclusionary material is installed after nest removal and prior to April 15. <p>DC</p> <ul style="list-style-type: none"> Inspect nesting deterrents as necessary to ensure compliance with the mitigation measure. 	<p>BC</p> <ul style="list-style-type: none"> One-time check of construction contract. One-time check of biologist's documentation. If bats may be present, check contract to confirm that coordination with the bat biologist occurs. One-time field check prior to April 15 to ensure that exclusionary material has been installed. <p>DC</p> <ul style="list-style-type: none"> Inspect and maintain nesting deterrents as necessary until bridge is demolished to ensure 		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
		compliance with the mitigation measure. Daily inspections are recommended during the swallow arrival period.		
<p>MM 4.4.12</p> <p><u>Avoid Disturbing Nesting Birds During Vegetation Removal or Ground Disturbance.</u></p> <p>In order to avoid impacts to nesting migratory birds and/or raptors protected under the federal Migratory Bird Treaty Act of 1918 and California Fish and Game Code §3503, including their nests and eggs, the following measures shall be implemented:</p> <p>a. With the exception of trees providing suitable bat roosting habitat that shall be removed only between March 1 and April 15, or between September 1 and October 15, in accordance with Mitigation Measure 4.4.3, vegetation removal and other ground-disturbance activities associated with construction shall occur between September 1 and January 31 when birds are not nesting; or</p> <p>b. If vegetation removal or ground disturbance activities occur during the nesting season, a pre-construction nesting survey shall be conducted by a qualified biologist to identify active nests in and adjacent to the work area. The survey shall take into account acoustic impacts and line-of-sight disturbances occurring as a result of the project in order to determine a sufficient survey radius to avoid nesting birds. The results of the survey shall be submitted to the California Department of Fish and Wildlife upon completion. The survey shall be conducted no more than one week prior to the initiation of construction. If construction activities are delayed or suspended for more than one week after the pre-construction survey, the site shall be resurveyed.</p> <p>If active nests are found, Shasta County shall consult with the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service regarding appropriate action to comply with the Migratory Bird Treaty Act and California</p>	<p>BC</p> <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. If vegetation removal or construction occur between February 1 and August 31, check pre-construction survey report provided by biologist regarding the presence/absence of active nests. <p>DC</p> <ul style="list-style-type: none"> If active nests are present, inspect project area to verify applicable buffers are maintained until after the young birds have fledged. 	<p>BC</p> <ul style="list-style-type: none"> One-time check of construction contract. One-time check of biologist's documentation. <p>DC</p> <ul style="list-style-type: none"> If active nests are present, field check on a weekly basis until the birds have fledged to confirm that buffers are maintained. 		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
<p>Fish and Game Code §3503. Compliance measures may include, but are not limited to, exclusion buffers, sound-attenuation measures, seasonal work closures based on the known biology and life history of the species identified in the survey, as well as ongoing monitoring by biologists.</p> <p>Responsibility: Shasta County</p>				
Cultural Resources				
<p>MM 4.5.1</p> <p>Prior to commencement of any ground disturbance, the <i>Programmatic Agreement between the California Department of Transportation and the California State Historic Preservation Officer Regarding the Cassel-Fall River Road Bridge Replacement Project in the Town of Fall River Mills, County of Shasta, California</i> (PA), shall be executed, with Shasta County as a signatory to the PA.</p> <p>Shasta County shall continue to coordinate with Caltrans (the designated federal Lead Agency for the project) throughout the duration of Project construction to ensure that the County fulfills its responsibilities outlined in the PA.</p> <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none"> Execute Programmatic Agreement in accordance with mitigation measure. <p>DC</p> <ul style="list-style-type: none"> Conduct ongoing coordination with Caltrans throughout the duration of Project construction to ensure compliance with the Programmatic Agreement. 	<p>BC</p> <ul style="list-style-type: none"> One-time verification of Programmatic Agreement. <p>DC</p> <ul style="list-style-type: none"> Coordinate with Caltrans as needed to ensure compliance with the Programmatic Agreement. 		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
<p>MM 4.5.2</p> <p>If any previously unevaluated cultural or paleontological resources (i.e., burnt animal bone, midden soils, projectile points or other humanly-modified lithics, historic artifacts, fossils, etc.) are encountered, all earth-disturbing work shall stop within 7.6 meters (25 feet) of the find until a qualified archaeologist, or paleontologist if the find is a paleontological resource, can make an assessment of the discovery and recommend/implement mitigation measures as necessary.</p> <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. <p>DC</p> <ul style="list-style-type: none"> If any previously unevaluated cultural or paleontological resources are encountered, confirm all construction activities stop within the affected area and that a qualified archaeologist and/or paleontologist is contacted. 	<p>BC</p> <ul style="list-style-type: none"> One-time check of construction contract. <p>DC</p> <ul style="list-style-type: none"> Field check as needed to confirm temporary construction stoppage within buffer zone. The archaeologist and/or paleontologist shall specify the timing/frequency of additional monitoring, as appropriate. 		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
<p>MM 4.5.3</p> <p>If any human remains are encountered during any phase of construction, all earth-disturbing work shall stop within 20 meters (66 feet) of the find. The county coroner shall be contacted to determine whether investigation of the cause of death is required as well as to determine whether the remains may be Native American in origin. Should Native American remains be discovered, the county coroner must contact the Native American Heritage Commission (NAHC). The NAHC will then determine those persons it believes to be most likely descended from the deceased Native American(s). Together with representatives of the people of most likely descent, a qualified archaeologist shall make an assessment of the discovery and recommend/implement mitigation measures as necessary.</p> <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. <p>DC</p> <ul style="list-style-type: none"> If any human remains are encountered, confirm all construction activities stop within the affected area and that a qualified archaeologist and the county coroner are contacted. If human remains are recognized as Native American, additional monitoring requirements may be specified by the archaeologist in consultation with representatives of the people of most likely descended from the deceased contacted. 	<p>BC</p> <ul style="list-style-type: none"> One-time check of construction contract. <p>DC</p> <ul style="list-style-type: none"> Field check as needed to confirm temporary construction stoppage within buffer zone. The archaeologist shall specify the timing/frequency of additional monitoring, as appropriate. 		
Geology/Soils				
<p>MM 4.6.1</p> <p>Recommendations included in the Final Foundation Report for the proposed Project shall be incorporated into the final improvement plans. The improvement plans shall be reviewed by a qualified geotechnical engineer to ensure all recommendations included in the final Foundation/Geotechnical Report are implemented. Applicable notes shall be placed on the attachment sheet to the Improvement Plans.</p> <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none"> Confirm review of improvement plans by geotechnical engineer. 	<p>BC</p> <ul style="list-style-type: none"> One-time confirmation of geotechnical engineer's approval of improvement plans. 		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
<p>MM 4.6.2</p> <p>Site earthwork activities (including site preparation, placement of engineered fill and trench backfill, construction of slab and pavement subgrades, and all foundation excavations) shall be monitored by a certified engineering geologist or other qualified professional approved by the Shasta County Public Works Director, as recommended in the Final Foundation Report.</p> <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. <p>DC</p> <ul style="list-style-type: none"> Field check as necessary to ensure monitoring of site earthwork activities in accordance with the mitigation measure. 	<p>BC</p> <ul style="list-style-type: none"> One-time check of construction contract. <p>DC</p> <ul style="list-style-type: none"> Field check as needed to ensure compliance with the mitigation measure. 		
<p>MM 4.6.3</p> <p>If blasting is proposed, all work shall be conducted under the direct supervision of a blaster holding a current license issued by Cal/OSHA; a blasting plan subject to approval by Shasta County shall be provided in advance so that the County can ensure that potential concerns with respect to noise, vibration, safety, and security are adequately addressed.</p> <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. <p>DC</p> <ul style="list-style-type: none"> Review and approve blasting plan, if necessary. Field check as necessary to ensure supervision of blasting activities in accordance with the mitigation measure. 	<p>BC</p> <ul style="list-style-type: none"> One-time check of construction contract. <p>DC</p> <ul style="list-style-type: none"> Field check as needed to ensure implementation. Review blasting plan(s) as needed if blasting is proposed. Field check as needed to ensure compliance with the mitigation measure. 		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
Hazards / Hazardous Materials				
<p>MM 4.8.1</p> <p>Treated wood waste shall be handled, stored, transported, and disposed of in accordance with Section 14-11.14 (Treated Wood Waste) of Caltrans’ Standard Specifications. All personnel that may come into contact with treated wood waste will receive, at a minimum, training on procedures for identifying and segregating treated wood waste; safe handling practices; requirements of 22 CCR, Division 4.5, Chapter 34 (Alternative Management Standards for Treated Wood Waste); and proper disposal methods.</p> <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none">Confirm mitigation measure is included in construction contract.Ensure construction workers are properly trained regarding identifying, handling, and disposing of treated wood waste. <p>DC</p> <ul style="list-style-type: none">Field check and check documentation to confirm that, if present, treated wood waste is handled, removed, and disposed of in accordance with applicable regulations and guidelines.	<p>BC</p> <ul style="list-style-type: none">One-time check of construction contract.Review training records as needed to ensure construction workers are properly trained regarding identifying, handling, and disposing of treated wood waste. <p>DC</p> <ul style="list-style-type: none">Field check as needed to ensure compliance with the mitigation measure.		
<p>MM 4.8.2</p> <p>During construction, all areas in which work will be completed using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a fire break.</p> <p>Responsibility: Shasta County</p>	<p>BC</p> <ul style="list-style-type: none">Confirm mitigation measure is included in construction contract. <p>DC</p> <ul style="list-style-type: none">Field check to confirm compliance with the mitigation measure.	<p>BC</p> <ul style="list-style-type: none">One-time check of construction contract. <p>DC</p> <ul style="list-style-type: none">Field check as needed to ensure compliance with the mitigation measure.		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
Hydrology and Water Quality				
MM 4.9.1 Final improvement plans shall be reviewed by the hydraulic engineer to ensure all recommendations included in the final hydraulic analysis are implemented. Applicable notes shall be placed on the attachment sheet to the Grading and Improvement Plans. Responsibility: Shasta County	BC <ul style="list-style-type: none">Confirm review of final improvement plans by hydraulic engineer.	BC <ul style="list-style-type: none">One-time confirmation of hydraulic engineer's approval of improvement plans.		
Noise				
MM 4.12.1 Construction activities (excluding activities that would result in a safety concern to the public or construction workers due to interference with traffic) shall be limited to between the daytime hours of 7:00 A.M. and 7:00 P.M., Monday through Friday; and 8:00 A.M. and 5:00 P.M., on Saturdays, Sundays, and federal/state recognized holidays. Responsibility: Shasta County	BC <ul style="list-style-type: none">Confirm mitigation measure is included in construction contract. DC <ul style="list-style-type: none">Field check to confirm compliance with the mitigation measure.	BC <ul style="list-style-type: none">One-time check of construction contract. DC <ul style="list-style-type: none">Field check as needed to ensure compliance with the mitigation measure.		
MM 4.12.2 Pile driving and blasting activities shall occur only between the hours of 9:00 A.M. and 6:00 P.M. Responsibility: Shasta County	BC <ul style="list-style-type: none">Confirm mitigation measure is included in construction contract. DC <ul style="list-style-type: none">Field check to confirm compliance with the mitigation measure.	BC <ul style="list-style-type: none">One-time check of construction contract. DC <ul style="list-style-type: none">Field check as needed to ensure compliance with the mitigation measure.		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
MM 4.12.3 Noise generated by pile-driving activities shall be minimized to the extent practicable, through the use of cushion blocks with impact hammer pile drivers; attaching acoustical insulation material to the inside of construction fencing or supports; installing temporary sound barriers between sensitive uses and the construction site; and/or pre-drilling holes for the piles. Sonic or vibratory pile drivers may be used where geological conditions permit their use. Responsibility: Shasta County	BC <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. DC <ul style="list-style-type: none"> Field check to confirm compliance with the mitigation measure. 	BC <ul style="list-style-type: none"> One-time check of construction contract. DC <ul style="list-style-type: none"> Field check as needed to ensure compliance with the mitigation measure. 		
MM 4.12.4 Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation. Responsibility: Shasta County	BC <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. DC <ul style="list-style-type: none"> Field check to confirm compliance with the mitigation measure. 	BC <ul style="list-style-type: none"> One-time check of construction contract. DC <ul style="list-style-type: none"> Field check as needed to ensure compliance with the mitigation measure. 		
MM 4.12.5 When not in use, motorized construction equipment shall not be left idling for more than five minutes. Responsibility: Shasta County	BC <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. DC <ul style="list-style-type: none"> Field check to confirm compliance with the mitigation measure. 	BC <ul style="list-style-type: none"> One-time check of construction contract. DC <ul style="list-style-type: none"> Field check as needed to ensure compliance with the mitigation measure. 		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
MM 4.12.6 Stationary equipment (generators, compressors, etc.) shall be located at the furthest practical distance from nearby noise-sensitive land uses. Responsibility: Shasta County	BC <ul style="list-style-type: none"> Confirm mitigation measure is included in construction contract. DC <ul style="list-style-type: none"> Field check to confirm compliance with the mitigation measure. 	BC <ul style="list-style-type: none"> One-time check of construction contract. DC <ul style="list-style-type: none"> Field check as needed to ensure compliance with the mitigation measure. 		

BC = Before Construction

DC = During Construction

AC = After Construction

020-53

June 27, 2018

MEMORANDUM

TO: Shawn Ankeny, PE
Shasta County Public Works
1855 Placer Street
Redding, CA 96001

FROM: Carla L. Thompson, AICP

SUBJECT: **Response to Comments and Mitigation Monitoring and Reporting Program**
Cassel-Fall River Road Bridge Replacement Project

In accordance with the California Environmental Quality Act (CEQA) (California Public Resources Code §21000 *et seq.*) and CEQA Guidelines (California Code of Regulations §15000 *et seq.*), an Initial Study/Mitigated Negative Declaration (IS/MND) for the Cassel-Fall River Road Bridge Replacement Project was prepared and made available to the general public and interested agencies for a 30-day public review period. The agency review period managed by the State Clearinghouse ended June 18, 2018; the general public review period ended June 22, 2018.

Pursuant to CEQA §21091, the lead agency must evaluate all comments received during the comment period and prepare a written response to each comment in accordance with §15088 of the CEQA Guidelines.

Comments on the IS/MND were submitted by the Central Valley Regional Water Quality Control Board. The letter is attached in its entirety and is followed by the responses to the letter.

Also attached is the final Mitigation Monitoring and Reporting Program (MMRP) that must be adopted by the Board of Supervisors at the time they adopt the MND.

Please feel free to contact me at **530.221.0440, ext. 7112**, or cthompson@enplan.com if you have any questions or require additional information.

Enclosures:

- Response to Comments
- Final Mitigation Monitoring and Reporting Program

LETTER 1



Central Valley Regional Water Quality Control Board

30 May 2018

Shasta County Department of Public Works
Attn: Shawn Ankeny
1855 Placer Street
Redding, CA 96001-1759

**COMMENTS ON THE INITIAL STUDY/PROPOSED MITIGATED NEGATIVE DECLARATION,
CASSEL-FALL RIVER ROAD BRIDGE REPLACEMENT PROJECT, SHASTA COUNTY**

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) is a responsible agency for this project, as defined by the California Environmental Quality Act (CEQA). On 23 May 2018, we received your request for comments on the Cassel-Fall River Road Bridge Replacement Project.

The proposed project includes replacing the existing Cassel-Fall River Road Bridge over the Pit River with a new bridge located immediately south of the current bridge. The roadway approaches on both sides of the bridge would be shifted south. An asphalt overlay would continue from the end of the eastern bridge approach roadway work for 370 feet toward the intersection of Dee Knoch Road. An approximately 165-foot-long retaining wall would be placed on the south side of the eastern approach, east of the abutment. The project is located in the unincorporated community of Fall River Mills. The bridge site is located along Main Street / Cassel-Fall River Road.

Based on our review of the information submitted for the proposed project, we have the following comments:

General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (CGP)

Construction activity, including demolition, resulting in a land disturbance of one acre or more must obtain coverage under the CGP. The Cassel-Fall River Road Bridge Replacement Project must be conditioned to implement storm water pollution controls during construction and post-construction as required by the CGP. To apply for coverage under the CGP the property owner must submit Permit Registration Documents electronically prior to construction. Detailed information on the CGP can be found on the State Water Board website:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

1-1

Clean Water Act (CWA) Section 401, Water Quality Certification

The Central Valley Water Board has regulatory authority over wetlands and waterways under the Federal Clean Water Act (CWA) and the California Water Code, Division 7 (CWC). Discharge of dredged or fill material to waters of the United States requires a CWA Section 401

1-2

Shasta County Department of Public Works - 2 -
Cassel-Fall River Road Bridge Replacement Project

30 May 2018

Water Quality Certification from the Central Valley Water Board. Typical activities include any modifications to these waters, such as stream crossings, stream bank modifications, filling of wetlands, etc. 401 Certifications are issued in combination with CWA Section 404 Permits issued by the Army Corps of Engineers. The proposed project must be evaluated for the presence of jurisdictional waters, including wetlands and other waters of the State. Steps must be taken to first avoid and minimize impacts to these waters, and then mitigate for unavoidable impacts. Both the Section 404 Permit and Section 401 Water Quality Certification must be obtained prior to site disturbance. Any person discharging dredge or fill materials to waters of the State must file a report of waste discharge pursuant to Sections 13376 and 13260 of the California Water Code. Both the requirements to submit a report of waste discharge and apply for a Water Quality Certification may be met using the same application form, found at:

1-2
Cont.

1-3

1-4

http://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/wqc_application.pdf

If you have any questions or comments regarding this matter please contact me at (530) 224-4783 or by email at Dannas.Berchtold@waterboards.ca.gov.



Dannas J. Berchtold
Engineering Associate
Storm Water & Water Quality Certification Unit

DJB: db

cc w/o

enclosures: Mr. Matt Kelley, U.S. Army Corps of Engineers, Redding
Ms. Donna Cobb, Department of Fish and Wildlife, Region 1, Redding

LETTER 1 CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD (CVRWQCB)

Comment 1-1: **The Commenter states that construction activity, including demolition, resulting in land disturbance of one acre or more must obtain coverage under the General Permit for Storm Water Discharges (CGP). The applicant must implement storm water pollution controls during construction and post-construction as required by the CGP.**

Response 1-1: Section 3.4 (Regulatory Requirements) of the IS/MND (page 21) provides a list of permits and approvals that are required for the proposed project. The following requirement is included:

- Obtain coverage under the NPDES permit for *Discharges of Storm Water Runoff Associated with Construction Activity* (currently Order No. 2009-009-DWQ) by submitting a Notice of Intent to the State Water Resources Control Board (SWRCB). The permitting process requires the development and implementation of an effective Storm Water Pollution Prevention Plan (SWPPP) that includes Best Management Practices (BMPs) to reduce pollutants and any additional controls necessary to meet water quality standards.

Because the County's construction contract will include the requirement to implement a SWPPP that includes BMPs and any additional controls necessary to meet water quality standards, no additional mitigation measures are required.

Comment 1-2: **The Commenter states that the CVWQCB has regulatory authority over wetlands and waterways under the Federal Clean Water Act and the California Water Code. Discharge of dredged or fill material to waters of the U.S. requires a CWA Section 401 Water Quality Certification from the CVRWQCB. Section 401 certifications are issued in combination with Section 404 Permits issued by the Army Corps of Engineers.**

Response 1-2: The IS/MND (page 61) states:

"Pursuant to CWA Section 401, an activity requiring a USACE permit must obtain a State Water Quality Certification (or waiver) to ensure that the activity will not violate established State water quality standards."

Section 3.4 (Regulatory Requirements) of the IS/MND (page 22) provides a list of permits and approvals that are required for the proposed project. The following requirements are included:

- Obtain a State Water Quality Certification (or waiver) per Clean Water Act Section 401.
- Obtain a Section 404 Permit under the Federal Clean Water Act.

Because the County's construction contract will include the requirement to comply with conditions of the regulatory agency permits, no additional mitigation measures are required.

Comment 1-3: **The Commenter states that the project must be evaluated for the presence of jurisdictional waters, including wetlands and other waters of the State. Steps must be taken to first avoid and minimize impacts to these waters, and then mitigate for unavoidable impacts.**

Response 1-3: The IS/MND (page 59) states that ENPLAN conducted field investigations on June 29 and August 10, 2010, and on February 12, May 17, and May 19, 2016, to identify potential jurisdictional waters. The evaluation identified ± 0.873 acres of the Pit River, a ± 0.045 -acre wet swale, and a ± 0.014 -acre seep in the project site. Potential impacts to these waters are discussed in detail on pages 59 through 61 of the IS/MND.

As stated in the IS/MND (page 56), adverse effects to the Pit River would be minimized by limiting in-water work to the period from April 15 to January 31. This in-water work period is reflected in **Mitigation Measure MM 4.4.7**. The IS/MND also recognizes that permit conditions established by the Army Corps of Engineers and/or the SWRCB could further limit the in-water work period. In addition, in accordance with SWRCB requirements, water quality monitoring must be conducted when performing any in-water work, when project activities result in any materials reaching surface waters, or when any activities result in the creation of a visible plume in surface waters. Potential indirect effects will be further avoided by implementing standard BMPs for erosion control and spill prevention.

Because the County's construction contract will include the requirement to comply with the County's mitigation measures and conditions of the regulatory agency permits, no additional mitigation measures are required.

Comment 1-4 **The Commenter states that both the Section 404 permit and Section 401 Water Quality Certification must be obtained prior to site disturbance.**
In addition, any person discharging dredge or fill materials to waters of the State must file a report of waste discharge pursuant to Section 13376 and 13260 of the California Water Code. The same application form may be used for both the report of waste discharge and the Water Quality Certification.

Response 1-4: The IS/MND (page 61) states:
"Regulatory agency permits will be obtained by the County prior to commencement of construction. The bid specifications and contract documents will state that the contractor shall comply with the terms and conditions outlined in the permits. Compliance with regulatory agency permits will ensure that impacts to wetlands and other waters are less than significant." In addition, the report of waste discharge will be included in the application for Water Quality Certification.

Because regulatory agency permits will be obtained by the County prior to any site disturbance, and the County's construction contract will include the requirement to comply with the conditions of the regulatory agency permits, no additional mitigation measures are required.