Cedar Creek Arch Culvert Repair

U.S. 101 in Mendocino County
District 01-MEN-101-PM 89.2
01-0C370 / 0112000283

Initial Study with
Proposed Mitigated Negative Declaration

Prepared by the
State of California Department of Transportation

Caltrans

December 2014

General Information About This 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 alternative being considered for the proposed project located in Mendocino County, California. The document describes why the project is being proposed, the alternative for the project, the existing environment that could be affected by the project, the potential impacts from each of the alternatives, and the proposed avoidance, minimization and/or mitigation measures.

What should you do?

- Please read this Initial Study with Proposed Mitigated Negative Declaration. Copies of the document are available at the locations listed below. Individual technical studies can be requested by contacting Jason Meyer at (707) 445-6322, or at jason_meyer@dot.ca.gov.

  1) California Department of Transportation, 1656 Union St., Eureka, CA
  2) Humboldt County Library, Eureka Branch, 1313 3rd St., Eureka, CA
  3) Mendocino County Library, Willits Branch, 390 East Commercial St., Willits, CA
  4) Garberville Library, 715 Cedar St., Garberville, CA
  5) www.dot.ca.gov/dist1/d1projects/envdocs.htm

- If you have any comments regarding the proposed project, please send your comments to Caltrans by the document review deadline: January 5, 2015.
- Submit comments via postal mail to:

  Jason Meyer, Associate Environmental Planner
  California Department of Transportation, Environmental Management Branch E1
  P.O. Box 3700, Eureka, CA 95502-3700

  Submit comments via email to jason_meyer@dot.ca.gov .

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 is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Jason Meyer, 1656 Union St. Eureka, CA 95501, or (707) 445-6322 or use the California Relay Service TTY number, 711.

Cedar Creek Arch Culvert Repair

01-MEN-1 PM 89.2
EA 0C370

INITIAL STUDY with Proposed Mitigated Negative Declaration

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

THE STATE OF CALIFORNIA
Department of Transportation

11/21/2014
Date of Approval

Sandra Rosas, Office Chief
North Region Environmental Services—North
California Department of Transportation

Proposed Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) is proposing to repair the concrete culvert invert as well as provide fish passage restoration work within the culvert and downstream channel on United States (US) Route 101 (post mile 89.2) at Cedar Creek in Mendocino County. Cedar Creek currently crosses US 101 through a 22-foot wide, 763-foot long reinforced concrete culvert. The existing Denil fish ladder, the concreted rock slope protection outlet apron, culvert weirs, and 4 foot drop at the apron are fish passage barriers for some life stages of federally and state protected fish species. Additionally, the inverts within the culvert are deteriorating due to the sediment load. The project would be accomplished by removing the existing spill apron, fish ladder and interior weirs, and repairing the culvert invert, constructing a new arrangement of vortex weirs through the culvert and extending 180 feet downstream, allowing for all life stages of fish to pass.

Determination

This proposed Mitigated Negative Declaration (MND) is included to give notice to interested agencies and the public that it is Caltrans's intent to adop a MND for this project. This does not mean that Caltrans's decision regarding this 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 no effect on agricultural resources, air quality, cultural resources, geology/soils, floodplain, land use/planning, mineral resources, noise, population/housing, hazardous materials, public services, visual resources, recreation, transportation/traffic, or utilities/services systems.
- The proposed project would have a less than significant impact with mitigation on biological resources, and on hydrology/water quality.

The following avoidance and minimization measures, which, as defined by the California Environmental Quality Act (CEQA), are mitigation measures, have been included in the project:

- Biological Resources: Construction would be limited to certain months of the year, biological monitoring, revegetation of disturbed soils with native plant species, and creek diversion and fish relocation during construction.

- Hydrology/Water Quality: Soil stabilization, sediment control, non-storm water management, waste management and material pollution control, turbidity control, and fish weirs.

_____ _____

Sandra Rosas, Office Chief — Date
North Region Environmental Services—North
California Department of Transportation

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List of Abbreviated Terms

Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cfs	Cubic feet per second
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
USACE	U.S. Army Corps of Engineers
dbh	Diameter at breast height (~4 ft)
CDFW	California Department of Fish and Wildlife
EFH	Essential Fish Habitat
ESA	Environmentally Sensitive Area
ESU	Evolutionarily Significant Unit
FESA	Federal Endangered Species Act
NCRWQCB	North Coast Regional Water Quality Control Board
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NMFS	National Marine Fisheries Service
NPPA	Native Plant Protection Act
NRCS	National Resource Conservation Service
PLOC	USFWS Programmatic Letter of Concurrence
PM	Post Mile
PSR	Project Study Report
ROW	Right-of-way
USC	U.S. Code
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

Lead Agency Name, Address and Contact Person

California Department of Transportation
1656 Union St., Eureka, CA 95501
Jason Meyer, North Region Environmental Branch E-1

Chapter 1 Proposed Project

1.1 Purpose

The purpose of the project is to preserve the integrity of the culvert bottom (invert) and to remove barriers to the passage of fish through the culvert.

1.2 Need

The project is needed because the culvert's concrete invert and apron have eroded to the extent that reinforcement steel (rebar) is exposed in numerous locations, threatening the structural integrity of the culvert. According to the Bridge Inspection Reports, the inverts of pools throughout the culvert have multiple exposed rebar ranging from 16 to 33 feet as a result of mobilized streambed abrasion. The outlet apron has a 3 to 4-foot area of abrasion with exposed rebar. The culvert is also a partial barrier to fish, which, pursuant to California Senate Bill 857, must be addressed if the culvert's use and maintenance is to be continued. Additionally, Section 5901 of the Fish and Game Code states it is unlawful to construct or maintain in any stream any device or contrivance that prevents, impedes, or tends to prevent or impede, the passing of fish up and down stream (CDFW 2013). The weirs, Denil fish ladder, and outlet apron and terminus plunge pool of Cedar Creek Culvert is an identified partial barrier to fish.

1.3 Project Description

This section describes the proposed project and the design alternatives that were developed by a multi-disciplinary team including the following Department divisions and disciplines: Design, Project Management, Environmental Specialists, Environmental Engineering, Construction, Structures Construction, Geotechnical Engineering, Structures Design, Hydraulics, Right of Way, Landscape Architecture, and Maintenance. The goal of this group is to meet the project purpose and need while avoiding or minimizing environmental impacts.

The proposed project involves a 21-foot high by 22.8-foot wide by 763-foot long concrete arch culvert at Cedar Creek on United States (US) Route 101 (PM R89.24) approximately 1.7 miles south of Leggett in Mendocino County (Figure 1.1 and 1.2). Cedar Creek Culvert is a single

barrel, cast-in-place, reinforced concrete (RC) arch culvert (Figure 1.3) founded on RC spread footings; it has a RC paved invert with 24 RC Weirs. The culvert is buried under 200' of fill, and the outlet of the culvert includes a Denil fish ladder and a RC paved apron that drops at the outlet (Figure 1.4).

Figure 1.1. Project Location Map

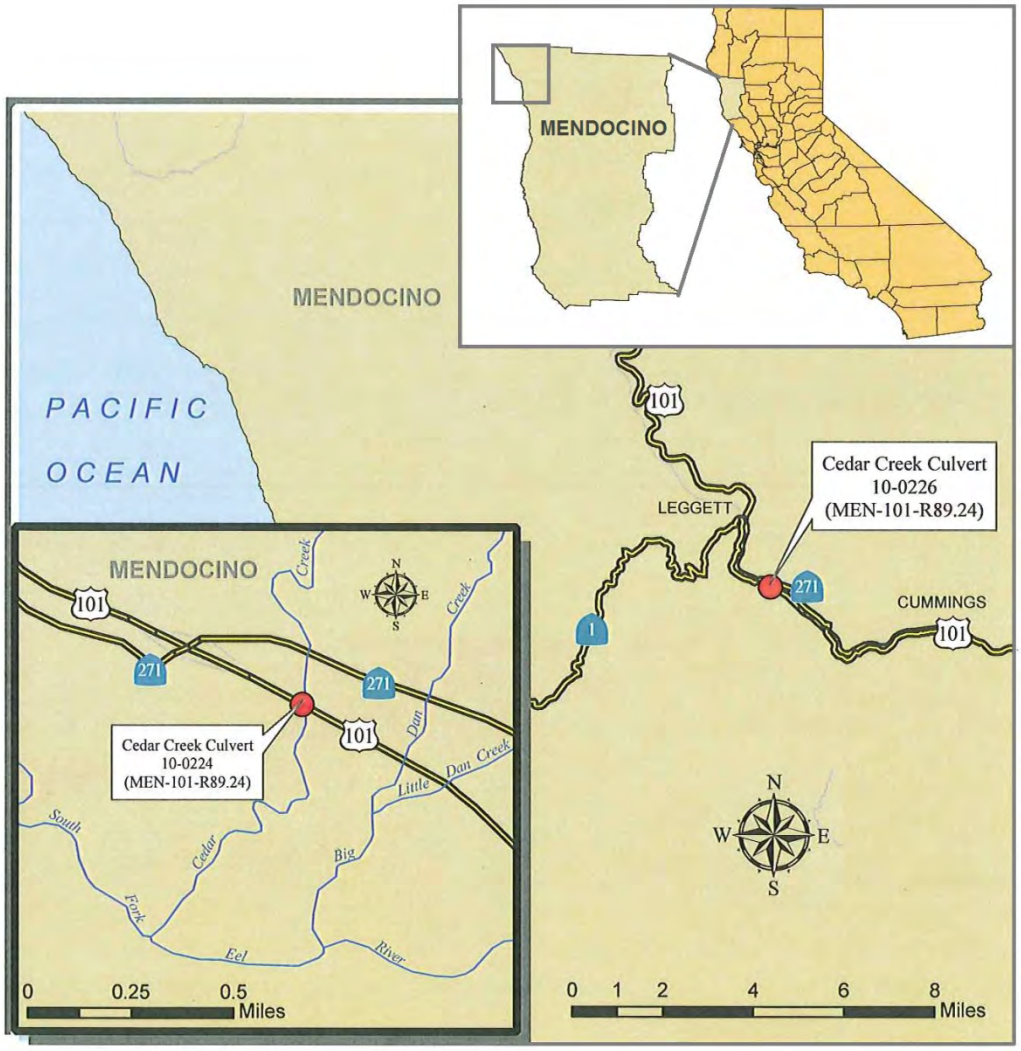
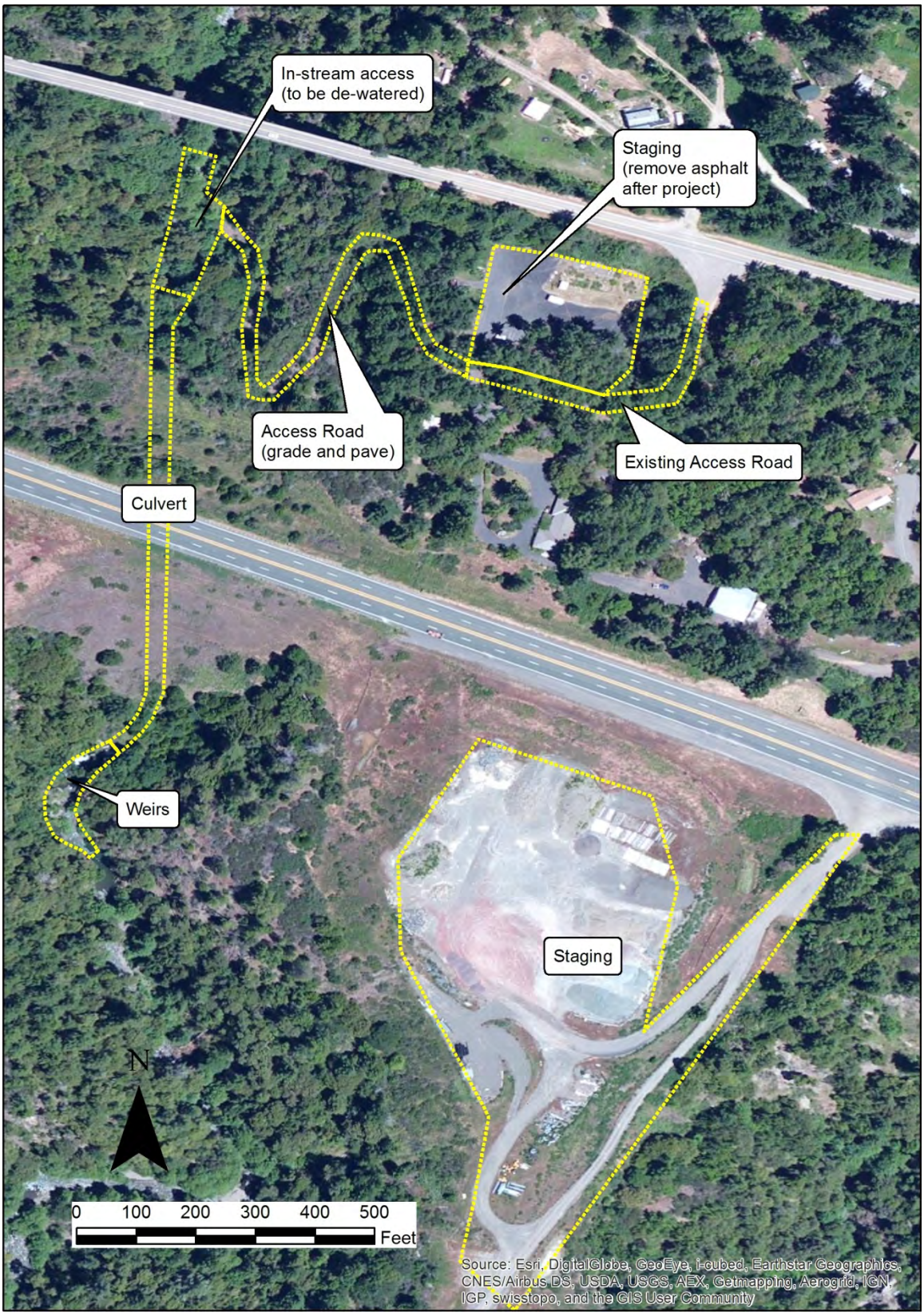


Figure 1.2. Project Area of Potential Impact Map



1.1.1 Existing Facilities

The Cedar Creek Culvert is located in the approximately 2 miles south of Leggett on US 101 in Mendocino County. The culvert is buried under 200 feet of fill and is 763 feet long, 22 feet wide and 21 feet high. The structure is a cast-in-place reinforced concrete (RC) arch culvert founded on a RC spread footing with a grade of 1.2%. The inlet has an emergency overflow and a shed containing a non-operational monorail carriage system that was used for special studies conducted in the early 1970s (Figure 1.3).

There are 24 existing steel-armored concrete fish weirs that form 'pools' within the culvert. The outlet has RC wing-walls, a 6% sloping concreted and reinforced rock slope protection (RSP) apron, and a RC Denil fish ladder (Figure 1.4). The fish ladder has an internal width of 3.9 feet, steel baffles, and a slope of 21%. The apron discharges over a 4 foot drop to a pool. The weirs, fish ladder, outlet apron, and plunge pool are identified as partial barriers to fish. The District 1 Pilot Fish Passage Assessment Study (Lang 2005) ranks Cedar Creek Culvert as 6th in priority in District 1.

Figure 1.3. Inlet of Cedar Creek Culvert

Figure 1.4. Outlet of Cedar Creek Culvert with Concrete Apron (left) and Denil Fish Ladder (right).

1.1.2 Project Design

This section describes the proposed project and the design that was developed by Caltrans to achieve the project purpose and need while avoiding or minimizing environmental impacts. In-water work will be necessary regardless of construction methods.

As recommended by Caltrans Structure Maintenance and Investigations (SMI), the culvert invert (bottom) will be repaired and reconstructed. The perimeter of areas of exposed rebar will be saw cut and the concrete removed to a minimum depth of 3/4" below the bottom of exposed rebar. The rebar will be cleaned of any corrosion, and the affected areas re-cast. The estimated invert repair area for each of the pools is 370 square-feet. With approximately 14 pools with exposed rebar adjacent to the footings, the total estimated area of invert repair is approximated to be 9500 square-feet. The repair area has been estimated at larger than that of the exposed rebar because the surrounding surface will be damaged to a depth just above the rebar. The existing monorail carriage system and shed may be removed during construction.

Fish passage restoration work on this project includes the removal of the existing weirs and replacement with new weirs. The culvert's new v-shaped (pointing upstream) vortex weirs (Figure 1.5) will be constructed of 1-foot thick reinforced concrete and armored with steel to resist impact damage from bed load and will be spaced at a distance of approximately 40-feet on center with 8 of the 23 weirs spaced at 20-feet on center to avoid cumulative wave effects. Just

behind the lowest point in the weirs the invert of the culvert will be armored with steel to shield against impact damage from bed load. The vortex weirs result in a wide range of velocities at different flow regimes to improve fish passage for diverse and age classes and species. The edges of the weirs will be rounded (see Appendix A) to facilitate passage for Pacific lamprey (*Entosphenus tridentatus*). A stream channel survey was obtained and used to determine the method and scope of the channel restoration work.

At the outlet of the culvert the existing concrete rock apron and Denil fish ladder will be removed and replaced with a concrete fishway to improve fish passage for all life stages. The fishway is proposed to be approximately 140 feet long and 30 feet wide to address the 10-foot drop at the outlet. A series of 13 vortex weirs will be constructed downstream of the culvert with 10-foot spacing and a drop between each weir of 8 inches (Appendix A). Two rock weirs spaced 25 feet apart with a drop of 1 foot will be installed downstream of the vortex weirs to transition into the natural channel.

The fishway with weirs will be concrete. The areas between the weirs (Appendix A) are expected to accumulate rock, cobble, sand and soil from the natural sources upstream but will have pools due to the geometry intrinsic to vortex weir fishways..

Fish passage criteria for salmonids and Pacific lampreys, were evaluated to maximize passage for different life stages. These structures will help assure that the channel design grade is maintained for the long-term.

Figure 1.5. Example of Vortex Weirs to be installed

During construction, the creek will need to be diverted into and conveyed through a large pipe(s) (± 30-inch diameter pipe) over the entire work area. A pipe length of about 900 feet is needed to dewater the inlet channel and culvert and an additional length of approximately 300feet to dewater the channel work area.

The existing 800-foot long access road is currently overgrown with vegetation (predominantly French broom and Spanish broom). The existing dirt access road will need to be cleared, re-graded and paved. A portion of the access near the top will be finished with rock. The paved access road will remain in place and pavement in a parking area at the top of the access road will be removed at the project completion. The amount of impervious surface removed will be equal to or greater than the total area of new pavement left as part of the access. A temporary construction easement for staging is expected to be acquired at the top of the dirt road on a flat open paved area near residential cabins (Appendix A). Stream channel and culvert construction material will have to be transported down the access road, through the culvert, and down the stream channel with off-road dump trucks (probably articulating trucks).

AREA OF DISTURBANCE: The project will involve an approximately 9600 square feet (0.22 acres) increase in impervious surface area from the paving of the existing access road. An equal amount of pavement will be removed near the project area in the Cedar Creek watershed to offset the increased impervious surface from the proposed paved access road. All other areas of disturbance will be within unvegetated stream channel.

VEGETATION REMOVAL: The access road is currently overgrown with brush—the upper half is dominated by Scotch and French broom with some coyote brush. The lower section of the access road is dominated by Himalayan blackberry and poison oak. This vegetation will be removed for the access road. Spanning the Cedar Creek channel, a large downed tree (Figure 1.6) will have to be removed, it may be used as instream large woody debris. The tree has a diameter of approximately two feet and has fallen across the channel between the end of the access road and the culvert inlet. The Cedar Creek diversion will begin just upstream of the access road. The reach of channel where the tree is located will be dewatered to allow equipment access to and through the arch culvert. No trees will be removed on the outlet side of the culvert, some small riparian shrubs such as alders and willows and live oak will be buried by the construction of the downstream weirs.

Figure 1.6. Fallen tree near Cedar Creek Arch Culvert inlet (looking upstream of culvert). This tree will be removed.

STAGING AREAS: A temporary construction easement for staging area for the upstream access is expected to be established at the courtyard of the residential area near the head of the access road off of Rte 271. Another larger staging area will be at the Caltrans material storage yard at Post Mile 89 west of US 101 (Figure 1.2 and Appendix A).

SITE CLEANUP AND RE-VEGETATION: Before acceptance of the contract, all construction debris will be removed and hauled from the site. The site would then be restored to a natural setting by re-grading, placing erosion control, and re-planting as needed.

EQUIPMENT LIST: The equipment likely to be used are as follows: excavator or similar excavating equipment, backhoes, haul and dump trucks, loaders, skid steers, air compressors, jack hammers, pavement saws, power saws, chain saws, welders, generators, gas and electric water pumps, drills, basic hand tools, fans, lighting, compacting equipment, paving equipment, vibratory rollers, graders, and concrete trucks.

WORKING DAYS: It is anticipated that construction will start in the spring 2016. The duration of the project is estimated at 200 working days. It is anticipated that two construction seasons will be required for the proposed work.

1.4 Permits and Approvals Needed

The permits, reviews, and approvals listed in Table 1.1 are needed for the project.

Table 1.1. Permits and Approvals Required

Agency	Permit/Approval	Status
U.S. Fish and Wildlife Service (USFWS)	Section 7 consultation for threatened and endangered species using a Programmatic Letter of Concurrence	Ongoing
National Marine Fisheries Service (NMFS)	Section 7 consultation for threatened and endangered species	Ongoing
U.S. Army Corps of Engineers (USACE)	Section 404 authorization for fill of waters of the United States	Not yet initiated
California Department of Fish and Wildlife (CDFW)	Section 1602 streambed alteration agreement, and consistency determination with biological opinion prepared by NMFS	Ongoing
North Coast Regional Water Quality Control Board (RWQCB)	Section 401 water quality certification	Not yet initiated

Chapter 2 Environmental Factors Potentially Affected

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

- [ ] Aesthetics
- [ ] Agricultural Resources
- [ ] Air Quality
- [X] Biological Resources
- [ ] Cultural Resources
- [ ] Geology/Soils
- [ ] Hazards and Hazardous Materials
- [X] Hydrology/Water Quality
- [ ] Land Use/Planning
- [ ] Mineral Resources
- [ ] Noise
- [ ] Population/Housing
- [ ] Public Services
- [ ] Recreation
- [ ] Transportation/Traffic
- [ ] Utilities/Service Systems
- [ ] Mandatory Findings of Significance

CEQA Environmental Checklist

01-MEN-101	89.2	0C370
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 projects 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, not NEPA, 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	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

"No Impact" determinations in this section are based on the Visual Impact Memo, December 2012. The majority of the project work is not visible from the roadway, because it is down in the creek.

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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

"No Impact" determinations are because there are no agricultural lands within the project area.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
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)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

"No Impact" determinations in this section are based on the Air Quality Checklist, June 2014.

The proposed project may result in the generation of short-term construction-related air emissions, including fugitive dust and exhaust emissions from construction equipment. Fugitive dust, sometimes referred to as windblown dust or PM10 (Particulate Matter 10), would be the primary short-term construction impact, which may be generated during excavation, grading and hauling activities. However, both fugitive dust and construction equipment exhaust emissions would be temporary and transitory in nature.

Implementation of the Caltrans Standard Specifications, an integral part of all construction contracts, is expected to effectively reduce emission impacts during construction. The provisions of Section 7-1.01F, Air Pollution Control, and Section 10, Dust Control, require the contractor to comply with all pertinent rules, regulations, ordinances, and statutes of the local air district.

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

Temporary impacts may occur on Federal and State listed fish species, but overall improving fish passage will be a net benefit for fish species —see biological discussion in Chapter 3.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☒	☐

Temporary impacts may occur on instream and riparian habitats—see biological discussion in Chapter 3.

	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?	☐	☐	☐	☒

"No Impacts" determination is based on the Natural Environment Study, October 2014.

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?	☐	☐	☒	☐

Temporary impacts may occur on Federal and State listed fish species – see biological discussion in Chapter 3.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

"No Impacts" determination is based on the Natural Environment Study, October 2014.

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?	☐	☐	☐	☒

"No Impacts" determination is based on the Natural Environment Study, October 2014.

V. CULTURAL RESOURCES: Would the project:

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

"No Impact" determinations in this section are based on the Historic Property Survey Report, July 2014. There are no historic or cultural resources within the project site.

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:	☐	☐	☐	☒

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

"No Impact" determinations in this section are based on conversations with the Project Engineer (September 2014).

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.

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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

"No Impact" determinations in this section are based on a hazardous waste Initial Site Assessment, November 2012.

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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

The "No Impact" determinations in this section are because the project is not in the vicinity of an airport or private air strip.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

A "No Impact" determination is based on the expectation that the project would maintain emergency response by maintaining the highway.

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?	☐	☐	☐	☒

The proposed project would maintain emergency response by maintaining the highway.

IX. HYDROLOGY AND WATER QUALITY: Would the project:

a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
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)?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
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?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
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?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow	☐	☐	☐	☒

Determinations in this section are based on the Water Quality Assessment, October 2014, and the Floodplain Evaluation Report Summary, October 2014., and the NES, October 2014. Further discussion related to impacts on Water Quality are found in Chapter 3.

X. LAND USE AND PLANNING: Would the project:

a) Physically divide an established community?	☐	☐	☐	☒
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?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

"No Impact" determinations in this section are because the project will not change current land use.

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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

"No Impact" determinations in this section are because the project will not alter current land use or change potential future land uses.

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?	☐	☐	☐	☒
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

"No Impact" determinations in this section are based on the scope and location of the project, and the Air and Noise Report, August 2014. The project is not increasing highway capacity. There are residences near the project access and staging areas that will have less than significant impacts from the temporary construction noise

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)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

"No Impact" determinations in this section are based on the scope and location of the project. The project will not force the relocation of any residencies.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

"No Impact" determinations in this section are because there are no public facilities impacted by the project other than maintaining the existing highway.

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

"No Impact" determinations in this section are because there are no public parks, trails or other establish recreational opportunities at the project site.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
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?	☐	☐	☐	☒

"No Impact" determinations in this section are because the project does not alter any existing transportation facilities.

XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

"No Impact" determinations in this section are based on the scope and location of the 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?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☐	☒
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Chapter 3 Affected Environment, Environmental Consequences, and Mitigation Measures

3.1 Biological Resources

This section evaluates the project's potential to affect biological resources within the project study limits (see layout sheet in Appendix A). A Natural Environment Study was completed in October 2014, and is available for public review.

Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act: United States Code, Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems on which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration, are required to consult with the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA/NMFS) 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 formal consultation under Section 7 is a Biological Opinion or an incidental take permit. Section 3 of the Federal Endangered Species Act defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or any attempt at such conduct."

Essential Fish Habitat (EFH) has been defined by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) for federally managed species as "those waters and substrate necessary for fish for spawning, breeding, feeding, or growth to maturity". The Magnuson-Stevens Act requires federal fishery management plans to describe this habitat essential to the fish being managed and describe threats to that habitat from both fishing and non-fishing activities. In addition, in order to protect this EFH, federal agencies are required to consult with the NOAA/NMFS on activities that may adversely affect EFH.

EFH for coho and chinook salmon is managed by the Pacific Fishery Management Council which has defined EFH for these species as all those streams, lakes, ponds, wetlands, and other water bodies currently or historically accessible to salmon in Washington, Oregon, Idaho, and California.

California has enacted a law at the state level, the California Endangered Species Act, California Fish and Game Code, Section 2050, et seq. The California Endangered Species Act 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 Game is the agency responsible for implementing the California Endangered Species Act. 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." The California Endangered Species Act allows for take incidental to otherwise lawful development projects; for these actions, an incidental take permit is issued by the California Department of Fish and Game. For projects requiring a Biological Opinion under Section 7 of the Federal Endangered Species Act, the California Department of Fish and Game may authorize impacts to the California Endangered Species Act species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

Affected Environment

The project area is situated within California's North Coastal Ranges Ecological Province at an elevation of 800 to 1100 feet above sea level. The topography of the area consists of steep canyon and flat bench surrounded by steep mountains, and the climate is classic Mediterranean characterized by wet winters and dry summers. The project vicinity receives 71 inches of rain per year and experiences average monthly minimum and maximum temperatures of 36 and 84 degrees Fahrenheit.

The predominant natural plant community in the project area is mixed coniferous forest. The vegetation community within the project area is dominated by an overstory of Douglas-fir (*Pseudotsuga menziesii*) trees with a mixture of madrone (*Arbutus menziesii*), tan oak (*Notolithocarpus densiflorus*), California bay (*Umbellularia californica*), and big leaf maple (*Acer macrophyllum*). Brush/sapling understory is predominantly coyote brush (*Baccharis pilularis*) and French broom (*Genista monspessulana*) -- an exotic invasive species, but also includes poison oak (*Toxicodendron diversilobum*), madrone, live oak (*Quercus chrysolepis*), and tanoak (*Notolithocarpus densiflorus*). A number of common exotic grass and herb species can also be found the project area.

Cedar Creek is a tributary to the South Fork Eel River, which joins the main stem Eel River, which drains to the Pacific Ocean. Cedar Creek is a perennial stream with a watershed of approximately 9750 acres, with elevations ranging from approximately 780 feet at the mouth of

the creek to 4,095 feet in the headwater areas. The watershed is primarily publicly owned and is managed by the Bureau of Land Management and California Department of Fish and Wildlife.

Potential Effects

Habitat Impacts

The project would have a total disturbed soil area (TDSA) of approximately 1 acre. Included within this are temporary impacts to approximately 0.40 acres in the interior of the culvert, approximately 0.11 acres building the new vortex weirs downstream of the culvert, and 0.22 acres upstream of the culvert for access and dewatering (Figure 1.2, Table 3.1). This could cause some increase in sediment within the stream. There is very little in stream vegetation in the immediate project area. There will be permanent impacts to approximately 0.22 acres of scrub and ruderal habitat from re-grading and paving the access road. Paving the access road will reduce erosion and facilitate future maintenance of the culvert.

Table 3.1 Habitat impacts from the project.

Habitat type	Permanent (ac)	Temporary (ac)
Wetland	0	0
Riparian	0	0
Waters of US and State	0	0.73
Ruderal / scrub (access road)	0.22	0

Fish Species

The project has the potential to affect Federally and State listed species: coho salmon (*Oncorhynchus kisutch*), chinook salmon (*Oncorhynchus tshawytscha*) and steelhead trout (*Oncorhynchus mykiss*). Salmon are anadromous, laying eggs in freshwater creeks and rivers, young eventually migrate downstream to the ocean, and then, years later, return to freshwater to breed.

Potential impacts to these species would be temporary and would occur as the result of creek dewatering/diversion and potential subsequent fish relocation efforts during construction. Some individual fish may be harmed during dewatering, relocation, and construction. The project will require formal Section 7 consultation with the National Oceanographic and Atmospheric Administration National Marine Fisheries Service and consultation with California Department of Fish and Game for impacts to listed salmonids. The project will likely lead to “Take” under

both the Federal Endangered Species Act and the California Endangered Species Act. These are potentially significant impacts on these listed fish species.

Given the project would improve passage for all fish, and allow coho to access up to 8 additional miles of in stream habitat, the project is expected to have substantial long-term benefits for these listed fish species. This will increase the habitat available for both adults laying eggs, and young salmonids, and should lead to an increase in the local population. While the construction of the project may harm individual fish, the longterm effect of the project will likely be highly beneficial to the population. Overall the project is expected to have a substantial positive long term effect on salmonids within the creek.

Pacific lamprey (*Entosphenus tridentatus*), a California Species of Special Concern, is likely present within the creek at the project location. Lamprey are anadromous with a life cycle similar to salmon. Young larval lamprey (ammocoetes) are filter feeders which live in the silt/sand of slow moving reaches of creeks and rivers. They could be present in some areas of the project and would likely be harmed or killed by project activities. The culvert and weirs are designed to provide passage for migrating lamprey. The project has the potential for significant short term impacts to lamprey, but will likely have substantial positive long term effects.

Bird Species

There is potential for the project to affect the northern spotted owl (*Strix occidentalis caurina*) because there is foraging and roosting habitat nearby. While no nesting, roosting, or foraging habitat would be removed, noise from the project construction could disturb northern spotted owl. Informal consultation with USFWS would be implemented for potential noise effects to northern spotted owls. A Programmatic Letter of Concurrence (File No. AFWO-12B0001-12I0001) would be used for Section 7 consultation with USFWS. The project may have less than significant impacts to spotted owls.

Northern goshawk (*Accipiter gentillis*) is a California Species of Special Concern, and could use the area for foraging. The project activities would likely cause goshawks to avoid the immediate project vicinity, however forest habitat is abundant within the area, and thus the project is not likely to have an effect goshawks.

Osprey (*Pandion haliaetus*) is a California Species of Special Concern, which forages along the Eel River and nests in tree tops. While osprey are likely to be present along the South Fork Eel, approximately 0.5 miles southwest, they are not likely to be present within the immediate project vicinity. The project will not effect osprey.

Migratory birds are protected under the federal Migratory Bird Treaty Act. CDFW also supports provisions for the protection of migratory birds. Migratory birds could be present nesting within vegetation in the project area. If vegetation is removed during the breeding season this could result in destroying active nests. The project may have significant impacts to breeding birds.

Amphibian Species

Foothill Yellow-legged frog (*Rana boylii*), a California Species of Special Concern, could be present within the project area occupying habitat in or near rocky streams. The project would make this habitat unavailable from June 15 through October 15 for two consecutive years. The project has the potential to harm individuals within the project area during construction. The project may have significant impacts on yellow-legged frog.

Mammal Species

Townsend's big-eared bat (*Corynorhinus townsendii*) is a candidate for listing under the California Endangered Species Act, and could be present within the project area occupying the culvert as a day roost, and foraging with the project area at night. The project has the potential to temporarily displace or disturb individual bats that use the culvert for roosting, but is not likely to affect night foraging behaviors. The project has the potential to significantly impact bats.

Plant Species

Spring and summer plant surveys (completed during 2014) indicated that no Federal or State listed threatened or endangered plant species exist within the project limits. The project will not impact listed plant species.

Sudden oak death, caused by the plant pathogen *Phytophthora ramorum*, is present within the general area. The project has the potential to spread this disease. Due to the small size of the project the risk of spread this disease is low. The project impact is less than significant.

There are invasive plant species within the project area, and the project has the potential to spread these species. These species are highly prevalent in the area. The risk of the project preading these species to new areas is low because the species are probably already there. The project impact is less than significant.

Avoidance, Minimization, and/or Mitigation Measures

The following measures are included in the project to meet various environemtnal laws and environmental stewardship objectives.

Stream and Riparian Effects

Th following measures will be implemented to reduce impacts to the stream:

- For water quality purposes, construction activities within the creek would be confined to the seasonally dry period of June 15 to October 15. Creek flow would be temporarily diverted around the work area during construction and returned to the stream below the work site. Any temporary artificial obstruction within the Creek would be built from materials with no potential to increase siltation within the stream.

- Just prior to the start of construction, the segment of stream affected by the project would be surveyed for wildlife by a qualified biologist, with any discovered species relocated along the creek outside of the project work limits.

With the incorporation of these measures, there will be a less than significant impact to the stream and riparian area.

Fish Species

To avoid and minimize potentially signficant temporary effects on listed fish species, critical fish habitat and essential fish habitat, the following measures will be included:

- Where appropriate, measures would be implemented to minimize material/soil from falling down the slopes and entering the creek bed;
- Where appropriate, barriers would be placed downstream of construction activities in order to prevent material/soil from entering the creek outside of the work limits. Material/soil buildup behind the barriers would be periodically removed;
- Excess material/soil associated with construction would be removed at the end of construction;
- Water flow in Cedar Creek would be diverted around the work area.
- A qualified fisheries biologist would be present at the site when the creek diversion is initially established to ensure sedimentation is minimized;
- If pumps are used to lower the water level, they would be double screened to prevent fish from being pumped out with the water;
- Any fish remaining in the diverted work area would be removed and relocated by a qualified fisheries biologist;
- Revegetation efforts on the slopes would include erosion control and planting with a regionally appropriate California native seed mix and seedlings of plant species found on the site.

These measures will reduce the number of fish harmed, by both avoiding directly harming the fish and minimizing future indirect water quality impacts by limiting erosion. These measures are included to mitigate for project impacts through avoidance and minimization of the effects, and combined with the self mitigating long term beneficial aspects of the project lead to a determination of less than significant impact with mitigation.

The following minimization measures will be implemented to reduce impacrs to lamprey:

- To protect adult lampreys there will be no in-stream work from March 1 to June 1, during the spawning season.
- To protect juvenile lampreys salvage efforts will be attempted prior to stream diversion.
    - Ramping flows, particularly during hours of darkness, will encourage juveniles to move out of areas of impact.
    - Dewater/divert slowly over several days or at a minimum overnight;
    - Identify areas adjacent to juvenile lamprey habitat outside of the disturbance area but within the channel and dig holes (e.g., few scoops with a backhoe, etc.) where juveniles may take refuge as dewatering/diversion occurs. 'Refuge' holes will be covered to protect them from predators;
    - Straw bales will be placed in the stream where juvenile lampreys are present prior to dewatering, they may move into the straw as dewatering occurs and can be safely removed the next day. If successful, this will be documented and the information provided to USFWS.

With the incorporation of these measures, there will be a less than significant impact to the stream and riparian area.

<u>Bird Species</u>

In order to avoid and minimize potential effects on the northern spotted owl and migratory birds the following measures would be included:

- In order to avoid impacts on nesting migratory birds, vegetation would be removed between September 15 and March 1.
- If vegetation must be cleared during the breeding season (March 1-September 15) the following measures will be followed:
    - Surveys would be conducted (no earlier than two weeks prior to construction) by a qualified biologist to identify if birds are nesting within the project limits.
    - If bird nests are found during pre-construction surveys:

- The areas would be marked as environmentally sensitive and nests would be monitored by a qualified biologist for disturbance during construction.
- Buffer areas would be delineated around trees with active nests, and bird disturbing construction activities within the buffer area would not occur.

Amphibian Species

The following measures will be implemented to reduce impacts to foothill yellow-legged frog:

- To minimize impacts to foothill yellow-legged frogs, a qualified biologist will survey for frogs and frog egg masses in the area prior to construction. If any are found, they will be moved to similar habitat downstream. Gravel or any other material added to the stream for construction purposes will be introduced slowly starting upstream giving frogs an opportunity to escape downstream. The length of stream dewatered will be minimized to the fullest extent possible.

With the incorporation of these measures, there will be a less than significant impact to foothill yellow-legged frog.

Mammal Species

The following measures will be implemented to reduce impacts to bats:

- To minimize impacts to bats, work will be conducted only during daylight hours whenever practicable. Lighting will be required in the culvert, and the lighting will be directed downward to minimize light disturbance to bats.

With the incorporation of these measures, there will be a less than significant impact to bats.

Plant Species

No listed, sensitive or rare plant species were identified within the project limits, thus no additional measures are proposed for impacts to particular plant species.

To prevent the spread of sudden oak death, the project will implement these measures:

- Before equipment or vehicles enter the site or the staging areas, the equipment or vehicles will be cleaned. Accumulations of soil, mud, and organic debris (leaves, twigs, and branches) will be removed or washed off of shoes, boots, vehicles and heavy equipment, etc. Lysol® or a bleach solution can be used to disinfect shoes and boots after cleaning.

- An exception will be granted for equipment or vehicles that leave the site temporarily and will be not be traveling to infested areas prior to their return (Figure 4.1).
- Conduct operations during the dry season. Use paved and rocked roads and landings to the extent possible.

To reduce the spread of invasive non-native plant species, Caltrans may implement the protection measures in compliance with Executive Order (EO) 13112, to the greatest degree possible, as described below.

- Excess excavated soil and plant materials will be disposed of at an upland location where they cannot be washed into any watercourse. The disposal will be in compliance with all county and local regulations.
- Plant species used for erosion control will consist of native, non-invasive species or non-persistent hybrids that will serve to stabilize site conditions and prevent invasive species from colonizing.
- Gravel and/or fill material to be placed in relatively weed-free areas will come from weed free sources. Certified weed-free imported materials (or rice straw in upland areas) will be used.
- If invasive weeds in areas that were disturbed by project activities show evidence of spreading, Caltrans will develop an Invasive Weed Eradication Plan, targeting identified invasive species on the CDFA list. To avoid spreading invasive plants, any wheeled or tracked equipment that is operated off of pavement will be washed before entering and after leaving the project area.

With the incorporation of these measures, there will be a less than significant impact to the spread of invasive plants and sudden oak death.

Cumulative Effects

Stream and Riparian

Long-term impacts to the stream will be minimal. The existing culvert has a concrete bottom with weirs, and the project will not functionally change that. The new vortex weirs downstream will fill with sediment, and likely have some riparian vegetation along the sides of the channel, which will be similar to the existing condition.

Fish

Given that this culvert repair project includes a mitigation effort to improve fish habitat, many long-term beneficial effects on fish are anticipated. Based on the scope of the project and the

proposed avoidance, minimization and restoration measures, no cumulative impacts are anticipated with the project.

Bird

The project removes little vegetation and will not have longterm impacts on bird populations.

Amphibian

All impacts to amphibians are temporary impacts due to the habitat being unavailable during constrction. There will be no longterm or cumulative impacts to amphibians.

Mammals

All impacts to mammals are temporary impacts due to the habitat being unavailable during constrction. There will be no longterm or cumulative impacts to mammals.

Plant Species

Plants will be removed from the immediate project area, but common riparian plants will recolonize the area after construction.

3.2 Water Quality

This section evaluates the project's potential to impact water resources within the project area. A Water Quality Assessment was completed in October 2014, and is available for public review.

Regulatory Setting

Section 401 of the Clean Water Act requires water quality certification from the State Water Resource Control Board (SWRCB) or a Regional Water Quality Control Board (RWQCB) when the project requires a Federal permit. Typically, this means a Clean Water Act Section 404 permit to discharge, dredge, or fill into a water of the United States, or a permit from the Coast Guard to construct a bridge or causeway over a navigable water of the United States under the Rivers and Harbors Act.

Along with Clean Water Act Section 401, Section 402 establishes the National Pollutant Discharge Elimination System (NPDES) for the discharge of any pollutant into waters of the United States. The federal Environmental Protection Agency has delegated administration of the NPDES program to the SWRCB and the nine RWQCBs. To ensure compliance with Section 402, the SWRCB has developed and issued Caltrans an NPDES Statewide Storm Water Permit to regulate storm water and non-storm water discharges from Caltrans right-of-way, properties and facilities. This same permit also allows storm water and non-storm water discharges into waters of the State pursuant to the Porter-Cologne Water Quality Act.

Storm water discharges from the Caltrans construction activities disturbing one acre or more of soil are permitted under the Caltrans Statewide Storm Water NPDES permit. These discharges must also comply with the substantive provisions of the SWRCB's Statewide General Construction Permit. Non-Caltrans construction projects (encroachments) are permitted and regulated by the SWRCB's Statewide General Construction Permit. All construction projects exceeding one acre or more of disturbed soil require a Storm Water Pollution Prevention Plan (SWPPP) to be prepared and implemented during construction. The SWPPP, which identifies construction activities that may cause discharges of pollutants or waste into waters of the United States or waters of the State, as well as measures to control these pollutants, is prepared by the construction contractor and is subject to Caltrans review and approval.

The State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCBs) have jurisdiction to enforce the Porter-Cologne Act to protect groundwater quality. Groundwater is not regulated by Federal law, but is regulated under the state's Porter-Cologne Act.

Affected Environment

Cedar Creek drains approximately 4,955 acres of forestlands in Mendocino County. The project area is at an elevation of approximately 800 to 1100 feet above sea level, and is surrounded by deep ravines, a small bench, sharp ridges, and forest. As noted earlier in this report, Cedar Creek is a tributary to the South Fork Eel River, which joins the main stem Eel River, and drains to the Pacific Ocean. The Cedar Creek watershed is a perennial stream with a watershed of approximately 9,750 acres, with elevations ranging from 780 to 4,095 feet.

The South Fork Eel River is listed as impaired on the 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments Requiring Total Maximum Daily Loads. The constituents of concern are Aluminum, Sedimentation/Siltation, and Temperature. Sedimentation and Siltation are normally associated with stormwater run-off from highways. Total Daily Maximum Loads (TMDLs) for Sedimentation/Siltation have been adopted for Eel River Hydrologic Unit by North Coast Regional Water Quality Control Board (NCRWQCB) and approved by USEPA.

The project is situated in Benbow Hydrologic Sub-Area (HSA) No. 111.32, which lies within South Fork Eel River Hydrologic Area located in Eel River Hydrologic Unit of Upper South Fork Eel River watershed, and within the jurisdictional boundary of the North Coast Regional Water Quality Board (NCRWQCB). The NCRWQCB has adopted a Basin Plan for the North Coast Region, which includes the area within the project limits. The Basin Plan defines beneficial uses of receiving waters, sets forth water quality objectives to protect and enhance these beneficial uses, and formulate water management programs to control discharges to

receiving waters. The NCRWQB has designated the following as "existing" beneficial uses for the Benbow Hydrologic Sub-Areas:

- Agricultural Supply
- Aquaculture Operations
- Industrial Service Supply
- Municipal and Domestic Supply
- Groundwater Recharge
- Water Contact Recreation
- Non-Contact Recreation
- Commercial and Sport Fishing
- Cold Freshwater Habitat
- Wildlife Habitat
- Preservation of Rare, Threatened, or Endangered Species
- Migration of Aquatic Organisms
- Spawning, Reproduction, and/or Early Development

The NCRWQCB has the authority to implement water quality protection standards through the issuance of permits to protect waters of the state. Water Quality Objectives for the North Coast Region are specified in the Water Quality Control Plan for the North Coast Region (Basin Plan) prepared in compliance with the Federal Clean Water Act and the State Porter-Cologne Water Quality Control Act. The Basin Plan establishes water quality objectives and implementation programs to meet stated objectives and to protect the beneficial uses of both surface waters and groundwater.

Potential Effects

Analysis of the specific hydraulic conditions at the project site, and discussions with the North Coast Regional Water Quality Control Board (NCRWQCB) staff have identified the following water quality concerns related to the project:

- Sediment and other discharges related to construction, operation, and dewatering;
- Dredge and fill impacts to jurisdictional waters;
- Potential for high ph discharges for water that has contacted wet concrete; and
- Accidental leaks, including fuel, oil or other hazardous materials, during construction.

The project would have a total disturbed soil area of approximately 1.0 acre (Figure 1.2). This includes the construction access road, and the area where the fish passage structures would be installed. The access road will be paved resulting in an additional 0.22 acres of impervious surface within the watershed. Paving this road will reduce potential erosion caused by leaving this road as an improved gravel/dirt road. Most of the water will sheet flow off the roadway through vegetation, thus there will not likely be an increase in sediment/siltation in the creek.

The project is not anticipated to remove shading riparian vegetation along the creek and thus should not affect temperatures.

The project has the potential to significantly effect water quality within Cedar Creek and the South Fork of the Eel River through erosion and the delivery of sediment.

In general, this fish passage project is expected to have long-term water quality benefits by significantly enhancing receiving the waters for the following beneficial uses: Commercial and Sport Fishing; Rare, Threatened, or Endangered Species; Spawning, Reproduction, and/or Early Development; Migration of Aquatic Organisms.

Avoidance, Minimization, and/or Mitigation Measures

The following measures will be implemented to reduce impacts to water quality:

- Temporary sediment control (e.g. silt fences, fiber rolls, and straw bale barriers);
- Temporary soil stabilization (e.g. hydraulic mulching, hydroseeding, and straw mulch);
- Tracking control (stabilized construction entrance/exit, and stabilized construction roadway);
- Non-storm water management (e.g., water conservation practices, clear water diversion, concrete curing, and concrete finishing);
- Waste management and materials pollution control (material delivery and storage, material use, stockpile management, spill prevention and control, solid waste management, hazardous waste management, concrete waste management, and liquid waste management);
- Specific construction site BMPs to address potential discharges of water with a high ph from contact with wet concrete would be specified by the Project Engineer with concurrence by the Construction Storm Water Coordinator for inclusion in the contract;
- Preservation of existing vegetation, concentrated flow conveyance systems, and slope/surface protection.
- Water will be re-introduced to the streambed gradually to reduce erosion and siltation.
- Project Engineer would be required to evaluate permanent treatment BMPs to the standard of Maximum Extent Practicable (MEP) in accordance with the Caltrans NPDES Permit. Because of limited available space and steep terrain at the project site, the placement of post construction treatment BMPs is not likely, but other strategies for reducing sedimentation would be pursued. For example, conveying storm water off the access road to sheet flow patterns onto available vegetated surfaces should minimize storm water impacts.

With the incorporation of these measures, there will be a less than significant impact to water quality.

Cumulative Impacts

Most of the project activities will be within the existing culvert. The work within the natural channel at the outflow will still allow for natural processes between the vortex grade control structures. Based on the scope of the project and due to avoidance, minimization and restoration measures, cumulative impacts on water quality would not be anticipated with the project.

3.3 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.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts 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 of GHG-emitting sources. The dominant GHG emitted is CO2, mostly from fossil fuel combustion. There are typically two terms used when discussing the impacts of climate change: “Greenhouse Gas Mitigation” and “Adaptation.” "Greenhouse Gas Mitigation" is a term for reducing GHG emissions 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)1. There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing travel activity, 3)

[1] http://climatechange.transportation.org/ghg_mitigation/

transitioning to lower GHG-emitting fuels, and 4) improving vehicle technologies/efficiency. To be most effective, all four strategies should be pursued cooperatively. 2

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 proactive approach to dealing with GHG emissions and climate change.

Assembly Bill 1493 (AB 1493), Pavley, Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

Executive Order (EO) S-3-05 (June 1, 2005): The goal of this EO is to reduce California's GHG emissions to 1) year 2000 levels by 2010, 2) year 1990 levels by 2020, and 3) 80 percent below the year 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

Assembly Bill 32 (AB 32), Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

Executive Order S-01-07 (January 18, 2007): This order set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill 97 (SB 97) Chapter 185, 2007, Greenhouse Gas Emissions: This bill required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

[2] http://www.fhwa.dot.gov/environment/climate_change/mitigation/

Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the California Air Resources Board (CARB) to set regional emissions reduction targets from passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan for the achievement of the emissions target for their region.

Senate Bill 391 (SB 391) Chapter 585, 2009 California Transportation Plan: This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

Federal

Although climate change and GHG reduction are a concern at the federal level, currently no regulations or legislation 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 issued explicit guidance or methods to conduct project-level GHG analysis. 3 FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process–from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies outlined by FHWA to lessen climate change impacts correlate with efforts that the state is undertaking to deal with transportation and climate change; these strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in travel activity.

Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car

[3] To date, no national standards have been established regarding mobile source GHGs, nor has U.S. EPA established any ambient standards, criteria or thresholds for GHGs resulting from mobile sources.

Program" and EO 13514 - Federal Leadership in Environmental, Energy and Economic Performance.

Executive Order 13514 (October 5, 2009): This order is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

U.S. EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, U.S. EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six greenhouse gases constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and EPA's assessment of the scientific evidence that form the basis for EPA's regulatory actions. U.S. EPA in conjunction with NHTSA issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010.4

The U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations.

The final combined standards that made up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards implemented by this program are expected to reduce GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On August 28, 2012, U.S. EPA and NHTSA issued a joint Final Rulemaking to extend the National Program for fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model year 2017-2025 standards this program is projected to save approximately four billion barrels of oil and two billion metric tons of GHG emissions.

[4] http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq

The complementary U.S. EPA and NHTSA standards that make up the Heavy-Duty National Program apply to combination tractors (semi trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut greenhouse gas emissions and domestic oil use significantly. This program responds to President Barack Obama's 2010 request to jointly establish greenhouse gas emissions and fuel efficiency standards for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce CO2 emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of model year 2014 to 2018 heavy duty vehicles.

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.5 In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

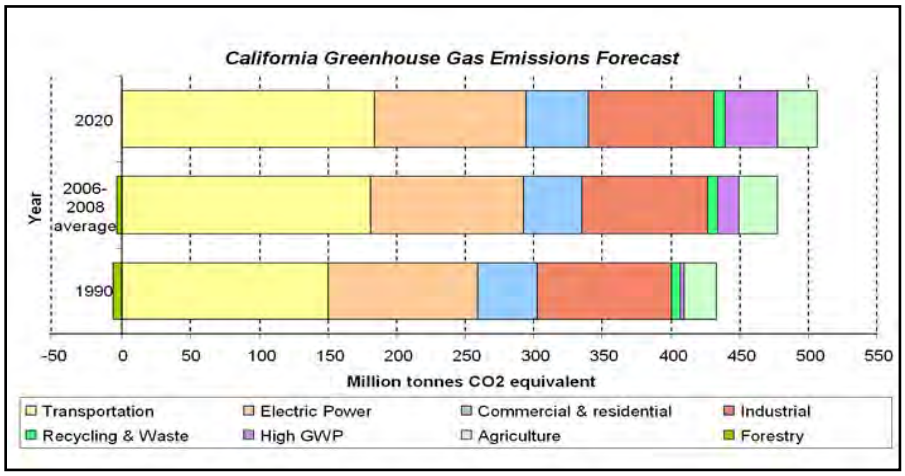
The AB 32 Scoping Plan mandated by AB 32 includes the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, the ARB released the GHG inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

The Department and its parent agency, the 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

[5] 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 U.S. Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

made GHG emissions are from transportation, the Department has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.[6]

Figure 3.1 California Greenhouse Gas Forecast



Source: http://www.arb.ca.gov/cc/inventory/data/forecast.htm

The pupose of the proposed project is to repair the culvert and improve fish passage on U.S. 101 at Cedar Creek. This project proposes to remove the existing spill apron, fish ladder and interior weirs and, construct a new arrangement of vortex weirs through the existing culvert to enhance fish passage. The operation of this project would result in low-to-no potential for an increase in GHG emissions over existing conditions.

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.

[6] 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

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. However, it is the Department's determination that in the absence of further regulatory or scientific information related to greenhouse gas 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, the Department is firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the following section.

Greenhouse Gas Reduction Strategies

The Department continues to be involved on the Governor's Climate Action Team as the 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 the Department is using to help meet the targets in AB 32 come from then-Governor Arnold Schwarzenegger's Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO2 reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 3.2: The Mobility Pyramid.

Figure 3.2: Mobility Pyramid

The Department is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. The Deparment works closely with local jurisdictions on planning activities, but does not have local land use planning authority. The Department assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; the Department is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by participating on the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by the U.S. EPA and ARB.

The Department is also working towards enhancing the State's transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill (SB) 375 (Steinberg 2008), SB 391(Liu 2009) requires the State's long-range transportation plan to meet California's climate change goals under Assembly Bill (AB) 32.

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas (GHG) emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future, statewide, integrated, multimodal transportation system.
The purpose of the CTP is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the CTP 2040 will identify the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State's transportation needs.

Table 3.2 summarizes the Departmental and statewide efforts that the Department is implementing to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012): is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013)7 provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

[7] http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml

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

- Implementation of the Caltrans Standard Specifications, an integral part of all construction contracts, is expected to effectively reduce emission impacts during construction. The provisions of Section 7-1.01F, Air Pollution Control, and Section 10, Dust Control, require the contractor to comply with all pertinent rules, regulations, ordinances, and statutes of the local air district

Adaptation Strategies

"Adaptation strategies" refer to how the Department 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.

Table 3.2 Climate Change/CO_2 Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO_2 Savings Million Metric Tons (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.045 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 0.36	4.2 3.6
Goods Movement	Office of Goods Movement	Cal EPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 20118, outlining the federal government's progress in expanding and strengthening the Nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provides an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as freshwater, and providing accessible climate information and tools to help decision-makers manage climate risks.

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop The California Climate Adaptation Strategy (Dec 2009)9, which summarizes the best-known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

[8] http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation

[9] http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF

The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report10 to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

- Relative sea level rise projections for California, Oregon and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates.
- The range of uncertainty in selected sea level rise projections.
- A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems.
- A discussion of future research needs regarding sea level rise.

In 2010, 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.

[10] *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at http://www.nap.edu/catalog.php?record_id=13389.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data.

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 Business, Transportation, and Housing 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.

Currently, the Department is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, the Department has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, the Department will be able review its current design standards to determine what changes, if any, may be needed to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. The Department is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

3.4 Right of Way

Temporary and permanent easements will be needed for construction activites for both access and in-stream work (Appendix C). Two Temporary Construction Easements would be obtained totalling approximately 0.46 acres from Assessor Parcel Number (APN) 052-400-18 on the north side of the highway and east side of the creek to provide a staging area for the fish passage installation. Three permanent drainage easements would be aquired for in stream work with 0.07 acres from APN 053-400-16, 0.04 acres from APN 052-400-18, and 0.08 acres from APN 053-400-54.

Parcel 052-400-18 has residential dwellings which may be disturbed by the construction activities and noise. No relocations or community impacts are anticipated.

Chapter 4 Comments and Coordination

4.1 Agency Coordination

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis, potential impacts and mitigation measures and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including Project Development Team meetings, interagency coordination meetings, consultations with the United States Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS), and the California Department of Fish and Wildlife (CDFW).

March, 2012	Discussion with USWFS about potential impacts to northern spotted owl and marbled murrelet.
July 20, 2012	Onsite field meeting with CDFW and NMFS.
December 20, 2012	Interagency meeting with USFWS, CDFW and NMFS.
May 21, 2014	Meeting with USFWS about lamprey passage.
Various 2014	Numerous meetings with Margaret Tauzer, NMFS, to discuss weir design and fish passage.

Chapter 5 List of Preparers

The following Caltrans North Region staff contributed to the preparation of this Initial Study:

Steven Blair, Senior Transportation Engineer. Contribution: Project Manager.

Steve Croteau, Senior Environmental Planner. Contribution: Document Oversight.

Mitch Higa, Associate Environmental Planner. Contribution: Document Peer Review.

Glen Hurlburt, Hydraulics Engineer. Contribution: Fish Passage Design.

Laura Lazzarotto, Landscape Architect. Contribution: Visual Impact Assessment.

Jason Lee, Transportation Engineer. Contribution: Water Quality Report.

Mark Melani, Associate Environmental Planner. Contribution: Initial Site Assessment (Hazardous Materials Report).

Jason Meyer, Associate Environmental Planner. Contribution: Environmental Study Coordinator and Document Writer.

Kristine Pepper, Hydraulics Engineer. Contribution: Fish Passage Design.

Gail Popham, Associate Environmental Planner (Natural Science). Contribution: Project Biologist, Natural Environment Study (NES).

Sandra Rosas, Office Chief, North Region Environmental Services—North. Contribution: Document review and approving signature.

Kathleen Silk, Office Technician. Contribution: Document technical editor.

Dennis Wardlaw, Environmental Planner (Archaeology). Contribution: Archeological Screening Memo.

Appendix A. Project Layout and Design

PRELIMINARY DESIGN

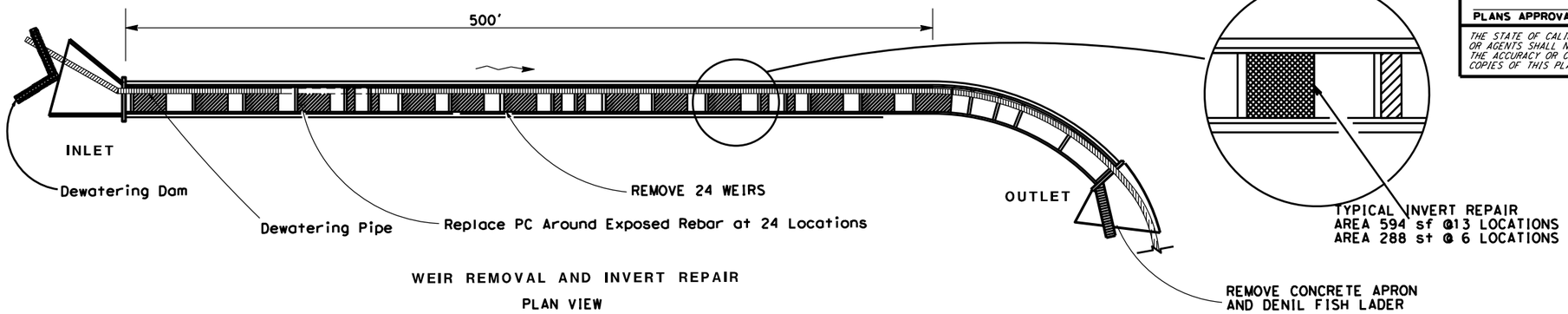
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

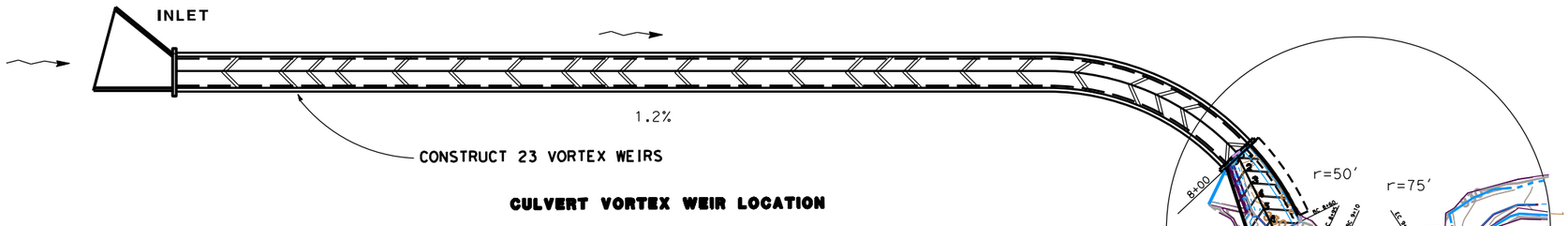
REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



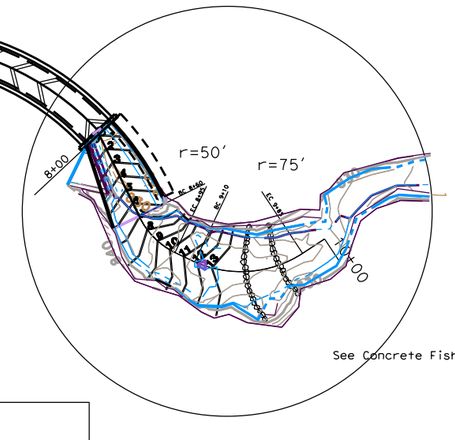
WEIR REMOVAL AND INVERT REPAIR

PLAN VIEW



CULVERT VORTEX WEIR LOCATION

PLAN VIEW

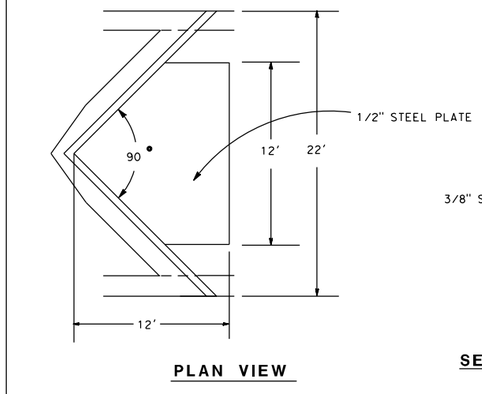


See Concrete Fishway Plan for Details

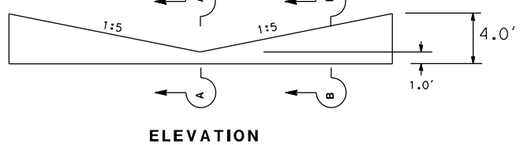
CULVERT WEIR DETAILS
Reinforced concrete

Note: Steel with radius is continuous accross the entire width of the v-notch of the weirs.

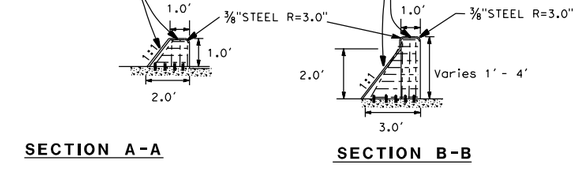
No Scale



PLAN VIEW



ELEVATION



SECTION A-A

SECTION B-B

SCALE:1"=100'
WHEN PRINTED 11"X17"
UNLESS NOTED OTHERWISE

CULVERT WEIRS LAYOUT AND DETAILS
MEN-101-R89.2
01-0C370
CEDAR CREEK CULVERT REHAB

LAST REVISION DATE PLOTTED => $DATE
00-00-00 TIME PLOTTED => $TIME

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY

CHECKED BY

FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

BORDER LAST REVISED 7/2/2010 | USERNAME => $USER | DGN FILE => $REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 00000000001

PRELIMINARY DESIGN

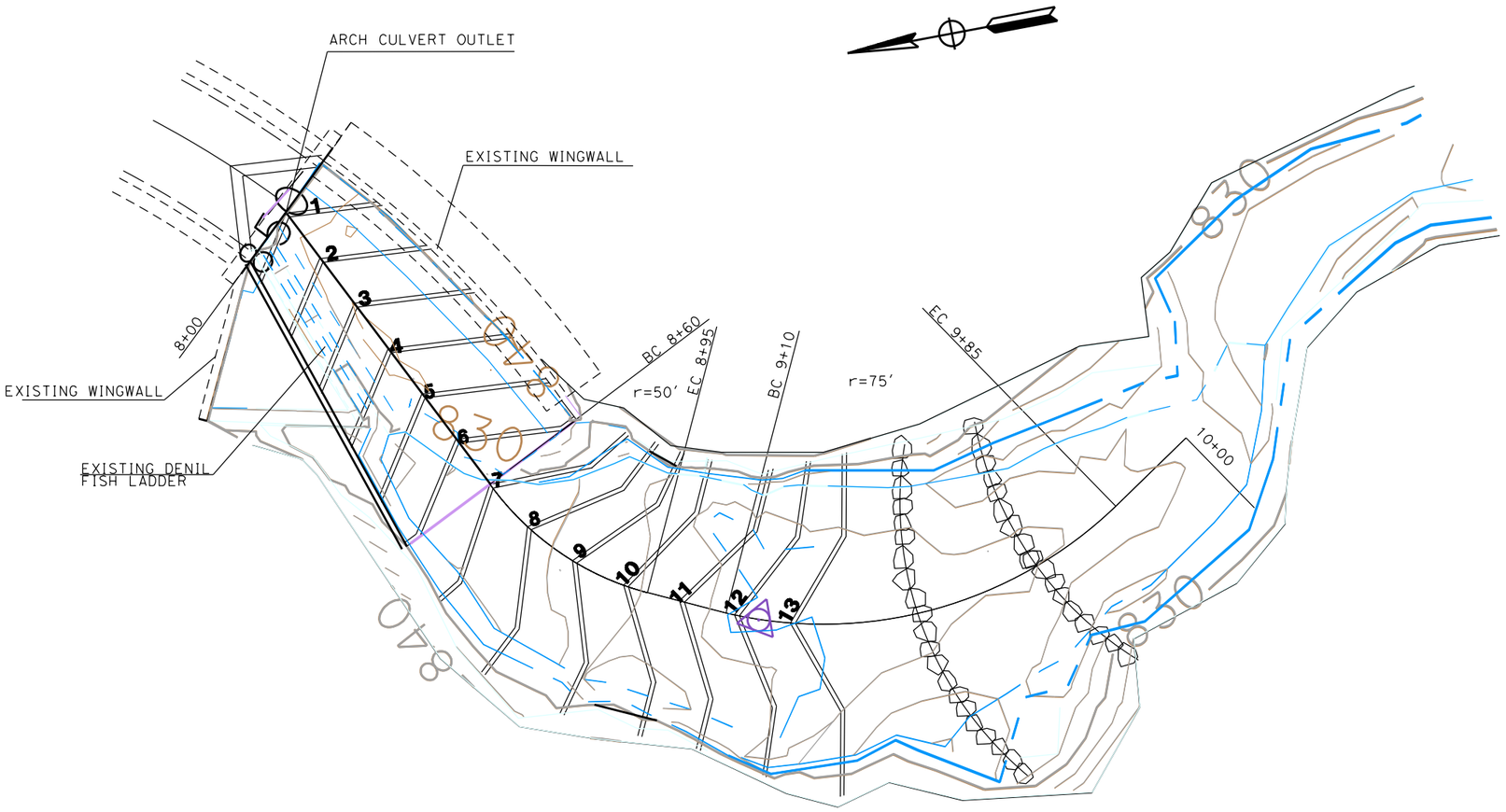
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

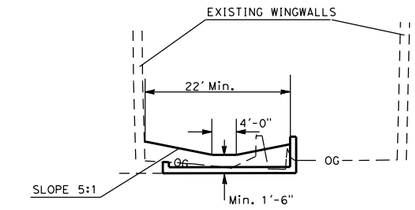
REGISTERED CIVIL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

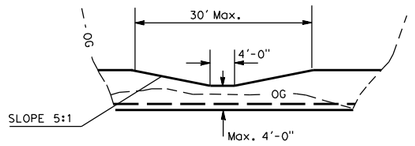
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

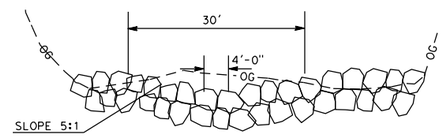




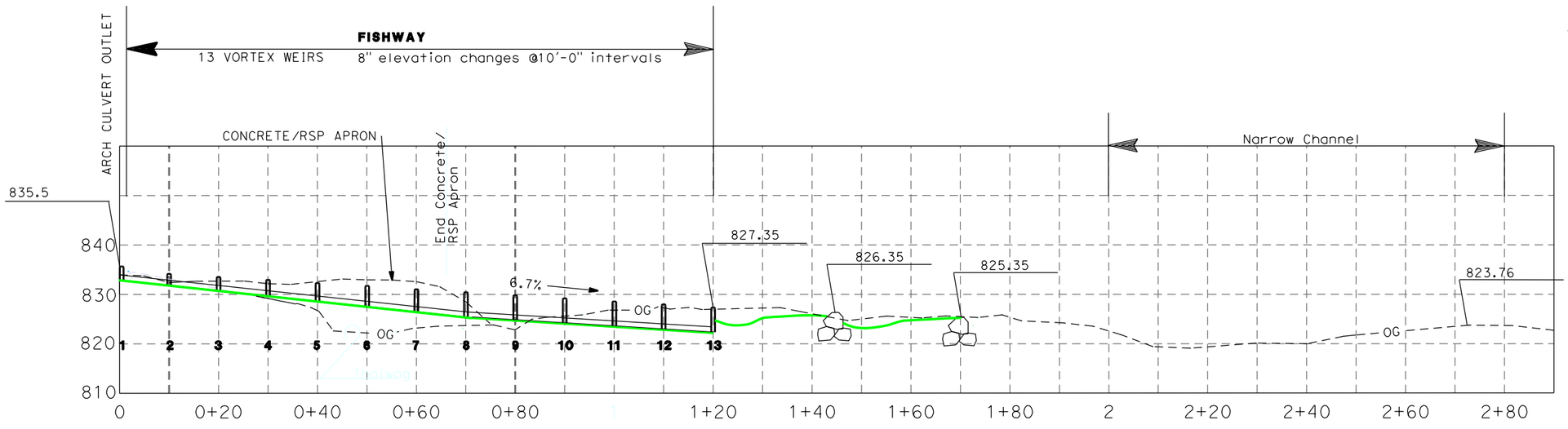
TYPICAL FISHWAY CONCRETE WEIR
D/S - ELEVATION
(Culvert Outlet to Weir 6)



TYPICAL FISHWAY CONCRETE WEIR
D/S - ELEVATION
(Weir 7 to 13)



TYPICAL ROCK WEIR
D/S - ELEVATION



DOWNSTREAM CHANNEL WEIRS
LAYOUT AND DETAILS

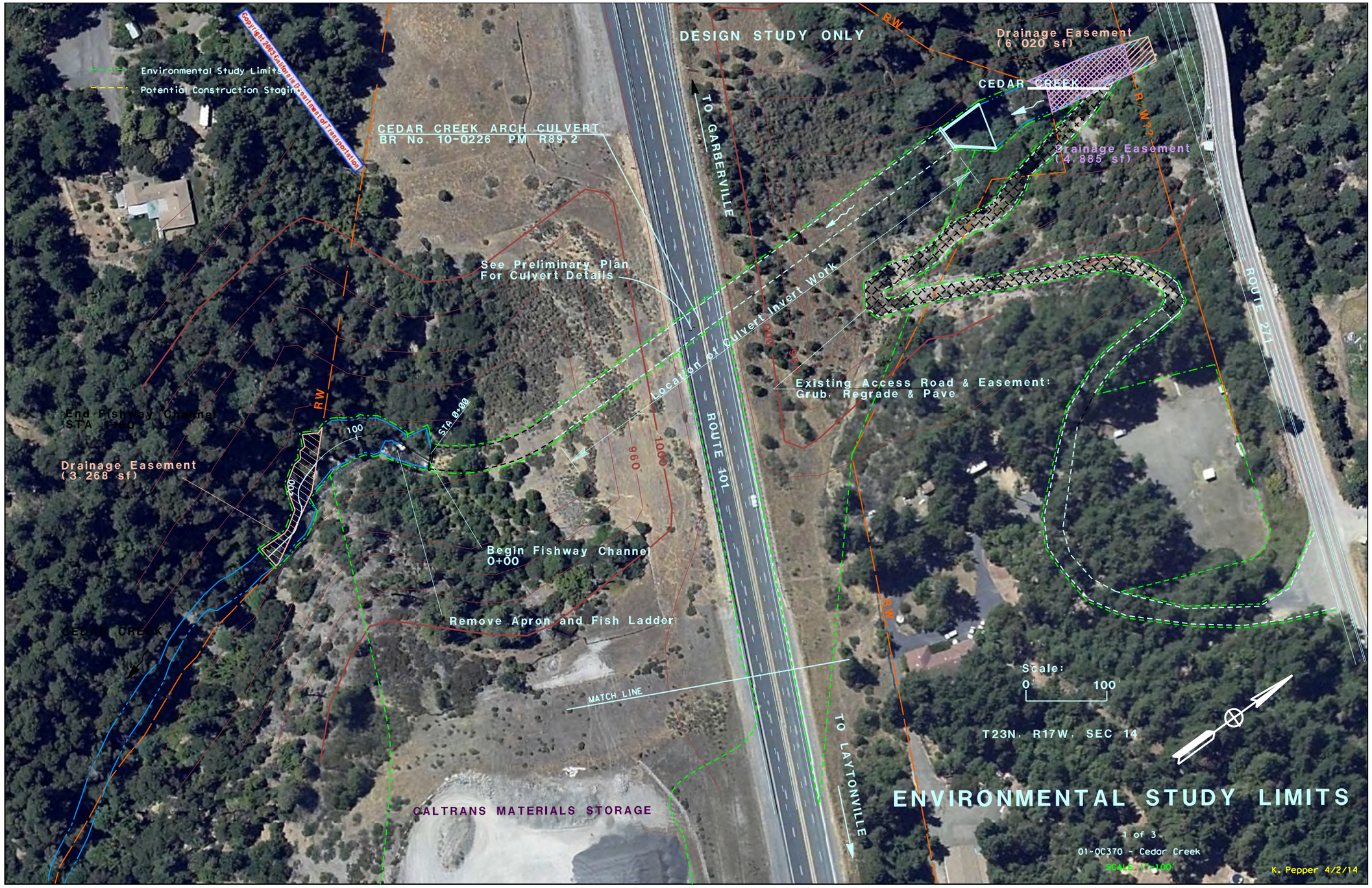
MEN-101-R89.2
01-0C370
CEDAR CREEK CULVERT REHAB

REVISED BY | DATE REVISED
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

LAST REVISION DATE PLOTTED => $DATE
00-00-00 TIME PLOTTED => $TIME

BORDER LAST REVISED 7/2/2010 | USERNAME => $USER | DGN FILE => $REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 00000000001

Appendix A. Design Layout , Cedar Creek Arch Culvert Project, MEN 101 PM 89.2, 01-0B370



Appendix A. Design Layout , Cedar Creek Arch Culvert Project, MEN 101 PM 89.2, 01-0B370

Appendix A. Design Layout , Cedar Creek Arch Culvert Project, MEN 101 PM 89.2, 01-0B370

Appendix B. Title VI Policy Statement

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
TTY 711
www.dot.ca.gov

Flex your power!
Be energy efficient!

March 2013

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

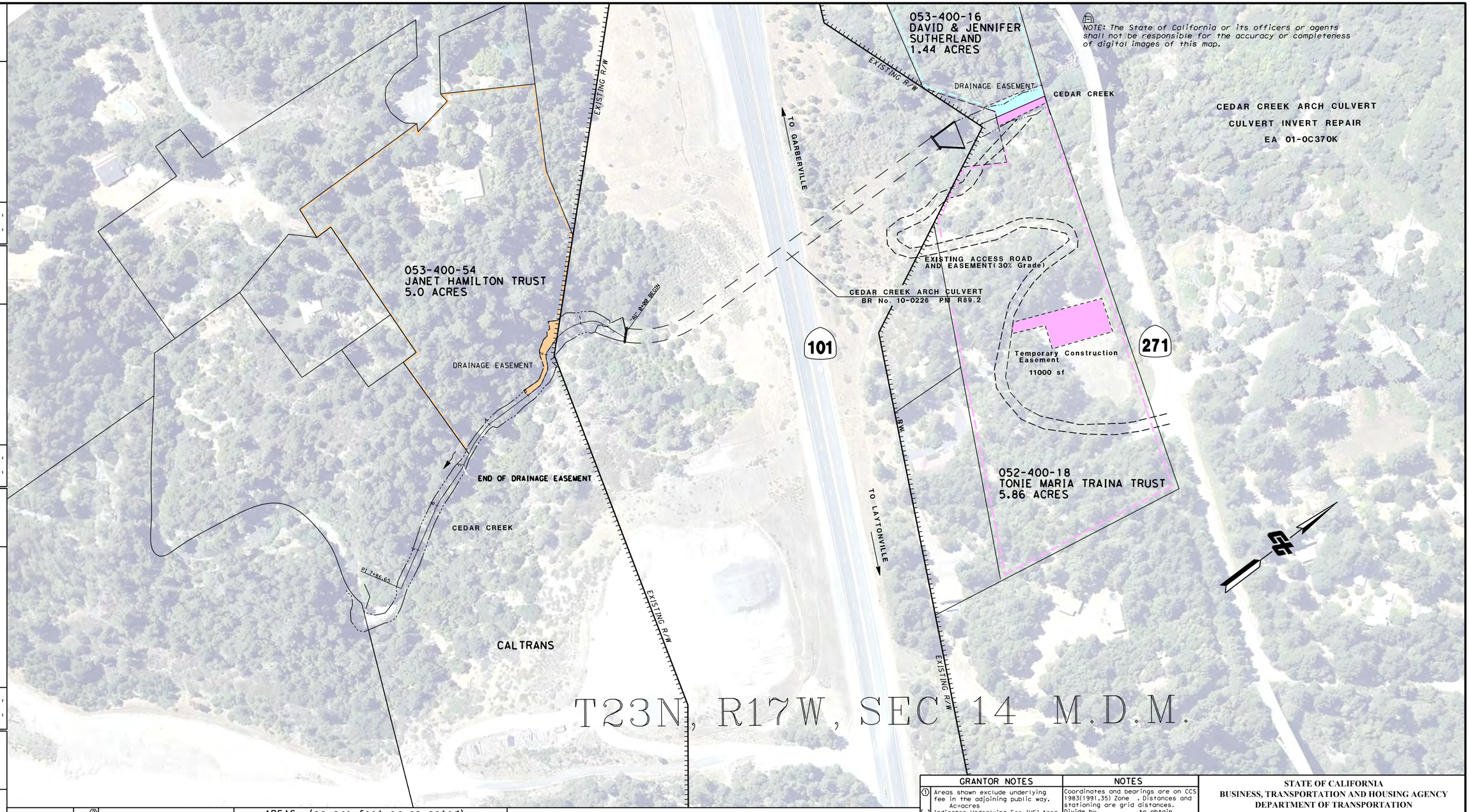
For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

MALCOLM DOUGHERTY
Director

Appendix C. Right of Way Map

R/W PROJECT SURVEYOR:	DATE	REVISIONS	BY



PARCEL#	TITLE CODE ②	GRANTOR	AREAS (square feet or as noted) TOTAL	REQUIRED ① [UF]	EXCESS ① [UF]	REMAINDER	REMARKS
	TCE	TRAINA	5.83 Ac	11000			TEMP. CONST. EASEMENT APN 053-400-18
	E	TRAINA		1777		5.79 Ac	DRAINAGE EASEMENT APN 053-400-18
	E	HAMILTON	5.00 Ac	3268		4.92 Ac	DRAINAGE EASEMENT APN 053-400-54
	E	SUTHERLAND	1.44 Ac	3108		1.37 Ac	DRAINAGE EASEMENT APN 053-400-16

GRANTOR NOTES

① Areas shown exclude underlying fee in the adjoining public way. Ac=acres
[U] Indicates Underlying Fee (UF) Area
[Y] Indicates Indeterminate UF
② TITLE CODES:
A=Access Rights Only
F=Fee
E=Easement (Ease)
TCE=Temp Construction Ease
T=Other Temp Ease (see Remarks)
O=Other (see Remarks)

NOTES

Coordinates and bearings are on CCS 1983(1991.35) Zone . Distances and stationing are grid distances. Divide by to obtain ground distances.
All distances are in feet unless otherwise noted.

LEGEND

- Access Prohibited
- Access Superseded
- Existing R/W Superseded
- Access Opening (Private)
- (R) Indicates Radial Bearing
- Indicates Found Monument as noted
- o Indicates calculated point. (Does not imply monument set)
- Title to State
- Required for Others

STATE OF CALIFORNIA
BUSINESS, TRANSPORTATION AND HOUSING AGENCY
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY -ESTIMATE MAP
CEDAR CREEK CULVERT REPAIR MEN 101 PM 89.2

FOR PREVIOUS R/W INFORMATION SEE MAP(S)

FEET 0 50 100 200 300

EFIS ID: 01 1200 0283
TO DESIGN: 4/17/14 EA(s): 0C3700 FA#:

DISTRICT	COUNTY	ROUTE	SHEET PM	SHEET NO.	TOTAL SHEETS
1	MEN	101			

CEM 0C370 apr 2014.dgn 4/16/2014 2:47:11 PM