# Acorn Curve Improvement

Located approximately 14 miles east of Blue Lake
01-HUM-299 PM 19.35/19.85
EA 0A360

## Draft Initial Study
## with Proposed Mitigated Negative Declaration

Prepared by the
State of California Department of Transportation

**June 2013**

# General Information About This Document

## *What's in this document?*

The California Department of Transportation (Caltrans) has prepared this Initial Study, which examines the potential environmental impacts of alternatives being considered for the proposed project located in Humboldt County, California. The document describes the proposed project, the existing environment that could be affected by the project, and potential impacts from the project, and the proposed avoidance, minimization, and/or mitigation measures.

## *What should you do?*

- Please read this Initial Study. Additional copies of this document as well as the technical studies are available for review at: Caltrans district office at 1656 Union Street, Eureka, CA; Humboldt County Eureka Main Library, 1313 Third Street, Eureka, CA 95501; Humboldt County Library Blue Lake Branch, 111 Greenwood, Blue Lake, CA 95525; Humboldt State University Library, Arcata, CA 95521.
- We welcome your comments. If you have any concerns regarding the proposed project, please send your written comments to Caltrans by the deadline. Submit comments via U.S. mail to Caltrans at the following address:

  Sandra Rosas, Environmental Branch Chief
  Environmental Services Branch E1
  California Department of Transportation
  P.O. Box 3700
  Eureka, CA 95502

  Submit comments via email to: Sandra_Rosas@dot.ca.gov.
- Submit comments by the deadline: **August 6, 2013**.

## *What happens next?*

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

For individuals with sensory disabilities, this document is available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please contact: Caltrans, Attn: Sandra Rosas, Environmental Branch E1, P.O. Box 3700, Eureka, CA 95502; (707) 441-5730 Voice, or use the California Relay Service TTY number, 711.

SCH#

Acorn Curve Improvement Project
State Route 299 in Humboldt County
01-HUM-299 Postmile 19.35 to 19.85
EA 01-0A360/ EFIS 0100020289

# DRAFT INITIAL STUDY
# with Proposed Mitigated Negative Declaration

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

THE STATE OF CALIFORNIA
Department of Transportation

June 26, 2013
Date of Approval

Cindy Anderson, Office Chief
North Region Environmental Services – North
California Department of Transportation
CEQA Lead Agency

The following persons may be contacted for additional information concerning this document:

Sandra Rosas, California Department of Transportation, E1 Environmental Branch Chief, North Region Environmental, P.O. Box 3700, Eureka, CA 95502; (707) 441-5730.

# Proposed Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

## *Project Description*

The California Department of Transportation (Caltrans) proposes to reduce collisions and improve safety along State Route 299 in Humboldt County by providing 8-foot wide shoulders throughout the project limits and closing the 1100-foot gap in the climbing lane segments. The superelevation will be modified through a variable-depth pavement overlay. Centerline and shoulder rumble strips will be installed. Storm drains and culverts will be adjusted and lengthened as needed.

## *Determination*

This proposed Mitigated Negative Declaration is included to give notice to interested agencies and the public that it is Caltrans' intent to adopt a Mitigated Negative Declaration for this project. This does not mean that Caltrans' decision regarding the project is final. This Mitigated Negative Declaration 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, hazards and hazardous materials, land use/planning, geology/soils, mineral resources, noise, population/housing, public services, recreation, transportation/traffic, utilities/service systems.

The proposed project would have no significant effect on visual resources nor on biological resources including wetlands, waters of the State and waters of the U.S. The following mitigation measures would reduce potential effects to insignificance:

- The wetlands, waters of the U.S. and waters of the State would be mitigated through either on-site or off-site restoration and planting.

_____ _____

Cindy Anderson, Office Chief
North Region Environmental Services – North
California Department of Transportation

Date

**Table of Contents**

# Section 1 Project Information

### *Project Title*

Acorn Curve Improvement.

### *Lead Agency Name and Address*

California Department of Transportation
1656 Union Street
Eureka, CA 95501

### *Contact Person and Phone Number*

Sandra Rosas, Senior Environmental Planner
(707) 441-5730

### *Project Location*

The site is located approximately 14 miles east of Blue Lake on State Route 299 between Bair Road and Acorn Lane.

### *Project Sponsor's Name and Address*

California Department of Transportation
1656 Union Street
Eureka, CA 95501

### *General Plan Description and Zoning*

The General Plan designations are T, Timberlands; AG, Agricultural General; and AL20, Agricultural Lands 20 Acre minimum parcel size. Zone designations are TPZ, Timber Production Zones; AE, Agricultural Exclusive; and U, Unclassified.

### *Description of Project*

The purpose of this project is to address incidents of collisions within the project limits. The project includes widening shoulders to improve clear recovery zone, correcting the superelevation, relocating the terminus of a truck climbing lane and installing rumble strips at the centerline and shoulders. The proposed improvements are expected to reduce the occurrence and severity of collisions.

One build alternative was proposed for this project. It consists of widening both sides of the existing roadway to provide 8-foot wide shoulders throughout the project limits and close the 100-foot gap in the climbing lane segments. The existing traveled way will be overlaid with variable-depth Hot Mix Asphalt (HMA) to correct the

superelevation from the existing 6% to a maximum superelevation rate of 8%. Centerline and shoulder rumble strips will be installed. Existing storm drains and culverts will be lengthened and adjusted as needed to match the proposed roadway section. This includes seven culverts.

Areas of existing pavement with localized structural section failure will be repaired by replacing a portion of the AC. All cracks greater than ¼" will be sealed.

The project proposes 1.5:1 cut slopes with the height of cut approximately 15 feet, and 1:1 geosynthetic reinforced embankment (GRE) slopes with a fill height of about 55 feet. Approximately 3,500 yds.$^3$ need to be excavated for this project and approximately 11,500 yds.$^3$ need to be imported for the GRE embankment. Highway planting and erosion control elements will be included to reestablish vegetation on the newly constructed slopes**.** The proposed embankment slope will be shielded by Metal Beam Guard Rail (MBGR). There are overhead electric lines evident within the project limits; no impacts to the existing poles are anticipated.

Construction is proposed to be completed in stages during a limited operating period of July 20 to January 31 during any construction year. The construction generally consists of the following activities:

- Clearing and grubbing across the face of the embankment where the proposed widening and fill material will be placed;
- Cutting an approximately 10 foot access road down the existing slope on the north side (downslope side) to start the key-in of the GRE fill. The toe of the new GRE fill will be cut into the existing slope and built up in layers at a steeper slope (1:1);
- Installing new MBGR on top of the new fill slope at the edge of the shoulder and traveled way;
- Treating the limits of the project with shoulder and centerline rumble strips.

A staging area has been identified on the north side of the west bound lane near the western limits of the project. Blasting, heavy drilling, pile driving, and other activities involving noises above ambient levels are not to be used. All work will be conducted within the State highway right of way.

### *Surrounding Land Uses and Setting*

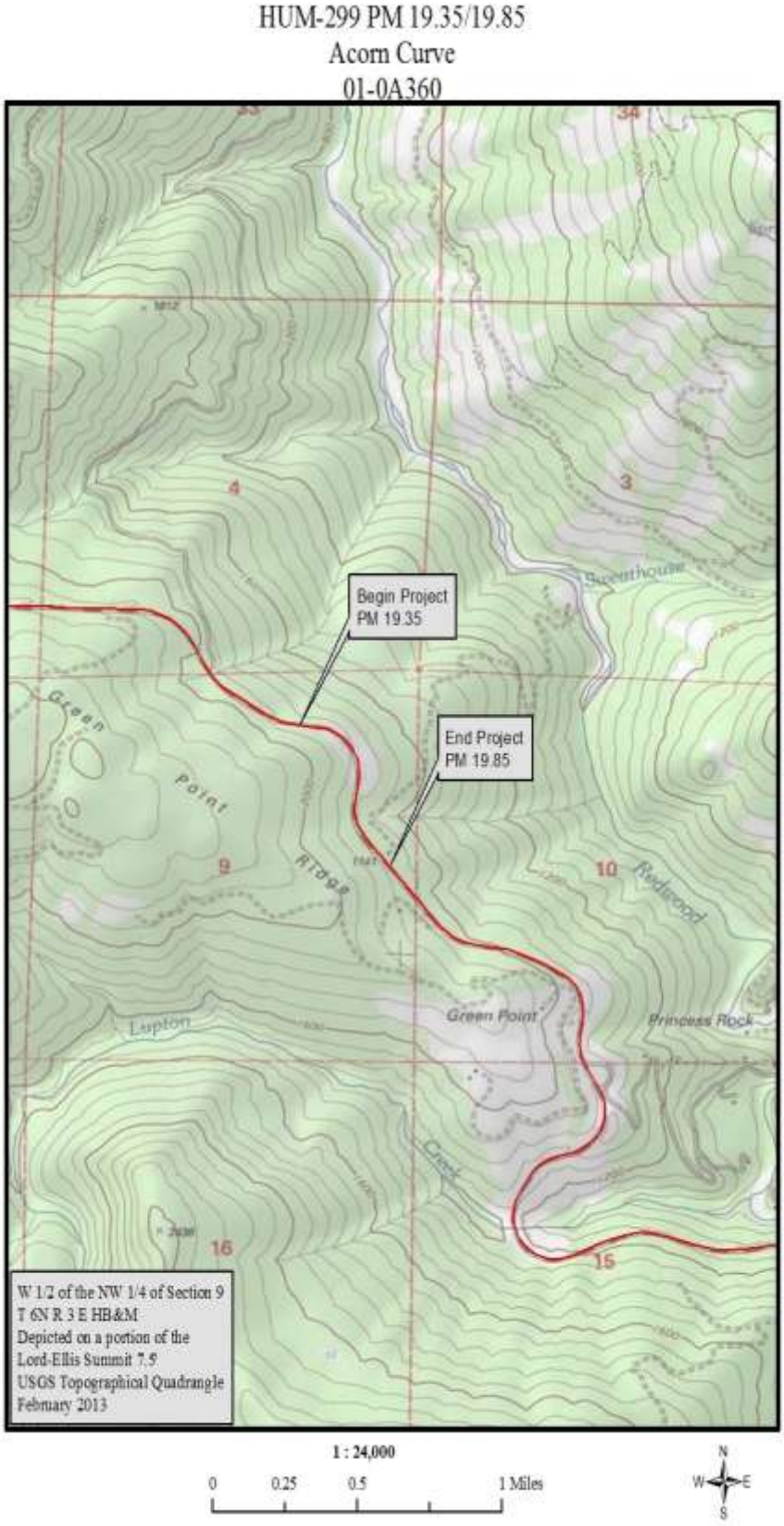
The project site is located in a rural area with privately owned timber lands and sparse residential development. The existing highway is a two-lane conventional highway that traverses mountainous terrain.

### *Other Public Agencies Whose Approvals Are Required*

Permits will be required by the Regional Water Quality Control Board, U.S. Army Corps of Engineers and California Department of Fish and Wildlife.

**Figure 1  Project Location Map**

**Figure 2 Project Vicinity Map**



# Section 2 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

As part of the scoping and environmental analysis conducted for the project, the following environmental issues were considered but no adverse impacts were identified. Consequently, there is no further discussion regarding agriculture/forest resources, air quality, cultural resources, geology/soils, hazardous waste, land use planning, mineral resources, noise, population/housing, public services, recreation, transportation/traffic, and utilities/service systems. Analyses of potential environmental impacts and discussion of avoidance, minimization and mitigation measures appears below for the following topics: visual/aesthetics, biological environment, climate change, water quality and stormwater runoff, and potential cumulative impacts.

## VISUAL/AESTHETICS

### Regulatory Setting

The California Environmental Quality Act (CEQA) establishes that it is the policy of the State to take all action necessary to provide the people of the State "with…enjoyment of *aesthetic*, natural, scenic and historic environmental qualities" (CA Public Resources Code [PRC] Section 21001[b]).

### Affected Environment

A Visual Impact Assessment was completed for this project on March 8, 2013. The proposed project is located on State Route 299 between postmiles 19.3 and 19.8 in rural Humboldt County, California. The site is located in the northern Coast Range between Lord Ellis Summit and Redwood Creek. The landscape is characterized as a mixture of grasslands and forest-covered mountainous terrain. The land use is rural, some rural residential and privately owned forest lands. The residential development is mostly screened from view from the highway by the forested landscape. The project corridor is defined as the area of land that is visible from, adjacent to, and outside the highway right-of-way and is determined by topography, vegetation and viewing distance.

State Route 299 was designated as the "Trinity Scenic Byway" in October 1991 by the U.S. Forest Service. This scenic byway extends from Blue Lake on the west to Redding on the east. The theme of the State Route, "From the Valley Oaks to the Redwood Coast" was chosen by the Forest Service to draw attention to the wide range of plant and animal life that exists in the various climate zones along the highway. The corridor also features cultural and historical aspects of the region, including Native American tribes, gold mining and timber production. In addition, the highway parallels the Trinity River, a Wild and Scenic River, from Willow Creek, approximately 19 miles east of the project limits, to Lewiston, approximately 91 miles east of the project limits.

The visual quality of State Route 299 is very high due to a combination of dense roadside natural vegetation, views of the surrounding mountains, rivers and streams, and the rural nature of the corridor.

The project site is located in a rural area between Lord Ellis Summit and the Redwood Creek Bridge. Scenic resources within the project viewshed include roadside forests, Redwood Creek and the surrounding mountains. Views of the surrounding mountains are mostly blocked by roadside vegetation which often shades the roadway. The curvy nature of the roadway briefly opens up views of the mountains in the middle and background. There are overhead utility lines present in this location.

### Environmental Consequences

Changes to the visual character include the removal of trees north of the roadway along the eastern half of the project area. Tree removal and an increase in height of an existing cut slope to approximately 15 feet in height is required to be able to widen the roadway. Travelers will notice the edge of the forest has shifted farther away from the roadside on the north side of the highway and the cut slope will rise farther above the roadway on the south side of the highway.

The visual quality will be slightly altered by the proposed project due to the removal of roadside vegetation along a portion of the project area and an increase to an existing cut slope. These project elements will not substantially impact the visual quality of the roadway.

Changes to visual resources (as measured by changes to visual character and visual quality) will be moderate-to-low due to the retreat of roadside vegetation, additional

paved and gravel surfaces for the roadway and the increase in surface area of the cut slope.

Adjacent property owners/residents with views to the road and highway users (people with views from the road) will not be adversely affected by the proposed project. Viewer exposure of the widening project by highway users will be limited to the immediate area surrounding the roadway. The time of exposure will be limited in duration due to a combination of roadway curves and roadside vegetation. Due to the highly scenic nature of State Route 299, viewer sensitivity is high for both the traveling public and those within close proximity of the highway. The proposed widening of the roadway, increase in scale of an existing cut slope and vegetation removal will not be at a level that negatively impacts the viewer exposure and sensitivity. This project will not negatively impact nearby residences since they are located far enough from the roadway, tucked into dense forest lands, for the roadway to be visible.

Highway users can be broken into two sub groups – regular users such as commuters and local residents and other users such as commercial long distance truck drivers and tourists. Between Lord Ellis Summit and the Redwood Creek Bridge, roadside vegetation is dense in most places, except in the area near Lupton Creek where geologic instability and landslides have created disturbed soils that do not support forested landscapes. In most places within this reach of highway, there are few views of the nearby mountains. The vegetation clearing on the north side of the highway will open up more expansive views across the Redwood Creek drainage. Widening to the west of an existing pullout may require the removal of several large trees, however, the removal of these trees would not be noticeable to most highway users due to the proximity to the dense forest edge in the immediate area.

### Avoidance, Minimization, and/or Mitigation Measures

Impacts created by the removal of vegetation will be somewhat counteracted by the opening of new views of the surrounding mountains which serve to improve both the visual character and quality of the roadway within the project limits.

The inclusion of aesthetic features in the project design can facilitate public acceptance of a project. Avoidance or minimization measures have been identified and can lessen visual impacts caused by the project:

- There are approximately 3 to 5 large trees whose roots may be negatively impacted by fill activities to the north of the roadway in an area west of an existing pullout. Measures will be taken to minimize the amount of fill material needed and to avoid impacting the roots of the trees uphill of the tree trunks.

- The proposed cut slope located to the east of the pullout and north of the roadway must be vegetated with native species where feasible.

## Biological Environment

### PLANT SPECIES

#### Regulatory Setting

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (DFW) have regulatory responsibility for the protection of special-status plant species. "Special-status" species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). The Threatened and Endangered Species Section in this document discusses all the other special-status plant species, including DFW species of special concern, USFWS candidate species, and California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at United States Code 16 (USC), Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Department projects are also subject to the Native Plant Protection Act, found at California Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act (CEQA), CA Public Resources Code, Sections 2100-21177.

## WETLANDS AND OTHER WATERS

### Regulatory Setting

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

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

USACE issues two types of 404 permits: Standard and General 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 authorize a variety of minor project activities with no more than minimal effects.

There are two types of Standard permits: Individual permits and Letters of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. 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 were developed by the U.S. EPA in conjunction with 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 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.

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

At the state level, wetlands and waters are regulated primarily by the California Department of Fish and Wildlife (DFW), the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB). In certain circumstances, the Coastal Commission 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 DFW before beginning construction. If DFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. DFW 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 DFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCB also issues water quality certifications for impacts to wetlands and waters in compliance with Section 401 of the CWA. Please see the Water Quality section for additional details.

## ANIMAL SPECIES

### Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) and the California Department of Fish and Wildlife (DFW) are responsible for implementing these laws. This section

discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed below. All other special-status animal species are discussed here, including DFW fully-protected species and species of special concern, and USFWS or NOAA Fisheries Service candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations pertaining to wildlife include the following:

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

## 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 subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration (FHWA), are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) to ensure that they are not undertaking, funding, permitting or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a no

effect finding. Section 3 of FESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The California Department of Fish and Wildlife (DFW) 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 DFW. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, DFW 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**.**

## NATURAL COMMUNITIES

### Affected Environment

A Natural Environment Study was prepared for this project in March 2013.

The biological study area occurs on a north to east facing slope dominated by second-growth Douglas fir forest. The site is approximately 13 miles east of the town of Blue Lake at an elevation of approximately 1800 feet. The mean tree diameters are

less than 14 inches as measured diameter at breast height (dbh). Cavities, mistletoe platforms, snags, logs, rocky areas, and general decadence are absent from the area.

Known and potential biological resources extant within and adjacent to the proposed work include U.S. and California State jurisdiction waters and wetlands. Based on field visits and research in databases for biological data, the project site is determined to not have any known State or federally Endangered Species Act listed species or candidate species or breeding habitat for such species. No critical habitat or essential fish habitat occurs within the project study area.

Federally and State listed species per the Endangered Species Act may occur near the project area but none have been detected within the project limits during the period of study. Listed species that have the potential for occurring near the project area include marbled murrelet, northern spotted owl, fisher, western yellow-billed cuckoo, little willow flycatcher, bald eagle, and bank swallow.

While the project is within the range for the northern spotted owl, habitat within the study area is only suitable for foraging and dispersal of juveniles, and not for nesting or roosting. No northern spotted owl activity centers have been recorded or observed within >0.50 miles of the project study area.

The fisher, which is broadly distributed throughout the region, inhabits intermediate to large tree stages of coniferous forests and deciduous-riparian areas with a high percentage of canopy closure, and utilizes cavities, snags, logs and rocky areas for cover and denning. Because this habitat type is absent in the project study area, the fisher is unlikely to be affected by proposed activities.

The project site lacks suitable habitat for the remaining five sensitive species – marbled murrelet, western yellow-billed cuckoo, little willow flycatcher, bald eagle, and bank swallow. Suitable habitat is absent for all Endangered Species Act listed fish.

Additional non-listed special status species could exploit portions of the study area and include: sharp-shinned hawks, Cooper's hawks, northern goshawks, several bats and numerous migratory birds. Most of the birds are protected under the 1918 Migratory Bird Treaty Act (MBTA) as amended.

Floristic surveys were conducted in the project study area. No special-status plant species were detected, and are not known to occur within the study area per a review

of database records and field surveys. The majority of the project area consists of douglas-fir dominated forest with components of alder, willow, tan oak, Pacific madrone and ferns.

One three-parameter wetland located along the right shoulder for eastbound travelers near the eastern edge of the project, approximately 600 ft west of the intersection of Acorn Road with State Route 299, measures approximately 0.010 acre in size. In addition to the wetland, there are seven culverts in the project limits. Three culverts will be extended at their outfalls along non-fish bearing streams at postmiles 19.32, 19.34, and 19.72. Waters at the inlets and outlets of these culverts are regulated as waters of the State and waters of the U.S. The waters are all on steep slopes high above Redwood Creek.

The vegetation in the wetland areas is dominated by native and non-native wetland species including alder, willow, horsetail grass, coltsfoot, chickweed, ferns and others.

### Environmental Consequences

The project has one build alternative which would impact 0.007 acres of the delineated wetland. This is displayed in Appendix B.

Refer to Appendix B which shows the locations of the three culverts that will be affected by this project. Approximately 0.009 acres, or 395.8 $ft^2$ of area of waters of the State will be impacted by this project. Approximately 0.003 acres, or 123.3 $ft^2$ of area of waters of the U.S. will be impacted by this project.

The sum of impacts to wetlands and waters of the U.S. and waters of the State amounts to 0.019 acres in total. The area of wetland impact is small but unavoidable. The wetland is perched on a former roadbed.

Approximately 1.7 acres of area will have vegetation removal, inclusive of approximately 0.7 acres that will later be overlain with the GRE wall.

### Avoidance, Minimization, and/or Mitigation Measures

1. Impacts to wetlands and waters of the State and waters of the U.S. are minimized to the extent feasible in the design plans.

2. Mitigation of these unavoidable impacts is proposed to occur either on-site or off-site at BLM lands in Lack's Creek, a tributary to Redwood Creek, or on other publicly owned or managed lands in the Redwood Creek watershed. The ratio for mitigation will be determined during negotiations with the regulatory agencies.

3. Construction, including clearing and grubbing, is proposed to be completed in stages during a limited operating period (LOP) of July 20 to January 31 during any construction year. The work window serves to minimize or avoid potential impacts to migratory breeding birds.

## CLIMATE CHANGE

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

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988, has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide ($CO_2$), 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 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.

Assembly Bill 1493 (AB 1493), Pavley. Vehicular Emissions: Greenhouse Gases, 2002: requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year. In June 2009, the U.S. Environmental Protection Agency (U.S. EPA) Administrator granted a Clean Air Act waiver of preemption to California. This waiver allowed California to implement its own GHG emission standards for motor vehicles beginning with model year 2009. California agencies will be working with federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger cars model years 2017-2025.

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

AB 32, the Global Warming Solutions Act of 2006, Núñez and Pavley: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan, (which includes market

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

mechanisms) and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

Executive Order S-20-06: (signed on October 18, 2006 by former Governor Arnold Schwarzenegger) further directs state agencies to begin implementing AB 32, including the recommendations made by the California's Climate Action Team.

Executive Order S-01-07: (signed on January 18, 2007 by former Governor Arnold Schwarzenegger) set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least ten percent by the year 2020.

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

Caltrans Director's Policy 30 (DP-30) Climate Change (approved June 22, 2012): is intended to establish a Caltrans policy that will ensure coordinated efforts to incorporate climate change into departmental decisions and activities. This policy contributes to Caltrans' 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 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. Addressing climate change mitigation and adaptation up front in the planning process will facilitate decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the state has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in the growth of vehicle hours travelled.

Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and Executive Order (EO) 13514 – *Federal Leadership in Environmental, Energy and Economic Performance*.

EO 13514 is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also direct federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act and that the U.S. EPA has the authority to regulate GHG. The Court held that the U.S. EPA Administrator must determine whether or not emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator found that the current and projected concentrations of the six key well-mixed greenhouse gases--carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride ($SF_6$)—in the atmosphere threaten the public health and welfare of current and future generations.

- **Cause or Contribute Finding:** The Administrator found that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. EPA's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*, which was published on September 15, 2009[2]. On May 7, 2010, the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* was published in the Federal Register.

U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations. These steps were outlined by President Obama in a Presidential Memorandum on May 21, 2010.[3]

The final combined U.S. EPA and NHTSA standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide ($CO_2$) per mile (the equivalent to 35.5 miles per gallon [MPG]) if the automobile industry were to meet this $CO_2$ level solely through fuel economy improvements. Together, these standards will cut GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On November 16, 2011, U.S. EPA and NHTSA issued their joint proposal to extend this national program of coordinated greenhouse gas and fuel economy standards to model years 2017 through 2025 passenger vehicles.

### Project Analysis

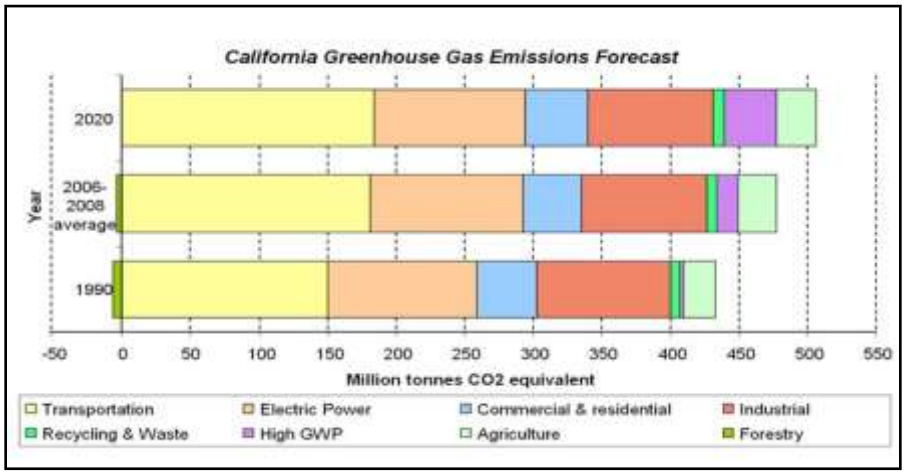
An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its

[2] http://www.epa.gov/oms/climate/regulations.htm#1-1
[3] http://epa.gov/otaq/climate/regulations.htm

*incremental* change in emissions when combined with the contributions of all other sources of GHG.[4] In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines sections 15064(h)(1) and 15130). To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects 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 1 California GREENHOUSE GAS FORECAST**




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

Caltrans 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

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

fossil fuels and 40 percent of all human made GHG emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.[5]

The purpose of the proposed project is to improve safety by widening shoulders, increasing the clear recovery zone, correcting the super-elevation, relocating the terminus of a truck climbing lane and installing rumble strips at the centerline and shoulders. The proposed improvements are expected to reduce the occurrence and severity of collisions.

Lane configurations will remain the same and this project is not expected to increase capacity, therefore, increases in operational GHG emissions are not expected to occur as a result of this project.

### 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

While construction would result in a slight increase in greenhouse gas emissions during construction, Caltrans expects that there would be no operational increase in GHG emissions associated with this proposed project. However, it is Caltrans' determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and California Environmental Quality Act

[5] 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

significance, it is too speculative to make a determination on the project's direct impact and its contribution on the cumulative scale to climate change. Nonetheless, Caltrans is taking further measures to help reduce energy consumption and greenhouse gas emissions. These measures are outlined in the following section.

## Greenhouse Gas Reduction Strategies

### *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. Former Governor Arnold Schwarzenegger's Strategic Growth Plan calls for a $222 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including $100.7 billion in transportation funding during the next decade. The Strategic Growth Plan targets a significant decrease in traffic congestion below today's level and a corresponding reduction in GHG emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together are expected to reduce congestion. The Strategic Growth Plan relies on a complete systems approach to attain $CO_2$ reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as depicted in Figure 2, the Mobility Pyramid.


**Figure 2: Mobility Pyramid**

Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high density housing along transit corridors. Caltrans works closely with local jurisdictions on planning activities but does not have local land use planning authority. Caltrans assists efforts to improve the energy efficiency

of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; this is done by supporting on-going research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by U.S. EPA and ARB.

Table 1 summarizes Caltrans and statewide efforts that Caltrans is implementing in order to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

**Table 1 Climate Change/$CO_2$ Reduction Strategies**

| Strategy | Program | Partnership | | Method/Process | Estimated $CO_2$ Savings (MMT) | |
|---|---|---|---|---|---|---|
| | | Lead | Agency | | 2010 | 2020 |
| **Smart** Land Use | Intergovernmental Review (IGR) | Caltrans | Local governments | Review and seek to mitigate development proposals | Not Estimated | Not Estimated |
| | Planning Grants | Caltrans | Local and regional agencies & other stakeholders | Competitive selection process | Not Estimated | Not Estimated |
| | Regional Plans and Blueprint Planning | Regional Agencies | Caltrans | Regional plans and application process | .975 | 7.8 |
| Operational Improvements & Intelligent Transportation System (ITS) Deployment | Strategic Growth Plan | Caltrans | Regions | State ITS; Congestion Management Plan | .07 | 2.17 |
| Mainstream Energy & GHG into Plans and Projects | Office of Policy Analysis & Research; Division of Environmental Analysis | Interdepartmental effort | | Policy establishment, guidelines, technical assistance | Not Estimated | Not Estimated |
| Educational & Information Program | Office of Policy Analysis & Research | Interdepartmental, CalEPA, ARB, CEC | | Analytical report, data collection, publication, workshops, outreach | Not Estimated | Not Estimated |
| Fleet Greening & Fuel Diversification | Division of Equipment | Department of General Services | | Fleet Replacement<br>B20<br>B100 | .0045 | .0065<br>.045<br>.0225 |
| Non-vehicular Conservation Measures | Energy Conservation Program | Green Action Team | | Energy Conservation Opportunities | .117 | .34 |
| Portland Cement | Office of Rigid Pavement | Cement and Construction Industries | | 2.5 % limestone cement mix<br>25% fly ash cement mix<br>> 50% fly ash/slag mix | 1.2<br>.36 | 4.2<br>3.6 |
| Goods Movement | Office of Goods Movement | Cal EPA, ARB, BT&H, MPOs | | Goods Movement Action Plan | Not Estimated | Not Estimated |
| **Total** | | | | | **2.72** | **18.18** |

The following measures will also 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 a variety of different-sized plant material where appropriate and feasible. These plantings will help offset any potential $CO_2$ emissions increase, based on a formula from the Canadian Tree Foundation[6].

2. According to Caltrans' Standard Specifications, the contractor must comply with all of the North Coast Air Quality Management District's (NCAQMD) rules, ordinances, and regulations regarding to air quality restrictions.

### 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.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency report on October 14, 2010, outlining recommendations to President Obama for how Federal Agency policies and programs can better prepare the U.S. to respond to the impacts of climate change. The Progress Report of the Interagency Climate Change Adaptation Task Force recommends that the federal government implement actions to expand and strengthen the nation's capacity to better understand, prepare for, and respond to climate change.

[6] 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.

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

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

The California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public, and private entities to develop. The California Climate Adaptation Strategy (Dec 2009)[7], which summarizes the best known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

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

The Resources Agency was also directed to request the National Academy of Science to prepare a Sea Level Rise Assessment Report by December 2010[8] to advise how California should plan for future sea level rise. The report is to include:

[7] http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF
[8] Pre-publication copies of the report, *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*, were made available from the National Academies Press on June 22, 2012. For more information, please see http://www.nap.edu/catalog.php?record_id=13389.

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

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

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 project was programmed for construction prior to 2013. The proposed project is outside the coastal zone and direct impacts to transportation facilities due to projected sea level rise are not expected.

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

Currently, Caltrans is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, Caltrans has not been able to determine what change, if any, may be made to its design standards for its

transportation facilities. Once statewide planning scenarios become available, Caltrans will be able to review its current design standards to determine what changes, if any, may be warranted in order to protect the transportation system from sea level rise.

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

## WATER QUALITY AND STORM WATER RUNOFF

### Regulatory Setting

### Federal Requirements: Clean Water Act

In 1972 Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Known today as the Clean Water Act (CWA), Congress has amended it several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. Important CWA sections are:

- Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity which may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) requires permits for discharges of

storm water from industrial/construction and municipal separate storm sewer systems (MS4s).

- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

USACE issues two types of 404 permits: Standard and General 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 authorize a variety of minor project activities with no more than minimal effects.

There are two types of Standard permits: Individual permits and Letters of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. For Standard permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's Section 404 (b)(1) Guidelines (U.S. EPA Code of Federal Regulations [CFR] 40 Part 230), and whether permit approval is in the public interest. The Section 404(b)(1) Guidelines were developed by the U.S. EPA in conjunction with 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 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. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

### State Requirements: Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined and this definition is broader than the CWA definition of "pollutant". 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.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA, and regulating discharges to ensure compliance with the water quality standards. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions, and then set criteria necessary to protect these uses. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants, which are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

### State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

**National Pollution Discharge Elimination System (NPDES) Program**

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). The U.S. EPA defines an MS4 as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying storm water." The SWRCB has identified Caltrans as an owner/operator of an MS4 pursuant to federal regulations. Caltrans' MS4 permit covers all department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Caltrans' MS4 Permit, under revision at the time of this update, contains three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below);
2. Caltrans must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
3. Caltrans' storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices that Caltrans uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of Best Management Practices (BMPs). The proposed

project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

### Construction General Permit

Construction General Permit (Order No. 2009-009-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates storm water discharges from construction sites which result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). In accordance with Caltrans' Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

### Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit.

In some cases the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as Waste Discharge Requirements (WDRs) under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

### Affected Environment

A Water Quality Assessment Report was prepared for this project on March 25, 2013.

The project is situated in an Undefined Hydrologic Sub-Area in the Redwood Creek Hydrologic Unit and is in the Redwood Creek watershed. The receiving water body is listed as impaired pursuant to Section 303(d) of the Clean Water Act. The constituents of concern are sedimentation/siltation and temperature. These constituents are normally associated with stormwater run-off from highways. Total Daily Maximum Loads (TMDLs) for sedimentation and siltation have been adopted for Redwood Creek by the North Coast Regional Water Quality Control Board (NCRWQCB) and approved by the U.S. EPA. The beneficial uses of Redwood Creek are listed in the Basin Plan adopted by the NCRWQCB.

A preliminary estimate shows that the disturbed soil area (DSA) is approximately 1.48 acres.

### Environmental Consequences

Tree and other vegetation removal and soil disturbance have the potential to impact water quality by exposing soils to erosion and adding sediments to drainages.

### Avoidance, Minimization, and/or Mitigation Measures

To prevent disturbed soil areas associated with construction activities from releasing sediments into receiving waters, the following recommendations are advised:

1. The project shall comply with the requirements prescribed in Caltrans Statewide NPDES Permit CAS No. 000003 (Order No. 99-06-DWQ).

2. The requirements of NPDES General Permit CAS No. 000002 (Order No. 2009-0009-DWQ, as amended) for General Construction Activities are applicable to the project if the total disturbed soil area (DSA) is equal to or greater than 1.0 acre.

3. Because the DSA exceeds 1.0 acre, a Caltrans approved SWPPP will be required. The SWPPP specifies the level of temporary pollution control measures for the project. Applicable provisions of Section 13 of Caltrans 2010 Standard Specifications shall be included to address construction's temporary water pollution control measures. These measures must address soil stabilization, revegetation of riparian areas around intermittent streams, sediment control, tracking control and wind erosion control practices. The project plans must include non-storm water controls, waste management and material pollution controls.

    a. Management of storm water runoff from construction site shall be addressed through the contract specifications to control potential sources of water pollution before it encounters any storm water drainage system or watercourse. The Contractor is required to control material pollution, manage waste and non-storm water at the construction site. A Contractor-prepared SWPPP shall incorporate appropriate temporary construction site BMPs to implement effective handling, storage, use and disposal practices during construction activities.

    b. Existing drainage facilities shall be identified and protected by the application of appropriate construction site BMPs.

    c. Caltrans Storm Water Management Plan (SWMP), Project Planning and Design Guide (PPDG) Section 4 and, and Evaluation Documentation Form (EDF) provide detailed guidance in determining if a specific project requires the consideration of permanent Treatment BMPs.

4. The project will be regulated by the North Coast Regional Water Quality Control Board (NCRWQCB) through Caltrans Statewide NPDES Permit (Board Order 99-06-DWQ). Caltrans shall implement the programs specified in its approved Storm Water Management Plan.

    a. Any storm water/urban runoff collection, treatment, and/or infiltration disposal facilities shall be designed, installed, and maintained for the discharge of storm water runoff from all impervious surfaces generated by the 20-year, one-hour design storm within the appropriate watersheds. Runoff in excess of the design storm generated within the project site shall only be discharged to storm drain or stabilized drainage system capable of conveying flow from 100-year, 24-hour storm conditions. If site

conditions do not allow for adequate onsite disposal, all site runoff must be treated to meet applicable Effluent Limits and/or Receiving Water Limitations specified in the Basin Plan. The NCRWQCB may approve alternative mitigation measures.

b. In accordance with the Basin Plan of NCRWQCB (Implementation Plans, Sections 4-10), discharges of storm water from permitted storm water conveyance systems (such as Caltrans storm water conveyance facilities) shall not be subject to the Basin Plan's point source waste discharge prohibitions if the following conditions are met:

    i. The discharge and the activities which affect the discharge are managed in conformance with the provisions of the applicable NPDES permit.

    ii. The discharge does not cause adverse effects on the beneficial uses of the receiving water.

    iii. The permittee shall implement a general management program to eliminate or minimize non-storm water discharges into surface waters. The program shall be submitted to the NCRWQCB for approval and include implementation of BMPs, outreach and education, inspections, monitoring, reporting and enforcement provisions.

c. The inclusion of appropriate treatment BMPs in the project will satisfy the requirements of Basin Plan prohibitions and adopted TMDLs.

## CUMULATIVE IMPACTS

### Regulatory Setting

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

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural

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

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

The CEQA definition of cumulative impact comes from the Office of Planning and Research (OPR). Section 15355 of OPR's CEQA Guidelines provides the following context:

Cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.

a. The individual effects may be changes resulting from a single project or a number of separate projects.
b. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

### Affected Environment

State Route 299 traverses eastward over the Coast Range crossing through three main watersheds: Mad River, roughly between post miles 0.0 and 18.4; Redwood Creek, between post miles 18.5 and 29; and Trinity River from post mile 29 in Humboldt County eastward approximately 150 miles through Trinity County and into Shasta County at Redding.

At least seven highway improvement projects are proposed to be developed on State Route 299 between post miles 5.45 and 38.6 (Blue Lake to Willow Creek), featuring safety improvements such as curve corrections, installation of rumble strips, guardrail, shoulders, and slope stabilization improvements. Each of these projects is located in the Trinity Scenic Byway. Five of the projects are in the Redwood Creek watershed, one project spans the distance of 33 miles between Blue Lake and Willow Creek, and another one is located in the Willow Creek/Trinity River watershed.

There are several resources to be considered for potential cumulative impacts:

- landform modification in a geologically active landscape that could result in an increase in exposed soils and excavation that may cumulatively contribute sediments to a TMDL impaired watershed;
- scenic impacts to the highway landscape from vegetation removal, landform modification and wall construction along a scenic byway;
- increase in impervious surface area from curve and lane realignments and shoulder widening.

**Environmental Consequences**

The Acorn Curve project is one of seven widening projects that are proposed to the west of Willow Creek. These projects are similar in scope with moderate to large cut slopes, vegetation removal and roadside stabilization. Some of the projects entail construction of tieback walls.

Revegetation of these cut slopes will be difficult due to the proposed steepness and lack of soil cover that nurtures native plant regeneration. Furthermore, the compaction of the soil needed to create the GRE embankment is so dense that it inhibits plant growth. Large unvegetated cut slopes may create adverse visual impacts to the visual quality of the Trinity Scenic Byway corridor.

Cumulative visual impacts include the removal of existing vegetation that has pioneered on old cut slopes. The proposed geosynthetic reinforced embankment would be built below the existing highway road grade. The traveling public may not even notice the embankment upon completion of construction as much of it would not be visible from the highway, except at a long distance of more than a mile away looking across the Redwood Creek valley Circle Point Curve at post mile 25.05. Similar to other proposed projects, the visual impacts would be temporary for most of

the vegetation removal, except where permanent vegetation removal would be necessary for utility line maintenance.

Some of the other projects have a greater potential for having an effect on the visual landscape through landform modification and more prominently visible walls and cuts and fills. As indicated in the individual impact analysis of visual resources, the Acorn Curve project has the potential to open up views of distant vistas of mountains and hills across the Redwood Creek valley.

Multiple projects involving landform modification through cut and fill in order to widen the roadway surface for curve corrections, lane transitions, and the addition of shoulders, have the potential to cumulatively add to the sediment load in a watershed that has been identified as TMDL impaired for sediments. Adding pavement to accommodate project elements such as shoulders and lane transitions could individually and cumulatively increase the area of impervious surface within the watershed.

**Avoidance, Minimization, and/or Mitigation Measures**

Utilization of Best Management Practices during construction and for site management post-construction, such as installing traction sand traps and revegetating exposed soil areas, would minimize the potential to contribute individually and cumulatively to the sediments in the watershed. While the construction will utilize BMPs to minimize the addition of sediments, and there are plans to revegetate exposed soils to the extent feasible at this project site, some of the area will not be able to be revegetated due to steepness of slopes and the compaction of soils necessary to maintain the integrity of the GRE.

Revegetation further aids in buffering noise from rumble strips to nearby residences. Some rumble strip designs are less audible but still achieve results for alerting drivers through vibrations. These shallower and elliptical pattern-shaped rumble strips, together with the addition of a thermoplastic painted surface, reduce the auditory impacts while maintaining the vibratory sensations needed to alert the errant drivers. This rumble strip design is being considered for larger application to State Route 299, including at the subject project location.

# Section 3 Environmental Factors Potentially Affected

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

# Section 4 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. Direct and indirect impacts are addressed in checklist items I through XVI. Mandatory Findings of Significance are discussed in item XVII. The California Environmental Quality Act impact levels include "potentially significant impact," "less than significant impact with mitigation," "less than significant impact," and "no impact."

A brief explanation of the California Environmental Quality Act checklist determination follows each checklist item.

| | Potentially significant impact | Less than significant impact with mitigation | Less than significant impact | No impact |
|---|---|---|---|---|
| **I. AESTHETICS —** Would the project: | | | | |
| a) Have a substantial adverse effect on a scenic vista? | ☐ | ☐ | x | ☐ |
| *Explanation:* See Section 2 Visual/Aesthetics for text explanation and responses to the questions on aesthetics based on a Visual Impact Assessment of March 2013. | | | | |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | ☐ | ☐ | x | ☐ |
| *Explanation:* See Section 2 Visual/Aesthetics | | | | |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings? | ☐ | ☐ | x | ☐ |
| *Explanation:* See Section 2 Visual/Aesthetics | | | | |
| d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area? | ☐ | ☐ | ☐ | x |
| *Explanation:* See Section 2 Visual/Aesthetics | | | | |
| **II. AGRICULTURE 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. 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? | ☐ | ☐ | ☐ | x |
| *Explanation:* "No impact" determinations in this section are based on the scope and location of the project. | | | | |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | ☐ | ☐ | ☐ | x |
| *Explanation:* "No impact" determinations in this section are based on the scope and location of the project. | | | | |
| c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of farmland, to non-agricultural use? | ☐ | ☐ | ☐ | x |
| *Explanation:* "No impact" determinations in this section are based on the scope and location of the project. | | | | |

| | Potentially significant impact | Less than significant impact 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? | ☐ | ☐ | ☐ | x |

*Explanation:* 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"** under **"Highway Safety Improvement Implementation"**. No further analysis is required. Source: Air Quality Assessment, September 2012.

| | | | | |
|---|---|---|---|---|
| b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| 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)? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| d) Expose sensitive receptors to substantial pollutant concentrations? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| e) Create objectionable odors affecting a substantial number of people? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

**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? | ☐ | ☐ | ☐ | x |

| Potentially significant impact | Less than significant impact with mitigation | Less than significant impact | No impact |
|---|---|---|---|

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

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

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| 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? | ☐ | ☐ | x | ☐ |

*Explanation:* See Section 2 Biological Resources for text explanation and responses to the questions on biological resources based on a Natural Environment Study of March 2013.

| | | | | |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

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

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

**V. CULTURAL RESOURCES —** Would the project:

| | | | | |
|---|---|---|---|---|
| a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project. Based on preliminary site investigations, no historic properties have been identified for this site, therefore a finding of no historic properties affected has been determined.

| | | | | |
|---|---|---|---|---|
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? | ☐ | ☐ | ☐ | x |

| | Potentially significant impact | Less than significant impact with mitigation | Less than significant impact | No impact |
|---|---|---|---|---|
| | | | | |

Archaeological resources are considered "historical resources" and are covered under question V(a).

| | | | | |
|---|---|---|---|---|
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| d) Disturb any human remains, including those interred outside of formal cemeteries? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

**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. | ☐ | ☐ | ☐ | x |

*Explanation:* The Grogan Fault bisects the Redwood Creek drainage basin, and movement along the fault has brought into contact different bedrock units on the west and east side of the watershed. For most of its length, the main channel of Redwood Creek follows the Grogan fault. Right-lateral movement has not occurred along the Grogan fault since between 2 million and 29 million years ago.

| | | | | |
|---|---|---|---|---|
| ii) Strong seismic ground shaking? | ☐ | ☐ | ☐ | x |
| iii) Seismic-related ground failure, including liquefaction? | ☐ | ☐ | ☐ | x |
| iv) Landslides? | ☐ | ☐ | ☐ | x |

*Explanation:* The project site is located in an area of active slides. The general location is mapped as an area of Moderate Instability in the Humboldt County General Plan Hazard maps. The Redwood Creek watershed is underlain by the Franciscan assemblage (Cashman et al. 1995). The underlying geology is one of the main contributors to high erosion rates in the watershed (Cashman et al. 1995). Erodible bedrock and steep terrain coupled with periodic large floods make the watershed inherently prone to landslide and gully erosion (Harden et al. 1995). The geomorphic processes operating in the watershed are fully described in the U.S. Geological Survey Professional Paper 1454 (1995).

The geosynthetic reinforced embankment (GRE) design, which would have less weight than an embankment and crib wall, is recommended as a means of containing fill needed for shoulder widening and curve modifications proposed. The GRE consists of select materials with layers of geogrid and a finished slope of 1:1.

| | Potentially significant impact | Less than significant impact with mitigation | Less than significant impact | No impact |
|---|---|---|---|---|
| b) Result in substantial soil erosion or the loss of topsoil? | ☐ | ☐ | ☐ | x |

*Explanation:* To the extent feasible, highway planting and erosion control will be included with the project to re-establish vegetation on the newly constructed slopes. Refer to Water Quality discussion regarding application of Best Management Practices during construction to prevent erosion and sedimentation.

| | | | | |
|---|---|---|---|---|
| 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 onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse? | ☐ | ☐ | ☐ | x |
| 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. | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

**VII. GREENHOUSE GAS EMISSIONS**: Would the project:

| | | |
|---|---|---|
| a) | Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | An assessment of the greenhouse gas emissions and climate change is included in the body of environmental document. While Caltrans has include 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 significan determination regarding the project's direct and indire impact with respect to climate change. Caltrans does remain firmly committed to implementing measures t help reduce the potential effects of the project. Thes measures are outlined in the body of the environmen document. |
| b) | b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | |

**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? | ☐ | ☐ | ☐ | x |

| Potentially significant impact | Less than significant impact with mitigation | Less than significant impact | No impact |
|---|---|---|---|

*Explanation:* An Initial Site Assessment conducted on February 11, 2011 and re-evaluated on May 2, 2013, found that the project has minimal hazardous waste issues. The issues relate to lead in the soils adjacent to the pavement from vehicle exhaust, referred to Aerially Deposited Lead (ADL) and to lead in the thermoplastic stripe paint. The issues are addressed in contract specifications that require the contractor hired by Caltrans to construct the project will have to prepare a Lead Compliance Plan (LCP). The grinding of the yellow thermoplastic stripe will be treated as a hazardous waste until tested for disposal if this activity occurs as a separate operation. Naturally Occurring Asbestos (NOA) is not likely present in the site soils. There appear to be no *Hazardous Waste and Substances Site Listed (Cortese List)* parcels that will be impacted by the project.

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? ☐ ☐ ☐ x

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? ☐ ☐ ☐ x

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? ☐ ☐ ☐ x

*Explanation:* "No impact" determinations in this section are based on the scope and location of 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 result in a safety hazard for people residing or working in the project area? ☐ ☐ ☐ x

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

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? ☐ ☐ ☐ x

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

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

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | Potentially significant impact | Less than significant impact with mitigation | Less than significant impact | No impact |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

**IX. HYDROLOGY AND WATER QUALITY —**
Would the project:

| | | | | |
|---|---|---|---|---|
| a) Violate any water quality standards or waste discharge requirements? | ☐ | ☐ | x | ☐ |

*Explanation:* See Hydrology and Water Quality Section for text explanation and responses to the questions based on a Water Quality Assessment of March 2013.

| | | | | |
|---|---|---|---|---|
| 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 that would not support existing land uses or planned uses for which permits have been granted)? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| 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 that would result in substantial erosion or siltation on- or offsite? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or offsite? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| e) Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| f) Otherwise substantially degrade water quality? | ☐ | ☐ | ☐ | x |

| Potentially significant impact | Less than significant impact with mitigation | Less than significant impact | No impact |
|---|---|---|---|

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | X |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| j) Result in inundation by a seiche, tsunami, or mudflow? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

**X. LAND USE AND PLANNING —** Would the project:

| | | | | |
|---|---|---|---|---|
| a) Physically divide an established community? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

**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? | ☐ | ☐ | ☐ | x |

| Potentially significant impact | Less than significant impact with mitigation | Less than significant impact | No impact |
|---|---|---|---|

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

**XII. NOISE —** Would the project result in:

| | | | | |
|---|---|---|---|---|
| a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of 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? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | Potentially significant impact | Less than significant impact with mitigation | Less than significant impact | No impact |
|---|---|---|---|---|
| **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)? | ☐ | ☐ | ☐ | x |
| *Explanation:* "No impact" determinations in this section are based on the scope and location of the project. | | | | |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | x |
| *Explanation:* "No impact" determinations in this section are based on the scope and location of the project. | | | | |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | x |
| *Explanation:* "No impact" determinations in this section are based on the scope and location of the project. | | | | |
| **XIV. PUBLIC SERVICES —** | | | | |
| Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: | | | | |
| Fire protection? | ☐ | ☐ | ☐ | x |
| Police protection? | ☐ | ☐ | ☐ | x |
| Schools? | ☐ | ☐ | ☐ | x |
| Parks? | ☐ | ☐ | ☐ | x |
| Other public facilities? | ☐ | ☐ | ☐ | x |
| *Explanation:* "No impact" determinations in this section are based on the scope and location of the project. | | | | |
| **XV. RECREATION —** | | | | |

| | Potentially significant impact | Less than significant impact with mitigation | Less than significant impact | No impact |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

**XVI. TRANSPORTATION/TRAFFIC —** Would the project:

| | | | | |
|---|---|---|---|---|
| a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| e) Result in inadequate emergency access? | ☐ | ☐ | ☐ | x |

*Explanation:* Emergency vehicle access will be accommodated throughout construction. "No impact" determinations in this section are based on the scope and location of the project.

| | Potentially significant impact | Less than significant impact with mitigation | Less than significant impact | No impact |
|---|---|---|---|---|
| f) Result in inadequate parking capacity? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)? | ☐ | ☐ | ☐ | x |

*Explanation:* Shoulder widths are adequate to safely accommodate bicyclists and rumble strips. "No impact" determinations in this section are based on the scope and location of the project.

**XVII. UTILITY AND SERVICE SYSTEMS —** Would the project:

| | | | | |
|---|---|---|---|---|
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

f) Be served by a landfill with sufficient permitted

| | Potentially significant impact | Less than significant impact with mitigation | Less than significant impact | No impact |
|---|---|---|---|---|
| capacity to accommodate the project's solid waste disposal needs? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| g) Comply with federal, state, and local statutes and regulations related to solid waste? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

**XVIII. MANDATORY FINDINGS OF SIGNIFICANCE —**

| | | | | |
|---|---|---|---|---|
| a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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? | ☐ | ☐ | ☐ | x |

"*Explanation* : "No impact" determinations in this section are based on the scope and location of the project.

| | | | | |
|---|---|---|---|---|
| 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)? | ☐ | ☐ | x | ☐ |

*Explanation* : See Section 2 Cumulative Impacts for discussion.

| | | | | |
|---|---|---|---|---|
| c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly? | ☐ | ☐ | ☐ | x |

*Explanation:* "No impact" determinations in this section are based on the scope and location of the project.

# Section 5 List of Preparers

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

Barry Douglas, Cultural Resources

Bill Sullivan, Project Engineer

Brenda Powell-Jones, Climate Change

Brian Georgeson, Maintenance

Charlie Narwold, Geology

David Dominick, Right of Way

Douglas Coleman, Environmental Engineering Senior

Gary Johnson, Construction Engineer

Jim Hibbert, Landscape Architect

Jim Osier, Construction Engineer

John Martin, Design Senior

Kelley Garrett, Stewardship/Mitigation Specialist

Leota Lovelace, Right of Way

Linda Goff Evans, Environmental Coordinator

Matt Smith, Traffic Safety

Osabuogbe C. Igbinedion, Water Quality

Peter Lewendal, Biologist

Richard Mullen, Project Manager

Sandra Rosas, Environmental Branch Chief

Steve Werner, Hazardous Waste

Tamara Camper, Revegetation Specialist

# Section 6 List of Technical Studies

Water Quality Assessment Report

Initial Site Assessment/Hazardous Waste

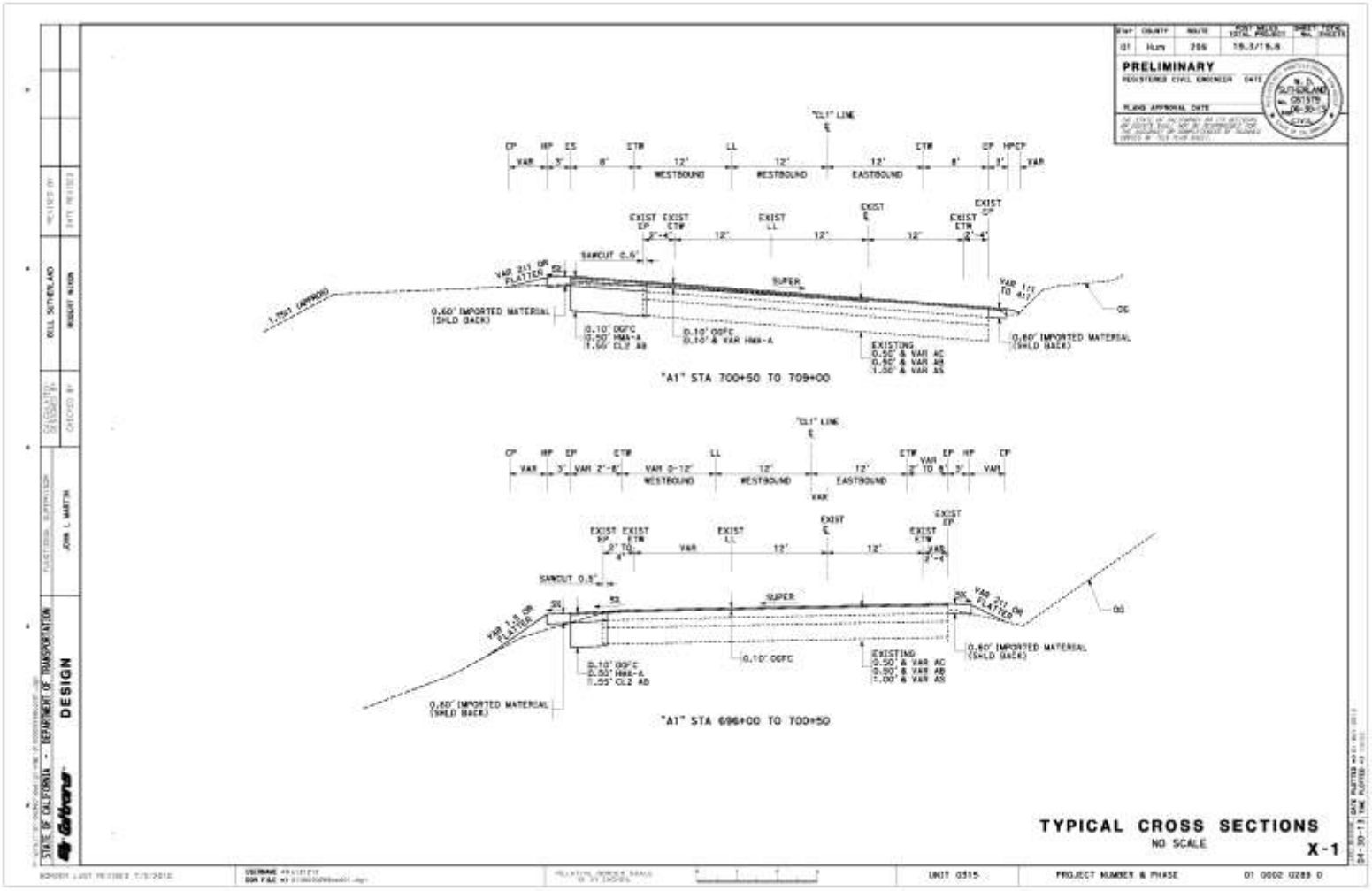
Natural Environment Study

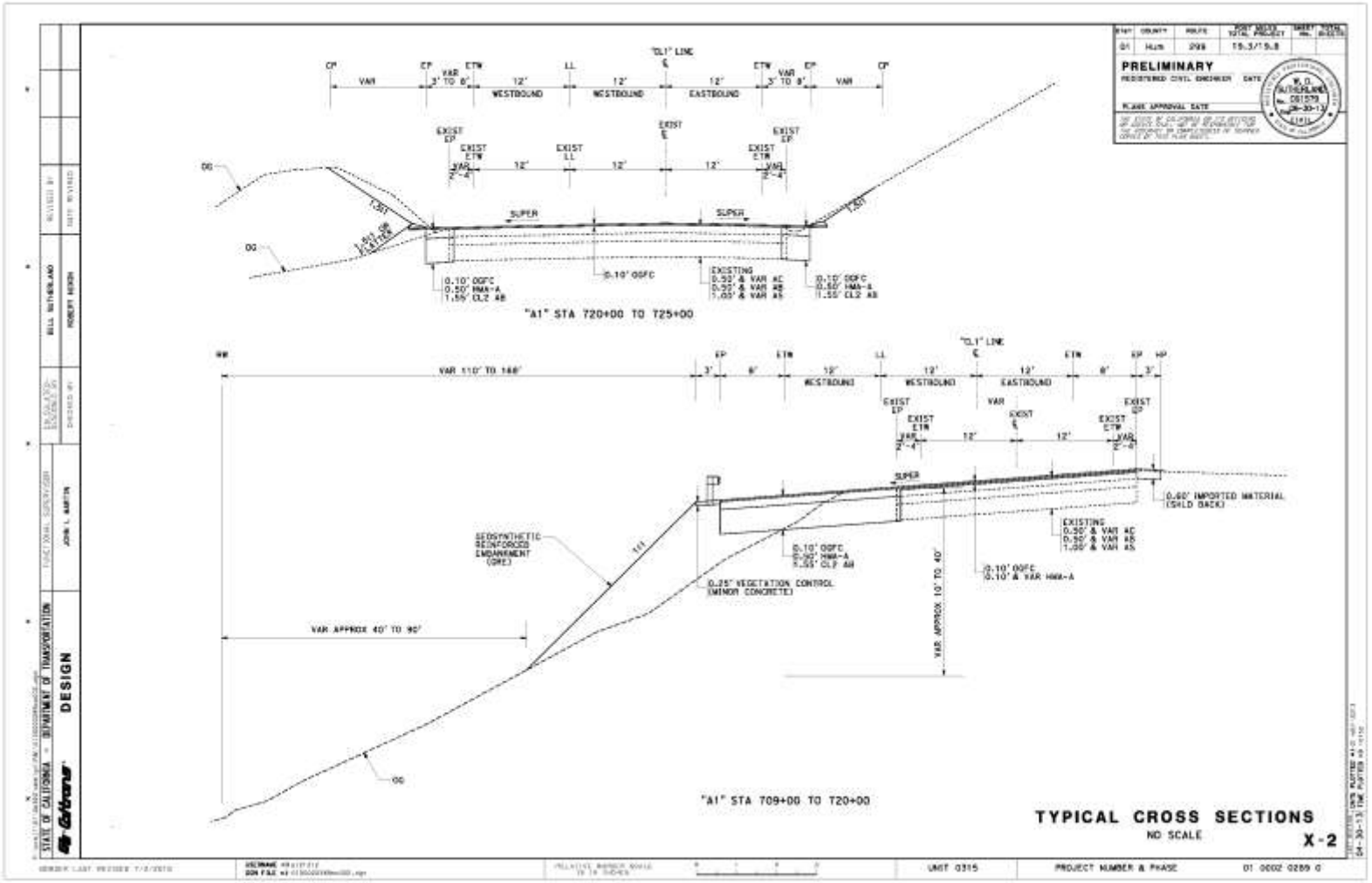
Historic Properties Survey Report

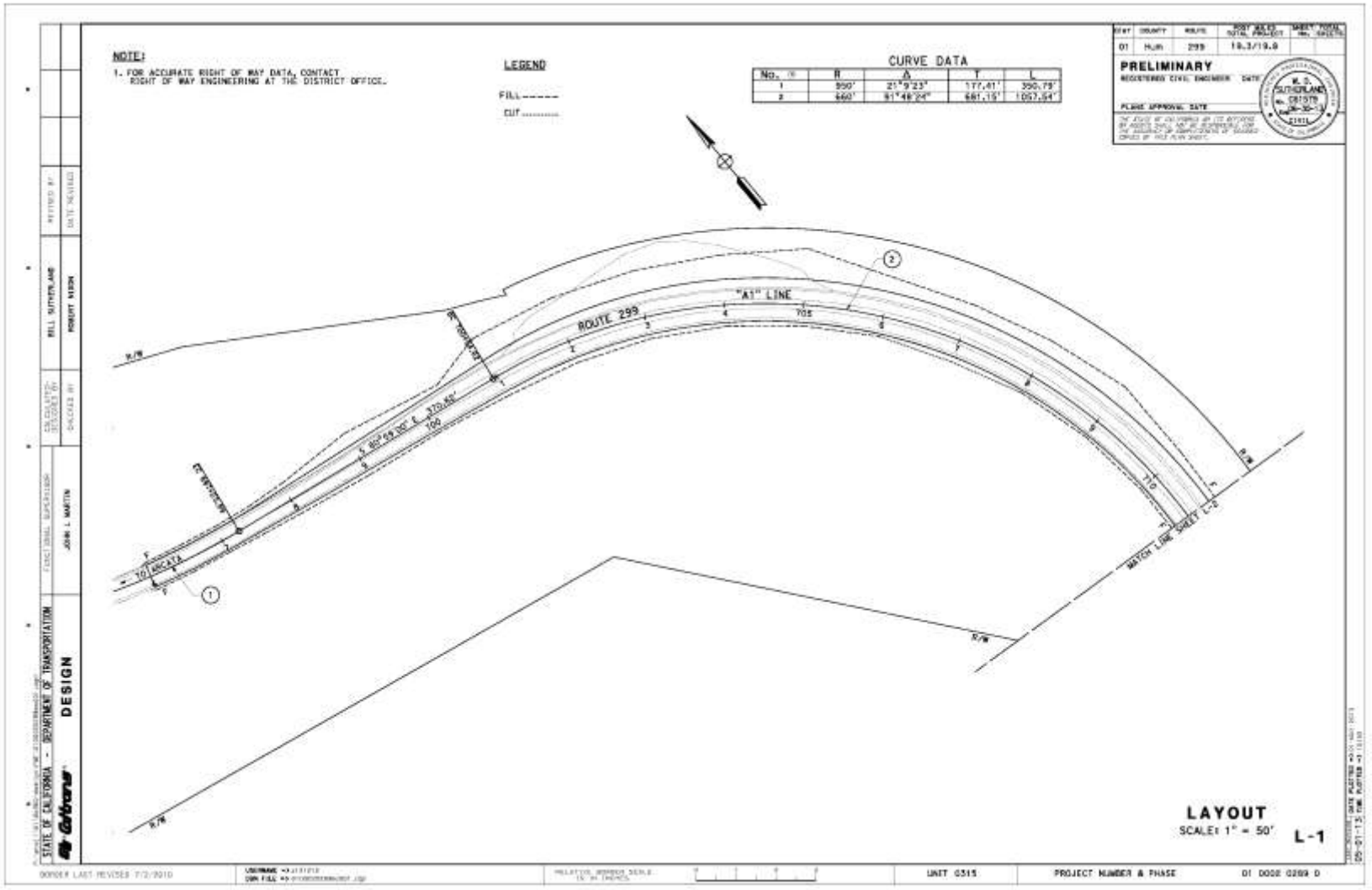
Visual Impact Assessment

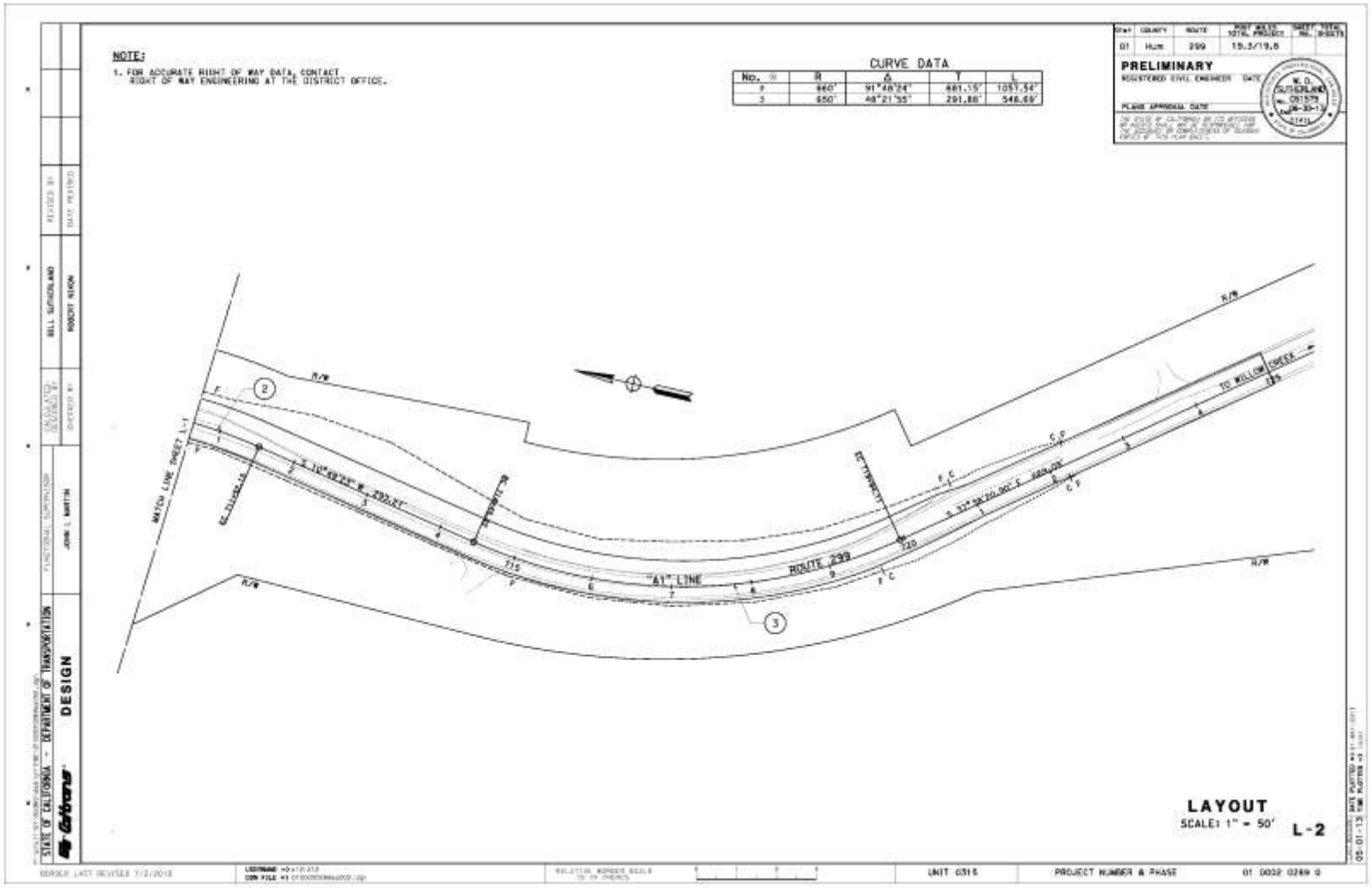
# **Appendix A** Project Plans


EXTEND EXISTING PIPE
ADD END SECTION
ADD ENERGY DISIPATOR
ADD END SECTIONS
ADD ENERGY DISIPATORS
END CONSTRUCTION
STA 722+30
ACORN LN
ROUTE 299
PRELIMINARY
DESIGN
PRELIMINARY DRAINAGE LAYOUT
PDL-2


PRELIMINARY
"A1" STA 700+50 TO 709+00
"A1" STA 696+00 TO 700+50
TYPICAL CROSS SECTIONS
NO SCALE
X-1
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
DESIGN


PRELIMINARY
"CL" LINE
WESTBOUND
WESTBOUND
EASTBOUND
SUPER
0.10' OGFC
0.50' HMA-A
1.55' CL2 AB
EXISTING
0.50' & VAR AC
0.50' & VAR AB
1.00' & VAR AS
"A1" STA 720+00 TO T25+00
VAR 110' TO 160'
GEOSYNTHETIC REINFORCED EMBANKMENT (GRE)
0.25' VEGETATION CONTROL (MINOR CONCRETE)
0.10' OGFC
0.10' A VAR HMA-A
0.60' IMPORTED MATERIAL (SHLD BACK)
VAR APPROX 40' TO 90'
VAR APPROX 10' TO 40'
"A1" STA 709+00 TO T20+00
TYPICAL CROSS SECTIONS
NO SCALE
X-2
DESIGN
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION


NOTE:
1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
LEGEND
FILL
CUT
CURVE DATA
PRELIMINARY
ROUTE 299
"A1" LINE
LAYOUT
SCALE: 1" = 50'
L-1
DESIGN
DEPARTMENT OF TRANSPORTATION
STATE OF CALIFORNIA


NOTE:
1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
CURVE DATA
PRELIMINARY
DESIGN
ROUTE 299
"A1" LINE
TO WILLOW CREEK
MATCH LINE SHEET L-1
LAYOUT
SCALE: 1" = 50'
L-2

# **Appendix B** Wetlands