Ryan Creek Fish Passage Mitigation Project

Willits, Mendocino County
01-Men-101-PM 52.1 / 52.5
EA 26201

Draft Initial Study
with Proposed Negative Declaration

Prepared by the
State of California Department of Transportation

April 2014

General Information About This Document

What's in this document?

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

What should you do?

- Please read this document.
- Additional copies of this document and related technical studies are available for review at the Caltrans District 3 Sacramento Office (2379 Gateway Oaks Dr, Suite 150, Sacramento, CA 95833, (916) 274-0586) and the Willits Branch Library (390 E. Commercial St., Willits, CA 95490). A copy is also available via email; contact ken_lastufka@dot.ca.gov.
- We'd like to hear what you think. If you have any comments about the proposed project, please send your written comments to Caltrans by May 19, 2014.
- Send comments to:
  Kendall Schinke, Environmental Branch Chief
  Department of Transportation, Environmental Planning
  2379 Gateway Oaks Drive, Suite 150, CA 95833
- Send comments via email to: kendall_schinke@dot.ca.gov.
- Be sure to send comments by the deadline: May 19, 2014.

What happens next?

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

For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Department of Transportation, Attn: Kendall Schinke, Office of Environmental Management, 2379 Gateway Oaks Dr, Suite 150, Sacramento, CA 95833-93401; (916) 274-0610 Voice, or use the California Relay Service by dialing 711, or (800) 735-2929 (TTY to Voice) or (800) 735-2922 (Voice to TTY).

SCH: _____
01-Men-101-PM 52.1 / 52.5
EA 26201

Ryan Creek Fish Passage Mitigation Project
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INITIAL STUDY with Proposed Negative Declaration

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

THE STATE OF CALIFORNIA
Department of Transportation

4/9/2014
Date of Approval

John D. Webb
Chief, North Region Environmental Planning
California Department of Transportation
CEQA Lead Agency

State of California
Department of Transportation

SCH Number: _____
01-Men-101-PM 52.1 / 52.5
EA 26201

Proposed Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The Ryan Creek Fish Passage Mitigation Project is mandated as a condition of both the California Department of Fish and Wildlife (CDFW) June 2010 Section 1602 Streambed Alteration Agreement (1600-2010-0044-R1), as amended in March 2014, and the July 2010 Incidental Take Permit (No. 2081-2010-007-01), as amended in March 2014, issued for the Willits Bypass Project. These permits require the California Department of Transportation (Caltrans) to improve fish passage on Ryan Creek by remediating barriers to fish passage on Ryan Creek at State Route (SR) 101, mitigating for the incidental take of individual Southern Oregon-Northern California Coasts (SONCC) Coho salmon. Caltrans proposes to replace the existing culverts along SR 101 at the South and North Forks of Ryan Creek to remediate existing barriers to fish passage.

The existing 5-foot diameter corrugated metal pipe (CMP) culvert on South Fork Ryan Creek (PM 52.25) will be replaced with two 10-foot diameter steel pipes counter sunk to a depth of 42 inches. The new culverts will be aligned slightly to the south of the current culvert alignment. The South Fork steel pipes will be installed by jack ramming, a process where the pipe is pushed, or rammed, adjacent to the existing metal pipe. Culvert replacement on the North Fork Ryan Creek (PM 52.36) entails replacing the existing 5-foot diameter CMP with a 12-foot span x 10-foot rise reinforced concrete box (RCB) countersunk 24 inches. The existing culverts at the North Fork of Ryan Creek will be replaced by the cut and cover method, where the pavement is removed and the existing culvert is dug up and replaced with a new culvert~~s~~ in the same alignment. Rock weirs, rock sills and native materials will be placed in the creek at both locations to provide an engineered streambed that provides fish passage for all stages of salmonid and is acceptable to CDFW and the National Marine Fisheries Service (NMFS). While close coordination is occurring with both CDFW and NMFS, the lead agency for design approval will be NMFS. The increased culvert size is designed to remove barriers to fish passage as a requirement of the Willits Bypass Incidental Take Permit issued by the CDFW. Under existing conditions, adult upstream passage of the South Fork Ryan Creek culvert is minimal. A perched outlet on the North Fork Ryan Creek culvert prevents fish passage of all life stages. Both SR 101 culverts rank high on Caltrans and Mendocino County's remediation priority list.

The project also includes widening an existing driveway off of SR 101 and relocating several utility power lines and poles.

Determination

This proposed Negative Declaration (ND) is included to give notice to interested agencies and the public that it is Caltrans' intent to adopt an ND for this project. This does not mean that Caltrans' decision regarding the project is final. This ND 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, Hazards and Hazardous Materials, Land Use/Planning, Mineral Resources, Population/Housing, Public Services, Recreation, Transportation/Traffic, Utilities/Service Systems, and Greenhouse Gas.

- In addition, the proposed project would have less than significant effects to: Aesthetics, Biological Resources, Hydrology/Water Quality, and Noise.

_____ _____

John D. Webb, Chief
North Region Environmental Services
California Department of Transportation

Date

DRAFT

Initial Study

Project Title

Ryan Creek Fish Passage Mitigation Project

Lead Agency Name, Address and Contact Person

California Department of Transportation (Caltrans)
2379 Gateway Oaks Drive, Suite 150
Sacramento, CA 95833
Kendall Schinke, Branch Chief
(916) 274-0610

Project Location

The project is located along State Route (SR) 101 north of the city of Willits in Mendocino County, CA (see Figure 1).

Purpose and Need

Purpose

The Ryan Creek Fish Passage Mitigation Project is mandated as a condition of both the California Department of Fish and Wildlife (CDFW) Section 1602 Streambed Alteration Agreement (1600-2010-0044-R1), as amended in March 2014, and the Incidental Take Permit (No. 2081-2010-007-01), as amended in March 2014, issued for the Willits Bypass Project. These permits require Caltrans to improve fish passage on Ryan Creek by remediating barriers to fish passage at the South Fork and North Fork Ryan Creek culverts on SR 101, mitigating for the incidental take of individual Southern Oregon-Northern California Coast (SONCC) Coho salmon.

Need

In March of 2001, Caltrans initiated the North Coast Pilot Research Study to identify State Highway System culverts that blocked or impeded upstream or downstream passage of anadromous salmonids. This assessment was used to develop a prioritized list of stream crossing sites needing remediation for fish passage in Caltrans District 1. The existing culvert on SR 101 at the South Fork of Ryan Creek at PM 52.25) was identified as priority 1of the top 10 sites for Mendocino County and priority 2 of the top 25 by Caltrans on the list for replacement. The existing culvert on SR 101 at the North Fork of Ryan Creek (PM 52.36) was identified as priority 6 of the top 10 sites in Mendocino County and priority 6 of the top 25 by Caltrans on the list for replacement.

The Ryan Creek Fish Passage Mitigation Project is mandated from the permit required by the Willits Bypass Project (WBP). The WBP activities have the potential to affect fish species protected under the federal (FESA) and state (CESA) endangered species acts. The Ryan Creek Project satisfies mitigation requirements under the two WBP permits. The project's Streambed Alteration Agreement permit (No. 1600-2010- 0044-R) requires mitigation for adverse impacts to fish resources that cannot be avoided or minimized. Compensatory measures 3.6, 3.7, and 3.8 require Caltrans to improve fish passage on the South Fork of Ryan Creek and provide fish passage plans for the North Fork of Ryan Creek. The WBP CESA Incidental Take Permit (No. 2081-2010-007-01) requires mitigation for incidental take of CESA threatened SONCC Evolutionarily Significant Unit (ESU) coho salmon (*Oncorhynchus kisutch*). Condition of Approval Measure 8 requires Caltrans to implement a fish passage improvement project to restore access to spawning and rearing habitat on Ryan Creek. The National Marine Fisheries Service (NMFS) permitted the WBP for incidental take, through issuance

of a Biological Opinion (BO), that included three federally threatened fish species: California Coastal ESU Chinook salmon (*Oncorhynchus tshawytscha*), SONCC ESU coho salmon, and Northern California Distinct Population Segment (DPS) steelhead (*Oncorhynchus mykiss*). Reasonable and Prudent Measure 5 and associated non-discretionary terms and conditions require Caltrans to implement the Ryan Creek Project. The NMFS BO also requires the project to be consistent with NMFS guidelines for passage of salmonids at stream crossings.

Description of Project

The Ryan Creek Fish Passage Mitigation Project is mandated as a condition of both the California Department of Fish and Wildlife (CDFW) June 2010 Section 1602 Streambed Alteration Agreement (1600-2010-0044-R1), as amended in March 2014, and the July 2010 Incidental Take Permit (No. 2081-2010-007-01), as amended in March 2014, issued for the Willits Bypass Project. These permits require Caltrans to improve fish passage on Ryan Creek by remediating barriers to fish passage on Ryan Creek at State Route (SR) 101, mitigating for the incidental take of individual Southern Oregon-Northern California Coast (SONCC) Coho salmon. Caltrans proposes to replace the existing culverts along SR 101 at the South and North Forks of Ryan Creek.

Ryan Creek is a tributary to Outlet Creek which discharges into the Eel River. The project area is approximately 4,880 feet upstream of the confluence of Outlet and Ryan creeks. Ryan Creek hosts three anadromous fish species: coho salmon, Chinook salmon, and steelhead. SONCC ESU coho salmon are state and federally listed as threatened, and California Coastal ESU Chinook salmon and Northern California DPS steelhead are federally listed as threatened.

The project involves replacing the existing culverts along State Route (SR) 101 at the South and North Forks of Ryan Creek. The existing 5-foot diameter corrugated metal pipe (CMP) culvert on South Fork Ryan Creek (PM 52.25) will be replaced with two 10-foot diameter steel pipes counter sunk to a depth of 42 inches. The new culverts will be aligned slightly to the south of the current culvert alignment. Culvert replacement on the North Fork Ryan Creek (PM 52.36) entails replacing the existing 5-foot diameter CMP with a 12-foot span x 10-foot rise reinforced concrete box (RCB) countersunk 24 inches (Figures 3, 4, and 5). Rock weirs, rock sills and native materials will be placed in the creek at both locations to provide an engineered streambed that provides fish passage for all stages of salmonid and is acceptable to the California Department of Fish and Wildlife (CDFW) and the National Marine Fisheries Service (NMFS). While close coordination is occurring with both CDFW and NMFS, the lead agency for design approval will be NMFS. The increased culvert size is designed to remove barriers to fish passage as a requirement of the Willits Bypass Incidental Take Permit issued by the CDFW. Under existing conditions, upstream passage of the South Fork Ryan Creek culvert is minimal. A perched outlet on the North Fork Ryan Creek culvert prevents fish passage of all life stages. Both SR 101 culverts rank high on Caltrans and Mendocino County's culvert remediation priority list.

The project reach along Ryan Creek is currently experiencing headcutting on the North and South Forks. The headcutting appears to be the result of a geomorphic response to the replacement of the Ryan Creek Road culvert replaced by Mendocino County in 2011. The headcut caused by the Mendocino County Fish Passage project on Ryan Creek Road on the North fork currently is being maintained in place by a bedrock sill. Downstream of the sill, the creek has incised approximately 4 feet. The headcut caused by the Mendocino County Fish Passage project on Ryan Creek Road on the South Fork is migrating upstream and does not appear to have reached a similar bedrock sill as the North Fork. The headcut will likely reach SR 101 if left unchecked. The downstream headcutting issue, if left unremediated, may adversely affect the proposed project.

The CDFW, as detailed in a January 28, 2014 email to Caltrans, expressed concerns that if left unresolved, the impact from the headcutting could potentially become severe. The CDFW has recommended that mitigation measures to arrest the headcuts and stabilize the channel be included in

the Caltrans project design. These measures include proposed boulder weirs as hydraulic controls for the South and North Forks. Caltrans has included these measures in the project plans.

The project also includes widening an existing driveway off of SR 101 and relocating several utility power lines and poles (Figure 3). The driveway widening, included in the South Fork work, is necessary to allow access for equipment required to construct the project. The utility relocation is required for both North and South Fork work. The power lines must be moved because they interfere with the construction operations of both the South and North Forks.

The South Fork steel pipes will be installed by jack ramming, a process where the pipe is pushed, or rammed, adjacent to the existing CMP culvert. Pipe ramming doesn't require closing of SR 101. The height of the fill at this location is over 45 feet.

The existing CMP culvert at the North Fork of Ryan Creek will be replaced by the cut and cover method, where the pavement is removed and the existing culvert is dug up and replaced with a new RCB culvert in the same alignment. The depth of the fill at this location (approximately 6 feet) allows for the cut and fill operation rather than pipe jacking.

Following an onsite field visit in January 2012, CDFW, NMFS, Five Counties Salmonid Conservation Program (5C is a project of the Northwest California Resource Conservation & Development Council aimed at the long term recovery of salmon and steelhead in northern California), and Caltrans agreed to the preliminary design and construction methods proposed for this project. Under an adaptive strategy, modifications to designs would be applied as needed.

Surrounding Land Uses and Setting

The project is located in a sparsely populated forested area. Several ranches are located in the vicinity of the project.

Permits and Approvals Needed

Permits:
- USACE Section 404 permit
- NCRWQCB Section 401 permit
- CDFW 1602 permit

Approvals:
- Biological Opinion, NMFS (received January 19, 2012)

Zoning

RMR40 - Upland Residential

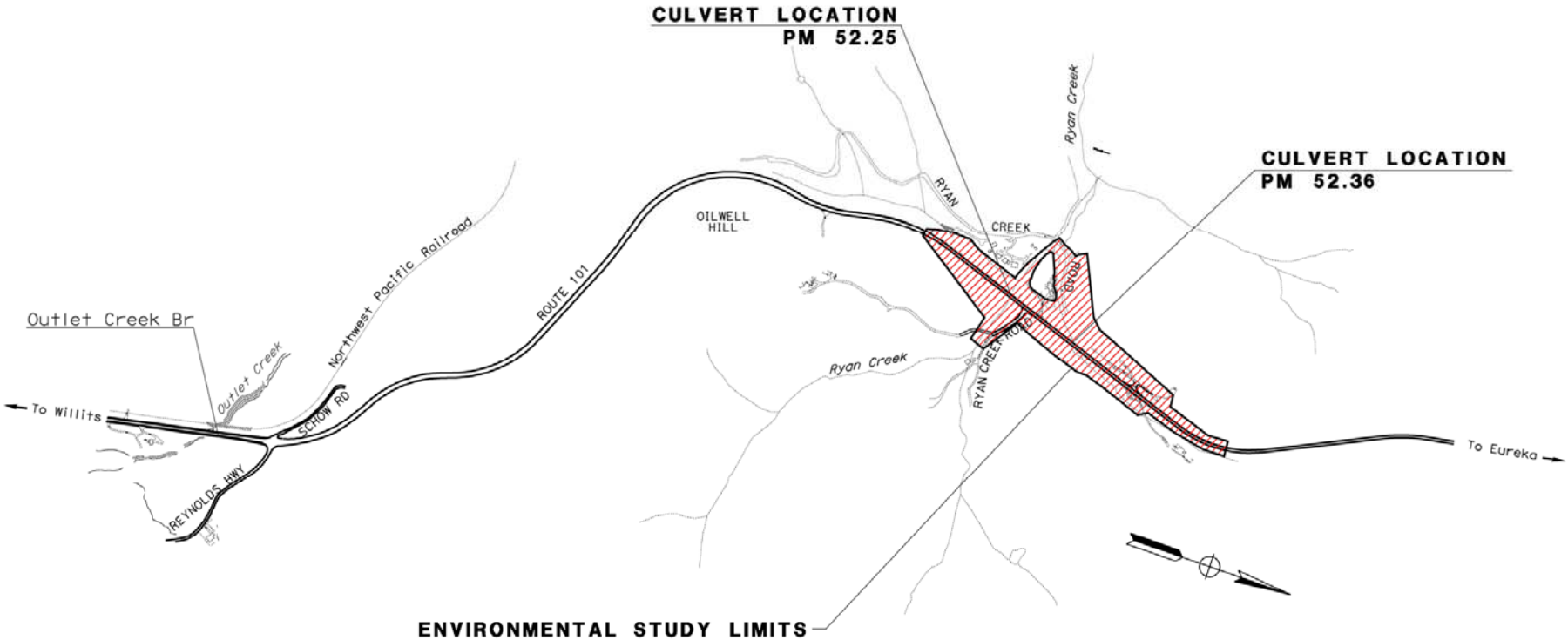


FIGURE 1
Location Map

Ryan Creek Fish Passage Project
01-MEN-01 (PM 52.1 / 52.5)

State of California
Department of Transportation

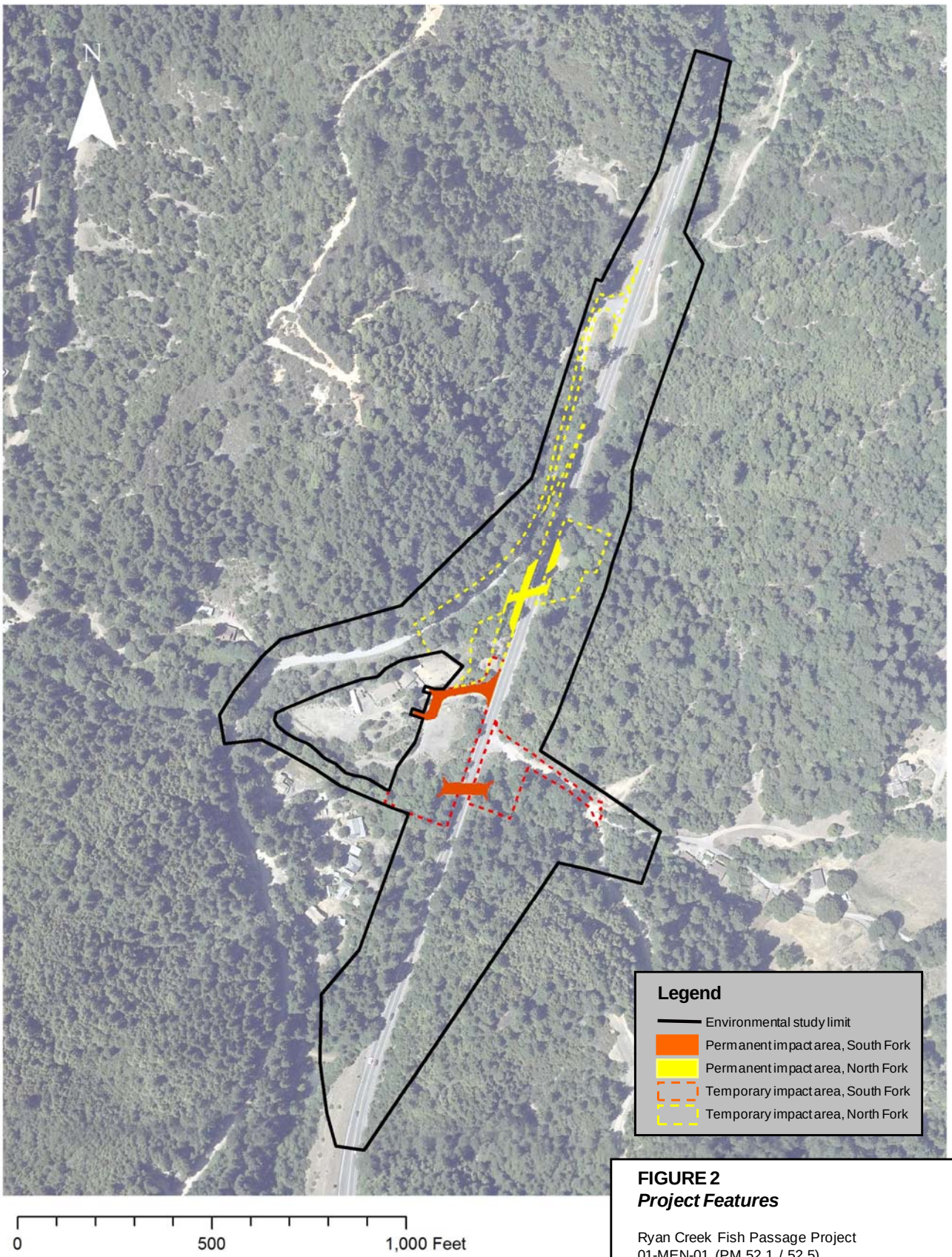


FIGURE 2
Project Features

Ryan Creek Fish Passage Project
01-MEN-01 (PM 52.1 / 52.5)

State of California
Department of Transportation

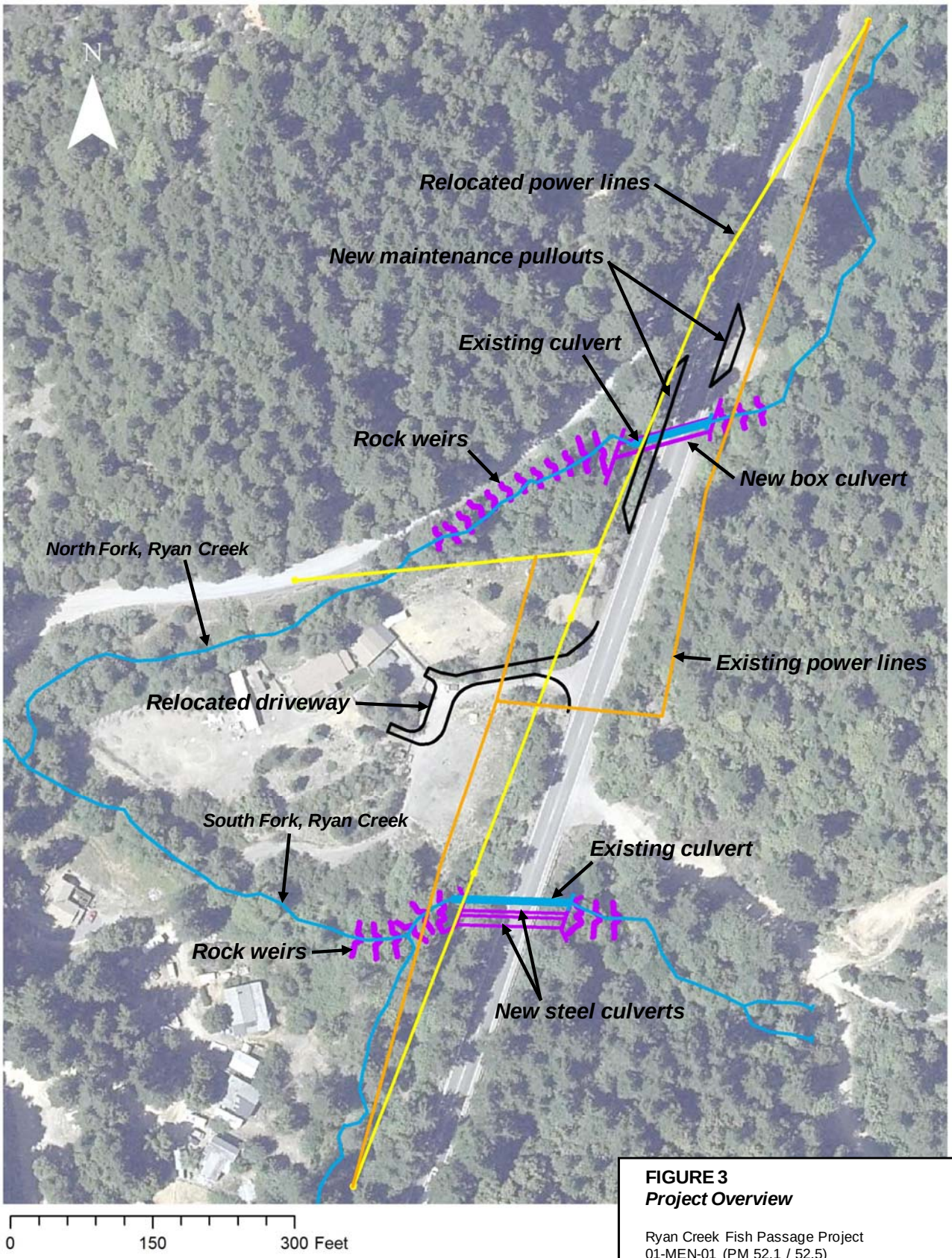


FIGURE 3
Project Overview

Ryan Creek Fish Passage Project
01-MEN-01 (PM 52.1 / 52.5)

State of California
Department of Transportation

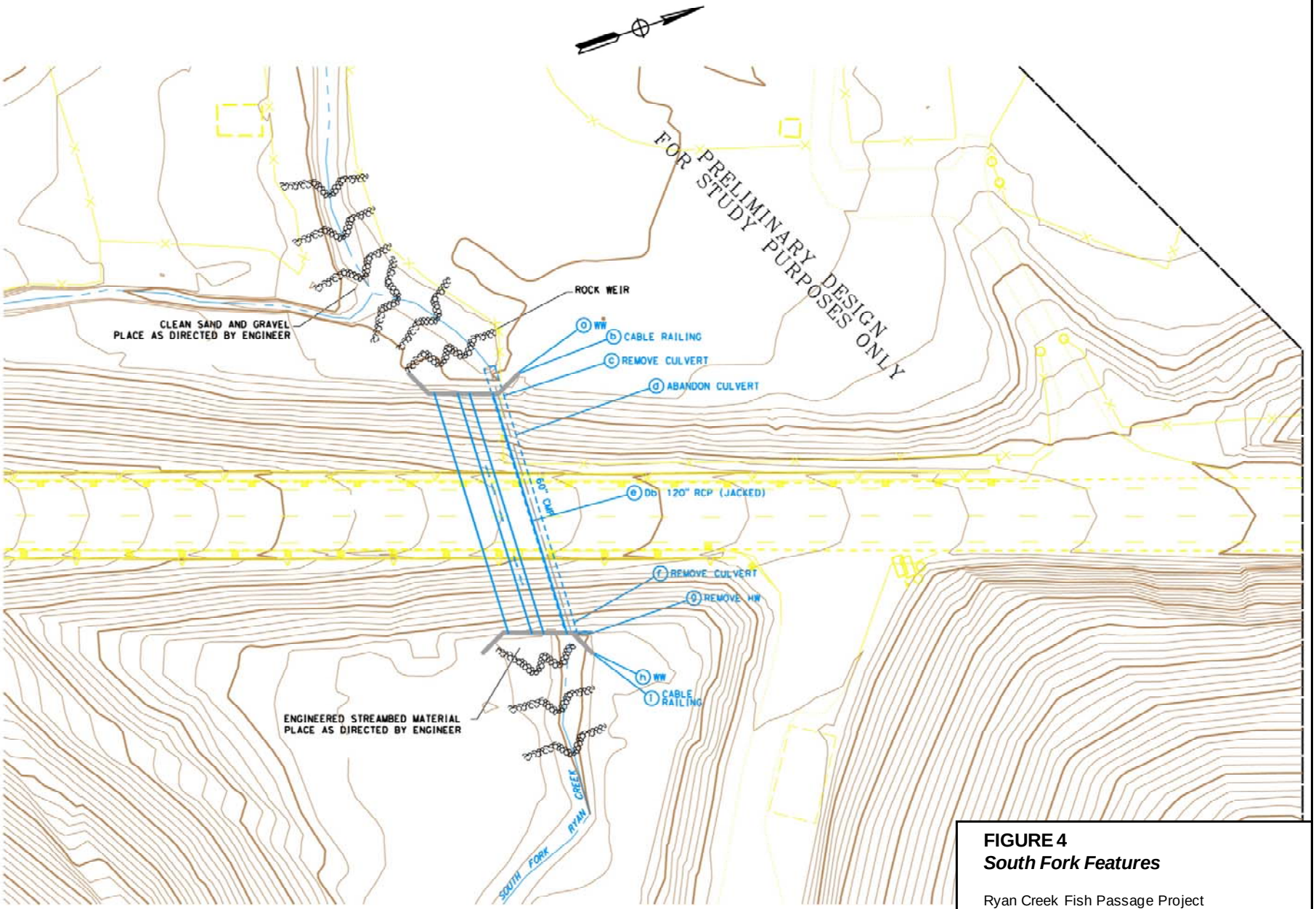


FIGURE 4
South Fork Features

Ryan Creek Fish Passage Project
01-MEN-01 (PM 52.1 / 52.5)

State of California
Department of Transportation

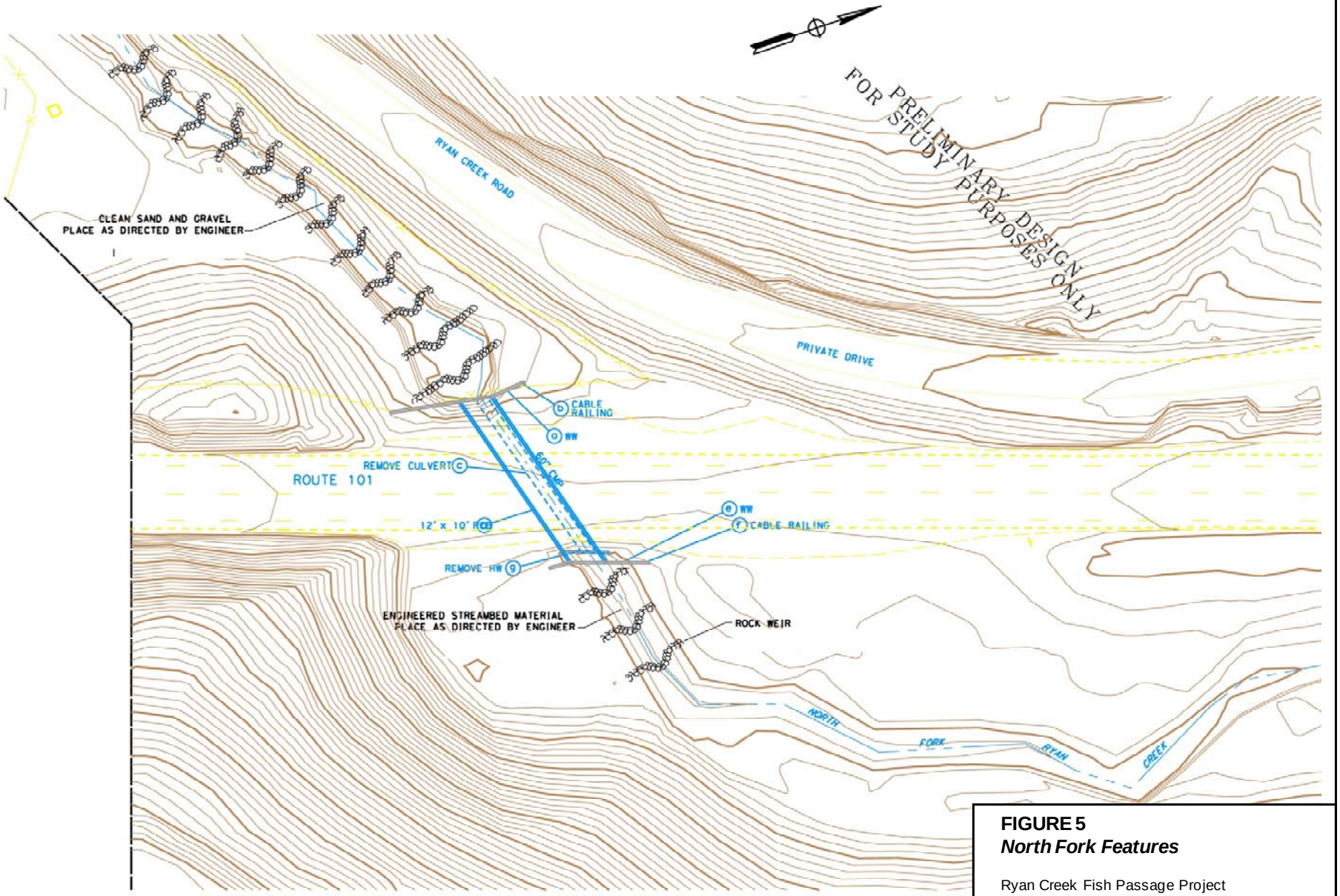
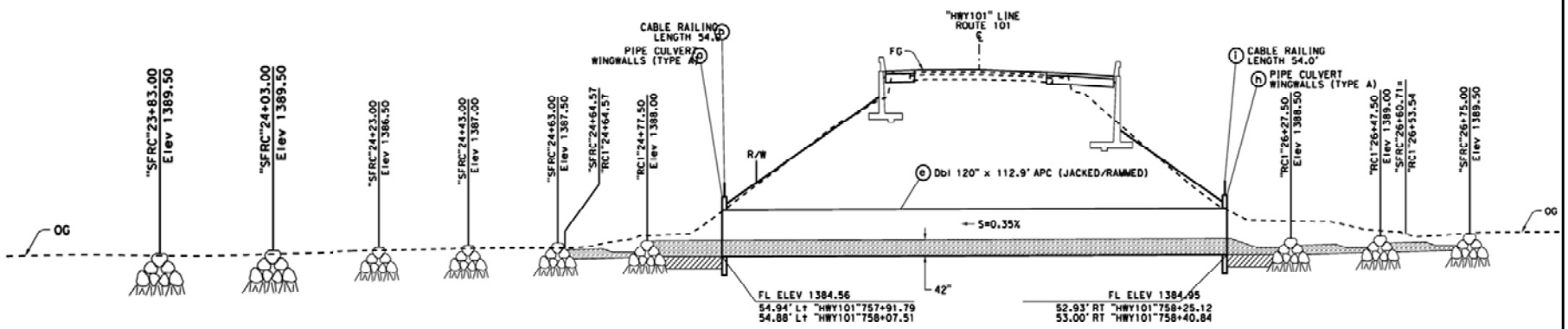


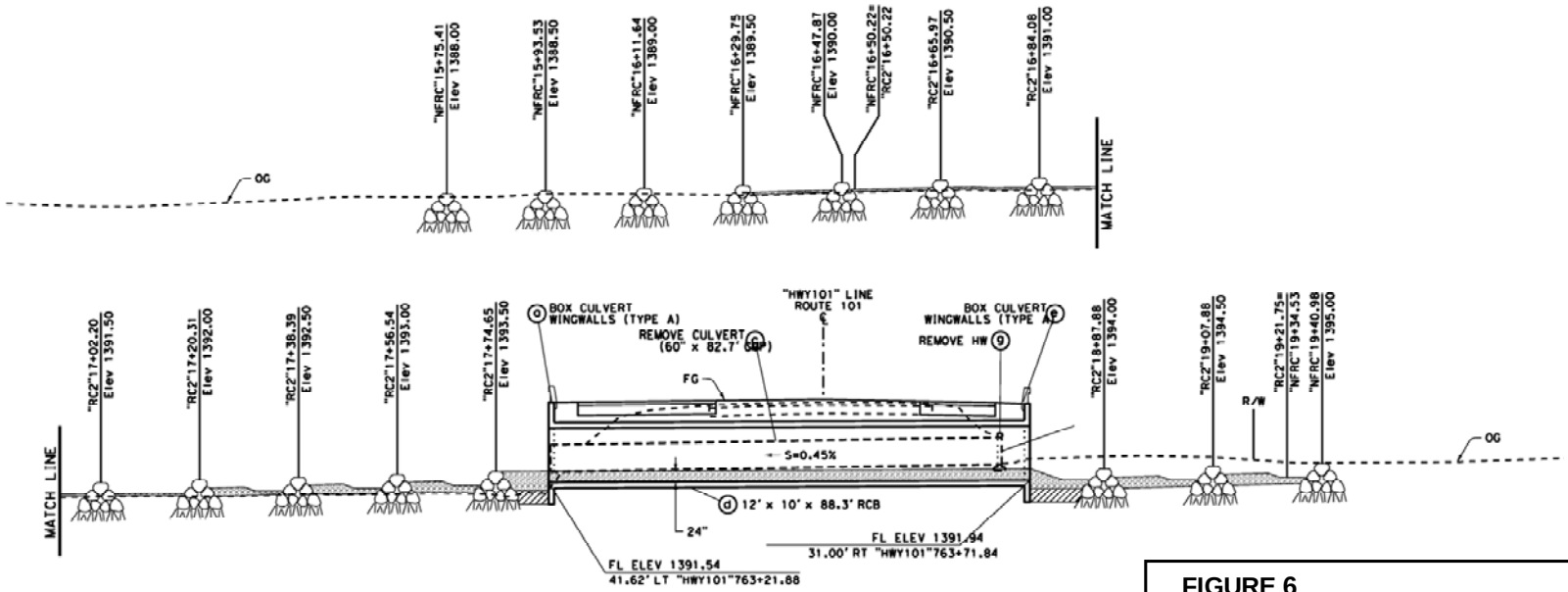
FIGURE 5
North Fork Features

Ryan Creek Fish Passage Project
01-MEN-01 (PM 52.1 / 52.5)

State of California
Department of Transportation



South Fork Profile



North Fork Profile

FIGURE 6
South and North Fork Profiles

Ryan Creek Fish Passage Project
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State of California
Department of Transportation

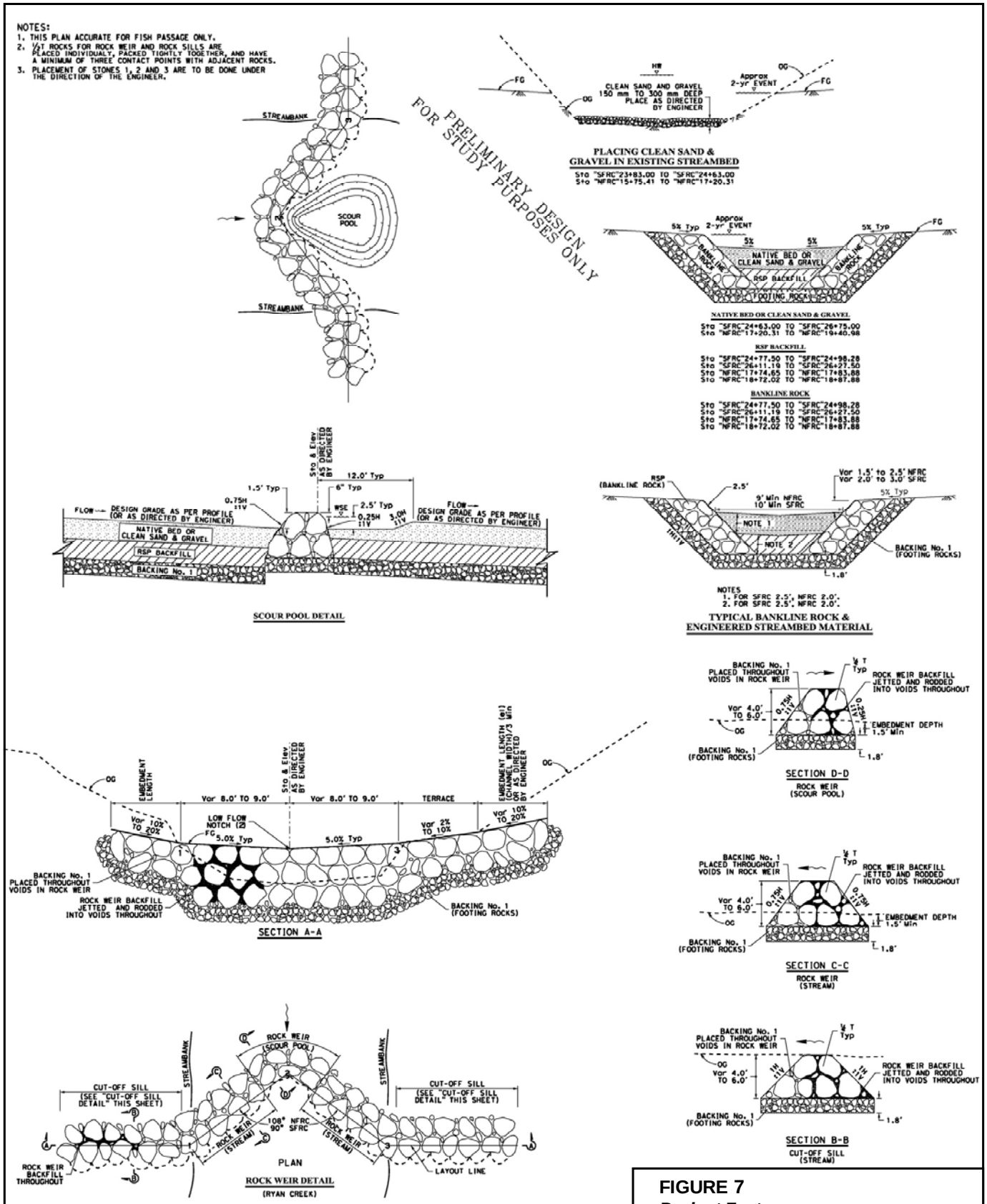


FIGURE 7
Project Features

Ryan Creek Fish Passage Project
01-MEN-01 (PM 52.1 / 52.5)

State of California
Department of Transportation

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
- ☐ Biological Resources
- ☐ Cultural Resources
- ☐ Geology/Soils
- ☐ GHG/Climate Change
- ☐ Hazards and Hazardous Materials
- ☐ Hydrology/Water Quality
- ☐ Land Use/Planning
- ☐ Mineral Resources
- ☐ Noise
- ☐ Population/Housing
- ☐ Public Services
- ☐ Recreation
- ☐ Transportation/Traffic
- ☐ Utilities/Service Systems
- ☐ Mandatory Findings of Significance

Impacts Checklist

The impacts checklist starting on the next page identifies physical, biological, social, and economic factors that might be affected by the proposed project. The California Environmental Quality Act impact levels include “potentially significant impact,” “less than significant impact with mitigation,” “less than significant impact,” and “no impact.”

The checklist is followed by a focused discussion of biological issues relating to this project.

	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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

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

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

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

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
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?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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)?	☐	☐	☐	☒
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?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
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	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

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

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

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

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?	☐	☐	☐	☒

Affected Environment, Environmental Consequences, and Avoidance/Minimization Measures

Visual/Aesthetics

Affected Environment

The visual character of the proposed project will not impact the visual character of the corridor. The project will remove a number of trees but the re-vegetation of the disturbed area will re-establish the ecosystem. The exact number of trees is not known at this time.

The visual quality of the existing corridor will not be altered by the proposed project. The proposed project will take place primarily in the creek bed and the highway is located at a higher elevation so as the motorist travels along the corridor the actual impacted site will not be highly visible.

This area does have a sense of vividness and unity along the existing corridor. This will be a slight change initially but after the implementation of the minimization measures the site will return to its natural condition.

Environmental Consequences

This project will not: have a substantial adverse effect on a scenic vista; damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along the highway; degrade the existing visual character or quality of the site and its surroundings; and increase light or glare. The less than significant impacts caused by this project will be eliminated or reduced by implementing the recommended minimization measures.

Avoidance and Minimization Measures

The following measures to avoid or minimize visual impacts will be incorporated into the project:

- Areas of tree removal will require restoration through the use of erosion control hydro seeding and possibly netting/blankets. Other soil stabilization methods may be necessary; this work will need to be determined by the Caltrans Landscape Architecture during the design phase of the project.
- All areas disturbed or used for staging of vehicles and equipment shall be hydro-seeded and restored to its pre-construction condition upon completion of the project. This can best be accomplished by loosening and re-contouring the area's soil before applying erosion control (hydro-seed).
- Minimize the removal of and avoid where feasible established vegetation including trees. The areas where trees are present should be protected to reduce damage to the trees root systems. Where it is possible to save and preserve existing trees (of significant size and maturity), care and caution should be implemented during the construction phase. Environmentally sensitive area (ESA) fencing shall be installed to demarcate areas where vegetation is being preserved.
- Areas that have removed trees, shrubs and created soil disturbance due to construction activities will be re-established by applying a permanent erosion control and planting trees and shrubs where they are deemed appropriate. All finished slopes and graded areas shall be hydro-seeded with a permanent seed mix composed of native plant species indigenous to the area.

- During the Plans, Specifications and Estimates (PS&E) phase of the project, the project engineer will apply Best Management Practices (BMPs) and permanent erosion control and soil stabilization applications.

Cumulative Effects

Due to avoidance, minimization, and enhancement measures, cumulative impacts to visual resources would not be anticipated with the project.

Air Quality

Construction Impacts

This project is exempt from all air quality conformity analysis requirements per Table 2 of 40 Code of Federal Regulations (CFR) §93.126, subsection "Safety". No operational air quality impacts are anticipated.

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 PM_{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. Caltrans Standard Specifications, a required part of all construction contracts, should effectively reduce and control emission impacts during construction under the provisions of Section 7-1.02C "Emission Reduction" and Section 14-9.03 "Dust Control". Provision 14-9.02 "Air Pollution Control" requires the contractor to comply with all pertinent rules, regulations, ordinances, and statutes of the local air district.

Biological Resources

A qualified Caltrans biologist completed the Natural Environment Study (NES) in October 2013. As part of the NES, a species list of protected species in the immediate area was obtained from the United States Fish and Wildlife Service, and the biologist determined the absence or presence of listed species habitat within the project area.

Special-status species that have been recorded in the vicinity of the project area, but for which there are no observations and no appropriate habitat within the project area, are provided in Table 1 of the NES, and no further discussion of these species is provided here. An expanded discussion is provided below for sensitive species for which potential habitat is present or were detected within the project limits during field surveys, and that may be affected by project activities.

Threatened and Endangered Species

Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 United States Code (USC) Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration (FHWA), are required to

consult with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (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 consultation under Section 7 may include a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a No Effect finding. Section 3 of FESA defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

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

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

Affected Environment

The project area is located in Mendocino County, California, and is approximately 1,600 feet above sea level. The climate of the project area is characterized by sunny warm days in the spring and summer to cold days in the winter. Temperatures at this elevation may range from 100°s in the summer to below freezing in the winter. The project area is contained within the Upper Eel River watershed, HUC #18010103.

Ryan Creek currently has suitable stream temperatures for salmonids and may serve as a refuge area for species such as Coho salmon. Large culverts on the South Fork and North Fork of Ryan Creek along SR 101 reduce habitat utilization to upper stream reaches. Fish passage has been recently restored to a large culvert on Ryan Creek Road; this culvert is downstream of the SR 101 culverts that are proposed for this project. Pool habitat was found to be suitable in Ryan Creek by DFG habitat typing crews in 1995 and 2004.

The Biological Opinion (BO) received from NMFS on January 19, 2012, addressed potential adverse effects on the following listed species (Evolutionary Significant Unit or Distinct Population Segment) and designated critical habitat, in accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. §1531 et seq.):

- California Coastal Chinook salmon *(Oncorhynchus tshawytscha)*
  threatened (June 28, 2005, 70 FR 37160)
  critical habitat (September 2, 2005, 70 FR 52488)
- Southern Oregon/Northern California Coasts Coho salmon *(O. kisutch)*
  threatened (June 28, 2005, 70 FR 37160)
  critical habitat (May 5, 1999, 64 FR 24049)
- Northern California steelhead *(O. mykiss)*
  threatened (January 5, 2006, 71 FR 834)
  critical habitat (September 2, 2005, 70 FR 52488)

Coho salmon, Chinook salmon, and steelhead are anadromous fish, spending some time in both fresh- and saltwater. The older juvenile and adult life stages occur in the ocean, until the adults ascend freshwater streams to spawn. Eggs (laid in gravel nests called redds), alevins (gravel dwelling hatchlings), fry (juveniles newly emerged from stream gravels), and young juveniles all rear in freshwater until they become large enough to migrate to the ocean to finish rearing and maturing to adults. Juveniles migrating to the ocean are called smolts. Both smolts and adults go through physiological changes as they emigrate from fresh- to saltwater (smolts) and immigrate from salt- to freshwater (adults). The timing of migrations, freshwater habitat preferences for spawning and rearing, the duration of freshwater and ocean rearing, distribution in the ocean, age at maturity, and other traits vary by species. Coho salmon and Chinook salmon die after spawning, whereas steelhead can sometimes survive to spawn again.

Environmental Consequences

In December of 2011, Caltrans initiated Section 7 consultation with NMFS to address potential impacts to riverine salmonids from the construction of the Willits Bypass Project. The Willits Bypass Project also includes the Ryan Creek Fish Passage Mitigation Project for the purposes of Section 7 consultation.

The Biological Opinion (BO) received from NMFS on January 19, 2012, addressed potential adverse effects on Northern California steelhead, California Coastal Chinook salmon, and Southern Oregon/Northern California Coasts Coho salmon.

Based on the best available information, the BO concludes that the proposed Willits Bypass Project (including the Ryan Creek Fish Passage Mitigation Project) is not likely to jeopardize the continued existence of California Coastal Chinook salmon, Southern Oregon/Northern California Coasts coho salmon, or Northern California steelhead, or result in the destruction or adverse modification of designated critical habitat for these species. However, NMFS expects the action is likely to result in take of listed anadromous salmonids.

The BO also concludes that the fish passage improvements of the Ryan Creek culverts are expected to improve passage for adult and juvenile salmonids and improve utilization on a substantial amount of habitat for spawning and rearing. An additional 2.7 miles of salmonid habitat on the South Fork Ryan Creek watershed, and 1.7 miles of fish habitat on the North Fork Ryan Creek will be available to anadromous species. The increase in available habitat at Ryan Creek is expected to increase overall salmonid productivity in the Outlet Creek watershed.

Northern California (NC) Steelhead

The proposed removal of riparian vegetation at stream crossings is expected to adversely affect water temperature on the salmonid streams in the project action area. Due to riparian vegetation losses, additional solar inputs at the project's riparian removal sites will increase summer water temperature and degrade salmonid habitat. Summer stream temperatures are expected to increase as a result of project construction in wetted areas of Ryan Creek.

Suspended and deposited fine sediment can adversely affect salmonid rearing and spawning habitat if present in excessive amounts.

Caltrans currently requires contractors to implement soil stabilization and sediment control BMPs. These actions are designed to contain the majority of erodible material. For the Ryan Creek Mitigation Project, current BMPs are expected to provide effective sediment control (refer to Avoidance and Minimization Measures, below).

Increased turbidity levels associated with the Ryan Creek Mitigation Project are not expected to physically injure listed salmonids or result in adverse behavioral effects. Moderate, but temporary increases in turbidity during the summer construction season and during the winter months are expected. These levels will likely result in some limited behavioral effects, such as temporarily reduced feeding efficiency of juvenile salmon or steelhead in the action area. These behavioral changes are not expected to cause mortality or decrease the probability of individual juvenile or adult salmonid survival within the action area.

Equipment refueling, fluid leakage, and maintenance activities within and near the stream channel pose some risk of contamination of aquatic habitat and subsequent injury or death to listed salmonids. Caltrans has proposed measures which are designed to prevent the spill of contaminants into the waterways of the action area. Measures include: maintaining fuel storage and refueling sites in upland locations at an appropriate distance from the stream channel; maintaining vehicles and construction equipment in good working condition; and servicing of equipment in an upland location.

In addition to toxic chemicals associated with construction equipment, stream water that comes into contact with wet cement can adversely affect water quality by raising the pH of water, which may result in injury or death to listed salmonids. However, these water quality impacts are not anticipated, because the stream will be dewatered around the construction work sites. Measures should minimize the potential for a spill. In addition, Caltrans and its contractors will have ample opportunity to attend to any spill prior to toxic chemicals reaching the waters of the action area.

California Coastal (CC) Chinook Salmon ESU (*Oncorhychus tshawytscha)*

For potential project effects see Northern California Steelhead, above.

Southern Oregon/Northern California Coho Salmon

For potential project effects see Northern California Steelhead, above.

Avoidance and Minimization Measures

Establish Environmentally Sensitive Areas: Direct and indirect impacts to sensitive biological resources, including common vegetation and habitat for sensitive species, throughout the project area will be avoided by designating these features outside of the construction impact area as "environmentally sensitive areas" (ESAs) on project plans and in project specifications. ESA

information will be shown on contract plans and discussed in the Special Provisions. ESA provisions may include, but are not limited to, the use of temporary orange fencing to delineate the proposed limit of work in areas adjacent sensitive resources, or to delineate and exclude sensitive resources from potential construction impacts. Contractor encroachment into ESAs will be restricted (including the staging/operation of heavy equipment or casting of excavation materials). ESA provisions shall be implemented as a first order of work, and remain in place until all construction activities are completed. ESA provisions shall be implemented in the following specific locations: ESA fencing shall exclude all upland areas of the functioning existing embankment slopes adjacent to the North Fork and South Fork of Ryan Creek not required for access or construction activities.

Migratory Birds: Migratory birds or raptors may try to nest in vegetation within the project area between March 1st and August 15th. Migratory bird species are protected by the federal Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711). The list of birds protected by this act appears in Title 50 of the Code of Federal Regulations, Section 10.13, and include the following Federal and State Species of Concern appearing on the USFWS list of "Endangered and Threatened Species that may occur in or be affected by projects in the Selected Quad" for this project: Northern Spotted Owl, Western yellow-billed cuckoo, Cooper's Hawk, Oak titmouse, Lawrence's goldfinch, Olive-sided flycatcher, Yellow warbler, White-tailed kite, and Pacific slope flycatcher.

Trees and vegetation removal shall occur during the non-nesting season, September 1st to February 14th. If trees and vegetation cannot be removed during the non-nesting season than a preconstruction survey of trees and vegetation must be performed before the project can commence.

Restrict Timing of In-Stream Activities: To minimize direct and indirect impacts to fishery resources, no work will be performed in Ryan Creek between June 15th and October 15th. The time after October 15th and before June 15th represents the period between migration runs for anadromous salmonid fish species using Ryan Creek, and when non-natal juvenile salmonids are least likely to be present.

Containment Measures / Construction Site Best Management Practices: Measures will be employed to prevent any construction material or debris from entering surface waters or their channels. BMPs will be implemented and in place prior to during, and after construction in order to ensure that no silt, sediment, or other polluting materials enters surface waters.

Caltrans' Standard Specifications require the Contractor to submit a Water Pollution Control Plan. This plan must meet the standards and objectives to minimize water pollution impacts set forth in section 7-1.01G of Caltrans' Standard Specifications. The Water Pollution Control Plan must also be in compliance with the goals and restrictions identified in the Central Valley Water Quality Control Board's Basin Plan. Any additional measures included in project permits will be complied with. These standards/objectives, at times referred to as "Best Management Practices" (BMPs), include but are not limited to:

1) Where working areas encroach on live or dry streams, lakes, or wetlands, RWQCB-approved physical barriers adequate to prevent the flow or discharge of sediment into these systems shall be constructed and maintained between working areas (bridge deck, barge platform) and streams, lakes and wetlands. During construction of the barriers, discharge of sediment into streams shall be held to a minimum. Discharge will be contained through the use RWQCB-approved measures that will keep sediment from entering protected waters. Oily or greasy substances originating from the Contractor's operations shall not be allowed to enter or be placed where they will later enter a live or dry stream, pond, or wetland.

2) Asphalt concrete shall not be allowed to enter a live or dry stream, pond, or wetland.

3) Special attention shall be given to prevent welding materials, paint residue or other construction materials from entering the Ryan Creek.

If a revegetation seed mix is to be used, the mix shall also be certified weed-free and contain native species appropriate for the project area.

Minimize Disturbance to Creek Channel and Adjacent Areas: Disruption of the streambed and adjacent riparian corridor will be minimized. All stream and riparian habitat areas outside of the construction limits will be designated as ESAs.

De-Watering Activities: To minimize effects of the proposed construction, Caltrans proposes to dewater stream construction areas and relocate fish to other appropriate stream reaches beyond the construction area. By removing fish from the stream reaches in and adjacent to construction areas, the project is expected to reduce the number of juvenile anadromous salmonids injured or killed during the summer work season. In the absence of fish relocation, juvenile steelhead, coho and Chinook salmon would be exposed to dewatering, thermal stress, desiccation, physical injury from construction equipment.

Although fish relocation avoids impacts to fish in the project area, the fish relocation activities themselves are expected to result in some stress and mortality. Direct effects to juvenile salmonids from this dewatering and relocation will occur in action areas at Ryan Creek at the south fork located at approximately at Post Mile 52.25 and at the south fork located at Post Mile 52.36.

The actual distance that may need to be dewatered will vary with actual summer flow conditions. Summer flows in Ryan Creek are dependent on precipitation levels during the winter and spring preceding construction.

Caltrans proposes to allow the contractor to choose various methods of cofferdam construction, including the use of rubber bladders, clean gravel, or sand bags to block stream flow and divert water around the construction sites. During dewatering of each stream crossing area, juvenile fish, including listed salmonids, will be relocated to other appropriate stream reaches. Capture and relocation efforts will result in stress and potential mortality of some juvenile steelhead and salmon. These activities may occur at each construction site over two construction seasons.

During the dewatering and fish relocation phase, juvenile steelhead are expected to be present at each stream crossing site. Juvenile steelhead densities are expected to be low based on habitat quality and prior survey work by fishery biologists. The likelihood of juvenile Chinook salmon and coho salmon being present during the construction/dewatering phase of the proposed project is very low. Ocean-type juvenile Chinook salmon normally migrate out of their natal stream from 60-150 day post-hatching, but under some conditions may remain in freshwater their first year.

Fish relocation at the proposed project sites will be conducted with electroshocking gear, seining gear, or dip nets by qualified biologists. Once cofferdams are in place, water in pool habitats may be removed using screened pumps. When stream habitats have been sufficiently dewatered, relocation efforts will continue until all fish have been removed from the dewatered reach. Despite these measures, some mortality of fish is likely due to injury from relocation methods (seining or electrofishing), stress related to handling, and individual fish eluding capture. These latter fish will die when the work areas are dewatered.

Mortality associated with fish relocation activities is expected to be low. To minimize impacts during fish collection and relocation, Caltrans proposes to use only experienced biologists, approved by NMFS and the CDFW. Fish will be relocated to suitable habitats outside of the construction area. Based on review of up-to-date fish relocation techniques and protocols, unintentional mortality of juvenile anadromous salmonids is not expected to exceed three percent of the fish collected. Biologists with electrofishing experience and skill can reduce injury and mortality rates to near one percent. Juvenile steelhead will comprise most or all of the salmonids collected at the stream crossing project sites. Due to the very low densities of juvenile Chinook and Coho salmon in the project area, few are likely to be present and, thus, very few Coho and Chinook salmon mortalities are expected. Juvenile salmonids that avoid capture in the project work area are not likely to survive within the construction sites once they are dewatered. Due to the poor habitat conditions (lack of hiding cover) at the construction sites, NMFS expects that relocation efforts will be effective and mortalities from dewatering and fish relocation will be less than three percent of the total number of fish present in the affected reach of stream.

The following measures from the NMFS BO will also be implemented:

1. Caltrans shall provide NMFS with a Fish Relocation and Dewatering Plan at least 30 days prior to the start of dewatering for fish relocation activities, and must receive written approval for this plan from NMFS prior to beginning any dewatering for fish relocation in streams where federally listed salmonids are present. NMFS shall provide comments within 30 days of plan submittal. This plan shall outline final collection equipment and a map with the habitat areas for relocating fish. Any alteration in materials for dewatering methods and fish relocation methods shall also be included.

2. Caltrans shall retain a qualified biologist with expertise in the areas of anadromous salmonid biology, including handling, collecting, and relocating salmonids; salmonid/habitat relationships; and biological monitoring of salmonids. Caltrans shall ensure that all fisheries biologists working on this project be qualified to conduct fish collections in a manner which minimizes all potential risks to ESA-listed salmonids. Electrofishing, if used, shall be performed by a qualified biologist and conducted according to the *NOAA Fisheries Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act*, June 2000.

3. The fisheries biologist shall monitor the construction site during placement and removal of cofferdams to ensure that any adverse effects to salmonids are minimized. The biologist shall be on site during all dewatering events in anadromous fish streams to ensure that all ESA-listed salmonids are captured, handled, and relocated safely. The fisheries biologist shall notify NMFS staff one week prior to capture activities in order to provide an opportunity for NMFS staff to observe the activities. During fish relocation activities the fisheries biologist shall contact NMFS staff, if mortality of federally listed salmonids exceeds 3 percent of the total for each species collected, at which time NMFS will stipulate measures to reduce the take of salmonids.

4. If ESA-listed fish are handled, it shall be with extreme care and they shall be kept in water to the maximum extent possible during rescue activities. All captured fish shall be kept in cool, shaded, aerated water protected from excessive noise, jostling, or overcrowding any time they are not in the stream and fish shall not be removed from this water except when released. To avoid predation the biologist shall have at least two containers and segregate young-of-year fish from larger age-classes and other potential aquatic predators. Captured salmonids will be relocated as soon as possible to a suitable instream location (pre-approved by NMFS) where suitable habitat conditions are present to allow for survival of transported fish and fish already present.

5. Non-native fish that are captured during fish relocation activities shall not be relocated to anadromous streams or areas where they could access anadromous habitat.

6. Pumps used to dewater the work area shall be equipped with screens that meet the following NMFS fish screening criteria:

- Perforated plate: screen openings shall not exceed 3/32 inches (2.38mm), measured in diameter.
- Woven Wire: screen openings shall not exceed 3/32 inches (2.38 mm measured diagonally).
- Screen material shall provide a minimum of 27% open area.
- Approach velocity shall not exceed 0.33 feet per second.

7. Caltrans shall provide its BMPs listed in its biological assessment and the Terms and Conditions of the Biological Opinion (BO) that are specific to the Ryan Creek Mitigation project to its contractors and ensure that they are followed for the duration of the project.

8. Any woody debris with diameter greater than 12 inches that is removed during dewatering activities will be placed back into the creek following construction activities.

9. Caltrans shall notify the NMFS Santa Rosa Area Office by letter stating the project commencement date, at least fourteen days prior to implementation.

10. Caltrans shall allow any NMFS employee(s) or any other person(s) designated by NMFS, to accompany field personnel to visit the construction sites during activities provided for in the BO. NMFS will notify the Caltrans Resident Engineer at least 48 hours prior to the planned site visits and will contact Caltrans personnel prior to entering the construction site.

11. Representatives from NMFS and CDFW shall be notified two weeks in advance of any Caltrans pre-construction meetings for the Ryan Creek Mitigation Project.

12. Prior to the completion of Ryan Creek Mitigation project construction, Caltrans shall provide NMFS with a maintenance plan for the project that includes description of specific maintenance activities and the specific BMPs that will be used to avoid impacts to listed salmonids and their critical habitats.

13. The contractor or its biologist will not allow water that comes in contact with wet concrete and has a pH greater than 9.0 to enter the ground or stream but shall be either: (1) pumped to a separate, lined basin, and then pumped to a truck or upland for disposal or treatment (not within the bank to bank of any waterway); or (2) pumped directly to a truck for disposal at a site that is not within the top of bank to top of bank of any waterway.

14. The contractor or its biologist will check construction equipment used within the creek channel each day prior to work within the creek channel (top of bank to top of bank) and if necessary action shall be taken to prevent fluid leaks. If leaks occur during work in the channel (top of bank to top of bank), Caltrans, or their contractor, shall contain the spill and remove the affected soils.

15. Water drafting must not be acquired from any source that may affect salmonid habitat. Water drafting from the project area and vicinity is not permitted.

16. Working waters from the project area shall not be discharged to the live stream, unless Caltrans fisheries biologist can demonstrate that no impact to stream water temperature or other water quality parameters will occur as a result of the discharge.

17. A biologist shall monitor in-channel activities and performance of sediment control or detention devices for the purpose of identifying and reconciling any condition that could adversely affect salmonids or their habitat. If sediment delivery does occur, work activities that are the cause of the sediment shall be halted and corrective measures implemented until the sediment source is eliminated.

Wetlands, Other Waters

Regulatory Setting

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

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

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

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

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

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities which may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request

Affected Environment

There are no wetlands identified within the project limits.

Ryan Creek is considered waters of the U.S.

Environmental Consequences

Impacts to Waters of the U.S. will include the replacement and extension of culverts in Ryan Creek, the possible placement of Rock Slope Protection (RSP), engineered streambed material, and temporary water diversion structures that will be removed at the completion of the project. There will be approximately 0.0288 acres of permanent fill to other waters of the U.S. in the South Fork of Ryan Creek and 0.0684 acres of permanent fill to other waters of the U.S. in the North Fork of Ryan Creek. Wetlands will not be affected by the project.

Because the project requires the replacement of culverts within Ryan Creek, a USACE 404 permit, a RWQCB 401 permit and a 1602 permit will be required.

Avoidance and/or Minimization Measures

Please refer to the avoidance, minimization, and/or mitigation measures in the Threatened and Endangered Species section.

Cumulative Effects

Given that this fish passage project is 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.

Cultural Resources

Avoidance and/or Minimization Measures

No pre-construction, construction, or post construction activities will occur outside the area that has been surveyed for archaeological resources. This includes staging, storage, and parking of equipment as well as preconstruction activities such as clearing and grubbing and utility relocation.

In addition, if cultural materials (e.g., bones, stone implements, old bottles, etc.) are encountered during the project construction, Caltrans policy requires that all work in the area (within a 60 meter [200 feet] radius) must immediately halt until a qualified archaeologist can evaluate the nature and significance of the material and determine an appropriate course of action in consultation with the State Historic Preservation Office (Stipulation XV, Post Review Discoveries, Section B.1-3 in the Section 106 PA).

If human remains are discovered or recognized during construction, there shall be no further excavation or disturbance of the location (within a 60 meter [200 feet] radius), or any nearby area reasonably suspected to overlie adjacent remains, until a qualified archaeologist has contacted the appropriate county coroner and they have determined that the remains are not subject to provisions of Section 27491 of the Government Code. If the coroner determines the remains to be Native American, they shall contact the Native American Heritage Commission (NAHC) within 24 hours. The NAHC will appoint a Most Likely Descendent for disposition of the remains (Health and Safety Code Sect. 7050.5, Public Resources Code Sect. 5097.24).

Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels. Research from such establishments as the Intergovernmental Panel on Climate Change (IPCC) are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light duty trucks, other trucks, buses, and motorcycles make up the largest source (second to electricity generation) of GHG emitting sources. The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.
There are typically two terms used when discussing the impacts of climate change. "Greenhouse Gas Mitigation" is a term for reducing GHG emissions in order to reduce or "mitigate" the impacts of climate change. “Adaptation," refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)[1].

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing growth of vehicle miles

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

traveled (VMT), 3) transitioning to lower GHG emitting fuels, and 4) improving vehicle technologies. To be most effective all four strategies should be pursued collectively. The following Regulatory Setting section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources.

Regulatory Setting

State

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

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

Federal

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

Project Analysis

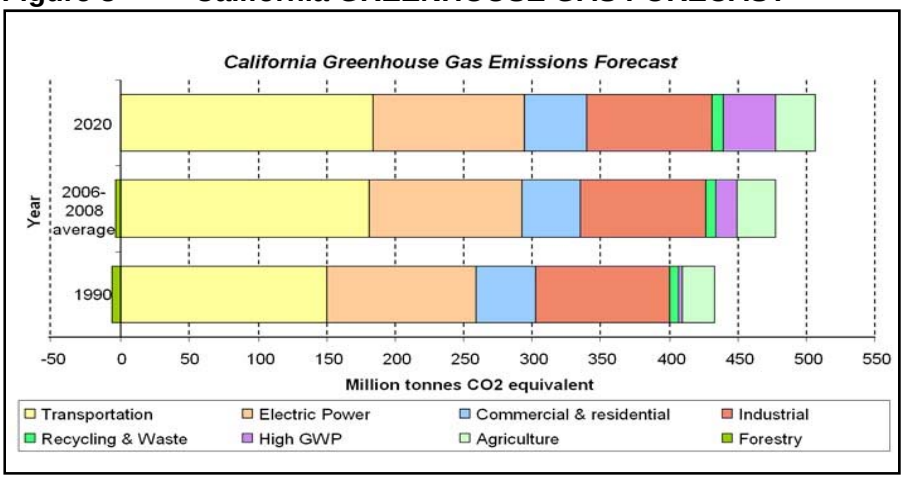
An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.[2] In assessing cumulative impacts, it must be determined if

[2] 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*

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 in order to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 contains the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, 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 the year 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.

Figure 8 California GREENHOUSE GAS FORECAST



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

The Department and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, the Department has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.[3]

The project involves replacing an existing 60-foot long corrugated metal pipe (CMP) culvert on South Fork Ryan Creek along State Route (SR) 101 (PM 52.25) with double 120' long steel pipe (SP) culverts. The South Fork double 120' long SP will be installed by jack ramming, a process where the pipe is pushed, or rammed, adjacent to the existing metal pipe. The project also includes replacing the existing culvert at the North Fork of Ryan Creek by the cut and cover method, where the pavement is removed and the existing culvert is dug up and replaced with a new culvert in the same alignment. An existing driveway off of SR 101 will be widened and several utility power lines and

(March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

[3] 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

poles will be relocated. The driveway widening, included in the South Fork work, is necessary to allow access for equipment required to construct the project. The utility relocation is required for both North and South Fork work. The power lines must be moved because they interfere with the construction operations of both the South and North Forks.

The operation of this project would result in low-to-no potential for an increase in GHG emissions.

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 onsite construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

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

CEQA Conclusion

Although construction emissions are unavoidable and are expected to be minimal, the proposed project will not increase capacity and is not expected to result in additional operational CO_2 emissions. However, it is Caltrans 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, Caltrans 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

There are typically two terms used when discussing the impacts of climate change. "Greenhouse Gas Mitigation" is a term for reducing GHG emissions in order to reduce or "mitigate" the impacts of climate change. "Adaptation," refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)[4].

Greenhouse Gas Mitigation

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

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

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

1. Landscaping reduces surface warming, and through photosynthesis, decreases CO_2. The project proposes planting in the slopes and drainage improvements. Caltrans has committed to replace all removed trees based on replacement recommendations provided by the Caltrans landscape architect. These trees will help offset any potential CO_2 emissions increase. Based on a formula from the Canadian Tree Foundation[5], it is anticipated that the planted trees will offset between 7-10 tons of $C0_2$ per year.
2. According to Caltrans' Standard Specifications, the contractor must comply with all of rules, ordinances, and regulations regarding to air quality restrictions.
3. Compliance with Title 13, California Code of Regulations §2449(d)(3)—Adopted by the Air Resources Board on June 15, 2008, this regulation would restrict idling of construction vehicles to no longer than 5 consecutive minutes. The Contractor must comply with this regulation in order to reduce harmful emissions from diesel-powered construction vehicles.

Adaptation Strategies

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

Interim guidance has been 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.

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 (now the California State Transportation Agency) to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

[5] Canadian Tree Foundation at http://www.tcf-fca.ca/publications/pdf/english_reduceco2.pdf. For rural areas the formula is: # of trees/360 x survival rate = tonnes of carbon/year removed for each of 80 years.

Water Quality

Affected Environment

The project is located on Ryan Creek in Mendocino County. It is situated in the Outlet Creek Hydrologic Sub-Area (HSA) No. 111.61 in the Upper Main Eel River Hydrologic Area in the Eel River Hydrologic Unit. The project is located in the Ryan Creek watershed.

The small drainages within the Ryan Creek watershed discharge into Outlet Creek, which is a tributary to the Eel River. The major receiving water body (Eel River) is listed as impaired for sedimentation/siltation and temperature pursuant to Section 303(d) of the Clean Water Act. These constituents are typically associated with construction activities, agriculture, erosion, streambank modification, removal of riparian vegetation, channelization, and non-point sources. Total Daily Maximum Loads (TMDLs) for sedimentation/siltation and temperature have been developed and approved by the U.S. Environmental Protection Agency (USEPA) and adopted for the Eel River by the North Coast Regional Water Quality Control Board (RWQCB).

Environmental Consequences

There is the potential for temporary water quality impacts to occur during culvert replacement activities due to work in and around Ryan Creek. The majority of work conducted at the South Fork would occur outside of the existing channel, but the majority of the work conducted at the North Fork would occur in the channel. Tree or vegetation removal that may reduce shade cover may be necessary at the North Fork. Any type of soil disturbance would expose soil to erosion from wind and water that could result in sedimentation to receiving surface waters.

Avoidance and Minimization Measures

To prevent potential pollution to receiving waters as a result of construction activities and/or operations related to this project, pollution prevention and treatment control BMPs would be incorporated. Compliance with the standard requirements of the Caltrans Statewide National Pollutant Discharge Elimination System (NPDES) permit and Construction General Permit would be required to minimize potential short-term construction-related impacts. The anticipated BMP measures for this project are described below.

1. The Eel River TMDL for sedimentation is in effect, which requires sediment-control BMPs to avoid further impairment. Anticipated temporary sediment and erosion control measures for this project include the following:

    - Clear water diversion
    - Silt fence
    - Fiber rolls
    - Sandbag barrier
    - Gravel bag berm
    - Rolled erosion-control product (e.g., netting)

2. Specific pollution prevention measures would be implemented for the proposed project to help minimize pollution in storm water runoff, including preservation of existing vegetation,

slope/surface protection systems (permanent soil stabilization), and designated outdoor material storage areas.

3. The project would be regulated by the North Coast RWQCB through Caltrans Statewide NPDES Permit (Order No. 2012-0011-DWQ). Caltrans would implement the programs specified in its approved Storm Water Management Plan.
4. If the total disturbed soil area is equal to or greater than 1 acre, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared and implemented in accordance with the Construction General Permit to address all construction-related activities, equipment, and materials that have the potential to impact water quality. The SWPPP would identify the sources of pollutants that may affect the quality of storm water; include construction site BMPs to control sedimentation, erosion, and potential chemical pollutants; and provide for construction materials management and non-storm-water BMPs. All construction site BMPs would follow the latest edition of the Storm Water Quality Handbook: Construction Site Best Management Practices Manual to control and minimize the impacts of construction-related activities, materials, and pollutants on the watershed. A Water Pollution Control Program would be implemented if the disturbed soil area is less than one acre.
5. The project would comply with Caltrans Standard Specifications for Water Pollution Control and Job Site Management. The project would implement storm water and water pollution control training, routine BMP inspections, spill prevention and control, materials and waste management, and non-storm water management.

Cumulative Effects

Given this fish passage project would result in a net increase in riparian and creek habitat, long-term beneficial effects on water quality would be anticipated. 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.

Noise

Construction Impacts

This project is considered a Type III project and it is exempt from traffic noise impact analysis under Title 23, Part 772 of the Code of Federal Regulations (23CFR772). No operational noise impacts are anticipated.

During construction noise may be generated from the contractors' equipment and vehicles. Caltrans requires the Contractor to conform to the provisions of Standard Specification, Section 14-8.02 "Noise Control". "Do not exceed 86 dBA LMax at 50 feet from the job site activities from 9 p.m. to 6 a.m.". Equip an internal combustion engine with manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

List of Preparers

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

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Tim Keefe, Associate Environmental Planner, Archaeology; Contribution: Native American Consultation

Ken Lastufka, Associate Environmental Planner; Contribution: Environmental document preparation, Community Impact Assessment (CIA).

Mark Melani, Associate Environmental Planner (Hazardous Waste/Materials); Contribution: Initial Site Assessment (ISA)

Kemset Moore, Hydraulics Engineer; Contribution: Floodplain Evaluation Report

Erick Wulf, Associate Environmental Planner, Archaeology; Contribution: Cultural Resources Study

Erik Schwab, Associate Environmental Planner, Natural Resources; Contribution: Natural Environment Study (NES)

Saied Zandian, Transportation Engineer (Noise Quality); Contribution: Noise Assessment