

Avenue of the Giants – Four Bridges Project

HUMBOLDT COUNTY, CALIFORNIA
DISTRICT 1 – HUM – 254 (PM 0.80/43.10)
01-43060/EFIS 0100000186

Initial Study with Proposed Mitigated Negative Declaration



Prepared by the
State of California Department of Transportation



March 2016

General Information about This Document

Recirculated Initial Study with Proposed Mitigated Negative Declaration

Changes have been made to the Original Initial Study with Proposed Mitigated Negative Declaration (IS/MND) since the public circulation of the IS/MND from January 2 to February 23, 2015. Comments received during the circulation and public review of the Original IS/MND, and at the public meeting held on January 8, 2015, resulted in refinements that have been incorporated into this Recirculated IS/MND. If the public, government agencies, or other interested parties still have concerns in relation to this Recirculated IS/MND, a new comment articulating those concerns needs to be submitted during the comment period for this document. Comments received during the first circulation and the recirculation of the Initial Study/Mitigated Negative Declaration will be addressed in the final document.

What's in this document:

The California Department of Transportation (Caltrans) has prepared this Initial Study which examines the potential environmental impacts of the proposed project located in Humboldt County, California. Caltrans is the lead agency under the California Environmental Quality Act (CEQA). This document tells you why the project is being proposed, how the existing environment could be affected by the project, and identifies standard measures as well as any proposed avoidance, minimization, and/or mitigation measures.

What you should do:

- Please read this document.
- The draft Initial Study with Proposed Mitigated Negative Declaration (IS/MND) and all documents referenced in the IS/MND are available for review at the District 1 Office at 1656 Union Street, Eureka. The document and associated technical studies may be downloaded at the following website: http://www.dot.ca.gov/dist1/d1projects/254_bridges/. Additionally, the draft IS/MND is available for review at the Rio Dell Branch Library at 715 Wildwood Avenue, Rio Dell, at the Garberville Branch Library at 715 Cedar Street, Garberville, and the Humboldt County Library at 1313 3rd Street in Eureka. Individual technical studies can be requested by contacting Liza Walker at (530) 741-4139 or at liza.walker@dot.ca.gov.
- Attend the public meeting. The public meeting is going to be held at the South Fork High School, 6831 Avenue of the Giants, Miranda, California 95553 on April 12, 2016, from 6:00 p.m. to 7:30 p.m.
- We'd like to hear what you think. If you have any comments about the proposed project, please attend the public meeting and/or send your written comments to Caltrans by the deadline.

- Submit comments via postal mail to:
Caltrans
Attn: Liza Walker, Environmental Branch Chief
North Region Environmental, E-M2 Branch
703 B Street
Marysville, CA 95901
- Submit comments via email to: liza.walker@dot.ca.gov
- Be sure to submit comments by the deadline: May 2, 2016

What happens next:

After comments are received from the public and reviewing agencies, Caltrans may: (1) give environmental approval to the proposed project; (2) do additional environmental studies; or (3) abandon the project. If the project is given environmental approval and funding is appropriated, Caltrans could design and construct all or part of the project.

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Liza Walker, Environmental Branch Chief, North Region Environmental, E-M2 Branch, 703 B Street, Marysville, California 95901; (530) 741-4139 Voice, or use the California Relay Service at 711.

SCH# 2015012001
01-HUM-254-PM 0.80/43.10
01-43060/0100000186

Upgrade railings on four bridges on State Route 254 in Humboldt County

Avenue of the Giants – Four Bridges Project
01-HUM-254-PM 0.80/43.10
01-43060/0100000186

INITIAL STUDY with Proposed Mitigated Negative Declaration

Submitted Pursuant to: (State) Division 13, California Public Resources Code

THE STATE OF CALIFORNIA
Department of Transportation

March 24, 2016

Date of Approval



Sandra Rosas, Chief
Office of Environmental Services, North (Eureka)
California Department of Transportation

PROPOSED MITIGATED NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) proposes to upgrade the railings on four bridges at the following locations on State Route 254 in Humboldt County:

- Ohman Creek Bridge #4-7, PM 0.88
- Elk Creek Bridge #4-8, PM 10.43
- Bridge Creek Bridge #4-9, PM 10.80
- Bear Creek Bridge #4-12, PM 43.02

The proposed work will include upgrading bridge railing, guard railing including crash cushions, and repaving the existing roadway.

Determination

This proposed Mitigated Negative Declaration (MND) is included to give notice to interested agencies and the public that it is Caltrans' intent to adopt an MND for this project. This does not mean that a decision regarding the project is final. This MND is subject to change based on comments received by interested agencies and the public.

Caltrans has prepared an Initial Study for this project and, pending public review, expects to determine from this study that the proposed project would not have a significant effect on the environment for the following reasons:

- The proposed project would have minimal or no effect on aesthetics, agricultural resources, air quality, cultural resources, geology and soils, hazardous waste and materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation/traffic, and utilities and service systems.
- In addition, the proposed project would have less than significant effects to biological resources because avoidance and minimization measures have been included.

Sandra Rosas, Chief
Office of Environmental Services, North (Eureka)
California Department of Transportation

Date

Section 1 – Proposed Project

Project Title

Avenue of the Giants – Four Bridges Project

Lead Agency & Project Sponsor's Name, Address and Contact Person

California Department of Transportation

Attn: Liza Walker

703 B Street

Marysville, California 95901

Project Location

This project is located on State Route 254 between post miles (PM) 0.80 and PM 43.10 in Humboldt County (see Figure 1 on page 10).

Purpose and Need

The purpose of this project is to upgrade the bridge railing at Ohman Creek Bridge, Elk Creek Bridge, Bridge Creek Bridge, and Bear Creek Bridge on State Route 254. The proposed rail upgrade will have a see-through type bridge and bicycle railing.

This project is needed because these bridges were all built more than 70 years ago. Three of the existing bridges have timber railing that are deteriorating. The timber railing at Bridge Creek Bridge has deteriorated beyond the capabilities of routine maintenance.

Project History

When this project was initiated, the project included the following alternatives for consideration:

Alternative 1 – Widen bridge decks and upgrade bridge railing to provide a minimum shoulder width of four feet on Ohman Creek, Elk Creek, Bridge Creek, and Bear Creek bridges. The bridges would remain open to one-way traffic during construction.

Alternative 2 – Widen bridge decks and upgrade bridge railing to provide a minimum shoulder width of four feet on Ohman Creek, Elk Creek, and Bear Creek bridges and completely replace the Bridge Creek Bridge. The proposed replacement of the Bridge Creek Bridge included plans for a road closure and detour during construction.

In February 2011, a Notice of Preparation was circulated to inform the public and regulatory agencies that Caltrans was intending to prepare an Environmental Impact Report/Environmental Assessment and to elicit comments regarding the project. Scoping meetings were held on February 28, 2011, and March 2, 2011, to introduce the project to the public and regulatory

agencies and obtain feedback. As a result from comments received and further investigations, Alternatives 1 and 2 were eliminated from further study.

An informational meeting was held on August 23, 2012, to inform the public that the project was downscoped and that the updated project scope proposed to upgrade existing bridge railing due to the deterioration. Due to the downscoping of the project, Caltrans is now preparing an Initial Study/Categorical Exclusion for this project.

Project Description

Caltrans proposes a project to upgrade the railings on four bridges at the following locations on State Route (SR) 254 in Humboldt County:

- Location 1: Ohman Creek Bridge (Bridge No. 4-7, PM 0.88)
- Location 2: Elk Creek Bridge (Bridge No. 4-8, PM 10.43)
- Location 3: Bridge Creek Bridge (Bridge No. 4-9, PM 10.80)
- Location 4: Bear Creek Bridge (Bridge No. 4-12, PM 43.02)

Ohman Creek Bridge is located outside of public park lands. Elk Creek, Bridge Creek, and Bear Creek bridges are located within the Humboldt Redwoods State Park.

The proposed work will include upgrading bridge railing, abutment widening at Ohman Creek Bridge, installation of guard rail and crash cushions, and repaving the existing bridge approaches.

The proposed rail upgrade will consist of a modified Type-80 concrete barrier with bicycle railing. Caltrans worked with representatives from State Parks in the selection of the bridge rail type. The proposed bridge rail is similar to the existing Bear Creek Bridge rail. There is a concrete base with small rectangular indentations on the surface closest to the roadway. The posts and horizontal rails are constructed of timber with a subtle inclusion of aesthetic treatment of the structure, including rough-hewn timber texture and color on the posts and upper horizontal beam and standard concrete texture and color on the base. The bicycle railing will be constructed of steel.



All railing barrier work will be done from the existing bridge decks. The overhangs of each structure will be reconstructed to carry the additional weight of the new bridge railing. The new bridge railing will increase existing shoulder widths as shown in Table 1. The new bridge barrier is narrower than the existing rail. As a result, the bridges will be either slightly wider or slightly narrower than existing. A comparison of the existing and new bridge widths are shown in Table 2. Scuppers will also be added to the bridges to drain water from the roadway.

Table 1. Bridge Shoulder Widths

Location	Structure	Post Mile	Shoulder Widths (feet)	
			Existing Shoulder	New Shoulder
1	Ohman Creek Bridge	0.88	1.00	2.75
2	Elk Creek Bridge	10.43	1.00	2.00
3	Bridge Creek Bridge	10.80	1.00	1.71
4	Bear Creek Bridge	43.02	1.00	2.00

Table 2. Comparison of Existing and New Bridge Widths

Location	Structure	Post Mile	Bridge Width (feet)			
			New	Existing	Difference	Each Side
1	Ohman Creek Bridge	0.88	33.0	31.08	1.92	0.96
2	Elk Creek Bridge	10.43	31.50	30.33	1.17	0.585
3	Bridge Creek Bridge	10.80	30.92	31.58	-0.66	-0.33
4	Bear Creek Bridge	43.02	31.50	32.80	-1.30	-0.65

Guard railing or crash cushions will be installed at the corner of each structure as described in Table 3. Metal beam guardrail is present at the corner of each bridge, except for the northeast corner of Ohman Creek bridge. Crash cushions will be installed instead of metal beam guardrail

in areas that are located close to old growth redwood trees to avoid impacts to sensitive tree roots. Typical concrete pads for crash cushions are 20 to 30 feet long, two to three feet wide and approximately 0.5 feet deep, shallower than metal beam guardrail posts.

Table 3. Proposed Bridge End Treatments

Location	Structure	Post Mile	End Type			
			Southwest corner	Northwest corner	Northeast corner	Southeast corner
1	Ohman Creek Bridge	0.88	Crash Cushion	Crash Cushion	Buried Post Anchor	Crash Cushion
2	Elk Creek Bridge	10.43	Crash Cushion	Crash Cushion	Crash Cushion	Crash Cushion
3	Bridge Creek Bridge	10.80	Guard Rail	Crash Cushion	Guard Rail	Buried Post Anchor
4	Bear Creek Bridge	43.02	Buried Post Anchor	Guard Rail	Crash Cushion	Guard Rail

Asphalt concrete taper widths and lengths will vary depending on the end treatment that is applied at each structure. Additional area to be paved for each structure is shown below in Table 4.

Table 4. New Pavement Tapers

Location	Structure	Post Mile	Taper Area (square feet)			
			SW corner	NW corner	NE corner	SE corner
1	Ohman Creek Bridge	0.88	304	23	136	3
2	Elk Creek Bridge	10.43	97	74	177	37
3	Bridge Creek Bridge	10.80	61	37	64	209
4	Bear Creek Bridge	43.02	350	330	8	18

Under the current project description, abutment widening is needed only at Ohman Creek Bridge. The abutment work is needed at Ohman Creek Bridge to match the new width of the bridge. The abutment extensions will be approximately four feet tall by 13.5 inches wide on each side and 12 to 18 inches deep. Rebar will be drilled and doweled into the existing abutment corner to provide attachment to the existing bridge. Equipment used to widen the abutments will be placed on the roadway and existing shoulder area. Handwork will involve foot traffic in areas off the shoulder and around the abutments.

As part of the proposed project the existing bridge approaches will be repaved and widened. Repaving work will include grinding the existing pavement of the lanes and existing shoulders, widen the shoulders with asphalt concrete and aggregate base to match the new bridge widths, and repaving for a smooth finished surface.

A bridge deck treatment will also be included at Ohman Creek, Elk Creek, and Bridge Creek bridges. Bridge deck treatment work consists of removing the existing asphalt concrete, replacing unsound concrete, and placing polyester concrete.

There will not be a 4(f) use because all work for the proposed project will take place within the Caltrans right-of-way.

Construction Scenario

The following scenario is proposed to construct the project.

- Set up one lane traffic control
- Remove existing bridge railing, asphalt concrete and unsound concrete
- Reconstruct new overhang and widen abutments where necessary
- Place new bridge barriers
- Upgrade existing guardrail or replace with new crash cushions
- Grind/replace asphalt and widen shoulder on bridge approaches
- Stripe center line

Equipment used for removing the existing rail may include jackhammers or a bobcat with a small hoe-ram attachment which will be used for breaking up concrete, chainsaws for cutting away existing rails, a bobcat or backhoe for clearing concrete, and dump trucks for hauling away waste. All bridge work will be done from the top of the bridge. Falsework and forms for concrete pours and scaffolding for worker access will be assembled from the bridge and attached to it. No scaffolding or shoring will be placed below the ordinary high water mark of any waterbody.

Equipment used during construction may include basic carpentry tools, such as skill saws and hand tools for placing forms for the new barriers, a small forklift or bobcat for hauling material, a larger loader for placing and moving K-rail, and concrete trucks for importing and pouring concrete.

Equipment used for upgrading existing guardrail may include a truck with a drill for placing posts and hand tools for attaching railing to posts.

Temporary safety lighting may be placed in the work area in order to increase nighttime visibility for motorists. This project is expected to be constructed under one way traffic control.

Temporary signal systems at Bridge Creek Bridge and Bear Creek Bridge will be installed and a temporary Stop sign control will be installed at Ohman Creek Bridge and Elk Creek Bridge. No nighttime work is anticipated.

Staging

It is anticipated that the contractor will use the existing closed roadbed and unpaved turnouts for staging areas.

Schedule

Construction is currently scheduled to take up to 205 working days. The number of construction seasons will depend on whether work will be conducted at more than one bridge at a time.

Standard Measures

In compliance with several State and Federal laws, Caltrans typically implements standard measures during construction. These may be standard prescriptions for resources that may be present near the work area. They may be identified in Caltrans Standard Specifications, Standard Special Provisions, other manuals, or may otherwise be standard business practices. Typical measures may include water quality best management practices (BMPs), pre-construction surveys, or standard work distances for bird nests. Examples of standard measures that are expected to apply to this project include:

- Soil stabilization practices (vegetation, rolled erosion control blankets).
- Silt fences/fiber rolls to control sediment discharge from the project area during construction.
- Measures to prevent construction equipment effluents from contaminating soil or waters in the construction site, such as absorbent pads.
- Excavated spoils controlled to prevent sedimentation to watercourses.
- Weed-free straw mulch and fiber rolls applied to exposed soil areas for over-wintering.
- Development and implementation of site-specific BMPs and emergency spill controls.
- No concrete debris or contact water allowed to flow into waterways.
- No concrete poured within flowing water in the waterways.
- Water that has come into contact with setting concrete will be pumped into a tank truck and disposed of at an approved disposal site or settling basin.
- Concrete truck washouts at upland staging areas located a minimum of 150 feet away from watercourses.
- Trash receptacles with lids.
- Environmentally Sensitive Areas (ESAs) designated on construction plans and protected during construction. Environmentally Sensitive Areas include other waters of the U.S./waters of the State and riparian vegetation areas within the Environmental Study Limits (ESL).

- Training for all construction personnel before the start of construction that will include a description of sensitive biological resources present within and adjacent to the ESL and general measures to protect the resource.
- Work windows identified in programmatic and other agency agreements: work limited to the period from June 15 to January 31. MBGR installation would be limited to the period from August 20 to January 31, with a daily work window beginning two hours post-sunrise and ending two hours pre-sunset from August 20 through September 15.
- Vegetation removal outside of the nesting season (February 1 and September 15) and maintained trimmed and/or cleared prior to, as well as, during construction to discourage nesting; or surveys conducted prior to vegetation removal by a biologist to confirm absence of nesting birds.

Permits and Approvals Needed

Construction of the proposed project will require the following:

- Report of Waste Discharge from the North Coast Regional Water Quality Control Board
- Section 1602 Lake or Streambed Alteration Agreement from the California Department of Fish and Wildlife
- Coverage under the Programmatic Biological Opinion issued by the National Marine Fisheries Service under Section 7 of the Federal Endangered Species Act
- Coverage under the Programmatic Information Consultation issued by the Arcata US Fish and Wildlife Service under Section 7 of the Federal Endangered Species Act

Figure 1. Project Location Map



Section 2 – Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project. Please see the CEQA checklist for additional information. Any boxes *not* checked represent issues that were considered as part of the scoping and environmental analysis for the project, but for which no significant impacts were identified. Therefore, no further discussion of these issues is in this document.

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

CEQA Checklist

01-HUM-254

0.8/43.10

01-43060

Dist.-Co.-Rte.

P.M/P.M.

E.A.

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the project indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. The words "significant" and "significance" used throughout the following checklist are related to CEQA impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Explanation: "No Impact" determinations in this section are based on information provided in the Visual Impact Assessment dated January 2013.

II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Explanation: "No Impact" determinations in this section are based on the scope, description, and location of the proposed project.

III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Explanation: "No Impact" determinations in this section are based on information provided in the Air Quality memo dated July 2015.

IV. BIOLOGICAL RESOURCES: Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Explanation: "No Impact", "Less Than Significant Impact" and "Less Than Significant Impact with Mitigation" determinations in this section are based on information provided in the Natural Environment Study dated February 2016 and further discussion is in Section 3 of this document.

V. CULTURAL RESOURCES: Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Explanation: "No Impact" determinations in this section are based on information provided in the Historic Property Survey Report dated March 2012. In May 2012, the State Historic Preservation Officer concurred with Caltrans' determination that SR 254 was not eligible for listing on the National Register of Historic Places and therefore not eligible for listing in the California Register of Historical Resources due to a lack of integrity (see Appendix A). The four bridges within the project limits are also not eligible for listing in the California Register of Historical Resources and no cultural resources were identified within the project limits.

VI. GEOLOGY AND SOILS: Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Explanation: "No Impact" determinations in this section are based on the scope, description, and location of the proposed project.

VII. GREENHOUSE GAS EMISSIONS: Would the project:

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

An assessment of the greenhouse gas emissions and climate change is included in the body of environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document in Section 3.

VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:

- a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard 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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Explanation: "No Impact" determinations in this section are based on information provided in the Updated Initial Site Assessment dated May 2015.

IX. HYDROLOGY AND WATER QUALITY: Would the project:

a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 which 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 type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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 which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<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"/>

Explanation: "No Impact" determinations in this section are based on information provided in the Water Quality Assessment Exemption dated August 2013.

X. LAND USE AND PLANNING: Would the project:

a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) 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 type="checkbox"/>	<input checked="" 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"/>

Explanation: "No Impact" determinations in this section are based on a review of the Humboldt County General Plan, Volume I, Framework Plan, the Humboldt County General Plan, Volume II, Avenue of the Giants Community Plan, and the Circulation Element of the draft Humboldt County General Plan.

XI. MINERAL RESOURCES: Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Explanation: "No Impact" determinations in this section are based on the scope, description, and location of the proposed project.

XII. NOISE: Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project 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"/>

Explanation: "No Impact" determinations in this section are based on information provided in the Noise memo dated July 2015.

XIII. POPULATION AND HOUSING: Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<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"/>

Explanation: "No Impact" determinations in this section are based on the scope, description, and location of the proposed project.

XIV. PUBLIC SERVICES:

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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Explanation: "No Impact" determinations in this section are based on the scope, description, and location of the proposed project.

XV. RECREATION:

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Explanation: "No Impact" determinations in this section are based on the scope and description of the proposed project.

XVI. TRANSPORTATION/TRAFFIC: Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" 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 type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Result in inadequate emergency access? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Explanation: "No Impact" determinations in this section are based on the scope, description, and location of the proposed project.

XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 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"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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 type="checkbox"/>	<input checked="" 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 which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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"/>

Explanation: "No Impact" determinations in this section are based on the scope, description, and location of the proposed project.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

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, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Section 3 – Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

Biological Environment

NATURAL COMMUNITIES

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species.

Habitat areas that have been designated as critical habitat under the Endangered Species Acts are discussed below in the Threatened and Endangered Species section. Wetlands and other waters are also discussed below.

Riparian Vegetation

Riparian vegetation provides dense multi-storied habitat available to birds, amphibians, mammals, and reptiles. Riparian vegetation also provides migration, foraging, and breeding habitat for neotropical birds that breed during the spring and summer in North America. Riparian zones adjacent to waterways provide shade, sediment transport, nutrient or chemical regulation, stream bank stability, and input of large woody debris or organic matter. It also provides shelter cover, and a source of food input for fish. Riparian zones are subject to jurisdiction by CDFW under Sections 1600-1616 of the State Fish and Game Code.

Affected Environment

Riparian vegetation is present adjacent to all four bridge locations within the environmental study limits (ESL).

Environmental Impacts

Impact criteria define the level of direct and indirect impacts on natural communities. The purpose of the impact criteria is to help determine when an impact is significant under CEQA.

The following CEQA Checklist item was used to evaluate the impacts of the proposed project on natural communities:

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

Minor temporary impacts to riparian vegetation may result from the construction of the proposed project. These impacts may include trimming during installation of metal beam guardrail and crash cushions, abutment work at Ohman Creek Bridge, and installation of tarps or other materials to contain debris during bridge work. No tree removal is anticipated.

An area adjacent to the bridge rails will need to be cleared of vegetation in order to install effective containment measures, which will be used to prevent material from falling to the streams. The area needed will likely be approximately five to ten feet from the edge of each bridge. As of November 2015, riparian trees (alder and big-leaf maple) have canopy growing within five feet of the edge of the bridge at Ohman Creek Bridge, Bridge Creek Bridge, and Bear Creek Bridge. The trees will not be removed; rather, minor trimming of canopy will be needed to provide the clearance and will not threaten the survival of riparian trees or zones. The trees are expected to continue growth.

Installation of crash cushion and guardrail will require that a small area immediately surrounding them are clear of vegetation. As of November 2015, a big-leaf maple shrub was growing within five feet of guardrail (proposed for change to crash cushion) at one corner at Bear Creek Bridge. If the shrub continues growing toward the guardrail, it may need to be trimmed for installation of the crash cushion. Even if trimmed, the shrub would maintain sufficient growth such that its survival and the functioning of the riparian zone would not be threatened.

Upon completion of construction, two of the bridges will be slightly wider than existing, and two of the bridges will be slightly narrower than existing. The proposed project is not expected to modify the amount of shade at any of the four project locations. The proposed project lacks access roads or other work below bridges, and will complete railing barrier work from the existing bridge decks, which limit the amount of riparian vegetation areas that would need to be trimmed. Standard measures, such as ESAs, are also included in the project and are designed to ensure that impacted areas are limited to those identified in project studies. No trees will be removed, only trimming of branches. Species expected to be trimmed are fast-growing and are expected to regrow naturally.

Effects to riparian vegetation are small and temporary, and will not be substantial. Therefore, there will be less than a significant impact to riparian vegetation.

As part of Caltrans' stewardship responsibilities and policies which include standard measures during construction as described in the project description, no additional measures would be needed to further reduce any potential impacts.

Avoidance, Minimization, and/or Mitigation Measures

None

***Sequoia sempervirens* (Redwood Forest) Alliance**

Old growth redwood forest is classified by CDFW as *Sequoia sempervirens* (Redwood Forest) Alliance (Sawyer et al. 2009) and is designated as a natural community of special concern. This natural community has State Rank of 3: Vulnerable—Vulnerable in the state due to a restricted range, relatively few populations, recent and widespread declines, or other factors making it vulnerable to extirpation from the state (Sawyer et al. 2009). The Global Rank is G3:

Vulnerable—At moderate risk of extinction or elimination due to a restricted range, relatively few populations, recent and widespread declines, or other factors. The old growth redwood forest is also a protected park resource.

Affected Environment

The project is located in and near Humboldt Redwoods State Park. Redwood groves at all four project locations include old-growth coast redwood trees.

Existing human-caused disturbance is observable at all four locations: existing paved road crosses through each grove. At Ohman Creek Bridge, a restaurant and visitor attraction, with paved parking lot and buildings, cover much of the habitat southeast of the bridge. At Elk Creek Bridge, paved and unpaved parking areas, as well as hiking trails, are present. At Ohman Creek, Bridge Creek, and Bear Creek Bridges, French or Scotch broom, both of which are invasive/noxious according to Cal-IPC, occur in patches.

Coast redwood forest at all four locations exhibit at least some elements of high quality habitat. All four locations contain old-growth coast redwood trees. Three locations are located in Humboldt Redwoods State Park. These groves, as well as surrounding forest, are protected State Park resources. All four locations are located near a major river (Eel River or South Fork Eel River), which may provide alluvium, but also may damage trees during flood events.

The coast redwood forest exhibits some elements of exemplary quality, but also some degradation. The coast redwood forest at all four locations is of relatively high quality.

Surveyors recorded and measured 351 trees in the areas surrounding the four bridges. Of these trees, 46 were coast redwoods with at least 30 inch diameter at breast height (dbh) and a root health zone (RHZ) intersecting a proposed project element.

Environmental Consequence

Impact criteria define the level of direct and indirect impacts on old growth redwoods. The purpose of the impact criteria is to help determine when an impact is significant under CEQA.

The following CEQA Checklist item was used to evaluate the impacts of the proposed project on old growth redwoods:

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

A scale was developed for the Caltrans' Richardson Grove Improvement Project to quantify the potential impact of construction on old growth redwood trees (Yniguez 2013), as shown in Table 5.

Table 5: Scale of the Effect of Root Zone Disturbance on Tree Health

Rating	Description
0	No Effect
1	Effect of root zone disturbance is extremely minor with no decline in foliage density or tree health.
2	Effect of root zone disturbance is very slight with no decline in foliage density or tree health.
3	Effect of root zone disturbance is slight with no decline in foliage density or tree health.
4	Effect of root zone disturbance may be short-term visible reduction in foliage density that is still well within the adaptive capability of the tree.
5	Effect of root zone disturbance may be reduction in root health sufficient to cause lasting visible dieback in the uppermost crown; tree survival is not threatened.
6	Effect of root disturbance may be severe enough to threaten survival of the tree.

Expected effect from project root zone disturbance to tree health ranged between 0 and 4. No trees received a rating higher than 4. (Table 6)

Table 6: Tree Impact Ratings

Rating	Number of Trees				
	Ohman Creek Bridge	Elk Creek Bridge	Bridge Creek Bridge	Bear Creek Bridge	Total
0	5	3	--	4	12
1	1	5	2	8	16
2	2	6	1	1	10
3	1	3	2	--	6
4	--	2	--	--	2
5	--	--	--	--	--
6	--	--	--	--	--
Total	9	19	5	13	46

Twelve trees were rated 0; they would not be affected (tree numbers 3, 5, 22, 49, 53, 1221, 1461, 1462, 1529, 2260, 993132, and 993133). Sixteen trees were rated 1; they would experience extremely minor effects (tree numbers 6, 21, 29, 44, 48, 1238, 1311, 1463, 1581, 1582, 2118, 2135, 2261, 2263, 2395, and 993146). Ten trees were rated 2; they would experience very slight effects, with no decline in foliage density or tree health (tree numbers 1, 9, 10, 35, 1222, 1466, 1551, 1562, 1579, and 2394). Six trees were rated 3; they would experience slight effect, with no decline in foliage density or tree health (tree numbers 1246,

1310, 1578, 2230, 2231, and 993129). Two trees were rated 4; they may experience a short-term visible reduction in foliage density that is still well within the adaptive capabilities of the tree (tree numbers 1245 and 1550). Please see Appendix B, Tree Mapping, for tree assessments and mapping by bridge location.

The potential effects to old-growth redwood trees were assessed without assuming any avoidance or minimization measures. Concrete pads for crash cushions extend down to a depth of up to .5 foot deep, less than what is needed for metal beam guardrail posts. Crash cushions will be installed instead of metal beam guardrail in areas that are located close to old growth redwood trees in order to avoid impacts to sensitive tree roots. Any adverse effects to old-growth redwood forest would primarily result from limited cutting of redwood tree roots. Other sources of effects would be approximately 0.04 acre of added impervious surface, and possible minor limb-trimming. No trees would be removed, and effects to individual trees would be minor. Long-term health and survival of old-growth redwood trees would not be jeopardized.

While impervious surface would be added, any changes in grade would be minor and not sufficient to cause substantive changes in runoff patterns.

Several components and functions of old-growth redwood forest may be viewed in additional detail:

Individual Trees

Health of individual old-growth redwood trees would experience only minor adverse effects. Two old-growth redwood trees would experience a short-term visible reduction in foliage density that is still well within the adaptive capabilities of the trees. All other trees would experience no decline in foliage density or tree health. No trees were considered to be impacted to the point of dieback of wood or of threat to survival.

Edge/Fragmentation

No trees would be removed. Old-growth redwood forest habitat is expected to remain substantively intact. A small area of ground surface would be altered, notably an area of approximately 0.04 acre that would receive new impervious surface. Such area is in a slight widening of existing roadway adjacent to the bridges. No new sources of habitat fragmentation will be introduced.

Canopy

At most, two trees are expected to experience a temporary reduction in foliage density. Woody dieback is not expected. The capacity of the redwood grove canopy to provide shading, habitat, and other ecological functions is not expected to experience any substantive impairment.

The overall adverse effects to old-growth redwood forest as a result of the project would be less than significant.

Avoidance, Minimization, and/or Mitigation Measures

As part of Caltrans' stewardship responsibilities and policies and in conjunction with measures developed with California State Parks when the project was originally scoped to include widening at three locations and widening or potential replacement of Bridge Creek Bridge, Caltrans will implement the following measures:

- Prior to the start of construction, a qualified biologist will conduct training for all construction personnel regarding sensitive biological resources present within and adjacent to the ESL (including old growth redwood trees). The training will include a description of the resource and the general measures that are being implemented to avoid and minimize impacts to the resource.
- A qualified biologist will be on site during all ground-disturbing activities within the critical root zone (defined as three times the diameter of the tree at breast height) of old growth redwood trees to provide technical assistance with avoidance and minimization measures.
- Old growth redwood trees adjacent to the construction zone will be designated as ESAs on construction plans, and will be protected during construction.
- Staging of materials, equipment, and vehicles will be limited to the closed highway lanes. Shoulders and pullout areas along the highway will be used for staging only if needed after all available paved staging has been used. If these areas do not provide enough room for staging and additional staging areas are needed, these areas will be mutually agreed upon by the California State Parks and Caltrans Environmental and Construction staff. No staging of materials, equipment, or vehicles will be allowed in old growth redwood tree areas.
- No trees over 24 inches diameter at breast height (dbh) will be limbed without written approval from California State Parks and Caltrans Environmental staff. All pruning will be performed in accordance with the ISA Tree Pruning Guidelines and adhere to the most recent editions of the American National Standard for Tree Care Operations (ANSI Z133.1) and Pruning (A300).
- Excavation for paving tapers within the critical root zone will be done by hand to minimize physical injury to the tree roots.
- No roots greater than two inches in diameter will be cut.
- Roots less than two inches in diameter will be cut cleanly, with a sharp instrument, in order to promote healing.
- Irrigation will be provided in the critical root zone of redwoods over 24 inches dbh in areas where excavation below the finished grade has occurred within 24 hours and once a week thereafter between the dates June 1 through September 30 during

construction. This will be accomplished with the use of a water truck with a fan spray. Water equivalent to 0.5 inch in depth will be applied to the area defined as from the edge of pavement to 25 feet beyond the edge of pavement. Clean, non-surface water will be used for tree irrigation; recycled water will not be used.

WETLANDS AND OTHER WATERS

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (CWA) (33 United States Code [USC] 1344), is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (USACE) with oversight by the United States Environmental Protection Agency (U.S. EPA).

The USACE issues two types of 404 permits: General and Standard permits. There are two types of General permits: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (U.S. EPA 40 Code of Federal Regulations [CFR] Part 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally

damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental impacts.

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this EO states that a federal agency, such as the FHWA and/or Caltrans, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the State Water Resources Control Board (SWRCB), the Regional Water Quality Control Boards (RWQCB) and the California Department of Fish and Wildlife (CDFW). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

Affected Environment

Wetlands were not observed within the ESL. Other waters of the U.S./waters of the State are present within the project limits: Ohman, Elk, Bridge, and Bear Creeks are all perennial creeks with a connection to the Eel River, a traditionally navigable water body as defined by the USACE.

Other waters of the U.S. within the ESL were classified as riverine (perennial streams). A perennial stream has flowing water year-round during a typical year. The water table is located above the streambed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow. Waters of the State within the ESL were classified as perennial creeks and associated riparian vegetation.

A total of 0.59 acre of other waters of the U.S./waters of the State are present within the ESL.

Environmental Impacts

Impact criteria define the level of direct and indirect impacts on wetlands and other waters. The purpose of the impact criteria is to help determine when an impact is significant under CEQA.

The following CEQA Checklist item was used to evaluate the impacts of the proposed project on wetlands and other waters:

- Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No activities in waters are needed to complete the project. Work on the bridges will, however, be conducted above other waters of the U.S./waters of the State. Work will involve removal and rebuilding of bridge materials (e.g., concrete, bridge rails). The work poses a minimal risk of material inadvertently falling into other waters and of material being placed in inappropriate locations where they may move toward waters. Standard containment measures will be in place to ensure that materials do not fall from the bridge and enter a stream.

Equipment refueling, fluid leakage, and equipment maintenance near a stream channel pose potential risks of contamination to aquatic habitat. However, Caltrans' standard contract specifications and standard BMPs will avoid chemical contamination during construction, and localized degradation of water quality from toxic chemicals is unlikely. In the unlikely event that materials escape containment measures, foot traffic to retrieve items dropped below the bridge may be needed. No other activities below the ordinary high water mark of these perennial creeks will occur.

Construction of the proposed project will not result in permanent or temporary impacts to other waters of the U.S./waters of the State. Therefore, there will be a less than significant impacts to Waters of the U.S.

As part of Caltrans' stewardship responsibilities and policies and implementation of standard measures during construction as described in the project description, no additional measures would be needed to further reduce any potential impacts.

Avoidance, Minimization, and/or Mitigation Measures

None

ANIMAL SPECIES

Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) and the California Department of Fish and Wildlife (CDFW) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed below. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NOAA Fisheries Service candidate species.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations relevant to wildlife include the following:

- California Environmental Quality Act
- Sections 1600 – 1603 of the California Fish and Game Code
- Sections 4150 and 4152 of the California Fish and Game Code

Sensitive Bat Species

Bats are commonly associated with open forests and woodlands where there is a water source nearby over which to feed. Suitable roosting and nesting areas include caves, mines, tree snags, buildings, and other human-made structures. Loss of riparian foraging areas and roosting habitat are the biggest contributors to declining bat populations in California. The following sensitive bat species may occur in the vicinity of this project:

- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Long-legged myotis bat (*Myotis volans*)
- Yuma myotis bat (*Myotis yumanensis*)

Townsend's big-eared bat

Townsend's big-eared bat is a state candidate species and is considered a red/high priority species by the WBWG. Townsend's big-eared bat is found throughout California, from low desert to mid-elevation montane habitats. This species is one of the bat species most dependent on mines and caves, but will also roost in buildings and basal hollows of large trees. This species will night roost in more open settings, including under bridges. In the spring and summer, females form maternity colonies in mines, caves, buildings or trees, while males roost

individually. In winter, these bats hibernate in caves, abandoned mines and trees. They are extremely sensitive to disturbance at their roosting sites and have suffered severe population declines throughout much of the U. S. Suitable day roosting habitat for the Townsend's big-eared bat is not present within the ESL. Suitable night roosting habitat is present under the four bridges. The ESL may contain suitable foraging habitat.

Long-legged myotis bat

The long-legged myotis bat is considered a red/high priority species by the WBWG. It has been found from the coast to high elevations in the Sierra Nevada and White Mountains in California. This species day roost primarily in hollow trees, particularly large diameter snags or live trees with lightning scars. It also uses rock crevices, mines, and buildings. The long-legged myotis bat may use caves and mines for night roosts. Long-legged myotis bats generally hibernate in mines or caves. Long-legged myotis bats forage in open areas, often at canopy height. The ESL contains suitable roosting and foraging habitat for the long-legged myotis bat.

Yuma myotis bat

The Yuma myotis bat is considered a green/low priority species by the WBWG. The Yuma myotis is found throughout western North America and is relatively abundant at lower elevations in California. Occasionally roosting in mines or caves, these bats are most often found roosting under artificial structures, such as bridges. Bachelors also sometimes roost in abandoned cliff swallow nests, but tree cavities were probably the original sites for most nursery roosts. These bats typically forage over water in forested areas. Yuma myotis are threatened by loss of riparian habitats and the decline in permanent water sources in the southwest. The ESL contains suitable roosting and foraging habitat for the Yuma myotis bat.

Affected Environment

No bats were observed at the bridge during field surveys. Buildings and large basal hollows, caves, and outbuildings are absent from the project locations, though there may be basal hollows in areas beyond the limits of the locations. No useable expansion joints or other crevices that could provide bat day roosting habitat were observed on any of the bridges. The bridges themselves provide night roosting bat habitat. During a September 10, 2015 survey guano was observed beneath Ohman Creek and Bridge Creek Bridges, indicating that these two bridges are used for night roosting. While evidence of night roosting was not observed on Elk Creek or Bear Creek Bridges, these bridges could be used for night roosting.

According to CDFW's California Wildlife Habitat Relationships program (CWHR) (California Department of Fish and Wildlife 2008) the bat species listed in Table 7 may be expected to occur in the vicinity of the proposed project.

Table 7: Bat Species that May Occur in the Project Vicinity, According to CWHR

Scientific Name	Common Name
<i>Antrozous pallidus</i>	Pallid bat
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat
<i>Eptesicus fuscus</i>	Big brown bat
<i>Lasionycteris noctivagans</i>	Silver haired bat
<i>Lasiurus cinereus</i>	Hoary bat
<i>Myotis californicus</i>	California myotis
<i>Myotis evotis</i>	Long-eared myotis
<i>Myotis lucifugus</i>	Little brown bat
<i>Myotis thysanodes</i>	Fringed myotis
<i>Myotis volans</i>	Long-legged myotis
<i>Myotis yumanensis</i>	Yuma myotis
<i>Tadarida brasiliensis</i>	Brazilian free-tailed bat

Critical habitat for the Townsend’s big-eared bat, long-legged myotis bat, and Yuma myotis bat has not been designated.

Environmental Impacts

Impact criteria define the level of direct and indirect impacts on sensitive bat species. The purpose of the impact criteria is to help determine when an impact is significant under CEQA.

The following CEQA Checklist items were used to evaluate the impacts of the proposed project on sensitive bat species:

- Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
- Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

All four locations experience existing human use on the roadway. Two locations are in elevated human use areas, with a visitor attraction and restaurant at Ohman Creek Bridge, and trails at Elk Creek Bridge. Bridge Creek Bridge and Bear Creek Bridge experience highway traffic, but lack signs of substantial additional human disturbance. No outbuildings or caves are at any of the locations. The only potential suitable roosting areas at all four locations would be basal hollows.

While night roosts are present under at least two of the bridges, the night roosts would only be occupied at night, during hours when no work is anticipated. Bats are not expected to be present at the bridges during the time of day when work would occur. The parts of the bridge providing night roost habitat would not be removed.

No guidelines for construction-noise sensitivity of Townsend's big-eared bat is available. Caltrans, to proceed cautiously, is assuming that construction-related sound is a concern for Townsend's big-eared bat. Standard measures, such as work windows, and absence of items from the project description (e.g., the project description does not propose night work), would limit work to times when the bats may be least sensitive.

In June 2014 Caltrans received concurrence from CDFW that take (as defined in the California Fish and Game Code) of the Townsend's big-eared bat would be unlikely, as long as the project follows certain measures. The measures are standard measures, such as work windows, training, and covered trash receptacles; and the absence of items from the project description: the project does not propose night work or tree removal. A copy of the CDFW concurrence is included in Appendix C.

The proposed project will not result in any direct impacts to the Townsend's big-eared bat or the Townsend's big-eared bat habitat because no trees will be removed. Any effect on Townsend's big-eared bat, long-legged myotis bat, and Yuma myotis bat will be less than significant.

As part of Caltrans' stewardship responsibilities and policies and with the implementation of standard measures during construction as described in the project description, no additional measures would be needed to further reduce any potential impacts.

Avoidance, Minimization, and/or Mitigation Measures

None

Migratory Birds

Federal and state laws protect migratory birds, their occupied nests, and their eggs from destruction. The applicable Federal law is the Migratory Bird Treaty Act (15 USC 703-711), 50 CFR Part 21, and 50 CFR Part 10. Protection under California law is found in the Fish and Game Code Sections 3503, 3513, and 3800.

Osprey

The osprey (*Pandion haliaetus*) is considered a Watch List (WL) species by CDFW. Osprey are associated with large, fish-bearing waters, primarily in ponderosa pine through mixed conifer habitats. Osprey use large trees, snags, and dead-topped trees in open forest habitats for cover and nesting. Osprey require clear, open bodies of water for foraging. The South Fork of the Eel River and the Eel River, located outside of the project's ESL, contain potential habitat for osprey.

Vaux's Swift

Vaux's swift (*Chaetura vauxi*) is considered a species of special concern by CDFW. Vaux's swift nest in coniferous or mixed forest habitats, typically nesting colonially in hollow trees. It forage in forest openings, especially above streams. The South Fork of the Eel River and the Eel River, located outside of the project's ESL, contain potential habitat for Vaux's swift.

Bald Eagle

Bald eagle (*Haliaeetus leucocephalus*) is a federal delisted species and a state endangered species. The bald eagle has been designated a fully protected (FP) species by CDFW. Bald eagles typically nest in forested areas adjacent to large bodies of water. The South Fork of the Eel River and the Eel River, located outside of the project's ESL, contain potential habitat for bald eagle.

Affected Environment

Although no active nests were seen during surveys, abandoned mud nests and a comparably sized twig nest were observed. The nests were likely made by swallows and black headed flycatcher. No osprey, Vaux's swift, or bald eagle nests were observed. It is anticipated that some migratory birds may try to nest in vegetation or on structures within the ESL. There are documented occurrences of osprey, Vaux's swift, and bald eagle in the vicinity of the project, primarily near large waterbodies such as the South Fork of the Eel River and the Eel River.

Environmental Impacts

Impact criteria define the level of direct and indirect impacts on migratory birds. The purpose of the impact criteria is to help determine when an impact is significant under CEQA.

The following CEQA Checklist item was used to evaluate the impacts of the proposed project on migratory birds:

- Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Minor trimming is expected on riparian trees and possibly shrubs, as well as the lower branches of redwood trees at the Ohman Creek Bridge location. No osprey, Vaux's swift, or bald eagle nests or habitat will be removed. The trimming will not constitute a substantial effect to migratory bird habitat. Individual nests and migratory birds are protected by the Migratory Bird Treaty Act and California Fish & Game Code. As standard practice, Caltrans protects nests and migratory birds through measures such as vegetation removal outside the nesting season or nesting bird surveys prior to vegetation removal. The project is not expected to impact migratory birds or their active nests. Therefore, there will be less than a significant impact to migratory birds.

As part of Caltrans' stewardship responsibilities and policies and the implementation of standard measures during construction as described in the project description, no additional measures would be needed to further reduce any potential impacts.

Avoidance, Minimization, and/or Mitigation Measures

None

THREATENED AND ENDANGERED SPECIES

Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 United States Code (USC) Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration (FHWA), are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a No Effect finding. Section 3 of FESA defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The California Department of Fish and Wildlife (CDFW) is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by the CDFW. For species listed under both the FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, the CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

Anadromous Fish

Southern Oregon/Northern California Coho Salmon

The Southern Oregon/Northern California coho salmon (*Oncorhynchus kisutch*) is listed as a federal and state threatened species. The Southern Oregon/Northern California coho salmon Evolutionary Significant Unit (ESU) is found in California coastal watersheds, from north of Punta Gorda to the California-Oregon border.

California Coastal Chinook Salmon

The California Coastal Chinook salmon (*Oncorhynchus tshawytscha*) was listed as a federal threatened species on September 16, 1999 and reaffirmed on June 28, 2005. The California Coastal Chinook salmon ESU includes all naturally spawned populations of Chinook salmon from rivers and streams south of the Klamath River (exclusive) to the Russian River (inclusive). Seven artificial propagation programs are considered part of the ESU: the Humboldt Fish Action Council (Freshwater Creek), Yager Creek, Redwood Creek, Hollow Tree, Van Arsdale Fish Station, Mattole Salmon Group, and Mad River Hatchery fall-run Chinook hatchery programs.

Northern California Steelhead DPS

The Northern California steelhead Distinct Population Segment (DPS) (*Oncorhynchus mykiss*) was listed as a federal threatened species on June 7, 2000 and reaffirmed on January 5, 2006. The Northern California steelhead is also listed as a state species of special concern. The Northern California steelhead DPS includes all naturally spawned populations below natural and manmade impassable barriers in California coastal river basins from Redwood Creek southward to, but not including, the Russian River, as well as two artificial propagation programs: the Yager Creek Hatchery and North Fork Gualala River Hatchery (Gualala River Steelhead Project) steelhead hatchery programs.

Affected Environment

The South Fork of the Eel River and the Eel River provides habitat for Southern Oregon/Northern California Coast coho salmon, Northern California steelhead, and California coastal chinook salmon ESUs. Within the ESL these species may be present within Ohman Creek, Elk Creek, Bridge Creek, and Bear Creek.

Essential Fish Habitat for Chinook salmon and coho salmon is present at all four project locations, including streams, stream channels/substrate, and riparian trees and shrubs.

Critical habitat for the Southern Oregon/Northern California coho salmon was designated on May 5, 1999. Critical habitat is designated to include all river reaches accessible to listed coho salmon between Cape Blanco, Oregon, and Punta Gorda, California. Ohman Creek, Elk Creek, Bridge Creek, and Bear Creek are designated as critical habitat for the Southern Oregon/Northern California coho salmon.

Critical habitat for the California Coastal Chinook salmon was published on September 2, 2005, with an effective date of January 2, 2006. Elk Creek, Bridge Creek, and Bear Creek are designated as critical habitat for the California Coastal Chinook salmon.

Critical habitat for the Northern California steelhead was published on September 2, 2005, with an effective date of January 2, 2006. Ohman Creek, Elk Creek, Bridge Creek, and Bear Creek are designated as critical habitat for the Northern California steelhead.

Environmental Impacts

Impact criteria define the level of direct and indirect impacts on anadromous fish. The purpose of the impact criteria is to help determine when an impact is significant under CEQA.

The following CEQA Checklist item was used to evaluate the impacts of the proposed project on anadromous fish:

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

The proposed project has very minor potential to impact individual salmonid species through unintended spills, increased sedimentation, and alteration of pH. The implementation of Caltrans' standard contract specifications and standard BMPs are expected to further reduce impacts to anadromous fish during construction of the proposed project. Work on the bridge will be conducted above salmonid-bearing streams. Work will involve removal of bridge materials (e.g., concrete, bridge rails). The work poses a potential risk of material falling into a stream. Standard containment measures will be in place to ensure that materials do not fall from the bridge and enter a stream.

Equipment refueling, fluid leakage, and equipment maintenance near a stream channel pose potential risks of contamination to aquatic habitat. However, Caltrans' standard contract specifications and standard BMPs will avoid chemical contamination during construction and localized degradation of water quality from toxic chemicals is unlikely. Standard BMPs and

standard specifications include restricting equipment fueling to upland areas; requiring that equipment and hazardous materials be stored in upland areas at least 150 feet from surface water; and requiring all equipment be cleaned before moving onto the site and be maintained free of leaks.

Riparian vegetation will not be removed during construction. Minimal trimming of riparian vegetation may occur during installation of metal beam guardrail and crash cushions, abutment work (Location 1 only), and installation of containment measures around bridge rails and overhangs.

Standard containment measures will be in place to ensure that materials do not fall from the bridge and enter a stream. Nevertheless, Caltrans is proceeding conservatively, and exercising coverage under the Programmatic Biological Opinion issued by NMFS on October 13, 2013 for Caltrans' routine maintenance and repair activities in Districts 1, 2, and 4, and individual Corps permits for these activities (NMFS 2013). The proposed project falls under Category 2. The Programmatic Biological Opinion identifies measures to be implemented whenever certain species may be present. These measures are included in standard measures, and include items such as work windows. Additional BMPs (ABMPs) are also included as appropriate. A copy of the Category 2 Reporting Form, along with a list of ABMPs applicable to the project, can be found in Appendix D. The proposed project may affect, but is not likely to adversely affect, the southern Oregon/Northern California coho salmon, Northern California steelhead, and California coastal Chinook salmon.

The project will include minimal trimming of riparian vegetation. The trimming is expected on fast-growing riparian trees and shrubs, such as alder and big-leaf maple. Resultant effect to habitat will be minor and temporary, and limited to minimal trimming. The construction of the proposed project will not result in an adverse effect to Essential Fish Habitat or an adverse modification to designated critical habitat. Therefore, there will be less than a significant impact to anadromous fish.

As part of Caltrans' stewardship responsibilities and policies and the implementation of standard measures during construction as described in the project description, no additional measures would be needed to further reduce any potential impacts.

Avoidance, Minimization, and/or Mitigation Measures

None

Northern Spotted Owl

The northern spotted owl (*Strix occidentalis caurina*) is a federal threatened species and a state candidate species. Northern spotted owls generally have large home ranges and use large tracts of land containing significant acreage of older forest to meet their biological needs. The

attributes of superior northern spotted owl nesting and roosting habitat typically include a moderate to high canopy closure (60 to 80 percent); a multi-layered, multi-species canopy with large overstory trees; a high incidence of large trees with deformities (large cavities, broken tops, mistletoe infections, and debris accumulations); large accumulations of fallen trees and other debris; and sufficient open space below the canopy for flight. Northern spotted owl nesting season is considered to be February 1 through July 30 (USFWS 2011).

Affected Environment

Protocol surveys were not conducted for the northern spotted owl. Known locations from USFWS and CNDDDB were reviewed. The closest documented northern spotted owl observation centers are approximately 1.2 miles away from Ohman Creek bridge (Location 1), 1.2 miles from Location Elk Creek bridge (Location 2), 1.1 miles from Bridge Creek bridge (Location 3), and 0.6 miles from Bear Creek bridge (Location 4). USFWS provided mapping in 2010 that showed known northern spotted owl nesting territories near Locations 2 and 3. Because all four project locations have suitable northern spotted owl nesting habitat and nest sites can vary from year to year, the decision was made to assume that the northern spotted owl could be present at all four project locations.

Revisions to the critical habitat for the northern spotted owl were published by USFWS on December 4, 2012, with an effective date of January 3, 2013. The proposed project is not located within areas designated as critical habitat for the northern spotted owl.

Environmental Impacts

Impact criteria define the level of direct and indirect impacts on the northern spotted owl. The purpose of the impact criteria is to help determine when an impact is significant under CEQA.

The following CEQA Checklist item was used to evaluate the impacts of the proposed project on the northern spotted owl:

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

The USFWS report, *Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California* (July 26, 2006) (Report), was consulted for assistance in estimating potential effects to the northern spotted owl due to noise and visual disturbance during the construction of this project.

Per the Report, existing noise levels were estimated using noise levels estimated in the Report for similar settings. Construction noise levels were estimated using known noise levels generated from types of equipment expected to be used to construct the project. Methods

described in the Report were used to compare estimated construction and ambient noise levels, and estimate effects from construction. According to values listed in that report, the existing ambient noise levels within the ESL range from 67 to 95 decibels (dB) (Table 8). This ambient sound level classifies as “high.” Equipment expected to be used during construction of the proposed project will generate noise at levels ranging from 80 to 95 dB (Table 9) and will be categorized as “very high.” Using the sound levels listed in the USFWS report, equipment expected to be used during construction of the proposed project will not raise noise levels above the level of ambient. The installation of MBGR (at seven of the 16 bridge rail ends) is the only activity expected to exceed 90 dB.

Table 8: Estimated Existing Noise Levels on SR 254 within the Project Limits

Sound Source	Reported Decibel Value (measured at 50 feet)
Passenger car (50 mph)	67
RVs (small) (low end)	75
Passenger car/light trucks (65 mph) (low end)	76
Automobile	80 (measured at 25 feet)
Large truck (low end)	84
Passenger car/light trucks (65 mph) (high end)	85
RVs (small) (high end)	85
RVs (large) (low end)	85
Pickup truck	87 (measured at 8 feet)
Large truck (high end)	89
RVs (large) (high end)	95

Table 9: Estimated Noise Levels During Construction of the Proposed Project

Sound Source	Reported Decibel Value (measured at 50 feet)	Relative Sound Level
Generator (low end)	78	Moderate
Backhoe (low end)	80	High
Front-end loader (low end)	80	High
Concrete truck (low end)	81	High
Chainsaw, large	83	High
Backhoe (high end)	84	High
Dump truck	84	High
Flat bed truck	84	High
Generator (high end)	84	High
Concrete truck (high end)	85	High

Sound Source	Reported Decibel Value (measured at 50 feet)	Relative Sound Level
Gradall (low end)	85	High
Chainsaws (high end)	86	High
Gradall (high end)	86	High
Front-end loader (high end)	87	High
Jackhammer	89	High
Concrete saw	90	High
Guardrail installation and pile driving (low end)	95	Very high
Back-up vehicle safety alarm	97-110 (measured at source) ¹	

¹excluded from analysis, per the guidance outlined in the *Programmatic Informal Consultation for the California Department of Transportation's Routine Maintenance and Repair Activities, and Small Projects Program, for Districts 1 and 2* (USFWS 2014c).

Sound levels for all activities except guardrail installation (and excluding vehicle back-up safety alarm) are expected to be at or below ambient sound levels and at or below 90dB. Guardrail installation is expected to exceed ambient sound levels and exceed 90dB. Per the Report, the harassment distance for such sound levels is 165 feet; that is, work within 165 feet of an active northern spotted owl nest could harass an individual.

Work within a 131 foot line of sight to an active northern spotted owl nest could cause visual disturbance to an individual.

The proposed project is covered under the Programmatic Informal Consultation for the California Department of Transportation's Routine Maintenance and Repair Activities, and Small Projects Program for Districts 1 and 2 issued by the Arcata USFWS office on April 9, 2014 (USFWS 2014c). The Programmatic Informal Consultation identifies measures to be implemented whenever certain species may be present. These measures are included in standard measures, and include items such as work windows. Additional BMPs (ABMPs) are also included as appropriate. A copy of the Inventory and Reporting Form, along with a list of BMPs and ABMPs applicable to the project, can be found in Appendix E. The proposed project may affect, but is not likely to adversely affect, the northern spotted owl.

In June 2014 Caltrans received concurrence from CDFW that take (as defined in the California Fish and Game Code) of the northern spotted owl would be unlikely, as long as the project follows certain measures. The measures are standard measures, such as work windows, training, and covered trash receptacles; and the absence of items from the project description: the project does not propose night work or tree removal. A copy of the CDFW concurrence is included in Appendix C. Any effect on northern spotted owl will not be substantial. The proposed project will not remove northern spotted owl nesting or foraging habitat; consequently,

there will be no direct impacts to the northern spotted owl or its habitat. Therefore, there will be less than a significant impact to Northern Spotted Owl.

As part of Caltrans' stewardship responsibilities and policies and the implementation of standard measures during construction, no additional measures would be needed to further reduce any potential impacts.

Avoidance, Minimization, and/or Mitigation Measures

None

Marbled Murrelet

The marbled murrelet (*Brachyramphus marmoratus*) is a federally threatened species and a state endangered species. The majority of marbled murrelets are found within or adjacent to the marine environment, although there have been detections of marbled murrelets on rivers and inland lakes. Marbled murrelets spend the majority of their lives on the ocean and come inland to nest. Marbled murrelets typically nest in old-growth forest and commonly occupy large stands (500 acres) of trees. Marbled murrelet nesting season is considered to be March 24 through September 15.

Affected Environment

Protocol surveys were not conducted for the marbled murrelet. Known locations from USFWS and CNDDDB were reviewed. The closest known occurrences of the marbled murrelet are located approximately 3.8 miles west of Location 2 and 3, and 0.1 miles to the north of Location 4. Because all four project locations have suitable marbled murrelet nesting habitat and nest sites can vary from year to year, the decision was made to assume that the marbled murrelet will be present at all four project locations.

Critical habitat for the marbled murrelet was designated by the USFWS on May 24, 1996. The proposed project is located within designated critical habitat for the marbled murrelet.

Environmental Impacts

Impact criteria define the level of direct and indirect impacts on the marbled murrelet. The purpose of the impact criteria is to help determine when an impact is significant under CEQA.

The following CEQA Checklist item was used to evaluate the impacts of the proposed project on the marbled murrelet:

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

The USFWS report, *Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California* (July 26, 2006) (Report), was consulted for assistance in estimating potential effects to the marbled murrelet due to noise and visual disturbance during the construction of this project.

Per the Report, existing noise levels were estimated using noise levels estimated in the Report for similar settings. Construction noise levels were estimated using known noise levels generated from types of equipment expected to be used to construct the project. Methods described in the Report were used to compare estimated construction and ambient noise levels, and estimate effects from construction. According to values listed in that report, the existing ambient noise levels within the ESL range from 67 to 95 dB (Table 8 above). This ambient sound level classifies as “high.” Equipment expected to be used during construction of the proposed project will generate noise at levels ranging from 80 to 95 dB (Table 9 above), and will be categorized as “very high.” Using the sound levels listed in the USFWS report, equipment expected to be used during construction of the proposed project will not raise noise levels above the level of ambient. The installation of MBGR (at seven of the 16 bridge rail ends) is the only activity expected to exceed 90 dB.

Sound levels for all activities except guardrail installation (and excluding vehicle back-up safety alarm) are expected to be at or below ambient sound levels and at or below 90dB. Per the Report, the harassment distance for such sound levels is 165 feet. Guardrail installation is expected to exceed ambient sound levels and exceed 90dB. Per the Report, the harassment distance for such sound levels is 165 feet. That is, work within 165 feet of an active marbled murrelet nest could harass an individual.

Human activities within a 131 foot line of sight to an active marbled murrelet nest could cause visual disturbance to an individual. Work within 131 feet of an active nest could harass marbled murrelet.

The proposed project is covered under the Programmatic Informal Consultation for the California Department of Transportation’s Routine Maintenance and Repair Activities, and Small Projects Program for Districts 1 and 2 issued by the Arcata USFWS office on April 9, 2014 (USFWS 2014c). The Programmatic Informal Consultation identifies measures to be implemented whenever certain species may be present. These measures are included as standard measures, and include items such as work windows. Additional BMPs (ABMPs) are also included as appropriate. A copy of the Inventory and Reporting Form, along with a list of BMPs and ABMPs applicable to the project, can be found in Appendix E. The proposed project may affect, but is not likely to adversely affect, the marbled murrelet.

In June 2014 Caltrans received concurrence from CDFW that take (as defined in the California Fish and Game Code) of the marbled murrelet would be unlikely as long as the project follows certain measures. The measures are standard measures, such as work windows, training, and

covered trash receptacles; and the absence of items from the project description: the project does not propose night work or tree removal. A copy of the CDFW concurrence is included in Appendix C. Any effect on marbled murrelet will not be substantial. The proposed project will not remove marbled murrelet nesting or foraging habitat; therefore, there will be no direct impacts to the marbled murrelet or its habitat. Therefore, there will be a less than significant impact to the Marbled Murrelet.

As part of Caltrans' stewardship responsibilities and policies and the implementation of standard measures during construction as described in the project description, no additional measures would be needed to further reduce potential impacts.

Avoidance, Minimization, and/or Mitigation Measures

None

Pacific Fisher

The Pacific fisher (*Pekania (Martes) pennanti (pacifica)*) DPS is a federal candidate species and a state candidate species. There are two populations of Pacific fisher in California, the northern California and southern Sierra Nevada populations. The Pacific fisher is found in conifer, mixed conifer, and hardwood tree habitats. Pacific fishers require large, old trees; snags; or downed logs containing small cavities for denning and resting.

Affected Environment

The Pacific fisher was not observed during surveys conducted for this project. According to CDFW's CWHR program (California Department of Fish and Wildlife 2008), the Pacific fisher may be expected to occur in the vicinity of the proposed project. There is reasonable potential for Pacific fisher to be found in the areas surrounding the four project locations. Due to road traffic and other human-generated noise, it is unlikely that Pacific fisher would be present in the immediate project area.

Critical habitat has not been designated for the Pacific fisher.

Environmental Impacts

Impact criteria define the level of direct and indirect impacts on the Pacific fisher. The purpose of the impact criteria is to help determine when an impact is significant under CEQA.

The following CEQA Checklist item was used to evaluate the impacts of the proposed project on the Pacific Fisher:

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

No guidelines for construction-noise sensitivity of Pacific fisher is available. Caltrans, to proceed cautiously, is assuming that construction-related sound is a concern for Pacific fisher. Standard measures, such as work windows, and absence of items from the project description (e.g., the project description does not propose night work), would limit work to times when Pacific fisher may be least sensitive.

In June 2014 Caltrans received concurrence from CDFW that take (as defined in the California Fish and Game Code) of the Pacific fisher would be unlikely, as long as the project follows certain measures. The measures are standard measures, such as work windows, training, and covered trash receptacles; and the absence of items from the project description: the project does not propose night work or tree removal. A copy of the CDFW concurrence is included in Appendix C. Any effect on Pacific fisher will not be substantial. The proposed project will not result in any direct impacts to Pacific fisher or its habitat because no trees will be removed. Therefore, there will be less than a significant impact to Pacific fisher.

As part of Caltrans' stewardship responsibilities and policies and the implementation of standard measures during construction, no additional measures would be needed to further reduce any potential impacts.

Avoidance, Minimization, and/or Mitigation Measures

None

INVASIVE SPECIES

Regulatory Setting

On February 3, 1999, President William J. Clinton signed Executive Order (EO) 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." Federal Highway Administration (FHWA) guidance issued August 10, 1999 directs the use of the State's invasive species list maintained by the California Invasive Species Council to define the invasive species that must be considered as part of the National Environmental Policy Act (NEPA) analysis for a proposed project.

Affected Environment

Invasive/noxious plant species listed on CDFA and Cal-IPC noxious weed lists were found within the ESL during plant surveys conducted for this project.

Environmental Impacts

None of the species on the California list of invasive species is used by Caltrans for erosion control or landscaping. All equipment and materials will be inspected for the presence of

invasive species. The contract specifications for permanent erosion control will require the use of locally appropriate California native forb and grass species, or a seed mix of sterile forb and grass seeds, mulch, or similar weed-free erosion control measure.

Avoidance, Minimization, and/or Mitigation Measures

None

CUMULATIVE IMPACTS

REGULATORY SETTING

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

California Environmental Quality Act (CEQA) Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines.

Affected Environment

The project area is located on Avenue of the Giants, which is a two-lane scenic drive surrounded by the Humboldt Redwoods State Park. United States State Route 101 from post mile (PM) 11 through PM 51 has also been selected as part of the study area in determining cumulative impacts for this project due to its proximity to the bridge sites. Projects considered in this cumulative impacts analysis include past, present and reasonably foreseeable future actions within the study area as shown in the following table:

Projects Considered in the Cumulative Impacts Analysis

Project Sponsor	Type of Project	County/Route	Location	Status
Caltrans	Roadway Restoration (EA 47021)	HUM 101	PM R41.5/41.9	Completed in 2011
Caltrans	Rumble Strip Installation (EA 49170)	HUM 101	PM 28.3/28.4	Completed in 2012
Caltrans	Pavement Overlay (EA 0A250)	HUM 101	PM 88.2/88.3	Completed in 2012
Caltrans	Pavement Overlay (EA 0A850)	HUM 101	Various	Completed in 2013
Caltrans	Slip Out Repair (EA 47502)	HUM 254	PM 11/11.1	Completed in 2013
Caltrans	Construct Retaining Wall (EA 47501)	HUM 254	PM 5.8/5.9	Completed in 2013
Caltrans	Drainage Repair (EA 47520)	HUM 254	PM 22.3/40.1	Completed in 2013
Caltrans	Pavement Overlay (EA 0E290)	HUM 101	PM 10.2/25.5	Completed in 2015
Caltrans	Replace Culvert (EA 0F150)	HUM 254	PM 22.12	Completed in 2015
Caltrans	Drainage Repairs (EA 0C290)	HUM 101	PM 15.5	Completed in 2015
Caltrans	Slide Repair (EA 0B410)	HUM 101	PM R40.9/41.2	Completed in 2015
Caltrans	Bridge Repair (EA 0E230)	HUM 101	PM 48.6/48.8	Construction in 2016
Caltrans	Pavement Overlay (EA 0F520)	HUM 101	PM 8.5/22.4	Construction in 2016
Caltrans	Pavement Overlay (EA 0E490)	HUM 101	PM 25.5/28.5	Construction in 2016
Caltrans	Bridge Repair (EA 0B240)	HUM 101	Various	Construction in 2016
Caltrans	Storm Damage Repair (EA 0B400)	HUM 101	PM 15	Construction in 2016
Caltrans	Bridge Deck Repair (EA 0E210)	HUM 101	Various	Construction in 2016
Caltrans	Electrical Upgrade (01-0B600)	HUM 101	PM 27.9	Construction in 2016
Caltrans	Replace Crash Cushions (EA 0C840)	HUM 101	Various	Construction in 2017
Caltrans	Metal Beam Guardrail (EA 0B820)	HUM 101	Various	Construction in 2018

Caltrans	Culvert Rehabilitation (EA 40950)	HUM 254	PM 6.8/42.1	Currently being studied
Caltrans	Seismic Retrofit Bridges (EA 0A110)	HUM 101	PM 27.7/53.9	Currently being studied
Caltrans	Culvert Replacement (EA 47531)	HUM 254	PM 4.4/11.2	Currently being studied
Caltrans	Seismic Bridge Repairs (EA 0A110)	HUM 101	PM 27.7/53.9	Currently being studied
Caltrans	Install Guardrail (EA 0E870)	HUM 101	PM 23.2/23.8	Future project
Caltrans	Bridge Retrofit (EA 0E770)	HUM 101	PM 17.8/87.8	Future project

Based on the analysis completed in the Initial Study regarding the potential for the projects to result in direct and/or indirect impacts to environmental resources, the following issues were identified for consideration in the cumulative impacts study.

Environmental Impacts

Natural Communities

Natural communities of special concern in the project vicinity include *Sequoia sempervirens* (Redwood Forest) Alliance and riparian communities. The project would result in minor, temporary impacts to *Sequoia sempervirens* (Redwood Forest) Alliance through minor limb trimming and impacts to some roots. The project will not remove trees. Discussion between Caltrans and California State Parks resulted in development of avoidance and minimization measures to protect *Sequoia sempervirens* (Redwood Forest) Alliance. The project would result in minor, temporary impacts to riparian vegetation through limb trimming. Standard measures, such as ESAs and water quality BMPs, will be implemented and will prevent additional impacts to riparian communities. Both communities will persist at the project locations, and fully recover from the minor, temporary impacts. Other known projects in the area would not compound impacts from this project. There would be no adverse cumulative impact to the natural communities.

Wetlands and Other Waters

Federal regulations require that there be no net loss of wetlands. All projects are required to incorporate water quality measures to prevent water pollution within and beyond project areas. All work is outside of wetlands and other waters. The project will have no impacts to wetlands or other waters, and will incorporate standard measures, such as water quality BMPs and ESAs, to prevent inadvertent impacts. The lack of impacts would facilitate sustainability of wetlands and other waters during all projects that are constructed throughout the area.

Animal Species

Impacts to sensitive species for any project must be analyzed under the California Environmental Quality Act. Additional laws and regulations, such as the Migratory Bird Treaty Act, California Fish and Game Code Sections 3503, 3503.5, and others, prohibit the destruction of certain animals. These laws and regulations are in addition to protections from the State and Federal Endangered Species Acts. Migratory birds and certain bat species were identified as sensitive or otherwise protected animal species that could occur in the project vicinity. The project would not impact migratory birds. The project would not remove bat habitat or otherwise have substantial impacts to bats. Any impacts would be minor and temporary and not threaten viability of sensitive species in the region.

Threatened and Endangered Species

When listed species are affected, consultation with the U.S. Fish and Wildlife Service and National Marine Fisheries Service under the Federal Endangered Species Act, and the California Department of Fish and Wildlife under the California State Endangered Species Act, would be completed for future projects that may occur in the area. Cumulatively, the viability of some sensitive species throughout the region could be impacted.

This project will not remove habitat, and through standard measures will ensure that any direct or indirect effects would be no more than minimal, maintaining continuity of habitat and viability of the species. The project is not expected to result in an adverse cumulative impact to threatened and endangered species.

Invasive Species

Executive Order 13112 requires Federal agencies to address invasive species. In response to the order, the Federal Highway Administration requires an analysis of the risk for any federal funded action to cause or promote the introduction or spread of invasive species. The project will expose some soil in work areas, and will cover the soil with permanent erosion control after construction. Permanent erosion control measures will also serve as controls against establishment of invasive species in those exposed soils. The project would not add to the spread of invasive species in the region.

Therefore, this project is not expected to result in a cumulative effect when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

CLIMATE CHANGE

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those

generated from the production and use of fossil fuels. Research from such establishments as the Intergovernmental Panel on Climate Change (IPCC) are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light duty trucks, other trucks, buses, and motorcycles) make up the largest source (second to electricity generation) of GHG emitting sources. The dominant GHG emitted is CO₂, mostly from fossil fuel combustion.

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing growth of vehicle miles traveled (VMT), 3) transitioning to lower GHG emitting fuels, and 4) improving vehicle technologies. To be most effective all four strategies should be pursued collectively. The following Regulatory Setting section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources.

Regulatory Setting

State

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California launched an innovative and pro-active approach to dealing with GHG emissions and climate change. Relevant legislation includes the following policies:

- Assembly Bill 1493 (AB 1493), Pavley
- Executive Order (EO) S-3-05: (signed on June 1, 2005, by former Governor Arnold Schwarzenegger)
- AB 32, the Global Warming Solutions Act of 2006, Núñez and Pavley
- Executive Order S-20-06: (signed on October 18, 2006 by former Governor Arnold Schwarzenegger)
- Executive Order S-01-07: (signed on January 18, 2007 by former Governor Arnold Schwarzenegger)
- Senate Bill 97 (SB 97) Chapter 185, 2007
- Caltrans Director's Policy 30 (DP-30) Climate Change (approved June 22, 2012): is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities. This policy contributes to the Department's stewardship goal to preserve and enhance California's resources and assets.

Federal

Although climate change and GHG reduction is a concern at the federal level, currently there are no regulations or legislation that have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the United States Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has promulgated explicit guidance or methodology to conduct project-level GHG analysis. As stated on FHWA's climate change website (<http://www.fhwa.dot.gov/hep/climate/index.htm>), climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Despite the lack of Federal GHG regulations and legislation, FHWA as well as the National Highway Traffic Safety Administration (NHTSA) and U.S. EPA are taking steps to lessen climate change impacts by improving transportation system efficiency, creating cleaner fuels, reducing the growth of vehicle hours travelled, and enabling the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines.

Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.¹

Caltrans and its parent agency, the California State Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human-made GHG emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.²

This project involves shoulder widening and guard rail improvements and will not increase roadway capacity which would otherwise allow for additional vehicle emissions. Construction emissions from this project will be unavoidable, but there will likely be small long-term GHG benefits by improved operation from smoother pavement surfaces and reduced maintenance trips. Reduced maintenance activity is expected as timber railings, subject to organic deterioration, are replaced with steel and concrete railings.

¹ This approach is supported by the AEP: Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

² Caltrans Climate Action Program is located at the following web address:
http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

CEQA Conclusion

Although construction emissions are unavoidable and are expected to be minimal, the proposed project will not increase capacity and is not expected to result in additional operational CO₂ emissions. It is Caltrans' determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a determination regarding significance of the project's direct impact and its contribution on the cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the following section.

Climate Change Strategies

There are typically two terms used when discussing the impacts of climate change.

"Greenhouse Gas Mitigation" is a term for reducing GHG emissions in order to reduce or "mitigate" the impacts of climate change. "Adaptation" refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)³.

Greenhouse Gas Reduction Measures

AB 32 Compliance

Caltrans continues to be actively involved on the Governor's Climate Action Team as ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year.

The following measures will also be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

³ http://climatechange.transportation.org/ghg_mitigation/

1. According to the Department's Standard Specifications, the contractor must comply with all of the local Air Pollution Control District's (APCD) rules, ordinances, and regulations regarding to air quality restrictions.
2. Caltrans Standard Specifications, a required part of all construction contracts, should effectively reduce and control emission impacts during construction under the provisions of Section 7-1.02C "Emission Reduction". Provision 14-9.02 "Air Pollution Control" requires the contractor to comply with all pertinent rules, regulations, ordinances, and statutes of the local air district.

Adaptation Strategies

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

Interim guidance was released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise. Subsequently, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academies Study.

All projects that have filed a Notice of Preparation as of the date of EO S-13-08, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. The proposed project is outside the coastal zone and direct impacts to transportation facilities due to projected sea level rise are not expected.

Executive Order S-13-08 also directed the California State Transportation Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Section 4 – List of Preparers

Arseneau, Troy, Senior Transportation Engineer. Contribution: Project Manager

Fine, Joan, Associate Environmental Planner (Architectural Historian). Contribution: Historical Resources Evaluation Report

Haney, Jeff, Associate Environmental Planner (Archaeology). Contribution: Historic Property Survey Report

Hibbert, Jim, Landscape Associate. Contribution: Visual Impact Assessment

Hurlburt, Glenn, Project Engineer. Contribution: Project Design

Marquis, Sean, Associate Environmental Planner (Natural Sciences). Contribution: Natural Environment Study

Mullen, Richard, Senior Transportation Engineer. Contribution: prior Project Manager

Melendrez, David, Supervising Transportation Engineer. Contribution: Water Quality Assessment Exemption

Osmondson, Jennifer, Associate Environmental Planner (Natural Science). Contribution: prior Project Biologist

Pommerenck, Adele, Senior Environmental Planner. Contribution: Environmental Branch Chief and prior Project Coordinator

Timmons, Kelly, Senior Transportation Engineer. Contribution: Project Design

Walker, Liza, Associate Environmental Planner. Contribution: Project Coordinator and Environmental Document Preparation

Werner, Steve, Engineering Geologist. Contribution: Initial Site Assessment

Section 5 – List of Technical Studies

Historic Property Survey Report/Historic Resources Evaluation Report

Natural Environment Study (NES)

Noise and Air Quality Memo

Updated Initial Site Assessment

Visual Impact Assessment

Water Quality Assessment Exemption

Appendix A – SHPO Concurrence Letter

**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

1725 23rd Street, Suite 100
SACRAMENTO, CA 95816-7100
(916) 445-7000 Fax: (916) 445-7053
calshpo@parks.ca.gov
www.ohp.parks.ca.gov



May 4, 2012

Reply To: FHWA120405A

Sandra Rosas, Chief
Environmental Management, M2 Branch
Caltrans District 3
PO Box 911
Marysville, CA 95901-0911

Re: Determination of Eligibility for the Proposed Avenue of Giants Four Bridges Project,
Humboldt County, CA

Dear Ms. Rosas:

Thank you for consulting with me about the subject undertaking in accordance with the *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 (PA)*.

Caltrans has determined that the Avenue of Giants (State Route 254) is not eligible for the National Register of Historic Places due to a lack of integrity. Based on review of the submitted documentation, I concur.

Thank you for considering historic properties during project planning. If you have any questions, please contact Natalie Lindquist of my staff at (916) 445-7014 or email at nlindquist@parks.ca.gov.

Sincerely,

A handwritten signature in cursive script that reads "Susan H. Stratton for".

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

Appendix B – Tree Mapping

Tree Assessment
Ohman Creek Bridge

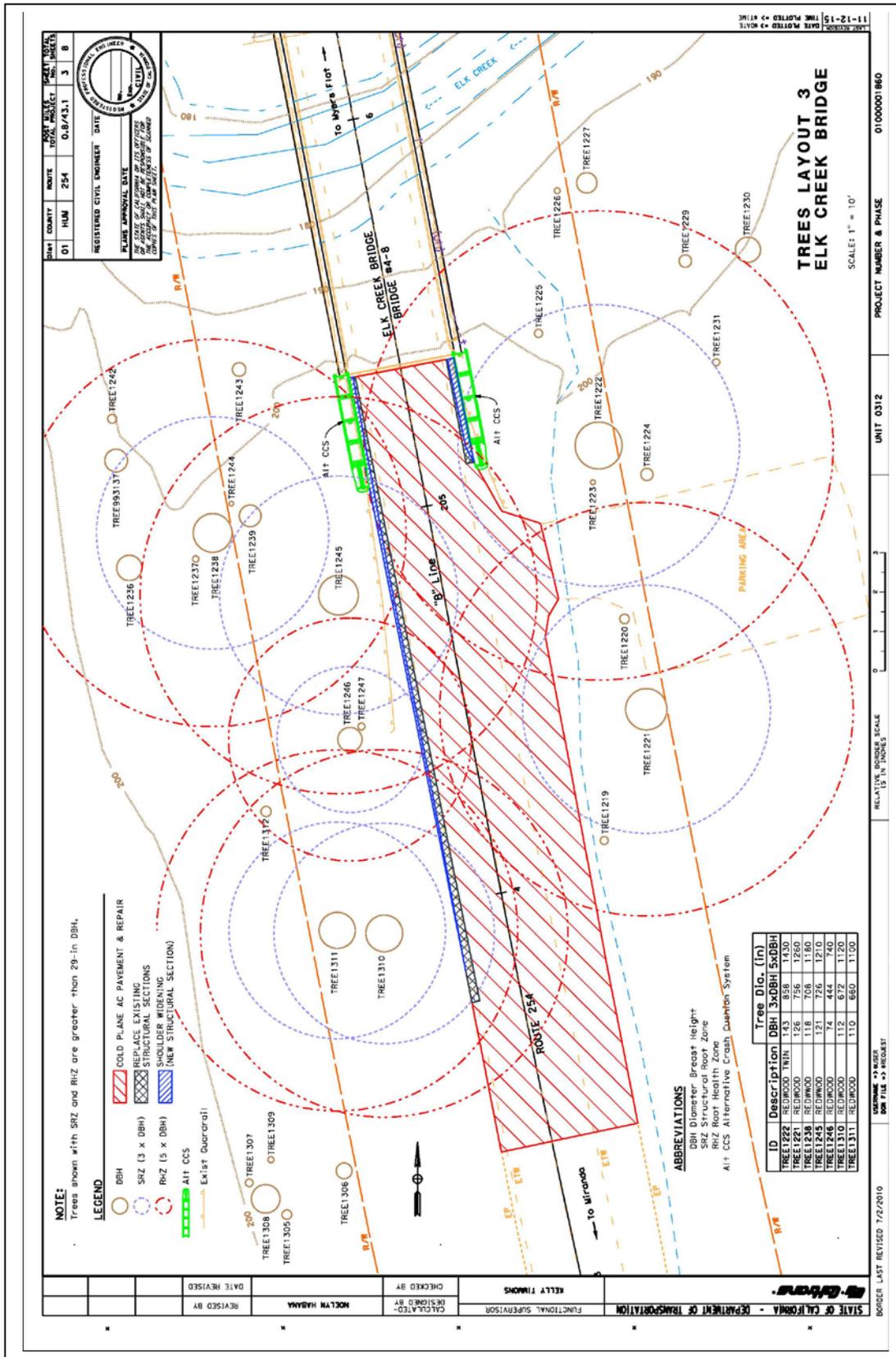
Date: 19 November 2015		Personnel: Sean Marquis, Darin Sullivan	
Tree #	Comments	Rating	
993132	Below road elevation. Work is in ground that is unlikely to support roots. No work in SRZ.	0	
993133	Below road elevation. Work is in ground that is unlikely to support roots. No work in SRZ.	0	
1529	Work is in already-compacted, disturbed, paved area.	0	
993129	Slightly lower than road elevation. Crash cushion and structural section (max excavation depth of 0.85 ft), and utility pole and guy wire work in SRZ.	3	
1466	Work is in RHZ on opposite side of a larger tree. No work in SRZ.	2	
1	Structural section (max excavation depth of 0.85 ft) in SRZ. In a grove, expect interconnected roots.	2	
1461	Structural section (max excavation depth of 0.85 ft) in SRZ. In a grove, expect interconnected roots.	0	
1462	Structural section (max excavation depth of 0.85 ft) in SRZ. In a grove, expect interconnected roots.	0	
1463	Structural section (max excavation depth of 0.85 ft) in SRZ. In a grove, expect interconnected roots.	1	

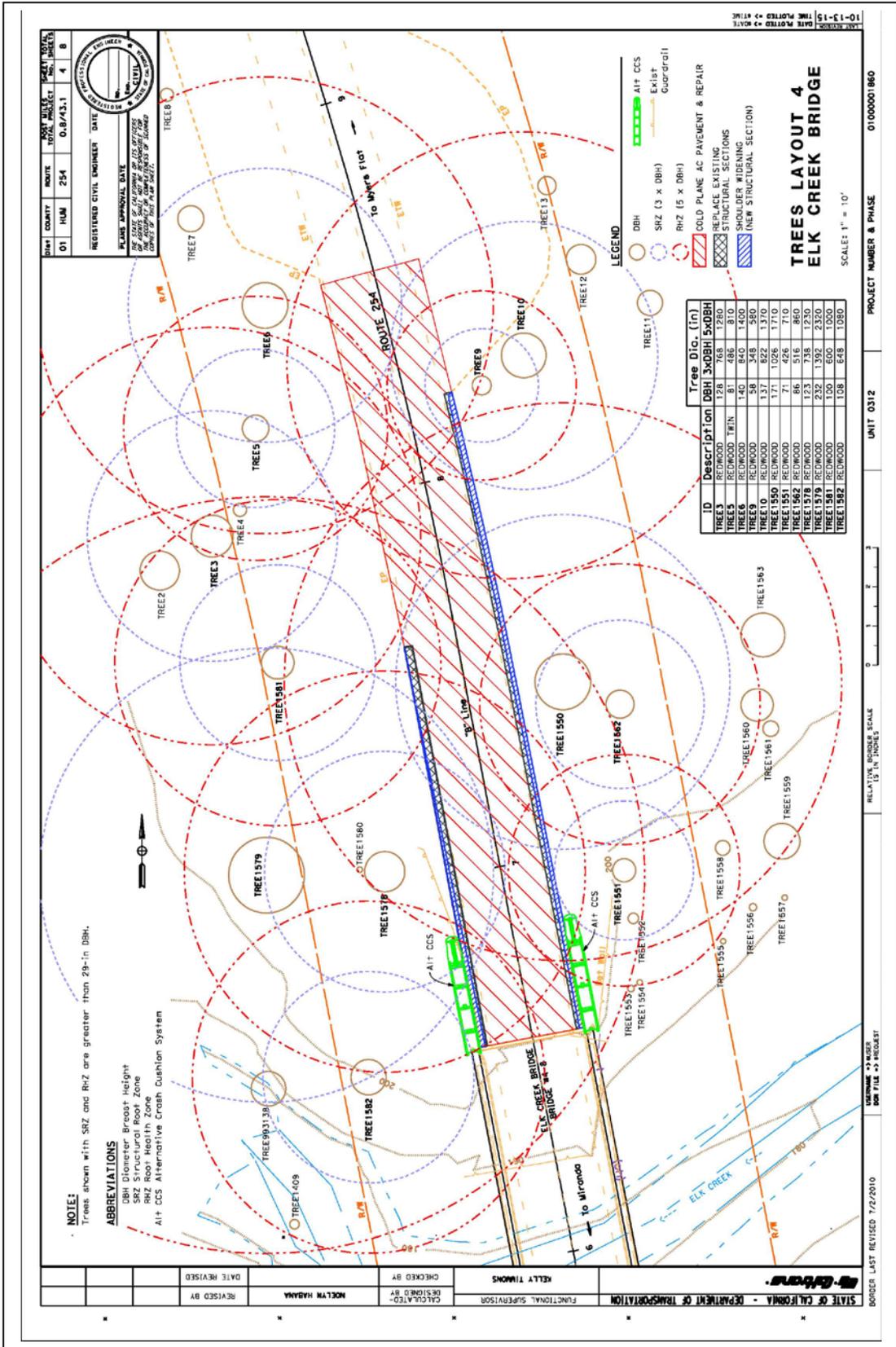
Rank	Total # trees in rank (w/o min)
0	5
1	1
2	2
3	1
4	0
5	0
6	0

Tree Assessment
Elk Creek Bridge

Date: 19 November 2015		Personnel: Sean Marquis, Darin Sullivan	
Tree #	Comments	Rating	
1222	Work on crash cushion and structural section (max excavation depth of 0.85 ft) in SRZ. However, ditch appears previously to have been excavated between tree and work area, structural roots likely to have been cut.	2	
1221	No excavation proposed in RHZ (only grind and overlay existing roadway).	0	
1245	Crash cushion and structural section (max excavation depth of 0.85 ft) in SRZ, work close to tree.	4	
1310	Crash cushion and structural section (max excavation depth of 0.85 ft) in SRZ. Appears that tree was a twin tree, where twin that was closer to roadway fell in past. Excavation will be in fallen twin's root zone, such that any roots encountered are less likely to belong to standing twin.	3	
1311	Work in RHZ only, not expected to abstract water flow toward tree. No work in SRZ.	1	
1246	Structural section (max excavation depth of 0.85 ft) in outer limits of SRZ.	3	
1238	Work would affect only small amount of root area. No work in SRZ.	1	
1582	Small amount of crash cushion in SRZ.	1	
1578	Crash cushion and structural section (max excavation depth of 0.85 ft) in SRZ.	3	
1550	Structural section (max excavation depth of 0.85 ft) in SRZ. Tree close to roadway. Grove of supporting trees, expect interconnected roots.	4	
6	Small amount of excavation, only in edge of RHZ. No excavation in SRZ.	1	
5	No excavation proposed in RHZ or SRZ (only grind and overlay existing roadway).	0	
3	No excavation proposed in RHZ or SRZ (only grind and overlay existing roadway).	0	
1581	Excavation in small amount of RHZ. No excavation in SRZ.	1	
1579	SRZ and RHZ appear larger on map than realistic. Pullout and tree 1578 are between 1579 and road.	2	
1551	Crash cushion and structural section (max excavation depth of 0.85 ft) in edge of SRZ. Work in fill behind crib wall, don't expect structural roots, but work could affect supporting roots in fill.	2	
1562	Work is in RHZ on opposite side of a larger tree.	2	
9	Structural section (max excavation depth of 0.85 ft) in SRZ.	2	
10	Structural section (max excavation depth of 0.85 ft) in SRZ.	2	

Rank	Total # trees in rank (w/o min)
0	3
1	5
2	6
3	3
4	2
5	0
6	0

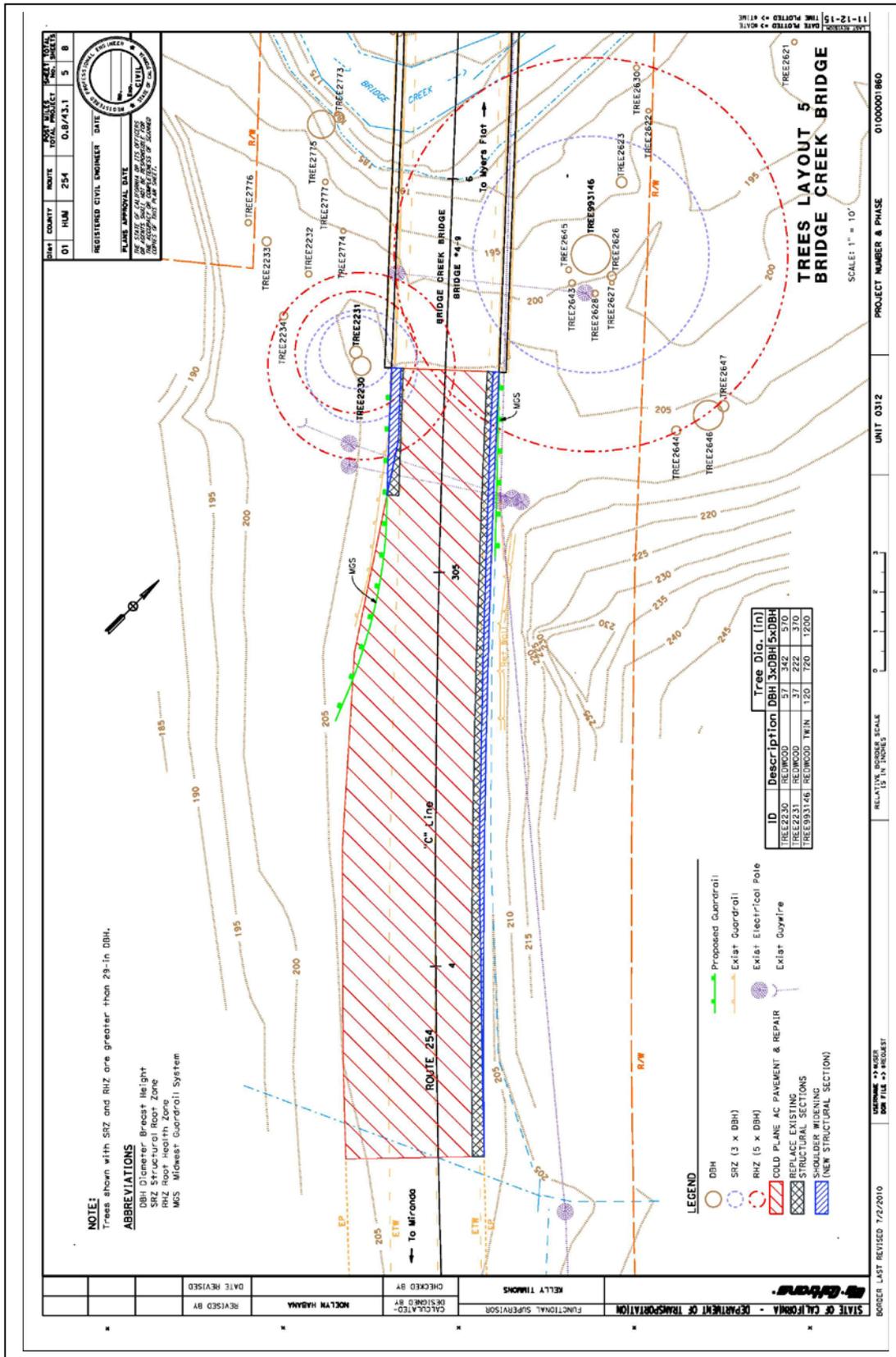


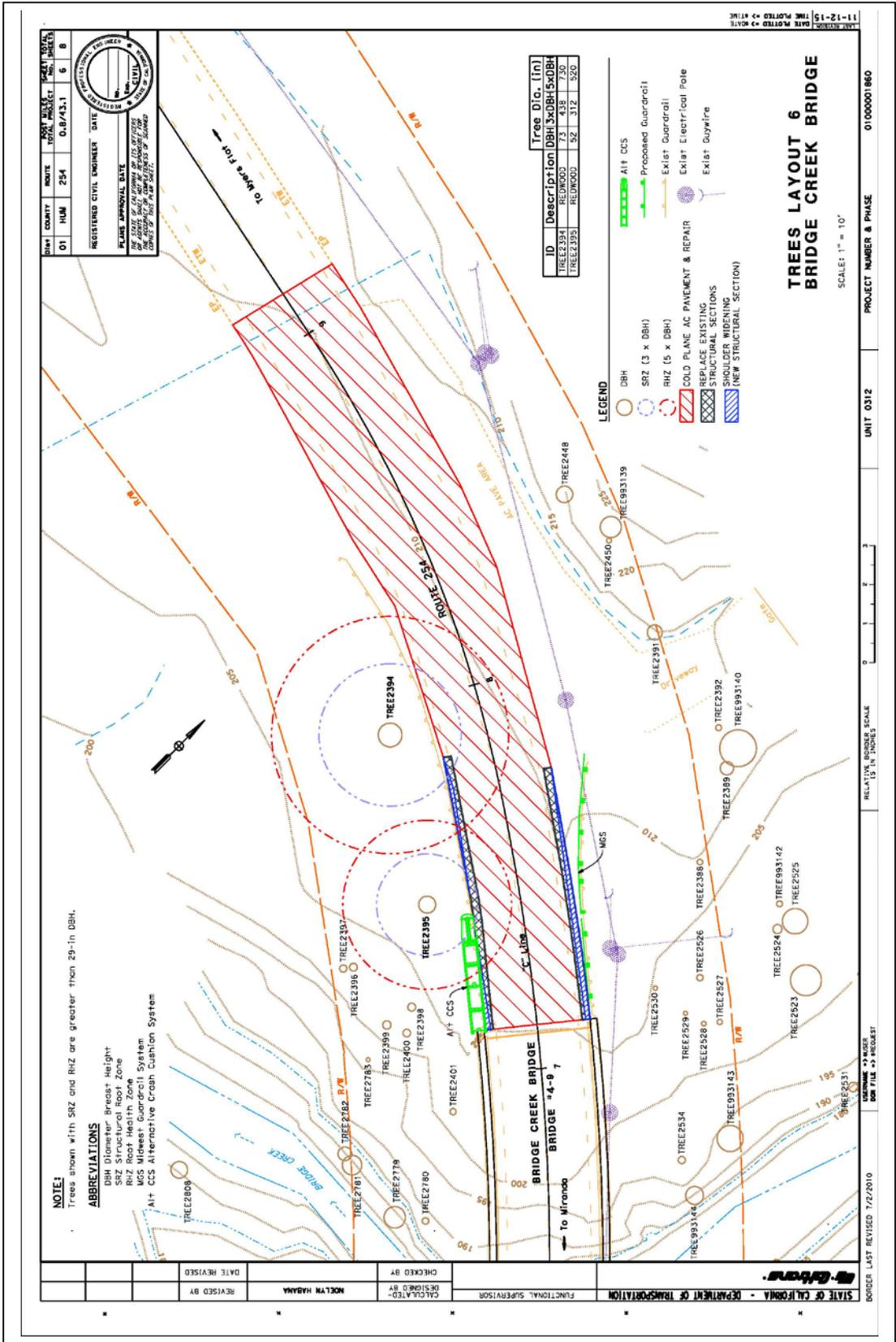


Tree Assessment
Bridge Creek Bridge

Date: 19 November 2015		Personnel: Sean Marquis, Darin Sullivan	
Tree #	Comments	Rating	
2395	Tree has minimal foliage, needs few roots to support its existing foliage.	1	
2394	Minimal work in SRZ, direction expected to be oblique to tree, not expected to dissect many roots.	2	
993146	Lower elevation than work, work is in small amount of RHZ.	1	
2230	Trees young, vigorous, work transecting only part of SRZ.	3	
2231	Tree young, vigorous. Minimal work in SRZ.	3	

Rank	Total # trees in rank (w/o min)
0	0
1	2
2	1
3	2
4	0
5	0
6	0

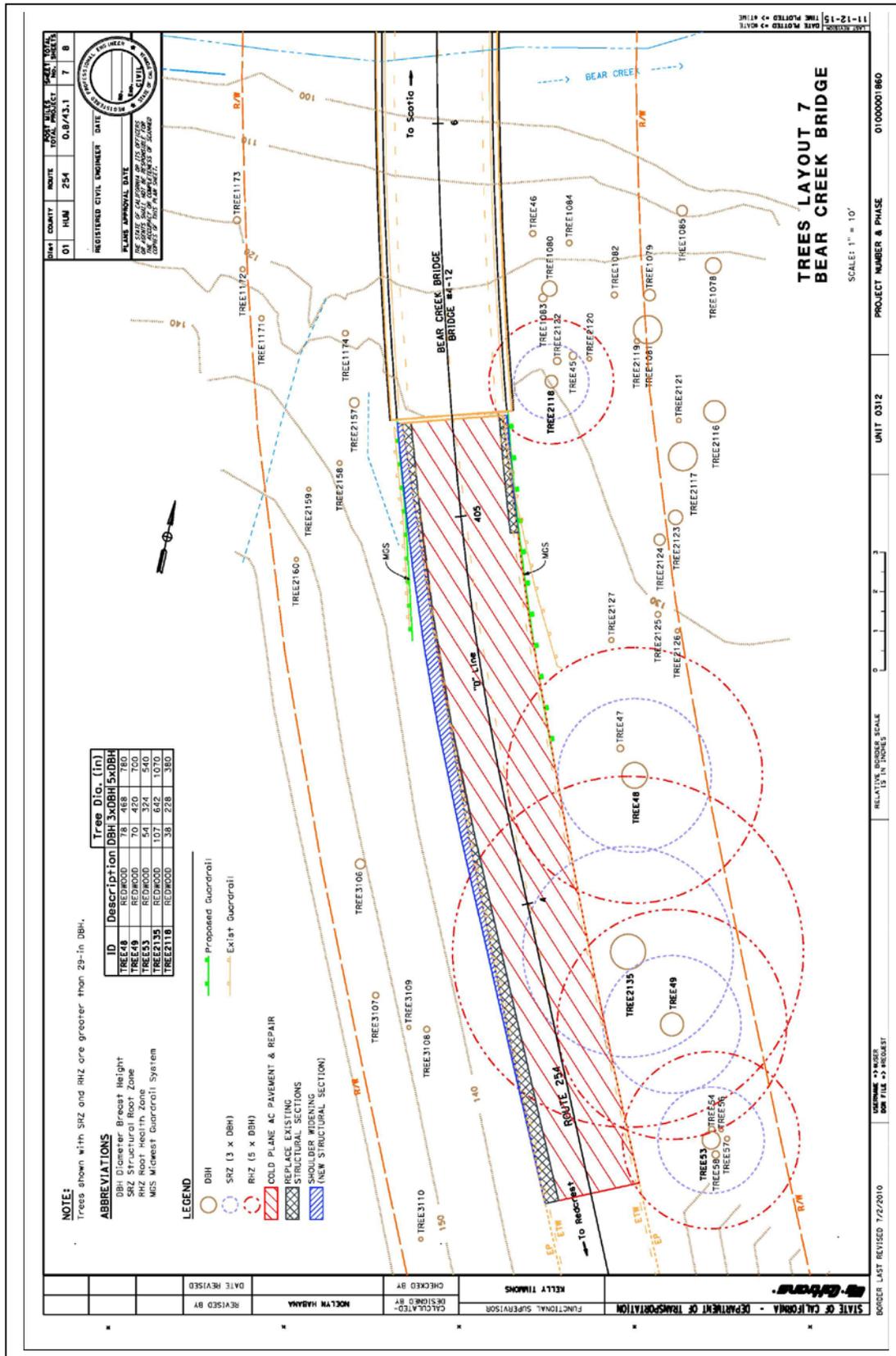


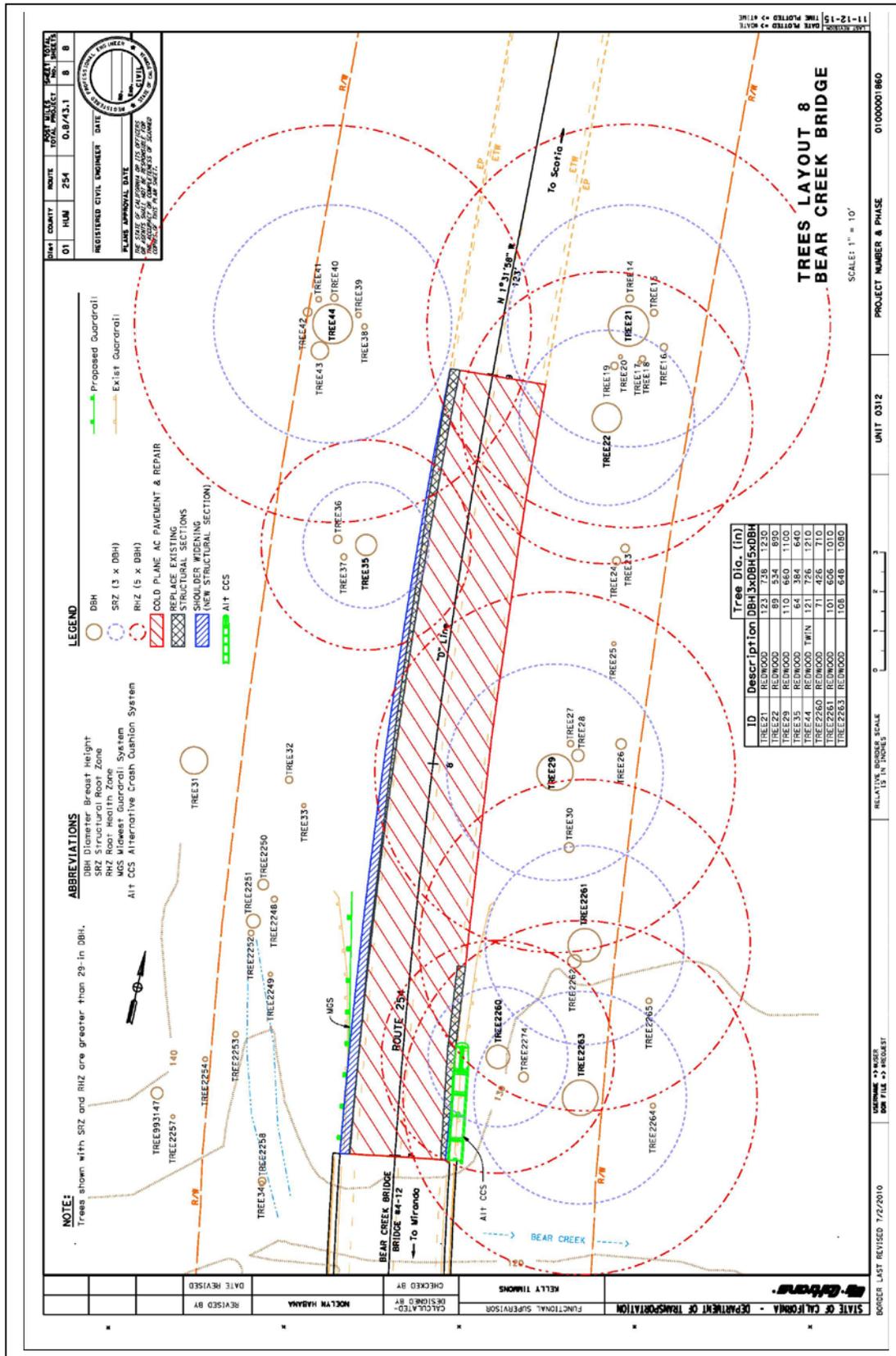


Tree Assessment
Bear Creek Bridge

Date: 19 November 2015		Personnel: Sean Marquis, Darin Sullivan	
Tree #	Comments	Rating	
2260	Tree is dead.	0	
2263	Work is in fill, in RHZ. Tree is downslope from roadway. No work in SRZ.	1	
35	Structural section (max excavation depth of 1.0 ft) in SRZ. Slope/bank downslope (toward roadway) from trunk was previously cut, such that structural roots likely have already been cut.	2	
44	Existing spike top. Slope/bank downslope (toward roadway) from trunk was previously cut, such that structural roots are likely have already been cut. No excavation in SRZ.	1	
29	Excavation is in a very small part of RHZ (opposite side of roadway). No excavation in SRZ.	1	
2261	Work is in small amount of RHZ (crash cushion in small amount of RHZ). Structural section excavation limited to existing structural section. No excavation in SRZ.	1	
22	No excavation proposed in RHZ (only grind and overlay existing roadway).	0	
21	Two tops, both spike tops. Work is in very small amount of RHZ, on opposite side of roadway. No excavation in SRZ.	1	
2118	Tree is young and vigorous. Work is in small amount of RHZ. No work in SRZ.	1	
48	Tree is in poor health, with dead top and minimal foliage. Guardrail posts proposed in RHZ. No excavation in SRZ.	1	
2135	Excavation is in RHZ, on opposite side of roadway. No excavation in SRZ.	1	
49	No excavation proposed in RHZ (only grind and overlay existing roadway).	0	
53	No excavation proposed in RHZ (only grind and overlay existing roadway).	0	

Rank	Total # trees in rank (w/o min)
0	4
1	8
2	1
3	0
4	0
5	0
6	0





Appendix C – CDFW Concurrence

From: [Dunn, JoAnn@Wildlife](mailto:Dunn_JoAnn@Wildlife)
To: Osmondson, Jennifer A@DOT
Cc: Pommerenck, Adele@DOT; Rosas, Sandra@DOT; Leppig, Gordon@Wildlife
Subject: RESPONSE: RE: Caltrans Avenue of the Giants - Four Bridges Project [COTO and fisher]
Date: Monday, June 16, 2014 7:49:00 PM

Hello Jennifer,

The California Department of Fish and Wildlife (CDFW) concurs that provided Caltrans follows the measures as proposed below for the Avenue of the Giant – Four Bridges Project, which includes deferring work at some locations on HUM 254 until August 16, “take” (as defined in Fish and Game Code) of Townsend’s big-eared bat (*Corynorhinus townsendii*) and fisher (*Martes pennanti*, West Coast Distinct Population Segment) would be unlikely. This determination is based in part on the anticipated work windows of construction activities as described below.

JoAnn R. Dunn
Northern Region Coastal Caltrans Liaison
California Department of Fish and Wildlife
619 Second Street
Eureka, California 95501

Tel: 707-441-2076
Fax: 707-441-2021

From: Osmondson, Jennifer A@DOT
Sent: Thursday, May 15, 2014 2:45 PM
To: Dunn, JoAnn@Wildlife
Cc: Pommerenck, Adele@DOT; Rosas, Sandra@DOT
Subject: Caltrans Avenue of the Giants - Four Bridges Project

Good afternoon JoAnn – to prevent take of CESA-listed marbled murrelet and CESA candidate species northern spotted owl, Townsend’s big-eared bat, and Pacific fisher by the Avenue of the Giants/SR 254 – Four Bridges Project, Caltrans is proposing to incorporate the protective measures described in this email.

Proposed Project Schedule:

To prevent take of sensitive species, construction of the proposed project will occur between June 15 and January 31 of each construction season. Metal beam guardrail (MBGR) installation (at 7 of the 16 bridge rail ends) will occur between August 16 and January 31 of each construction season (with a daily work window beginning 2 hours post-sunrise and ending 2 hours pre-sunset from August 16 through September 15). MBGR installation is the only project activity expected to exceed 90 decibels (dB). Under this proposed project schedule two bridges would be completed per season, resulting in a two year project. Construction of the project would likely go into winter suspension beginning October 15 of each construction season (due to rain). A generator would be needed at Location 4 24 hours a day.

Beginning construction earlier in the season would allow the project to be shortened from four

seasons to two seasons. This would reduce the amount of time that sensitive species would be subject to noise generated by the proposed project.

Table 1 of the U. S. Fish and Wildlife Service (USFWS) report, *Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California*, was consulted for assistance in estimating potential effects due to noise disturbance to the northern spotted owl and marbled murrelet during construction of the proposed project. This information was also used to estimate potential effects to Townsend’s big-eared bat and Pacific fisher. According to values listed in the USFWS report, the existing ambient noise levels within the Environmental Study Limits (ESL) range from 67 to 95 dB (Table 1 below). This ambient sound level classifies as “high.” Equipment expected to be used during construction of the proposed project would generate noise at levels ranging from 80 to 95 dB (Table 2 below), and would be categorized as “very high.” Using the sound levels listed in the USFWS report, equipment expected to be used during construction of the proposed project would not raise noise levels above the level of ambient. The installation of MBGR (at 7 of the 16 bridge rail ends) is the only activity expected to exceed 90 dB.

Table 1: Estimated Existing Noise Levels on SR 254 within the Project Limits

Sound Source	Reported Decibel Value (measured at 50 feet)
Passenger car (50 mph)	67
RVs (small) (low end)	75
Passenger car/light trucks (65 mph) (low end)	76
Automobile	80 (measured at 25 feet)
Large truck (low end)	84
Passenger car/light trucks (65 mph) (high end)	85
RVs (small) (high end)	85
RVs (large) (low end)	85
Pickup truck	87 (measured at 8 feet)
Large truck (high end)	89
RVs (large) (high end)	95

Table 2: Estimated Noise Levels During Construction of the Proposed Project

Sound Source	Reported Decibel Value (measured at 50 feet)	Relative Sound Level
Generator (low end)	78	Moderate
Backhoe (low end)	80	High
Front-end loader (low end)	80	High
Concrete truck (low end)	81	High
Chainsaw, large	83	High
Backhoe (high end)	84	High
Dump truck	84	High
Flat bed truck	84	High
Generator (high end)	84	High

Concrete truck (high end)	85	High
Gradall (low end)	85	High
Chainsaws (high end)	86	High
Gradall (high end)	86	High
Front-end loader (high end)	87	High
Jackhammer	89	High
Concrete saw	90	High
Guardrail installation and pile driving (low end)	95	Very high
Back-up vehicle safety alarm	97-112 (measured at source)	

Using guidance from the USFWS report, the resulting estimated harassment distance would be 165 feet. Using the 165-foot distance as a buffer around the project's ESL, an estimated 49.5 acres would be subject to harassment from auditory disturbance. At Locations 1, 2, and 3 some of this buffer area includes the streambed of the South Fork of the Eel River, where these species are not expected to nest or roost.

The Programmatic Informal Consultation between USFWS, Caltrans, and the U. S. Army Corps of Engineers (April 9, 2014) was also used for guidance in determining protective measures for both marbled murrelet and northern spotted owl.

General Protective Measures:

1. To prevent take of sensitive species, construction of the proposed project will occur between June 15 and January 31 of each construction season. MBGR installation (at 7 of the 16 bridge rail ends) would occur between August 16 and January 31 of each construction season (with a daily work window beginning 2 hours post-sunrise and ending 2 hours pre-sunset from August 16 through September 15).
2. No potential nest/roost trees, for any sensitive species, will be removed.
3. Night work will not be conducted, except for the use of a generator to power a temporary traffic signal at Location 4.
4. Corvid-proof waste/trash receptacles will be used, with the lid secured at all times, to prevent food waste from attracting corvids to the construction area. No food or food waste will be left unattended or discarded onsite.
5. Prior to the start of construction, a qualified biologist will conduct training for all construction personnel regarding sensitive biological resources present within and adjacent to the ESL. The training will include a description of the resource and the general measures that are being implemented to avoid and minimize impacts to the resource.

With implementation of these measures, Caltrans has determined it is unlikely that construction of the proposed project would result in the take of marbled murrelet, northern spotted owl, Townsend's big-eared bat, or Pacific fisher. Please let me know if you concur. I look forward to speaking with you soon. Thank you again for your assistance with all of this.

From: [Dunn, JoAnn@Wildlife](mailto:Dunn_JoAnn@Wildlife)
To: [Osmondson, Jennifer A@DOT](mailto:Osmondson_Jennifer_A@DOT)
Cc: [Pommerenck, Adele@DOT](mailto:Pommerenck_Adele@DOT); [Rosas, Sandra@DOT](mailto:Rosas_Sandra@DOT)
Subject: RE: Caltrans Avenue of the Giants - Four Bridges Project [no take NSO & MAMU]
Date: Monday, June 16, 2014 7:30:33 PM

The California Department of Fish and Wildlife (CDFW) concurs that provided Caltrans follows the measures as proposed below for the Avenue of the Giant – Four Bridges Project, “take” (as defined in Fish and Game Code) of northern spotted owl (*Strix occidentalis caurina*) and marbled murrelet (*Brachyramphus marmoratus*) would be unlikely. This determination is based in part on the anticipated work windows of construction activities as described below.

JoAnn R. Dunn
Northern Region Coastal Caltrans Liaison
California Department of Fish and Wildlife
619 Second Street
Eureka, California 95501

Tel: 707-441-2076
Fax: 707-441-2021

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Sent: Thursday, May 15, 2014 2:45 PM
To: Dunn, JoAnn@Wildlife
Cc: Pommerenck, Adele@DOT; Rosas, Sandra@DOT
Subject: Caltrans Avenue of the Giants - Four Bridges Project

Good afternoon JoAnn – to prevent take of CESA-listed marbled murrelet and CESA candidate species northern spotted owl, Townsend’s big-eared bat, and Pacific fisher by the Avenue of the Giants/SR 254 – Four Bridges Project, Caltrans is proposing to incorporate the protective measures described in this email.

Proposed Project Schedule:

To prevent take of sensitive species, construction of the proposed project will occur between June 15 and January 31 of each construction season. Metal beam guardrail (MBGR) installation (at 7 of the 16 bridge rail ends) will occur between August 16 and January 31 of each construction season (with a daily work window beginning 2 hours post-sunrise and ending 2 hours pre-sunset from August 16 through September 15). MBGR installation is the only project activity expected to exceed 90 decibels (dB). Under this proposed project schedule two bridges would be completed per season, resulting in a two year project. Construction of the project would likely go into winter suspension beginning October 15 of each construction season (due to rain). A generator would be needed at Location 4 24 hours a day.

Beginning construction earlier in the season would allow the project to be shortened from four seasons to two seasons. This would reduce the amount of time that sensitive species would be subject to noise generated by the proposed project.

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Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California, was consulted for assistance in estimating potential effects due to noise disturbance to the northern spotted owl and marbled murrelet during construction of the proposed project. This information was also used to estimate potential effects to Townsend's big-eared bat and Pacific fisher. According to values listed in the USFWS report, the existing ambient noise levels within the Environmental Study Limits (ESL) range from 67 to 95 dB (Table 1 below). This ambient sound level classifies as "high." Equipment expected to be used during construction of the proposed project would generate noise at levels ranging from 80 to 95 dB (Table 2 below), and would be categorized as "very high." Using the sound levels listed in the USFWS report, equipment expected to be used during construction of the proposed project would not raise noise levels above the level of ambient. The installation of MBGR (at 7 of the 16 bridge rail ends) is the only activity expected to exceed 90 dB.

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Pickup truck	87 (measured at 8 feet)
Large truck (high end)	89
RVs (large) (high end)	95

Table 2: Estimated Noise Levels During Construction of the Proposed Project

Sound Source	Reported Decibel Value (measured at 50 feet)	Relative Sound Level
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Backhoe (low end)	80	High
Front-end loader (low end)	80	High
Concrete truck (low end)	81	High
Chainsaw, large	83	High
Backhoe (high end)	84	High
Dump truck	84	High
Flat bed truck	84	High
Generator (high end)	84	High
Concrete truck (high end)	85	High
Gradall (low end)	85	High
Chainsaws (high end)	86	High

Gradall (high end)	86	High
Front-end loader (high end)	87	High
Jackhammer	89	High
Concrete saw	90	High
Guardrail installation and pile driving (low end)	95	Very high
Back-up vehicle safety alarm	97-112 (measured at source)	

Using guidance from the USFWS report, the resulting estimated harassment distance would be 165 feet. Using the 165-foot distance as a buffer around the project's ESL, an estimated 49.5 acres would be subject to harassment from auditory disturbance. At Locations 1, 2, and 3 some of this buffer area includes the streambed of the South Fork of the Eel River, where these species are not expected to nest or roost.

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General Protective Measures:

1. To prevent take of sensitive species, construction of the proposed project will occur between June 15 and January 31 of each construction season. MBGR installation (at 7 of the 16 bridge rail ends) would occur between August 16 and January 31 of each construction season (with a daily work window beginning 2 hours post-sunrise and ending 2 hours pre-sunset from August 16 through September 15).
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3. Night work will not be conducted, except for the use of a generator to power a temporary traffic signal at Location 4.
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5. Prior to the start of construction, a qualified biologist will conduct training for all construction personnel regarding sensitive biological resources present within and adjacent to the ESL. The training will include a description of the resource and the general measures that are being implemented to avoid and minimize impacts to the resource.

With implementation of these measures, Caltrans has determined it is unlikely that construction of the proposed project would result in the take of marbled murrelet, northern spotted owl, Townsend's big-eared bat, or Pacific fisher. Please let me know if you concur. I look forward to speaking with you soon. Thank you again for your assistance with all of this.

Thank you,
Jennifer

Jennifer Osmondson | Biologist

Appendix D – Category 2 Reporting Form

CATEGORY 2: POST-PROJECT REPORTING FORM

Project POC and contact information:

Name: Jennifer Osmondson Email: Jennifer_Osmondson@dot.ca.gov Phone: (530) 740-4807

Location (District, County, Route, Post Mile): District 1, Humboldt, 254, Post Miles 0.88, 10.43, 10.88, 43.02

Stream Name(s): Ohman Creek, Elk Creek, Bridge Creek (tributaries of the South Fork of the Eel River, Bridge Creek (tributary of the Eel River)

Watershed(s): South Fork Eel (18010106 HUC), Lower Eel (18010105 HUC)

Project type checklist:

Check project type and fill associated field(s) below (you can check more than 1)

Cleaning (removal of material below the OHWL with heavy equipment when all life stages of listed fish are absent)

Volume of material removed in cubic yards (*must be between 2 and 5 cubic yards*): _____

Vegetation and LWD Management (vegetation removal outside of the wetted channel within and 20 linear feet of a bridge or culvert with hand tools)

Area of vegetation removal within 150 linear feet of the OHWL in square feet (*must be below 5,000 square feet*): Minor trimming of vegetation may be necessary during construction of the proposed project.

Grading for Access Roads and Construction of Settling Basins and Storage Areas

(grading above the OHWL and outside of wetted channels and designated critical habitat)

Graded area within 150 linear feet of OHWL in square feet (*must be below 5,000 square feet*):

Installation of erosion control materials (placement of erosion control materials in designated critical habitat and outside of the wetted channels)

Type of materials installed (*RSP, sheet piles, or retaining walls may not be placed designated critical habitat*) _____

Drilling Geotechnical Test Holes (geotechnical drilling below the OHWL or within designated critical habitat)

Number of holes and specific location (*geotechnical drilling may not take place in wetted channels*) _____

Dewatering and Fish Relocation (dewatering and fish relocation outside

CATEGORY 2: POST-PROJECT REPORTING FORM

Page 2

anadromous fish waters or designated critical habitat)

List of fish species, approximate length, and approximate number handled (*listed fish may not be handled-anadromous fish may be handled if they are not listed **potentially an option in Klamath and Smith watersheds*) _____

X ***Rehabilitation, Retrofit, and Repair of Culverts and Bridges*** (rehabilitation, retrofit, or repair of culvert or bridge superstructures within anadromous waters or designated critical habitat)

List of structures rehabilitated, retrofitted, or repaired (*activities may not occur below the OHWL*): Bridge railings of Ohman Creek bridge, Elk Creek bridge, Bridge Creek bridge, and Bear Creek bridge will be replaced. Bridge abutments will be widened at Ohman Creek, in order to match the new width of the bridge.

_____ ***Replacement of Culverts and Bridges*** (replacement of culverts and bridges in non-fish bearing streams).

Brief description of culvert or bridge replacement: _____

**Attachment 1
Post-Construction Reporting Form**

	Additional Best Management Practices (ABMPs)
1	ABMP-1.1: Equipment will be operated during the least sensitive diurnal, seasonal, and meteorological periods relative to the potential effects on listed species and habitat if feasible.
2	ABMP-1.2: Equipment will not operate in sensitive areas or habitats, such as wetlands and surface waters (Note: if equipment is necessary in waters or wetlands, see Project Action-14).
3	ABMP-1.3: Equipment will be inspected on a daily basis for leaks and completely cleaned of any external petroleum products, hydraulic fluid, coolants, and other deleterious materials prior to operating equipment.
4	ABMP-1.4: A Spill Prevention, Control, and Countermeasures (SPCC) Plan will be developed for each project that requires the operation of construction equipment and vehicles. The SPCC Plan will be kept on-site during construction and the appropriate materials and equipment will also be on-site during construction to ensure the SPCC Plan can be implemented. Personnel will be knowledgeable in the use and deployment of the materials and equipment so response to an accidental spill will be timely.
5	ABMP-2.1: Maintenance and construction activities will be avoided at night to the extent practicable.
6	ABMP-2.2: When night work cannot be avoided, disturbance of listed species will be avoided and minimized by restricting substantial use of temporary lighting to the least sensitive seasonal and meteorological windows.
7	ABMP-2.3: Lights on work areas will be shielded and focused to minimize lighting of listed-species habitat.
8	ABMP-3.1: Maintenance and fueling of construction equipment and vehicles will occur at least 15 meters from the Ordinary High Water Line (OHWL) or the edge of sensitive habitats (e.g., wetlands).
9	ABMP-5.1: Sediment and debris removed from the roadway will be disposed of off-site, at an approved location, where it cannot enter surface waters.
10	ABMP-6.1: Falsework will be installed to keep bridge debris and construction, maintenance, and repair materials from falling into streams during demolition, construction, and substantial maintenance and repair activities.
11	ABMP-10.1: Trees as identified in any special contract provisions or as directed by the Project Engineer will be preserved.
12	ABMP-10.4: Environmentally Sensitive Areas will be fenced to prevent encroachment of equipment and personnel into wetlands, riparian areas, stream channels and banks, and other sensitive habitats.
13	ABMP-10.5: Vegetation will be mowed to a height greater than 4 inches.
14	ABMP-10.6: Soil compaction will be minimized by using equipment that can reach over sensitive areas and that minimizes the pressure exerted on the ground.
15	ABMP-10.7: Where soil compaction is unintended, compacted soils will be loosened after heavy construction activities are complete.
16	ABMP-10.8: Where vegetation removal is temporary to support construction activities, native species will be re-established that are specific to the project location and that comprise a diverse community of woody and herbaceous plants.
17	ABMP-11.1: Storage areas will disturb less than 2.5 acres of vegetated or currently

Attachment 1
Post-Construction Reporting Form

Additional Best Management Practices (ABMPs)	
	undisturbed area.
18	ABMP-11.2: Storage areas will not disturb wetlands or other special status plant communities.
19	ABMP-11.3: For permanent storage areas that have been filled to capacity with sediment and debris, the final configuration will conform to natural contours (elevations, profile, and gradient) of surrounding terrain and native plant species will be established that are specific to the project location and comprise a diverse community of woody and herbaceous plants.
20	ABMP-11.4: Construction staging and storage areas will be located a minimum of 150 feet from the OHWL and other sensitive habitats (e.g., wetlands).
21	ABMP-13.1: Temporary access and detours will be located a minimum of 50 feet from the OHWL and other sensitive habitats (i.e. wetlands).
22	ABMP-29.1: The proposed guidance document (described in Caltrans [2010] Programmatic BA) will be followed to ensure compliance with Project permits and authorization, including implementation of the BMPs.
23	ABMP-29.2: Before construction activities begin, the project environmental coordinator or biologist will discuss the implementation of the required BMPs with the maintenance crew or construction resident engineer and contractor, and identify and document environmentally sensitive areas and potential occurrence of listed species.
24	ABMP-29.3: Before construction activities begin, the project environmental coordinator or biologist will conduct a worker awareness training session for all construction personnel that describes the listed species and their habitat requirements, the specific measures being taken to protect individuals of listed species in the project area, and the boundaries within which project activities will be restricted.
25	ABMP-29.4: Caltrans will designate a biological monitor to monitor on-site compliance with all Project BMPs and any unanticipated effects on listed species.
26	ABMP-29.5: Non-compliance with BMPs and unanticipated effects on listed species will be reported to the resident engineer or maintenance supervisor immediately.
27	ABMP-29.6: When non-compliance is reported, the resident engineer or maintenance supervisor will implement corrective actions immediately to meet all BMPs; where unanticipated effects on listed species cannot be immediately resolved, the resident engineer or maintenance supervisor will stop work that is causing the unanticipated effect until the unanticipated effects are resolved.

Appendix E – Inventory and Reporting Form

Inventory and Reporting Form:
Report on Project Activities to be Covered by the Arcata FWO Programmatic LOC
(AFWO-12B0001-12I0001)

Project Name: Avenue of the Giants – Four Bridges Project	EA or Federal Aid Number: 01-43060
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Local Assistance Project? No

Project Lead and Contact Information:

Name: Jennifer Osmondson, Project Biologist	Email: Jennifer_Osmondson@dot.ca.gov	Phone: (530) 740-4807
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Federal Action Agency:

- Caltrans
 US Army Corps of Engineers

Project Location (District, County, Route, Begin Post Mile and End Post Mile):

01-HUM-254-PM 0.88/43.02

Watershed: 18010106 (South Fork Eel HUC), 18010105 (Lower Eel HUC)	Stream name: Location 1 - Ohman Creek, Location 2 - Elk Creek, Location 3 - Bridge Creek, Location 4 - Bear Creek
Topo Location: Location 1 - Miranda 7.5-minute U. S. Geological Survey (USGS) quadrangle, Township 3S, Range 4E, Section 19. Location 2- Myers Flat 7.5-minute U. S. Geological Survey quadrangle, Township 2S, Range 3E, Section 21. Location 3 - Myers Flat 7.5-minute U. S. Geological Survey, Township 2S, Range 3E, Section 20. Location 4 - Red Crest 7.5-minute U. S. Geological Survey, Township 1N, Range 2E, Sections 29, 32.	Lat/long Location: Location 1 – 40.19, 123.77; Location 2 – 40.28, 123.85; Location 3 – 40.28, 123.86; Location 4 – 40.43, 123.98

Brief Project Description:

The California Department of Transportation is proposing a project to upgrade the bridge railings at four locations on State Route 254 in Humboldt County: Ohman Creek (Bridge No. 4-7, Post Mile (PM) 0.88), Elk Creek (Bridge No. 4-8, PM 10.43), Bridge Creek (Bridge No. 4-9, PM 10.80), and Bear Creek (Bridge No. 4-12, PM 43.02). The proposed project will include upgrading bridge railing, upgrading guard railing (including crash cushions,) and repaving the existing roadway approximately 200 feet on each side of the bridges.

NES Attached? Yes

Date NES Signed: 7/10/2014

STEVE Fields Updated: Yes

Date: 7/10/2014

Proposed Activity Type Seeking Coverage by the PLOC (check all that apply):

Construction Season Pre- and Post-Project Noise Levels

The existing ambient noise levels within the Environmental Study Limits (ESL) for the proposed project range from 67 to 95 decibels (dB). Equipment expected to be used during construction of the proposed project will generate noise at levels ranging from 80 to 95 dB. The completed project will not increase noise levels above their current level.

Best Management Practices (BMPs) to be Incorporated into the Proposed Project

Concrete Finishing (NS-14)

Description

Concrete finishing methods are used for bridge deck rehabilitation, paint removal, curing compound removal, and final surface finish appearances. Methods include sand blasting, shot blasting, grinding, or high pressure water blasting. Proper procedures minimize the impact that concrete finishing methods may have on runoff.

Appropriate Applications

These procedures apply to all construction locations where concrete finishing operations are performed.

Limitations

Specific permit requirements may be included in the contract documents for certain concrete finishing operations.

Implementation

- Follow containment requirements stated in the project special provisions, if any.
- Collect and properly dispose of water and solid waste from high-pressure water blasting operations.
- Collect water from blasting operations and transport or dispose of water in a non-erodible manner. Refer to BMPs SS-9, "Earth Dikes/Drainage Swales & Lined Ditches," SS-10, "Outlet Protection/Velocity Dissipation Devices," and SS-11, "Slope Drains."
- Direct water from blasting operations away from inlets and watercourses to collection areas for removal (e.g., dewatering) as approved in advance by the RE and in accordance with applicable permits.
- Protect inlets during sandblasting operations. Refer to BMP SC-10, "Storm Drain Inlet Protection."
- Refer to BMP WM-8, "Concrete Waste Management"
- Minimize the drift of dust and blast material as much as possible by keeping the blasting nozzle close to the surface.
- When blast residue contains a potentially hazardous waste, refer to BMP WM-6, "Hazardous Waste Management"

Maintenance and Inspection

- Follow inspection procedure as required in the project special provisions.
- At a minimum, inspect containment structures, if any, for damage or voids prior to use each day and prior to the onset of rain.
- At the end of each work shift, remove and contain the liquid and solid wastes from containment structures, if any, and from the general work area.
- Discharges to waterways will be reported to RE immediately upon discovery. A written discharge notification must follow within 7 days or as required by special provisions.

Concrete Waste Management (WM-8)

Description

Concrete waste management procedures and practices are designed to minimize or eliminate the discharge of concrete waste materials to storm drain systems or watercourses.

Appropriate Applications

Concrete waste management practices are typically implemented on construction projects where concrete is used as a construction material or where concrete dust and debris result from demolition activities.

Implementation

- Portland cement concrete and asphalt concrete waste will not be allowed to enter storm water drainages or watercourses.
- Portland cement concrete waste will be collected and properly disposed of or placed in a temporary concrete washout facility as shown conceptually in Figure 4-14 of the *Guidelines*.
- Asphalt concrete waste will be collected and properly disposed of.
- A sign will be installed adjacent to each temporary concrete washout facility to inform concrete equipment operators to utilize the proper facilities.
- Below-grade concrete washout facilities are typical. Above-grade facilities are used if excavation is not practical.
- A foreman and/or construction supervisor will monitor on-site concrete working tasks, such as saw cutting, coring, grinding and grooving to ensure proper methods are implemented.

Maintenance

A foreman and/or construction supervisor will monitor on-site concrete waste storage and disposal procedures.

Material Delivery and Storage (WM-1)

Description

Material delivery and storage procedures and practices are designed for the proper handling and storage of materials in a manner that minimizes or eliminates the discharge of these materials to storm water drainage systems or watercourses.

Appropriate Applications

These procedures are typically implemented at all construction sites with delivery and storage of pesticides, fertilizers, detergents, plaster, petroleum products, asphalt and concrete components, hazardous chemicals, concrete compounds or other materials that may be detrimental if released to the environment.

Implementation

- Liquids, petroleum products, and substances listed in 40 CFR Parts 110, 117, or 302 will be stored in approved containers and drums and will not be overfilled. Containers and drums will be placed in temporary containment facilities for storage.
 1. A temporary containment facility will provide for a spill containment volume able to contain precipitation from a 24-hour, 25-year storm event, plus the greater of 10% of the aggregate volume of all containers or 100% of the capacity of the largest container within its boundary, whichever is greater.
 2. A temporary containment facility will be impervious to the materials stored there for a minimum contact time of 72 hours.
 3. A temporary containment facility will be maintained free of accumulated rainwater and spills. In the event of soil spills or leaks, accumulated rainwater and spills will be collected and placed into drums. These liquids will be handled as a hazardous waste unless testing determines to be non-hazardous. Non-hazardous liquids will be sent to an approved disposal site.
 4. Sufficient separation will be provided between stored containers to allow for spill cleanup and emergency response access.
 5. Incompatible materials, such as chlorine and ammonia, will not be stored in the same temporary containment facility.
 6. Throughout the rainy season, each temporary containment facility will be covered during nonworking days and prior to rain events.
 7. Materials will be stored in their original containers and the original product labels will be maintained in place in a legible condition. Damaged or otherwise illegible labels will be replaced immediately.
- Bagged and boxed materials will be stored on pallets and will not be allowed to accumulate on the ground.
- To provide protection from wind and rain, throughout the rainy season, bagged and boxed materials will be covered during nonworking days and prior to rain events.

- Storage areas will be kept clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners will be repaired or replaced as needed to maintain proper function.

Maintenance

- Check to ensure that designated storage areas are kept clean and well organized.
- Repair and/or replace perimeter controls, containment structures, and covers as needed to keep them functioning properly.

Paving Operations Procedures (NS-3)

Description

Paving operations procedures are designed to minimize pollution of storm water runoff during paving operations.

Appropriate Applications

These procedures are typically implemented where paving, surfacing, resurfacing, or sawcutting may pollute storm water runoff or discharge to storm drain systems or watercourses.

Implementation

- Substances used to coat asphalt transport trucks and asphalt spreading equipment will not contain soap and will be nonfoaming and nontoxic.
- Drainage inlet structures and manholes will be covered when seal coat, tack coat, slurry seal or fog seal is applied to adjacent surfaces. Seal coat, tack coat, slurry seal, or fog seal will not be applied if rainfall or thunderstorms are predicted to occur during the application or curing period.
- Protect drainage inlet structures and maintenance holes during paving operations, including when seal coat, tack coat, slurry seal or fog seal is applied to adjacent surfaces.
- Seal coat, tack coat, slurry seal or fog seal should not be applied if rainfall is predicted to occur during the application or curing period.
- When using asphalt release agents (e.g., citrus, soy-based or diesel) for cleaning and coating of equipment and tools, all products and by-products will be captured and reused, recycled, or disposed in accordance with the requirements of the Hazardous Waste Management BMP.
- Scrape residual material out of equipment using dry methods.
- Clean pavers over absorbent pads, drip pans, plastic sheeting or other materials to collect the asphalt release agents. Dispose removed material in accordance with the Hazardous Waste Management BMP.

- Pick up and reuse, recycle, or dispose of cured material in accordance with the Solid Waste Management BMP.
- Prevent water used to clean emulsion kettles from discharging into drain inlets or watercourses. Diesel oil used in kettle cleaning will be contained and reused, recycled, or disposed of in accordance with the Hazardous Waste Management BMP.

Maintenance

- Maintain machinery regularly to minimize leaks and drips.
- Ensure that employees and subcontractors are implementing appropriate measures during paving operations.

Preservation of Existing Vegetation (SS-2)

Description

Preservation of existing vegetation is the identification and protection of desirable vegetation that provides erosion and sediment control benefits.

Appropriate Applications

- Preserve existing vegetation at areas on a site where no construction activity is planned or where it will occur at a later date.
- As described in Section 4.3.2, on a year-round basis temporary fencing will be provided prior to the commencement of clearing and grubbing operations or other soil-disturbing activities in areas where no construction activity is planned or will occur at a later date.

Implementation

The following general steps will be taken to preserve existing vegetation:

- Mark areas to be preserved with orange polypropylene temporary fencing.
- Minimize disturbed areas by locating temporary roadways to avoid stands of trees and shrubs and to follow existing contours to reduce cutting and filling.
- Construction materials and equipment storage and parking areas will be located where they will not cause root compaction.
- Keep equipment away from trees to prevent trunk damage and root damage.
- Consider the impact of grade changes to existing vegetation and the root zone.
- Disturbed vegetation outside the active area will be replaced using the appropriate soil stabilization measures.

Maintenance

Ensure that the limits of disturbance are clearly marked. Irrigation or maintenance of existing vegetation will conform to the requirements in the landscaping plans.

Scheduling and Planning (SS-1)

Description

This BMP involves a schedule for every project that considers sequencing of construction activities with the installation of erosion and sediment control measures. The purpose is to reduce the amount and duration of soil exposed to erosion by wind, rain, runoff and vehicle tracking and to perform the construction activities and control practices in accordance with the planned schedule.

Appropriate Applications

Construction sequencing will typically be scheduled to minimize land disturbance for all projects during the winter season.

Implementation

- Consider scheduling work items such as clearing and grubbing, grading and excavation to minimize the active construction area during the rainy season.
- Minimize soil-disturbing activities during the rainy season.
- Consider scheduling when establishing permanent vegetation (appropriate planting time for specified vegetation).

Maintenance

- Verify that work is progressing in accordance with the schedule. If progress deviates, take corrective actions.
- When changes are warranted, amend the sequence scheduling in advance to maintain sediment control.

Vehicle and Equipment Fueling (NS-9)

Description

Vehicle and equipment fueling procedures and practices are designed to minimize or eliminate the discharge of fuel spills and leaks into storm drain systems or watercourses.

Appropriate Applications

These procedures are typically applied on all construction sites where vehicle and equipment fueling takes place.

Implementation

- Drip pans will be used during vehicle and equipment fueling unless the fueling is performed over an impermeable surface in a dedicated fueling area. Dedicated fueling areas will be protected from storm water run-on and runoff and will be located at least 15m from downstream drainage facilities or watercourses.
- Nozzles used in vehicle and equipment fueling will be equipped with an automatic shutoff to control drips.

- Fueling operations will not be left unattended.
- Absorbent spill cleanup materials will be available in fueling and maintenance areas and will be disposed properly after use.
- Vehicles and equipment leaks will be inspected and cleaned up on each day of use. Leaks will be repaired immediately or problem vehicles or equipment will be removed from the project site.

Maintenance

- Keep an ample supply of spill cleanup material on-site.
- Immediately clean up spills and properly dispose of contaminated soil and cleanup material.

Vehicle and Equipment Maintenance (NS-10)

Description

Vehicle and equipment maintenance procedures and practices are designed to minimize or eliminate the discharge of pollutants to storm drain systems or watercourses from vehicle and equipment maintenance procedures.

Appropriate Applications

These procedures are typically applied on all construction projects where an on-site yard area is necessary for storage and maintenance of heavy equipment and vehicles.

Implementation

- Drip pans will be used during vehicle and equipment maintenance work that involves fluids unless the maintenance work is performed over an impermeable surface in a dedicated maintenance area. Dedicated maintenance areas will be protected from storm water run-on and runoff and will be located at least 15m from downstream drainage facilities or watercourses.
- Drip pans will be placed under all vehicles and equipment placed on docks, barges, or other structures over water bodies when the vehicle or equipment is planned to be idle for more than one hour.
- Vehicles and equipment leaks will be inspected on each day of use. Leaks will be repaired immediately or problem vehicles or equipment will be removed from the project site.

Maintenance

- Maintain waste fluid containers in leak-proof condition.
- Check equipment for damaged hoses and leaky gaskets routinely. Repair or replace as needed.

Additional BMPS to be Incorporated into the Proposed Project

ABMP-1.1: When practicable, operate equipment during the least sensitive diurnal, seasonal, and meteorological periods relative to the potential effects on listed species and habitat.

ABMP-2.1: When practicable, avoid maintenance and construction activities at night when construction windows allow.

ABMP-2.2: When night work cannot be avoided, avoid and minimize disturbance of listed species by restricting substantial use of temporary lighting to the least sensitive seasonal and meteorological windows (Table 1-5) allowing for crew safety.

ABMP-2.3: Lights on work areas will be shielded and focused to minimize lighting of listed- species habitat to the extent practicable to ensure safety of workers.

ABMP-6.1: Consistent with state agency approvals, install collection devices or use other methods to keep bridge debris and construction and maintenance materials from falling into streams during demolition, construction, and substantial maintenance activities.

ABMP-10.1: Preserve trees as identified in the plans or any special contract provisions or as directed by the Resident Engineer.

ABMP-10.4: Environmentally Sensitive Areas will be fenced where appropriate, or otherwise physically protected to prevent encroachment of equipment and personnel into wetlands, riparian areas, stream channels and banks, and other sensitive habitats to the maximum extent practicable.

ABMP-10.6: Minimize soil compaction by using equipment that can reach over sensitive areas and minimizes the pressure exerted on the soil where practical.

Select equipment that reduces the amount of pressure exerted on the ground surface, and therefore, reduces erosion potential and/or use overhead or aerial access for transporting equipment across drainage channels. Use equipment that exerts ground pressures of less than 5 or 6 pounds per square inch (PSI), where possible. Low ground pressure equipment includes: wide or high flotation tires (860 to 1850 mm [34 to 72 in] wide); dual tires; bogie axle systems; tracked machines; lightweight equipment; and, central tire inflation systems. (Construction Site BMP Manual, March 1, 2003.)

ABMP-11.1: Temporary storage areas will disturb less than 10,000 square meters (2.5 acres) of naturally vegetated area.

ABMP-11.2: Temporary storage areas will not disturb wetlands or other special status plant areas.

ABMP-14.2: Use existing roadways and stream crossings for temporary access roads whenever safe and impacts to listed species are avoided or minimized to an acceptable level as determined by the project biologist.

ABMP-14.3: Minimize the number of access and egress points and total area affected by vehicle operation. Locate disturbed areas to reduce damage to existing native aquatic vegetation, substantial large woody debris, and spawning gravel.

ABMP-14.4: To the extent practicable, clean culverts and bridge abutments and piers and place RSP and other bank protection by working from the top of the bank or bridge if possible.

ABMP-14.5: Limit the duration and extent of in-water activities to the maximum extent practicable.

ABMP-14.8: Restore modified or disturbed portions of streams, banks, and riparian areas as nearly as possible to their natural contours.

ABMP-28.1: If individuals of listed species may be present and subject to potential injury or mortality from construction activities, a qualified biologist will conduct a preconstruction survey.

ABMP-28.2: Minimum qualifications for the qualified biologist will include a 4-year college degree in biology and any necessary permits.

ABMP-29.1: Follow the guidance document, developed in cooperation with NOAA Fisheries, USFWS, Corps, and FHWA, to ensure compliance with Program permits and authorization, including implementation of the environmental commitments.

ABMP-29.2: Before construction activities begin, the Project Environmental Coordinator or Biologist will discuss the implementation of the required Environmental Commitments with the Maintenance crew or Construction Resident Engineer and Contractor, as well as notification and other procedural requirements, and identify and document Environmentally Sensitive Areas and potential occurrence of listed species.

ABMP-29.3: Before construction activities begin, the Project Environmental Coordinator or Biologist will conduct a worker awareness training session for all construction and maintenance personnel that describes the listed species and their habitat requirements, the specific measures being taken to protect individuals of listed species in the project area, and the boundaries within which project activities will be restricted.

ABMP-29.4: Caltrans will designate or approve a biological monitor to monitor on-site compliance with all Program Environmental Commitments and any unanticipated effects on listed species.

ABMP-29.5: Non-compliance with environmental commitments and unanticipated effects on listed species will be reported to the Resident Engineer or Maintenance Supervisor

immediately.

ABMP-29.6: When non-compliance is reported, the Resident Engineer or Maintenance Supervisor will implement corrective actions as soon as feasible to meet all Environmental Commitments. Where unanticipated effects on listed species cannot be immediately resolved, the Resident Engineer or Maintenance Supervisor will stop work that is causing the unanticipated effect.

ABMP-29.7: If unanticipated effects on listed species violate the terms and conditions in the BO or other confirmed take authorization, NOAA Fisheries, USFWS, and DFG will be notified as soon as is reasonably possible. Modifications to project activities may be developed to prevent continued unanticipated effects.

- Routine Maintenance Activities including Resurfacing, Installation of Guard Rails, Shoulder Widening, and Striping
- Cleaning Activities
- Slide and Slipout Abatement and Repair
- Drainage System Maintenance, Repair, and Replacement
- Bridge Repair, Maintenance, and New Construction
- Vegetation Management
- Grading and Establishment of Staging and Storage Areas
- Geotechnical Drilling
- Grading of Existing Permanent and Establishment of New Temporary Access Roads and Traffic Detours
- Construction of Settling Basins
- Installation of Rock Slope Protection/Erosion Control Materials
- Emergency Repair

Species Seeking Coverage by the PLOC for Activities Identified Above:

California Red-legged Frog, Marbled Murrelet, Northern Spotted Owl, Western Snowy Plover, Tidewater Goby, Pt. Arena Mountain Beaver

Species	All Species Criteria Met? (Y/N)	Critical Habitat Present? (Y/N)	BMPs Implemented*	ABMPs Implemented*
Northern spotted owl	yes	no	NS-14, WM-8, WM-1, NS-3, SS-2, SS-1, NS-9, NS-10	Please see attached list of ABMPs
Marbled murrelet	yes	yes	NS-14, WM-8, WM-1, NS-3, SS-2, SS-1, NS-9, NS-10	Please see attached list of ABMPs

*(List all that apply and use Programmatic Biological Assessment numbering system; for MAMU and NSO must identify construction season and pre- and post- project noise levels) [Click here for Caltrans 2010 Routine Maintenance Programmatic Biological Assessment to look up BMP numbering](#)

Species and Associated Project Activities that Will Result in a Separate Section 7 Consultation and NOT Seeking coverage by the PLOC (from species list above):

Species	Project Activity Type	Date of Separate BA Submittal?
Click here to enter text.		

MAMU or NSO Affected Critical Habitat (acres*): N/A

*Need to report this to AFWO, Gregg Schmidt

	Effect (acres)		Habitat (acres)	
	Permanent	Temporary	Nesting	Foraging
MAMU				
NSO				

Notification Process:

- Email to HQ Senior Biologist and North Region Senior Biologist
Date: 7/10/2014 Names: Keith Pelfrey, North Region Senior Resource Biologist
- Copy of this form saved to project file
Date: 7/10/2014
- Copy of this form emailed to Arcata FWO
Date: [Click here to enter a date.](#)
- Copy of this form emailed to USACE San Francisco Office (Only required if USACE is Federal Lead)
Date: [Click here to enter a date.](#)

Contacts:

North Region Senior Resource Biologist: Keith Pelfrey, (530) 225-2085
HQ Sr. End Species Specialist: James Henke, (916) 653-6121
HQ Sr. End Species Specialist: Amy Golden, (916) 653-8566
Office of Biological Studies, Chief: Melinda Molnar, (916) 651-8166
Arcata FWO Biologist: Gregg Schmidt: (707) 825-5103

Instructions:

- If 404 Permit is required, send a copy of this form to the San Francisco USACE Office
- Submit a copy of this form with the NES to the North Region Senior Biologist for review