HUM-36 THREE BRIDGES PROJECT

HUMBOLDT COUNTY, CALIFORNIA

DISTRICT 1 – HUM – 36 (Post Miles 11.46 to 34.52)

0C500/ 0112000292

INITIAL STUDY

with Proposed Mitigated Negative Declaration and Proposed Section 4(f) *de minimis* Determination

Prepared by the
State of California Department of Transportation

June 2020

General Information about this Document

What's in this document?

The California Department of Transportation (Caltrans) has prepared this Initial Study with proposed Mitigated Negative Declaration (IS/MND) which examines the potential environmental effects of a proposed project on State Route 36 in Humboldt County, California. Caltrans is the lead agency under the California Environmental Quality Act (CEQA). This document tells you why the project is being proposed, how the existing environment could be affected by the project, the potential impacts of the project, and proposed avoidance, minimization, and/or mitigation measures.

What should you do?

- Please read this document.
- An electronic version of this document is available at:
  - https://dot.ca.gov/caltrans-near-me/district-3/d3-programs/d3-environmental-planning/d3-environmental-docs
  - https://ceqanet.opr.ca.gov
- Additional copies of this document and related technical studies are available for review at:
  - Caltrans District 1 Office, 1656 Union Street, Eureka, CA
- We'd like to hear what you think. If you have any comments about the proposed project, please send your written comments to Caltrans by the deadline.
- Please send comments via U.S. mail to:

  California Department of Transportation

  Attention: Amanda Lee

  North Region Environmental–District 1

  1656 Union Street

  Eureka, CA 95501
- Send comments via e-mail to: amanda.lee@dot.ca.gov
- Be sure to send comments by the deadline: August 3, 2020

What happens after this?

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 obtained, Caltrans could complete the 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 write to or call Caltrans, Attention: Amanda Lee, North Region Environmental-District 1, 1656 Union Street, Eureka, CA 95501; (707) 441-4571 Voice, or use the California Relay Service TTY number, 711 or 1-800-735-2929.

HUM-36 THREE BRIDGES PROJECT

Replace two bridges and upgrade bridge rails and widen at one bridge on State Route 36 in Humboldt County, from post miles 11.46 to 34.52 near Bridgeville, California

INITIAL STUDY

With Proposed Mitigated Negative Declaration

and

Proposed Section 4(f) *de minimis* Determination

Submitted Pursuant to: Division 13, California Public Resources Code

THE STATE OF CALIFORNIA

Department of Transportation

06/24/20
Date of Approval

Brandon Larsen, Office Chief
North Region Environmental-District 1
California Department of Transportation
CEQA Lead Agency

The following person may be contacted for more information about this document:

Amanda Lee, North Region Environmental-District 1
1656 Union Street, Eureka, CA 95501
(707) 441-4571
or use the California Relay Service TTY number, 711 or 1-800-735-2929.

Proposed Mitigated Negative Declaration

Pursuant to: Division 13, California Public Resources Code

SCH Number: Pending

Project Description

The California Department of Transportation (Caltrans) proposes to upgrade bridge rails and shoulder widths at three bridges on State Route (SR) 36 in Humboldt County. In order to achieve this, the existing bridges would be replaced or widened. These three bridges are Hely Creek Bridge, Little Larabee Creek Bridge and Butte Creek Bridge located at Post Miles (PMs) 11.46, 25.27, and 34.52, respectively. The existing bridges at Hely and Butte Creek would be replaced, and the bridge at Little Larabee Creek would be widened.

Determination

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

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

- The project would have *no effect* with regard to Agricultural and Forest Resources, Air Quality, Energy, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Transportation/Traffic, Utilities and Service Systems, and Wildfire.
- The project would have *less than significant impacts* with regard to Aesthetics, Cultural Resources, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, and Tribal Cultural Resources.
- With the following mitigation measures incorporated, the project would have *less than significant impacts* with regard to Biological Resources.
    - Mitigation for permanent impacts to wetlands would be implemented

_____ _____

Brandon Larsen, Office Chief
North Region Environmental-District 1
California Department of Transportation

Date

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List of Abbreviated Terms

Abbreviation	Description
AB	Assembly Bill
AC	Activity Center
ACHP	Advisory Council on Historic Preservation
ADI	Area of Direct Impact
ADL	Aerially deposited lead
ADT	Average daily traffic
AE	Agricultural Exclusive (zoning)
APE	Area of Potential Effect
ARPA	Archaeological Resources Protection Act
ARZ	Absorber root zone
BMPs	Best Management Practices
BSA	Biological Study Area
CAFE	Corporate Average Fuel Economy
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CC Chinook	California Coastal Evolutionarily Significant Unit of Chinook salmon
CCR	California Code of Regulations
CD	Consistency Determination
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
Cfs	Cubic feet per second
CH4	methane
CIA	Cumulative Impact Analysis
CIDH	Cast-in-Drilled-Hole
CIP	Cast in place
CL2AB	Class 2 aggregate base
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO_2	carbon dioxide
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CRZ	Critical root zone

Abbreviation	Description
CSP	Corrugated steel pipe
CTP	California Transportation Plan
CWA	Clean Water Act
dB	decibel
DBH	diameter at breast height
DED	Draft Environmental Document
Department	Caltrans
DO	Dissolved oxygen
DPS	Distinct Population Segment
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EO	Executive Order
ESA	Environmentally Sensitive Area
ESL	Environmental Study Limits
ESU	Evolutionarily Significant Unit
FED	Final Environmental Document
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FYLF	Foothill yellow-legged frog
GHG	greenhouse gas
GWP	Global Warming Potential
HCAOG	Humboldt County Association of Governments
H_2S	hydrogen sulfide
HFC	hydrofluorocarbons
HRC	Humboldt Redwood Company
H&SC	Health & Safety Code
HU	Hydrologic unit
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
ISA	Initial Site Assessment
ITP	Incidental Take Permit
LCFS	low carbon fuel standard
LOC	Letter of Concurrence
MAMU	Marbled murrelet
MBTA	Migratory Bird Treaty Act
MGS	Midwest Guardrail System
mg/L	milligrams per liter
MLD	Most Likely Descendent
$MMTC0_2e$	million metric tons of carbon dioxide equivalent

Abbreviation	Description
MND	Mitigated Negative Declaration
MPO	Metropolitan Planning Organization
MS4s	Municipal Separate Storm Sewer Systems
MSA	Magnuson-Stevens Fishery Conservation and Management Act
N2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NC steelhead	Northern California Coast Distinct DPS of steelhead
ND	Negative Declaration
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NIS	New impervious surface
NMFS	National Marine Fisheries Service
NNI	Net New Impervious (area)
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
NRLF	Northern red-legged frog
NSO	Northern spotted owl
O_3	ozone
OHWM	Ordinary High Water Mark
PA	Programmatic Agreement
PDT	Project Development Team
PEM1	Palustrine emergent wetlands
PM	post mile
PRC	Public Resources Code
RD	Roadside ditch
RHZ	Root health zone
RIS	Replaced impervious surface
RMS	root mean square
RSP	Rock slope protection
RTP	Regional Transportation Plan
RTPA	Regional Transportation Planning Agency
RWQCB	Regional Water Quality Control Board
SCS	Sustainable Communities Strategy
SEL	Sound exposure level
SF6	sulfur hexafluoride

Abbreviation	Description
SHOPP	State Highway Operation and Protection Program
SHPO	State Historic Preservation Officer
SLR	Sea-Level Rise
SNC(s)	Sensitive Natural Community (Communities)
SONCC	Southern Oregon/Northern California Coast (coho salmon)
SR	State Route
SRA	State Responsibility Area
SRZ	Structural root zone
SSC	Species of Special Concern
SSP	Standard Special Provision
STRAIN	Structure Replacement and Improvement Needs
SWPPP	Stormwater Pollution Prevention Plan
TMDLs	Total Maximum Daily Loads
THPO	Tribal Historic Preservation Officer
THVF	Temporary high visibility fence
TMP	Traffic Management Plan
TPZ	Timber Production Zone
TWW	Treated wood waste
U	Unclassified (zoning)
U.S. or US	United States
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDOT	U.S. Department of Transportation
U.S. EPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGCRP	U.S. Global Change
USGS	U.S. Geological Survey
VMT	Vehicle Miles Traveled
WD	Wetland ditch
WIFL	Little willow flycatcher
WPT	Western pond turtle
WQOs	Water Quality Objectives
WSP	Western snowy plover
WSRA	Wild and Scenic Rivers Act
YBCU	Western yellow-billed cuckoo

Chapter 1. Proposed Project

1.1. Project History

The Department of Transportation (Caltrans) is the lead agency under the California Environmental Quality Act (CEQA).

In 1984, Caltrans prepared a *Structure Replacement and Improvement Needs (STRAIN) Report* which recommended replacement of the railings on Hely Creek Bridge, Little Larabee Creek Bridge, and Butte Creek Bridge on State Route (SR) 36 in Humboldt County.

The existing shoulders on these bridges did not meet current design standards so widening of all three bridges was also recommended. The *Advance Planning Study* (completed March 2015) and *Project Scope Summary Report* (PSSR) (approved June 9, 2015) concluded that widening the Hely Creek Bridge and the Butte Creek Bridge for barrier upgrades was not feasible. Because of the existing bridge type and design of the Hely Creek Bridge, the existing structure cannot be widened; therefore, requires replacing. The Butte Creek Bridge was built in 1937 and is beginning to show signs of deterioration due to its age; therefore, this bridge is also proposed to be replaced. The existing structure at Little Larabee Creek can be widened.

The PSSR was approved in 2015 for programming in the 2016 State Highway Operation and Protection Program (SHOPP) and funding through the Bridge Rail Replacement and Upgrade Program.

1.2. Project Description

Caltrans proposes to upgrade bridge rails and shoulder widths of three bridges on State Route SR 36 in Humboldt County. In order to achieve this, the existing structures would be replaced or widened. The Hely Creek Bridge and Butte Creek Bridge would be replaced, and the existing Little Larabee Creek Bridge would be widened. Work would occur at the following locations:

- Hely Creek Bridge (Bridge No. 04-0092) at post mile (PM) 11.46
- Little Larabee Creek Bridge (Bridge No. 04-0102) at PM 25.27
- Butte Creek Bridge (Bridge No. 04-0116) at PM 34.52

Project locations are shown on the vicinity map in Figure 1.

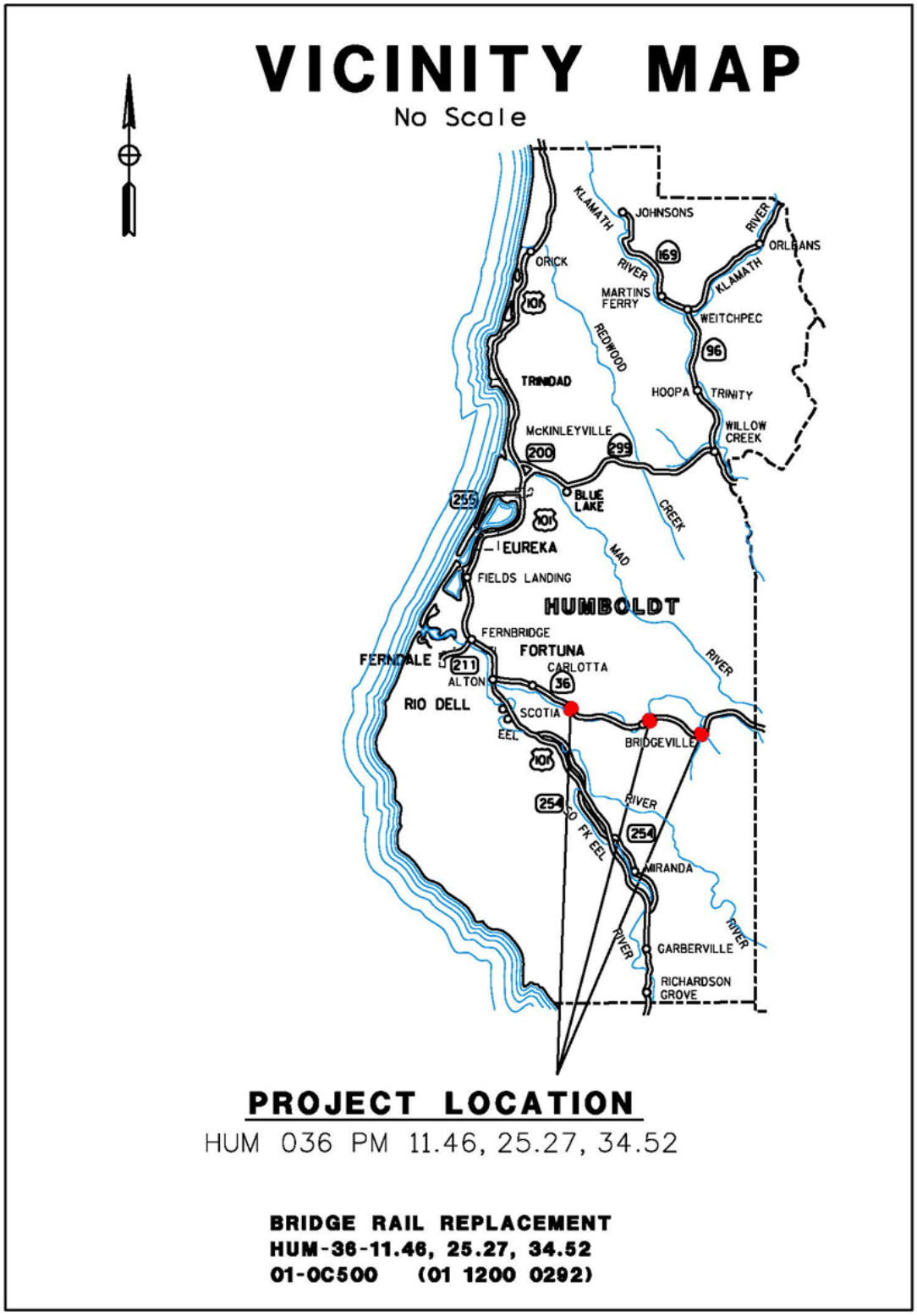

Figure 1. Project Vicinity Map

Project Objective (Purpose and Need)

The purpose of the proposed project is to upgrade bridge rails to meet current design standards and improve shoulder widths.

The project is needed because the railings on all three bridges were identified in the 1984 STRAIN Report requiring replacement. In addition, the existing shoulder widths range between one and four feet and do not provide sufficient area for disabled vehicles to pull aside nor do they provide area for collision-avoiding evasive maneuvers. Existing shoulders are inadequate for passage of nonmotorized users such as bicyclists.

Proposed Project

The project proposes to upgrade bridge rails and shoulder widths and would replace the existing bridges at Hely Creek and Butte Creek and widen the existing structure at Little Larabee Creek.

Widening, replacement, and rail upgrades for the bridges would be completed using the half-width construction method. Typical equipment used for the construction of the proposed project includes cranes, backhoe, excavator, hydraulic jack-hammer for backhoe (for bridge/abutment removal work), drill rig (for CIDH piles), hammer rig (for driven H-Piles), paving equipment/spreader, compaction equipment (rollers, vibrators, smoothing rollers), concrete pouring/pumping truck, dump trucks, concrete mixer trucks, flatbed delivery trucks, forklifts, and work trucks.

The proposed work and construction scenario at each bridge is discussed below and is depicted on the Project Layouts in Appendix A.

Hely Creek Bridge Replacement

The existing bridge at Hely Creek is a single-span, reinforced concrete structure on spread footings. The existing 25-foot-wide by 41-foot-long bridge would be replaced by a 36-foot-wide by 75-foot-long structure. Because the new bridge would be longer, grading of the banks of Hely Creek is needed to provide a stable transition to the finished grade of the embankment. The creek would be graded to realign the thalweg (lowest elevation of the creek) away from the eastern bridge abutment where there is localized scour and bank instability.

Bridge lanes would be widened from 11.5 feet to 12 feet, and bridge and approach shoulders, currently 1 foot wide, would be widened to 4 feet. ST-70 bridge rail, or a similar type of see-through steel barrier, would be installed along the edges of the bridge. The centerline would shift to the north which would require realignment and widening of the roadway approaches. The roadway would transition to the new structure over approximately 300 feet. Shoulder backing would be placed adjacent to the widened approach shoulders. Existing metal beam guardrail would be upgraded to current standards, and concrete vegetation control would be installed below the guardrail. Guardrail retaining wall would be added along the highway northwest of the bridge at 15 feet from the edge of pavement. The existing drainage pattern at the site would be maintained; however, existing roadside ditches would be shifted to accommodate shoulder widening. Two bioswales would be created adjacent to the shoulders of the bridge for treatment of stormwater runoff. Additionally, new striping, pavement delineation, and signage would be installed.

Work would occur within the Caltrans right of way and on adjacent private and public property. Temporary construction and permanent right of way acquisition would be required. The construction scenario includes the following order of work:

Preconstruction and Site Preparation

- Vegetation and tree removal would be required to facilitate access and construction, including a radius around proposed crane pads to allow for swinging of the crane boom, as shown on the Project Layouts in Appendix A. Prior to the start of construction, the contractor would clear and grub vegetation between September 15 to February 1, outside of the bird nesting season. If project timing misses this work window, a biologist would survey and certify that birds are not nesting in the areas to be cleared prior to vegetation removal.
- Traffic would be directed to one traveling lane, with a temporary barrier rail isolating the work area from traffic. Eastbound and westbound traffic would be controlled using a temporary signal system. Trenching may be required to route power to the temporary traffic signal.
- Best Management Practices (BMP's), such as stormwater control and temporary high visibility fencing (THVF) around environmentally sensitive areas (ESA's), would be installed prior to beginning construction work. See Standard Measures and Best Management Practices (Section 1.4.) for measures that would be implemented. BMP's would be maintained and modified as needed.

- Work areas would be cleared and grubbed. Equipment would be staged in the existing pullout (along the eastbound lane to the west of the bridge, accessed from the highway) or adjacent to the eastbound lane (just east of the bridge, accessed from the highway).
- Two temporary stabilized access roads would be created, with a minimum width of 12 feet to accommodate equipment needed for foundation construction (e.g., cranes, excavators). Class 2 Aggregate Base (CL2AB) is proposed for temporary access road fills. For stability and ease of removal at the end of the project, a geo-fabric would be used as the bottom layer (also protecting the existing ground). Where temporary shoring is needed, 3-foot-tall temporary K-rail would be utilized and backfilled to a depth of 2 feet with CL2AB, in multiple layers up to 6 feet in height.
- Hely Creek may need to be temporarily dewatered during construction. A cofferdam would be installed upstream of the work area and water would be pumped downstream of the work area through a diversion pipe.
- A debris containment system would be installed prior to construction to ensure construction debris does not enter the stream channel.

Construction Stage 1

To limit traffic delays, the Hely Creek Bridge would be built by half-width construction, consisting of two stages. Construction is anticipated to take two seasons, with the westbound half being completed one year, the eastbound in another. During Stage 1, traffic would be directed to the eastbound lane. Demolition of the existing bridge westbound lane would occur once traffic has been switched to the eastbound lane. Foundations systems for the bridge structure would be installed for the westbound half of the bridge being widened, followed by construction of the bridge deck. The sequence of work would be as follows:

- The existing westbound bridge rail and approximately 5 feet of the westbound edge of the bridge would be removed.
- The east abutment and spread footing would be removed, requiring excavation to a depth of approximately 12 feet. The existing spread footing would be removed to a minimum of 3 feet below the original grade, where in conflict with proposed new abutment. Removal of existing bridge and abutments would be done with a jackhammer and backhoe or stripping excavation.
- Shoring would be placed adjacent to the removed abutment to stabilize the existing bridge on the east side and allow the abutment to be graded.

- Two crane pads would be constructed, approximately 30 feet wide by 30 feet long, one near each end of the bridge. Crane pads would be constructed using lumber and base rock and would be graded for a flat surface.
- Twelve 24-inch diameter Cast-in-Drilled-Hole (CIDH) piles at 40-foot length, or twelve 14-inch diameter driven H-piles would be installed (six piles per abutment). Spread footings may also be considered.
- Abutment Construction: Due to the presence of redwood trees adjacent to the west side of the bridge, each abutment would be constructed differently.
    - *East Abutment:* The East abutment would be shifted to the east to maintain creek width. New abutment piles would be placed, and a new abutment formed and poured.
    - *West Abutment:* The toe of the existing abutment may be excavated and removed. A new abutment would then be formed and poured in front of the existing abutment. The existing abutment would then either be removed or left in place. If left in place, the top portion of the existing abutment and wing walls would be removed to be below the roadway grade section.

  New wing walls would be constructed, approximately 25 feet beyond each abutment. Rock slope protection (RSP), approximately 1,000 square feet on each side, would be placed adjacent to the abutments along the banks of Hely Creek to protect the structure from scour.
- Bridge Span Construction: To construct the bridge span, two methods are under consideration: cast-in-place, reinforced concrete box girder, or pre-cast/post-stressed "I" girder.
    - *Cast-in-Place:* Falsework would be constructed to enable the construction of the new half of the bridge span, approximately 16.5 feet wide. The soffit and stem are poured, then cured, followed by construction of the bridge deck and back walls and a 10-day cure period. Temporary falsework would be removed after curing.
    - *Pre-Cast:* Pre-cast girders would be erected using a crane, followed by construction of the bridge deck and overhangs.

  Under both scenarios, completion of the bridge span would be followed by backfilling the structure, constructing approach slabs, and installing bridge barrier rails.

Construction Stage 2

This stage would be similar to Stage 1, with the removal of remainder of the existing structure on the eastbound side, and its replacement with an approximately 16.5-foot-wide new bridge span and an approximately 3-foot-wide closure pour between the two new halves of the bridge.

Grading and Realignment of Hely Creek

After completion of the structural work under the bridge, portions of the bed, bank, and channel of Hely Creek would be graded. The purpose of the grading for Hely Creek is to realign the thalweg of the creek away from the eastern bridge abutment where there is localized scour and bank instability. The new bridge would be longer than the existing bridge and grading of the banks of Hely Creek is needed to provide a stable transition to the finished grade of the embankment. Roughly 3,500 square feet of engineered streambed material will be placed below ordinary high water for the realignment of the creek. Engineered streambed material is determined from channel characteristics and would simulate the existing channel material at the site with the intent to maintain the existing characteristics of the channel. Grading work would occur during the dry season work window and while the stream is dewatered.

Guardrail

Following construction of the bridge, a guardrail retaining wall would be constructed along SR 36, to the northwest of the bridge. Existing metal beam guardrail would be upgraded to current standards, installed by driven-post method.

Drainage

The existing culvert crossing Redwood House Road would be cleaned out to improve flow. The existing vegetated swale between the culvert crossing and creek would be regraded as needed to maintain existing flow patterns.

Grading, Paving & Shoulder Backing

New sub-base, base, hot mix asphalt and geo-synthetic pavement interlayer would be needed to construct the realigned roadway approaches and transitions. Imported borrow material may be needed to construct the widened bridge and roadway approaches.

Grading in preparation of base preparation and asphalt concrete paving would be completed using graders, spreaders, and compactors as needed with delivery trucks arriving to deliver hot mix asphalt on paving days. The new roadway would be restriped. Approximately 3 feet of shoulder backing would be installed after paving is complete.

Site Cleanup and Revegetation

After completion, all materials used for temporary access roads, dewatering, and falsework would be removed from the site. The site would then be restored to a natural setting by regrading and revegetating with native plants, as required by the final approved revegetation and erosion control plans.

Scheduling and Environmental Work Windows

Construction is anticipated to be begin in 2022 and continue through 2023. For pre-cast construction, Stage 1 would occur approximately June through September of the first year, and Stage 2 would be completed June through October of the following year, over 405 working days. For cast-in-place construction, Stage 1 of construction would occur approximately June through October of the first year, and Stage 2 would be completed June through December of the following year, over 450 working days.

Night work may be required if construction needs to be accelerated and/or operations are required to be completed at night. Lighting would be directed away from the river to avoid impacting the aquatic environment and focused specifically on the portion of the bridge actively under construction, or where lighting is required. Any night work would be subject to the county noise limitation of 86 decibels (dB) at 49 feet (15 meters).

All work within the bed, bank, and channel of the project area would be restricted to June 15 to October 15 of the construction season, including any associated access road development, and gravel pad, trestles, or cofferdam installation. Between February 1 and September 15, noise restrictions for northern spotted owl (NSO) and marbled murrelet (MAMU) would be observed.

Little Larabee Creek Bridge Widening

The existing bridge at Little Larabee Creek is a four-span, reinforced concrete structure. This bridge would be widened an equal amount on either side. The existing 30.5- by 180-foot bridge would be widened to a 44- by 180-foot structure. Bridge lanes would be widened from 11.5 feet to 12 feet, and bridge and approach shoulders, currently 3.75 feet wide, would be widened to 8 feet on the bridge and 4 feet along the approach. ST-70 Bridge Rail, or a similar type of see-through steel barrier, would be installed along the edges of the bridge. The existing centerline would remain the same; however, the roadway approaches would be widened to match the new bridge width. The roadway would transition to the new structure over approximately 230 feet. Shoulder backing would be placed adjacent to the widened approach shoulders. A soldier beam and lagging retaining wall would be constructed on the eastern side of the bridge along the westbound shoulder near PM 25.24. The retaining wall would be 232 feet long, and up to approximately 10 feet tall. Another soldier pile retaining wall would be constructed at PM 25.25 on the southwest side of the bridge. This retaining wall would be 100 feet in length with a height of 10-12 feet tall. Existing guardrail would be upgraded to current Midwest Guardrail System (MGS) standards to match existing limits. Concrete vegetation control would be installed below the guardrail. The existing drainage pattern at this site would be maintained; however, roadside ditches would be shifted to accommodate shoulder widening. A drainage ditch, protected with railing, would be added atop the proposed retaining wall at PM 25.24. In addition, an existing 24-inch corrugated steel pipe (CSP) culvert, overside drain, and drainage inlet at PM 25.36 would be replaced. Permanent stormwater treatment (in the form of bioswales and a biostrip) would be created adjacent to the shoulders west and east of the bridge. New striping, pavement delineation, and signage would be installed.

An adjacent project to improve the water supply to the Caltrans Maintenance Facility nearby would require this project to protect in-place conduit and pull boxes along the northerly side of the bridge and a cabinet on the bridge would need to be relocated. Work would occur within the Caltrans right of way and on adjacent private property. Temporary construction easements would be required. The construction scenario includes the following order of work:

Preconstruction and Site Preparation

- Vegetation and tree removal would be required to facilitate access and construction, including a radius around proposed crane pads to allow for swinging of the crane boom. Prior to the start of construction, the contractor would clear and grub vegetation between September 15 to February 1, outside of the bird nesting season. If project timing misses this work window, a biologist would survey and certify that birds are not nesting in the areas to be cleared prior to vegetation removal.
- Traffic would be directed to one traveling lane, with a temporary barrier rail isolating the work area from traffic. Or, two temporary barriers could be placed to allow widening on both sides of the bridge at the same time. East and westbound traffic would be controlled using a temporary signal system. Trenching, to a depth of approximately 5 feet, would be required to route power to the temporary traffic signal.
- BMP's would be installed prior to beginning construction work.
- The site would be cleared and grubbed. Equipment would be staged in graveled pullouts near the bridge: one to the west of the bridge, adjacent to the westbound shoulder, and one to the east of the bridge along the eastbound shoulder.
- Two temporary stabilized access roads would be created with a minimum width of 12-feet to accommodate equipment needed for foundation construction. CL2AB is proposed for temporary access road fills. For stability and ease of removal at the end of the project, geo-fabric would be used as the bottom layer (also protecting the existing ground). Where temporary shoring is needed, 3-foot-tall temporary K-rail would be utilized and backfilled to a depth of 2 feet with CL2AB, in multiple layers up to 6 feet in height.
- Little Larabee Creek may need to be temporarily dewatered during construction. A cofferdam would be installed upstream of the work area and water would be pumped downstream of the work area through a diversion pipe.
- A debris containment system would be installed prior to construction to ensure construction debris does not enter the stream channel.

Bridge Widening Construction

The Little Larabee Creek Bridge would be widened an equal amount on either side. Additional supports would be required adjacent to the existing bridge to support the additional width and to limit the impacts to the traveling public during construction. The bridge would be widened on one side at a time. The sequence of work would be as follows:

- Once the work area has been isolated from traffic, the existing bridge rails and approximately 4 feet of width from the outer edges of the bridge would be removed.
- This bridge has two abutments, Abutments 1 and 5, and three piers, Piers 2, 3, and 4. Each side of Abutment 1 and 5 would be excavated to a depth of approximately 9 feet.
- Two crane pads would be constructed, approximately 30 feet wide by 30 feet long, one near each end of the bridge. Crane pads would be constructed with lumber and base rock and would be graded for a flat surface.
- Pile driving: The new bridge foundations would likely be built to match the existing foundations. Driven H-piles, driven concrete piles or CIDH piles could be used. The following scenario is under consideration.

  The abutments and Pier 4 would require approximately sixteen new 14-inch diameter driven steel H-piles (30-foot length) to be placed, as follows:

  - Abutments 1 and 5: Two piles at each of the four abutment segments, for a total of eight.
  - Pier 4: Four piles at each of the two columns, for a total of eight.
- Following pile installation, the abutments would be formed and poured. New wing walls would be constructed approximately 25 feet beyond each abutment. RSP would be placed adjacent to the abutments along the banks of Little Larabee Creek to protect the structure from scour, approximately 1,200 square feet on the west side and 2,200 square feet on the east side.
- Under the bridge structure, three sets of columns would be constructed—one on either side of Piers 2, 3, and 4, for a total of 6 new columns. These columns would be constructed to match the existing columns; therefore, the following scenario is under consideration: The columns at Piers 2 and 3 would be constructed on spread footings, while the columns at Pier 4 would be constructed on piles. Piers 2 and 3 are located within Little Larabee Creek. When the new abutments and columns have cured, the structure would be back filled.

- Falsework would be placed for construction of the girder and diaphragms and additional 10 feet of bridge deck. A new barrier rail would be installed, and the falsework would be removed. This would be followed by a 3-foot-wide closure pour between the new section of the bridge and existing structure, then a polyester concrete overlay of the new bridge deck.

Retaining Walls

A soldier pile retaining wall, to be constructed from the top down, would be installed on the eastern side of the bridge along the westbound shoulder near PM 25.30. The retaining wall would be 232 feet long and 8-10 feet tall. Another soldier pile retaining wall would be constructed at PM 25.25 on the southwest side of the bridge, with a length of 100 feet and a height of 10 to 12 feet. The construction of the retaining walls would require drilled holes with H-pile or other steel section at 24 inches in diameter and 30 feet in length, spaced at 8 feet apart. This would be followed by soldier pile installation, backfill and timber lagging and anchor stud installation. Concrete facing would be applied, concrete barrier would be installed, as well as a cable railing and concrete gutter. These retaining walls would be constructed concurrently with bridge widening within each stage.

Guardrail Installation

Following construction of the bridge, existing metal beam guardrail would be upgraded to current standards, installed by driven-post method.

Drainage

Roadside drainage ditches would be graded to perpetuate the existing drainage pattern and match the new width of the roadway. A drainage gutter, protected with railing, would be added atop the proposed retaining wall. In addition, an existing 24-inch diameter, 65-foot-long CSP culvert, 20-foot-long overside drain, and drainage inlet at PM 25.36 would be removed and replaced. The culvert would be replaced in-kind, using the cut-and-cover method.

Grading, Paving & Shoulder Backing

New sub-base, base, hot mix asphalt and geo-synthetic pavement interlayer would be needed to construct the realigned roadway approaches and transitions. Imported borrow material may be needed to construct the widened bridge and roadway approaches.

Grading in preparation of base preparation and asphalt concrete paving would be completed using graders, spreaders, and compactors as needed with delivery trucks arriving to deliver hot mix asphalt on paving days. The new roadway would be restriped. Approximately 3 feet of shoulder backing would be installed after paving is complete.

Site Cleanup and Revegetation

After completion, all materials used for temporary access roads, dewatering, and falsework would be removed from the site. The site would then be restored to a natural setting by regrading and revegetating with native plants, as required by the final approved revegetation and erosion control plans.

Scheduling and Environmental Work Windows

Construction is anticipated to begin in 2022 and continue through 2023. Bridge widening is anticipated to occur June through January, over approximately 206 working days. The retaining walls would be constructed June through September—over 118 working days for the wall at PM 25.30 and 60 working days for the wall at PM 25.25.

Night work may be required if construction needs to be accelerated and/or operations are required to be completed at night. Lighting would be directed away from the river to avoid impacting the aquatic environment and focused specifically on the portion of the bridge actively under construction or where required. Any night work would be subject to the county noise limitation of 86 decibels (dB) at 49 feet (15 meters).

All work within the bed, bank, and channel of the project area would be restricted to June 15 to October 15 of the construction season, including any associated access road development, and gravel pad, trestles, or cofferdam installation. Between February 1 and September 15, noise restrictions for NSO would be observed.

Butte Creek Bridge Replacement

The existing bridge at Butte Creek is a two-span, reinforced concrete structure. The new structure would cross the creek in one span. The existing 30.5-foot by 114-foot bridge would be replaced by a 44- by 137-foot structure. Bridge lanes would be widened from 11 feet to 12 feet, and bridge and approach shoulders, currently 4.25 feet, would be widened to 8 feet on the bridge and 4 feet along the bridge approach. ST-70 Bridge Rail, or a similar type of see-through steel barrier, would be installed along the edges of the bridge. The existing centerline would remain the same; however, the roadway approaches would be widened to match the new bridge width. Shoulder backing would be placed adjacent to the widened approach shoulders. The roadway would transition to the new structure over approximately 300 feet. New sub-base, base, hot mix asphalt and geo-synthetic pavement interlayer would be needed to construct the realigned roadway approaches and transitions. Imported borrow material may be needed to construct the widened bridge and roadway approaches. Existing guardrail would be upgraded to current standards. Concrete vegetation control would be installed below the guardrail.

The current drainage pattern at the site would be maintained; however, roadside ditches would be shifted to accommodate shoulder widening. In addition, several other drainage issues would be addressed:

- The drainage system at PM 34.59 would be replaced, including a 24-inch diameter, 60-foot length corrugated steel pipe and drainage inlet.
- On the westbound side, the drainage ditch near a driveway at PM 34.5 would be regraded, and a rock energy dissipater, approximately 30 square feet, would be placed at the outlet of the driveway culvert.
- A deteriorating drainage ditch near PM 34.5, on the opposite side of the road from the driveway, would be reconstructed to perpetuate existing drainage patterns. An approximately 110-foot-long bioswale with a downdrain is proposed for this area. RSP is proposed at the outlet of the downdrain, with an area of 20 square feet.
- Additional bioswales and biostrips would be created adjacent to the shoulders east and west of the bridge to provide permanent treatment of stormwater.
- The culvert east of the bridge would be replaced in-kind.

New striping, pavement delineation, and signage would be installed. An existing utility pole east of the bridge at PM 34.56 would be relocated within the project limits. Work would occur within the Caltrans right of way and on adjacent private property. Temporary construction easements would be required. The construction scenario includes the following order of work.

Preconstruction and Site Preparation

- Vegetation and tree removal would be required to facilitate access and construction, including a radius around proposed crane pads to allow for swinging of the crane boom. Prior to the start of construction, the contractor would clear and grub vegetation between September 15 to February 1, outside of the bird nesting season. If project timing misses this work window, a biologist would survey and certify that birds are not nesting in the areas to be cleared prior to vegetation removal.
- Traffic would be directed to one traveling lane, with a temporary barrier rail isolating the work area from traffic. East and westbound traffic would be controlled using a temporary signal system. Trenching, to a depth of approximately 5 feet, would be required to route power to the temporary traffic signal.
- BMP's would be installed prior to beginning construction work.
- The site would be cleared and grubbed. Equipment would be staged to the west of the bridge, within Caltrans right of way on either side of the road.
- Two stabilized access roads would be created, with a minimum width of 12 feet to accommodate equipment needed for foundation construction. CL2AB is proposed for temporary access road fills. For stability and ease of removal at the end of the project, geo-fabric would be used as the bottom layer (also protecting the existing ground). Where temporary shoring is needed, 3-foot-tall temporary K-rail would be utilized and backfilled to a depth of 2 feet with CL2AB, in multiple layers up to 6 feet in height.
- Butte Creek may need to be temporarily dewatered during construction. A cofferdam would be installed upstream of the work area and water would be pumped downstream of the work area through a diversion pipe.
- A debris containment system would be installed prior to construction to ensure construction debris does not enter the stream channel.

Construction Stage 1

The Butte Creek Bridge would be built by half-width construction, consisting of two stages, to limit traffic delays. Construction is anticipated to take two seasons, with the eastbound half being completed one year, the westbound in another. During Stage 1, traffic would be directed to the westbound lane. Demolition of the existing bridge structures would occur once traffic has been switched to one lane. Foundations systems for the bridge structure would be installed for the westbound half of the bridge being widened, followed by construction of the bridge deck. The sequence of work would be as follows:

- The existing eastbound bridge rail and approximately 17.5 feet of the eastbound edge of the bridge would be removed.
- The abutments and associated piles would require excavation, to a depth of approximately 15 feet. Excavation through rock may be required at Abutment 2. The existing abutment piles would be removed to a minimum of 3 feet below the original grade. Removal of existing bridge and abutments would be done with a jackhammer and backhoe or stripping excavation.
- Shoring would be placed adjacent to the removed abutment to stabilize the existing bridge on the east side and allow the abutment to be graded.
- Two crane pads would be constructed, approximately 30 feet wide by 30 feet long, one near each end of the bridge. Crane pads would be constructed with lumber and base rock and would be graded for a flat surface.
- Abutments would be constructed on twelve 24-inch diameter CIDH piles at 30-foot length, or twenty-four 14- or 16-inch diameter driven H-piles (twelve piles per abutment). No piles would be placed in Butte Creek.
- Once abutment piles are in place, the abutments would be formed and poured. New wing walls would be constructed approximately 25 feet beyond each abutment.
- RSP would be placed adjacent to the abutments along the banks of Butte Creek to protect the structure from scour, approximately 1,000 square feet on each side of the bridge.

- Bridge Span Construction: To construct the bridge span, two methods are under consideration: cast-in-place, reinforced concrete box girder or pre-cast/post-stressed Bulb Tee girder.
    - Cast-in-Place: Falsework would be constructed to enable the construction of the new half of the bridge span, approximately 20.5 feet wide. The soffit and stem are poured, then cured, followed by construction of the bridge deck and back walls and a 10-day cure period. Temporary falsework would be removed after curing.
    - Pre-Cast: Pre-cast girders would be erected using a crane, followed by construction of the bridge deck and overhangs.

  Under both scenarios, completion of the bridge span would be followed by backfilling the structure, constructing approach slabs, and installing bridge barrier rails.

Construction Stage 2

This stage would be similar to Stage 1, with removal of the remainder of the existing structure on the westbound side, and its replacement with an approximately 20.5-foot-wide new bridge span. This would be followed with an approximately 3-foot-wide closure pour between the two new halves of the bridge.

Guardrail Installation

Following construction of the bridge, existing metal beam guardrail would be upgraded to current standards, installed by driven-post method.

Drainage

Roadside drainage ditches would be graded to perpetuate the existing drainage pattern and match the new width of the roadway.

At PM 34.59, the existing drainage inlet and 24-inch diameter, 60-foot-long CSP culvert would be replaced by cut-and-cover.

The existing lined drainage channel at the outlet of the small culvert crossing under the driveway would be removed and replaced with a vegetated swale, including 1.6 cubic yards of rock (spread across 30 square feet) as an energy dissipator.

A 110-foot-long bioswale with trapezoidal channel (6-foot bottom channel width and 4:1 side slopes) would be created in the southwestern portion of the project area. The bioswale would have a downdrain and RSP placed at the outlet.

The culvert to the east of the bridge would be replaced in-kind by cut and cover method.

Grading, Paving & Shoulder Backing

New sub-base, base, hot mix asphalt and geo-synthetic pavement interlayer would be needed to construct the realigned roadway approaches and transitions. Imported borrow material may be needed to construct the widened bridge and roadway approaches.

Grading in preparation of base preparation and asphalt concrete paving would be completed using graders, spreaders, and compactors as needed with delivery trucks arriving to deliver hot mix asphalt on paving days. The new roadway would be restriped. Approximately 3 feet of shoulder backing would be installed after paving is complete.

Site Cleanup and Revegetation

After completion, all materials used for temporary access roads, dewatering, and falsework would be removed from the site. The site would then be restored to a natural setting by regrading and revegetating with native plants, as required by the final approved revegetation and erosion control plans.

Scheduling and Environmental Work Windows

Construction is anticipated to begin in 2022 and continue through 2023. For pre-cast construction, Stage 1 would occur approximately June through October of the first year and Stage 2 would be completed June through December of the following year, over 451 working days. For cast-in-place construction, Stage 1 of construction would occur approximately June through October of the first year and Stage 2 would be completed June through January of the following year, over 475 working days.

Night work may be required if construction needs to be accelerated and/or operations are required to be completed at night. Lighting would be directed away from the river to avoid impacting the aquatic environment and focused specifically on the portion of the bridge actively under construction or where required. Any night work would be subject to the county noise limitation of 86 decibels (dB) at 49 feet (15 meters).

All work within the bed, bank, and channel of the project area would be restricted to June 15 to October 15 of the construction season, including any associated access road development, and gravel pad, trestles, or cofferdam installation. Between February 1 and September 15, noise restrictions for NSO would be observed.

No-Build Alternative

This alternative would maintain the facility in its current condition and would not meet the purpose and need of the project. For each of the potential impact areas discussed in Chapter 2, the No-Build alternative has been determined to have no impact. Under the No-Build alternative, no alterations to the existing conditions would occur, nor would the proposed improvements be implemented. The No-Build alternative is not discussed further in this document.

Alternatives Considered but Eliminated from Further Consideration

At Hely Creek and Butte Creek, several variations of the bridge dimensions were considered in the planning of the proposed project.

Hely Creek

The 2015 PSSR recommended 8-foot-wide shoulders and 12-foot-wide travel lanes at all bridge locations. After further evaluation, the Project Development Team selected 4-foot-wide shoulders at the Hely Creek Bridge to avoid impacts to a cluster of redwood trees that are immediately adjacent to the existing abutment on the west side of the bridge.

Earlier in the development of the project, the Hely Creek Bridge was designed with a length of 50 feet. On June 13, 2019, Caltrans met with California Department of Fish and Wildlife (CDFW), National Marine Fisheries Service (NMFS), and US Fish and Wildlife Service (USFWS) at the site of the three bridges. CDFW and NMFS expressed a preference for a longer structure that avoids abutment construction within Hely Creek and maintains the existing creek alignment. Caltrans has considered the redwood tree cluster adjacent to the western abutment and preserving the function and value of Hely Creek for the construction of the bridge. The new west abutment would be constructed in front of the existing one, in order to minimize impacts to the adjacent trees. Portions of the existing abutment may be left in place to avoid excavating the roots of the trees. The east abutment would be shifted to the east to maintain the width of Hely Creek.

During the Section 4(f) coordination with Humboldt County, the County inquired about an potentially shifting the bridge alignment to the north to avoid large diameter redwood trees within Van Duzen County Park. Caltrans explored a northern alignment in the early phase of the project and rejected it because the centerline radius would be too tight to allow the truck turns to work without veering out of lanes. The proposed centerline radius at Hely Creek is 504 feet which allows the design vehicle to stay completely in the lane through the turn. Additionally, shifting the alignment north would still result in impacts to several large diameter redwood trees. Caltrans is continuing to coordinate with Humboldt County and examine ways to avoid impacts to large diameter redwood trees.

More information about coordination with agencies is provided in Chapter 3. Agency and Public Coordination.

Butte Creek

Previous designs of the Butte Creek Bridge proposed a length of 134 feet, 6-inches, and a total width of 34 feet-11.5 inches. This design was rejected because it did not allow for 8-foot-wide shoulders. The currently proposed design would allow for the shoulders to be widened to 8-feet, which would better serve the purpose and need of the project.

General Plan Description, Zoning, and Surrounding Land Uses

The project area and surrounding lands are within Humboldt County and subject to the 2017 *Humboldt County General Plan* (Humboldt County 2017). At Hely Creek, the project area is zoned "TPZ" for timber production zone, and surrounding land use designations include timberland and public land. At Little Larabee Creek, the project area is zoned "U" for unclassified, and surrounding land use designations include residential agriculture and agricultural grazing. At Butte Creek, the project area is zoned "AE" for Agricultural Exclusive and "TPZ" for timber production zone. Surrounding land use designations include residential agriculture and agricultural grazing. The project would not change the existing land use or zoning designations in the project area.

1.3. Permits and Approvals Needed

The following permits, consultations, and approvals would be required.

Table 1. Agency Approvals

Agency	Permit/Approval	Status
California Department of Fish and Wildlife	1602 Agreement for Streambed Alteration	Obtain after Final Environmental Document (FED) approval.
California Department of Fish and Wildlife	Section 2080.1 Consistency Determination for Threatened and Endangered Species	Obtain after Draft Environmental Document (DED) circulation and NMFS Section 7 consultation
California Department of Fish and Wildlife	Section 2080.1 b Incidental Take Permit	Obtain after DED circulation.
National Marine Fisheries Service	Section 7 Formal Consultation for Threatened and Endangered Species, Critical Habitat, and Essential Fish Habitat review under the Magnuson-Stevens Fishery Conservation Management Act	Consultation initiated after DED.
Regional Water Quality Control Board	Clean Water Act Section 401 Water Quality Certification	Obtain after FED approval.
U.S. Army Corps of Engineers	Section 404 authorization (Nationwide Permit 14) for work in Waters of the United States	Obtain after FED approval.
U.S. Army Corps of Engineers	Jurisdictional Determination	Obtain after FED approval and concurrently with a 404 permit.
U.S. Fish and Wildlife Service	Section 7 Informal Consultation for Threatened and Endangered Species, and Designated Critical Habitat.	Consultation initiated after DED.
Van Duzen County Park	Section 4(f)	Obtain after circulation of DED

For projects that have federal funds involved, Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966 prohibits the Federal Transit Administration and other USDOT agencies from using land from publicly owned parks, recreation areas (including recreational trails), wildlife and water fowl refuges, or public and private historic properties, unless there is no feasible and prudent alternative to that use and the action includes all

possible planning to minimize harm to the property resulting from such a use. This project has federal funds and would require the temporary and permanent use of a Section 4(f) resource. See Appendix D for more information.

Projects affecting Wild and Scenic Rivers are subject to the National Wild and Scenic Rivers Act (16 United States Code [USC] 1271) and the California Wild and Scenic Rivers Act (WSRA) (CA Public Resources Code [PRC] Section 5093.50 et seq.). Due to the project proximity to the Van Duzen River, Caltrans consulted with the California Natural Resources Agency and the National Park Service and determined that the National and California WSRA are not applicable to the project.

1.4. Standard Measures and Best Management Practices Included in All Alternatives

Aesthetics Resources

AR-1: Built elements such as bridge railings, cable barriers, vegetation control mat and rail element walls would be colored/ stained to blend in with the surrounding environment.

AR-2: Disturbed riparian and wetland areas would be replanted with regionally-appropriate native plants.

AR-3: Any temporary access roads would be restored to a natural contour and revegetated with appropriate native plants. Plant species and locations would be developed by the project landscape architect and biologist.

AR-4: Alterations to the existing contours of any temporary construction staging areas created by the contractor would be graded to previous conditions and revegetated with appropriate native plants.

Air Quality

AQ-1: The construction contractor must comply with the 2018 Caltrans Standard Specifications in Section 14-9. Section 14-9.02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including the North Coast Unified Air Quality Management District regulations and local ordinances.

AQ-2: Water or a dust palliative would be applied to the site and equipment as often as necessary to control fugitive dust emissions.

AQ-3: Construction equipment and vehicles would be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by California Code of Regulations (CCR) Title 17, Section 93114.

Animal Species

AS-1: To protect migratory and nongame birds, their occupied nests and eggs, nesting-prevention measures would be implemented. Vegetation removal would be restricted to September 16 through January 31, outside of the bird breeding season, or, if vegetation removal is required during the breeding season, a nesting bird survey would be conducted by a qualified biologist within one week prior to vegetation removal. If an active nest were located, the biologist would coordinate with the CDFW to establish appropriate species-specific buffer(s) and any monitoring requirements. The buffer would be delineated around each active nest and construction activities would be excluded from these areas until birds have fledged, or the nest is determined to be unoccupied.

AS-2: Partially constructed and unoccupied nests within the construction area would be removed and disposed of on a regular basis throughout the breeding season (February 1 to September 15) to prevent their occupation. Nest removal would be repeated weekly under guidance of a qualified biologist to ensure nests are inactive prior to removal.

AS-3: Pre-construction surveys for active raptor nests within one-fourth mile of the project area would be conducted by a qualified biologist within 15 days prior to the initiation of construction activities. Areas to be surveyed would be limited to those areas subject to increased disturbance because of construction activities (i.e., areas where existing traffic or human activity is greater than or equal to construction-related disturbance need not be surveyed). If any active raptor nests are identified, appropriate conservation measures (as determined by a qualified biologist) would be implemented. These measures may include, but are not limited to, establishing a construction-free buffer zone around the active nest site, biological monitoring of the active nest site, and delaying construction activities near the active nest site until the young have fledged.

AS-4: Prior to any dewatering or diversion, the contractor would be required to provide to Caltrans for approval an Aquatic Species Relocation Plan as part of the Construction Site Dewatering and Diversion Plan. The plan would also include provisions for a pre-construction survey for special status aquatic species by a qualified biologist. Any frogs, tadpoles, and egg masses found during the initial survey would be netted by the biologist and relocated to suitable habitat downstream of the project area prior to conducting electrofishing

for salmonids or lamprey. The dewatered site would utilize fencing to deter species from moving into the work area. The biologist would be present during all phases of in-stream construction to assist with relocation efforts as they arise.

AS-5: Electrofishing would be performed prior to dewatering to relocate lamprey, and other aquatic species within the work zone to a safe area away from the construction site. The orientation, siting and type of fish screens used for dewatering operations would be selected to prevent entrainment. A professional fisheries biologist would be present during channel excavations to sift through removed substrate to salvage any remaining lamprey ammocoetes, returning them to the stream channel a safe distance away from the construction site.

AS-6: Prior to bridge construction, a qualified biologist would inspect the bridge structures to determine if bats are present. If bats are present, the biologist would work with CDFW to devise a plan to avoid and minimize impacts to bridge roosting bats. Although bat colonies are not anticipated on the bridge structures, an exclusion plan would be implemented if small numbers of bats are observed roosting on structures. This may include noise deterrence, or other minimally invasive techniques to remove any bats prior to construction.

AS-7: Trees required for removal that have a DBH of 12 inches or less shall be felled one day and the following day the remaining trees may be felled. This order of tree removal is intended to disturb tree roosting bats in the larger trees on day one while smaller trees are being removed. Due to the disturbance, bats roosting in larger trees would mobilize into adjacent forests where auditory disturbances are not present.

AS-8: A preconstruction survey for Western pond turtle (WPT) would be conducted by a qualified biologist if work begins during the species critical egg laying period (March – August). If any WPT nests are observed in the project footprint, consultation with CDFW would be initiated, and an appropriate course of action would be carried out with guidance from CDFW.

AS-9: An assessment of potential resting and denning habitat would be conducted by a qualified biologist prior to tree removal. If a fisher is observed at any time, construction operations will stop until a consultation with CDFW or USFWS has occurred. If trees that meet resting or denning criteria are identified within the tree removal areas, the following measures will be implemented:

- No potential fisher den habitat trees will be removed during the critical denning period (March 1st through July 31st) unless a qualified biologist has assessed the tree and confirms that denning activities are not taking place.

- Outside of the critical denning period, trees ≤12 DBH shall be felled one day and the following day the remaining trees may be felled.

Cultural Resources

CR-1: An Environmentally Sensitive Area (ESA) Action Plan would be implemented to protect cultural resources during construction. ESA's would be off limits to construction personnel and equipment.

CR-2: Monitoring of the ESA fencing and protection measures would be conducted during ground disturbing activities at Little Larabee Creek Bridge and Butte Creek Bridge locations. Native American monitoring and prehistoric archaeological monitoring would consist of visual inspection on foot around the project limits during construction, by either a Caltrans appointed archaeological monitor or a Caltrans Archaeological monitor and a Bear River Band of Rohnerville Rancheria appointed monitor.

CR-3: If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find in consultation with the State Historic Preservation Officer.

CR-4: If human remains were discovered, State Health and Safety Code § 7050.5 states that further disturbances and activities would cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to CA Public Resources Code (PRC) § 5097.98, if the remains were thought to be Native American, the coroner would notify the Native American Heritage Commission (NAHC) who would then notify the Most Likely Descendent (MLD).

At this time, the person who discovered the remains would contact the Environmental Senior and Professionally Qualified Staff so they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC § 5097.98 would be followed as applicable.

Geology and Seismic/Topography

GS-1: The project would be designed to minimize slope failure, settlement, and erosion using recommended construction techniques and BMPs. New slopes should be revegetated to reduce erosion potential.

GS-2: In the unlikely event that fossils were encountered during project excavations, Caltrans Standard Specification 14-7 would be followed. This standard specification states that if unanticipated paleontological resources were discovered at the job site, all work within 60 feet would stop, the area around the fossil would be protected, and the Resident Engineer would be notified.

Greenhouse Gas Emissions

The standard measures described for Traffic and Transportation would reduce minimize GHG emissions during construction.

GHG-1: Caltrans Standard Specifications, Section 7-1.02C, Emissions Reduction: requires the contractor to certify awareness of, and comply with, the emissions reduction regulations mandated by the California Air Resources Board (CARB).

GHG-2: Caltrans Standard Specifications, Section 14-9.02, Air Pollution Control: requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes of the CARB and the local air pollution control district.

GHG-3: Compliance with Title 13 of the California Code of Regulations, which includes idling restrictions of construction vehicles and equipment to no more than 5 minutes.

GHG-4: To the extent feasible, construction traffic would be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel time.

Hazardous Waste and Material

HW-1: Per Caltrans requirements, the contractor(s) would prepare a project-specific Lead Compliance Plan (CCR Title 8, § 1532.1, the "Lead in Construction" standard) to reduce worker exposure to lead-impacted soil. The plan would include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other health and safety protocols and procedures for the handling of lead-impacted soil.

HW-2: Removal, handling, and disposal of yellow thermoplastic striping with high levels of lead would follow Standard Special Provision (SSP) 14-11.12 and would be addressed in the project Lead Compliance Plan.

HW-3: Treated wood waste would be managed according to 2018 SSP 14-11.14, and a treated wood waste disposal contract item.

Invasive Species

The standard measures described in PS-1 for restoring the project site post construction are also appropriate for the control of invasive species.

PS-1: After all construction materials are removed, the project area would be restored to a natural setting by grading, placing erosion control, and replanting. Replanting would be subject to a plant establishment period as defined by project permits, which would require Caltrans to adequately water plants, replace unsuitable plants, and control pests. Caltrans would implement a program of invasive weed control in all areas of soil disturbance caused by construction to improve habitat for native species in and adjacent to disturbed soil areas within the project limits.

Large Diameter Trees

LDT-1: ESA fencing would be established around the absorber root zone (ARZ) of each large diameter tree (2-foot DBH or greater) directly adjacent to project activities.

LDT-2: Excavation of roots would not be conducted with mechanical excavator or other ripping tools. Instead, roots would be severed using a combination of root-friendly excavation and severance methods when possible (e.g., sharp-bladed cutting or pruning instruments). At a minimum, jagged roots would be replaced with sharp, clean cuts.

LDT-3: BMPs would be used to minimize soil compaction on access roads, work areas, and temporary access roads, where feasible, including: use of rubberized track vehicles, rubber mats, and soil decompaction methods (soil tilling) to return access roads to pre-project conditions.

LDT-4: No fill that is of a greater density than existing surface soils would be placed against the trunks of existing trees.

LDT-5: A certified arborist or licensed forester monitor would be on-site during construction to monitor activities that could impact tree roots and advise on appropriate best management practices (BMPs) to be implemented, such as which roots to cut cleanly and placement of appropriate fill against trunks.

Plant Species

PS-1: After all construction materials are removed, the project area would be revegetated. Replanting would be subject to a plant establishment period as defined by project permits, which would require Caltrans to adequately water plants, replace unsuitable plants, and control pests. Caltrans would implement a program of invasive weed control in all areas of soil disturbance caused by construction to improve habitat for native species in and adjacent to disturbed soil areas within the project limits.

PS-2: The contractor would be required to place temporary barrier fencing along the boundaries of all riparian, wetland or other environmentally sensitive areas to avoid impacts to sensitive habitats that occur adjacent to the project footprint.

PS-3: ESA's would be established around populations of special status plant species outside of the immediate project footprint, restricting access to construction personnel and equipment. For plants within the project footprint, seeds would be collected and/or individual plants would be transplanted (by a botanist familiar with the species) outside of the project footprint where impacts are not anticipated.

Paleontological Resources

PR-1: Caltrans Standard Specification 14-7.03 would be followed, requiring that if unanticipated discoveries of paleontological resources occur during construction excavations, all work within 60 feet radius of the discovery should be halted until the find has been evaluated by Caltrans. Work may resume immediately outside that radius.

Noise

NO-1: Night work would be subject to the county noise limitation of 86 decibels (dB) at 49 feet (15 meters).

Threatened and Endangered Species

TS-1: To protect the most vulnerable life stages of sensitive fish species that occur within the project area, in-stream work would be restricted to the period between June 15 and October 15. Construction activities restricted to this period include any work within the bed, bank or channel.

TS-2: A qualified biologist would monitor in-stream construction activities. The biological monitor would be present during bridge demolition, hoe-ramming, drilling for bridge foundations, and concrete pours to ensure adherence to all environmental permit conditions.

TS-3: The pre-construction meeting with the contractor would consist of a briefing on environmental permit conditions and requirements relative to each stage of the proposed project, including, but not limited to, work windows, construction site management, and how to report regulated species within the project areas.

TS-4: Artificial night lighting may be required. The use of artificial lighting would be temporary and of short duration, and lighting would be directed away from the channel and focused specifically on the portion of the bridge actively under construction to reduce potential disturbance to sensitive species. To reduce the effects of artificial light on sensitive biological resources, use near watercourses would be limited to critical need (i.e., due to accelerated work schedule to meet permit deadlines or reaching a critical juncture in work at a time when it would be infeasible to stop construction.)

TS-5: Conduct hydroacoustic monitoring during construction activities with the potential to produce impulsive sound waves. Hoe-ramming or jackhammering associated with bridge demolition may be included. Hydroacoustic monitoring must comply with the terms and conditions of federal and state endangered species act consultations.

A Hydroacoustic Monitoring Plan would be prepared prior to construction that addresses the frequency of monitoring, positions that hydrophones would be deployed, and techniques for gathering and analyzing acoustic data, quality control measures, and reporting activities.

TS-6: A Construction Site Dewatering/Diversion Plan would be developed prior to any dewatering. The dewatering plan would include specifications for the relocation of sensitive aquatic species, detailed in the project Aquatic Species Relocation Plan.

TS-7: Any electrofishing for salmonids would comply with *Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act* (NMFS 2000) and

performed by only qualified individuals with appropriate training and experience in electrofishing techniques.

TS-8: Construction noise levels would be restricted to protect northern spotted owl (NSO) and marbled murrelet (MAMU). These restrictions would be observed between February 1 through July 9 for NSO and from March 24 through August 5 for MAMU. Additional auditory restrictions may be necessary beginning 2 hours post-sunrise and ending 2 hours pre-sunset to protect MAMU from August 6 through September 15. Consultation with USFWS and CDFW would be necessary to finalize work windows, in addition to adopting other species-specific conservation measures.

TS-9: No human activities would occur within visual line-of-sight of 131 feet (40 meters) or less from a MAMU or NSO nest.

Traffic and Transportation

TT-1: Pedestrian and bicycle access would be maintained during construction.

TT-2: The Contractor would be required to reduce any access delays to driveways or public roadways within or near the work zones.

TT-3: A Traffic Management Plan (TMP) would be applied to project.

Utilities and Emergency Services

UE-1: All emergency response agencies in the project area would be notified of the project construction schedule and would have access to Route 36 throughout the construction period.

UE-2: Caltrans would coordinate with the utility providers before relocation of any utilities to ensure potentially affected utility customers would be notified of potential service disruptions before relocations.

Water Quality and Stormwater Runoff

WQ-1: The project would comply with the Provisions of the Caltrans Statewide National Pollutant Discharge Elimination System (NPDES) Permit (Order 2012-0011-DWQ), which became effective July 1, 2013, and the Construction General Permit (Order 2009-0009-DWQ).

Before any ground-disturbing activities, the contractor would prepare a Stormwater Pollution Prevention Plan (SWPPP) (per the Construction General Permit Order 2009-0009-DWQ) that includes erosion control measures and construction waste containment measures so that waters of the State are protected during and after project construction.

The SWPPP would identify the sources of pollutants that may affect the quality of stormwater; include construction site Best Management Practices (BMPs) to control sedimentation, erosion, and potential chemical pollutants; provide for construction materials management; include non-stormwater BMPs; and include routine inspections and a monitoring and reporting plan. All construction site BMPs would follow the latest edition of the *Storm Water Quality Handbooks: Construction Site BMPs Manual* to control and reduce the impacts of construction-related activities, materials, and pollutants on the watershed.

The project SWPPP would be continuously updated to adapt to changing site conditions during the construction phase.

Construction would likely require the following temporary construction site BMPs:

- Any spills or leaks from construction equipment (i.e., fuel, oil, hydraulic fluid, and grease) shall be cleaned up in accordance with applicable local, state, and/or federal regulations.
- Water would be removed by means of dewatering the individual pipe piles or cofferdams.
- Water generated from the dewatering operations would be trucked off-site to an appropriate facility or treated and used on-site for dust control and/or discharged to an infiltration basin or used to irrigate agricultural lands.
- Fiber rolls or silt fences would be installed.
- Existing vegetated areas would be maintained to the maximum extent practicable.
- Clearing, grubbing, and excavation would be limited to specific locations, as delineated on the plans, to maximize the preservation of existing vegetation.
- Vegetation reestablishment or other stabilization measures would be implemented on disturbed soil areas, per the Erosion Control Plan.
- Soil disturbing work would be limited during the rainy season.

WQ-2: The project would incorporate pollution prevention and design measures consistent with the 2003 Caltrans Storm Water Management Plan to meet Water Quality Objectives (WQOs). This plan complies with the requirements of the Caltrans Statewide NPDES Permit (Order 2012-0011-DWQ).

The project design would likely include the following permanent stormwater treatment BMPs:

- Vegetated surfaces would feature native plants and revegetation would use the seed mixture, mulch, tackifier, and fertilizer recommended in the Erosion Control Plan prepared for the project.
- Existing roadway and bridge drainage systems currently discharge stormwater to receiving waters through bridge deck drains and/or discharge to vegetated slopes adjacent to the highway facility. The current design for stormwater management, post construction, is to perpetuate existing drainage patterns. Stormwater would continue to sheet flow to vegetated slopes providing stormwater treatment in accordance with Caltrans NPDES Permit.

Wetlands and Other Waters

WW-1: The contractor would be required to place temporary barrier fencing along the boundaries of all riparian, wetland or other environmentally sensitive areas adjacent to the project footprint.

WW-2: Caltrans would be required to restore wetland and riparian areas temporarily impacted by construction to pre-existing conditions prior to completion of construction.

1.5. Discussion of the NEPA Categorical Exclusion

This document contains information regarding compliance with the California Environmental Quality Act (CEQA) and other state laws and regulations. Separate environmental documentation, supporting a Categorical Exclusion determination, will be prepared in accordance with the National Environmental Policy Act. When needed for clarity, or as required by CEQA, this document may contain references to federal laws and/or regulations (CEQA, for example, requires consideration of adverse effects on species identified as a candidate, sensitive, or special status species by the United States National Marine Fisheries Service and the United States Fish and Wildlife Service—in other words, species protected by the Federal Endangered Species Act).

Chapter 2. CEQA Environmental Checklist

Environmental Factors Potentially Affected

The environmental factors noted below would be potentially affected by this project. Please see the CEQA checklist on the following pages for additional information.

Potential Impact Area	Impacted: Yes / No
Aesthetics	**Yes**
Agriculture and Forestry	No
Air Quality	No
Biological Resources	**Yes**
Cultural Resources	**Yes**
Energy	No
Geology/Soils, Paleontology	**Yes**
Greenhouse Gas Emissions	**Yes**
Hazards and Hazardous Materials	**Yes**
Hydrology/Water Quality	**Yes**
Land Use/Planning	No
Mineral Resources	No
Noise	No
Population/Housing	No
Public Services	No
Recreation	No
Transportation/Traffic	No
Tribal Cultural Resources	**Yes**
Utilities/Service Systems	No
Wildfire	No
Mandatory Findings of Significance	No

The CEQA Environmental Checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the project will indicate there are no impacts to a particular resource. A "No Impact" answer in the last column of the checklist reflects this determination. The words "significant" and "significance" used throughout the checklist and

this document are only related to potential impacts pursuant to CEQA. The questions in the CEQA Checklist are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Project features, which can include both design elements of the project as well as standard measures that are applied to all or most Caltrans projects (such as Best Management Practices (BMPs) and measures included in the Standard Plans and Specifications or as Standard Special Provisions), are considered to be an integral part of the project and have been considered prior to any significance determinations documented in the checklist or document.

Project Impact Analysis Under CEQA

CEQA broadly defines "project" to include "the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment" (14 CCR § 15378). Under CEQA, normally the baseline for environmental impact analysis consists of the existing conditions at the time the environmental studies began. However, it is important to choose the baseline that most meaningfully informs decision-makers and the public of the project's possible impacts. Where existing conditions change or fluctuate over time, and where necessary to provide the most accurate picture practically possible of the project's impacts, a lead agency may define existing conditions by referencing historic conditions, or conditions expected when the project becomes operational, or both, that are supported with substantial evidence. In addition, a lead agency may also use baselines consisting of both existing conditions and projected future conditions that are supported by reliable projections based on substantial evidence in the record. The CEQA Guidelines require a "statement of objectives sought by the proposed project" (14 CCR § 15124(b)).

CEQA requires the identification of each potentially "significant effect on the environment" resulting from the action, and ways to mitigate each significant effect. Significance is defined as "Substantial or potentially substantial adverse change to any of the physical conditions within the area affected by the project" (14 CCR § 15382). CEQA determinations are made prior to and separate from the development of mitigation measures for the project.

The legal standard for determining the significance of impacts is whether a "fair argument" can be made that a "substantial adverse change in physical conditions" would occur. The fair argument must be backed by substantial evidence including facts, reasonable assumption predicated upon fact, or expert opinion supported by facts. Generally, an environmental

professional with specific training in an area of environmental review can make this determination.

Though not required, CEQA suggests Lead Agencies adopt thresholds of significance, which define the level of effect above which the Lead Agency will consider impacts to be significant, and below which it will consider impacts to be less than significant. Given the size of California and it's varied, diverse, and complex ecosystems, as a Lead Agency that encompasses the entire State, developing thresholds of significance on a state-wide basis has not been pursued by Caltrans. Rather, to ensure each resource is evaluated objectively, Caltrans analyzes potential resource impacts based on their location and the effect of the potential impact on the resource as a whole in the project area. For example, if a project has the potential to impact 0.10 acre of wetland in a watershed that has minimal development and contains thousands of acres of wetland, then a "less than significant" determination would be considered appropriate. In comparison, if 0.10 acre of wetland would be impacted that is located within a park in a city that only has 1.00 acre of total wetland, then the 0.10 acre of wetland impact could be considered "significant."

If the action may have a potentially significant effect on any environmental resource (even with mitigation measures implemented), then an Environmental Impact Report (EIR) must be prepared. Under CEQA, the lead agency may adopt a negative declaration (ND) if there is no substantial evidence that the project may have a potentially significant effect on the environment (14 CCR § 15070(a)). A proposed negative declaration must be circulated for public review, along with a document known as an Initial Study. CEQA allows for a "mitigated negative declaration" in which mitigation measures are proposed to reduce potentially significant effects to less than significant (14 CCR § 15369.5).

Although the formulation of mitigation measures shall not be deferred until some future time, the specific details of a mitigation measure may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review. The lead agency must (1) commit itself to the mitigation, (2) adopt specific performance standards the mitigation will achieve, and (3) identify the type(s) of potential action(s) that can feasibly achieve that performance standard and that will be considered, analyzed, and potentially incorporated in the mitigation measure. Compliance with a regulatory permit or other similar processes may be identified as mitigation if compliance would result in implementation of measures that would be reasonably expected, based on substantial evidence in the record, to reduce the significant impact to the specified performance standards (§15126.4(a)(1)(B)). Per CEQA, measures may also be adopted, but are not required, for environmental impacts that are not found to be significant (14 CCR §

15126.4(a)(3)). Under CEQA, mitigation is defined as avoiding, minimizing, rectifying, reducing, and compensating for any potential impacts (CEQA 15370).

Regulatory agencies may require additional measures beyond those required for compliance with CEQA. Though not considered "mitigation" under CEQA, these measures are often referred to in an Initial Study as "mitigation", Good Stewardship or Best Management Practices. These measures can also be identified after the Initial Study/Negative Declaration is approved.

CEQA documents must consider direct and indirect impacts of a project (CAL. PUB. RES. CODE § 21065.3). They are to focus on significant impacts (14 CCR § 15126.2(a)). Impacts that are less than significant need only be briefly described (14 CCR § 15128). All potentially significant effects must be addressed.

No-Build Alternative

For each of the following CEQA questions, the "No-Build" alternative has been determined to have "No Impact". Under the "No-Build" alternative, no alterations to the existing conditions would occur, nor would any proposed improvements be implemented. The "No-Build" alternative is not discussed further in this document.

2.1. Aesthetics

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: a) Have a substantial adverse effect on a scenic vista?				✓
Would the project: b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				✓
Would the project: c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			✓	
Would the project: d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?				✓

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]).

Environmental Setting

The proposed project is in Humboldt County on State Route (SR) 36, a rural two-lane highway which travels between the northern California coast to the Central Valley. Typical views on SR 36 range from rural residential, agricultural, densely forested valley floor that parallels the Van Duzen River, to steep mountainous slopes with dense coniferous forests with patches of open grasslands on more exposed southern facing slopes. The County considers the entire route to have scenic resources. These scenic resources include rural communities, forest land, agricultural land, the Van Duzen River, wildlife and wildlife habitats. The SR 36 is eligible for California State Scenic Highway Status.

Hely Creek Bridge is adjacent to Van Duzen County Park which is 12 miles east of U.S. Highway 101. The park has old-growth redwood forest, a popular swimming hole, and camping facilities. The park has an annexed section with a trail connecting the two areas which run parallel to the highway at Hely Creek. The Hely Creek Bridge is approximately 300 feet from the Van Duzen River and is situated within a riparian redwood forest. The bridge is short and curved, maneuvering between large redwood trees. Grizzly Creek Redwoods State Park is a few miles to the east. There are two major types of viewer groups for highway projects: highway neighbors and highway users. Highway neighbors at Hely Creek include day hikers along the county park trail.

Little Larabee Creek Bridge is a few miles east of the community of Bridgeville, located along a forested section near the Van Duzen River. Little Larabee Creek flows into the Van Duzen River; however, the Van Duzen River is not visible from the bridge due to screening by dense tree canopy . Views of the river open up a few hundred feet to the west. A residence is located off the highway to the south, with the driveway on the southwest side of the bridge. The surrounding area has views of trees and vegetation, a wooden property fence and a large gravel pullout. Little Larabee Creek is partially visible to travelers heading west while crossing the bridge. Highway neighbors include the residence and a Caltrans Maintenance Station above the highway on the northeast side of the bridge.

The easternmost bridge is Butte Creek Bridge which is in Little Larabee Valley. There is some rural residential development in this area, with buildings in the distance. Pine, grassland and oaks are prominent, with riparian trees lining Butte Creek. The bridge is not apparent; the roadway remains narrow with no shoulders and is flanked with metal beam guardrail on both sides. Highway neighbors at Butte Creek include a private property with an outbuilding which has views of the bridge.

The visual quality of the corridor at each of the bridge locations is moderately high due to the rural quality, scenic views and native vegetation. Although the area is very scenic, there are no unique features at any of the bridge locations.

Discussion of Environmental Evaluation Question 2.3—Aesthetics

A "No Impact" determination was made for questions a), b), and d) listed within the CEQA Checklist Aesthetics section. Determinations were based on scope, description and locations of the proposed project, as well as the *Visual Impacts Assessment* dated March 11, 2020 (Caltrans 2020h). There are no scenic vistas or scenic resources that would be affected by the proposed project and the project would not result in new sources of light and glare. See below for further discussion of the "Less Than Significant Impact" determination made for question c).

> ***c) In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.)***

The proposed project would result in minor changes to visual character and quality at each bridge location.

At the Hely Creek Bridge, the new rail element wall would be visible to highway travelers. The visual impact would be minimized with the use of an earth-toned stain, which would allow the wall to recede into the landscape. Dense vegetation exists beyond the construction zone, so the removal of trees and vegetation is not anticipated to result in a noticeable loss. Impacts at this location would be minimal.

At Little Larabee Creek Bridge, the two new retaining walls would affect visual character and quality in the area, as there are currently no upslope retaining walls nearby and very few retaining walls along the entire route. The walls would be new elements introduced into the landscape. The wall on the southwestern side of the bridge would remain in the shadow of the north facing slope. Due to the shadow, length and curve of this wall, it is not anticipated to be very apparent. The longer wall on the northeastern side would be more visible on a concave curve with more exposure to the sun, however it is not expected to cause a substantial visual impact. Recommendations for aesthetic treatment would be considered in the design phase. Impacts at this location would be minimal to very low.

At the Butte Creek Bridge, visual changes would be negligible.

At all three bridges, the light color of the concrete bridge decks may contrast with the asphalt paving. Over time, concrete bridge decks can darken and are not noticeable to most travelers. The incorporation of the see-through bridge rails would be an improvement by providing a continuous view of the landscape. The ability to view the creek from the highway would enhance the traveler's awareness of their surroundings. The new galvanized rails can be colorized to blend in with the natural landscape.

Overall, the visual character of the proposed project would be compatible with the existing corridor. The project would not substantially degrade the visual character or quality at any of the sites or surrounding locations. Given this, a "Less Than Significant Impact" determination was made for question c).

Mitigation Measures

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.2. Agriculture and Forest Resources

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

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?				✓
Would the project: b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				✓
Would the project: c) Conflict with existing zoning, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?				✓

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: d) Result in the loss of forest land or conversion of forest land to non-forest use?				✓
Would the project: e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project. At the Hely Creek Bridge, the State right of way would be expanded. Caltrans would acquire 1 acre of a 244-acre parcel in the Timber Production Zone. This would not result in a use that is incompatible with timber production. The project would widen and/or replace existing bridge structures and would not cause changes to zoning or land use at any of the bridge locations. Therefore, impacts to Agriculture and Forestry are not anticipated.

Mitigation Measures

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.3. 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.

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: a) Conflict with or obstruct implementation of the applicable air quality plan?				✓
Would the project: b) 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?				✓
Would the project: c) Expose sensitive receptors to substantial pollutant concentrations?				✓
Would the project: d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project, as well as the *Air Quality and Noise Analysis for the Three Bridges Project* dated February 7, 2020 (Caltrans 2020b). Humboldt County is categorized as an attainment/unclassified area for all current National Ambient Air Quality Standards (NAAQS). Therefore, transportation conformity requirements do not apply. The project would not result in changes to traffic volumes, fleet mix, speed or any other factor that would result in increase of emissions. Potential impacts to air quality are not anticipated.

There would be temporary construction emissions associated with the project. For more information on greenhouse gas emissions, please see Section 2.8—Greenhouse Gas Emissions.

Mitigation Measures

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.4. Biological Resources

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or NOAA Fisheries?			✓	
Would the project: b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?			✓	
Would the project: c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?		✓		
Would the project: 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?			✓	

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				✓
Would 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?				✓

Regulatory Setting

Within this section of the document (Biological Resources-Section 2.4), the topics are separated into Natural Communities, Wetlands and Other Waters, Plant Species, Animal Species, and Threatened and Endangered Species. The plant and animal species listed as "threatened" or "endangered" are covered within the Threatened and Endangered sections. Other special status plant and animal species, including CDFW fully protected species, species of special concern, USFWS and NMFS candidate species, and California Native Plant Society (CNPS) rare and endangered plants are covered in the Plant and Animal sections.

Natural Communities

CDFW maintains records of sensitive natural communities (SNC) in the California Natural Diversity Database (CNDDB). SNC are those natural communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. These communities may or may not contain special status taxa or their habitat.

Wetlands and Other Waters

"Waters" of the United States (including wetlands) and State are protected under several laws and regulations. The primary laws and regulations governing wetlands and other waters include:

- Federal: Clean Water Act (CWA), 33 USC 1344
- Federal: Executive Order for the Protection of Wetlands (EO 11990)
- State: Sections 1600–1607 of the California Fish and Game Code (CFGC)
- State: Porter-Cologne Water Quality Control Act, §13000 et seq.

Plant Species

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) have regulatory responsibility for the protection of special status plant species. The primary laws governing plant species include:

- Federal Endangered Species Act (FESA), United States Code 16 (USC), Section 1531, et seq. See also 50 CFR Part 402.
- California Endangered Species Act (CESA), California Fish and Game Code, Section 2050, et seq.
- Native Plant Protection Act, California Fish and Game Code, Sections 1900–1913.
- National Environmental Policy Act (NEPA), 40 C.F.R. Sections 1500 through 1508.
- California Environmental Quality Act (CEQA), California Public Resources Code, Sections 21000–21177.

Animal Species

The USFWS, NMFS, and California Department of Fish and Wildlife (CDFW) have regulatory responsibility for the protection of special status animal species. The primary laws governing animal species include:

- NEPA, 40 C.F.R. Sections 1500 through 1508.
- CEQA, California Public Resources Code, Sections 21000–21177.
- Migratory Bird Treaty Act, 16 U.S.C. Sections 703–712.
- Fish and Wildlife Coordination Act, 16 U.S. Code Section 661.
- Sections 1600–1603 of the California Fish and Game Code.
- Sections 4150 and 4152 of the California Fish and Game Code.

Threatened and Endangered Species

The primary laws governing threatened and endangered species include:

- FESA, United States Code 16 (USC), Section 1531, et seq.
  See also 50 CFR Part 402.
- CESA, California Fish and Game Code, Section 2050, et seq.
- CEQA, California Public Resources Code, Sections 21000–21177.
- Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S. Code § 1801.

Invasive Species

The primary laws governing invasive species are Executive Order (EO) 13112 and NEPA.

Environmental Setting

A *Natural Environment Study* (NES) (Caltrans 2020f) was prepared for the project. To comply with the provisions of various state and federal environmental statutes and Executive Orders, potential impacts to regulated habitats and special status plants and animals were investigated. Field reviews were conducted to identify existing habitat types and natural communities, potential jurisdictional waters and wetlands, rare species and/or factors indicating the potential for rare species (i.e., presence of suitable habitat), sensitive water quality receptors, and existing ambient noise levels. Airborne noise and water quality assessments were also examined to evaluate potential impacts to terrestrial and aquatic species from proposed construction activities.

The Environmental Study Limits (ESL) were established for the purpose of conducting surveys within the general project area. Appendix A—Project Layouts indicate the ESL at each bridge location. The Biological Study Area (BSA) includes the ESL and continues to 0.25 mile from the edge of the ESL for species that require additional analysis for auditory disturbance. The "project footprint" referenced in this document describes the area where construction activities would occur, likely to be directly impacted.

The project is in Humboldt County in the Owl Creek, Redcrest, Bridgeville and Larabee Valley in the United States Geological Survey (USGS) Quadrangles. Forest habitat, including timberlands and protected County and State Park lands, are a prominent feature near both Hely Creek and Little Larabee Creek bridge locations. A change to drier habitat types with open rolling hillsides that support oak woodlands and grasslands become the dominant habitats within Larabee Valley and continues to Butte Creek Bridge—the

easternmost bridge location. The project area is influenced by the coastal marine climate, giving this region mild, foggy summers and wet winters, most notably in the westernmost bridge location at Hely Creek. The eastern portion of the project area experiences lesser climate stabilizing effects of fog and higher precipitation.

All three bridge locations occur in the Van Duzen River Basin and span tributaries to the Van Duzen River. The environmental setting is characteristic of the Van Duzen River Basin located within the Northwestern Region of the California Floristic Province, specifically in the Outer North Coast Ranges sub-region (Baldwin et al., 2012). This river is a major tributary to the larger Eel River which flows into the Pacific Ocean approximately 15 miles south of Eureka, in Humboldt County.

The Van Duzen River Basin is physically located within the Coastal, Central, and Eastern belts of the Franciscan Complex of the Coast Ranges geomorphic province. In the Van Duzen River watershed, a highly active tectonic setting, combined with erosive terrain and high rainfall amounts, make the area one of the most erodible watersheds in the United States (U.S. EPA 1999). This combination produces a high incidence of landslides adjacent to stream channels, including earthflows and debris slides.

The BSAs for all locations include perennial creeks along SR 36 that drain directly to the Van Duzen River. The ESL is in the Lower Eel Watershed (Hydrologic Unit Code 18010105) (USGS 2019). Hely Creek resides in the lower Van Duzen River subbasin, while Larabee Creek is within the middle subbasin and Butte Creek in the upper subbasin. Hely Creek drains a watershed basin of approximately 3.6 square miles of forested terrain. The creek flows southwest to its confluence with the Van Duzen River approximately 300 feet downstream of the bridge. Watershed elevations range from 2,400 feet to approximately 80 feet at the bridge. Little Larabee Creek drains a watershed basin of approximately 13.3 square miles of forested terrain. The creek flows northwest to its confluence with the Van Duzen River approximately 350 feet downstream of the bridge. Watershed elevations range from 4,000 feet to approximately 625 feet at the bridge. Butte Creek and its tributaries (which include Horse, Swift, and Mule creeks) drain a watershed basin of approximately 15.7 square miles of forested terrain. Butte Creek flows north upstream of the bridge and then northeast to its confluence with the Van Duzen River approximately one mile downstream of the bridge. Watershed elevations range from 4,000 feet to approximately 2,300 feet at the bridge.

The Van Duzen River is one of the few remaining un-dammed rivers in California and is recognized for its scenic, recreation, and fish and wildlife values. To help protect these values, sections of the river were added to the State Wild and Scenic River system in 1972. This river system was listed by the U.S. Environmental Protection Agency (U.S. EPA) under the Total Daily Maximum Load (TMDL) program as sediment impaired and water quality limited. The TMDL listing is due to impacts of sedimentation/siltation on beneficial uses, including maintenance of critical aquatic habitat which supports anadromous salmonids and other fish species.

Plant Species

Existing occurrence records of special status plant species were consulted to determine which special status plant species may occur in the project area. Several special status plant species could potentially occur within the region (see Special Status Species Table in Appendix F), however the majority have not been documented within or adjacent to the project areas. Botanical surveys were conducted during the appropriate time of year when potentially occurring rare plants are present and identifiable. The surveys followed the *CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018b). A comprehensive species list, which documents all species observed during protocol-level surveying, is provided in Appendix G. Floristic surveys detected two special status plant species within the Biological Study Area: Leafy-stemmed miterwort (*Mitellastra caulescens*) and Buxbaum's sedge (*Carex buxbaumii*), which are discussed below. Additionally, plant species with FESA and/or CESA listing status are discussed below.

Buxbaum's Sedge

Buxbaum's sedge (*Carex buxbaumii*) has a CRPR of 4.2 and is listed on the CDFW Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2020b). This species, although not federally or state listed, is a plant of limited distribution in California. Species with CRPR of 4 are not considered "rare" from a statewide perspective, but are uncommon enough that their status should be monitored regularly.

Buxbaum's sedge was observed in the BSA at the Little Larabee Creek Bridge site. This species is noted to occur in bogs and fens, meadows and seeps, and marshes and swamps.

The species was detected during wetland delineations conducted for this project. Following further review of the site, during the non-flowing time of the year, a patch of 3 individual plants growing just east of the existing bridge was noted.

Humboldt County Milk-vetch

Humboldt County milk-vetch (*Astragalus agnicidus*) is a state endangered, coarse leafy perennial herb that blooms in the summer to early fall. The geographical distribution of this species in California includes the outer North Coast Ranges in Mendocino and Humboldt counties (Hickman 1996). It ranges in elevation from 635 to over 2,624 feet (180 to 800 meters) (CNPS 2018). It is documented in several locations in Mendocino County, however from only two watersheds (Larabee Creek and Bear Butte) in Humboldt County, with the populations on Humboldt Redwood Company land being the largest (CDFW 2019a). These populations are very close to each other within the Larabee Creek drainage (which is on the mainstem Eel River about ten miles to the southeast of the project) and may actually be part of a single population. It is described as occupying disturbed areas in broadleaved upland forest, North Coast coniferous forest and open soil in woodlands (Baldwin 2012).

The nearest CNDDB record of this species is 10 miles southeast of the ESL. While the BSA may support suitable habitat for Humboldt County milk-vetch, the species was not detected during floristic surveys conducted within the ESL.

Kneeland Prairie Pennycress

The Kneeland Prairie pennycress (*Noccaea fendeleri* ssp. *californica*) is a federal endangered perennial herb in the mustard family *(Brassicaceae*) that grows from 3.7 to 4.9 inches tall. The global distribution of the Kneeland Prairie pennycress is restricted to three small patches of serpentine outcrop, encompassing about 2 acres of suitable habitat within Kneeland Prairie in Humboldt County. The known population occurs approximately 15.3 miles north of the Hely Creek Bridge site (CDFW 2019a) on Humboldt Redwood Company land.

A review of the habitats located at all three bridge sites indicates that serpentine substrate is not present in the BSA. In addition, only the Butte Creek location contains grassland habitat that this specie requires. Although highly likely to occur, no detections were reported during seasonally-appropriate floristic surveys completed within the project area in 2019 for Kneeland Prairie pennycress and other regionally-occurring special status plants.

Lassics Lupine

Lassics lupine (*Lupinus constancei*) is a state endangered plant species. Lassics lupine is a low growing perennial plant of the legume family (*Fabaceae*) with rose and pink flowers which typically blooms in July but may bloom as early as late May. Lassics lupine is only found near the summits of remote mountains in northern California called the Lassics, which have unique serpentine-influenced soils. The Lassics are located in Humboldt and Trinity counties within the Six Rivers National Forest (CDFW 2018c).

The Lassics lupine occurs on serpentine barrens at 5,528–5,577 feet (1,685–1,700 meters) on Mount Lassic approximately 9.5 miles southeast from the Butte Creek Bridge location. Since this species is restricted in range to Mount Lassic, and survives only on gravel barrens and serpentine soils, habitat for this species is not present in the project BSAs.

Seasonally-appropriate floristic surveys were completed within the project area in 2019 for the Lassics lupine and other regionally-occurring special status plants and no detections were reported.

Leafy-stemmed Miterwort

Leafy-stemmed miterwort (*Mitellastra caulescens*) has a California Rare Plant Rank (CRPR) of 4.3 and is listed on the CDFW Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2020b). This species, although not federally or state listed, is a plant of limited distribution in California. Species with CRPR of 4 are not considered "rare" from a statewide perspective, but they are uncommon enough that their status should be monitored regularly.

Leafy-stemmed miterwort was observed in the BSA at the Hely Creek Bridge site. This species generally occurs in broadleaved upland forest, lower montane coniferous forest, meadows and seeps, and North Coast coniferous forest. The species was mapped just north of Hely Creek Bridge, on the eastern bank. The occurrence consisted of 15 individual plants. The plants were noted to be small, with some seedlings, spreading by rhizome. Most of the population was within a 2-foot by 2-foot area, with one plant approximately 8 feet from the larger population.

Water Howellia

Water howellia (*Howellia aquatilis*) is a federal threatened annual, aquatic herb in the bellflower family (*Campanulaceae*). The species is currently under review by USFWS for proposed removal of the species from the Federal List of Endangered and Threatened Plants due to updated scientific and commercial data that indicate threats to water howellia identified at the time of listing in 1994 are not as significant as originally anticipated (50 CFR 17; 2019).

Water howellia plants typically inhabit small, vernal freshwater wetlands and ponds with an annual cycle of filling with water in spring and drying up in summer or autumn (USFWS 2019). Water howellia occupies habitats across its range that vary in the extent of canopy cover, suggesting some flexibility in light tolerance. Many water howellia occurrences are surrounded or nearly surrounded by forested vegetation, with numerous observations reporting water howellia occupying shaded portions of ponds and wetlands.

Water howellia has been identified approximately 14.3 miles south of Butte Creek BSA along Alderpoint Road and Dobbyn and North Dobbyn Creeks. This occurrence was observed in 1893, with limited details provided in the database (CDFW 2019a).

Seasonally-appropriate floristic surveys were completed within the project area in 2019 for water howellia and other regionally-occurring special status plants and no detections were reported.

Western Lily

Western lily (*Lilium occidentale*) is federally and state listed as endangered. It is a perennial herb that grows from a bulb and produces crimson red flowers with yellow centers between June and July. It occurs in coastal areas between Coos Bay, Oregon, and Eureka, California, where it is associated with freshwater marshes, swamps, bogs, and fens in coastal scrub, coastal bluff scrub, coastal prairie, or North Coast coniferous forest habitats. It is typically found on well-drained, old beach washes overlain with wind-blown alluvium and organic topsoil, usually near margins of Sitka spruce (*Picea sitchensis*) at elevations ranging from 6 to 607 feet (2-185 meters) (CDFW 2019a). Threats to the species are primarily from development, hydrological modification from land use changes, and encroachment by trees and shrubs due to a lack of ecological disturbance such as fire and grazing.

Seasonally-appropriate floristic surveys were completed within the project area in 2019 for western lily and other regionally-occurring special status plants and no detections were reported. CNDDB records indicate the closest occurrence of western lily to the BSA is approximately 17 miles northwest near Humboldt Bay National Wildlife Refuge. This occurrence was observed as recently as 1938 but is now believed to be extirpated (CDFW 2019a).

Animal Species

Record searches and habitat assessments were conducted to determine whether special status wildlife species have the potential to occur in the BSA. Species that were queried but do not have potential habitat in the BSA are not discussed in this document as CEQA, FESA, and CESA only require analysis of species that could potentially be affected by a project. Special status wildlife species with the potential to occur in the BSA, based on queries and the rationale on whether or not there was potential habitat in the BSA, are discussed further below (Appendix F—Special Status Species Table).

Amphibians

Several special status amphibians could potentially be present within the project BSAs, including Foothill yellow-legged frog (FYLF) (*Rana Boylii*), Northern red-legged frog (NRLF) (*Rana aurora*), as well as additional species identified in the CNDDB RareFind Database including Del Norte salamander (*Plethodon elongatus*) and southern torrent salamander (*Rhyacotriton variegatus*).

The North Coast clade of Foothill yellow-legged frog (FYLF) (*Rana Boylii*) is a Species of Special Concern (SSC). The species is characteristically found very close to water in association with perennial streams and ephemeral creeks that retain perennial pools through the end of summer. The CNDDB RareFind database reports that this species has been detected at Butte Creek as well as numerous locations throughout out the Van Duzen watershed.

Three surveys for FYLF were conducted between April and June 2018 for preliminary geotechnical drilling at Little Larabee Creek. Surveys were conducted from the confluence of Little Larabee Creek and the Van Duzen River to approximately 300 feet upstream of the bridge and along the roadside ditch. Potential breeding habitat may exist within this stretch of Little Larabee Creek; however, no egg masses were observed. A total of six adult FYLFs were identified over the three surveys, all of which were observed within approximately 5 feet of flowing water in Little Larabee Creek beneath the bridge. Additional surveys for the

species were conducted for the proposed project at all bridge locations. The species was observed at all three bridge sites, with two egg masses detected at Butte Creek.

Northern red-legged frogs can be found in a variety of breeding habitats and aquatic non-breeding habitats such as ephemeral, intermittent, and perennial creeks and streams, reservoirs, springs, wetlands, and man-made impoundments. This species is also known to disperse to upland habitats, which can be triggered by both periods of wet weather and dry weather when breeding pools and other occupied aquatic habitats dry up and are no longer suitable (CDFW 2019b).

Both the Del Norte salamander and the southern torrent salamander are more restricted in range to late seral forests, with a developed multistory canopy. The Del Norte salamander is often found in talus and rock rubble of closed, multi-storied canopy forests while the southern torrent salamander prefers well-shaded permanent streams and seepages.

Other than FYLF, no specific surveys were conducted for other amphibian species by Caltrans biologists; however, Northern red-legged frogs have been observed within the project BSAs. There are CNDDB occurrences of Del Norte salamander approximately 16 miles to the north of Hely Creek BSA and southern torrent salamander approximately 2.3 miles southeast of the Hely Creek BSA.

Habitat in the project areas include areas within and adjacent to the creeks, as well as upland dispersal habitat for Northern red-legged frogs. All species, especially Northern red-legged frog, could be present during construction for this project.

Bat Species

In the mild northern California coastal climate, bats are present year-round. In colder areas, they are often migratory. In California, fourteen species of bats are either considered Species of Special Concern (SSC) by CDFW or currently proposed for such status. California Fish and Game Code Section 4150 provides further protection to bats (non-game mammals) from take or possession.

All 25 bat species that occur in California use one or more natural features or anthropogenic structures for roosting and 15 species are known to use bridges. Bats also forage in habitats near bridges such as riparian communities and open water, and along transportation corridors (e.g., roadside tree canopies).

Bats use bridge cavities for roosting during the day and for bearing and rearing young (i.e., maternal roost) typically from February through August. They may also use bridges in winter as hibernacula. At night, bats often roost in the openings on the concrete undersides of bridges. Night roosts, which are used from approximately sunset to sunrise, are sites where animals congregate to rest and digest their food between foraging bouts. Night roosts also serve as important stopping points during migration and appear to have a social function.

In addition to bats roosting inside or on bridge structures, bats can roost in culverts, on rocky banks, or in nearby trees such as those in adjacent riparian habitat. Trees can serve as potential roosting sites for foliage roosting bats (e.g., hoary bats [*Lasiurus cinereus*] and Western red bats [*Lasiurus blossevillii*], as well as many species of crevice roosting bats). Buildings and other structures adjacent to a transportation project may also provide potential habitat for crevice or cavern roosting species.

Two species of bats considered to be SSC by CDFW were documented within the twelve-quad database searches: Townsend's big-eared bat (*Corynorhinus townsendii*) and Western red bat. Both SSC have the potential to occur within the project limits.

The project location is also within range of California myotis (*Myotis californicus*), fringed myotis (*Myotis thysanodes*), hoary bat, little brown bat (*Myotis lucifugus*), Mexican free-tailed bat (*Tadarida brasiliensis*), silver-haired bat (*Lasionycteris noctivagans*), Yuma myotis (*Myotis yumanensis*), and several other species (CDFW 2019A). Of these, Mexican free-tailed bat, little brown bat, and Yuma myotis are commonly found on bridges and fringed myotis, and Townsend's big-eared bat are occasionally found on bridges. All of these species are known to use bridge structures for day roost, maternity roost, and/or night roost where habitat is suitable (Erickson et al., 2002). California myotis, big brown bat (*Eptesicus fuscus*), hoary bat, little brown bat, long-eared myotis (*Myotis evotis*), long-legged myotis (*Myotis volans*), Townsends big-eared bat, and Yuma myotis have been historically documented roosting within Redwood trees (Zielinski et al., 2007). Hoary bat, silver-haired bat, and Western red bat are known to roost in trees exclusively.

Bat habitat assessments were conducted at all bridge locations on January 22 and April 15, 2019 by Caltrans biologists. This included a thorough review of the bridge structure for bat presence and sign and the potential for the bridges to support maternity or other colonial roosting bats. This assessment also reviewed surrounding vegetation to determine if tree roosting bats, and bat foraging habitat could be present in the BSA. Additional presence/absence surveys were conducted throughout 2019 survey season, summarized in Table 2.

Table 2. Bat Survey Results

Survey Date and Purpose	Hely Creek	Little Larabee Creek	Butte Creek
01/22/2019 and 4/15/2019: Bridge Type, Habitat Assessment, Bat Signs	Concrete Slab Bridge lacks crevices for colonial roosting, limited sun exposure Small amount of guano	Concrete Slab Bridge lacks crevices for colonial roosting. No guano reported	Concrete Slab Bridge lacks crevices for colonial roosting, limited sun exposure. Night roosting evidence observed
04/18/2019: Presence/Absence	Roosting during the day at southeast side	None	None
04/23/2019: Presence/Absence	None	None	None
05/10/2019: Presence/Absence	None	Townsend's day roosting on southeast side	None
05/23/2019: Presence/Absence	None	Townsend's day roosting on southeast side	None
06/05-06/2019: Presence/Absence	None	Townsend's day roosting on southeast side	None
07/10/2019: Presence/Absence	None	Townsend's day roosting on southeast side	None

Surveys detected bat species and reported signs of bat roosting at all three bridge sites. Bat assessments indicated that although bridges are being utilized by singular individuals or small groups (visually detected or inferred due to presence of guano), maternity and other colonial roosts at the bridges were not present and believed unlikely due to the concrete slab construction at all three of the bridges and lack of suitable crevices observed. Slab structures rarely provide habitat value unless the structure has deterioration hollows, expansion joints, or other similar feature that provides a day roost crevices or hollows. Approximately seven percent of the known roosts are of a slab design (Erickson et. al., 2003).

Although bats were not observed outside the bridge structures, conifer forests and oak woodlands offer additional roosting habitat for bats with abundant foraging habitat along perennial creeks associated riparian and adjacent grasslands present in the ESL.

Coastal Cutthroat Trout

Coastal cutthroat trout (*Oncorhynchus clarkii*) is a SSC. This species can be found in small, low gradient coastal streams and estuaries from the Eel River to the Oregon border. Their habitat needs include shaded streams with water temperatures less than 64 degrees Fahrenheit (18 degrees Celsius) and small gravel for spawning. They are anadromous and spend part of the life cycle in the ocean, returning to freshwater to spawn.

Focused surveys for cutthroat trout have not been conducted for the proposed project; however, summer surveys were conducted for salmonids in 2019. No cutthroat trout were observed during the surveys, but could be present in the perennial creeks associated with this project.

According to the CNDDB RareFind database, the coastal cutthroat trout range is within all three bridge locations. The closest occurrence of the species is approximately 4.6 miles north of Hely Creek Bridge from the Middle Fork Yager Creek.

Migratory Birds

Trees and vegetation present at all three bridge locations provide habitat for migratory birds. Several bird species were detected during site visits in 2019. A comprehensive list of avian species observed can be found in the *Natural Environment Study* (NES) (Caltrans 2020f) for this project.

Northern Goshawk

The Northern goshawk (*Accipiter gentilis*), a SSC, is the largest of the three accipiters of North America. Northern goshawks nest in mature and old-growth forests with more than 60% closed canopy. Northern goshawks usually choose the largest trees in a stand for nest sites, placing the nest next to the trunk on a large horizontal branch or in a primary or secondary crotch. Goshawks hunt in the forest, along riparian corridors, and flash through forests chasing bird and mammal prey, pouncing silently or crashing feet first through brush to grab quarry. Northern goshawks eat a wider range of prey than other accipiters, including birds, mammals, and reptiles, as well as insects and occasionally carrion (Squires and Reynolds, 1997). Tree and ground squirrels, snowshoe hares, jackrabbits, and cottontails are the main mammal prey.

No species-specific surveys were performed for this species. CNDDB lists the nearest observations 11.2 miles east of the ESL. The eBird database lists no detections within 2.5 miles of the project area (eBird 2017). No Northern goshawk or their nests were observed in the BSA's at all three bridges.

Pacific Fisher

The West Coast Distinct Population Segment (DPS) of Pacific fisher (*Pekania pennanti*) is a SSC and some California populations are regulated as state and federally threatened; however, the population that occurs in the project region is not listed under the FESA or CESA.

The fisher is one of the larger members of the weasel family (*Mustelidae*) and are opportunistic, generalist predators with a diverse diet. Fisher are known to occur in coniferous forest in the coastal ranges of northern California, including second growth and old-growth redwood forest, with a possible preference for stands with structural complexity, diversity, and large logs and snags for resting and denning (Hatler et al., 2003). The fisher requires intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. They require large areas of mature, structurally complex conifer and mixed conifer-hardwood forest and occupy home ranges that can exceed 14,826 acres (6,000 hectares) (Zielinski et al., 2006). Fishers are generally solitary animals, except during the breeding season (Center for Biological Diversity, 2014). They mate between February and May (usually late March), giving birth the following March.

The CNDDB RareFind database shows the nearest fisher detection approximately 2 miles east of the Little Larabee Creek Bridge BSA, located in the Rodgers Creek area. This occurrence was observed in 1894 noted to have been trapped and taken from the location. A more recent reporting of this species near the project BSAs was detected in 2009, at the Butte Creek headwaters, about 2.1 miles southwest of Highway 36. Protocol-level surveys were not performed for this species. The BSAs were surveyed for trees suitable for fisher resting habitat and maternity den sites. Trees suitable for fisher den sites include conifers (≥ 22 inches diameter at breast height [DBH]) and hardwoods (≥ 18 inches DBH), not smaller trees. Day resting sites could include branches, platforms, and cavities of live trees. Suitably sized trees with the following characteristics were considered as potential fisher den sites:

- Any broken-topped tree with a minimum diameter at the break of 18 inches or larger;
- Trees with one or more limbs 12 inches or greater in diameter;

- Trees with a cavity (or void within a tree bole or large limb) with a relatively small opening; includes all cavities with entrances 2.5 to 6 inches across the smallest direction (for example, a vertical slit-like opening 4 inches across would count, as would a more circular entrance).

The BSAs at all three bridges contain numerous potential resting locations and large hollow redwoods with suitable denning cavities. Although fisher would likely prefer habitats farther away from areas with human disturbance outside of the Caltrans right of way, it is possible they could use this habitat for foraging; however, as the highway is nearby, it is unlikely fisher would use this habitat for denning. No signs of fisher occupation were observed within the BSA's at all three bridges.

Pacific Lamprey

A SSC, Pacific lamprey (*Entosphenus tridentatus*) are parasitic, anadromous fish (born in fresh water streams, migrate out to the ocean, and return to fresh water as mature adults to spawn). Pacific lamprey ammocoetes (the larval stage) start life under gravel in fresh water streams. After a few weeks they emerge and drift downstream until they find a low velocity backwater filled with silt or mud where they burrow and live as filter feeders for up to seven years. Metamorphosis to macrophthalmia (juvenile phase) occurs gradually from July to November, then they begin their downstream migration in late summer-early fall when rains increase stream flows that passively carry fish to mainstem rivers and eventually the ocean. As adults in the ocean, Pacific lamprey are parasitic and feed on the body fluids and blood of marine fishes. After spending one to three years in the marine environment, they stop feeding and migrate back to fresh water between February and June. They overwinter in fresh water until they spawn the following year between March and July, then die within days after spawning (Calfish 2016).

Focused surveys for Pacific lamprey have not been conducted for the proposed project; however, summer surveys were conducted for salmonids in 2019. No lamprey were observed during the surveys.

The CNDDB RareFind database has the closest occurrence to the BSA approximately 15 miles northwest of the Hely Creek Bridge site. The location is described as occurring in Salmon Creek, from its mouth in South Humboldt Bay to about 3,280 feet (1,000 meters) upstream of Little Salmon Creek. The site consisted of ammocoetes and a single redd that was documented during salmon spawning surveys in March 2013. Suitable lamprey habitat has been observed in the BSA's at all three bridges.

Sharp-shinned hawk, Osprey, and Cooper's hawk

Forest and riparian habitats, such as those found within the project area, may provide habitat for sharp-shinned hawks (*Accipiter striatus*), osprey (*Pandion haliaetus*), and Cooper's hawk (*Accipiter cooperii*). These species are treated as "taxa to watch" by CDFW due to their former inclusion on special concern lists. While they have demonstrated population declines, they are still fairly common and widespread in the state and are currently at a low risk for extinction.

Sharp-shinned Hawks breed in deep forests. During migration, they prefer open habitats or high in the sky, migrating along ridgelines. During the nonbreeding season they hunt small birds and mammals along forest edges and sometimes at backyard bird feeders.

Osprey feed almost exclusively on fish and inhabit areas near shallow waters, either fresh or salt, that offer a steady source of food. Nests are usually built on snags, treetops, or crotches between large branches and trunks, on cliffs or human-built platforms. They are placed in open surroundings for easy approach and elevated for safety from ground predators. Nesting habitat must include an adequate supply of accessible fish within a maximum of about 12 miles of the nest.

Cooper's hawks reside in mature forest, open woodlands, wood edges, river groves and nest in coniferous, deciduous, and mixed woods, typically those with tall trees and with openings or edge habitat nearby. They may also be found among trees along rivers through open country, and increasingly in suburbs and cities where some tall trees exist for nest sites.

All three of these species occur throughout the Van Duzen and greater Eel River watershed. CNDDB (CDFW 2019a) reports the closest sharp-shinned hawk approximately 2.5 miles southeast from Hely Creek in the Root Creek drainage. The closest reported Cooper's hawk is documented in Flannagan Creek approximately 1 mile north of Hely Creek. An osprey nest site was reported on the west side of the Van Duzen River in Grizzly Creek State Park approximately 1.5 miles southeast of Hely Creek. No nests or observations of the species were reported in the BSA's of all three bridges.

Sonoma Tree Vole

Sonoma tree vole (*Arborimus pomo*) is a state SSC distributed along the North Coast of California from Sonoma County to the Oregon border. It is reported to be rare to uncommon throughout its range, but the difficulty of locating nests and capturing individuals make abundance difficult to assess. Sonoma tree voles occur in old-growth and other forests, mainly Douglas-fir, redwood, and montane mixed hardwood-conifer habitats.

Sonoma tree voles feed on needles of Douglas-fir and grand fir. Nests of Douglas-fir needles are constructed in trees, preferably tall trees. Nests may be situated on the whorl of the limbs against a trunk or at outer limits of branches. In young second-growth Douglas-fir, the broken tops of trees frequently are used for nesting (Maser et al., 1981). The Sonoma tree vole breeds year-round, but most breeding is from February through September. The spotted owl is the main predator of Sonoma tree voles throughout the geographical distribution.

No species-specific surveys were performed for this species; however, trees slated for removal were investigated for signs of tree vole use. The closest CNNDB detection of the Sonoma tree vole is approximately 2.1 miles from the ESL. This occurrence was noted on a southwest facing slope and was observed in 1993.

Western Pond Turtle

The Western pond turtle (*Emys marmorata*) is a California SSC. Western pond turtle (WPT) range throughout the state of California, from southern coastal California and the Central Valley east to the Cascade Range and Sierra Nevada.

The WPT occurs in a variety of permanent and intermittent aquatic habitats, such as ponds, marshes, rivers, streams, and ephemeral pools. They require suitable basking and haul-out sites, such as emergent rocks, large instream woody debris, or floating logs. These turtles require an upland nesting site in the vicinity of the aquatic habitat, typically created in grassy, open fields with soils that are high in clay or silt fraction. Egg laying usually occurs between March and August. This species may spend the winter in an inactive state, on land or in the water, or, in other cases, may return active and in the water throughout the year (Jennings and Hayes, 1994).

No species-specific surveys were conducted for WPT, but the species could be present at all three bridges. This species was observed during field visits at Butte Creek—although one of the occurrences was noted to be a deceased juvenile. The CNDDB RareFind Database has numerous reports of this species in the Van Duzen watershed, including one in the Van Duzen River at the confluence with Hely Creek.

Threatened / Endangered Species

American Peregrine Falcon

American peregrine falcon (*Falco peregrinus*), although delisted from both the federal and state Endangered Species Acts, is a CDFW fully protected species. The peregrine falcon feeds mainly on birds (doves, shorebirds, pigeons, ducks), as well as some mammals, such as bats, rabbits, and rodents, and occasionally insects, reptiles, and fish. Peregrine falcons are usually found alone or in breeding pairs, with each pair maintaining a breeding territory and often remaining together throughout the year. Nesting in northern California may begin in March, with young leaving the nest by early July. Although peregrine falcons often nest on cliff faces, they will select a wide variety of other structures for nest sites, including buildings, bridges, electrical transmission structures, and occasionally the abandoned nests of large raptors or ravens (White et al., 2002).

No American peregrine falcons were observed in the BSA's of the three bridges during focused bird surveys. CNDDB lists one observation approximately 1.4 miles to the southwest of the Hely Creek BSA. This nest site is located on the south side of the Van Duzen River. A second occurrence is reported in the Little Larabee Creek watershed just east of the highway, near McClellan Mountain Road, approximately 3 miles northwest from the Butte Creek BSA.

Bald Eagle

Though the bald eagle (*Haliaeetus leucocephalus*) was delisted from federal status, it is still considered state endangered. They remain federally protected by the Bald and Golden Eagle Protection Act (16 U.S.C. §668). Bald eagles typically nest in large trees within one mile of fishable waters, within or directly adjacent to forests with large trees that provide suitable nesting structures (Buehler 2000). Active breeding occurs February through August. Bald eagles are known to feed on a wide variety of fish, small mammal, amphibians, reptiles, and small birds. They are also documented to scavenge for food and eat carrion. In Humboldt County, bald eagles are strongly tied to open water and undisturbed shorelines. River corridors and estuaries attract scattered individuals thought to be migrants, or otherwise nonresident, from October to March (Hunter et al., 2005).

No bald eagles were observed in the BSA's of the three bridges during focused bird surveys. No species-specific surveys were performed for this species. CNDDB lists a single historic nest site approximately 12 miles east of Butte Creek BSA. The eBird database lists one detection within 2.5 miles of the project area. No bald eagles or their nests were observed in the BSA's at any of the three bridges.

Bank Swallow

The bank swallow (*Riparia riparia*) is a state threatened species that requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes or ocean to dig nesting holes. The species is considered a colonial breeder with colonies that range in size of 10 to 1,500 nesting pairs. The species forages by hawking insects during long, gliding flights, predominantly over open riparian areas, but also over brushland, grassland, wetlands, water, and cropland.

No species-specific surveys were performed for this species. Bank swallows were not observed in the BSA's at any of the three bridges. The CNDDB RareFind database lists a single breeding colony on a vertical cliff above the Van Duzen River. The CNDDB BIOS mapping applications shows this occurrence as a circle that encompasses the Van Duzen watershed from Hydesville to Root Creek, which is approximately 2 miles southeast of the Hely Creek Bridge (CDFW 2019a). This record was last observed in 1946 with no subsequent reporting of the population. Nesting habitat for this species was not observed in the BSA's of the three bridges.

Golden Eagle

The golden eagle (*Aquilia chrysaetos*) is a CDFW fully protected species, and also protected by the Bald and Golden Eagle Protection Act, and no take of the species is allowed. Golden eagles are more prevalent in open and semi-open habitat, but also may nest at lower densities in coniferous habitat when open space is available (USFWS 2010). Golden eagles nest on cliffs, in the upper one third of deciduous and coniferous trees, or on artificial structures, such as windmills, electricity transmission towers, artificial nesting platforms (Phillips and Beske 1990; Kochert et al., 2002). Golden eagles build nests on cliffs or in the largest trees of forested stands that offer an unobstructed view of the surrounding habitat (USFWS 2011a).

No golden eagles were observed in the BSA's of the three bridges during focused bird surveys. No species-specific surveys were performed for this species. CNDDB lists a historical nest site approximately 5.8 miles to the southwest of Little Larabee Creek Bridge in Larabee Creek in lands owned by Humboldt Redwood Company.

Humboldt Marten

The Humboldt marten (*Martes caurina humboldtensis*) is a federally proposed threatened and state candidate endangered species. It is a carnivorous mammal that historically occupied the coastal mountains of California from Sonoma County north to the Oregon border. The current distribution is limited to areas of Humboldt, Del Norte, and Siskiyou counties. Humboldt marten are associated with late successional conifer stands with dense shrub layers with abundant downed tree structures used for resting, denning, and escape cover. They are also associated with serpentine soil communities of various seral stages with variable tree cover, dense shrubs, and rock piles and rock outcrops used for resting, denning, and escape cover. Natal and maternal dens would likely be occupied from late March or April, when females give birth until the young disperse in late summer or autumn (Hamlin et al., 2010).

The CNDDB RareFind database shows the nearest Humboldt marten detection approximately 3.5 miles north and 4.2 miles northwest of Little Larabee Creek Bridge. Both occurrences were collections documented close to a century ago (1913 and 1927, respectfully). Protocol-level surveys were not performed for this species. Although the project is within the historic range of this species, there are no recent records of this species near the BSA's of the three bridges and it is outside the current known population distribution. The reported current distribution within the state is limited to two small areas of Del Norte, northern Humboldt (north of Trinidad), and western Siskiyou counties (CDFW 2019a).

Little Willow Flycatcher

Little willow flycatcher (WIFL) (*Empidonax traillii brewsteri*) is a state endangered bird species. WIFL occur annually both as spring and fall migrant and casual summer residents and breeders in northwestern California. They are late spring migrants, appearing along the coast in May-June and in August-September. WIFL are locally rare to uncommon during their nesting season in June and July. Breeding habitat is typically moist meadows with perennial streams; lowland riparian woodlands dominated by willow (primarily in tree form) and cottonwoods; or smaller spring-fed or boggy areas with willow or alder (Craig, D. and P. L. Williams, 1998). In riverine habitats, such as those found within the project area, it is thought that contiguous willow thickets are used because the linear nature of these areas provide sufficient edge habitat, and/or the tree-like willows typically found in these areas provide sufficient openings within the canopy (Harris 1991).

The CNDDB RareFind database shows the nearest WIFL detection approximately 16 miles south of Little Larabee Creek Bridge. This occurrence was observed about 1 mile NNW of Miranda, in Humboldt Redwoods State Park, during protocol-level surveys conducted in June 2000. The habitat is described as a dense willow thicket, located near the Eel River. Through technical assistance with USFWS liaison Greg Schmidt, it was determined that although the project is within the historic range of this species, the habitat at the site is inadequate for successful breeding (pers. comm. G. Schmidt, USFWS).

Marbled Murrelet

Marbled murrelet (MAMU) (*Brachyramphus marmoratus*) is listed as federally threatened (57 FR 45328) with over 3.6 million acres of critical habitat designated in the combined states of Washington, Oregon, and California (76 FR 61599). It is also state listed as endangered in California. Major factors attributed to their decline from historic levels are (1) loss of nesting habitat due to commercial timber harvest and forest management practices, (2) poor reproductive success due to habitat fragmentation and predation, and (3) mortality from net fisheries and oil spills (USFWS 1997).

The MAMU is a small Pacific seabird that breeds along the Pacific coast of North America from the Aleutian Archipelago and southern Alaska south to central California. In the Pacific Northwest (Washington, Oregon, and California), they have a unique life history strategy in that they feed primarily in nearshore marine waters (within a few miles of shore) but fly inland to nest in mature conifers. Nesting habitat is primarily associated with large tracts of old-growth forest, typically within 50 miles from shore, characterized by large trees, a multistoried stand, and moderate to high canopy closure. They are commonly absent from stands less than 60 acres in size. Nests are not built, but an egg is laid in a depression of moss or other debris on the limb of a large conifer. Suitable nest structures include large mossy horizontal branches, mistletoe (*Phoradendron spp*.) infections, witches' brooms (structural deformities of the tree), and other such structures (NatureServe Explorer 2015). During the March to September breeding season, MAMU typically fly along river corridors for their morning and evening nest visits.

Protocol-level surveys were not conducted for MAMU. CNDDB RareFind database lists the nearest MAMU detections in Cheatham Grove, Grizzly Creek Redwoods State Park, approximately 0.6 mile east of Hely Creek Bridge. Pamplin Grove, approximately 0.20 mile from the Hely Creek Bridge, is a residual grove of redwood trees that could also support MAMU nesting habitat and is within the Hely Creek Bridge BSA. MAMU is assumed present in Grizzly Creek Redwoods State Park and Pamplin Grove.

No MAMU habitat was observed in Little Larabee Creek BSA and Butte Creek BSA lies outside of the known range for the species. The BSA's at the Little Larabee Creek Bridge and Butte Creek Bridge do not provide the necessary structures in trees to support nesting MAMU. Thus, there is no indication that the species could reside within these BSA's..

Northern Spotted Owl

The Northern spotted owl (NSO) (*Strix occidentalis caurina*) is a federally and state threatened species. NSOs generally have large home ranges and use large tracts of land containing significant acreage of older forest to meet their biological needs. The attributes of superior NSO nesting and roosting habitat typically include a moderate-to-high canopy closure (60 to 80 percent); a multi-layered, multi-species canopy with large overstory trees; a high incidence of large trees with deformities (large cavities, broken tops, mistletoe infections, and debris accumulation); large accumulations of fallen trees and other debris; and sufficient open space below the canopy for flight. In redwood forests and mixed conifer-hardwood forests along the coast of northwestern California, considerable numbers of NSO also occur in young forest stands (USFWS 2011b). NSOs tend to select broken-top trees and cavities in older forests for nest sites, although they will also use existing platforms such as abandoned raptor nests, squirrel nests, mistletoe brooms, and debris piles. In younger forests, existing platforms are more frequently utilized for nest sites (Gutierrez et al., 1995). Courtship initiates in February or March with the first eggs laid in late March through April. Fledglings generally leave the nest in late May or in June but continue to be dependent on their parents into September until they are able to fly and hunt on their own. By September juveniles have left their natal area.

NSO critical habitat is present within the Hely Creek Bridge BSA, however there is no designated critical habitat for NSO within the project ESL at any of the bridges.

Protocol-level surveys were initiated at survey locations encompassing a 0.25-mile buffer from the project area in 2019. Survey methods and station placement were implemented based upon the 2012 revised USFWS protocol described in *Protocol for Surveying Proposed Management Activities That May Impact Northern Spotted Owls* for disturbance only projects (USFWS 2012). The survey effort at the Hely Creek Bridge and Little Larabee Creek Bridge sites ended after NSOs were first detected at each location. Butte Creek had no detections during surveys conducted in 2019.

Hely Creek

On March 18, 2019, Caltrans biologists detected a single NSO near Hely Creek. CNDDB records identified two ACs near the vicinity of the detection: HUM0624, approximately 0.55 mile northeast of the bridge, and HUM032 located approximately 0.52 mile southeast of the bridge

There are no known NSO AC within the ESL or BSA documented in the CNDDB. Discussions with Humboldt Redwood Company(HRC) (who survey the adjacent property, within the BSA) confirm no known nests are located within the ESL or BSA. However, suitable nesting habitat does exist within 0.25 mile of the project location and within the BSA. Therefore, the potential for NSO to occur within the BSA exists and potential for presence is assumed.

Little Larabee Creek

On May 29, 2019, a single detection was reported at one of the calls stations near the Little Larabee Creek Bridge during protocol-level surveys for the species. This detection was initially observed as very faint calls from an NSO that proceeded to come close to the station but was not visually detected.

CNDDB records in the vicinity of the project area include a historical NSO nest site (HUM0801) located approximately 0.87 mile south east of Little Larabee Creek, which is the closest known activity center to the project area.

Butte Creek

Protocol-level surveys for NSO were conducted at Butte Creek in 2019; however, none were detected.

The closest recorded activity center in the CNDDB records within the vicinity of the project area is an historical NSO nest site (HUM 0339) located approximately 1.1 miles northeast of the Butte Creek Bridge project footprint.

Salmonids

Chinook Salmon

The California Coastal (CC) Evolutionarily Significant Unit (ESU) of Chinook salmon (*Oncorhynchus tshawytscha*) was federally listed as a threatened species on September 16, 1999 (64 FR 50394). Their threatened status was reaffirmed August 15, 2011 (76 FR 50447). The ESU includes all naturally spawned populations of Chinook salmon from rivers and streams south of the Klamath River to and including the Russian River, California (64 FR 50394). The ESU also includes fish released from State and Federal propagation programs. NMFS determined that these artificially propagated stocks are no more divergent relative to the local natural population(s) than what would be expected between closely related natural populations within the ESU (70 FR 37160).

Critical habitat for CC Chinook Salmon was designated September 2, 2005 (70 FR 52488) which includes the stream channels within the designated stream reaches and includes a lateral extent as defined by the ordinary high-water line (33 CFR 329.11). Critical habitat includes (1) specific areas within the geographical area occupied by the species at the time of listing, on which are found those physical or biological features that are essential to the conservation of the listed species and that may require special management considerations or protection, and (2) specific areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of a listed species.

California Coastal Evolutionarily Significant Unit (ESU) of Chinook salmon (CC Chinook salmon) salmon are fall-run, ocean-type anadromous fish. They typically return to their natal waters to spawn between September and early November following early large winter storms (Moyle et al., 2008). Entrance into fresh water is often delayed in smaller coastal watersheds where low flow barriers can prevent access until December or even January (Moyle et al., 2008).

Fall-run Chinook salmon typically spawn in the lower reaches of rivers and tributaries. Typically, they enter fresh water at an advanced stage of maturity, move rapidly to their spawning areas and spawn within a few weeks of freshwater entry (Healey 1991). Adults die within a few days after spawning. Fry emerge from the gravel in the late winter or spring and initiate outmigration within a week to months of emergence (Moyle et al., 2008). Fresh water residence, including outmigration, usually ranges from two to four months. After emergence, Chinook salmon fry seek out areas behind fallen trees, back eddies, undercut banks, and other areas of bank cover. As they grow larger, their habitat preferences change (Everest and Chapman, 1972). Juveniles move away from stream margins and begin to use

deeper water areas with slightly faster water velocities but continue to use available cover to minimize the risk of predation and reduce energy expenditure. As they move downstream, they use more open waters at night, while seeking protected pools during the day. Pools that are cooler than the main river, from upwelling or tributary inflow, may be sought out by migrating juveniles as daytime refuges (Moyle et al., 2008).

Water temperature is one of the most important environmental influences on salmonids at all life stages, affecting physiological processes and timing of life history events (Spence et al., 1996; CDFW 2014). Adult fall-run Chinook salmon tolerate water temperatures ranging from 51°F–67°F (10°C– 19.4°C). Based on studies of steelhead and coho salmon, water temperature ranging from 50°F–55°F (10°C– 12.8°C) has been recommended as the optimal thermal range for smoltification and emigration (DWR 2002). Juvenile Chinook salmon prefer water temperatures less than 71.6°F (22°C).

Species presence and potential presence was investigated in all three creeks through consultation with CDFW and surveys conducted by Caltrans and Humboldt Redwood Company (HRC). The following results of the combined effort to determine species presence and potential presence in the project BSAs, and sources of information, are discussed below.

Hely Creek

Chinook salmon was not observed during snorkel surveys conducted by Caltrans, but habitat is presumed present at the Hely Creek Bridge ESL, based on the following information:

- CDFW consultation regarding fish species: although noted there are no documented occurrences of Chinook salmon in Hely Creek, presence should be assumed based on the characteristics of the watershed.
- The *Hely Creek Stream Inventory Report*: summarized that although presence has not been documented at Hely Creek, the creek should be managed as an anadromous, natural production stream that should include Chinook salmon, due to habitat values observed (CDFW 2017).
- BIOS reports confirming Chinook salmon distribution to Bloody Run Creek, which is upriver of Hely Creek (CDFW 2019a).

Little Larabee Creek

Chinook salmon are presumed present at the Little Larabee Creek Bridge ESL, based on the following information:

- The *Little Larabee Creek Stream Inventory Report*: summarized that although presence has not been documented in Little Larabee Creek, the creek should be managed as an anadromous, natural production stream that should include Chinook, due to habitat values observed (CDFW 1996).

- BIOS reports of Chinook salmon distribution, which is upriver of Little Larabee Creek.

Butte Creek

Chinook salmon are presumed present at the Butte Creek Bride ESL, based on the following information:

- The *Little Van Duzen River Stream Inventory Report*: summarized that although presence has not been documented in the watershed, the creek should be managed as an anadromous, natural production stream that should include Chinook, due to habitat values observed (CDFW 1992).

- Reported observations of Chinook salmon on Butte Creek in 1984 (K. Lackey, HRC pers. comm. 2019).

Caltrans deployed temperature data loggers during the summer of 2019 to obtain water temperatures in the BSAs. Since temperature was observed to be optimal throughout the summer, juvenile Chinook may be present in the BSAs for the project area year-round as the BSAs provide the necessary cool water refuge for this species during the warm summer months.

Coho Salmon

NMFS published its final decision to list the Southern Oregon/Northern California Coast (SONCC) ESU of coho salmon (*Oncorhynchus kisutch*) as threatened under the Federal Endangered Species Act (FESA) on May 6, 1997 (62 FR 24588), a status that was reaffirmed on August 15, 2011 (76 FR 50447). The listing initiated the development of a recovery plan for the ESU that includes delisting goals. The final recovery plan for the SONCC coho salmon was published by NMFS in 2014. In August 2002, the California Fish and Game

Commission issued a finding that coho salmon warranted listing as threatened from the Oregon border south to Punta Gorda.

Critical habitat for the Southern Oregon/Northern California Coast ESU of coho salmon (SONCC coho salmon) was designated in 1999 (64 FR 24049) as encompassing accessible reaches of all rivers (including estuarine and tributaries) between the Mattole River in California and the Elk River in Oregon. Critical habitat includes all waterways, substrate, and adjacent riparian zones, but excludes 1) areas above specific dams, 2) areas above longstanding, naturally impassable barriers, and 3) tribal lands. The proposed project is within designated critical habitat for SONCC coho salmon at all three bridge locations.

In the Van Duzen and greater Eel River system, the coho salmon spawning run occurs from December to February. Spawning is predominantly confined to the upper South Fork and its tributaries, and lower tributaries of the mainstem Eel and Van Duzen rivers. Fry emergence takes place between March and July, with peak emergence between March and May. Juvenile coho salmon typically feed and rear within the streams of their natal watershed for a year before migrating to the ocean. Coho salmon fry may move upstream or downstream to rear after emergence. Coho salmon rearing areas include lakes, sloughs, side channels, estuaries, beaver ponds, low-gradient tributaries to large rivers, and large areas of slack water (Pacific Fishery Management Council [PFMC] 2014).

Water temperature is one of the most important environmental influences on salmonids at all life stages, affecting physiological processes and timing of life history events (Spence et al., 1996; CDFW 2014). Based on studies of steelhead and coho salmon, water temperature ranging from 50°F–55°F (10°C– 12.8°C) has been recommended as the optimal thermal range for smoltification and emigration (DWR et al., 2000). Juvenile coho salmon may be present in all three tributaries within the action area year-round and may seek these tributaries as cool water refuge during summer months.

Species presence was investigated in all three creeks through consultation with CDFW and surveys conducted by Caltrans and Humboldt Redwood Company (HRC). The following results of the combined effort to determine species presence at the bridge locations and three tributaries where the bridges reside, followed with the sources of information, is discussed below.

Hely Creek

Coho salmon are present at Hely Creek, based on the following information:

- HRC Aquatic Trends Monitoring Station 112, located approximately 200 feet upstream from the bridge site has documented occurrences of the species at the site since 2003.
- The *Hely Creek Stream Inventory Report*: biological sampling documented the presence of coho salmon in Hely Creek near the bridge site (CDFW 2017).

Little Larabee Creek

Coho salmon are presumed present at Little Larabee Creek, based on the following information:

- The *Little Larabee Creek Stream Inventory Report*: summarized that although presence has not been documented in Little Larabee Creek, the creek should be managed as an anadromous, natural production stream that should include coho salmon, due to habitat values observed (CDFW 1996).

Butte Creek

Coho salmon are potentially present at Butte Creek, based on the following information:

- The *Butte Creek Stream Inventory Report*: summarized that although presence has not been documented in Butte Creek, the creek should be managed as an anadromous, natural production stream that should include coho salmon, due to habitat values observed (CDFW 1992).

Steelhead

Northern California (NC) DPS steelhead (*Oncorhynchus mykiss irideus*)is a federally threatened species and the summer-run NC steelhead (*Oncorhynchus mykiss irideus*) is a state candidate (endangered) species as well as a state SSC. The Northern California Coast DPS includes all naturally spawned anadromous *O. mykiss* (steelhead) populations below natural and manmade impassable barriers in California coastal river basins from Redwood Creek southward to, but not including, the Russian River, as well as some state and federal propagation programs. Steelhead in this DPS include both winter and summer-run types, and what is presently considered to be the southernmost population of summer steelhead in the

Middle Fork Eel River. The Van Duzen River and its tributaries are considered critical habitat for this DPS of steelhead.

As stated above, the state candidate (endangered) summer-run steelhead is also represented in the steelhead population in the Van Duzen watershed. This designation was granted by the California Fish and Game Commission on June 12, 2019, pursuant to the provisions of Section 2074.2 of the Fish and Game Code. The extent of summer-run steelhead near the project area is known 1 mile northeast of Bridgeville and upstream locations.

Steelhead adults exhibit both summer- and winter-run migration timing. In larger watersheds, such as the Mad and Eel River, freshwater entry for winter-run fish can occur as early as September or October, whereas in smaller watersheds (some subject to bar formation), entry typically begins in December and continues into April or May (Busby et al., 1996). Neither flow nor temperature is generally problematic for winter-run adults.

A small run of summer steelhead usually enters the river from March to the end of June. Summer-run steelhead migrate further inland into smaller tributaries than winter fish. They spend summer months resting in pools with consistent cool temperatures as they mature, waiting for winter rains to spawn in December-February. Juveniles leave their natal tributaries from April to June to feed and grow in mainstem rivers and estuaries before migrating out to sea. Summer-run steelhead depend on cold water refuges that often occur at tributary junctions or in thermally stratified pools (Moyle et. al., 2008).

Depending on water temperature, steelhead eggs hatch in 1.5 to 4 months. As alevins, they have an attached yolk sac that is absorbed into their bodies. They will emerge from the gravel as young juveniles and begin actively feeding. Juvenile steelhead rear in fresh water from one to four years, then migrate to the ocean as smolts.

Water temperature is one of the most important environmental influences on salmonids at all life stages, affecting physiological processes and timing of life history events (Spence et al., 1996, CDFW 2014). Based on studies of steelhead and coho salmon, water temperature ranging from 50°F–55°F (10°C– 12.8°C) has been recommended as the optimal thermal range for smoltification and emigration (DWR 2002). Juvenile steelhead may be present in all three tributaries within the action area year-round and may seek these tributaries as cool water refuge during summer months.

Hely Creek

Steelhead is present at Hely Creek, based on the following information:

- HRC Aquatic Trends Monitoring (ATM) Station 112, located approximately 200 feet upstream from the bridge site has documented occurrences of the species at the site since 2003 (K. Lackey, HRC pers. comm. 2019).
- The *Hely Creek Stream Inventory Report*: summarized presence of salmonids observed during the inventory. The watershed should be managed as an anadromous, natural production stream that should include steelhead, due to habitat values observed (CDFW 2017).

Little Larabee Creek

Steelhead is present at Little Larabee Creek, based on the following information:

- The *Little Larabee Creek Stream Inventory Report*: summarized that although presence has not been documented in Little Larabee Creek, the creek should be managed as an anadromous, natural production stream that should include steelhead, due to habitat values observed (CDFW 1996).

Butte Creek

Steelhead is present at Butte Creek, based on the following information:

- The *Little Van Duzen River Inventory Report*: summarized presence of steelhead within the watershed, downstream of Butte Creek, the watershed should be managed as an anadromous, natural production stream that should include steelhead, due to habitat values observed (CDFW 1992).

Pacific Salmon Essential Fish Habitat

Essential Fish Habitat (EFH) is defined by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) or federally-managed species as "those waters and substrate necessary for fish for spawning, breeding, feeding, or growth to maturity". The Van Duzen River and associated tributaries support EFH for species regulated under the Federal Pacific Coast Salmon Fishery Management Plan.

EFH for the Pacific coast salmon fishery means those waters and substrate necessary for salmon production needed to support a long-term sustainable salmon fishery and salmon contributions to a healthy ecosystem. Freshwater EFH for coho salmon and Chinook salmon consists of four major components: (1) spawning and incubation; (2) juvenile rearing; (3) juvenile migration corridors; and (4) adult migration corridors. EFH for Chinook salmon also includes adult holding habitats. These tributaries serve as migration corridors, spawning habitat and rearing habitats for pacific salmon.

Western Bumblebee and Obscure Bumblebee

The Western bumblebee (*Bombus occidentalis*) is a species of bumblebee native to the Western United States and Canada and is a state candidate for listing as endangered. It is considered critically imperiled in the state (CDFW S1 species) because of extreme rarity (often five or fewer populations) or because of factor(s) such as very steep population declines making it especially vulnerable to extirpation from the state. This bumblebee is associated with several plant genera including *Melilotus, Cirsium, Lupinus, Trifolium, Centaurea* and *Eriogonum* (CDFW 2019a). Queens of this species emerge from hibernation in late January and select a nest site in an existing hole in the ground (such as an abandoned rodent hole). The queen gathers pollen and nectar and stores them in wax containers. She then lays 8 to 16 eggs that hatch into larvae and tends to them until they spin cocoons, pupate and emerge as workers. Once they emerge, the queen stops foraging and devotes her time to egg laying. The first workers appear in early March and the drones and new queens emerge by the end of April. The colony dissolves in late October, when the old queen, workers, and drones die. The new queens will mate and dig holes in which they will hibernate through the winter.

The obscure bumblebee (*Bombus calignosus*) is a species of bumblebee native to the west coast of the United States where its distribution extends from Washington to southern California. It is critically imperiled due to rarity, few populations, and restricted range. The obscure bumblebee is associated with several plant genera including *Baccharis, Cirsium, Lupinus, Lotus, Grindelia* and *Phacelia*. Queens of this species emerge from hibernation in late January, the first workers appear in early March, and the males follow by the end of April. Nests are usually well concealed, often underground, sometimes on the surface, and occasionally 30 to 40 feet (9 to 12 meters) above ground in trees (Throp et al., 1983). The colony dissolves in late October, when all the inhabitants die except the new queens.

No species-specific surveys were conducted for bumblebee species. There are no CNDDB records of these species within the project BSA's. The closest CNDDB record for both bumblebee species is near Myers Flat, where *B. caliginosus* was collected in 1963 and *B. occidentalis* was collected in 1968.

Western Snowy Plover

The Pacific Coast DPS of the Western snowy plover (WSP) (*Charadrius nivosus* formerly C. *alexandrinus nivosus)* is federally listed as threatened and is a state SSC. The Pacific Coast DPS population is defined as those individuals that nest within 50 miles of the Pacific Ocean from southern Washington to southern Baja California, Mexico (USFWS 2007). Sand spits, dune-backed beaches, beaches at creek and river mouths, and salt pans at lagoons and estuaries above the high tide line are the main coastal habitats for nesting. Nests typically occur in flat, open areas with sandy or saline substrates; vegetation and driftwood are usually sparse or absent. WSP also regularly nest on gravel bars along the Eel River in northern California (USFWS 2007). There is no critical habitat for WSP within the BSA's for all three bridges.

There is no habitat for this species in the project BSAs, due to the lack of expansive beach habitat. No observations of the species were detected during focused bird surveys for the project.

Western Yellow-billed Cuckoo

The Western yellow-billed cuckoo (YBCU) (*Coccyzus americanus occidentalis*) Western DPS is federally listed as threatened and state listed as endangered. These birds breed in large blocks of riparian habitats (particularly woodlands with mature cottonwoods and willows). The optimal size of habitat patches for the species is generally greater than 200 acres in extent and have dense canopy closure (Laymon and Halterman, 1989). Rarely do YBCU use sites less than 50 acres for nesting, and sites less than 37 acres are considered unsuitable habitat (Laymon and Halterman, 1989).

Critical habitat for YBCU was proposed by the USFWS in 2014 (79 FR 48547). The nearest proposed critical habitat to the project site is Unit 1, located along the Eel River in Humboldt County, California. There is no proposed critical habitat within or adjacent to the project BSA's.

Although riparian habitat exists at the bridge locations, the relative size of riparian habitat required for nesting is insufficient. Through technical assistance with Caltrans Liaison Gregory Schmidt of USFWS, it was determined that suitable habitat for the species does not exist in the project BSA's.

Invasive Species

Introduction and naturalization of non-native species is one of the most important threats to global biodiversity. The Van Duzen watershed contains several invasive plant species that adversely affect ecologic functions. Some of the species that most threaten native ecosystem function and structure include English ivy (*Hedra helix*), yellow star-thistle (*Centaurea solstitialis*), jubata grass and pampas grass (*Cortaderia* spp.), Scotch broom, (*Cytisus scoparius),* French broom (*Genista monspessulana*), water primrose (*Ludwigia* sp.), and Spanish broom (*Spartium junceum*).

At Hely Creek, the dominant invasive plant species observed within the vicinity of the bridge includes Himalayan blackberry (*Rubus armeniacus*) and English ivy.

At Little Larabee Creek, the dominant invasive plant species observed within the vicinity of the bridge includes French broom, Himalayan blackberry, periwinkle (*Vinca major*), fennel (*Foeniculum vulgare*), and Italian thistle (*Carduus pycnocephalus*).

At Butte Creek, the dominant invasive plant species observed within the vicinity of the bridge includes Himalayan blackberry and an unidentified rose species.

Invasive bird species with the potential to occur in the ESL include the European starling (*Sturnus vulgaris*) and Eurasian collared dove (*Streptopelia decaocto*). These two species are known to compete with native species for resources and are typically associated with human disturbance. Brown-headed cowbirds (*Molothrus ater*), a native North American species but invasive to California, may also occur in the ESL. The expansion of agriculture in California has resulted in a phenomenal increase in cowbird populations and significant range expansions. Brown-headed cowbirds parasitize the nests of more than 220 bird species in their range. Nest parasitism lowers the reproductive success of host birds and has led to population declines in several bird species (CDFW 2020a).

Natural Communities

Vegetation type mapping was conducted, following the CDFW Protocols for *Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018b). The vegetation types in the study area were identified based on the vegetation classification and keys in A Manual of California Vegetation, second edition (Sawyer et al. 2009). Results are documented in the vegetation type mapping report (Caltrans 2019g). Sensitive Natural Communities and associated alliances within the project area are discussed below. Rarity of each natural vegetation type (i.e., alliances and associations) was determined from CDFW's current California Natural Communities List (CDFW 2018a), which lists the vegetation types considered sensitive. State (S) rankings are assigned as follows: S1 is critically imperiled, S2 is imperiled, and S3 is vulnerable.

In addition to analyzing global and state ranks for natural communities, mapping standards for Sensitive Natural Communities (SNCs) were reviewed for conformance to the *Survey of California Vegetation Classification and Mapping Standards* (CDFW 2019c).

Douglas-fir—Tanoak Forest Association

Douglas-fir (*Pseudotsuga menziesii*) Forest Alliance is not a sensitive natural community; however, several associations within this alliance are considered sensitive. This includes the Douglas-fir – Tanoak (*Notholithocarpus densiflorus*) Forest Association which covers 0.59 acre in the ESL at the Little Larabee Creek Bridge site. Douglas-fir – tanoak forest has a global rank of G5 (secure) and a state rank of S3 (vulnerable). Douglas-fir – tanoak forests represent a gradation between Douglas-fir and tanoak forests, where Douglas-firs and tanoaks each make up at least 30 percent canopy cover (Sawyer et al. 2009). This association meets the definition of a SNC due to the quality of the habitat observed as well as the relative abundance of the community in the vicinity of the project area.

Oregon White Oak Woodland Alliance

Two small patches of Oregon White Oak (*Quercus garryana*) Woodland Alliance were identified at the northeast bridge abutment generally at the top of the bank between the road and Butte Creek and one on the opposite side of the creek, covering 0.11 acre within the ESL. Oregon White Oak Woodland has a global rank of G4 (apparently secure) and a state rank of S3 (vulnerable). As defined in The Manual of California Vegetation (Sawyer et al. 2009), this vegetation alliance was mapped where Oregon white oak formed more than 30 percent relative canopy cover. This alliance commonly inhabits riparian terraces, ridges, and slopes. Although this occurrence does not meet minimum mapping standards, the

community would be considered a SNC regardless, due to the quality of habitat observed and the prevalence of this community in the surrounding landscape.

California Bay Alliance

A relatively dense and tall canopy of California bay (*Umbellularia californica*) Alliance occurs on the steep lower hill slope between the staging area for the project and Little Larabee Creek, covering 0.13 acre in the ESL. California Bay Alliance has a global rank of G4 (apparently secure) and a state rank of S3 (vulnerable). As defined in the Manual of California Vegetation (Sawyer et al. 2009), this alliance was identified where California bay forms more than 50 percent of the relative canopy cover. Although this occurrence does not meet minimum mapping standards, this community would be considered a SNC due to the quality of habitat in the ESL, as well as the prevalence of the habitat in the vicinity of the project area.

Redwood Forest Alliance

At Hely Creek, the forest habitat aligns with Sensitive Natural Community Redwood Forest (*Sequoia sempervirens*) Alliance, which is considered globally vulnerable and state ranked imperiled at G3 S3. Redwood Forest Alliance covers 1.73 acres in the Hely Creek Bridge ESL and does not occur at the other bridge locations for this project. Redwood forest is prevalent in the surrounding landscape. The Hely Creek ESL is part of a redwood stand that covers approximately 48 acres of similarly aged forest along the Van Duzen River. The Hely Creek watershed is approximately 2,300 acres, dominated by redwood and Douglas-fir forest (CDFW 2017).

The Redwood Forest Alliance mapped in the ESL comprises a predominant overstory of coast redwood trees with a mixture of Douglas-fir (*Pseudotsuga menziesii*), with tanoak (*Notholithocarpus densiflorus var. densiflorus*). Common understory plants include huckleberry (*Vaccinium ovatum*), poison oak (*Toxicodendron diversilobum*), western sword fern (*Polystichum munitum*), and redwood sorrel (*Oxalis oregana*). The natural community also includes an infestation of English ivy (*Hedera helix*) northeast of the Hely Creek Bridge.

An arborist assessment was conducted to map and inventory trees and determine impacts to large diameter trees as a result of the proposed project. Results of the arborist assessment are documented in the *Tree Impact Analysis Technical Report* (Caltrans 2020g). Several large-diameter coast redwood trees are present at the Hely Creek Bridge location.

Large-diameter trees are often described as being old-growth, a term defined differently among professional foresters and ecologists and one that varies further when applied to individual trees, stands of trees (i.e., forests), and individuals and stands of different tree species or assemblages (Pacific Northwest Research Station 2003). In general, mature, late-seral coast redwood forests comprise mixed-age, and therefore mixed-structure stands with multiple layered canopies, where redwoods form the dominant crown class, occasionally with Douglas-fir and other smaller hardwood species restricted to the intermediate or suppressed canopy classes (Olson et al., 1990). Late-seral forests contain many individual trees of a size and age that represent the distal end of the dominant species' lifespan (Singer 2012). For coast redwoods, this typically means late-seral forest will contain many trees ranging from 700–2,000 years of age, collectively containing an enormous amount of carbon (Jones and O'Hara, 2012). The sites included in the project are not considered late-seral forests based on these definitions. The forest in the Hely Creek project area would best be described as a previously harvested redwood forest that has experienced intermittent tree removal since construction of the highway in 1934. The other two bridge locations contain both hardwood and conifer species, but no redwood trees due to their location further inland.

Wetlands and Other Waters

Aquatic resources in the ESL were delineated in accordance with methods described in the *1987 U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE 2010). Results are documented in the project Aquatic Resources Delineation Report (Caltrans 2019f). Portions of the project area contain federally and state-recognized jurisdictional waters of the U.S. A total of 0.764 acre of potential jurisdictional wetlands and other waters of the U.S. were identified in the ESL, consisting of 0.028 acre of wetlands and 0.736 acre of non-wetland waters, which consist of 0.677 acre of perennial streams, 0.007 acre of intermittent streams, 0.003 acre of ephemeral streams, 0.038 acre of roadside ditches, and 0.011 acre of culverted waters (Table 3). A map showing the locations and area of each aquatic feature can be found in Appendix E.

Table 3. Wetlands and Waters Within the Project Environmental Study Limits

Project Location	Aquatic Feature	Feature Type	Cowardin Type[1]	Area (acres)
Hely Creek	PS-3	Perennial Stream	R2SB	0.080
Hely Creek	RD-4	Roadside Ditch	R4SBx	0.012
Hely Creek	RD-5a	Roadside Ditch	R4SBx	0.001
Hely Creek	RD-5b	Roadside Ditch	R4SBx	0.002
Hely Creek	RD-5c	Roadside Ditch	R4SBx	0.001
Hely Creek	C-4	Culvert	N/A	0.002
Hely Creek	C-5	Culvert	N/A	0.002
Little Larabee Creek	WD-3a	Wetland Ditch	R4SBx/PEM1	0.004
Little Larabee Creek	WD-3b	Wetland Ditch	R4SBx/PEM1	0.007
Little Larabee Creek	WD-4	Wetland Ditch	R4SBx/PEM1	0.006
Little Larabee Creek	PS-2	Perennial Stream	R2SB	0.237
Little Larabee Creek	ES-2	Ephemeral Stream	R4SB	0.002
Little Larabee Creek	C-3	Culvert	N/A	0.003
Butte Creek	WD-1	Wetland Ditch	R4SBx/PEM1	0.002
Butte Creek	WD-2a	Wetland Ditch	R4SBx/PEM1	0.001
Butte Creek	WD-2b	Wetland Ditch	R4SBx/PEM1	0.008
Butte Creek	PS-1	Perennial Stream	R2SB	0.360
Butte Creek	IS-1a	Intermittent Stream	R4SB	0.006
Butte Creek	IS-1b	Intermittent Stream	R4SB	0.001
Butte Creek	ES-1	Ephemeral Stream	R4SB	0.001
Butte Creek	C-1	Culvert	N/A	0.002
Butte Creek	C-2	Culvert	N/A	0.002

The indicators of wetland hydrology, hydric soils, and hydrophytic vegetation used to make wetland determinations at each sampling point are discussed below. These results, and the

[1] Cowardin Types

R4SB = Riverine, Intermittent, Streambed; R2SB = Riverine, Perennial, Streambed;
R4SBx = Riverine, Intermittent, Streambed, excavated; PEM1 = Palustrine, Emergent, Persistent

mapped extent of delineated features depicted in Appendix E, are subject to verification by the USACE San Francisco District.

Wetlands (Wetland Ditches)

The term "wetland ditch" is used in this document for wetlands that formed in a roadside ditch; they are believed to be the result of excavation of road cuts and associated drainage features through areas where groundwater is present for all or most of the year. These ditches are considered to be wetlands due to the presence of hydrophytic vegetation, hydric soil, and wetland hydrology present at the time of field surveys. They are therefore also given the Cowardin Classification of PEM1, Palustrine emergent wetlands, persistent (i.e., with perennial wetland plants). Three wetland ditches were observed within the Little Larabee Creek ESL (WD-3a, WD-3b, and WD-4) and three within the Butte Creek ESL (WD-1, WD-2a, WD-2b).

Other Waters

Butte Creek (PS-1), Little Larabee Creek (PS-2), and Hely Creek (PS-3) and are all perennial streams, with flowing water throughout the year, including during the dry-season field survey.

Two segments of an intermittent stream were mapped at Butte Creek (IS-1a and IS-1b). The stream flows from the hillslope to the south, heading north through a culvert under SR 36 and through a downdrain before continuing to Butte Creek. The ordinary high water mark (OHWM) was delineated based on the shift from the unvegetated stream channel to upland vegetation.

Two ephemeral streams, one at Butte Creek (ES-1) and one at Little Larabee Creek (ES-2), were identified and mapped in the survey area. The ephemeral streams were delineated based on differences in vegetation and plant species composition and soil characteristics between the sparsely vegetated stream channels and the adjacent upland habitat.

In this document, "roadside ditches" characterized in the Aquatic Resources Report are considered ephemeral streams. Eight segments of roadside ditches were mapped in the ESL at the three locations. The OHWMs were delineated based primarily on the difference in vegetation cover and plant species composition between the channels and adjacent upland habitat. The roadside ditches were typically sparsely vegetated with pennyroyal and other herbaceous vegetation. The adjacent uplands generally had significantly higher cover of upland grasses and other non-hydrophytic herbaceous vegetation. The roadside ditches

lacked hydric soil and had gravel or road-base bottoms. There was no surface water or saturated soil at the time of the field surveys in any of the roadside ditches. The roadside ditches have an OHWM and clearly deliver road runoff from SR 36 to the perennial streams. RD-4 does not directly connect with Hely Creek at the western end of the feature; therefore, this ditch may be determined non-jurisdictional.

Roadside Ditch 1 (RD-1) is non-jurisdictional as it does not convey water to Hely Creek. This roadside ditch lacks hydric soil and has a gravel bottom, most likely placed to capture roadside runoff.

Riparian Vegetation

Riparian vegetation potentially impacted by the project occurs from the top of bank to the OHWM. This vegetation includes dense shrubs and herbaceous species, as well as upland trees with large branches that provide shade and inhibit sedimentation to adjacent waterways. Riparian vegetation was observed at all bridge locations.

Discussion of Environmental Evaluation Question 2.4a—Biological Resources

"No Impact" determinations were made for questions e) and f) of the CEQA Checklist-Biological Resources section based on the scope, description, and location of the proposed project, as well as the NES prepared in 2020 (Caltrans 2020f).

The following discusses questions a) through d) of the CEQA Checklist-Biological Resources section. Each question is discussed individually; however, it should be noted that some resources fall under more than one question. As such, where necessary, those resources are discussed multiple times throughout this section.

> ***a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or NOAA Fisheries?***

Plant Species

Buxbaum's sedge

Proposed construction at the Little Larabee Creek Bridge would result in impacts to Buxbaum's sedge. Impacts would be minimized by establishing ESA's around Buxbaum's sedge found outside of the immediate project footprint (area of impact). For plants within the

project footprint, seeds would be collected and/or individual plants would be transplanted by a botanist familiar with the species. Seeds would be spread or individual plants would be relocated outside of the project footprint where impacts are not anticipated. Given this, a determination was made that the project would have a "Less than Significant Impact" on Buxbaum's sedge or its habitat.

Humboldt County Milk Vetch

Humboldt County milk-vetch has not been documented within or adjacent to the project ESL; therefore, proposed construction would not be expected to directly or indirectly impact this species. Given this, a determination was made that the project would have "No Impact" on Humboldt County milk-vetch or its habitat.

Per CESA, a determination was made that the project would not result in ***"Take"*** of Humboldt County milk-vetch.

Kneeland Prairie Pennycress

Kneeland Prairie pennycress has not been documented within or adjacent to the project ESL; therefore, proposed construction would not be expected to directly or indirectly impact this species. Given this, a determination was made that the project would have "No Impact" on Kneeland Prairie pennycress or its habitat.

Per FESA, a determination was made that the project would have ***no effect*** on Kneeland Prairie pennycress.

Lassics Lupine

Lassics lupine has not been documented within or adjacent to the project ESL; therefore, proposed construction would not be expected to directly or indirectly impact this species. Given this, a determination was made that the project would have "No Impact" on Lassics lupine or its habitat.

Per CESA, a determination was made that the project would not result in "***Take***" of Lassics lupine.

Leafy-stemmed Miterwort

Proposed construction at the Hely Creek Bridge would result in impacts to leafy-stemmed miterwort. Impacts would be minimized by establishing ESA's around leafy-stemmed

miterwort found outside of the immediate project footprint. For plants within the project footprint, seeds would be collected and/or individual plants would be transplanted by a botanist familiar with the species. Seeds would be spread or individual plants would be relocated outside of the project footprint where impacts are not anticipated. Given this, a determination was made that the project would have a "Less than Significant Impact" on leafy-stemmed miterwort and its habitat.

Water Howellia

Water howellia has not been documented within or adjacent to the project ESL; therefore, proposed construction would not be expected to directly or indirectly impact this species. Given this, a determination was made that the project would have "No Impact" on water howellia or its habitat.

Per FESA, a determination was made that the project would have ***no effect*** on water howellia.

Western Lily

Western lily has not been documented within or adjacent to the project ESL; therefore, proposed construction would not be expected to directly or indirectly impact this species. Given this, a determination was made that the project would have "No Impact" on Western lily or its habitat.

Per FESA, a determination was made that the project would have ***no effect*** on Western lily.

Per CESA, the project would not result in "***Take***" of Western lily.

Animal Species

Caltrans has determined that project activities would have "*No Impact*" on special status species that were queried but did not have potential habitat in the BSA. Further discussion is provided below for special status wildlife species that could potentially occur in the project BSA.

Amphibians

Construction work within the creeks and riparian areas could impact amphibians from project activities such as dewatering, vegetation removal and soil disturbance. The impacts on Foothill yellow-legged frog (FYLF), Northern red-legged frog, Del Norte salamander, and

Southern torrent salamander are anticipated to be minimal with incorporation of the standard avoidance and minimization measures identified in Section 1.4, including the implementation of an Aquatic Species Relocation Plan.

If water is present at the time of construction, a qualified biologist would perform pre-construction amphibian surveys immediately prior to entering or working at the sites. Native amphibians found within the work area, which are not CESA-listed or candidates for CESA listing, would be relocated to a suitable habitat area outside of the construction limits prior to work. Suitable exclusion measures would be in place as needed prior to construction to minimize injury or mortality to wildlife.

Due to the timing of work, temporary nature of construction, standard measures, and the abundance of suitable habitat in the project vicinity to which amphibians could relocate if necessary, a determination was made that the project would have a "Less Than Significant Impact" on special status amphibians and their habitat.

Bat Species

Although no known maternity roosts or other colonial night roosts would be removed or altered during project activities, the proposed project could temporarily displace suitable night roosting habitat and inhibit foraging during active construction.

With the standard bird and bat measures and provisions for use of artificial light at night featured in Section 1.4, the proposed project is anticipated to have a minimal impact on bats due to the temporary loss of roosting and foraging habitat. If disturbed, night roosting bats could readily relocate given the availability of suitable roosting and foraging habitat within close proximity to the project site. Post construction, the new bridges would provide comparable night roosting habitat to the existing bridges.

Given the above, a determination was made that the project would have a "Less Than Significant Impact" on bat species and their habitat.

Coastal Cutthroat Trout

Several activities associated with the proposed project could negatively affect coastal cutthroat trout. These include stream diversion and associated fish relocation, noise and visual disturbance, and water quality impacts—similar to those identified for salmonids, in the proceeding *Threatened/Endangered Species* section.

Impacts would be minimized with the incorporation of the standard measures provided in Section 1.4 which includes the implementation of an Aquatic Species Relocation Plan. The measures proposed for federally and state listed fish species would be protective to coastal cutthroat trout as well.

Given this, a determination was made that the project would have a "Less Than Significant Impact" on coastal cutthroat trout and their habitat.

Migratory Birds

Impacts on migratory birds or their nests are not anticipated with incorporation of the standard measures identified in Section 1.4. Given this, a determination was made that the project would have a "Less Than Significant Impact" on migratory bird species or their habitat.

Northern Goshawk

No nests would be removed or altered during project activities. Pre-construction nest surveys would be performed to identify potential threats to Northern goshawk from project activities and to provide opportunity to develop appropriate avoidance measures. Given the highly unlikely presence of goshawk, minimal amount of vegetation to be removed, temporary nature of the project, and the standard measures to avoid disturbing active nests, a determination was made that the project would have "No Impact" on Northern goshawk or their habitat.

Pacific Fisher

As Pacific Fisher habitat exists within the BSAs of both Hely Creek and Little Larabee Creek, the species could be impacted during construction at these two locations.

Prior to tree removal, an assessment of potential resting and denning habitat would be conducted within the project footprint for Hely Creek and Little Larabee Creek. Consultation with CDFW and USFWS would occur if resting or denning habitat are identified. Additionally, if a fisher is observed at any time, construction operations would stop until a consultation with CDFW or USFWS has occurred. If trees that would be removed meet resting or denning criteria, the following measures would be implemented:

- No potential fisher den habitat trees would be removed during the critical denning period (March 1st through July 31st) unless a qualified biologist has assessed the tree and confirms that denning activities are not taking place.

- Outside of the critical denning period, trees ≤12 DBH shall be felled one day and the following day the remaining trees may be felled.

With implementation of the measures discussed above, impacts to Pacific fisher would be minimized. Given this, a determination was made that the project would have a "Less Than Significant Impact" on Pacific fisher or their habitat.

Pacific Lamprey

Dewatering and stream flow management for work in Hely Creek, Little Larabee Creek and Butte Creek could cause a rapid fluctuation in water level and strand lamprey ammocoetes in the substrate. Clear water diversion could also impede upstream migrations by adult lamprey and downstream movement of ammocoetes and macropthalmia. Excavation of the substrate within the dewatered creek channel for bridge construction could affect all age classes of ammocoetes, if present. Contaminants from accidental spills could also harm or kill ammocoetes, which are thought to have a higher propensity for accumulating toxins since they spend three to seven years filter feeding.

There have been no studies to determine responses of lamprey to sound, but lamprey do not have the typical hearing structures of other fish. Ammocoetes are partially buried in the substrate, which dampens vibration and noise. As a result, at least some life stages of lamprey may be less susceptible to injury from impulsive sound waves than other fish species. Relocation efforts in response to dewatering activities are expected to avoid any potential impacts to lamprey from any pile driving or hoe ramming activities performed in that system, but electrofishing performed in conjunction with relocation efforts could potentially harm individual fish.

Dewatering and relocation efforts for lamprey would be performed in accordance with *Best Management Practices to Minimize Adverse Effects to Pacific Lamprey* (*Entosphenus tridentatus*) (USFWS 2010), which includes the following:

- A pre-construction survey conducted by a professional fisheries biologist in areas affected by dewatering in the creeks prior to construction to identify lamprey presence.
- If present, electrofishing would be performed prior to dewatering to relocate ammocoetes within the work zone to a safe area away from the construction site.
- Dewatering would be performed slowly over several days, or at a minimum overnight, to allow opportunity for any remaining lamprey to relocate on their own.

- The orientation, siting and type of fish screens used for dewatering operations would be selected to prevent entrainment by lamprey.
- A professional fisheries biologist would be present during channel excavations to sift through removed substrate to salvage any remaining ammocoetes, returning them to the stream channel a safe distance away from the construction site.

These measures, in addition to the Standard Measures and Best Management Practices listed in Section 1.4 would minimize impacts to Pacific lamprey. Given the small amount of habitat affected, the short duration/intermittent nature of the work, and implementation of standard measures and BMP's, the proposed project is not likely to result in substantial population-level effects to Pacific lamprey. Therefore, a determination was made that the project would have a "Less Than Significant Impact" to Pacific lamprey.

Sharp-shinned hawk, Osprey, and Cooper's hawk

The standard protection measures for nesting raptors described in Section 1.4 would ensure avoidance of construction-related impacts to nesting raptors. No nests or observations of these species were reported within the project BSA. Higher quality perching and resting habitat occurs elsewhere in the watershed along the Van Duzen should they be flushed from the project site due to elevated noise levels during construction. Therefore, a determination was made that the project would have a "Less Than Significant Impact" to sharp-shinned hawk, osprey, and Cooper's hawk and their habitat.

Sonoma Tree Vole

Trees removed as a result of the project would be adjacent to a highly traveled roadway that would provide low quality habitat and limit use for nesting voles. Additionally, the project is on the edge of the known range of this species. Given this, a determination was made that this project would have "No Impact" on Sonoma tree voles and their habitat.

Western Pond Turtle

Due to the temporary nature of construction and the abundance of suitable habitat in the project vicinity for which turtles could relocate if necessary, impacts to Western pond turtle from this project are anticipated to be minimal. The standard measures for aquatic species listed in Section 1.4 would avoid impacts to this species. Additionally, a preconstruction survey for WPT would be conducted by a qualified biologist if work begins during the species critical egg laying period (March–August). If any WPT nests are observed in the project footprint, consultation with CDFW would be initiated, and an appropriate course of

action would be carried out with guidance from CDFW. Given this, a determination was made that the project would have a "Less Than Significant Impact" to Western pond turtles and their habitat.

Threatened/Endangered Species

American Peregrine Falcon

No impacts to American peregrine falcon are anticipated with incorporation of the standard measures presented in Section 1.4. Standard measures for raptors include a pre-construction survey for active raptor nests and incorporation of conservations measures if active nests are detected within 0.25 mile of the project. Given this, a determination was made that the project would have "No Impact" on American peregrine falcons and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of American peregrine falcons.

Bald Eagle

A nesting bird survey prior to construction (as described in Section 1.4) would ensure that no bald eagles would be disturbed by project activities. Additionally, the inclusion of avoidance and minimization measures at both Hely Creek and Little Larabee Creek for NSO and MAMU would further protect any unknown bald eagles nesting on the edge of the BSA.

Given there would be no nest or nest structure removal associated with this project, and there are no nests in range of the project where noise disturbance could potentially impact bald eagles, a determination was made that the project would have "No Impact" on bald eagles and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of bald eagles.

Bank Swallow

Bank swallows are not expected to occur within the ESL, therefore, no project impacts are anticipated. Given this, a determination was made that the project would have "No Impact" on bank swallow and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of bank swallows.

Golden Eagle

Due to lack of suitable breeding habitat, the potential for occurrence of Golden Eagle in the project ESL is low. No impacts to Golden eagles are anticipated with incorporation of the standard measures presented in Section 1.4. Standard measures for raptors include a pre-construction survey for active raptor nests and incorporation of conservations measures if active nests are detected within 0.25 mile of the project.

Given this, determination was made that the project would have "No Impact" on Golden Eagle and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of Golden eagles.

Humboldt Marten

The project is outside the current known population distribution of Humboldt marten. Given this, a determination was made that the project would have "No Impact" on Humboldt Marten and their habitat.

Per FESA, Caltrans has determined that the project would have ***"no effect"*** on Humboldt marten.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of Humboldt marten.

Little Willow Flycatcher

Due to lack of suitable breeding habitat, little willow flycatcher is not expected to occur in the project BSA. Given this, a determination was made that the project would have "No Impact" on little willow flycatcher and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of little willow flycatcher.

Marbled Murrelet

The Little Larabee Creek and Butte Creek locations do not provide the necessary structures in trees present to support nesting MAMU, thus no impacts are anticipated at these locations. At the Hely Creek Bridge location, MAMU is presumed present in the BSA due to the presence of potentially suitable nesting within Grizzly Creek State Park. The project is not removing potential nesting habitat; however, potential impacts to MAMU could result from construction noise.

Based on the results of the noise analysis in the NES (Caltrans 2020f), construction noise levels are anticipated to exceed the threshold of 20 or more decibels above the ambient conditions (81-90 dB) and exceed the maximum of 90 decibels overall. Due to potential impacts to MAMU, Caltrans requested technical assistance from USFWS Liaison Greg Schmidt. It was decided that Caltrans would consult with the USFWS in pursuit of a Letter of Concurrence (LOC) for the project. Conservation measures would be developed through informal Section 7 Consultation with USFWS. Caltrans anticipates that auditory restrictions would likely be observed at the Hely Creek Bridge location between March 24 through August 5, with additional restrictions beginning 2 hours post-sunrise and ending 2 hours pre-sunset from August 6 through September 15. Consultation with USFWS and CDFW would be necessary to finalize work windows, in addition to adopting other species-specific conservation measures. Based on field reviews and technical assistance with USFWS Liaison Greg Schmidt, it was determined that the project would not result in adverse effects to critical habitat for MAMU due to the lack of suitable nesting trees in the ESL.

Given this, a determination was made that this project would have a "Less Than Significant Impact" on marbled murrelet and their habitat.

Per FESA, Caltrans anticipates the proposed project ***may affect, but is not likely to adversely affect*** MAMU. There would be ***no effect*** to MAMU designated critical habitat from this project.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of MAMU.

Northern Spotted Owl

Construction noise could potentially result in impacts to NSO. Based on the results of the noise analysis in the NES (Caltrans 2020f), the proposed project construction noise levels are anticipated to exceed the threshold of 20 or more decibels above the ambient conditions (81-90 dB) and exceed the maximum of 90 decibels overall. Due to potential impacts to NSO, Caltrans requested technical assistance from USFWS Liaison Greg Schmidt. It was decided that Caltrans would consult with the USFWS in pursuit of a Letter of Concurrence (LOC) for the project. Conservation measures would be developed through informal Section 7 Consultation with USFWS. Caltrans anticipates that noise levels would need to be restricted throughout the majority of the NSO nesting season from February 1 through July 9 during construction for the project. There would be no state "Take" of NSO due to potential noise disturbance.

Given this, a determination was made that this project would have a "Less Than Significant Impact" on NSO and their habitat.

Per FESA, Caltrans anticipates the proposed project ***may affect, but is not likely to adversely affect*** NSO. There would be ***no effect*** to NSO designated critical habitat from this project.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of NSO.

Salmonids

Construction of the proposed project would result in impacts to CC Chinook salmon, SONCC coho salmon, and steelhead (NC and summer-run steelhead). Actions that could potentially affect salmonids occupying the creeks include clear water diversions and associated fish relocation, noise and visual disturbance, and water quality impacts, as described below. Vegetation removal, noise and visual disturbance, and/or water quality impacts could temporarily affect designated critical habitat.

Clear Water Diversion and Fish Relocation

The temporary clear water diversion system for construction at the three bridge locations may require fish capture and relocation using electrofishing. Electrofishing can harm individual fish, resulting in up to 3% mortality (pers. comm. JoAnn Loehr, CDFW 2015). The diversion itself would temporarily restrict the movement of rearing juveniles, potentially making them more vulnerable to stress and predation, but avoids the late fall-winter

migration period for adult salmon that may pass through the project area to spawn, and most of the spring-early summer smolt out-migration.

Noise and Visual Disturbance

Construction activities may cause behavioral responses to stress associated with noise and visual disturbance of juvenile salmon present during the in-stream work period of June 15 to October 15. Physical changes to the water column caused by shading, vibration from construction equipment and/or workers walking in or near the channels could disrupt feeding, delay migration, or flush fish from suitable habitat, potentially making them more vulnerable to predation. Impact noise (such as hoe ramming, jackhammering and impact pile driving) conducted near the wetted channels can cause abrupt and extreme changes in water pressure that could be harmful or fatal to fish. Injury sustained from these pressure changes is termed barotrauma.

Negative effects to salmonids and other fish from general (non-impulsive) construction noise and visual disturbance would be minimized through implementation of the standard measures identified in Section 1.4. All in-stream and pile installation activities would be restricted to the period when fish populations are lowest.

Caltrans conducted a hydroacoustic assessment (Caltrans 2020d) to evaluate potential underwater noise levels generated by planned construction activities. If piles are required, they would be small diameter piles (≤ 24 inches) driven on land. The most impactful (loudest) scenario for bridge construction was analyzed—this included the use of an impact hammer to install piles for the new bridge and a demolition hammer (most likely excavator-mounted hoe ram) to demolish the old bridge. Both of these construction activities are considered impulsive noise sources that could potentially create noise levels that can cause injury to fish, as well has the potential to exceed the daily cumulative sound exposure level (SEL) criteria.

It is likely that the streams would be temporarily dewatered during construction at all locations. However, since the timing of the potential dewatering is unknown, the hydroacoustic assessment assumes impact pile driving would occur before the creeks are diverted. If diversion is in place prior to impact pile driving, the impact zones would most likely be less than the impact zone scenarios presented here.

Distance from the piles to the water varies by location.

- At Hely Creek the nearest pile to the water is approximately 30 feet (9 meters). If a diversion was in place, the distance would be 65 feet (20 meters) upstream and 17 meters downstream from the centerline of the bridge;

- At Little Larabee Creek the nearest pile to the water is approximately 40 feet (12 meters). If a diversion was in place, the distance would be 55 feet (29 meters) upstream and 55 feet (29 meters) downstream from the centerline of the bridge; and

- At Butte Creek the nearest pile to the water is approximately 20 feet (6 meters). If a diversion was in place, the distance would be 60 feet (18 meters) upstream and 75 feet (23 meters) downstream from centerline of the bridge.

Peak noise levels during land-based impact driving and land-based demolition and hammer operation are expected to remain below the 206 dB peak injury criteria. The distance to the 187 dB cumulative SEL is estimated to be 98 feet (30 meters) from the demolition operation and the distance to the 183 dB cumulative SEL criteria is estimated to be 164 feet (50 meters). The distance to the behavioral root mean square (RMS)[2] criteria would most likely be limited to less than 246 feet (75 meters) due to site conditions.

It is difficult to estimate underwater noise levels from land-based sources. Groundborne noise can be unpredictable and varies from site to site because it is dependent on site conditions such as soil saturation and soil composition. Because of the uncertainties, noise levels would be monitored by a trained hydroacoustic specialist to identify when abatement is necessary during all operations that could potentially produce impulsive sound waves. To stay below the cumulative SEL limit, a daily construction time limit (as determined by monitoring) may be required and would be included in the Hydroacoustic Monitoring Plan.

If salmonids are present in the project area, potential impacts from noise and visual disturbance would likely be minor and short term, and unlikely to result in injury or mortality of fish. Exposure to individual fish is expected to be minimal, and those fish that are exposed could readily relocate to nearby suitable habitat upstream or downstream of the project sites. Upon cessation of work, it is anticipated that fish movement and access would return to pre-construction conditions. The project would not result in long term changes to

[2] Root Mean Square Sound Pressure Level: A decibel measure of the square rms of mean square (RMS) pressure. For pulses, the average of the squared pressures over the time that comprises that portion of the wave form containing 90 percent of the energy of the impulse in dB re: 1-µPa. NMFS has identified that 150 dB_{RMS} should be used to determine whether pile driving operations will have a behavioral effect on fish.

the water chemistry or physical characteristics (e.g., substrate and flow) of the watercourses after construction is complete, disturbed areas have been stabilized, and vegetation is re-established.

Water Quality Impacts

Pollutants in highway runoff, or from construction operations, can result in the mobilization of sediment both during and after construction. Wetland fill encroachment, new impervious surface, and the removal of wetland and riparian vegetation all have the potential to impact water quality within the project area. However, the project is not anticipated to cause or contribute to the permanent violation of water quality standards or water quality objectives, nor would it affect the beneficial uses of downstream receiving waters. Further discussion on water quality is provided in Section 2.10—Hydrology and Water Quality. Water quality issues that could potentially impact salmonids are discussed below.

Turbidity and Sedimentation

Increases in suspended sediment or turbidity can affect water quality, which in turn can affect fish health and behavior. Salmonids typically avoid areas of higher suspended sediment which means that they could displace themselves from their preferred habitat in order to seek areas with less suspended sediment. Fish unable to avoid suspended sediment can experience negative effects; the severity of which increases as a function of the sediment concentration and exposure time (Newcombe and Jensen ,1996; Bash et al., 2001). Suspended sediment and turbidity generally do not acutely affect aquatic organisms unless they reach extremely high levels. At levels reaching 25 milligrams per liter (mg/L), suspended sediment can adversely affect the physiology and behavior of aquatic organisms and may suppress photosynthetic activity at the base of food webs, affecting aquatic organisms either directly or indirectly (Alabaster and Lloyd, 1980). While benthic communities can normally withstand short-term increases in suspended sediment, small increases over longer or continuous durations can affect the quantity and composition of aquatic invertebrates (i.e., prey species) and reduce the production of aquatic plants (Robertson et al., 2006).

Construction of all three bridges (and associated clear water diversions) would disturb soils which could potentially be transported to the wetted channels during storm events. Demolition of the bridges could produce fugitive dust emissions that could reach the project area watercourses or fall to the ground and later be discharged to waterways. There is also potential for increases in sediment delivery post construction if areas of soil disturbance are not stabilized and remain susceptible to erosion.

However, the proposed project is not likely to result in significant excursions of suspended sediment and turbidity relative to baseline conditions that would result in acute physical or behavioral effects on individual salmonids with implementation of the standard measures identified in Section 1.4. These measures also include scheduling BMPs that avoid the most vulnerable periods of adult and smolt migration and coincide with the period when juvenile salmonid populations are lowest.

Pollutants Associated with Stormwater Runoff and Accidental Spills

Contaminants generated by traffic, pavement materials, and airborne particles that settle may be carried by stormwater runoff into receiving waters, which may be taken up by aquatic organisms. Accidental spills of hazardous material, such as those caused by highway-related traffic accidents or equipment refueling, maintenance, and fluid leakage near watercourses, also pose a risk of contamination to aquatic habitat, depending on the type and quantity of the material spilled.

Exposure to stormwater pollutants can cause reduced growth, impaired migratory ability, and impaired reproduction in salmonids and other fishes. Contaminants in runoff can also be taken in by prey species, reducing prey availability or providing an indirect source of toxicity. The extent and severity of these effects vary depending on the extent, timing, and duration of the exposure; ambient water quality conditions; the species and life history stage exposed; pollutant toxicity; and synergistic effects with other contaminants (U.S. EPA 1980).

During construction, a risk would exist for accidental release of oil, grease, wash water, solvents, cement, or other construction materials into the creeks. However, with implementation of the standard water quality measures, which include provisions for the proper handling, storage and disposal of contaminants, localized degradation of water quality from construction-related spills is unlikely. The standard measures are expected to sufficiently restrict any discharged pollutants to the immediate area; therefore, chemical contamination of the project watercourses as a result of construction operations is unlikely to occur and the potential effects to salmonids are discountable. There would not be a significant increase in pollutant loading from roadway runoff due to traffic over the existing condition as the proposed project is not intended to generate an increase in traffic volume.

Wetland Fill Encroachment

Wetland fill encroachment has the potential to cause an increase in peak flow and higher runoff volumes that can lead to channel scouring and bank erosion that, in turn, can increase sediment and turbidity in receiving waters. It can also lead to decreased storage capacity and outflow efficiency, thereby negatively affecting floodplain processes that are important for salmonids. The project would permanently impact 0.022 acre of wetlands, described further under Question c) below. The impacts would be mitigated and are not expected to increase peak flow and runoff volumes. Furthermore, new impervious surface area that could increase flow and volume of runoff would be addressed by creating bioswales and biostrips. These would be placed adjacent to highway shoulders, fill slopes, revegetated access areas, and drainage systems to convey and treat stormwater through biofiltration.

Wetland and Riparian Habitat Removal

Temporary and permanent impacts to wetland and riparian are discussed in Section 2.4. Biological Resources, under Question c).

The bridge work is expected to have minimal impact on the functional values of existing riparian and wetland habitat for salmonids. The project would not result in long term changes to the water chemistry or physical characteristics (e.g., substrate and flow) of the river after construction is complete; therefore, no long-term impacts on fish or other aquatic organisms are anticipated.

The standard measures featured in Section 1.4 of this document, such as dewatering, aquatic species relocation and hydroacoustic monitoring, would minimize impacts to salmonids.

Per FESA, Caltrans anticipates that this project ***may affect, and is likely to adversely affect*** CC Chinook salmon, SONCC coho salmon, and NC steelhead. Caltrans anticipates that this project ***may affect but is not likely to adversely affect*** critical habitat for CC Chinook salmon, SONCC coho salmon, and NC steelhead. Caltrans would submit a Biological Assessment to NMFS for the potential take of CC Chinook salmon and NC steelhead before issuance of the final environmental document for the project.

Per CESA, the project may result in "***Take***" of SONCC coho salmon and summer-run steelhead, due to the need for dewatering and potential fish relocation. Caltrans would pursue an Incidental Take Permit (ITP) or Consistency Determination (CD) on the federal Biological Opinion for SONCC coho salmon and NC steelhead.

CDFW may require Caltrans to fully mitigate for impacts to SONCC coho salmon and NC steelhead as part of an ITP pursuant to CESA. Caltrans has been in coordination with CDFW regarding American bullfrog (*Rana catesbeiana*) eradication efforts at the Mad River Pond in Humboldt County to mitigate for incidental take of coho salmon and summer-run steelhead that may result from upcoming projects. Caltrans would continue to work closely with CDFW during the permitting phase of this project to determine appropriate measures to ensure all impacts to SONCC coho salmon and summer-run steelhead from the final project designs are fully mitigated. Any measures identified in the ITP would be associated with agency compliance and would not be considered a mitigation requirement per CEQA.

Essential Fish Habitat

The proposed project would affect essential fish habitat (EFH) for Pacific salmon managed under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). During construction, water quality may be temporarily impaired due to short term, localized increases in turbidity from activities that involve ground disturbance. Stormwater runoff has the potential to compromise downstream habitat and reduce the quality of localized rearing habitat. However, the Standard Measures to protect water quality identified in Section 1.4 would minimize the magnitude and duration of any turbidity increases, provide for site stabilization post construction, and ensure proper handling and storage of contaminants to avoid accidental spills.

Cover, shelter, foraging potential, and safe passage conditions may also be temporarily compromised due to noise (e.g., vibration from construction equipment, hoe-ramming) and visual stressors (e.g., artificial light, sudden movements) during construction. There would also be a temporal loss of vegetation that provides riparian function. The scale of these effects would be small, resulting in no measurable decrease in the quality of the rearing habitat or migration corridors for EFH species. Elements of EFH would also be impacted by the temporary water diversion and placement of RSP within the channels.

Caltrans anticipates a determination that the proposed project would ***adversely modify*** EFH for coho salmon and Chinook salmon, therefore consultation with NMFS would be required. However, no measurable, long-term or permanent impacts to waters, substrates, food production and availability, cover conditions, or vegetation are anticipated. As such, Caltrans anticipates there would be no long-term or permanent impacts to EFH for coho salmon and Chinook salmon.

Although the project may result in take and temporarily degrade habitat, the project is not anticipated to result in substantial adverse effect to the populations of these species. Impacts would be addressed through consultation with NMFS and CDFW. Given this, a determination was made that the project would have a "Less Than Significant Impact" to salmonids and their habitat.

Western Bumblebee and Obscure Bumblebee

Most ground disturbance for this project would occur in areas seasonally flooded during the hibernation period of bumblebees. Because the areas are inundated with water during the hibernation period, bumblebees are not anticipated to be overwintering in areas proposed for project access. Areas that are not seasonally flooded are routinely disturbed by mowing and road grading.

Given potential ground disturbance would likely not impact bumblebee habitat and all vegetated disturbed areas would be restored, a determination was made that the project would have "No Impact" on bumblebee species and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of Western bumblebee.

Western Snowy Plover

There is no habitat for Western snowy plover in the project BSA due to the lack of expansive beach habitat. The potential for Western snowy plover to occur is low. There would be no potential nest disturbance. Given this, a determination was made that the project would have "No Impact" on Western snowy plover and their habitat.

Per FESA, Caltrans has determined the project would have ***no effect*** on Western snowy plover and their critical habitat.

Western Yellow-billed Cuckoo

Due to the lack of suitable breeding habitat, the potential for occurrence of Western yellow-billed cuckoo in the project ESL is low. Given there would be no nest disturbance associated with this project, a determination was made that the project would have "No Impact" on Western yellow-billed cuckoo and their habitat.

Per FESA, Caltrans has determined the project would have ***no effect*** on Western yellow-billed cuckoo and their critical habitat.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of Western yellow-billed cuckoo.

Endangered Species Act Determinations for Species Not Discussed in Section 2.4

Green sturgeon (*Acipenser medirostris*) has been identified as potentially occurring in the project vicinity; however, given they were determined to be absent from the BSA at all three bridges, the species is not discussed further in Section 2.4 (see Appendix F). As a result, per FESA, Caltrans has determined the project would have ***no effect*** on green sturgeon.

Discussion of Environmental Evaluation Question 2.4b—Biological Resources

> ***b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?***

Natural Communities

Douglas-fir—Tanoak Forest Association

At the Little Larabee Creek Bridge location, construction of the proposed project would result in approximately 0.052 acre of permanent impact and 0.038 acre of temporary impact to the Douglas-fir–Tanoak Forest Association.

The amount of impact would not result in a substantial adverse effect to this sensitive natural community. Disturbed areas would be treated with erosion control BMP's, seeded or planted with appropriate native plant species. Plant species and locations would be developed by the project landscape architect and biologist. Given this, a determination was made that the project would have a "Less Than Significant Impact" on Douglas-fir–Tanoak Forest Association.

Oregon White Oak Woodland Alliance

At the Butte Creek Bridge location, construction of the proposed project would result in approximately 0.004 acre of permanent impact and 0.013 acre of temporary impact to Oregon White Oak Woodland Alliance.

The amount of impact would not result in a substantial adverse effect to this sensitive natural community. Disturbed areas would be treated with erosion control BMP's, seeded or planted with appropriate native plant species. Plant species and locations would be developed by the project landscape architect and biologist. The impacted areas would be restored, and this

occurrence is not considered representative of any sensitive alliances or associations. Given this, a determination was made that the project would have a "Less Than Significant Impact" on Oregon White Oak Woodland Alliance.

California Bay Alliance

At the Little Larabee Creek Bridge location, construction of the proposed project would result in approximately 0.014 acre of permanent impact and 0.042 acre of temporary impact to California Bay Alliance.

The amount of impact would not result in a substantial adverse effect to this sensitive natural community. Disturbed areas would be treated with erosion control BMP's, seeded or planted with appropriate native plant species. Plant species and locations would be developed by the project landscape architect and biologist. Given this, a determination was made that the project would have a "Less Than Significant Impact" on California Bay Alliance.

Redwood Forest Alliance

At the Hely Creek Bridge location, construction of the proposed project would temporarily impact approximately 0.29 acre and would permanently impact 0.21 acre of Redwood Forest Alliance. There is a total of 1.73 acres of Redwood Forest Alliance within the ESL, occurring only at the Hely Creek Bridge location. Project activities such as creation of access roads, cut/fill grading, clearing for crane pad construction and crane operation, and bridge widening would require the removal of trees. Impacts to portions of the root zones could also necessitate additional tree removal. No old-growth redwoods would be affected.

An arborist assessment was conducted to evaluate impacts to large diameter trees. Results of the arborist assessment are documented in the *Tree Impact Analysis* report (Caltrans 2020g). Construction would require the removal of 12 large trees located within permanent impact areas or within crane operational areas and impact to their critical root zone (CRZ). Of the twelve large trees to be removed, six are coast redwood, four are Douglas-fir, and two are tanoak.

For the purpose of analyzing potential project impacts on trees, this discussion focuses on the terms structural root zone (SRZ) and absorber root zone (ARZ) (Figure 2).

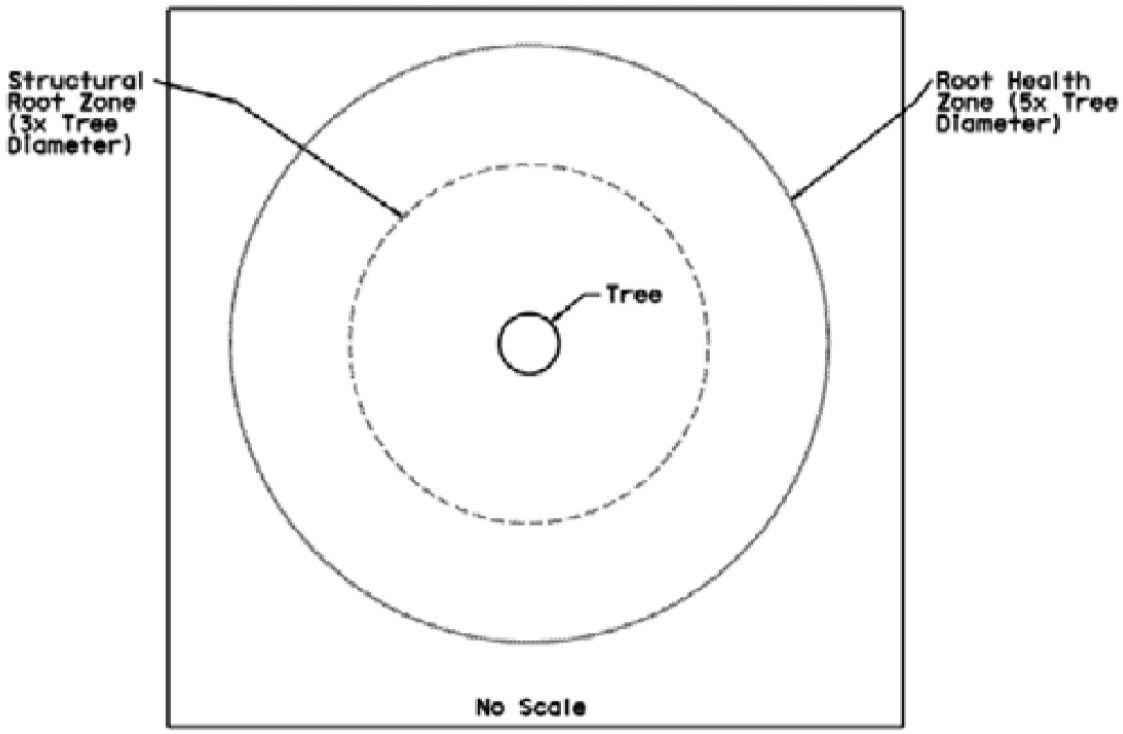

Figure 2. Diagram of the Root Zones of Coast Redwood Trees

The root health zone (RHZ) seen in this figure and found in other arborist reports is synonymous with the ARZ used in this document. The smaller SRZ contains the majority of the tree's large supporting structural roots that provide stability (Costello et al. ,2003; Helliwell 1989; Smiley et al., 2002; Smiley 2009; Urban 2008). The larger ARZ is important for tree health, generally containing most of a tree's finer roots which absorb water and nutrients from the soil. The size of these zones varies by species. For coast redwood, the SRZ is three times the diameter at breast height (DBH) and the ARZ is five times the DBH. Maps of trees and their root zones, in relation to proposed construction, are provided in Appendix H. Table 4 summarizes the potential tree impacts at the Hely Creek Bridge location.

Table 4. Potential Impacts to Trees at Hely Creek

Tree	Species	DBH (feet, tenths)	SRZ Permanent Impact (Cut)	ARZ Temporary Impact (Fill)	ARZ Permanent Impact[3] (Cut)	Arborist Recommends Removal of Tree?
10071	Douglas-fir	2.5	0.0%	1.1%	0.0%	No
10072	Coast redwood	2.1	0.0%	12.2%	0.0%	No
10080	Coast redwood	2.0	0.5%	0.0%	15.4%	No
10081	Coast redwood	2.0	0.0%	0.0%	9.8%	No
10082	Coast redwood	4.5	0.0%	0.0%	0.0%	No
10175	Coast redwood	6.0	77.0%	0.3%	41%	Yes
10178	Douglas-fir	2.0	0.0%	0.1%	7.6%	No
10180	Douglas-fir	2.3	46.2%	5.6%	34.4%	Yes
10255	Coast redwood	2.2	100%	0.0%	100%	Yes
10256	Coast redwood	4.5	65.1%	12.3% to 20.9% (CIP)	61.4%	Yes
10257	Douglas-fir	2.0	92%	0.2%	69.1%	Yes
10285	Tanoak	2.2	3.1%	8.8% to 24.9% (CIP)	14.5%	Yes (CIP)[4]
10336	Douglas-fir	2.5	3.4%	66.7%	33.3%	Yes
10353	Douglas-fir	2.0	0.0%	100%	0.0%	Yes
10356	Coast redwood	8.2[5]	12.7%	0.0% or 7.8% (CIP)	3.1%	No, ESA critical
10364	Coast redwood	2.5	0.0%	0.0%	1.8%	No
10367	Coast redwood	2.4	0.0%	0.0%	0.4%	No
10368	Coast redwood	2.4	0.0%	0.0%	13.8%	No
10889	Douglas-fir	2.0	0.0%	0.0%	8.9%	No
10890	Coast redwood	8.0	0.1%	4.5%	6.8%	No
10932	Coast redwood	4.0	0.0%	7.0%	0.0%	No
10975	Coast redwood	8.0	0.0%	0.4%	0.0%	No
10981	Coast redwood	4.5	0.0%	22.8%	0.0%	No, ESA critical (pruning required)
10982	Coast redwood	2.4	0.0%	15.1%	0.0%	No, ESA critical (pruning required)
10986	Coast redwood	2.4	0.0%	0.0%	0.0%	Yes

[3] Cuts associated with the access roads are not considered permanent impacts on the ARZ.

[4] Tree stem in work area directly adjacent to bridge, likely needs removal during construction.

[5] A composite DBH derived from four stems.

Tree	Species	DBH (feet, tenths)	SRZ Permanent Impact (Cut)	ARZ Temporary Impact (Fill)	ARZ Permanent Impact[3] (Cut)	Arborist Recommends Removal of Tree?
10987	Coast redwood	4.2	0.0%	0.7%	14.8%	Yes
10991	Coast redwood	5.5	0.0%	35.9%	0.0%	Yes
10992	Tanoak	2.0	0.0%	50.5%	0.0%	Yes
11259	Coast redwood	8.0	0.0%	3.2%	0.3%	No
11273	Coast redwood	4.5	0.0%	8.7%	0.0%	No

The project could result in moderate impacts (7.8 – 22.8%) to the ARZ of an additional three coast redwoods (Trees 10356, 10981, 10982) (Table 4). Tree 10356 would also have permanent impacts to 12.7% of its SRZ, and trees 10981 and 10982 could experience branch trimming within approximately 30 feet of the ground surface for crane operations. Removal of these trees is not recommended; the establishment of an ESA around them is recommended (Table 4). An additional 14 trees would have mild temporary (0.4–12.2%) and/or permanent (0.3–15.4%) impacts to their ARZs. These trees are not recommended for removal because of the resiliency of coast redwood trees, particularly when in good health as these are. The mild to moderate impacts on their SRZs (less than 20%), ARZs (less than 40%), and trimming of lower branches on two of the trees, would not substantially affect the structural integrity, health, or life expectancy of these three trees. Additionally, with implementation of the standard measures discussed in Section 1.4, these trees are considered likely to survive any impacts from construction activities.

The Redwood Forest Alliance is prevalent in the landscape surrounding the Hely Creek Bridge and the removal of 0.5 acre of trees adjacent to the highway would not result in a substantial adverse effect to the forest. The largest trees (8-foot DBH) in the ESL would be avoided and remain after construction to continue to provide canopy cover and shade. Temporarily disturbed areas would be regraded to a natural contour and treated with erosion control, such as redwood duff and bark to slow surface water run-off and invasive plant growth. A Revegetation Plan would be implemented after construction is completed to restore native vegetation and riparian habitat to these areas. Given this, a determination was made that the project would have a “Less Than Significant Impact” on the Redwood Forest Alliance.

Invasive Species

There are numerous invasive species within the project area. Many invasive plant species are disturbance related and could recolonize or increase population sizes through construction activities; however, the Standard Measures listed in Section 1.4 of this document would be implemented to ensure invasive species would not proliferate. Given this, a determination was made that this project would have "No Impact" on invasive species proliferation.

Discussion of Environmental Evaluation Question 2.4c—Biological Resources

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Wetlands and Other Waters

The proposed project would have temporary and permanent impacts to jurisdictional waters of the U.S. and State. Temporary impacts refer to those areas that would be restored on-site and in-kind upon completion of construction. Typically, impacts lasting less than two years are considered temporary.

Temporary impacts to aquatic resources are anticipated during ground disturbance and construction activities, such as vegetation removal, grading for access, temporary placement of fill, equipment staging, drainage work, and dewatering.

Permanent impacts include areas with a larger infrastructure footprint relative to the current bridge and highway. This includes any areas where new pavement would be added including new bridge foundations, walls, wingwalls, and sites where rock slope protection (RSP) would be added. Table 5 summarizes temporary and permanent impacts areas combined for all bridge locations.

Table 5. Permanent and Temporary Impacts to Wetlands and Other Waters

Feature	Temporary Impact Area (acres)	Permanent Impact Area (Acres)
Palustrine Emergent Wetlands [PEM1B]	0.006	0.022
Total Impact to Wetlands	**0.006**	**0.022**
Hely Creek, Little Larabee Creek, Butte Creek [R2SB]	0.585	0.091
Intermittent Drainages [R4SB]	0.000	0.007
Ephemeral Drainages [R4SB/R4SBx]	0.017	0.024
Culverted waters	0.007	0.004
Total Impact to Other Waters of the U.S. and State	**0.609**	**0.126**
Total Impacts to Waters of the U.S./State (wetland and relatively permanent waters)	**0.615**	**0.148**
Upland Riparian Habitat	0.243	0.172

Temporary impacts to jurisdictional waters and riparian vegetation would be offset with incorporation of the standard measures identified in Section 1.4. BMPs would be implemented to stabilize all bare soil areas over both the short and long term and to minimize adverse effects to water quality, aquatic habitat, and aquatic species. BMPs include treatment controls, soil stabilization practices, and weather-appropriate scheduling. High-visibility temporary fencing would be used to limit ground disturbance to the project footprint, and debris containment plans would be implemented if needed to ensure construction debris does not enter adjacent waters.

Debris and sediment would be contained within the project site and disposed appropriately off-site. The contractor would be required to restore wetland and riparian areas temporarily impacted by construction to pre-existing conditions once construction is complete.

Caltrans would also implement a program of invasive weed control in all areas of soil disturbance caused by construction to improve habitat for native species in and adjacent to disturbed soil areas within the project limits. A Revegetation Plan would be developed and submitted with project permit applications.

Mitigation Measures

Mitigation for permanent wetlands impacts would be implemented off-site. The appropriate measures would be identified and coordinated with the USACE, NCRWQCB, CDFW and any other administering agencies. Caltrans is currently assessing a property on State Route 36 as a possible mitigation site for this project, with opportunities for wetland preservation and protection and wetland creation. The property identified is approximately 115 acres, has high value wetland features and watershed area and contains valuable upland mature forest habitat. Caltrans would propose a Cooperative Agreement with the NCRWQCB and CDFW to purchase the parcel in CDFW's name to satisfy wetland mitigation needs for this project and other projects on SR 36 and US 101 within the Lower Eel River Watershed. Caltrans has been in coordination with these agencies to move forward with this effort.

Given that temporarily impacted areas would be restored and permanent impacts would be mitigated, a determination was made that the project would have a "Less Than Significant Impact with Mitigation" on wetlands and other waters.

Discussion of Environmental Evaluation Question 2.4d—Biological Resources

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

Animal Species

Caltrans has determined that project activities would have "No Impact" on special status species that were queried but did not have potential habitat in the BSA. However, as mentioned in the Environmental Setting, the following special status wildlife species could potentially occur in the project vicinity.

Amphibians

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of special status amphibians in Question a), a determination was made that the project would have a "Less Than Significant Impact" on special status amphibians and their habitat.

Bat Species

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of bat species in Question a), a determination was made that the project would have a "Less Than Significant Impact" on bat species and their habitat.

Coastal Cutthroat Trout

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of coastal cutthroat trout in Question a), a determination was made that the project would have a "Less Than Significant Impact" on coastal cutthroat trout and their habitat.

Migratory Birds

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of migratory birds in Question a), a determination was made that the project would have a "Less Than Significant Impact" on migratory bird species and their habitat.

Northern Goshawk

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of Northern goshawk in Question a), a determination was made that the project would have "No Impact" on Northern goshawk and their habitat.

Pacific Fisher

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of Pacific fisher in Question a), a determination was made that the project would have a "Less Than Significant Impact" on Pacific fisher and their habitat.

Pacific Lamprey

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of Pacific lamprey in Question a), a determination was made that the project would have a "Less Than Significant Impact" on Pacific lamprey and their habitat.

Sharp-shinned hawk, Osprey, and Cooper's hawk

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of sharp-shinned hawk, osprey, and Cooper's hawk in Question a), a determination was made that the project would have a "Less Than Significant Impact" to sharp-shinned hawk, osprey, and Cooper's hawk and their habitat.

Sonoma Tree Vole

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of Sonoma tree vole in Question a), a determination was made that the project would have "No Impact" on Sonoma tree vole or their habitat.

Western Pond Turtle

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of Western pond turtle in Question a), a determination was made that the project would have "No Impact" on Western pond turtle or their habitat.

Threatened/Endangered Species

American Peregrine Falcon

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of American peregrine falcon in Question a), a determination was made that the project would have "No Impact" on American peregrine falcon and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of American peregrine falcons.

Bald Eagle

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of bald eagle in Question a), a determination was made that the project would have "No Impact" on bald eagle and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of bald eagles.

Bank Swallow

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of bank swallow in Question a), a determination was made that the project would have "No Impact" on bank swallows and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of bank swallows.

Golden Eagle

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of golden eagle in Question a), a determination was made that the project would have "No Impact" on golden eagle and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of golden eagles.

Humboldt Marten

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of Humboldt marten in Question a), a determination was made that the project would have "No Impact" on Humboldt marten and their habitat.

Per FESA, a determination was made that this project would have ***no effect*** on Humboldt marten.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of Humboldt marten.

Little Willow Flycatcher

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of little willow flycatcher in Question a), a determination was made that the project would have "No Impact" on little willow flycatcher and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of little willow flycatcher.

Marbled Murrelet

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of marbled murrelet in Question a), a determination was made that the project would have a "Less Than Significant Impact" on marbled murrelet and their habitat.

Given this, per FESA, Caltrans anticipates the proposed project ***may affect, but is not likely to adversely affect*** MAMU. There would be ***no effect*** to MAMU designated critical habitat from the project.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of marbled murrelet.

Northern Spotted Owl

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of Northern spotted owl in Question a), a determination was made that the project would have a "Less Than Significant Impact" on NSO and their habitat.

Given this, per FESA, Caltrans anticipates the proposed project ***may affect, but is not likely to adversely affect*** NSO. There would be ***no effect*** to NSO designated critical habitat from this project.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of northern spotted owl.

Salmonids

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a) for discussion of impacts to salmonids and their habitat. These impacts have been examined to determine if the proposed project would interfere substantially with the movement of migratory salmonid species or with established migratory corridors.

Fish habitat in the ESL is restricted to the perennial creeks that are direct tributaries to the Van Duzen River and does not include culverted waters in the ESL that convey small inputs of water, most notably stormwater from roadside runoff. Due to the small size of the project culverts, source of water inputs, and steep grade where they reside, culverted waters within the ESL do not provide fish habitat.

The project would not have permanent impacts to fish passage or migration. During construction, movement of salmonid species may be affected by noise (e.g., vibration from construction equipment, hoe-ramming) and visual stressors (e.g., artificial light, sudden movements). Dewatering portions of the streams (where construction would occur) and relocating aquatic species outside of the work area would reduce these effects. The diversion itself would temporarily restrict the movement of rearing juvenile salmonids, potentially making them more vulnerable to stress and predation, but the timing of diversion avoids the late fall-winter migration period for adult salmon that may pass through the project area to spawn, and most of the spring-early summer smolt out-migration.

Impacts to habitat, such as temporal loss of riparian vegetation, would not result in a measurable decrease in the quality of the rearing habitat or migration corridors for salmonid species. A Revegetation Plan would be implemented to restore the project area to pre-construction conditions with native tree and plant species. Additional standard measures described in Section 1.4 would avoid and minimize impacts to the movement and migration of salmonids. Given the above, a determination was made that the project would have a "Less Than Significant Impact" to movement of salmonid species and established migratory corridors.

Per FESA, Caltrans has determined the project ***may affect, and is likely to adversely affect*** federally listed salmonid species and Caltrans will continue to consult with NMFS regarding the project effects on these species which include CC Chinook salmon, SONCC coho salmon and NC steelhead.

Per FESA, Caltrans anticipates that this project ***may affect, but is not likely to adversely affect*** critical habitat for CC Chinook salmon, SONCC coho salmon, and NC steelhead.

Per CESA, the project may result in "***Take***" of SONCC coho salmon and summer-run teelhead.

Caltrans anticipates a determination that the proposed project would ***adversely modify*** EFH.

Western Bumblebee

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of Western bumblebee in Question a), a determination was made that the project would have "No Impact" on bumblebee species and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of Western bumblebee.

Western Snowy Plover

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of Western snowy plover in Question a), a determination was made that the project would have "No Impact" on Western snowy plover and their habitat.

Per FESA, Caltrans has determined the project would have ***no effect*** on Western snowy plover or their critical habitat.

Western Yellow-billed Cuckoo

Please reference Section 2.4. Biological Resources—Discussion of CEQA Checklist, Question a). Based on the discussion of Western yellow-billed cuckoo in Question a), a determination was made that the project would have "No Impact" on Western yellow-billed cuckoo.

Per FESA, Caltrans has determined the project would have ***no effect*** on Western yellow-billed cuckoo and their critical habitat.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of Western yellow-billed cuckoo.

2.5. Cultural Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?			✓	
Would the project: b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?			✓	
Would the project: c) Disturb any human remains, including those interred outside of dedicated cemeteries?			✓	

Regulatory Setting

The primary laws and regulations governing cultural resources include:

- Advisory Council on Historic Preservation (ACHP), Section 106 regulations, 36 CFR 800
- National Historic Preservation Act (NHPA), 54 USC 300101 et seq.
    - Section 106 Programmatic Agreement (PA): The PA implements ACHP's regulations, 36 CFR 800, streamlining the Section 106 process
- National Register of Historic Places (NRHP), 36 Code of Federal Regulations (CFR) 63
- Native American Graves Protection and Repatriation Act, 25
- Archaeological Resources Protection Act (ARPA), 16 USC 470
- Section 4(f) of the U.S. Department of Transportation Act, 23 CFR 774
- Assembly Bill 52 (Native Americans: CEQA)
- Historic Sites Act of 1935, 16 U.S.C. 461 et seq.
- NEPA, 42 USC 4321-4347
- CEQA, PRC 21000

Environmental Setting

The project area is located in lower foothills at the western edge of the North Coast Ranges along the Van Duzen River drainage. The areas climate is classified as Mediterranean with cool, wet winters and hot, dry summers. The lower elevations of the drainage are dominated by Redwood forests while the upper elevations support oak-conifer woodlands and grass prairie. The project area is situated in the Van Duzen River Basin and encompassed by the Eel River Basin watershed, which is generally comprises highly erodible rocks, including Franciscan Complex rocks (Humboldt County 2017).

Meyer et al. (2011) provide a thorough overview of the potential for buried archaeological deposits in Caltrans District 1, including all of the study area. Certain portions of the ESL are located on pre-Quaternary age erosional landforms (e.g., hillslopes, very old alluvial fans, etc.) that formed long before humans occupied North America, and these areas are considered to have a very low potential for buried archaeological resources. However, other portions of the ESL contain relatively young (e.g. late Holocene) depositional landforms that have greater potential for buried archaeological resources. Previously recorded archeological sites exist within the project area of direct impact (ADI).

An archaeological survey was conducted throughout the project ESL in 2018, followed by an extended Phase I investigation in 2018 and Phase II Archaeological Evaluation in 2019. Results of these investigations are documented in the Archaeological Survey Report (Caltrans 2019a), Extended Phase One Report (Caltrans 2019e), Archaeological Evaluation Report (Caltrans 2020a) and Historic Property Survey Report (Caltrans 2020c).

A large prehistoric site, and possible ethnographic village known to contain groundstone, diagnostic tools, and midden soil, is present within the ADI at the Little Larrabee Creek Bridge. Field investigations revealed intact archaeological deposits as well as historic era-artifacts. A midcentury residential site was found within the boundaries of this site and was subsequently subsumed.

A multicomponent prehistoric and historic-era site is within the ADI for the Butte Creek Bridge. Field investigations revealed prehistoric deposits, but no cultural features, discrete activity areas or midden were identified. Historic-era deposits were found, but no historic features, discrete activity areas, or data sets sufficient to advance our understanding of local or regional history were discovered.

Discussion of Environmental Evaluation Question 2.7—Cultural Resources

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

Since testing was confined to the project area of direct impact (ADI), the sites cannot be formally evaluated. Therefore, for the purposes of this project, they will be considered eligible for inclusion in the National Register of Historic Places (NHRP).

Impacts to both sites within the ADI would not alter the characteristics that might make them eligible to the NRHP or California Register of Historical Resources (CRHR) under Criterion D/4, the potential to contribute to history and/or prehistory. The portions of these sites in the ADI demonstrated a low diversity of artifact types, a lack of cultural features and no evidence of discrete activity areas. Untested portions of the sites outside of the ADI would be protected as Environmentally Sensitive Areas (ESAs) during construction. The ESA will be placed along the right of way line, to contain the equipment staging and work activities to the evaluated portions of the sites. By limiting the work area to the evaluated areas, the potential for direct effects is reduced. Given this, a "Less Than Significant Impact" determination was made for this question.

Caltrans anticipates a Finding of No Adverse Effect is appropriate for this undertaking. Caltrans has initiated consultation with the State Historic Preservation Officer (SHPO) and is seeking the SHPO's concurrence on this finding.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

As discussed above under Question a), field investigations found archaeological deposits within the project ADI. However, Phase II testing revealed no new or significant data in the areas of the site that would be impacted by construction. Untested portions of the sites outside of the ADI would be protected as ESAs during construction, limiting the potential for direct effects. Given this, a "Less Than Significant Impact" determination was made for this question.

c) Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

The site at Little Larrabee Creek Bridge is thought to have possible human remains, although none were uncovered or observed during the field investigations completed on portions of the site within the ADI for this project. Standard measures discussed in Section 1.4 would reduce the potential for impacts to human remains. Given this, a "Less Than Significant Impact" determination was made for this question.

Mitigation Measures

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.6. Energy

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?				✓
Would the project: b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project, as well as the *Energy Analysis for the Three Bridges Replacement and Widening Project* dated September 17, 2019 (Caltrans 2019d). The proposed project would not increase highway capacity or provide congestion relief when compared to the No-Build alternative. The project would not result in a change in energy consumption. Construction-related energy consumption would be temporary and would not have a noticeable effect on local and regional fuel supplies. Given this, potential impacts to energy are not anticipated.

Mitigation Measures

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.7. Geology and Soils

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				✓
ii) Strong seismic ground shaking?				✓
iii) Seismic-related ground failure, including liquefaction?				✓
iv) Landslides?				✓
Would the project: b) Result in substantial soil erosion or the loss of topsoil?				✓
Would the project: c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				✓
Would the project: 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?				✓

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				✓
Would the project: f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			✓	

Discussion of Environmental Evaluation Questions 2.9a-e—Geology and Soils

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project, and California Geological Survey regulatory maps. No Alquist-Priolo earthquake fault zones are mapped at the project locations. Landslide activity is mapped throughout the SR 36 corridor; however, the project proposes to widen or replace existing bridge structures and would not result in substantial adverse effects involving risk of loss, injury or death. Geotechnical investigations were conducted to provide foundation recommendations for the design of the bridges, based on subsurface conditions.

Mitigation Measures—Geology and Soils

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

Regulatory Setting—Paleontological Resources

Several sections of the California Public Resources Code protect paleontological resources, including sections 5097.5 and 30244.

Environmental Setting—Paleontological Resources

A *Combined Paleontological Identification Report and Paleontological Evaluation Report*, dated October 11, 2019, was prepared for the project to determine the likelihood of encountering fossils during construction (Caltrans 2019c). Knowledge of the geological formations gleaned from the survey and records of previous fossils recovered from the area are the basis for determining the paleontological potential of projects.

This project lies within the Coast Ranges Geomorphic Province. The Coast Ranges are characterized by northwest-southeast trending mountains and valleys roughly parallel to the San Andreas Fault Zone. The cores of the mountains of the Coast Ranges are typically Mesozoic[6] to Cenozoic[7] in age (less than 250 million years old) and consist of metamorphic and sedimentary rocks.

Sediments at Hely Creek Bridge are fill overlying alluvium (river deposit), overlying the undifferentiated late Miocene[8] to Pliocene[9] Wildcat Group. Sediments at Little Larabee Creek Bridge are mapped as Pleistocene[10] to Holocene[11] terrace deposits underlain by Late Jurassic[12] to Late Cretaceous[13] Central Belt Franciscan Complex "Broken Formation". Sediments at Butte Creek Bridge are deep fill overlying Late Jurassic to Late Cretaceous mélange (rock formation of varied material).

A records search indicated that no previous fossil localities have been recorded within the project area or immediate vicinity. Fossils are known in the county in Pleistocene deposits and the Wildcat Formation. No fossils are known from the Late Jurassic to Late Cretaceous Franciscan Complex "broken formation" or mélange units as both are metamorphic rocks.

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[6] An interval of geologic time from about 250 million to 66 million years ago

[7] An interval of geologic time from 66 million years ago to present day

[8] An interval of geologic time from 11.6 million to 5.3 million years ago

[9] An interval of geologic time from 5.3 million to 2.6 million years ago

[10] An interval of geologic time from about 2.58 million to 11,700 years ago

[11] An interval of geologic time from about 11,700 years ago to present day

[12] An interval of geologic time from about 199.6 million to 145.5 million years ago

[13] An interval of geologic time from about 145.5 million to 66 million years ago

A paleontological field survey of the project area was conducted on July 15, 2019. No fossils were observed during the survey.

Paleontological resources are considered to be scientifically relevant if they provide new data on fossil animals, distribution, evolution, or other scientifically important information. Fill, "broken formation", and mélange are not considered sensitive. Fill is too young to contain fossils and the second two are metamorphic rocks that contain no fossils. Holocene alluvium is ranked low because these sediments are too young to contain fossils. The Wildcat Group is considered to have a low sensitivity because it contains well-known invertebrate fossils. Pleistocene alluvium is considered to have a high sensitivity as fossils of this age are rare in the vicinity.

Discussion of Environmental Evaluation Question 2.9f—Paleontological Resources

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Ground disturbance is estimated to be 12 feet at Hely Creek Bridge, 10 feet at Little Larabee Creek Bridge, and 20 feet at Butte Creek Bridge, not including disturbance from pile driving. Road grading is anticipated to only impact fill material. Abutment work would extend into alluvium at all three bridges. The depth of change from Holocene to Pleistocene alluvium is unknown but no fossils are known nearby. Pile drilling or driving could come into contact with all sediments but would not produce salvageable fossil material.

No scientifically important fossils are known in the project area. Caltrans Standard Specification 14-7.03 would be followed, requiring that if unanticipated discoveries of paleontological resources occur during construction excavations, all work within 60 feet radius of the discovery should be halted until the find has been evaluated by Caltrans. Work may resume immediately outside that radius. The project is not anticipated to destroy a unique paleontological resource/site or geologic feature. Given this, a determination was made that the project would have a "Less Than Significant Impact" on Paleontological Resources.

Mitigation Measures—Paleontological Resources

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.8. Greenhouse Gas Emissions

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			✓	
Would the project: b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			✓	

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 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), and various hydrofluorocarbons (HFCs). CO_2 is the most abundant GHG; while it is a naturally-occurring component of Earth's atmosphere, fossil-fuel combustion is the main source of additional, human-generated CO_2.

Two terms are typically used when discussing how we address the impacts of climate change: "greenhouse gas mitigation" and "adaptation." Greenhouse gas mitigation covers the activities and policies aimed at reducing GHG emissions to limit or "mitigate" the impacts of climate change. Adaptation, on the other hand, is concerned with planning for

and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels). This analysis will include a discussion of both.

Regulatory Setting

This section outlines federal and state efforts to comprehensively reduce greenhouse gas emissions from transportation sources.

Federal

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level.

The *National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332)* requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

The Federal Highway Administration (FHWA) recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices (FHWA 2019). This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—"the triple bottom line of sustainability" (FHWA n.d.). Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects. The most important of these was the Energy Policy and Conservation Act of 1975 (42 USC Section 6201) and Corporate Average Fuel Economy (CAFE) Standards. This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the CAFE program based on each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

Energy Policy Act of 2006, 109th Congress H.R.6 (2005–2006): This act sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) the establishment of the Office of Indian Energy Policy and Programs within the Department of Energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

The U.S. EPA, in conjunction with the National Highway Traffic Safety Administration (NHTSA), is responsible for setting GHG emission standards for new cars and light-duty vehicles to significantly increase the fuel economy of all new passenger cars and light trucks sold in the United States. Fuel efficiency standards directly influence GHG emissions.

State

California has been innovative and proactive in addressing GHG emissions and climate change by passing multiple Senate and Assembly bills and executive orders (EOs) including, but not limited to, the following:

EO S-3-05 (June 1, 2005): The goal of this EO is to reduce California's GHG emissions to: (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill (AB) 32 in 2006 and Senate Bill (SB) 32 in 2016.

Assembly Bill (AB) 32, Chapter 488, 2006, Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 GHG emissions reduction goals outlined in EO S-3-05, while further mandating that the California Air Resources Board (CARB) create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code [H&SC] Section 38551(b)). The law requires the CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

EO S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. CARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the governor's 2030 and 2050 GHG reduction goals.

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

SB 391, Chapter 585, 2009, California Transportation Plan: This bill requires the State's long-range transportation plan to identify strategies to address California's climate change goals under AB 32.

EO B-16-12 (March 2012): orders State entities under the direction of the Governor, including the CARB, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero-emission vehicles. It directs these entities to achieve various benchmarks related to zero-emission vehicles.

EO B-30-15 (April 2015): establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs the CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent ($MMTCO_2e$).14 Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, Safeguarding California, every 3 years, and to ensure that its provisions are fully implemented.

SB 32, Chapter 249, 2016: codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

[14] GHGs differ in how much heat each trap in the atmosphere (global warming potential, or GWP). CO_2 is the most important GHG, so amounts of other gases are expressed relative to CO_2, using a metric called "carbon dioxide equivalent" (CO_2e). The global warming potential of CO_2 is assigned a value of 1, and the GWP of other gases is assessed as multiples of CO_2.

SB 1386, Chapter 545, 2016: declared "it to be the policy of the state that the protection and management of natural and working lands … is an important strategy in meeting the state's greenhouse gas reduction goals, and would require all state agencies, departments, boards, and commissions to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria relating to the protection and management of natural and working lands."

AB 134, Chapter 254, 2017: allocates Greenhouse Gas Reduction Funds and other sources to various clean vehicle programs, demonstration/pilot projects, clean vehicle rebates and projects, and other emissions-reduction programs statewide.

SB 743, Chapter 386 (September 2013): This bill changes the metric of consideration for transportation impacts pursuant to CEQA from a focus on automobile delay to alternative methods focused on vehicle miles traveled, to promote the state's goals of reducing greenhouse gas emissions and traffic-related air pollution and promoting multimodal transportation while balancing the needs of congestion management and safety.

SB 150, Chapter 150, 2017, Regional Transportation Plans: This bill requires the CARB to prepare a report that assesses progress made by each Metropolitan Planning Organization in meeting their established regional greenhouse gas emission reduction targets.

EO B-55-18 (September 2018): sets a new statewide goal to achieve and maintain carbon neutrality no later than 2045. This goal is in addition to existing statewide targets of reducing GHG emissions.

EO N-19-19 (September 2019): advances California's climate goals in part by directing the California State Transportation Agency to leverage annual transportation spending to reverse the trend of increased fuel consumption and reduce GHG emissions from the transportation sector. It orders a focus on transportation investments near housing, managing congestion, and encouraging alternatives to driving. This EO also directs CARB to encourage automakers to produce more clean vehicles, formulate ways to help Californians purchase them, and propose strategies to increase demand for zero-emission vehicles.

Environmental Setting

The proposed project is in a rural area, surrounded by timber and agricultural lands. SR 36 connects various unincorporated rural communities and forested lands across the middle of Humboldt County. SR 36 traverses most of Northern California, connecting the North Coast at US 101 to the upper end of the Central Valley at I-5 and the eastern border of California at US 395. SR 36 travels across six counties: Humboldt, Trinity, Shasta, Tehama, Plumas, and Lassen. The annual average daily traffic (ADT) in the project corridor was 1,450 in 2015 and is projected to increase to 1,830 by 2041. Peak hour traffic volumes in 2015 was 370 vehicles per hour and is projected to reach 470 vehicles per hour by 2041.

The Humboldt County Association of Governments (HCAOG) is the designated Regional Transportation Planning Agency (RTPA) for the region and guides transportation development. Elements of the Humboldt County General Plan (Land Use, Circulation, Energy, and Safety) address GHGs in the project area.

A GHG emissions inventory estimates the amount of GHGs discharged into the atmosphere by specific sources over a period of time, such as a calendar year. Tracking annual GHG emissions allows countries, states, and smaller jurisdictions to understand how emissions are changing and what actions may be needed to attain emission reduction goals. U.S. EPA is responsible for documenting GHG emissions nationwide, and the CARB does so for the state, as required by H&SC Section 39607.4.

National GHG Inventory

The U.S. EPA prepares a national GHG inventory every year and submits it to the United Nations in accordance with the Framework Convention on Climate Change (Figure 3). The inventory provides a comprehensive accounting of all human-produced sources of GHGs in the United States, reporting emissions of CO_2, CH_4, N_2O, HFCs, perfluorocarbons, SF_6, and nitrogen trifluoride. It also accounts for emissions of CO_2 that are removed from the atmosphere by "sinks" such as forests, vegetation, and soils that uptake and store CO_2 (carbon sequestration). The 1990–2016 inventory found that of 6,511 MMTCO2e GHG emissions in 2016, 81% consist of CO_2, 10% are CH_4, and 6% are N_2O; the balance consists of fluorinated gases (U.S. EPA 2018). In 2016, GHG emissions from the transportation sector accounted for nearly 28.5% of U.S. GHG emissions.

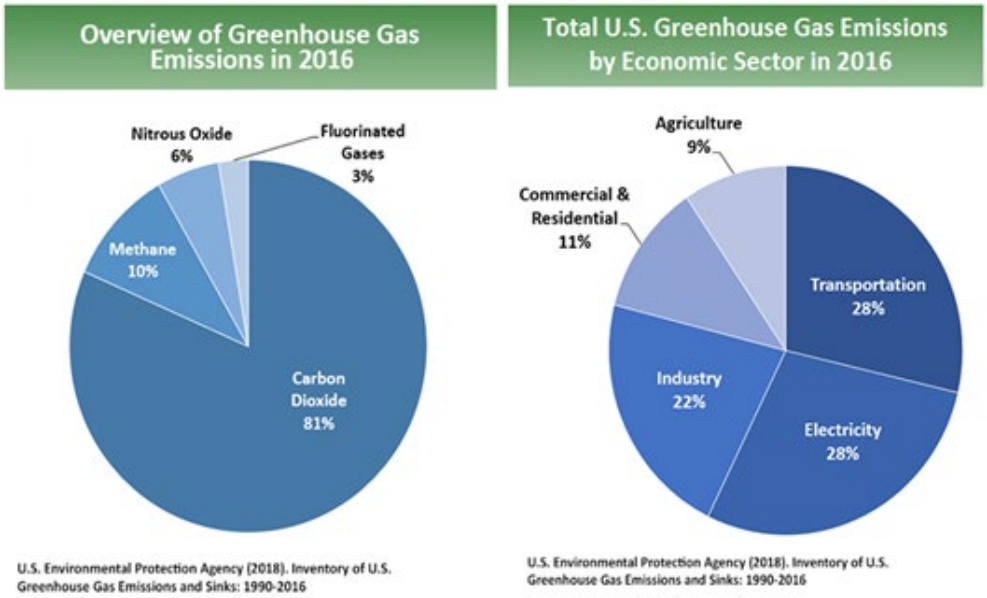

Figure 3. U.S. 2016 GHG Gas Emissions

State GHG Inventory

The California Air Resources Board (CARB) collects GHG emissions data for transportation, electricity, commercial/residential, industrial, agricultural, and waste management sectors each year. It then summarizes and highlights major annual changes and trends to demonstrate the state's progress in meeting its GHG reduction goals. The 2019 edition of the GHG emissions inventory found total California emissions of 424.1 $MMTCO_2e$ for 2017, with the transportation sector responsible for 41% of total GHGs. It also found that overall statewide GHG emissions declined from 2000 to 2017 despite growth in population and state economic output (Figure 4) (CARB 2019a).

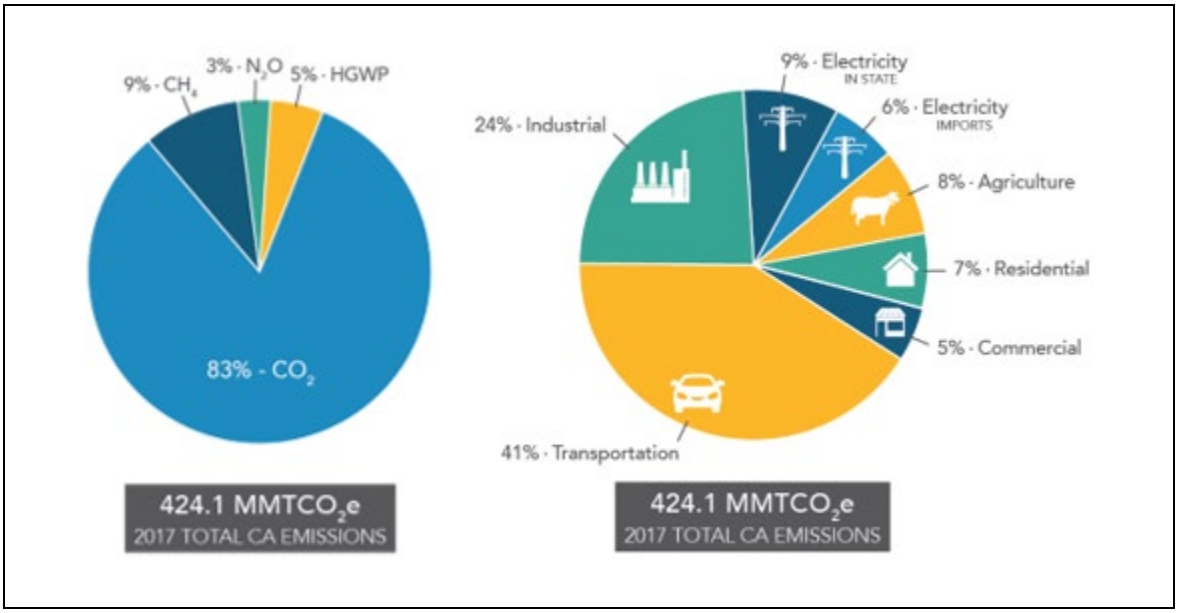

Figure 4. California 2017 Greenhouse Gas Emissions

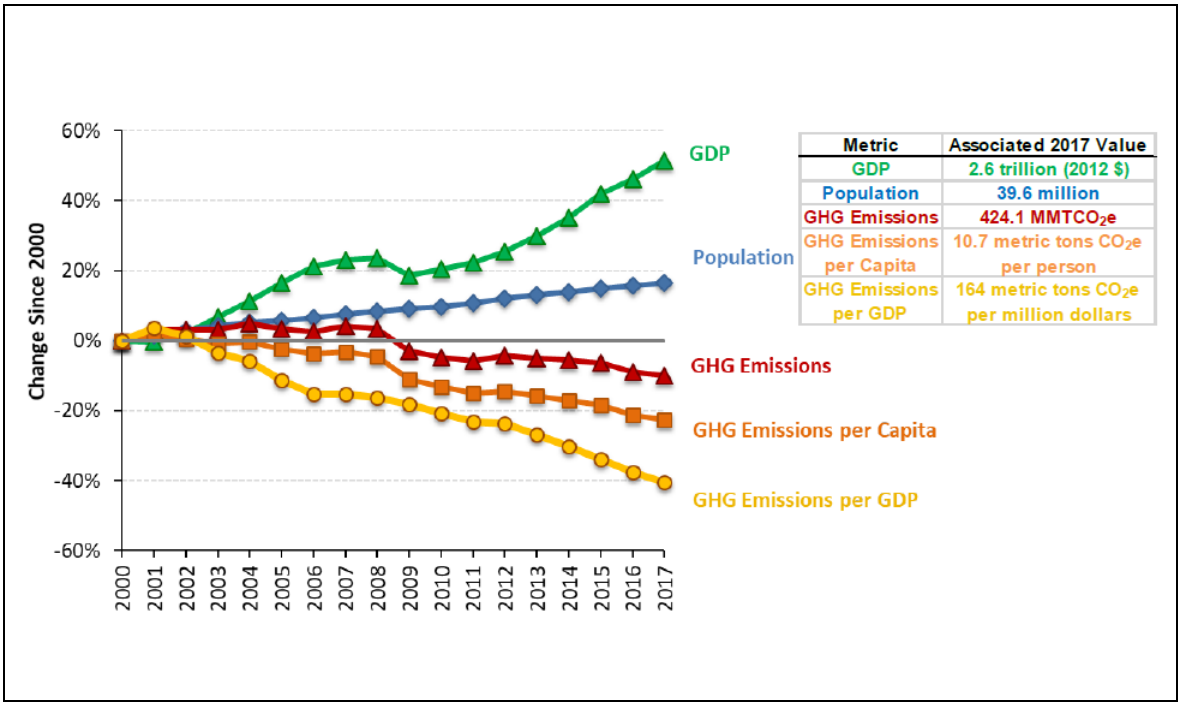

Figure 5. Change in California GDP, Population, and GHG Emissions Since 2000

AB 32 required the CARB develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020, and to update it every 5 years. CARB adopted the first scoping plan in 2008. The second updated plan, *California's 2017 Climate Change Scoping Plan*, adopted on December 14, 2017, reflects the 2030 target established in EO B-30-15 and SB 32. The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions.

Regional Plans

The CARB sets regional targets for California's 18 Metropolitan Planning Organizations (MPOs) to use in their Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) to plan future projects that will cumulatively achieve GHG reduction goals. Targets are set at a percent reduction of passenger vehicle GHG emissions per person from 2005 levels. HCAOG is not an MPO, and therefore does not have regional targets established by CARB. However, the proposed project is within the jurisdiction of the HCAOG RTPA. The *Variety in Rural Options of Mobility 2017 RTP* identifies GHG reductions goals and strategies, such as those listed below in Table 6 (HCAOG 2017).

Table 6. Regional GHG Reductions Goals and Strategies

Title	GHG Reduction Policies or Strategies
HCAOG Regional Transportation Plan (2017)	• Policy CS-3: HCAOG shall pursue grants and public-private partnerships to augment funding for infrastructure and non-infrastructure projects and planning for pedestrian, bicycle, and transit facility improvements. HCAOG shall identify and help secure the financial resources necessary to accommodate HCAOG's Complete Streets and active transportation policies adopted in the Regional Bicycle Plan, Regional Transportation Plan (VROOM), Regional Master Trails Plan, and Regional Pedestrian Plan. • Policy CS-11: Carry out policies and program funding for projects that will help achieve the goals of the Global Warming Solutions Act (California Assembly Bill 32 (2006) and Senate Bill 32 (2016)). This shall include supporting efforts to reduce non-renewable consumption and air pollution, such as projects that increase access to alternative transportation and renewable fuels, reduce congestion, reduce single-occupancy (motorized) vehicle trips, and shorten vehicle trip length, and reduce greenhouse gas emissions. • Climate Objective: Reduce motor vehicle miles traveled (VMT) and lower GHG emissions.

Title	GHG Reduction Policies or Strategies
	• Policy Climate C-2: Promote active transportation, ridesharing, rail, and public/mass transit promoting policies for the co-benefit of reducing air pollution when they replace motor vehicle trips. • Policy Climate C-3: Support local communities in developing integrated transportation and land use strategies for responding resiliently to climate change, and codifying such strategies in General Plans, Regional Transportation Plans, and Local Coastal Programs • Policy Climate C-4: HCAOG will support and plan transportation and projects that provide safe and convenient travel modes for people who cannot or choose not to drive. • Policy Climate C-5: HCAOG will promote and support land use policies that accommodate or reinforce planning, designing, and building a truly multimodal transportation network.

Project Analysis

GHG emissions from transportation projects can be divided into those produced during operation of the SHS and those produced during construction. The primary GHGs produced by the transportation sector are CO_2, CH_4, N_2O, and HFCs. CO_2 emissions are a product of the combustion of petroleum-based products, like gasoline, in internal combustion engines. Relatively small amounts of CH_4 and N_2O are emitted during fuel combustion. In addition, a small amount of HFC emissions are included in the transportation sector.

The CEQA Guidelines generally address greenhouse gas emissions as a cumulative impact due to the global nature of climate change (Public Resources Code, § 21083(b)(2)). As the California Supreme Court explained, "because of the global scale of climate change, any one project's contribution is unlikely to be significant by itself." (Cleveland National Forest Foundation *v.* San Diego Assn. of Governments (2017) 3 Cal.5th 497, 512.) 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. Although climate change is ultimately a cumulative impact, not every individual project that emits greenhouse gases must necessarily be found to contribute to a significant cumulative impact on the environment.

Operational Emissions

The purpose of the proposed project is to upgrade bridge rails and shoulder widths to meet current design standards. The project would not increase the vehicle capacity of the roadway. This type of project generally causes minimal or no increase in operational GHG emissions. Because the project would not increase the number of travel lanes on SR 36, no increase in vehicle miles traveled (VMT) would occur as result of project implementation. While some GHG emissions during the construction period would be unavoidable, no increase in operational GHG emissions is expected.

Construction Emissions

Construction GHG emissions would result from material processing, on-site construction equipment, and 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 offset to some degree by longer intervals between maintenance and rehabilitation activities.

The 2018 Caltrans Construction Emissions Tool (CAL-CET2018) version 1.2 was used to estimate carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), and emissions from construction activities. Table 7 summarizes estimates of GHG emissions generated by onsite equipment for the proposed project. The estimates are based on the scenario that the three bridges would be constructed simultaneously over two years. Estimated construction working days are described in Chapter 1. The carbon dioxide equivalent (CO_2e) produced during construction is estimated to be approximately 617 tons.

Table 7. Estimated Construction Emissions in U.S. Tons

Construction Year	CO_2	CH_4	N_2O	HFCs	CO_2e*
2022	224	0.007	0.012	0.007	331
2023	150	0.004	0.010	0.009	286
Total	374	0.011	0.022	0.016	617

* A quantity of GHG is expressed as carbon dioxide equivalent (CO_2e) that can be estimated by the sum after multiplying each amount of CO_2, CH_4, N_2O, and HFCs by its global warming potential (GWP). Each GWP of CO_2, CH_4, N_2O, and HFCs is 1, 25, 298, and 14,800, respectively.

All construction contracts include Caltrans Standard Specifications Sections 7-1.02A and 7-1.02C, Emissions Reduction, which require contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all Air Resources Board (ARB) emission reduction regulations; and Section 14-9.02, Air Pollution Control, which requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes. Certain common regulations (such as equipment idling restrictions) that reduce construction vehicle emissions also help reduce GHG emissions.

CEQA Conclusion

While the proposed project will result in GHG emissions during construction, it is anticipated that the project will not result in any increase in operational GHG emissions. The proposed project does not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. With implementation of construction GHG-reduction measures, the impact would be less than significant.

Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

Greenhouse Gas Reduction Strategies

Statewide Efforts

Major sectors of the California economy, including transportation, will need to reduce emissions to meet the 2030 and 2050 GHG emissions targets. Former Governor Edmund G. Brown promoted GHG reduction goals (Figure 6) that involved (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent our electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farms and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the state's climate adaptation strategy, *Safeguarding California*.

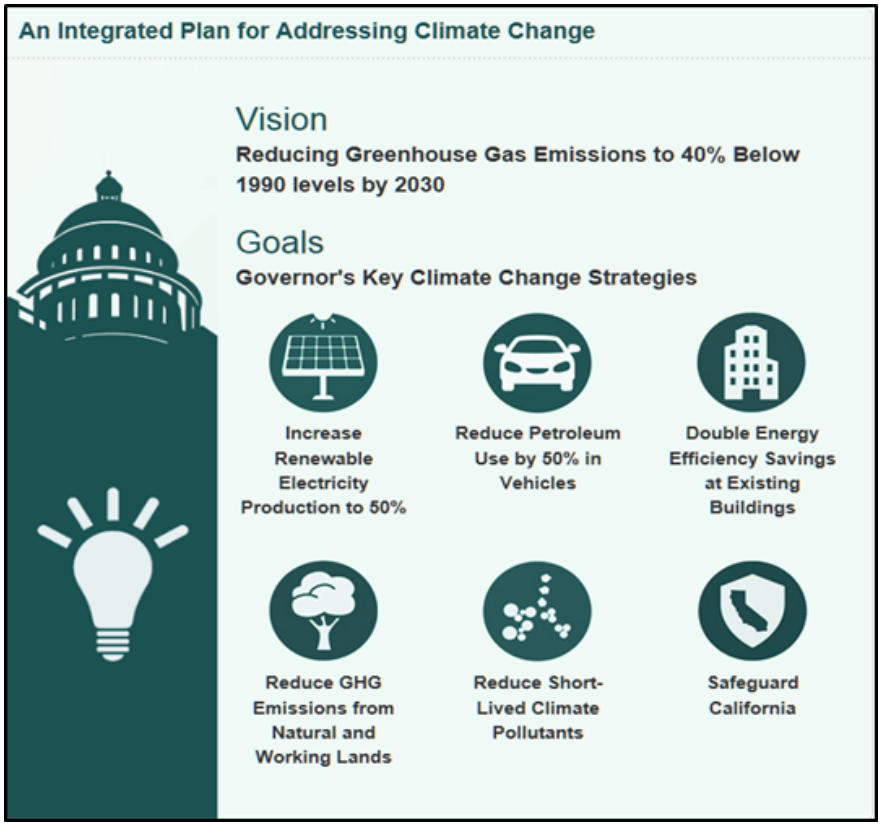

Figure 6. California Climate Strategy

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that the state build on past successes in reducing criteria and toxic air pollutants from transportation and goods movement. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled (VMT). A key state goal for reducing GHG emissions is to reduce today's petroleum use in cars and trucks by up to 50 percent by 2030 (State of California 2019).

In addition, SB 1386 (Wolk 2016) established as state policy the protection and management of natural and working lands and requires state agencies to consider that policy in their own decision making. Trees and vegetation on forests, rangelands, farms, and wetlands remove carbon dioxide from the atmosphere through biological processes and sequester the carbon in above- and below-ground matter.

Caltrans Activities

Caltrans continues to be involved on the Governor's Climate Action Team as the California Air Resources Board (CARB) works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-15, issued in April 2015, and SB 32 (2016), set an interim target to cut GHG emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

California Transportation Plan (CTP 2040)

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. In 2016, Caltrans completed the *California Transportation Plan 2040*, which establishes a new model for developing ground transportation systems, consistent with CO_2 reduction goals. It serves as an umbrella document for all the other statewide transportation planning documents. Over the next 25 years, California will be working to improve transit, reduce long-run repair and maintenance costs of roadways, and developing a comprehensive assessment of climate-related transportation demand management and new technologies rather than continuing to expand capacity on existing roadways.

SB 391 (Liu 2009) requires the CTP to meet California's climate change goals under AB 32. Accordingly, the CTP 2040 identifies the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the state's transportation needs. While Metropolitan Planning Organizations (MPOs) have primary responsibility for identifying land use patterns to help reduce GHG emissions, CTP 2040 identifies additional strategies in Pricing, Transportation Alternatives, Mode Shift, and Operational Efficiency.

Caltrans Strategic Management Plan

The Strategic Management Plan, released in 2015, creates a performance-based framework to preserve the environment and reduce GHG emissions, among other goals. Specific performance targets in the plan that will help to reduce GHG emissions include:

- Increasing percentage of non-auto mode share
- Reducing VMT
- Reducing Caltrans' internal operational (buildings, facilities, and fuel) GHG emissions

Funding and Technical Assistance Programs

In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several sustainable transportation planning grants. These grants encourage local and regional multimodal transportation, housing, and land use planning that furthers the region's RTP/SCS; contribute to the State's GHG reduction targets and advance transportation-related GHG emission reduction project types/strategies; and support other climate adaptation goals (e.g., *Safeguarding California*).

Caltrans Policy Directives and Other Initiates

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities. Caltrans *Activities to Address Climate Change* (April 2013) provides a comprehensive overview of Caltrans' statewide activities to reduce GHG emissions resulting from agency operations.

Project-Level Greenhouse Gas Reduction Strategies

The following measures will also be implemented in the project to reduce greenhouse gas emissions and potential climate change impacts from the project.

- Caltrans Standard Specifications, Section 7-1.02C, Emissions Reduction: requires the contractor to certify awareness of, and comply with, the emissions reduction regulations mandated by the California Air Resources Board (CARB).
- Caltrans Standard Specifications, Section 14-9.02, Air Pollution Control: requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes of the CARB and the local air pollution control district.
- Standard construction best management practices for air quality would also apply. Such air-pollution control measures can also help reduce construction GHG emissions.
- Traffic and Transportation measures would also reduce/ minimize GHG emissions during construction:
- Pedestrian and bicycle access would be maintained during construction, to avoid such users having to transfer to using motor vehicles.

- A Traffic Management Plan (TMP) would be implemented in the project to maintain traffic flow and minimize delays and idling that would generate extra GHG emissions.
- Measures to preserve and restore trees and vegetation would help prevent loss of carbon storage potential in the project area:
    - Tree and vegetation removal would be minimized to the extent necessary to construct the project. Where feasible, large trees would be protected in place.
    - A revegetation plan would be implemented to restore the project area to pre-construction conditions with native tree and plant species. Replanting would be subject to a plant establishment period as defined by project permits, which would require Caltrans to adequately water plants, replace unsuitable plants, and control pests.
- Earthwork would be balanced as much as possible to reduce the need for transport of cut and fill materials.
- Salvaging materials for re-use (such as portions of existing abutment foundations), to conserve resources.

Adaptation Strategies

Reducing GHG emissions is only one part of an approach to addressing climate change. Caltrans must 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 their intensity, and in the frequency and intensity of wildfires. Flooding and erosion can damage or wash out roads; longer periods of intense heat can buckle pavement and railroad tracks; storm surges, combined with a rising sea level, can inundate highways. Wildfire can directly burn facilities and indirectly cause damage when rain falls on denuded slopes that landslide after a fire. Effects will vary by location and may, in the most extreme cases, require a facility be relocated or redesigned. Accordingly, Caltrans must consider these types of climate stressors in how highways are planned, designed, built, operated, and maintained.

Federal Efforts

Under NEPA assignment, Caltrans is obligated to comply with all applicable federal environmental laws and FHWA NEPA regulations, policies, and guidance.

The U.S. Global Change Research Program (USGCRP) delivers a report to Congress and the president every 4 years, in accordance with the Global Change Research Act of 1990 (15 U.S.C. Ch. 56A § 2921 et seq). The Fourth National Climate Assessment, published in 2018, presents the foundational science and the "human welfare, societal, and environmental elements of climate change and variability for 10 regions and 18 national topics, with particular attention paid to observed and projected risks, impacts, consideration of risk reduction, and implications under different mitigation pathways." Chapter 12, "Transportation," presents a key discussion of vulnerability assessments. It notes that "asset owners and operators have increasingly conducted more focused studies of particular assets that consider multiple climate hazards and scenarios in the context of asset-specific information, such as design lifetime" (USGCRP 2018).

The U.S. DOT Policy Statement on Climate Adaptation in June 2011 committed the federal Department of Transportation to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely, and that transportation infrastructure, services and operations remain effective in current and future climate conditions" (U.S. DOT 2011).

FHWA Order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*, December 15, 2014) established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. FHWA has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, state, and local levels (FHWA 2019).

State Efforts

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system. California's *Fourth Climate Change Assessment* (State of California 2018) is the state's effort to "translate the state of climate science into useful information for action" in a variety of sectors at both statewide and local scales. It adopts the following key terms used widely in climate change analysis and policy documents:

- *Adaptation* to climate change refers to adjustments in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

- *Adaptive capacity* is the "combination of the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to prepare for and undertake actions to reduce adverse impacts, moderate harm, or exploit beneficial opportunities."

- *Exposure* is the presence of people, infrastructure, natural systems, and economic, cultural, and social resources in areas that are subject to harm.

- *Resilience* is the "capacity of any entity—an individual, a community, an organization, or a natural system—to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience". Adaptation actions contribute to increasing resilience, which is a desired outcome or state of being.

- *Sensitivity* is the level to which a species, natural system, or community, government, etc., would be affected by changing climate conditions.

- *Vulnerability* is the "susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt." Vulnerability can increase because of physical (built and environmental), social, political, and/or economic factor(s). These factors include, but are not limited to ethnicity, class, sexual orientation and identification, national origin, and income inequality. Vulnerability is often defined as the combination of sensitivity and adaptive capacity as affected by the level of exposure to changing climate.

Several key state policies have guided climate change adaptation efforts to date. Recent state publications produced in response to these policies draw on these definitions.

EO S-13-08, issued by then-governor Arnold Schwarzenegger in November 2008, focused on sea-level rise and resulted in the *California Climate Adaptation Strategy* (2009), updated in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan). The Safeguarding California Plan offers policy principles and recommendations and continues to be revised and augmented with sector-specific adaptation strategies, ongoing actions, and next steps for agencies.

EO S-13-08 also led to the publication of a series of sea-level rise (SLR) assessment reports and associated guidance and policies. These reports formed the foundation of an interim *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance) in 2010, with instructions for how state agencies could incorporate "sea-level rise (SLR) projections into planning and decision making for projects in California" in a consistent way across agencies. The guidance was revised and augmented in 2013. *Rising Seas in California—An Update on Sea-Level Rise Science* was published in 2017 and its updated projections of sea-level rise and new understanding of processes and potential impacts in California were incorporated into the *State of California Sea-Level Rise Guidance Update* in 2018.

EO B-30-15, signed in April 2015, requires state agencies to factor climate change into all planning and investment decisions. This EO recognizes that effects of climate change other than sea-level rise also threaten California's infrastructure. At the direction of EO B-30-15, the Office of Planning and Research published *Planning and Investing for a Resilient California: A Guidebook for State Agencies* in 2017, to encourage a uniform and systematic approach. Representatives of Caltrans participated in the multi-agency, multidisciplinary technical advisory group that developed this guidance on how to integrate climate change into planning and investment.

AB 2800 (Quirk 2016) created the multidisciplinary Climate-Safe Infrastructure Working Group, which in 2018 released its report, *Paying it Forward: The Path Toward Climate-Safe Infrastructure in California*. The report provides guidance to agencies on how to address the challenges of assessing risk in the face of inherent uncertainties still posed by the best available science on climate change. It also examines how state agencies can use infrastructure planning, design, and implementation processes to address the observed and anticipated climate change impacts.

Caltrans Adaptation Efforts

Caltrans Vulnerability Assessments

Caltrans is conducting climate change vulnerability assessments to identify segments of the State Highway System vulnerable to climate change effects including precipitation, temperature, wildfire, storm surge, and sea-level rise. The approach to the vulnerability assessments was tailored to the practices of a transportation agency, and involves the following concepts and actions:

- *Exposure* – Identify Caltrans assets exposed to damage or reduced service life from expected future conditions.
- *Consequence* – Determine what might occur to system assets in terms of loss of use or costs of repair.
- *Prioritization* – Develop a method for making capital programming decisions to address identified risks, including considerations of system use and/or timing of expected exposure.

The climate change data in the assessments were developed in coordination with climate change scientists and experts at federal, state, and regional organizations at the forefront of climate science. The findings of the vulnerability assessments will guide analysis of at-risk assets and development of adaptation plans to reduce the likelihood of damage to the State Highway System, allowing Caltrans to both reduce the costs of storm damage and to provide and maintain transportation that meets the needs of all Californians.

Project Adaptation Analysis

Sea-Level Rise

The proposed project is outside the Coastal Zone and not in an area subject to sea-level rise. Accordingly, direct impacts to transportation facilities due to projected sea-level rise are not expected.

Floodplains

The proposed project is within the Van Duzen River watershed, which is a tributary to the Eel River. The mean annual precipitation is 47.51 inches at Hely Creek, 60.22 inches at Little Larabee Creek and 71.64 inches at Butte Creek. A *Floodplain Evaluation Report Summary* was prepared for the project (Caltrans 2018a).

Highway 36 at Hely Creek Bridge is at an elevation of roughly 250 feet. The project area lies within the Federal Emergency Management Agency (FEMA) mapped area shown on the 06023C1455F Firmette[15] and is classified as "Other Areas", "Zone X", "Areas determined to

[15] A section of a flood insurance rate map (FIRM) developed by the Federal Emergency Management Agency

be outside the 0.2% annual chance floodplain", or "Zone D", areas in which flood hazards are undetermined, but possible.

Highway 36 at Little Larabee Creek Bridge is at an elevation of roughly 640 feet. The project area lies within the FEMA mapped area shown on the 06023C1500F Firmette and is classified as "Special Flood Hazard areas subject to inundation by the 1% annual chance flood", "Zone A"; "No Base Flood Elevations determined".

Highway 36 at Butte Creek Bridge is at an elevation of roughly 2,520 feet. The project area lies within the FEMA mapped area shown on the 06023C1525F Firmette and is classified as "Special Flood Hazard areas subject to inundation by the 1% annual chance flood", "Zone A"; "No Base Flood Elevations determined".

The proposed project would not result significant in floodplain encroachment or risk at any of the bridge locations.

Drainage

The *Caltrans Climate Change Vulnerability Assessment District 1 Technical Report* analyzed and mapped the percentage increase in the 100-year storm precipitation depth from historical conditions. The projections are based on the Representative Concentration Pathways (RCP) 8.5 Emissions Scenario[16]. The mapping indicates a percentage increase of 5.5-9.9 % through 2025, 2055, 2085 in the project area in Humboldt County (Caltrans 2019b). Heavier precipitation and extreme weather events, such as the 100-year flood, may occur as a result of climate change. A *Preliminary Hydraulics Recommendation* was prepared to address hydrology and drainage at each project location (Caltrans 2017e). Flood frequency estimates in the project limits were reviewed using NOAA Atlas 14 (in this region, historic NOAA Atlas 14 data tends to model higher precipitation levels than future climate projection tools, such as CalAdapt). This information is used to estimate flows at culverts for discharge events, based on the storm duration and average recurrence interval. The project culverts are designed to accommodate historic 100-year flood events.

The project would create minor amounts of new impervious surface but would not alter the drainage pattern of the site to result in increased flooding, erosion, or runoff.

[16] RCPs represent the most recent generation of GHG scenarios produced by the IPCC. RCP 8.5 assumes that high GHG emissions will continue to the end of the century.

Existing drainage patterns at each location would be preserved to avoid any adverse hydromodification. The rate and volume of stormwater discharged to adjacent waterbodies would be controlled by using vegetated ditches, bioswales and rock energy dissipaters (RSP). The proposed project would improve the drainage facilities to better protect the roadways compared to existing conditions.

Structure Hydraulics and Hydrology

A *Draft Hydraulic Report* was prepared by Caltrans Structure Hydraulics (Caltrans 2018b). The Watershed Modeling System program, in conjunction with the National Flood Frequency Equation, was used to calculate frequency discharge information for Hely Creek, Little Larabee Creek and Butte Creek. The U.S. Army Corps of Engineers Hydrologic Engineering Center-River Analysis System program was used to perform a one-dimensional hydraulic analysis to calculate the water surface elevations and velocity for the existing bridge pre-construction condition and post construction condition. Freeboard for both the 50 and 100-year discharge at each structure will be taken into consideration as the bridge dimensions are refined and the design details are finalized for final structure plans. None of the bridges have a history of overtopping. The proposed project is not anticipated to result in scour concerns. The structures would have adequate freeboard to pass drift. Accordingly, the project is not anticipated to increase flood risk.

Wildfire

The project corridor is located within State Responsibility Area (SRA). The project area is within lands classified as high and very high fire hazard severity zones (CALFIRE 2019). The project would widen or replace existing bridges and is not expected to exacerbate wildfire risks. Standard fire prevention measures would be implemented during construction, including:

- The names and emergency telephone numbers of the nearest fire suppression agencies would be posted at a prominent place at the job site.
- Fires occurring within and near the project limits would be immediately reported to the nearest fire suppression agency by using the emergency phone numbers retained at the job site and by dialing 911. Performance of the work would be in cooperation with fire prevention authorities.
- Project personnel would be prevented from setting open fires that are not part of the work.

- Fires caused directly or indirectly by job site activities would be extinguished and escape of fires would be prevented.
- Materials resulting from clearing and grubbing would be disposed of or managed to prevent accumulation of flammable material.

These measures would minimize wildfire risk during construction. The project would not result in changes to the highway facilities or environment that could exacerbate fire risk.

2.9. Hazards and Hazardous Materials

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			✓	
Would 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?				✓
Would 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?				✓
Would the project: d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				✓

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would 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 or excessive noise for people residing or working in the project area?				✓
Would the project: f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				✓
Would the project: g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				✓

Regulatory Setting

The primary laws governing hazardous materials include:

- California Health and Safety Code, Chapter 6.5
- Porter-Cologne Water Quality Control Act, §13000 et seq.
- CFR Titles 22, 23, and 27

Environmental Setting

An *Initial Site Assessment* (ISA) was prepared in 2014 (Caltrans 2014a) to identify potential hazardous materials that could be present within the limits of the proposed project (Caltrans 2014b). The assessment determined that the project may generate treated wood waste (TWW) and disturb aerially deposited lead (ADL) in shoulder soils, lead in paint or thermoplastic striping, and possible asbestos in the structures. Subsequent surveys were undertaken in 2017 to investigate ADL levels, and asbestos and lead-containing paint at each

bridge. Results of these studies are documented in *the Aerially Deposited Lead Site Investigation Report* and *Asbestos and Lead-Containing Paint Survey Report* prepared for each bridge (Caltrans 2017b, Caltrans 2017c, Caltrans 2017d).

Discussion of Environmental Evaluation Question 2.11—Hazards and Hazardous Materials

A "No Impact" determination was made for questions b), c), d), e), f), and g) listed within the CEQA Checklist Hazard and Hazardous Material section. Determinations were based on the scope, description and locations of the proposed project, as well as the 2019 ISA Update. See below for further discussion of the "Less Than Significant Impact" determination made for question a).

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Investigations found that the three bridges do not contain asbestos. Although asbestos was not detected, written notification to the North Coast Unified Air Quality Management District is required prior to commencement of any demolition activity. ADL levels in the shoulder soils near the bridges are low. Aerially deposited lead can be found on the surface and near-surface soils along nearly all roadways because of the historic use of tetraethyl lead in motor vehicle fuel. ADL would be addressed with 2018 *Caltrans Non-Standard Special Provision* (NSSP) 7-1.02K(6)(j)(iii) and a *Lead Compliance Plan*, which would document the compliance program to prevent or minimize worker exposure to lead.

High amounts of lead are present in yellow thermoplastic traffic stripe at Hely Creek and Butte Creek bridges. Removal, handling, and disposal of yellow thermoplastic striping with high levels of lead would follow Standard Special Provision (SSP) 14-11.12, which would specify requirements such as containment, sampling protocols and disposal documentation. Additionally, a Lead Compliance Plan would apply.

Treated wood waste would be generated from guardrail removal at all bridge locations. This would be addressed with 2018 Caltrans Standard Special Provision (SSP) 14-11.14, and a treated wood waste disposal contract item.

Caltrans specifications require the management of hazardous materials to comply with applicable laws, rules, and regulations. Best management practices would be used on-site to contain hazardous materials and avoid exposure to workers, the public and surrounding environment. An appropriate facility would be utilized for disposal of hazardous materials generated during construction. Given this, the project would not create a significant hazard to the public or environment. Therefore, a "Less Than Significant Impact" determination was made for Hazards and Hazardous Materials.

Mitigation Measures

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.10. Hydrology and Water Quality

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			✓	
Would the project: b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?				✓
Would 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 or through the addition of impervious surfaces, in a manner which would: (i) result in substantial erosion or siltation on- or off-site;			✓	
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;			✓	

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or			✓	
(iv) impede or redirect flood flows?			✓	
Would the project: d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				✓
Would the project: e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				✓

Regulatory Setting

The primary laws and regulations governing hydrology and water quality include:

- Federal Clean Water Act (CWA), 33 USC 1344
- Federal Executive Order for the Protection of Wetlands (EO 11990)
- State Sections 1600–1607 of the California Fish and Game Code (CFGC)
- State Porter-Cologne Water Quality Control Act, §13000 et seq.

Environmental Setting

Hydrology

The proposed project is within the Eel River Hydrologic Unit (HU) and the Van Duzen River watershed, which is a tributary to the Eel River. The Eel River is within the southern portion of the Northern California Coastal Basin. Tributary streams generally follow parallel courses between the northwest slopes of the California Coast Ranges. The Eel River is the third largest river in California with a drainage area of 3,684 square miles. The four primary tributaries are the Van Duzen, South Fork Eel, North Fork Eel, and Middle Fork Eel rivers. The Eel River receives a significant amount sediment due to natural hillslope erosion occurring on fragile, unconsolidated soils, and soft bedrock driven by large amounts of rainfall.

Hely Creek drains a watershed basin of approximately 3.6 square miles of forested terrain. The creek flows southwest to its confluence with the Van Duzen River approximately 300 feet downstream of the bridge. Watershed elevations range from 2400-ft to approximately 80 feet at the bridge. The channel slope at the bridge site is estimated to be 16.5 percent. The 50-year and 100-year flood frequency discharges are estimated to be 1204 cubic feet per second (cfs) and 1400 cfs, respectively.

Little Larabee Creek drains a watershed basin of approximately 13.3 square miles of forested terrain. The creek flows northwest to its confluence with the Van Duzen River approximately 350 feet downstream of the bridge. Watershed elevations range from 4000 feet to approximately 625 feet at the bridge. The channel slope at the bridge site is estimated to be 14 percent. The 50-year and 100-year flood frequency discharges are estimated to be 4144 cfs and 4767 cfs, respectively.

Butte Creek and its tributaries, which includes Horse, Swift, and Mule creeks, drain a watershed basin of approximately 15.7 square miles of forested terrain. Butte Creek flows north upstream of the bridge and then northeast to its confluence with the Van Duzen River approximately one mile downstream of the bridge. Watershed elevations range from 4,000 feet to approximately 2,300 feet at the bridge. The channel slope at the bridge site is estimated to be 12.3 percent. The 50-year and 100-year flood frequency discharges are estimated to be 5112 cfs and 5852 cfs, respectively.

Water Quality

The Van Duzen River is listed on the Clean Water Act Section 303(d) List due to impairment to water quality by sediment (U.S. EPA 1999). The U.S. EPA enforces regulations that require the establishment of TMDLs for 303(d) waterbodies to attain and maintain water quality standards. The overall goal of establishing a TMDL is to assure that all "beneficial uses" are protected and water quality objectives are met. Water quality objectives and beneficial uses are identified for all the water bodies in the North Coast Region in the *Water Quality Control Plan, for the North Coast Region (Basin Plan)* (NCRWQCB 2018).

Beneficial uses listed in the *Basin Plan* for the Van Duzen River Hydrologic Area include, but are not limited to,

- Drinking water supplies (MUN)
- Industrial (IND)
- Recreational (REC)
- Commercial and sport fishing (COMM)
- Cold water freshwater habitat (COLD)
- Migration of aquatic organisms (MIGR)
- Spawning, reproduction, and early development (SPWN)
- Wildlife habitat (WILD)
- Preservation of rare and endangered species (RARE)

The *Basin Plan* has identified the following narrative water quality objective for sediment;

The suspended sediment load and suspended sediment discharge rate to surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

Water quality objectives that may be relevant to the proposed project are identified in the *Basin Plan* and are listed below in Table 8 (NCRWQCB 2018).

Table 8. Water quality objectives for the Van Duzen River Hydrologic Area

Parameter	Objective
Temperature	(+/-) 5 ºF of background
Dissolved Oxygen (Daily Minimum Objective) (mg/L)	6.0 (COLD) -9.0 (SPWN)
Hydrogen Ion (pH)	6.5 - 8.5 (lower and upper range)

Discussion of Environmental Evaluation Question 2.12—Hydrology and Water Quality

A "No Impact" determination was made for questions b), d), and e) listed within the CEQA Checklist Hydrology and Water Quality section. Determinations were based on scope, description and locations of the proposed project, as well as the *Water Quality Assessment Report* (Caltrans 2019h), *Floodplain Evaluation Report Summary* (Caltrans 2018a), and *Stormwater Data Report* (Caltrans 2020e). See below for further discussion of the "Less Than Significant Impact" determination made for Questions a) and c).

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

The project has the potential to result in temporary impacts to water quality during construction activities, including concrete pours, and groundwater dewatering during excavations. However, these impacts would be minimized with implementation of the specific Water Pollution Control BMP Measures discussed below.

Suspended Particulates (Turbidity)

Soil disturbance during construction could result in short-term increases in turbidity to receiving waters (Hely Creek, Little Larabee Creek, and Butte Creek). To maintain water quality and to minimize the movement of soils and sediment into the channel, site specific erosion- and pollution- control measures would be implemented, such as fiber rolls and silt fence for perimeter control. A Stormwater Pollution Prevention Plan (SWPPP) would be developed for the project. Disturbed soil areas would be effectively stabilized over both the short-term and long-term. Risk of long-term impacts on physical and chemical characteristics of the aquatic environment would be low.

Oil, Grease and Chemical Pollutants

Construction activities have the potential for accidental release of oil, grease, wash water, solvents, cement, or other construction materials to receiving waters. During construction, materials and wastes could be tracked offsite by vehicles and then deposited onto roads where it may be picked up and transported into waterways. Also, saw cutting, grinding, drilling, concrete mixing, painting, and paving during construction can produce residues.

It is Caltrans standard practice to cover drainage inlets and protect receiving waters with sediment barriers during paving, saw-cutting, grooving and grinding activities. These activities are avoided during precipitation. Debris and residues would be vacuumed or swept. Drip pans or absorbent pads would be used under vehicle and equipment operation over water and during fueling and maintenance. Spill kits and cleanup materials must be kept on site. With these preventative measures, the risks of accidental release of pollutants to surface waters would be minimized.

Temperature, Oxygen, and Other Parameters

The project would require removal of riparian vegetation for the construction of temporary equipment access roads and staging areas. The project would also require vegetation removal along the shoulders of the road near culverts to accommodate the work. Vegetation adjacent to the bridges provides shade, so removal could lead to increases in water temperatures and thus result in decreases in the concentration of dissolved oxygen (DO). The amount of vegetation removed adjacent to the bridges and waterways would be the minimum necessary to complete the work. Given the type and distance of the vegetation, it is unlikely this minimal amount of clearing would result in any long-term water temperature increases. Permanent impacts would be avoided by revegetation planting and slope stabilization measures in areas disturbed by the proposed project. These measures would be

in accordance with the final Erosion Control Plans prepared by the Caltrans District 1 Landscape Architect.

Given that potential impacts would be temporary and minimized with the implementation of standard BMP's, the project is not anticipated to violate any water quality standards or waste discharge requirements or substantially degrade surface or ground water quality; therefore, a "Less Than Significant Impact" determination was made for Question a).

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

(i) result in substantial erosion or siltation on- or off-site?

As discussed under Question a) above, there would be potential for temporary increases in suspended particulates and turbidity during storm events due to disturbed soil areas in close proximity to receiving waters, but this would be minimized with the implementation of site-specific erosion and pollution control measures. The project is not anticipated to result in substantial erosion or siltation on- or off- site.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

The replacement and widening of the roadway approaches and bridge structures would add new impervious surface areas, which has the potential to increase runoff water. Total net new impervious (NNI) area resulting from the project would be 0.3 acre (approximately 0.1 acre at each bridge location).

The total new impervious surface (NIS) for all three bridge locations is 1.4 acres. The NIS is the sum of the net new impervious (NNI) and the replaced impervious surface (RIS), which includes any area where existing impervious surfaces were replaced to a depth at which the underlying soil or pervious subgrade was exposed during construction.

These additions of new impervious surface area would result in a negligible increase in flow and volume of runoff. The project would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Existing drainage patterns at each location will be preserved to avoid any adverse hydromodification. The rate and volume stormwater discharged to adjacent waterbodies would be controlled by using vegetated ditches and rock energy dissipaters, as necessary. The project is not anticipated to create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems.

As discussed above, the combined NIS area resulting from the proposed project would be greater than 1 acre. Therefore, post construction treatment BMP's are required under the Caltrans Municipal Separate Storm Water System (MS4) Permit Order No. 2012-011-DWQ (NPDES No. CAS 000003). Bioswales and biostrips would be created at all bridge locations, placed adjacent to highway shoulders, fill slopes, revegetated access areas, and drainage systems. Proposed treatment areas are shown on the project layouts in Appendix A.

Bioswales are vegetated, typically trapezoidal channels, which receive and convey storm water flows. Pollutants are removed by filtration through the vegetation, uptake by plant biomass, sedimentation, adsorption to soil particles, and infiltration through the soil. They are effective at trapping litter, heavy metals, and suspended solids (Caltrans 2012). Given that the increase in surface runoff would be negligible, and stormwater would be treated with biofiltration, the project would not provide substantial additional sources of polluted runoff.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

(iv) impede or redirect flood flows?

Hely Creek would be graded to realign the thalweg of the creek away from the eastern bridge abutment where there is localized scour and bank instability. Engineered streambed material would simulate the channel material at the site with the intent to maintain the existing characteristics of the channel. Redirecting of the stream flow would be localized to the vicinity of the bridge. The proposed project would not result in significant floodplain

encroachment at any of the bridge locations and is not expected to impede or redirect flood flows.

Given that the project is not anticipated to substantially increase erosion, siltation or surface runoff, provide sources of polluted runoff, exceed existing drainage capacity or impede or redirect flood flows, a "Less Than Significant Impact" determination was made for Question c)(i)(ii)(iii)(iv).

Mitigation Measures

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.11. Land Use and Planning

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: a) Physically divide an established community?				✓
Would the project: b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project. Potential impacts to Land Use and Planning are not anticipated as the proposed project would not divide an established community or conflict with a land use plan, policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Mitigation Measures

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.12. Mineral Resources

Question:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?				✓
Would 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?				✓

"No Impact" determinations in this section are based upon the scope, description, and location of the proposed project. There are no designated mineral resource areas of state or regional importance in the project area, and the project would not impede the extraction of any known mineral resources (Division of Mine Reclamation 2016). There would be no impact.

Mitigation Measures

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.13. Noise

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project result in: a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?				✓
Would the project result in: b) Generation of excessive ground borne vibration or ground borne noise levels?				✓
Would the project result in: c) For a project located within the vicinity of a private airstrip or 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?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project, as well as the *Air Quality and Noise Analysis for the Three Bridges Project*, dated February 7, 2020 (Caltrans 2020b). The proposed project does not construct a new highway in a new location or substantially change the vertical or horizontal alignments. Traffic volumes, composition and speeds would remain the same. Therefore, permanent noise impacts are not anticipated. Noise generated during construction would be temporary and would be minimized by standard measures and best management practices featured in Section 1.4.

Mitigation Measures

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.14. Population and Housing

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: a) Induce substantial unplanned 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)?				✓
Would the project: b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				✓

"No Impact" determinations in this section are based upon the scope, description, and location of the proposed project. The project involves the replacement and widening of existing bridge structures and would not directly or indirectly induce substantial unplanned population growth in the area by constructing housing or creating new employment, nor would it induce population growth by providing new access or opening a new area to development. The proposed project would not involve acquisition of land occupied by homes or residences and would not result in displacement of people or housing. Therefore, potential impacts on population and housing are not anticipated.

Mitigation Measures

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.15. Public Services

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: Fire protection?				✓
Police protection?				✓
Schools?				✓
Parks?				✓
Other public facilities?				✓

"No Impact" determinations in this section are based upon the scope, description, and location of the proposed project as well as the *Transportation Management Plan Update* prepared for this project, dated August 25, 2017 (Caltrans 2017f). Although there would be temporary traffic delays during construction, all emergency response agencies in the project area would be notified of the project construction schedule and would have access to SR 36 throughout the construction period. The proposed project would not result in an increased demand for space in schools, parks, or public facilities in the area. Access to schools would not be affected because the TMP would ensure school bus routes are not impeded. As such, potential impacts on Public Services are not anticipated.

Mitigation Measures

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.16. Recreation

Question	Potentially Significant Impact	Less Than Significant 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?				✓
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				✓

"No Impact" determinations in this section are based upon the scope, description, and location of the proposed project. The project would involve the widening and/ or replacement of existing bridge structures and would not result in an increased demand for park resources that could cause deterioration of existing parks or recreational facilities. Additionally, the proposed project does not include the construction of park resources or recreational facilities or the expansion of such facilities. Therefore, potential impacts on recreation are not anticipated.

Mitigation Measures

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.17. Transportation/Traffic

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?				✓
Would the project: b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?				✓
Would the project: c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				✓
Would the project: d) Result in inadequate emergency access?				✓

"No Impact" determinations are based on the scope, description, and locations of the proposed project as well as the *Transportation Management Plan Update* prepared for this project, dated August 25, 2017 (Caltrans 2017f). Although there would be temporary traffic delays on SR 36 during construction, there would not be any permanent changes to transportation or traffic. During construction, bicycles would be accommodated through the construction area at all times. All emergency response agencies in the project area would be notified of the project construction schedule and would have access to Route 36 throughout the construction period. Because emergency vehicles are exempt from lane closures, effort would be made to allow police and fire vehicles to pass through construction zones without delay, therefore the project would not result in inadequate emergency access.

Mitigation Measures

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.18. Tribal Cultural Resources

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or			✓	
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.				✓

Regulatory Setting

In addition to the laws identified in Section 2.5 (Cultural Resources), the primary law governing tribal cultural resources is AB 52 (Chapter 532, Statutes of 2014).

Environmental Setting

The project area is in the ancestral territory of the Nongatl. The drainages associated with this group include the Van Duzen River, Yager Creek, a small portion of the Eel, and the upper reaches of the Mad River (Raskin and Roscoe, 2013). A Native American Heritage Commission (NAHC) sacred lands search request for the project resulted in negative findings for sacred lands. Caltrans conducted Native American consultation through letters and emails sent to tribal representatives of the Bear River Band of the Rohnerville Rancheria, Big Lagoon Rancheria, Blue Lake Rancheria, Cher-Ae Heights Rancheria, Karuk Tribe, Hoopa Valley Tribe, Round Valley Tribes, Tsnungwe Tribe and the Wiyot Tribe.

The Bear River Band of the Rohnerville Rancheria Tribal Historic Preservation Officer (THPO) Erika Cooper expressed interest in the project. As discussed in Section 2.5, records indicate the presence of a large prehistoric site, and possible ethnographic village known to contain groundstone, diagnostic tools, and midden soil. Archaeological investigations were conducted in the project areas of direct impact. A cultural monitor on behalf of the Bear River Band of Rohnerville Rancheria was present during all Phase II field excavations in 2019.

Results of the project archaeological investigations are documented in the Archaeological Survey Report (Caltrans 2019a), Extended Phase I Report (Caltrans 2019e), Archaeological Evaluation Report (Caltrans 2020a) and Historic Property Survey Report (Caltrans 2020c).

Discussion of Environmental Evaluation Question 2.20—Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources (CRHR), or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

As discussed in Section 2.5, archaeological testing of cultural sites in the project area was confined to the ADI, so the sites cannot be formally evaluated. They are assumed eligible for the CRHR for the purposes of the project.

Impacts to cultural sites within the ADI would not alter the characteristics that might make them eligible to the CRHR. The portions of these sites in the ADI demonstrated a low diversity of artifact types, a lack of cultural features and no evidence of discrete activity areas. Phase II testing revealed no new or significant data in the areas of the site that would be impacted by construction. Untested portions of the sites outside of the ADI would be protected as Environmentally Sensitive Areas (ESAs) during construction. The ESAs will be identified along the right of way line to contain the equipment staging and work activities to the evaluated portions of the sites. Monitoring of ESA fencing and protection measures will be conducted during ground-disturbing activities at Little Larabee Creek Bridge and Butte Creek Bridge locations.

Native American monitoring and prehistoric archaeological monitoring would be conducted on this project, as consultation with local tribes—specifically Bear River Band of Rohnerville Rancheria revealed interest in the project location, and previous construction activities at the locations have a history or established record of Native American and archaeological monitoring. The monitoring would occur during construction with visual inspection on foot around the project limits by either a Caltrans appointed archaeological monitor or a Caltrans archaeological monitor and a Bear River Band of Rohnerville Rancheria appointed monitor.

With the implementation of ESAs, Native American and archaeological monitoring, and other standard measures featured in Section 1.4, the project is not anticipated to result in a substantial adverse change in the significance of a tribal cultural resource. Given this, a "Less Than Significant Impact" determination was made for Question a).

> ***Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:***

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Caltrans has determined that the resources in the project area are not significant resources as defined in Question b). Therefore, a "No Impact" determination was made for this question.

Mitigation Measures

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.19. Utilities and Service Systems

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities—the construction or relocation of which could cause significant environmental effects?				✓
Would the project: b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?				✓
Would the project: c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				✓
Would the project: d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?				✓

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project. As discussed in Chapter 1, the project would require the relocation of existing utilities; however, this would not result in significant environmental effects. The project would not result in a new source of wastewater or solid waste or create a new demand for water supplies; therefore, impacts to Utilities and Service Systems are not anticipated.

Mitigation Measures

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.20. Wildfire

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project: a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				✓
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				✓
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				✓
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project. The project corridor is located within State Responsibility Area (SRA). The project area is within lands classified as high and very high fire hazard severity zones (CALFIRE 2019). The project would widen or replace existing bridges and would not require new infrastructure that would exacerbate fire risks. The proposed work would not impair an adopted emergency response plan or emergency evacuation plan, exacerbate wildfire risks, or expose people or structures to significant risks; therefore, potential wildfire impacts are not anticipated.

Mitigation Measures

Based on the determinations made in the CEQA Checklist, mitigation measures have not been proposed for the project.

2.21. Mandatory Findings of Significance

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?				✓
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)				✓
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?				✓

The California Environmental Quality Act of 1970 (CEQA) requires preparation of an Environmental Impact Report (EIR) when certain specified impacts may result from construction or implementation of a project. The analysis indicated the potential impacts associated with this project would not require an EIR. Mandatory Findings of Significance are not required for projects where an EIR has not been prepared.

2.22. Cumulative Impacts

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this proposed project. A cumulative impact 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 (CEQA, Section 15355).

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

Per Section 15130 of CEQA, a Cumulative Impact Analysis (CIA) discussion is only required in "…situations where the cumulative effects are found to be significant." An EIR is required in all situations when a project might result in a "significant" direct, indirect, or cumulative impact on any resource. The analysis indicates the activities associated with the geotechnical investigation do not have the potential to have a direct, indirect, or cumulative impact on any resource. Given this, an EIR and CIA were not required for this project.

Chapter 3. Agency and Public Coordination

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required, and to identify potential impacts and avoidance, minimization and/or mitigation measures, and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including Project Development Team (PDT) meetings, interagency coordination meetings, and field visits. This chapter summarizes the results of Caltrans' efforts to identify, address, and resolve project-related issues through early and continuing coordination.

The following agencies, organizations, and individuals were consulted in the preparation of this environmental document.

Coordination with Resource Agencies

Table 9. Coordination With Resource Agencies

Coordination Effort	Date	Personnel
Level 1 coordination meeting	August 23, 2017	Alexandra Laughtin, Caltrans Biologist Dotrik Wilson, Caltrans Environmental Senior Douglas Adams, Caltrans Environmental Coordinator Greg Schmidt, USFWS liaison JoAnne Loehr, CDFW Mike Kelly, NMFS Reed Crane, Caltrans Biologist
USACE field review of Hwy 36 projects	March 21, 2019	Cassie Nichols, Caltrans Environmental Coordinator Dan Breen, USACE Robert Meade, USACE
Section 4(f) coordination via telephone and email	May 7, 2019 to present (ongoing)	Hank Seeman, Humboldt County Environmental Services Julie East, Caltrans Environmental Senior Kellie Eldridge, Caltrans Environmental Coordinator
Interagency field review	June 13, 2019	Ali Thiel, Caltrans Biologist Greg Schmidt, USFWS Jamie Jackson, CDFW Kellie Eldridge, Caltrans Environmental Coordinator Mike Greer, Dokken Engineering Mike Kelly, NMFS Siraj Sarieddine, Caltrans Design

Coordination Effort	Date	Personnel
Email coordination regarding the CA Wild and Scenic Rivers Act	July 2, 2019 – July 16, 2019	Heather Baugh, California Natural Resources Agency (CNRA) Kellie Eldridge, Caltrans Environmental Coordinator
Email coordination regarding the National Wild and Scenic Rivers Act	July 2, 2019 – July 17, 2019	Stephen Bowes, National Park Service (NPS) Kellie Eldridge, Caltrans Environmental Coordinator
Written correspondence with CDW and NCRWQCB regarding parcel acquisition and a cooperative agreement as wetland mitigation for transportation projects in the Lower Eel watersheds	August 26, 2019 – October 7, 2019 (ongoing)	Brandon Larsen, Caltrans Office Chief -North Region Environmental-District 1 Tina Bartlett, CDFW Gil Falcone, NCRWQCB Jonathan Warmerdam, NCRWQCB
Coordination with CDFW regarding incidental take of coho salmon and potential mitigation through American bullfrog eradication	September 25, 2019 - to present (ongoing)	Stephanie Frederickson, Caltrans Senior Biologist CDFW Headquarters
Federal Endangered Species Act Technical Assistance	April 9, 2020	Greg Schmidt, USFWS Stephanie Fredrickson, Caltrans Senior Biologist Hilary Sundeen, Caltrans Biologist Amanda Lee, Caltrans Environmental Coordinator
Hely Creek Site Visit with Humboldt County	May 15, 2020	Pat Boyle, Humboldt County Senior Park Caretaker Summer Daugherty, Humboldt County Senior Environmental Analyst Amanda Lee, Caltrans Environmental Coordinator

Coordination with Property Owners

Permits to enter were obtained in 2017, 2018, and 2019 to access several properties within the project Environmental Study Limits to perform environmental studies.

A copy of this document will be mailed to owners and occupants of properties within and adjacent to the project area, including Humboldt Redwood Company, private landowners and Humboldt County Environmental Services—the agency that manages Van Duzen County Park, which is adjacent to the project area.

Coordination with Tribes

Native American Consultation was conducted by Caltrans archaeologist Tina Fulton. Letters and emails were sent to tribal representatives of the Bear River Band of the Rohnerville Rancheria, Big Lagoon Rancheria, Blue Lake Rancheria, Cher-Ae Heights Rancheria, Karuk Tribe, Hoopa Valley Tribe, Round Valley Tribes, Tsnungwe Tribe and the Wiyot Tribe.

Erika Cooper, the Tribal Historic Preservation Officer (THPO) for the Bear River Band of the Rohnerville Rancheria, was interested in the project and appointed Robert Pepetone to be the cultural monitor who was present during all Phase II field excavations, which occurred between September 17 to 25, 2019, and September 30 to October 4, 2019.

Chapter 4. List of Preparers

The following individuals performed the environmental work on the project:

California Department of Transportation, District 1

Amanda Lee	Associate Environmental Planner (Coordinator)
Barbara Wolf	Senior Environmental Planner (Greenhouse Gas, Climate Change)
Brandon Larsen	Supervising Environmental Planner (Environmental Office Chief)
Hilary Sundeen	Associate Environmental Planner (Biologist)
Jason Meyer	Senior Environmental Planner (Environmental Project Manager)
Jen Buck	Transportation Engineer (Project Manager)
Karen Radford	Associate Government Program Analyst (Technical Editor)
Laura Lazzarotto	Landscape Architect (Aesthetics)
Ryan Pommerenck	Transportation Engineer (Air, Noise, Greenhous Gas, Hydroacoustic)
Samantha Hadden	Design Stormwater Coordinator (Water Quality)
Siraj Sarieddine	Transportation Engineer (Lead Project Engineer)
Steve Werner	Engineering Geologist (Hazardous Waste)
Tim Keefe	Senior Environmental Planner (Cultural Resources)
Tina Fulton	Associate Environmental Planner (Archaeologist)
Youngil Cho	Air Quality Specialist (Energy)

Consultants

Eric Tjossem	RMM Environmental Planning, Inc. (Arborist)
Kim Scott	Cogstone Resource Management Inc. (Paleontology)
Kyle Wear	RMM Environmental Planning, Inc. (Botany, Wetlands)
Jordan Mayor	International Consulting Firm (Forest Ecologist)
Margaret Widdowson	International Consulting Firm (Botany, Wetlands)
Michael Greer	Dokken Engineering (Design Consultant)

Chapter 5. Distribution List

Federal and State Agencies

Daniel Breen, Senior Regulatory Project Manager, U.S. Army Corps of Engineers

Gordon Leppig, Senior Environmental Scientist, California Department of Fish & Wildlife

Greg Schmidt, USFWS Caltrans Liaison, U.S. Fish and Wildlife Service

Jennifer Olson, Senior Environmental Scientist, California Department of Fish & Wildlife

Mike Kelly, NMFS Caltrans Liaison, National Marine Fisheries Service

Susan Stewart, Environmental Scientist, North Coast Regional Water Quality Control Board

Regional/County/Local Agencies

Hank Seemann, Deputy Director, Humboldt County Environmental Services

Tribal Officials

Erika Cooper, Tribal Historic Preservation Officer (THPO)- Bear River Band of the Rohnerville Rancheria

Chapter 6. References

Alabaster, J. S. and R. Lloyd. 1980. *Water Quality Criteria for Freshwater Fish*. Second edition. Butterworths, Inc.

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken (eds.). 2012. *The Jepson Manual: Vascular Plants of California*. Second edition. Berkeley, CA: University of California Press.

Bash, J., C. Berman, and S. Bolton. 2001. *Effects of turbidity and suspended solids on salmonids*. Center for Streamside Studies, University of Washington. November 2001. 74 p.

Buehler, D. A. 2000. *Bald Eagle (Haliaeetus leucocephalus).* In The Birds of North America, No. 564 (A. Poole and F. Gill, eds.). The Birds of North America Online, Ithaca, New York.

Busby, P. J., T. C. Wainwright, G. J. Bryant, L. J. Lierheimer, R. S. Waples, F. W. Waknitz, and I. V. Lagomarsino. 1996. *Status review of west coast steelhead from Washington, Idaho, Oregon, and California*. U.S. Dep Commerce NOAA Tech Memo NMFS-NWFSC-27, Seattle, WA.

Calfish. 2016. *Pacific lamprey (Entosphenus tridentatus)*. Available: http://www.calfish.org/FisheriesManagement/SpeciesPages/PacificLamprey.aspx

California Air Resources Board (CARB). 2019a. *California Greenhouse Gas Emissions Inventory–2019 Edition*. https://ww3.arb.ca.gov/cc/inventory/data/data.htm. Accessed: August 21, 2019.

California Air Resources Board (CARB). 2019b. *California Greenhouse Gas Emissions for 2000 to 2017. Trends of Emissions and Other Indicators.* https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2017/ghg_inventory_trends_00-17.pdf. Accessed: August 21, 2019.

California Air Resources Board (CARB). 2019c. *SB 375 Regional Plan Climate Targets*. https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets. Accessed: August 21, 2019.

California Department of Fish and Wildlife (CDFW). 1992. *Little Van Duzen River Stream Inventory Report*. September 17, 1992.

CDFW. 1996. *Little Larabee Creek Stream Inventory Report*. June 26, 1996

_____. 2014. *South Fork Eel River Watershed Assessment.* Coastal Watershed Planning and Assessment Program. California Department of Fish and Wildlife. Available: https://www.calfish.org/ProgramsData/ConservationandManagement/CaliforniaCoastalMonitoring/MonitoredRivers/NorthCoast/SFEelRiver.aspx

_____. 2017. *Hely Creek Stream Inventory Report*. October 4, 2017.

_____. 2018a. *California Natural Community List. Vegetation Classification and Mapping Program*. (October 15, 2018 Edition). Prepared by the Wildlife and Habitat Data Analysis Branch. Sacramento, California. Available: https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities#natural%20communities%20lists.

_____. 2018b. *Protocols for Surveying and Evaluating Special Status Native Plant Populations and Natural Communities*. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline.

_____. 2018c. *Report to the Fish and Game Commission: Status Review of Lassics Lupine (Lupinus constancei)*. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=154128&inline

_____. 2019a. *California Natural Diversity Database*. BIOS Viewer. Available: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp Accessed: October 11, 2019.

_____. 2019b. *California Wildlife Habitat Relationship System. Rana aurora Species Description*. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=1494&inline=1

_____. 2019c. *Survey of California Vegetation Classification and Mapping Standards*. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=102342&inline

_____. 2020a. *California's Invaders: Brown-Headed Cowbird*. Available: https://wildlife.ca.gov/Conservation/Invasives/Species/Cowbird

_____. 2020b. *Special Vascular Plants, Bryophytes, and Lichens List*. California Department of Fish and Wildlife, Natural Diversity Database. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline

California Department of Forestry and Fire Protection (CALFIRE). 2019. *FHSZ Viewer*. Available: https://egis.fire.ca.gov/FHSZ/. Accessed December 31, 2019.

California Department of Transportation (Caltrans). 2012. *Caltrans Storm Water Quality Handbook Biofiltration Swale Design Guidance*. Available: https://dot.ca.gov/-/media/dot-media/programs/design/documents/dg-biofiltration-swale-092712-a11y.pdf

Caltrans. 2014b. *Initial Site Assessment (ISA)*. Eureka, CA: Unpublished.

———. 2017a. *Aerially Deposited Lead Site Investigation Report*. Eureka, CA: Unpublished.

———. 2017b. *Asbestos and Lead-Containing Paint Survey Report, Butte Creek Bridge*. Eureka, CA: Unpublished.

———. 2017c. *Asbestos and Lead-Containing Paint Survey Report, Hely Creek Bridge*. Eureka, CA: Unpublished.

———. 2017d. *Asbestos and Lead-Containing Paint Survey Report, Little Larabee Creek Bridge*. Eureka, CA: Unpublished.

———. 2017e. *Preliminary Hydraulics Recommendation*. Eureka, CA: Unpublished.

———. 2017f. *Transportation Management Plan Update*. Eureka, CA: Unpublished.

———. 2018a. *Floodplain Evaluation Report Summary*. Eureka, CA: Unpublished.

———. 2018b. *Structure Hydraulics and Hydrology (Draft) Final Hydraulic Report*. Eureka, CA: Unpublished

———. 2019a. *Archaeological Survey Report for the Three Bridges Replacement Project, Humboldt County, California*. Eureka, CA: Unpublished.

———. 2019b. *Caltrans Climate Change Vulnerability Assessments District 1 Technical Report*. Prepared by WSP.

———. 2019c. *Combined Paleontological Identification Report and Paleontological Evaluation Report for the Three Bridges on State Route 36 Project, Humboldt County, California*. Eureka, CA: Unpublished.

———. 2019d. *Energy Analysis for the Three Bridges Replacement and Widening Project*. Eureka, CA: Unpublished.

———. 2019e. *Extended Phase 1 Archaeological Study Report for the Three Bridges Replacement Project*, *Humboldt County, California*. Eureka, CA: Unpublished.

———. 2019f. *Three Bridges Replacement and Widening Project, Humboldt County, California: Aquatic Resources Delineation Report*. Eureka, CA: Unpublished.

———. 2019g. *Vegetation Type Mapping for Three Bridges Replacement and Widening Project, Humboldt County, CA*. Eureka, CA: Unpublished.

———. 2019h. *Water Quality Assessment Report: Three Bridges Rail Replacement Project*. Eureka, CA: Unpublished.

———. 2020a. *Archaeological Evaluation Report (Phase II)*. Eureka, CA: Unpublished.

———. 2020b. *Air Quality and Noise Analysis for the Three Bridges Project*. Eureka, CA: Unpublished.

———. 2020c. *Historic Property Survey Report*. Eureka, CA: Unpublished.

———. 2020d. *Hydroacoustic Assessment for the Three Bridges Project*. Eureka, CA: Unpublished.

———. 2020e. *Stormwater Data Report*. Eureka, CA: Unpublished.

———. 2020f. *Three Bridges Rail Improvement and Replacement Project Natural Environment Study*. Eureka, CA: Unpublished.

———. 2020g. *Tree Impact Analysis for the Three Bridges Replacement and Widening Project on State Route 36, Humboldt County, California*. Eureka, CA: Unpublished.

———. 2020h. *Visual Impact Assessment: Bridge Rail Upgrade at 3 Locations*. Eureka, CA: Unpublished.

California Geological Survey. 2010. *Fault Activity Map of California (2010)*. Available: http://maps.conservation.ca.gov/cgs/fam/. Accessed: March 17, 2020.

California Geological Survey. 2015. *CGS Information Warehouse: Mineral Land Classification*. Available: https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html? map=mlc. Accessed: March 17, 2020.

California Native Plant Society (CNPS). 2018. *Inventory of Rare and Endangered Plants* (online edition, v7-12c). Available: http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi. Accessed: September 2019. California Native Plant Society. Sacramento, CA.

Center for Biological Diversity. 2014. *Fisher.* Available: http://www.biologicaldiversity.org/species/mammals/fisher/index.html

Costello, L. R. and Jones, K. S. 2003. *Reducing Infrastructure Damage By Tree Roots: A Compendium of Strategies*. 119 pp.

Craig, D. and P. L. Williams. 1998. *Willow Flycatcher (Empidonax traillii)*. In The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian-associated birds in California. California Partners in Flight.Availabke: http://www.prbo.org/calpif/htmldocs/riparian_v-2.html

Department of Water Resources (DWR). 2002. *Emigration of Juvenile Chinook Salmon in the Feather River, 1998-2001*. Sacramento, CA: Department of Water Resources, Division of Environmental Services.

Division of Mine Reclamation. 2016. *Mines Online*. Available: https://maps.conservation.ca.gov/mol/index.html. Accessed: March 13, 2020.

eBird. 2017. *eBird: An online database of bird distribution and abundance*. eBird, Cornell Lab of Ornithology, Ithaca, New York. Available: http://www.ebird.org.

Environmental Laboratory. (1987). *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. Vicksburg, MS: Waterways Experiment Station.

Erickson, Gregg A., et al. 2002. *Bat and Bridges Technical Bulletin (Hitchhiker Guide to Bat Roosts)*, California Department of Transportation, Sacramento CA.

Everest, F. H., and D. W. Chapman. 1972. *Habitat selection and spatial interaction by juvenile chinook salmon and steelhead trout in two Idaho streams*. J. Fish. Res. Board Can. 29:91-100.

Federal Highway Administration (FHWA). 2019. *Sustainability.* https://www.fhwa.dot.gov/environment/sustainability/resilience/. Last updated February 7, 2019. Accessed: August 21, 2019.

Federal Highway Administration (FHWA). No date. *Sustainable Highways Initiative*. https://www.sustainablehighways.dot.gov/overview.aspx. Accessed: August 21, 2019.

Gutierrez, R. J., A. B. Franklin, and W. S. LaHaye. 1995. *Spotted owl (Strix occidentalis)*. In A. Poole and F. Gill, editors. The Birds of North America 179. Washington, D.C., USA.

Hamlin, R., L. Roberts, G. Schmidt, K. Brubaker and R. Bosch. 2010. *Species assessment for the Humboldt marten (Martes americana humboldtensis)*. U.S. Fish and Wildlife Service, Arcata Fish and Wildlife Office, Arcata, California. 34 + iv pp

Harris, J. H. (1991). *Effects of brood parasitism by Brown-headed Cowbirds on Willow Flycatcher nesting success along the Kern River, California*. Western Birds 22:13-26.

Hatler, D. F., Badry, M. and Beal, A. M. M. 2003. *Management guidelines for furbearers in British Columbia: Fisher (Martes pennanti)*. In British Columbia Trappers Association Trapper Education Training Manual. British Columbia Ministry of Land, Water, and Air Protection.

Healey M.C. 1991. *Life History of the Chinook salmon (Oncorhynchus tshawytscha)*. In Pacific Salmon Life Histories Groot C. Margoles L. (eds.) UBC Press: Vancouver, Canada 564, 313, 393.

Helliwell, D. R. 1989. *Tree Roots and the Stability of Trees, Arboricultural Journal*, 13:3, 243-248, DOI: 10.1080/03071375.1989.9756424

Hickman, J. C., ed. 1996. *The Jepson Manual: Higher Plants of California. University of California Press*. Berkeley CA. 3rd printing with corrections.

Humboldt County. 2017. *Humboldt County General Plan for Areas Outside the Coastal Zone*. https://humboldtgov.org/205/General-Plan. Accessed November 2019.

Humboldt County Association of Governments. 2017. *Variety in Rural Options of Mobility Regional Transportation Plan*. December. Available: http://www.hcaog.net/sites/default/files/rtp_maps_appendices_included.pdf. Accessed: September 24, 2019.

Hunter, J. E., Fix, D., Schmidt, G. A., and Power, J. C. 2005. *Atlas of the Breeding Birds of Humboldt County, California*. Redwood Region Audubon Soc., Eureka, CA.

Jennings, M. R. and M. P. Hayes. 1994. *Amphibian and reptile species of special concern in California*. Report prepared for California Department of Fish and Game, Rancho Cordova, CA. 255 pp.

Jones, D. A., K. O'Hara. 2012. *Carbon density in managed coast redwood stands: implications for forest carbon estimation*. Forestry 85:99–110.

Laymon, Stephen A.; Halterman, Mary D. 1989. *A Proposed Habitat Management Plan for Yellow-Billed Cuckoos in California*. In: Abell, Dana L., Technical Coordinator. 1989. Proceedings of the California Riparian Systems Conference: protection, management, and restoration for the 1990s; 1988 September 22-24; Davis, CA. Gen. Tech. Rep. PSW-GTR-110. Berkeley, CA: Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture; p. 272-277.

Maser, C.; Mate, B.R.; Franklin, J.F.; Dyrness, C.T. 1981. *Natural history of Oregon coast mammals*. Gen. Tech. Rep. PNW-133. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station. 496 p.

Meyer, Jack, Philip Kaijankoski, and Jeffrey S. Rosenthal. 2011 .*A Geoarchaeological Overview and Assessment of Northwest California Cultural Resources Inventory of Caltrans District 1 Rural Conventional Highways: Del Norte, Humboldt, Mendocino, and Lake Counties*. Prepared by Far Western Anthropological Research Group, Inc. for the California Department of Transportation, District 1

Moyle, P.B., Purdy, S.E., Israel, J.A. 2008. *Salmon, steelhead, and trout in California: status of an emblematic fauna*. California Trout, San Francisco. 316 p.

NMFS . 2000. *Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act*. Available: https://www.fwspubs.org/doi/suppl/10.3996/112016-JFWM-083/suppl_file/fwma-08-01-30_reference+s02.pdf

NatureServe Explorer. 2015. *Marbled Murrelet (Brachyramphus marmoratus)*. Available: http://explorer.natureserve.org/servlet/NatureServe?searchName=Brachyramphus+marmoratus.

Newcombe, C. P. and J. O. T. Jensen. 1996. *Channel Suspended Sediment and Fisheries: A Synthesis for Quantitative Assessment of Risk and Impact*. North American Journal of Fisheries Management, 16(4): 693-727.

North Coast Regional Water Quality Control Board (NCRWQCB). 2018. *Water Quality Control Plan for the North Coast Region (Basin Plan)*.

Olson, D. F. Jr., D. F. Roy, G. A. Walters. 1990. *Coast Redwood. In Silvics of North America*. Vol. I, Conifers, 541–551. U.S. Forest Service Agricultural Handbook.

Pacific Fishery Management Council (PFMC). 2014. *Appendix A to the Pacific Coast Salmon Fishery Management Plan, as modified by Amendment 18 to the Pacific Coast Salmon Plan: Identification and description of essential fish habitat, adverse impacts, and recommended conservation measures for salmon*. Pacific Fishery Management Council, Portland, OR. September 2014. 196 p. + appendices.

Pacific Northwest Research Station. 2003. *New findings about old growth forests*. Science Update. Issue 4. 12 pp.

Raskin, K. and J. Roscoe. 2013. *A Cultural Resources Investigation of the California Department of Fish and Wildlife Middle Van Duzen River Phase 5 Upslope Restoration Project R1-HU087, Humboldt County, California* . Cultural Resources Facility, Humboldt State University.

Robertson, M. J., D. A. Scruton, R. S. Gregory, and K. D. Clarke. 2006. *Effect of Suspended Sediment on Freshwater Fish and Fish Habitat*. Canadian Technical Report of Fisheries and Aquatic Sciences 2644: v +37 pp.

Sawyer, J. O., T. Keeler-Wolf, and J. Evens. 2009. *A Manual of California Vegetation*. 2nd edition. Sacramento, CA: California Native Plant Society.

Singer, S. 2012. *Old-Growth Forests of the Santa Cruz Mountains: A Rare and Valuable Resource*. Santa Cruz Mountains Bioregional Council. Available: http://www.scmbc.org/old-growth-forests-of-scmtns.

Smiley, E.T, B. Fraedrick, and N. Hendrickson. 2002. *Tree risk management. Bartlett Tree Research Laboratory*.

Smiley, T. E. 2009. *Sidewalk Repair Near Trees, Bartlett Tree Research Laboratories Technical Report*. Bartlett Tree Experts, Inc. pp. 3.

Spence, B.C. et al., 1996. *An ecosystem approach to salmonid conservation*. TR-4501-96-6057. ManTech Environmental Research Services Corp. Corvallis, OR.

Squires, J. R. and R. T. Reynolds. 1997. *Northern Goshawk (Accipiter gentilis), version 2.0*. In The Birds of North America (A. F. Poole and F. B. Gill, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bna.298

State of California. 2018. *California's Fourth Climate Change Assessment*. http://www.climateassessment.ca.gov/. Accessed: August 21, 2019.

State of California. 2019. *California Climate Strategy*. https://www.climatechange.ca.gov/. Accessed: August 21, 2019.

Throp, R. T., D. S. Horning, Jr., L. L. Dunning. 1983. *Bumble Bees and Cuckoo Bumble Bees of California*. Bulletin of the California Insect Survey Volume 23. pp. 33–35. ISBN 0-520-09645-2.ISA, 479 pp.

United States Army Corps of Engineers (U.S. ACE) 2010. Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). ed. J. S. Wakeley, R. W. Lichvar, and C.V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Department of Transportation (U.S. DOT). 2011. *Policy Statement on Climate Change Adaptation*. June. https://www.fhwa.dot.gov/environment/sustainability/resilience/policy_and_guidance/usdot.cfm. Accessed: August 21, 2019.

United States Environmental Protection Agency (U.S. EPA). 1980. Ambient Water Quality Criteria for Copper - 1980. EPA, Publication 440/5-80-036, Washington, DC. 162p.

U.S. EPA. 1999. *Van Duzen River and Yager Creek Total Maximum Daily Loads for Sediment*. Available: https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/vanduzenriver/pdf/vanduzen.pdf

_____. 2009. *Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Section 202(a) of the Clean Air Act*. https://www.epa.gov/ghgemissions/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a-clean. Accessed: August 21, 2019.

_____. 2018. *Inventory of U.S. Greenhouse Gas Emissions and Sinks.* https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks. Accessed: August 21, 2019.

U.S. Fish and Wildlife Service (USFWS). 1997. *Recovery Plan for the Threatened Marbled Murrelet (Brachyramphus marmoratus) in Washington, Oregon, and California*. Portland, Oregon. 203 pp.

USFWS. 2007. *Recovery Plan for the Pacific Coast Population of the Western Snowy Plover (Charadrius alexandrinus nivosus)*. In 2 volumes. Sacramento, California. xiv + 751 pages.

_____. 2010. *Best Management Practices to Minimize Adverse Effects to Pacific Lamprey (Entosphenus tridentatus)*. Available: https://www.fws.gov/pacificlamprey/Documents/Best%20Management%20Practices%20for%20Pacific%20Lamprey%20April%202010%20Version.pdf

_____. 2011a. *Golden Eagles Status Fact Sheet*. Available: https://www.fws.gov/migratorybirds/pdf/management/golden-eagle-fact-sheet.pdf

_____. 2011b. *Revised Recovery Plan for the Northern Spotted Owl (Strix occidentalis caurina)*. Available: http://ecos.fws.gov/docs/recovery_plan/RevisedNSORecPlan2011_1.pdf.

_____. 2012. *Protocol for Surveying Proposed Management Activities That May Impact Northern Spotted Owls*. Available: https://www.fws.gov/yreka/ES/2012RevisedNSOprotocol-2-15-12.pdf.

_____. 2019. *Endangered and Threatened Wildlife and Plants; Removal of Howellia aquatilis (Water Howellia) From the List of Endangered and Threatened Plants*. A Proposed Rule by the Fish and Wildlife Service on 10/07/2019. Available: https://www.govinfo.gov/content/pkg/FR-2019-10-07/pdf/2019-21645.pdf

U.S. Geological Survey. 2019. *Science in Your Watershed, Locate Your Watershed, Watersheds in 18 California Region. Lower Eel Watershed—18010105*. Available: https://water.usgs.gov/wsc/cat/18010105.html#.html

U.S. Global Change Research Program (USGCRP). 2018. *Fourth National Climate Assessment*. https://nca2018.globalchange.gov/. Accessed: August 21, 2019.

White, C., N. Clum, T. Cade and W. Hunt. 2002. *Peregrine Falcon (Falco peregrinus)*. In: The Birds of North America, No. 660, A. Poole and F. Gill, eds. The Birds of North America, Inc. Philadelphia, Pennsylvania. Accessed online at http://bna.birds.cornell.edu/BNA/.

Zielinski, William J.; Mazurek, Mary Jo; Zinck, Jan. 2007. *Identifying the species of bats*

roosting in redwood basal hollows using genetic methods. Northwest Science 81(2): 155-162.

Zielinski, W. J., R. L. Truex, J. R. Dunk, and T. Gaman. 2006. *Using Forest Inventory Data to Assess Fisher Resting Habitat Suitability in California*. Ecological Applications, 16(3), 2006, pp. 1010-1025.

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JoAnn Loehr, Senior Environmental Scientist Specialist, Coastal Conservation Planning – Northern Region, California Department of Fish and Wildlife

Keith Lackey, Humboldt Redwood Company

Mike Kelly, Fisheries Biologist, National Marine Fisheries Service

Appendix A. Project Layouts

Dist			TOTAL PROJECT		
01	HUM	36	11.46	X	X

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

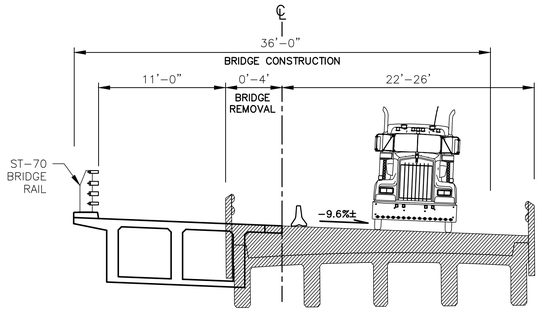
REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

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

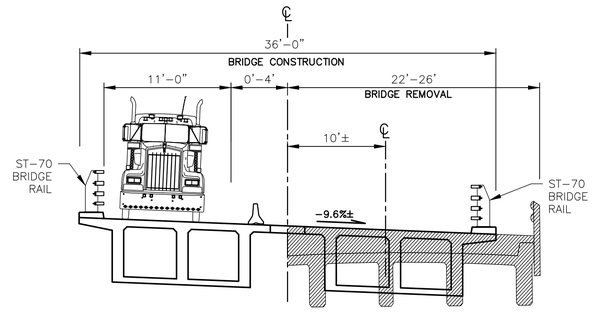
DOKKEN ENGINEERING
110 BLUE RAVINE RD.
SUITE 200
FOLSOM , CA 95630

LEGEND:

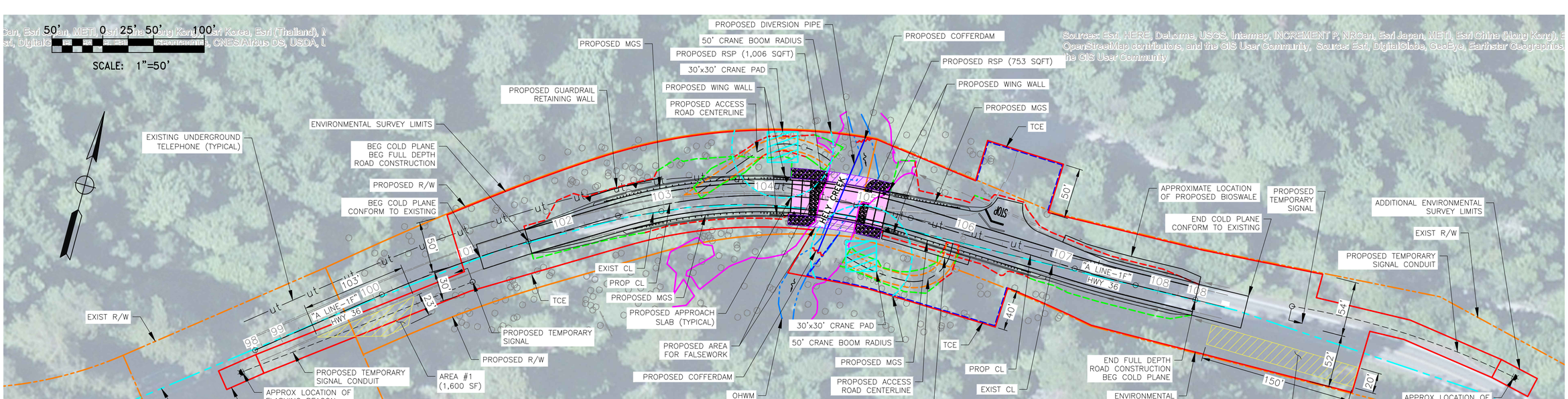
- Prop. ROW
- EXIST ROW
- TCE
- PARCEL LINE
- CUT/FILL LIMITS
- ACCESS ROAD
- ENVIRONMENTAL SURVEY LIMITS (ESL)
- ORDINARY HIGH WATER MARK (OHWM)
- WATER SURFACE ELEVATION FOR 100 YEAR DISCHARGE
- LIMITS OF BRIDGE WORK
- STAGING AREA



STAGE 1



STAGE 2



PLAN VIEW

CAST IN PLACE CONSTRUCTION SCENARIO

DOKKEN JOB #2347

HELY CREEK

SHEET 1	EA 01-0C500	PM 11.46

EA 01-0C500

LAST REVISION 00-00-00 | DATE PLOTTED => 6/3/2020 | TIME PLOTTED => 10:04 AM

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA — DEPARTMENT OF TRANSPORTATION — Caltrans

FILE NAME => \\KINGS\PROJECTS\2347 CALTRANS_03A2392_T015_BRIDGE_RAIL\511\EXHIBITS\CONSTRUCTION SCENARIO\2347_HELY_CIP.DWG

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

Dist			TOTAL PROJECT		
01	HUM	36	11.46	X	X

REGISTERED CIVIL ENGINEER — DATE

PLANS APPROVAL DATE

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DOKKEN ENGINEERING
110 BLUE RAVINE RD.
SUITE 200
FOLSOM , CA 95630

LEGEND:

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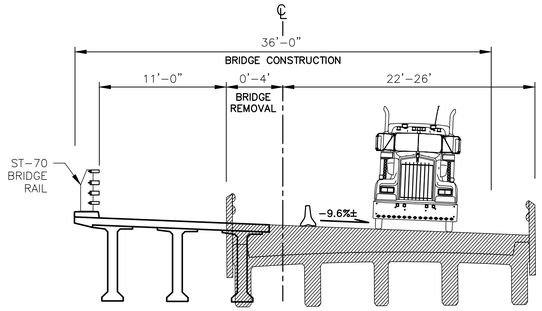
- LIMITS OF BRIDGE WORK
- STAGING AREA



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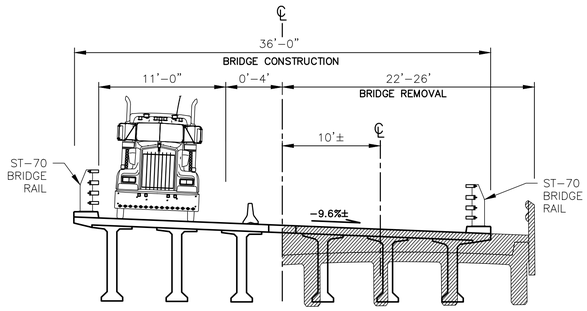

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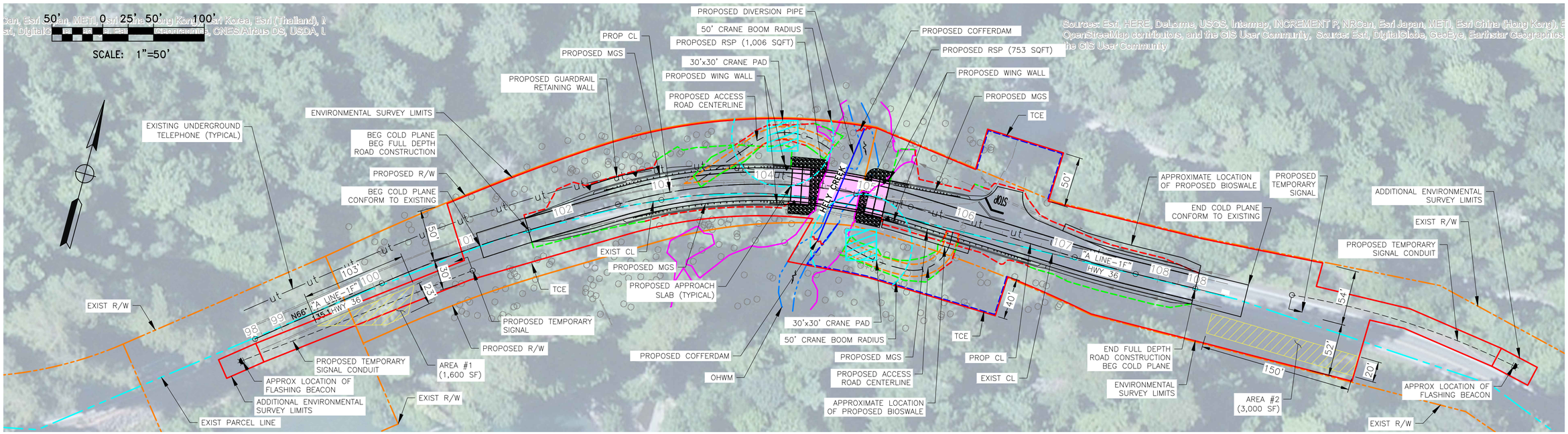

PLAN VIEW

PRECAST CONSTRUCTION SCENARIO

HELY CREEK

SHEET 1	EA 01-0C500	PM 11.46

DOKKEN JOB #2347

REVISED BY	DATE REVISED

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Caltrans

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

EA 01-0C500

Dist			TOTAL PROJECT		
01	HUM	36	11.46	X	X

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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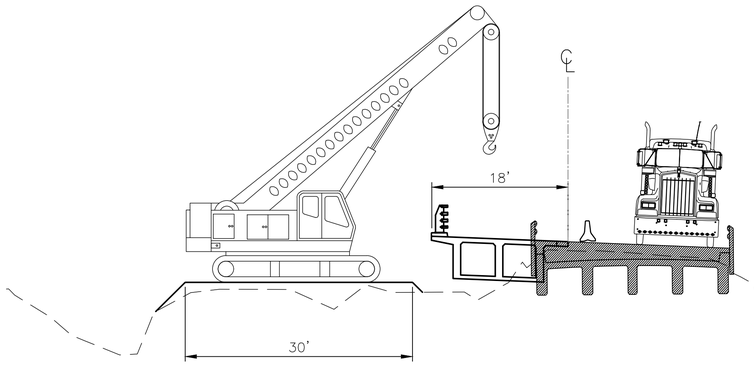

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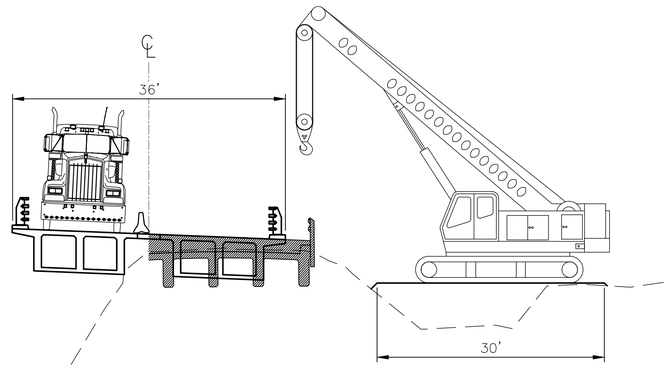
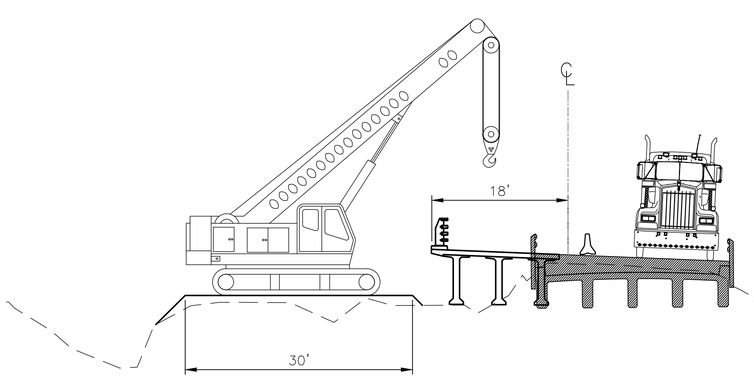


STAGE 2

CAST IN PLACE
SECTION VIEW



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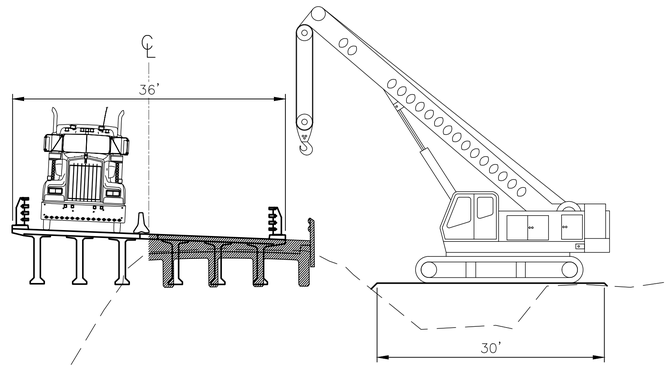

STAGE 2

PRECAST
SECTION VIEW

CONSTRUCTION SCENARIO

HELY CREEK

SHEET 1	EA 01–0C500	PM 11.46

DOKKEN JOB #2347

EA 01–0C500

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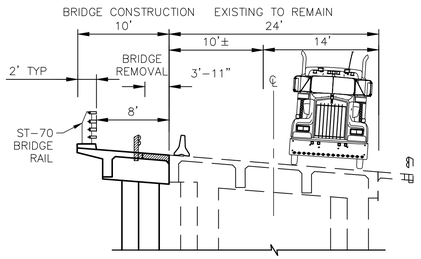
FILE NAME => \\KINGS\PROJECTS\2347 CALTRANS_03A2392_T015_BRIDGE_RAIL\511\EXHIBITS\CONSTRUCTION SCENARIO\2347_HELY_PRECAST.DWG

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3



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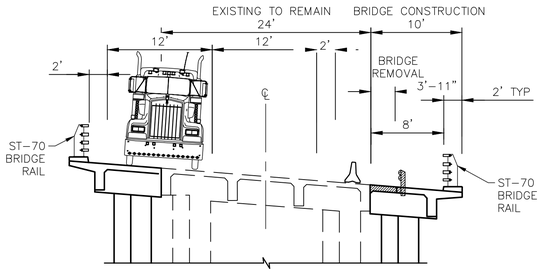

STAGE 2

Dist			TOTAL PROJECT		
01	HUM	36	25.27	X	X

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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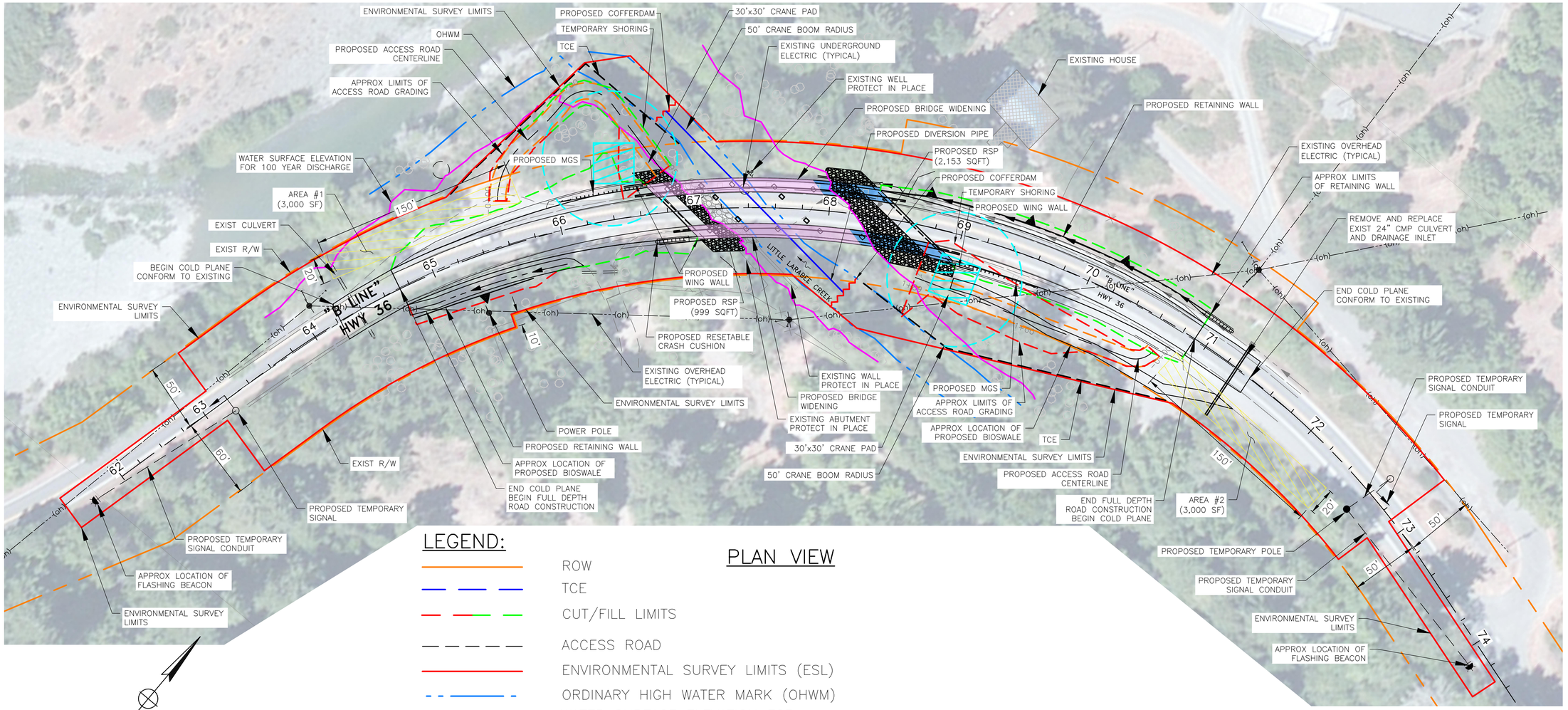

LEGEND:

PLAN VIEW

- ROW
- TCE
- CUT/FILL LIMITS
- ACCESS ROAD
- ENVIRONMENTAL SURVEY LIMITS (ESL)
- ORDINARY HIGH WATER MARK (OHWM)
- WATER SURFACE ELEVATION FOR 100 YEAR DISCHARGE
- STAGING AREA
- BRIDGE WIDENING (PIERS ON SPREAD FOOTINGS)
- BRIDGE WIDENING (PIERS WITH PILES)

40 0 20 40 80

SCALE: 1"=40'

CAST IN PLACE CONSTRUCTION SCENARIO

DOKKEN JOB #2347

LITTLE LARABEE CREEK

SHEET 1	EA 01-0C500	PM 25.27

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

EA 01-0C500

Dist			TOTAL PROJECT		
01	HUM	36	25.27	X	X

REGISTERED CIVIL ENGINEER — DATE

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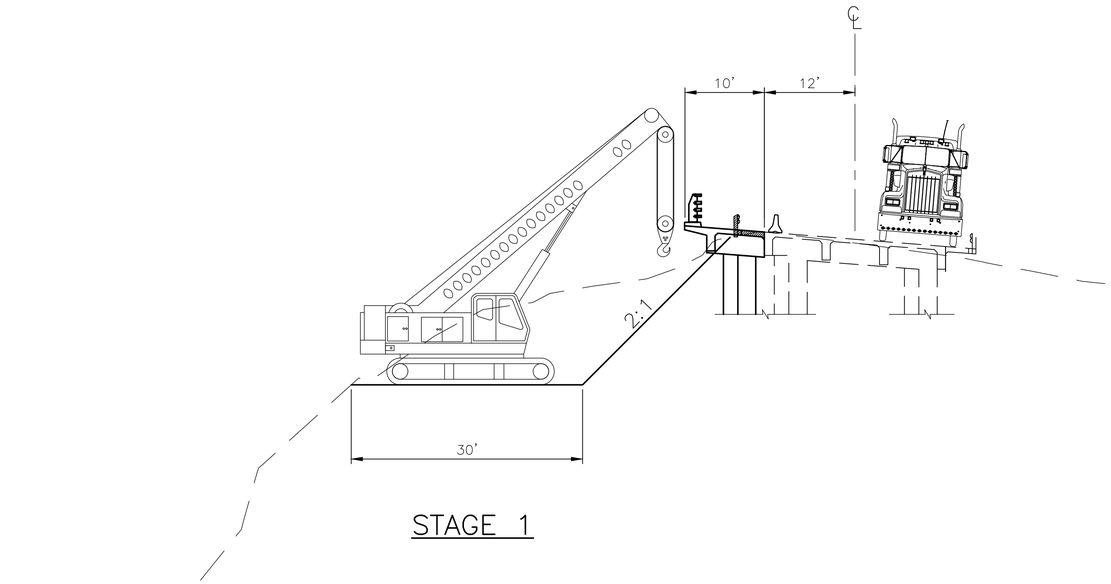
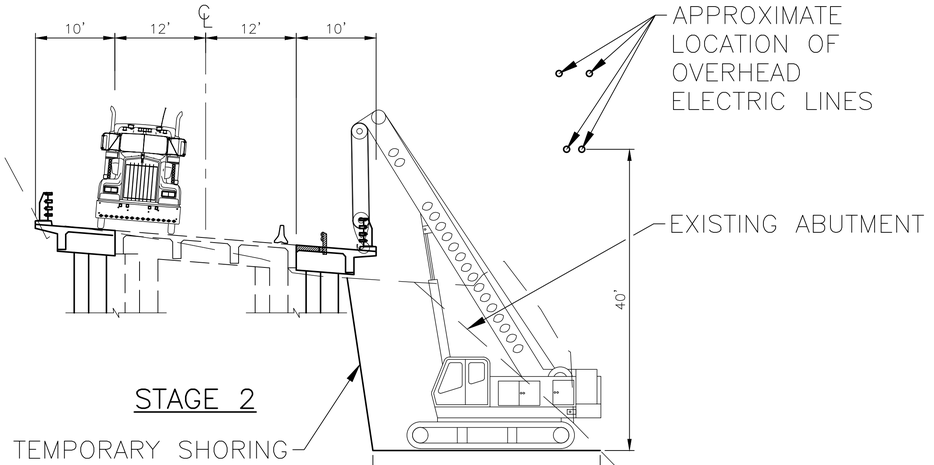


STAGE 1



STAGE 2

CAST IN PLACE
SECTION VIEW

CONSTRUCTION SCENARIO

LITTLE LARABEE CREEK

SHEET 1	EA 01–0C500	PM 25.27
DOKKEN JOB #2347		EA 01–0C500

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RELATIVE BORDER SCALE IS IN INCHES — 0 1 2 3

Dist			TOTAL PROJECT		
01	HUM	36	34.52	X	X

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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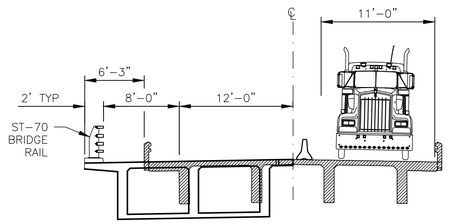

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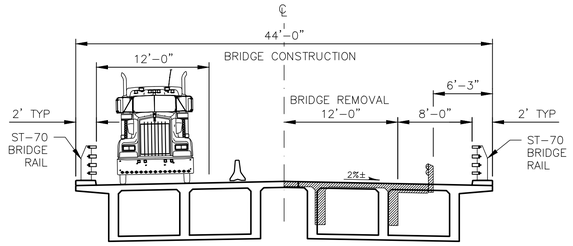

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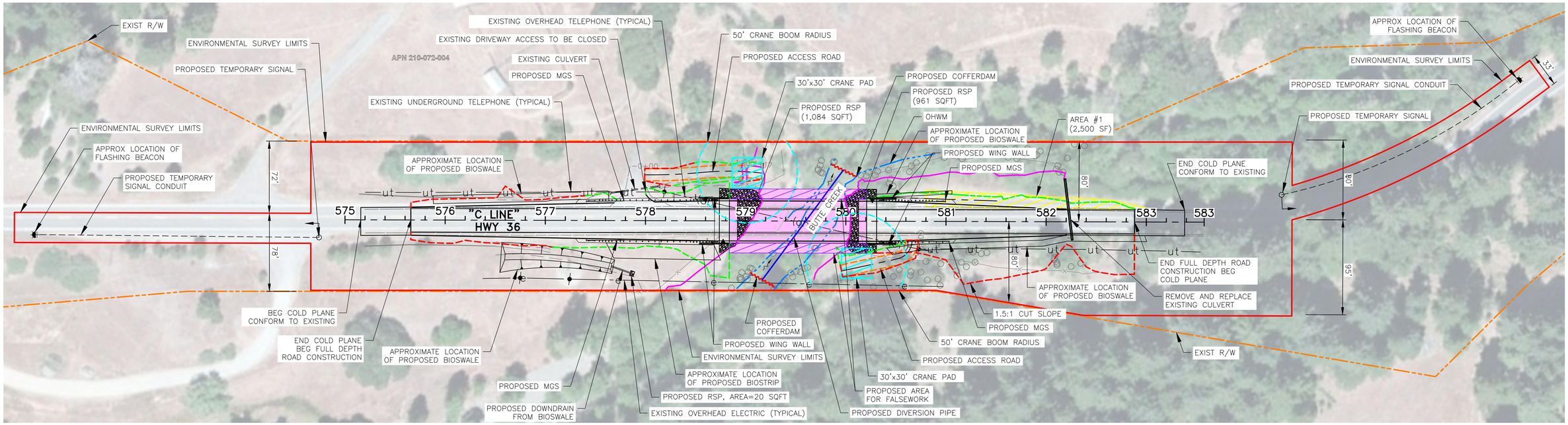

LEGEND:

- ROW
- TCE
- CUT/FILL LIMITS
- ACCESS ROAD
- ENVIRONMENTAL SURVEY LIMITS (ESL)
- ORDINARY HIGH WATER MARK (OHWM)
- WATER SURFACE ELEVATION FOR 100 YEAR DISCHARGE
- STAGING AREA
- LIMITS OF BRIDGE WORK

PLAN VIEW

50' 0 50' 50' 50'

SCALE: 1"=50'

CAST IN PLACE CONSTRUCTION SCENARIO

BUTTE CREEK

SHEET 1	EA 01–0C500	PM 34.52

DOKKEN JOB #2347

EA 01–0C500

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

Dist			TOTAL PROJECT		
01	HUM	36	34.52	X	X

REGISTERED CIVIL ENGINEER — DATE

PLANS APPROVAL DATE

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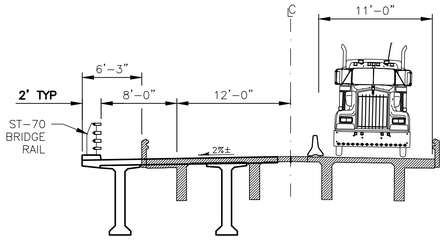

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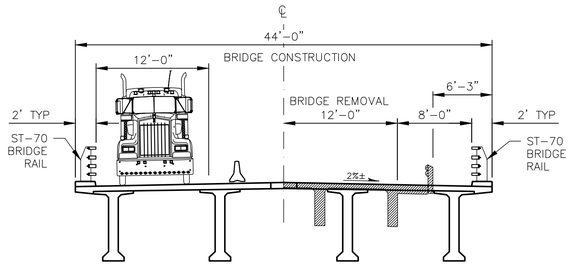

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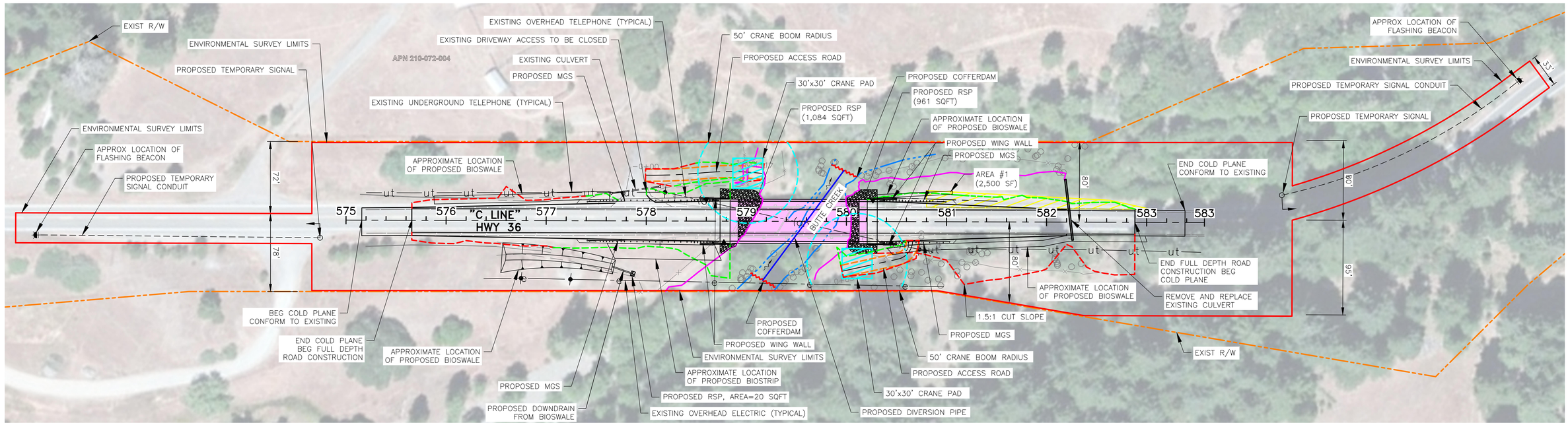

PLAN VIEW

LEGEND:

- ROW
- TCE
- CUT/FILL LIMITS
- ACCESS ROAD
- ENVIRONMENTAL SURVEY LIMITS (ESL)
- ORDINARY HIGH WATER MARK (OHWM)
- WATER SURFACE ELEVATION FOR 100 YEAR DISCHARGE
- STAGING AREA
- LIMITS OF BRIDGE WORK

50' 0 50' 50' 50'

SCALE: 1"=50'

PRECAST CONSTRUCTION SCENARIO

BUTTE CREEK

DOKKEN JOB #2347

SHEET 1	EA 01-0C500	PM 34.52

EA 01-0C500

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

Dist			TOTAL PROJECT		
01	HUM	36	34.52	X	X

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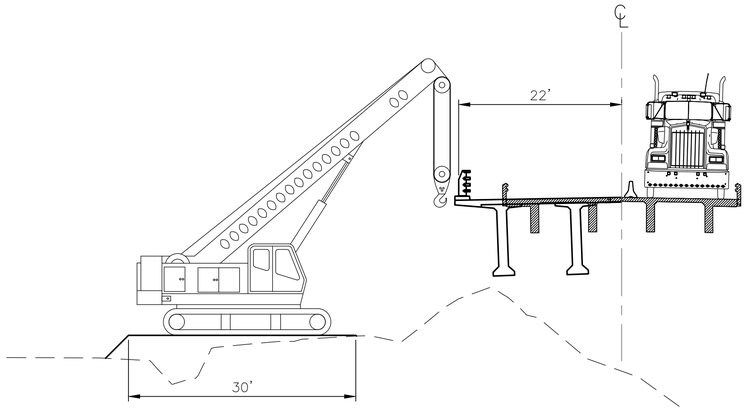

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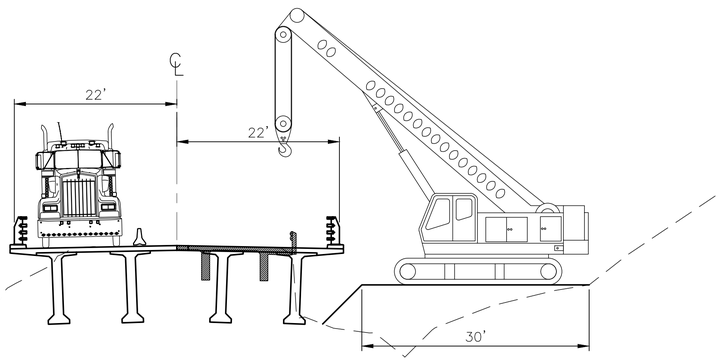
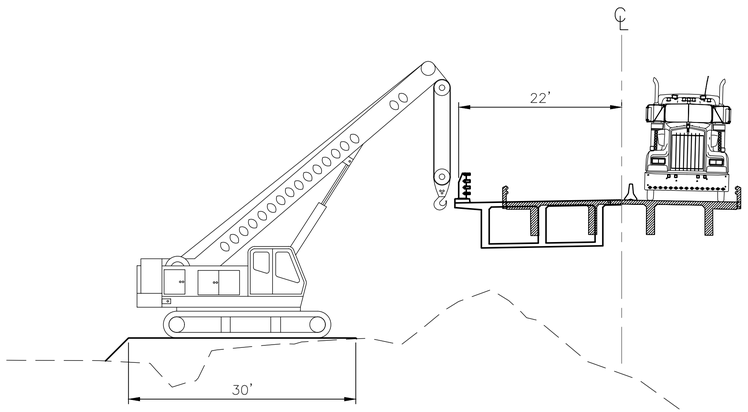


STAGE 2

PRECAST
SECTION VIEW



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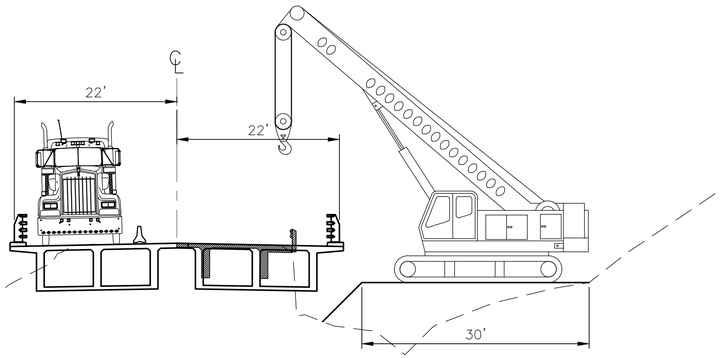

STAGE 2

CAST IN PLACE
SECTION VIEW

CONSTRUCTION SCENARIO

DOKKEN JOB #2347

BUTTE CREEK

SHEET 1	EA 01-0C500	PM 34.52

EA 01-0C500

LAST REVISION 00-00-00
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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

Appendix B. Title VI Policy Statement

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-6130
FAX (916) 653-5776
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

November 2019

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964, ensures "*No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.*"

Related federal statutes, remedies, and state law further those protections to include sex, disability, religion, sexual orientation, and age.

For information or guidance on how to file a complaint, or obtain more information regarding Title VI, please contact the Title VI Branch Manager at (916) 324-8379 or visit the following web page: https://dot.ca.gov/programs/business-and-economic-opportunity/title-vi.

To obtain this information in an alternate format such as Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, at 1823 14th Street, MS-79, Sacramento, CA 95811; (916) 324-8379 (TTY 711); or at Title.VI@dot.ca.gov.

Toks Omishakin
Director

Appendix C. USFWS, NMFS, CNDDB, CNPS Species Lists

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
Phone: (707) 822-7201 Fax: (707) 822-8411

In Reply Refer To: March 06, 2020
Consultation Code: 08EACT00-2020-SLI-0137
Event Code: 08EACT00-2020-E-00402
Project Name: Hely Creek Bridge

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
(707) 822-7201

Project Summary

Consultation Code: 08EACT00-2020-SLI-0137

Event Code: 08EACT00-2020-E-00402

Project Name: Hely Creek Bridge

Project Type: TRANSPORTATION

Project Description: Bridge Replacement

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/40.49971070592958N123.97478684089799W

Counties: Humboldt, CA

Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Fisher *Pekania pennanti* Population: West coast DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3651	Proposed Threatened

Birds

NAME	STATUS
Marbled Murrelet *Brachyramphus marmoratus* Population: U.S.A. (CA, OR, WA) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl *Strix occidentalis caurina* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
Phone: (707) 822-7201 Fax: (707) 822-8411

In Reply Refer To:
Consultation Code: 08EACT00-2020-SLI-0139
Event Code: 08EACT00-2020-E-00406
Project Name: Little Larabee Creek

March 06, 2020

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
(707) 822-7201

Project Summary

Consultation Code: 08EACT00-2020-SLI-0139

Event Code: 08EACT00-2020-E-00406

Project Name: Little Larabee Creek

Project Type: TRANSPORTATION

Project Description: Bridge widening

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/40.47712707082849N123.78171419093752W

Counties: Humboldt, CA

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Fisher *Pekania pennanti* Population: West coast DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3651	Proposed Threatened

Birds

NAME	STATUS
Northern Spotted Owl *Strix occidentalis caurina* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
Phone: (707) 822-7201 Fax: (707) 822-8411

In Reply Refer To: March 06, 2020
Consultation Code: 08EACT00-2020-SLI-0140
Event Code: 08EACT00-2020-E-00408
Project Name: Butte Creek Bridge

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

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Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
(707) 822-7201

Project Summary

Consultation Code: 08EACT00-2020-SLI-0140

Event Code: 08EACT00-2020-E-00408

Project Name: Butte Creek Bridge

Project Type: TRANSPORTATION

Project Description: Bridge Replacement

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/40.441839488293056N123.66797572318384W

Counties: Humboldt, CA

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

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Mammals

NAME	STATUS
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Birds

NAME	STATUS
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Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is proposed critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Quad Name **Owl Creek**
Quad Number **40123-E8**

ESA Anadromous Fish

SONCC Coho ESU (T) - **X**
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) - **X**
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) - **X**
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - **X**
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat - **X**
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat - **X**
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Redcrest**
Quad Number **40123-D8**

ESA Anadromous Fish

SONCC Coho ESU (T) - **X**
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) - **X**
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) - **X**
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - **X**
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat - **X**
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat - **X**
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Bridgeville**
Quad Number **40123-D7**

ESA Anadromous Fish

SONCC Coho ESU (T) - **X**
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) - **X**
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) - **X**
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - **X**
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat - **X**
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat - **X**
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Larabee Valley**
Quad Number **40123-D6**

ESA Anadromous Fish

SONCC Coho ESU (T) - **X**
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) - **X**
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) - **X**
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - **X**
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat - **X**
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE **RareFind**

Query Summary:
Quad IS (Owl Creek (4012358) OR Redcrest (4012348) OR McWhinney Creek (4012461) OR Iaqua Buttes (4012368) OR Mad River Buttes (4012367) OR Yager Junction (4012357) OR Bridgeville (4012347) OR Myers Flat (4012337) OR Weott (4012338) OR Bull Creek (4012431) OR Scotia (4012441) OR Larabee Valley (4012346) OR Blocksburg (4012336) OR Blake Mountain (4012355) OR Dinsmore (4012345) OR Black Lassic (4012335))

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Accipiter cooperii	Cooper's hawk	Birds	ABNKC12040	118	6	None	None	G5	S4	null	CDFW_WL-Watch List, IUCN_LC-Least Concern	Cismontane woodland, Riparian forest, Riparian woodland, Upper montane coniferous forest
Accipiter gentilis	northern goshawk	Birds	ABNKC12060	433	4	None	None	G5	S3	null	BLM_S-Sensitive, CDF_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	North coast coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest
Accipiter striatus	sharp-shinned hawk	Birds	ABNKC12020	22	7	None	None	G5	S4	null	CDFW_WL-Watch List, IUCN_LC-Least Concern	Cismontane woodland, Lower montane coniferous forest, Riparian forest, Riparian woodland
Ancotrema voyanum	hooded lancetooth	Mollusks	IMGAS36130	157	3	None	None	G1G2	S1S2	null	null	Oldgrowth, Riparian forest, Talus slope
Anisocarpus scabridus	scabrid alpine tarplant	Dicots	PDASTDU020	19	2	None	None	G3	S3	1B.3	USFS_S-Sensitive	Upper montane coniferous forest
Anodonta californiensis	California floater	Mollusks	IMBIV04020	6	1	None	None	G3Q	S2?	null	USFS_S-Sensitive	Aquatic
Aplodontia rufa humboldtiana	Humboldt mountain beaver	Mammals	AMAFA01017	28	3	None	None	G5TNR	SNR	null	null	Coastal scrub, Redwood, Riparian forest
Aquila chrysaetos	golden eagle	Birds	ABNKC22010	321	6	None	None	G5	S3	null	BLM_S-Sensitive, CDF_S-Sensitive, CDFW_FP-Fully Protected, CDFW_WL-Watch List, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Broadleaved upland forest, Cismontane woodland, Coastal prairie, Great Basin grassland, Great Basin scrub, Lower montane coniferous forest, Pinon & juniper woodlands, Upper montane coniferous forest, Valley & foothill grassland
Arborimus pomo	Sonoma tree vole	Mammals	AMAFF23030	222	22	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	North coast coniferous forest, Oldgrowth, Redwood
	Konocti manzanita	Dicots	PDERI04271	69	1	None	None	G5T3	S3	1B.3	null	Chaparral, Cismontane

Arctostaphylos manzanita ssp. elegans												woodland, Lower montane coniferous forest
Ascaphus truei	Pacific tailed frog	Amphibians	AAABA01010	491	14	None	None	G4	S3S4	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Aquatic, Klamath/North coast flowing waters, Lower montane coniferous forest, North coast coniferous forest, Redwood, Riparian forest
Astragalus agnicidus	Humboldt County milk-vetch	Dicots	PDFAB0F080	64	1	None	Endangered	G2	S2	1B.1	SB_BerrySB-Berry Seed Bank, SB_RSABG-Rancho Santa Ana Botanic Garden	Broadleaved upland forest, North coast coniferous forest
Atractelmis wawona	Wawona riffle beetle	Insects	IICOL58010	80	2	None	None	G3	S1S2	null	null	Aquatic
Bensoniella oregona	bensoniella	Dicots	PDSAX02010	11	1	None	Rare	G3	S2	1B.1	USFS_S-Sensitive	Bog & fen, Lower montane coniferous forest, Meadow & seep, Wetland
Bombus caliginosus	obscure bumble bee	Insects	IIHYM24380	181	7	None	None	G4?	S1S2	null	IUCN_VU-Vulnerable	null
Bombus occidentalis	western bumble bee	Insects	IIHYM24250	279	6	None	Candidate Endangered	G2G3	S1	null	USFS_S-Sensitive, XERCES_IM-Imperiled	null
Brachyramphus marmoratus	marbled murrelet	Birds	ABNNN06010	110	25	Threatened	Endangered	G3G4	S1	null	CDF_S-Sensitive, IUCN_EN-Endangered, NABCI_RWL-Red Watch List	Lower montane coniferous forest, Oldgrowth, Redwood
Calamagrostis foliosa	leafy reed grass	Monocots	PMPOA170C0	22	1	None	Rare	G3	S3	4.2	null	Coastal bluff scrub, North coast coniferous forest
Calycadenia micrantha	small-flowered calycadenia	Dicots	PDAST1P0C0	22	1	None	None	G2	S2	1B.2	USFS_S-Sensitive	Chaparral, Meadow & seep, Ultramafic, Valley & foothill grassland
Cardamine angulata	seaside bittercress	Dicots	PDBRA0K010	38	1	None	None	G4G5	S3	2B.1	null	Lower montane coniferous forest, North coast coniferous forest, Wetland
Carex arcta	northern clustered sedge	Monocots	PMCYP030X0	13	4	None	None	G5	S1	2B.2	null	Bog & fen, North coast coniferous forest, Wetland
Carex praticola	northern meadow sedge	Monocots	PMCYP03B20	14	1	None	None	G5	S2	2B.2	null	Meadow & seep, Wetland
Coptis laciniata	Oregon goldthread	Dicots	PDRAN0A020	122	8	None	None	G4?	S3?	4.2	null	Meadow & seep, North coast coniferous forest, Wetland
Corynorhinus townsendii	Townsend's big-eared bat	Mammals	AMACC08010	635	5	None	None	G3G4	S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority	Broadleaved upland forest, Chaparral, Chenopod scrub, Great Basin grassland, Great Basin scrub, Joshua tree woodland, Lower montane coniferous forest, Meadow & seep, Mojavean desert scrub, Riparian forest, Riparian woodland,

												Sonoran desert scrub, Sonoran thorn woodland, Upper montane coniferous forest, Valley & foothill grassland
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1385	20	None	None	G3G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive	Aquatic, Artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh & swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Entosphenus tridentatus	Pacific lamprey	Fish	AFBAA02100	9	2	None	None	G4	S4	null	AFS_VU-Vulnerable, BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters, South coast flowing waters
Erethizon dorsatum	North American porcupine	Mammals	AMAFJ01010	523	14	None	None	G5	S3	null	IUCN_LC-Least Concern	Broadleaved upland forest, Cismontane woodland, Closed-cone coniferous forest, Lower montane coniferous forest, North coast coniferous forest, Upper montane coniferous forest
Erigeron maniopotamicus	Mad River fleabane daisy	Dicots	PDASTE1050	10	3	None	None	G2?	S2?	1B.2	USFS_S-Sensitive	Lower montane coniferous forest, Meadow & seep
Erythronium oregonum	giant fawn lily	Monocots	PMLIL0U0C0	38	6	None	None	G4G5	S2	2B.2	null	Cismontane woodland, Meadow & seep, Ultramafic
Erythronium revolutum	coast fawn lily	Monocots	PMLIL0U0F0	164	65	None	None	G4G5	S3	2B.2	null	Bog & fen, Broadleaved upland forest, North coast coniferous forest, Wetland
Falco peregrinus anatum	American peregrine falcon	Birds	ABNKD06071	56	2	Delisted	Delisted	G4T4	S3S4	null	CDF_S-Sensitive, CDFW_FP-Fully Protected, USFWS_BCC-Birds of Conservation Concern	null
Gilia capitata ssp. pacifica	Pacific gilia	Dicots	PDPLM040B6	83	22	None	None	G5T3	S2	1B.2	null	Chaparral, Coastal bluff scrub, Coastal prairie, Valley & foothill grassland
Hosackia yollabolliensis	Yolla Bolly Mtns. bird's-foot trefoil	Dicots	PDFAB2A1F0	11	6	None	None	G2	S2	1B.2	null	Meadow & seep, Upper montane coniferous forest

Howellia aquatilis	water howellia	Dicots	PDCAM0A010	7	1	Threatened	None	G3	S2	2B.2	null	Aquatic, Freshwater marsh, Marsh & swamp, Wetland
Iliamna latibracteata	California globe mallow	Dicots	PDMAL0K040	41	5	None	None	G2G3	S2	1B.2	SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Lower montane coniferous forest, North coast coniferous forest, Riparian scrub
Kopsiopsis hookeri	small groundcone	Dicots	PDORO01010	21	1	None	None	G4?	S1S2	2B.3	null	North coast coniferous forest
Lampetra richardsoni	western brook lamprey	Fish	AFBAA02090	4	2	None	None	G4G5	S3S4	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	null
Lasiurus blossevillii	western red bat	Mammals	AMACC05060	128	3	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_H-High Priority	Cismontane woodland, Lower montane coniferous forest, Riparian forest, Riparian woodland
Lathyrus biflorus	two-flowered pea	Dicots	PDFAB25180	1	1	None	None	G1	S1	1B.1	USFS_S-Sensitive	Lower montane coniferous forest, Ultramafic
Lupinus constancei	The Lassics lupine	Dicots	PDFAB2B490	2	2	None	Endangered	G1	S1	1B.1	SB_BerrySB-Berry Seed Bank, USFS_S-Sensitive	Lower montane coniferous forest, Ultramafic
Lupinus elmeri	South Fork Mountain lupine	Dicots	PDFAB2B1G0	15	6	None	None	G2	S2	1B.2	null	Lower montane coniferous forest
Lycopodium clavatum	running-pine	Ferns	PPLYC01080	120	33	None	None	G5	S3	4.1	null	Lower montane coniferous forest, Marsh & swamp, North coast coniferous forest, Wetland
Margaritifera falcata	western pearlshell	Mollusks	IMBIV27020	78	1	None	None	G4G5	S1S2	null	null	Aquatic
Martes caurina humboldtensis	Humboldt marten	Mammals	AMAJF01012	44	2	None	Endangered	G5T1	S1	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	North coast coniferous forest, Oldgrowth, Redwood
Meesia triquetra	three-ranked hump moss	Bryophytes	NBMUS4L020	19	1	None	None	G5	S4	4.2	null	Bog & fen, Meadow & seep, Subalpine coniferous forest, Upper montane coniferous forest, Wetland
Mitellastra caulescens	leafy-stemmed mitrewort	Dicots	PDSAX0N020	21	1	None	None	G5	S4	4.2	null	Broadleaved upland forest, Lower montane coniferous forest, Meadow & seep, North coast coniferous forest
Montia howellii	Howell's montia	Dicots	PDPOR05070	114	73	None	None	G3G4	S2	2B.2	null	Meadow & seep, North coast coniferous forest, Vernal pool, Wetland
Myotis evotis	long-eared myotis	Mammals	AMACC01070	139	3	None	None	G5	S3	null	BLM_S-Sensitive, IUCN_LC-Least Concern, WBWG_M-	null

											Medium Priority	
Myotis volans	long-legged myotis	Mammals	AMACC01110	117	2	None	None	G5	S3	null	IUCN_LC-Least Concern, WBWG_H-High Priority	Upper montane coniferous forest
Myotis yumanensis	Yuma myotis	Mammals	AMACC01020	265	2	None	None	G5	S4	null	BLM_S-Sensitive, IUCN_LC-Least Concern, WBWG_LM-Low-Medium Priority	Lower montane coniferous forest, Riparian forest, Riparian woodland, Upper montane coniferous forest
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Dicots	PDPLM0C0E1	64	2	None	None	G4T2	S2	1B.1	null	Cismontane woodland, Lower montane coniferous forest, Meadow & seep, Valley & foothill grassland, Vernal pool, Wetland
Noccaea fendleri ssp. californica	Kneeland Prairie pennycress	Dicots	PDBRA2P041	1	1	Endangered	None	G5?T1	S1	1B.1	null	Broadleaved upland forest, Coastal prairie, Ultramafic
North Central Coast Summer Steelhead Stream	North Central Coast Summer Steelhead Stream	Inland Waters	CARA2634CA	2	1	None	None	GNR	SNR	null	null	null
Noyo intersessa	Ten Mile shoulderband	Mollusks	IMGASC5070	3	1	None	None	G2	S2	null	null	Coastal dunes, Coastal scrub, Redwood, Riparian forest
Oncorhynchus clarkii clarkii	coast cutthroat trout	Fish	AFCHA0208A	45	4	None	None	G4T4	S3	null	AFS_VU-Vulnerable, CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Aquatic, Klamath/North coast flowing waters
Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	Fish	AFCHA02032	10	2	Threatened	Threatened	G4T2Q	S2?	null	AFS_TH-Threatened	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters
Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	Fish	AFCHA0209Q	12	2	Threatened	None	G5T2T3Q	S2S3	null	AFS_TH-Threatened	Aquatic, Sacramento/San Joaquin flowing waters
Oncorhynchus mykiss irideus pop. 36	summer-run steelhead trout	Fish	AFCHA0213B	20	2	None	Candidate Endangered	G5T4Q	S2	null	CDFW_SSC-Species of Special Concern	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters
Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	Fish	AFCHA0205S	1	1	Threatened	None	G5	S1	null	AFS_TH-Threatened	Aquatic, Sacramento/San Joaquin flowing waters
Packera bolanderi var. bolanderi	seacoast ragwort	Dicots	PDAST8H0H1	70	40	None	None	G4T4	S2S3	2B.2	null	Coastal scrub, North coast coniferous forest
Pandion haliaetus	osprey	Birds	ABNKC01010	504	29	None	None	G5	S4	null	CDF_S-Sensitive, CDFW_WL-Watch List, IUCN_LC-Least Concern	Riparian forest
Pekania pennanti	fisher - West Coast DPS	Mammals	AMAJF01021	743	5	None	Threatened	G5T2T3Q	S2S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special	North coast coniferous forest, Oldgrowth, Riparian forest

											Concern, USFS_S-Sensitive	
Piperia candida	white-flowered rein orchid	Monocots	PMORC1X050	222	36	None	None	G3	S3	1B.2	null	Broadleaved upland forest, Lower montane coniferous forest, North coast coniferous forest, Ultramafic
Plethodon elongatus	Del Norte salamander	Amphibians	AAAAD12050	151	1	None	None	G4	S3	null	CDFW_WL-Watch List, IUCN_NT-Near Threatened	Oldgrowth
Ptilidium californicum	Pacific fuzzwort	Bryophytes	NBHEP2U010	177	1	None	None	G4G5	S3S4	4.3	BLM_S-Sensitive	Lower montane coniferous forest, Upper montane coniferous forest
Rana aurora	northern red-legged frog	Amphibians	AAABH01021	292	23	None	None	G4	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	Klamath/North coast flowing waters, Riparian forest, Riparian woodland
Rana boylii	foothill yellow-legged frog	Amphibians	AAABH01050	2468	72	None	Endangered	G3	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened, USFS_S-Sensitive	Aquatic, Chaparral, Cismontane woodland, Coastal scrub, Klamath/North coast flowing waters, Lower montane coniferous forest, Meadow & seep, Riparian forest, Riparian woodland, Sacramento/San Joaquin flowing waters
Rhyacotriton variegatus	southern torrent salamander	Amphibians	AAAAJ01020	416	29	None	None	G3G4	S2S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	Lower montane coniferous forest, Oldgrowth, Redwood, Riparian forest
Riparia riparia	bank swallow	Birds	ABPAU08010	298	1	None	Threatened	G5	S2	null	BLM_S-Sensitive, IUCN_LC-Least Concern	Riparian scrub, Riparian woodland
Sabulina decumbens	The Lassics sandwort	Dicots	PDCAR0G0Y0	2	2	None	None	G1	S1	1B.2	USFS_S-Sensitive	Lower montane coniferous forest, Ultramafic, Upper montane coniferous forest
Sanguisorba officinalis	great burnet	Dicots	PDROS1L060	22	1	None	None	G5?	S2	2B.2	null	Bog & fen, Broadleaved upland forest, Marsh & swamp, Meadow & seep, North coast coniferous forest, Riparian forest, Ultramafic, Wetland
Sanicula tracyi	Tracy's sanicle	Dicots	PDAPI1Z0K0	80	30	None	None	G4	S4	4.2	USFS_S-Sensitive	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest

Sedum laxum ssp. flavidum	pale yellow stonecrop	Dicots	PDCRA0A0L2	67	6	None	None	G5T3Q	S3	4.3	null	Broadleaved upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Ultramafic, Upper montane coniferous forest
Sidalcea malachroides	maple-leaved checkerbloom	Dicots	PDMAL110E0	136	55	None	None	G3	S3	4.2	null	Broadleaved upland forest, Coastal prairie, Coastal scrub, North coast coniferous forest, Riparian forest
Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	Dicots	PDMAL110F9	53	14	None	None	G5T2	S2	1B.2	null	Coastal bluff scrub, Coastal prairie, North coast coniferous forest
Sidalcea oregana ssp. eximia	coast checkerbloom	Dicots	PDMAL110K9	19	2	None	None	G5T1	S1	1B.2	null	Lower montane coniferous forest, Meadow & seep, North coast coniferous forest, Wetland
Thermopsis robusta	robust false lupine	Dicots	PDFAB3Z0D0	104	1	None	None	G2	S2	1B.2	USFS_S-Sensitive	Broadleaved upland forest, North coast coniferous forest, Ultramafic
Upland Douglas Fir Forest	Upland Douglas Fir Forest	Forest	CTT82420CA	15	4	None	None	G4	S3.1	null	null	North coast coniferous forest
Usnea longissima	Methuselah's beard lichen	Lichens	NLLEC5P420	206	102	None	None	G4	S4	4.2	BLM_S-Sensitive	Broadleaved upland forest, North coast coniferous forest, Oldgrowth, Redwood

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*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

50 matches found. *Click on scientific name for details*

Search Criteria

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Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Allium hoffmanii	Beegum onion	Alliaceae	perennial bulbiferous herb	Jun-Jul	4.3	S4	G4
Anisocarpus scabridus	scabrid alpine tarplant	Asteraceae	perennial herb	(Jun)Jul-Aug(Sep)	1B.3	S3	G3
Arctostaphylos hispidula	Howell's manzanita	Ericaceae	perennial evergreen shrub	Mar-Apr	4.2	S3	G4
Arctostaphylos manzanita ssp. elegans	Konocti manzanita	Ericaceae	perennial evergreen shrub	(Jan)Mar-May(Jul)	1B.3	S3	G5T3
Arnica spathulata	Klamath arnica	Asteraceae	perennial rhizomatous herb	May-Aug	4.3	S3	G3?
Astragalus agnicidus	Humboldt County milk-vetch	Fabaceae	perennial herb	Apr-Sep	1B.1	S2	G2
Astragalus rattanii var. rattanii	Rattan's milk-vetch	Fabaceae	perennial herb	Apr-Jul	4.3	S4	G4T4
Astragalus umbraticus	Bald Mountain milk-vetch	Fabaceae	perennial herb	May-Aug	2B.3	S2	G4
Calycadenia micrantha	small-flowered calycadenia	Asteraceae	annual herb	Jun-Sep	1B.2	S2	G2
Carex praticola	northern meadow sedge	Cyperaceae	perennial herb	May-Jul	2B.2	S2	G5
Carex scabriuscula	Siskiyou sedge	Cyperaceae	perennial rhizomatous herb	May-Jul	4.3	S4	G4G5
Collomia tracyi	Tracy's collomia	Polemoniaceae	annual herb	Jun-Jul	4.3	S4	G4
Coptis laciniata	Oregon goldthread	Ranunculaceae	perennial rhizomatous herb	(Feb)Mar-May(Sep-Nov)	4.2	S3?	G4?
Cryptantha rostellata	red-stemmed cryptantha	Boraginaceae	annual herb	Apr-Jun	4.2	S3	G4
Cypripedium fasciculatum	clustered lady's-slipper	Orchidaceae	perennial rhizomatous herb	Mar-Aug	4.2	S4	G4
Cypripedium montanum	mountain lady's-	Orchidaceae	perennial	Mar-Aug	4.2	S4	G4

	slipper		rhizomatous herb				
Epilobium oreganum	Oregon fireweed	Onagraceae	perennial herb	Jun-Sep	1B.2	S2	G2
Epilobium septentrionale	Humboldt County fuchsia	Onagraceae	perennial herb	Jul-Sep	4.3	S4	G4
Erigeron maniopotamicus	Mad River fleabane daisy	Asteraceae	perennial herb	May-Aug	1B.2	S2?	G2?
Erythronium oregonum	giant fawn lily	Liliaceae	perennial bulbiferous herb	Mar-Jun(Jul)	2B.2	S2	G4G5
Erythronium revolutum	coast fawn lily	Liliaceae	perennial bulbiferous herb	Mar-Jul(Aug)	2B.2	S3	G4G5
Eucephalus glabratus	Siskiyou aster	Asteraceae	perennial herb	Jul-Sep	4.3	S3	G4
Fritillaria glauca	Siskiyou fritillaria	Liliaceae	perennial bulbiferous herb	(Apr-May)Jun-Jul	4.2	S3	G3G4
Gilia capitata ssp. pacifica	Pacific gilia	Polemoniaceae	annual herb	Apr-Aug	1B.2	S2	G5T3
Hosackia yollabolliensis	Yolla Bolly Mtns. bird's-foot trefoil	Fabaceae	perennial herb	Jun-Aug	1B.2	S2	G2
Howellia aquatilis	water howellia	Campanulaceae	annual herb (aquatic)	Jun	2B.2	S2	G3
Kopsiopsis hookeri	small groundcone	Orobanchaceae	perennial rhizomatous herb (parasitic)	Apr-Aug	2B.3	S1S2	G4?
Lathyrus biflorus	two-flowered pea	Fabaceae	perennial herb	Jun-Aug	1B.1	S1	G1
Lilium rubescens	redwood lily	Liliaceae	perennial bulbiferous herb	Apr-Aug(Sep)	4.2	S3	G3
Listera cordata	heart-leaved twayblade	Orchidaceae	perennial herb	Feb-Jul	4.2	S4	G5
Lupinus constancei	The Lassics lupine	Fabaceae	perennial herb	Jul	1B.1	S1	G1
Lupinus elmeri	South Fork Mountain lupine	Fabaceae	perennial herb	Jun-Jul(Aug)	1B.2	S2	G2
Lycopodium clavatum	running-pine	Lycopodiaceae	perennial rhizomatous herb	Jun-Aug(Sep)	4.1	S3	G5
Meesia triquetra	three-ranked hump moss	Meesiaceae	moss	Jul	4.2	S4	G5
Mitellastra caulescens	leafy-stemmed mitrewort	Saxifragaceae	perennial rhizomatous herb	(Mar)Apr-Oct	4.2	S4	G5
Montia howellii	Howell's montia	Montiaceae	annual herb	(Jan-Feb)Mar-May	2B.2	S2	G3G4
Packera bolanderi var. bolanderi	seacoast ragwort	Asteraceae	perennial rhizomatous herb	(Jan-Apr)May-Jul(Aug)	2B.2	S2S3	G4T4
Piperia candida	white-flowered rein orchid	Orchidaceae	perennial herb	(Mar)May-Sep	1B.2	S3	G3
Pityopus californicus	California pinefoot	Ericaceae	perennial herb (achlorophyllous)	(Mar-Apr)May-Aug	4.2	S4	G4G5
Platanthera stricta	slender bog-orchid	Orchidaceae	perennial herb	May-Aug	4.2	S3	G5
Ptilidium californicum	Pacific fuzz wort	Ptilidiaceae	liverwort	May-Aug	4.3	S3S4	G4G5
Ribes laxiflorum	trailing black currant	Grossulariaceae	perennial deciduous shrub	Mar-Jul(Aug)	4.3	S3	G5?
Sabulina decumbens	The Lassics sandwort	Caryophyllaceae	perennial herb	Jul	1B.2	S1	G1
Sanicula tracyi	Tracy's sanicle	Apiaceae	perennial herb	Apr-Jul	4.2	S4	G4

Sedum laxum ssp. flavidum	pale yellow stonecrop	Crassulaceae	perennial herb	May-Jul	4.3	S3	G5T3Q
Sidalcea malachroides	maple-leaved checkerbloom	Malvaceae	perennial herb	(Mar)Apr-Aug	4.2	S3	G3
Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	Malvaceae	perennial rhizomatous herb	(Apr)May-Aug	1B.2	S2	G5T2
Thermopsis robusta	robust false lupine	Fabaceae	perennial rhizomatous herb	May-Jul	1B.2	S2	G2
Usnea longissima	Methuselah's beard lichen	Parmeliaceae	fruticose lichen (epiphytic)		4.2	S4	G4
Wyethia longicaulis	Humboldt County wyethia	Asteraceae	perennial herb	May-Jul	4.3	S4	G4

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Appendix D. Section 4(f)

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 United States Code (USC) 303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

Section 4(f) specifies that the Secretary of Transportation may approve a transportation program or project . . . "requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- There is no prudent and feasible alternative to using that land; and
- The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use."

Section 4(f) further requires coordination with the Department of the Interior and, as appropriate, the involved offices of the Department of Agriculture and the Department of Housing and Urban Development in developing transportation projects and programs that use lands protected by Section 4(f). If historic sites are involved, then coordination with the State Historic Preservation Officer is also needed.

Section 6009(a) of SAFETEA-LU amended Section 4(f) legislation at 23 United States Code (USC) 138 and 49 USC 303 to simplify the processing and approval of projects that have only *de minimis* impacts on lands protected by Section 4(f). This amendment provides that once the U.S. Department of Transportation (USDOT) determines that a transportation use of Section 4(f) property, after consideration of any impact avoidance, minimization, and mitigation or enhancement measures, results in a de minimis impact on that property, an analysis of avoidance alternatives is not required, and the Section 4(f) evaluation process is complete. FHWA's final rule on Section 4(f) *de minimis* findings is codified in 23 Code of Federal Regulations (CFR) 774.3 and CFR 774.17.

Responsibility for compliance with Section 4(f) has been assigned to Caltrans pursuant to 23 USC 326 and 327 and a Memorandum of Understanding executed between FHWA and Caltrans (dated December 23, 2016), including *de minimis* impact determinations, as well as coordination with those agencies that have jurisdiction over a Section 4(f) resource that may be affected by a project action.

The activities associated with the project would occur within Van Duzen County Park. Consultation with Humboldt County Environmental Services is ongoing, and the draft Section 4(f) analyses are on the following pages.

DEPARTMENT OF TRANSPORTATION

NORTH REGION ENVIRONMENTAL
1656 UNION STREET
EUREKA, CA 95502-3700
(707) 441- 4571
www.dot.ca.gov
TTY 711

Making Conservation a California Way of Life.

June 26, 2020

Hank Seemann, Deputy Director
Humboldt County Environmental Services
1106 2nd Street
Eureka, CA 95501

Dear Mr. Seemann,

The California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) are proposing a project to upgrade bridge rails and shoulder widths at three locations on State Route (SR) 36 between Post Miles (PMs) 11.40 and 34.50. These upgrades would require the widening of one bridge and the replacement of two others. One of the bridges to be replaced, Hely Creek (PM 11.46), is adjacent to Van Duzen County Park between Swimmer's Delight and Pamplin Grove, and project activities would involve work on county park land.

Section 4(f) of the Department of Transportation Act of 1966 was designed to preserve publicly owned parklands, recreation areas, waterfowl and wildlife refuges, and significant historic sites, and is applicable whenever a U.S. Department of Transportation (USDOT) action involves the "use" of these sites. Because the proposed project is federally funded and proposes the "use" of a Humboldt County owned Section 4(f) resource, concurrence from Humboldt County on the Section 4(f) determination is needed for the project.

There is "use" of a Section 4(f) resource when a resource is Permanently Incorporated into a transportation facility, when there is Temporary Occupancy of the resource that does not meet the five criteria of temporary use (temporary duration, minor scope, no adverse physical impact or interference with activities or purposes of the resource, land is fully restored, and documented agreement with appropriate officials), or when there is Constructive Use of the resource (i.e., when the project's proximity impacts are so severe that the protected activities, features or attributes that qualify the resource for protection are substantially impaired).

Under 49 USC 303(d)1, based on the "use" of the 4(f) resource, Caltrans has determined the proposed project would result in a de minimis impact to Van Duzen County Park, as the project would not adversely affect the activities, features, or attributes of the park that make it eligible under Section 4(f). A de minimis impact determination is not an exemption from Section 4(f); it

is an authorization for a minor use of a Section 4(f) property, without having to make a finding that there are no feasible and prudent avoidance alternatives.

As part of the Section 4(f) process, the public must be afforded the opportunity to review and comment on the 4(f) evaluation. The evaluation was circulated as an attachment to the CEQA Initial Study between June 26, 2020 and August 3, 2020.

The following sections provide project information and supporting documentation for the de minimis determination.

Project Description:
The existing Hely Creek bridge does not meet current rail or shoulder width design standards. Due to the existing bridge type and design, it is not feasible to widen the bridge. As a result, the existing bridge would be replaced with a longer, wider structure. Work would include placing shoulder backing, upgrading guardrail, shifting drainages, temporary water diversion, and constructing temporary access roads. Work activities would require vegetation and tree removal (please see attached project layout). Due to property rights in the area, Caltrans would obtain temporary construction easements (TCEs), and is proposing to acquire right of way adjacent to the highway.

Description of 4(f) Resources:
Van Duzen County Park is a recreational area in northern California, situated among the redwoods between SR 36 and the Van Duzen River. The park is composed of two main areas – Pamplin Grove and Swimmer's Delight – that are connected by a hiking trail. The park offers various recreational opportunities such as picnicking, camping, hiking, and swimming. The park is accessed either through the two main areas, which require a fee, or pullouts along SR 36 which provide free access to the park via a hiking trail.

Section 4(f) Property "Use":
In order to "rectify" state right of way, Caltrans would Permanently Incorporate approximately 0.30 acre of County Park land into the state highway right of way. SR 36 currently traverses the northern limits of the Park. The Permanent Incorporation would not divide or split the park in two, as SR 36 follows the northern boundary of the Park. In addition, Caltrans would need to obtain an approximately 0.20-acre TCE to construct a temporary road to access Hely Creek and the underside of the bridge (see attached right of way map).

A group of larger-diameter redwoods are growing immediately adjacent to the existing bridge's southwestern abutment, within the area that would be permanently acquired for state right of

way. Due to the proximity to the existing structure and the location of the new bridge abutment, the roots of the trees are likely growing under the roadway. As a result, the roots may be impacted during construction. Because the extent and depth of roots growing under the roadway is unknown, the extent of impacts would be determined during construction. All feasible measures would be taken to preserve the trees; however, a portion or all may need to be removed, as determined by a certified arborist or licensed forester monitor during construction.

Other anticipated "use" of Van Duzen County Park is expected to be Temporary Occupancy, and would include:

- Temporary closure of a maintenance vehicle pullout to the west of Hely Creek Bridge for the duration of the project (2 years). This pullout acts as a free access point to the county park trail system and a nearby swimming hole.

- Temporary closure of the hiking trail that connects Pamplin Grove and Swimmer's Delight at the maintenance vehicle pullout. The trail is adjacent to SR 36 at this location and passes through the pullout. Because this pullout would be closed for the project, the trail would be closed at this location for the duration of the project.

- Temporary increased noise during construction activities adjacent to the trail and nearby river segment.

- Vegetation and tree removal for construction of the temporary access road crane pads, and operation of the crane boom, and bridge construction. Trees to be removed may include Douglas-firs, tanoaks, and redwoods.

Constructive Use impacts are not anticipated.

In order to avoid potential impacts to Van Duzen County Park, the following measures would be incorporated into the project:

- No work would be conducted on the trail, and the trail and pullout would be re-opened after construction.

- Disturbed soil areas would be recontoured post-construction and re-seeded or revegetated.

- A certified arborist or licensed forester monitor would be on-site during construction to monitor activities that could impact tree roots and advise on appropriate best management practices (BMPs) to be implemented.

De minimis Determination:
After considering potential "use" of park resources and measures to avoid impacts, Caltrans has determined that the proposed project would result in a de minimis impact.

Though Caltrans is proposing to acquire right of way in the county park, the approximately 0.30-acre portion is adjacent to SR 36, and is not used for recreational activities. The TCE area required for the access road would remain in county park hands and would be restored after construction.

The project would temporarily close a pullout that provides access to the park and its resources. However, the main areas of the park – Swimmer's Delight and Pamplin Grove – could still be accessed and would not be affected by project activities. In addition, another county trail access point is located approximately 0.6 mile to the east and would not be affected by project activities. Though the pullout and trail segment would be temporarily closed for the duration of the project, there would be no change to these features, and they would be re-opened after construction.

Areas disturbed by vegetation and tree removal would be located near SR 36, and would be restored after construction. Redwood trees over 2 feet in diameter at breast height would be avoided along the temporary access road, and BMPs would be implemented to reduce impacts to tree roots. Vegetation removal for the access road may be visible from the county trail; however, this would affect only a short section of the trail and would be temporary in nature. All feasible measures would be taken to preserve the group of trees growing adjacent to the existing bridge abutment.

Based on the activities associated with the project, Caltrans determined the type of "use" of County Park resources would be de minimis because the project would not adversely affect the activities, features, or attributes of the park that make it eligible under Section 4(f).

Please sign below to indicate Humboldt County's concurrence with Caltrans' de minimis determination for the activities located on County Park land associated with bridge work on SR 36 at Hely Creek.

_____ _____

Hank Seemann Date

Deputy Director, Humboldt County Environmental Services

If you have further questions or need additional information, please contact me at Jason.Meyer@dot.ca.gov or contact Amanda Lee at Amanda.Lee@dot.ca.gov or (707) 441-4571.

Sincerely,

Jason Meyer
Senior Environmental Planner

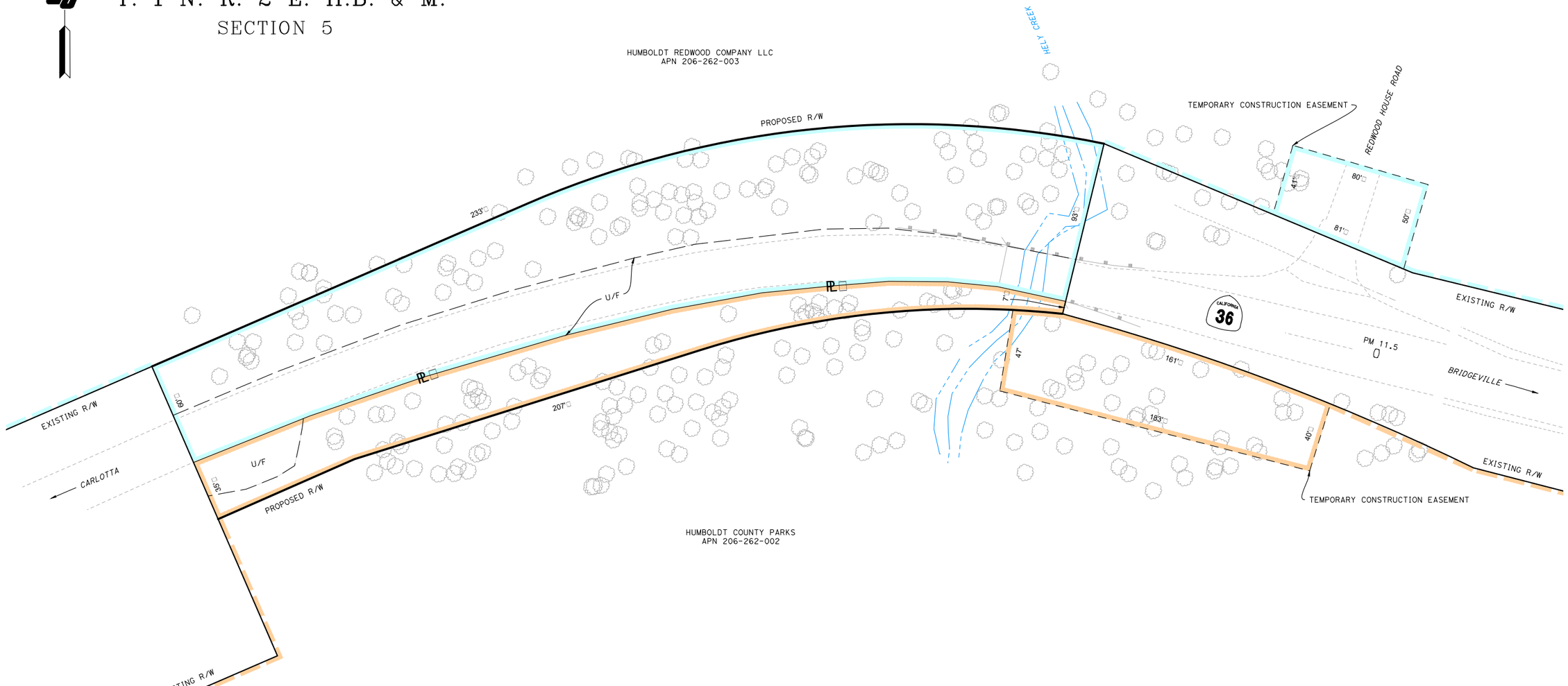
Attachments:
1. Right of Way Map
2. Hely Creek Project Layout

NOTE: The State of California or its officers or agents shall not be responsible for the accuracy or completeness of digital images of this map.

COUNTY OF HUMBOLDT

T. 1 N. R. 2 E. H.B. & M.

SECTION 5



SEE ENGINEERS RIGHT OF WAY EXHIBIT FOR 1" = 200' VIEW

PARCEL#	TITLE CODE ①	GRANTOR/GRANTEE	AREAS (square feet or as noted) TOTAL	REQUIRED [UF]	EXCESS [UF]	REMAINDER	REMARKS	RECORDATION TYPE ②	DATE	DOC.# ③
206-262-003	FEE	HUMBOLDT REDWOOD COMPANY LLC	LARGE	1.00 AC [0.40 AC]		LARGE				
	TCE			0.08 AC [0.00 AC]			TEMPORARY CONSTRUCTION EASEMENT			
206-262-002	FEE	HUMBOLDT COUNTY PARKS	LARGE	0.30 AC [0.03 AC]		LARGE				
	TCE			0.20 AC [0.00 AC]			TEMPORARY CONSTRUCTION EASEMENT			

GRANTOR NOTES

Areas shown do not include underlying fee, unless indicated.
Ac=acres
[ ] Indicates Underlying Fee (UF) Area
[I] Indicates Indeterminate UF
① TITLE CODES:
A=Access Rights Only
F=Fee
E=Easement (Ease)
TCE=Temp Construction Ease
T=Other Temp Ease (see Remarks)
O=Other (see Remarks)
② TYPE:
GD=Grant deed
ED=Easement deed
QC=Quitclaim
DD=Director's deed
DE=Director's easement deed
DK=Director's quitclaim deed
FOC=Final Order of Condemnation
HE=Highway easement deed
REL=Relinquishment
VAC=Vacation
JUA=Joint use agreement
CCUA=Consent to common use agreement
③ Document or Instrument number

NOTES

Coordinates and bearings are on CCS 83 Zone 1. Distances and stationing are grid distances. Divide by ##### to obtain ground distances.
All distances are in feet unless otherwise noted.

LEGEND

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

STATE OF CALIFORNIA
CALIFORNIA STATE TRANSPORTATION AGENCY
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY
COST ESTIMATE MAP
01-HUM-36-11.46

FOR PREVIOUS R/W INFORMATION SEE MAP(S) 01-HUM-36-11.6

FULL SIZE MAP SCALE: 1" = 30'

FEET 0 15 30 60 90

TO DESIGN: 07/16/2019 **EA(s):** 0C500 **FA#:**
DRAFTED BY: PEC **CHECKED BY:** CRJ

DISTRICT	COUNTY	ROUTE	SHEET PM	SHEET NO.	TOTAL SHEETS
1	HUM	36	11.5	1	1

PROJECT ID: 0112000292

PROJECT SURVEYOR: CRJ						
DATE	REVISIONS	LICENSE	SURVEYOR	LICENSE: 6621		
07/16/2019	ORIGINAL MAP	6621	CRJ (PEC)			

REVISIONS	DATE	LICENSE	SURVEYOR	REVISIONS	DATE	LICENSE	SURVEYOR

0C500_CEM_v3_PEC_20190716.dwg
\\sv01oaddvnx1\SURV1\01\0C500\RWE\PROJ_FLDR\ESTIMATE\CEM_v3_PEC
7/16/2019 10:29:18 AM

Dist			TOTAL PROJECT		
01	HUM	36	11.46	X	X

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

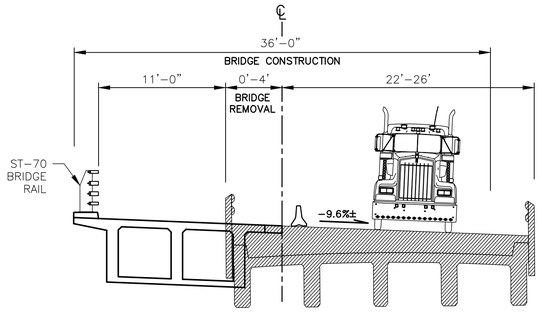
REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

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

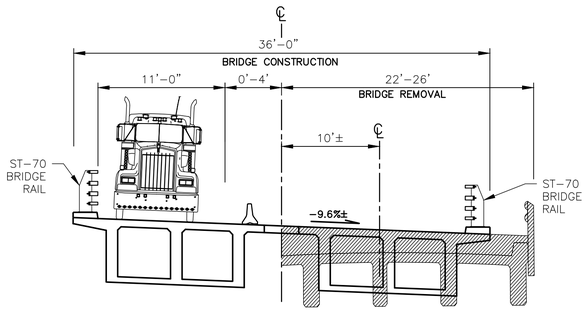
DOKKEN ENGINEERING
110 BLUE RAVINE RD.
SUITE 200
FOLSOM , CA 95630

LEGEND:

- Prop. ROW
- EXIST ROW
- TCE
- PARCEL LINE
- CUT/FILL LIMITS
- ACCESS ROAD
- ENVIRONMENTAL SURVEY LIMITS (ESL)
- ORDINARY HIGH WATER MARK (OHWM)
- WATER SURFACE ELEVATION FOR 100 YEAR DISCHARGE
- LIMITS OF BRIDGE WORK
- STAGING AREA



STAGE 1



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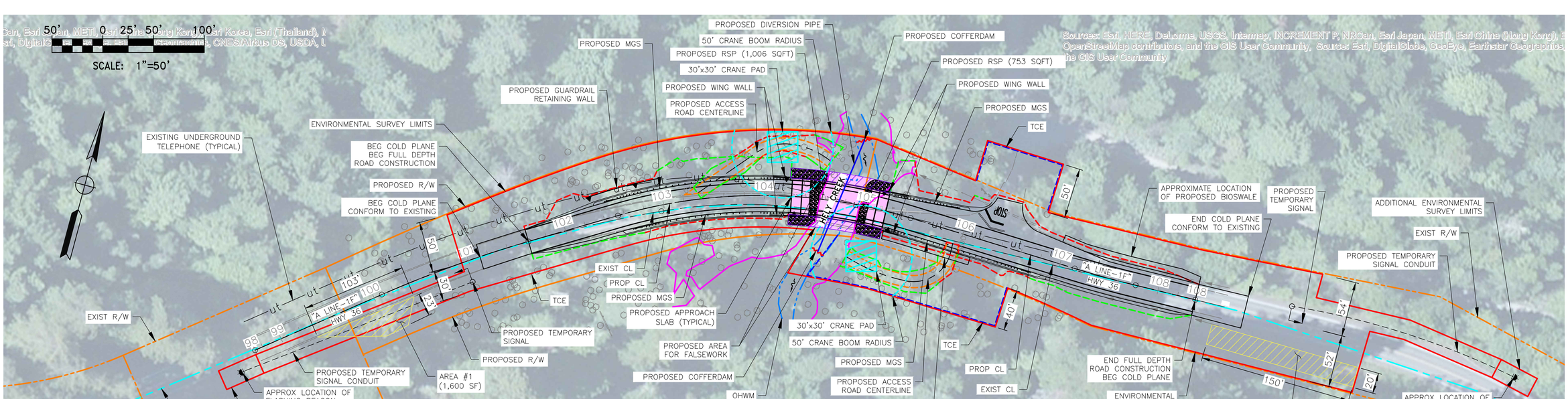

PLAN VIEW

CAST IN PLACE CONSTRUCTION SCENARIO

HELY CREEK

SHEET 1	EA 01-0C500	PM 11.46

DOKKEN JOB #2347

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

STATE OF CALIFORNIA — DEPARTMENT OF TRANSPORTATION — CONSULTANT FUNCTIONAL SUPERVISOR

LAST REVISION 00-00-00 | DATE PLOTTED => 6/3/2020 | TIME PLOTTED => 10:04 AM

FILE NAME => \\KINGS\PROJECTS\2347 CALTRANS_03A2392_T015_BRIDGE_RAIL\511\EXHIBITS\CONSTRUCTION SCENARIO\2347_HELY_CIP.DWG

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

EA 01-0C500

Dist			TOTAL PROJECT		
01	HUM	36	11.46	X	X

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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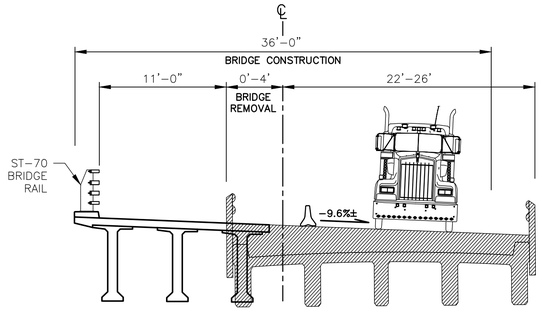
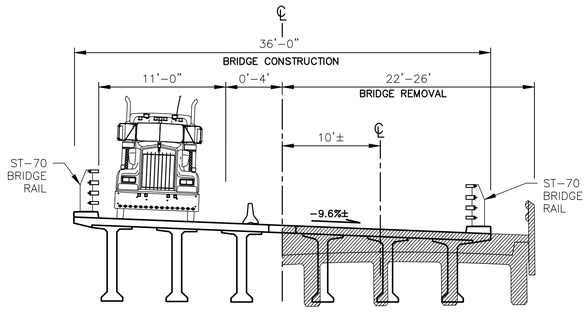
DOKKEN ENGINEERING
110 BLUE RAVINE RD.
SUITE 200
FOLSOM , CA 95630

LEGEND:

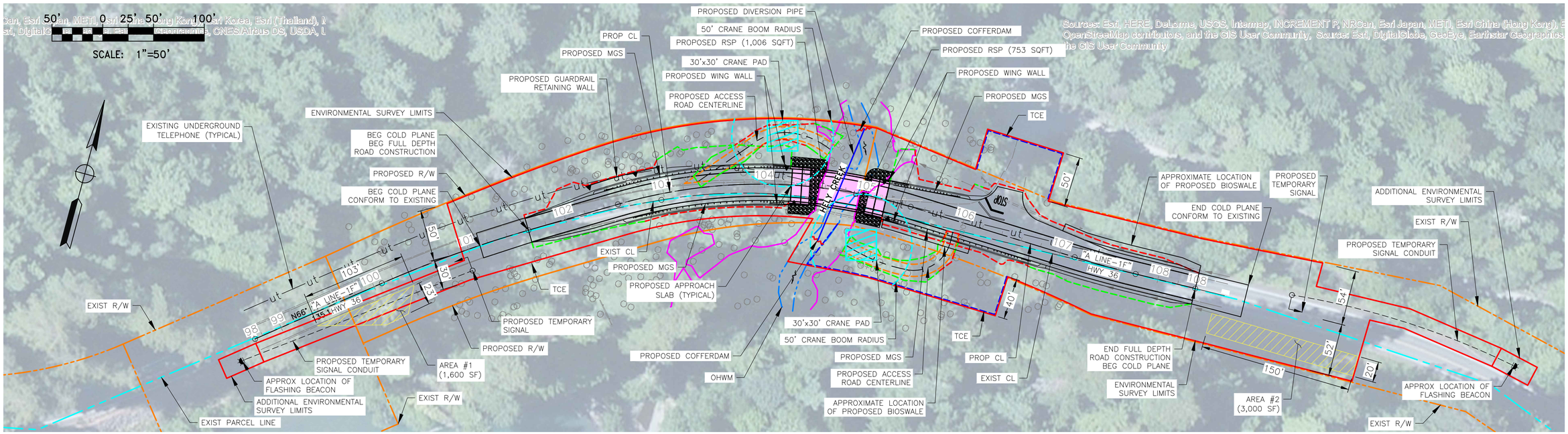
- Prop. ROW
- EXIST ROW
- TCE
- PARCEL LINE
- CUT/FILL LIMITS
- ACCESS ROAD
- ENVIRONMENTAL SURVEY LIMITS (ESL)
- ORDINARY HIGH WATER MARK (OHWM)
- WATER SURFACE ELEVATION FOR 100 YEAR DISCHARGE
- LIMITS OF BRIDGE WORK
- STAGING AREA



STAGE 1



STAGE 2



PLAN VIEW

PRECAST CONSTRUCTION SCENARIO

HELY CREEK

SHEET 1	EA 01-0C500	PM 11.46

DOKKEN JOB #2347

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

LAST REVISION DATE PLOTTED => 6/3/2020
00-00-00 TIME PLOTTED => 10:05 AM

FILE NAME => \\KINGS\PROJECTS\2347 CALTRANS_03A2392_T015_BRIDGE_RAIL\511\EXHIBITS\CONSTRUCTION SCENARIO\2347_HELY_PRECAST.DWG

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

EA 01-0C500

Appendix E. Aquatic Resource Delineation Maps

123°58'35"W 123°58'30"W 123°58'25"W 123°58'20"W

40°30'2"N 40°30'0"N 40°29'58"N 40°29'55"N

Redwood House Rd

RD 5c 0.001 ac
(L = 50 ft)
(W = 1 ft)

RD 5b 0.002 ac
(L = 52 ft)
(W = 2.5 ft)

C 5 0.002 ac (L = 52 ft) (W = 1.5 ft)

RD 5a 0.001 ac
(L = 23 ft)
(W = 1 ft)

PS 3
0.062 ac

Hely Creek

11.4

36

11.5

11.6

Ditch reaches stream via overland flow with no OHWM.

RD 4 0.012 ac
(L = 520 ft)
(W = 1 ft)

Van Duzen River

California Department of Transportation
Three Bridges Replacement and Widening
Aquatic Resource Delineation
Caltrans EA Number:
EA 01-0C500/E-FIS 0112200092
October 2019

- Environmental Study Limit (9.610 acres)
- State Highway Post Mile
- Contours (2ft Interval)
- Data Point
- OHWM
- Flow Direction

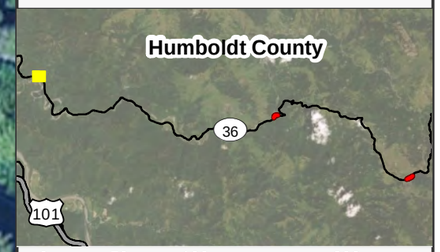
Aquatic Resources

Wetland Waters

- Wetland Ditch (0.028 acres)

Non-Wetland Waters

- Perennial Stream (0.659 acres)
- Intermittent Stream (0.007 acres)
- Ephemeral Stream (0.003 acres)
- Roadside Ditch (0.038 acres)
- Down Drain
- Culvert (0.011) acres)



0 50 100 200
Feet
1:1,200 --- 1 inch = 100 feet

N

Notes:
Acreages shown for each aquatic resource type refer to the entire survey area.

Source: Caltrans & ICF (2019)
Elevation Source:
Imagery Source: ESRI/Digital Globe (2018)

Coordinate System:
California State Plane Zone I NAD83 (Feet)
Projection: Lambert_Conformal_Conic
Datum: North American 1983

USGS Topo Quad: Owl Creek / Redcrest
PLSS: T1N R2E Section 5

Project Contact: Margaret Widdowson, ICF
Delineated By: Kyle Wear, RMM
Delineation Dates: July 10th; September 14th, 2019

Drawn By: Daniel Schiff, ICF
USACE Field Verification:

Path: \\PDCCITRDSGIS1\Projects_1\Caltrans\00356_19_Three_Bridges\Figures\ARDR\AquaticResources_20190917.mxd; Author: ; Date: 10/18/2019

Aquatic Resources Sheet 1
Hely Creek

123°46'55"W 123°46'50"W 123°46'45"W

40°28'42"N 40°28'40"N 40°28'37"N

Van Duzen River

Ditch reaches stream via overland flow with no OHWM.

DD-2 (L=19 ft.)

C-3 0.003 ac. (L =63 ft.) (W =2 ft.)

WD-3a 0.004 ac. (L =153 ft.) (W =1 ft.)

WD-3b 0.007 ac. (L =322 ft.) (W =1 ft.)

ES 2 0.002 ac (L =13 ft.) (W =6 ft.)

Little Larabee Creek

PS 2 0.237 ac

RD 3 0.001 ac (L =38 ft) (W =1 ft)

WD-4 0.006 ac (L =243 ft) (W =1 ft)

C-4 0.002 ac (L = 45 ft.) (W =2 ft)

25.3 25.4 25.2

36

California Department of Transportation
Three Bridges Replacement and Widening
Aquatic Resource Delineation
Caltrans EA Number:
EA 01-0C500/E-FIS 0112200092
October 2019

- Environmental Study Limit (9.610 acres)
- State Highway Post Mile
- Contours (2ft Interval)
- Data Point
- OHWM
- Flow Direction

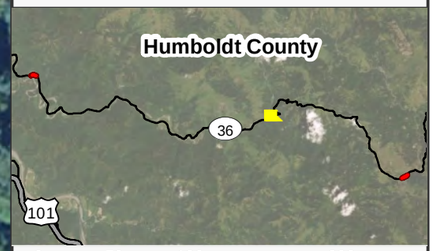
Aquatic Resources

Wetland Waters

- Wetland Ditch (0.028 acres)

Non-Wetland Waters

- Perennial Stream (0.659 acres)
- Intermittent Stream (0.007 acres)
- Ephemeral Stream (0.003 acres)
- Roadside Ditch (0.038 acres)
- Down Drain
- Culvert (0.011) acres)



0 50 100 200
Feet
1:1,200 --- 1 inch = 100 feet

N

Notes:
Acreages shown for each aquatic resource type refer to the entire survey area.

Source: Caltrans & ICF (2019)
Elevation Source:
Imagery Source: ESRI/Digital Globe (2018)

Coordinate System:
California State Plane Zone I NAD83 (Feet)
Projection: Lambert_Conformal_Conic
Datum: North American 1983

USGS Topo Quad: Bridgeville
PLSS: T1N R3E Section 12

Project Contact: Margaret Widdowson, ICF
Delineated By: Kyle Wear, RMM
Delineation Dates: July 10th; September 14th, 2019

Drawn By: Daniel Schiff, ICF
USACE Field Verification:

Path: \\PDCCITRDSGIS1\Projects_1\Caltrans\00356_19_Three_Bridges\Figures\ARDR\AquaticResources_20190917.mxd; Author: ; Date: 10/18/2019

Aquatic Resources Sheet 2
Larabee Creek

123°40'15"W
123°40'10"W
123°40'5"W
40°26'30"N
40°26'27"N
40°26'25"N

IS-1b 0.001 ac.
(L =33 ft.)
(W =2 ft.)
C-1 0.002 ac.
(L =48 ft.)
(W =2 ft.)
DD-1
(L=15 ft.)
WD-2a 0.001 ac.
(L =19 ft.)
(W =2 ft.)
PS-1 0.360 ac.
WD-1 0.002 ac.
(L =72 ft.)
(W =1 ft.)
RD-1a 0.006 ac.
(L =133ft.)
(W =2 ft.)
IS-1a 0.006 ac.
(L =83 ft.)
(W =3 ft.)
C-2 0.001 ac.
(L =47 ft.) (W =1 ft.)
WD-2b 0.008 ac.
(L =112 ft.)
(W =3 ft.)
RD-1b 0.007 ac.
(L =306 ft.)
(W =1 ft.)
ES-1 0.001 ac.
(L =41 ft.)
(W =1 ft.)
RD-2 0.008 ac.
(L =345 ft.)
(W =1 ft.)
34.8
34.7
34.6
36
1
2
3
4
Butte Creek
Hidden Valley Rd

California Department of Transportation
Three Bridges Replacement and Widening
Aquatic Resource Delineation
Caltrans EA Number:
EA 01-0C500/E-FIS 0112200092
October 2019

- Environmental Study Limit (9.610 acres)
- State Highway Post Mile
- Contours (2ft Interval)
- Data Point
- OHWM
- Flow Direction

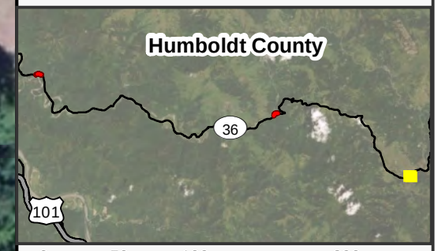
Aquatic Resources

Wetland Waters

- Wetland Ditch (0.028 acres)

Non-Wetland Waters

- Perennial Stream (0.659 acres)
- Intermittent Stream (0.007 acres)
- Ephemeral Stream (0.003 acres)
- Roadside Ditch (0.038 acres)
- Down Drain
- Culvert (0.011) acres)



0 50 100 200
Feet
1:1,200 --- 1 inch = 100 feet

Notes:
Acreages shown for each aquatic resource type refer to the entire survey area.

Source: Caltrans & ICF (2019)
Elevation Source:
Imagery Source: ESRI/Digital Globe (2018)

Coordinate System:
California State Plane Zone I NAD83 (Feet)
Projection: Lambert_Conformal_Conic
Datum: North American 1983

USGS Topo Quad: Larabee Valley
PLSS: T1N R4E Section 25

Project Contact: Margaret Widdowson, ICF
Delineated By: Kyle Wear, RMM
Delineation Dates: July 10th; September 14th, 2019

Drawn By: Daniel Schiff, ICF
USACE Field Verification:

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Aquatic Resources Sheet 3
Butte Creek

Appendix F. Special Status Species Table

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Amphibians					
Del Norte salamander	*Plethodon elongatus*	--/WL/--	Associated with late seral mixed conifer forest. Cool, moist, stable microclimate, a deep litter layer.	Present	Although not detected, suitable habitat exists in the ESL.
Foothill yellow-legged frog (North Coast Clade)	*Rana boylii*	--/SSC/--	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	Present	This species has been observed in the ESL.
Northern red-legged frog	*Rana aurora*	--/SSC/--	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Present	Species has been observed in ESL.
Pacific tailed frog	*Ascaphus truei*	--/SSC/--	Occurs in montane hardwood-conifer, redwood, Douglas-fir, and ponderosa pine habitats. Restricted to perennial montane streams. Tadpoles require water below 59ºF (15ºC).	Present	Although not detected, suitable habitat exists in the ESL.
Southern torrent salamander	*Rhyacotriton variegatus*	--/SSC/--	Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Old-growth forest. Cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rock within trickling water.	Present	Although not detected, suitable habitat exists in the ESL.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Reptiles					
Western pond turtle	*Emys marmorata*	--/SSC/--	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to .31 mile (0.5 km) from water for egg-laying.	Present	Species was observed in the ESL.
Birds					
American peregrine falcon	*Falco peregrinus anatum*	DL/FP/--	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	Present	Nesting habitat is present in the BSA. No signs of nesting habitat or potential nest structures have been detected in the ESL.
Bald eagle	*Haliaeetus leucocephalus*	DL/SE/--	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	Present	Nesting habitat is present in the BSA. No signs of nesting habitat or potential nest structures have been detected in the ESL.
Bank swallow	*Riparia riparia*	--/ST/--	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Present	Nesting habitat may be present in the BSA. No signs of nesting habitat or potential nest structures have been detected in the ESL.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Cooper's hawk	*Accipiter cooperii*	--/WL/--	Found in woodlands, chiefly open interrupted or marginal type. Nest sites mainly in riparian growth of deciduous trees, as in canyon bottoms on river flood-plains; also, in live oaks.	Present	Nesting habitat is present in the BSA. No signs of nesting or potential nest structures have been detected in the ESL.
Golden eagle	*Aquila chrysaetos*	--/FP/--	Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Present	Nesting habitat is present in the BSA. No signs of nesting habitat or potential nest structures have been detected in the ESL.
Little willow flycatcher	*Empidonax traillii brewsteri*	--/SE/--	Prefers mountain meadows and riparian habitats. Nests near the edges of vegetation clumps and near streams in mountain meadows and riparian habitats.	Absent	Suitable nesting habitat does not exist in the ESL.
Marbled murrelet	*Brachyramphus marmoratus*	FT/SE/--	(Nesting) forages in nearshore ocean waters; nests along coast, from Eureka to Oregon border and from Half Moon Bay to Santa Cruz. Nests in old-growth coniferous trees.	Present	Nesting habitat is present in the BSA. No signs of nesting or potential nest structures or occurrence records have been detected in the ESL. Nesting habitat observed in the BSA includes mature stand of trees at Pamplin Grove (approximately 0.20 mile from Hely Creek ESL).
Northern goshawk	*Accipiter gentilis*	--/SSC/--	Within, and in vicinity of, coniferous forest. Uses old nests and maintains alternate sites. Usually nests on north slopes, near water. Red fir, lodgepole pine, Jeffrey pine, and aspens are typical nest trees.	Present	Nesting habitat is present in the BSA. No signs of nesting habitat or potential nest structures have been detected in the ESL.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Northern spotted owl	*Strix occidentalis caurina*	FT/ST/--	Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests with patches of big trees. High, multistory canopy dominated by big trees, many trees with cavities or broken tops, woody debris, and space under canopy.	Present	This species was detected in the BSA. No suitable nesting habitat is within the ESL. Recent detections were reported during 2019 protocol-level surveys for the project. An individual NSO was detected approximately 260 feet upslope of Caltrans Station 3 at Hely Creek. A second detection of NSO was reported at Little Larabee Creek Caltrans Station 3; this individual was heard approximately 600 feet from the station.
Osprey	*Pandion haliaetus*	--/WL/--	Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	Present	Nesting habitat is present in the BSA. No signs of nesting or potential nest structures have been detected in the ESL.
Sharp-shinned hawk	*Accipiter striatus*	--/WL/--	Found in numerous forest types. Generally found on north-facing slopes with plucking perches. Nest sites are usually within 275 feet of water.	Present	Nesting habitat is present in the BSA. No signs of nesting or potential nest structures have been detected in the ESL.
Western snowy plover	*Charadrius alexandrines nivosus*	FT/SSC/--	Breeds above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely-vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons estuaries; rarely observed along lower perennial gravel bars.	Absent	Suitable breeding habitat does not exist in the ESL.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Western yellow-billed cuckoo	*Coccyzus americanus*	FT/SE/--	• (Nesting) riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	Absent	Suitable breeding habitat does not exist in the ESL.
Fish					
Coast cutthroat trout	*Oncorhynchus clarkii*	--/SSC/--	Small, low gradient coastal streams and estuaries from the Eel River to the Oregon border. Needs shaded streams with water temperatures <18C, and small gravel for spawning.	Present	Suitable habitat for the species exists in the ESL.
Chinook salmon - California Coastal ESU and Critical Habitat	*Oncorhynchus tshawytscha*	FT/--/--	Coastal, spring and fall river runs between Redwood Creek in Humboldt County and Russian River in Sonoma County.	Present	Suitable habitat for the species exists in the ESL.
Coho salmon - Southern Oregon /Northern California Coast ESU and Critical Habitat	*Oncorhynchus kisutch*	FT/ST/--	Streams, rivers between Cape Blanco, Oregon, and Punta Gorda, Humboldt County, CA.	Present	Suitable habitat for the species exists in the ESL.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Eulachon	*Thaleichthys pacificus*	FT/--/--	Found in Klamath River, Mad River, Redwood Creek, and in small numbers in Smith River and Humboldt Bay tributaries. Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.	Absent	Suitable habitat does not exist in the ESL.
Green sturgeon Northern DPS	*Acipenser medirostris*	FSC/--/--	The Northern DPS is known to spawn in the Klamath River in California, as well as the Rogue River in Oregon. Northern DPS fish have also been observed in the Trinity and Eel rivers, as well as in the Umpqua River (OR), though it is not yet clear if they routinely spawn in those locations. Southern DPS Green Sturgeon are found in the Sacramento and San Joaquin rivers and Delta. They primarily spawn in the upper mainstem of the Sacramento River, although some spawning activity has recently been documented in the Feather and Yuba rivers.	Absent	Suitable habitat does not exist in the ESL.
Green sturgeon Southern DPS	*Acipenser medirostris*	FT/SSC/--	The most marine species of sturgeon. Abundance increases northward of Point Conception. Spawns in the Sacramento, Klamath, and Trinity Rivers. Spawns at temps between 46ºF-57 (8-14ºC). Preferred spawning substrate is large cobble, can range from clean sand to bedrock.	Absent	Suitable habitat does not exist in the ESL.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Pacific lamprey	*Entosphenus tridentatus*	--/SSC/--	Found in Pacific Coast streams north of San Luis Obispo County. Swift-current, gravel-bottomed areas for spawning with water temps between 54-64ºF (12-18ºC). Ammocoetes need soft sand or mud.	Present	Suitable habitat for the species exists in the ESL.
Steelhead-Northern California DPS and Critical Habitat	*Oncorhynchus mykiss irideus*	FT/--/--	Coastal basins from Redwood Creek south to the Gualala River, inclusive. Does not include summer-run steelhead	Present	Suitable habitat for the species exists in the ESL. Juvenile steelhead (unknown population) observed during snorkel surveys in 2019 in ESL at Hely and Little Larabee creeks. Low potential for occurrence at Butte Creek.
Summer-run steelhead trout pop. 36	*Oncorhynchus mykiss irideus*	--/SC(E)/-	Northern California coastal streams south to Middle Fork Eel River. Cool, swift, shallow water and clean loose gravel for spawning, and suitably large pools in which to spend the summer.	Present	Suitable habitat for the species exists in the ESL. Juvenile steelhead (unknown population) observed during snorkel surveys in 2019 in the ESL at Hely and Little Larabee creeks. Low potential for occurrence at Butte Creek.
Mammals					
Fisher - West Coast DPS	*Pekania pennanti*	SSC/ST/--	Intermediate to large-tree stands of coniferous forests and deciduous-riparian areas with high percent canopy closure. Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.	Present	Habitat present within the BSA consists of large redwood trees, cavities, snags, and logs.

Common Name	***Scientific Name***	**Status** USFWS/ CDFW/ CRPR**	**General Habitat Description**	**Habitat Present/ Absent**	**Potential for Occurrence and Rationale**
Humboldt marten	*Martes caurina humboldtensis*	FSC/SE/--	Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County. Associated with late-successional coniferous forests, prefer forests with low, overhead cover.	Present	Habitat present within the BSA consists of large redwood trees, cavities, snags, and logs. However, the project is outside the current range of this species.
Little brown bat	*Myotis lucifugus*	--/--/--	Uses a variety of habitats. Hibernates in mines or caves. Will use buildings for roosts. Forages near water. Females return to same nursery colonies year after year.	Present	This species was detected in the ESL. No maternity roosts have been observed in the ESL.
Long-eared Myotis	*Myotis evotis*	--/--/--	Found in all brush, woodland, and forest habitats from sea level to about 9,000 ft. Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	Present	This species was not detected in the ESL, but the project is within the known range of this species. No roosts have been observed in the ESL.
Long-legged Myotis	*Myotis Volans*	--/--/--	Most common in woodland and forest habitats above 4,000 ft. Trees are important day roosts; caves and mines are night roosts. Nursery colonies usually under bark or in hollow trees, but occasionally in crevices or buildings.	Present	This species was not detected in the ESL, but the project is within the known range of this species. No roosts have been observed in the ESL.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Sonoma tree vole	*Arborimus pomo*	--/SSC/--	North coast fog belt from Oregon border to Sonoma County. In Douglas-fir, redwood, and montane hardwood-conifer forests. Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock, or spruce.	Present	Suitable habitat is present on-site. No signs of Sonoma tree vole use were observed in the ESL.
Townsend's big-eared bat	*Corynorhinus townsendii*	--/SSC/--	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites are limiting factor. Extremely sensitive to human disturbance.	Present	This species was detected in the ESL.
Western red bat	*Lasiurus blossevillii*	--/SSC/--	Roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	Present	This species was not detected in the ESL, but the project is within the known range of this species. No roosts have been observed in the ESL.
Yuma myotis	*Myotis yumanensis*	--/--/--	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings, or crevices.	Present	This species was not detected in the ESL, but the project is within the known range of this species. No roosts have been observed in the ESL.
Invertebrates					

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Obscure bumblebee	*Bombus caliginosus*	--/--/--	Inhabits open grassy coastal prairies and Coast Range meadows. Nesting occurs underground as well as above ground in abandoned bird nests. Food plant genera include *Baccharis, Cirsium, Lupinus, Lotus, Grindelia* and *Phacelia*.	Absent	Marginal habitat is present on-site. No prairie or meadow habitat would be impacted by proposed project.
Western pearlshell mussel	*Margaritifera falcata*	--/--/--	Perennial rivers, streams, and creeks at depths of 1.5 to 5 feet, in areas with boulders and gravel substrate, with some sand, silt and clay. Prefers clear, cold water, and has been found at multiple elevations, including waterways above 5,000 feet and even 8,000 feet. Species occurs in waterways with low velocities, low shear stress, and stable substrates. Frequently found in eddies, pools, and areas with stones or boulders that likely shelter mussel beds from scour during flood events.	Absent	Suitable habitat does not exist on-site.
Western bumblebee	*Bombus occidentalis*	--/SC(E)/--	Typically nests underground in abandoned rodent burrows or other cavities, mostly in open west-southwest slopes bordered by trees although a few nests have been reported from above ground locations such as in logs among railroad ties.	Absent	Nesting on-site is not likely to occur in the low-lying wetland environments of the project area.
Plants					

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Bald Mountain milk-vetch	*Astragalus umbraticus*	--/--/2B.3	Cismontane woodland, lower montane coniferous forest. Dry open oak and pine woodlands; sometimes on roadsides. 689-4,002 ft (210-1220 m)	Present	Suitable habitat may be present along disturbed areas, species was not present during botanical surveys.
Baxbaum sedge	*Carex buxbaumii*	--/--/4.2	Bogs and fens, meadows and seeps, marshes and swamps.	Present	Species detected during botanical surveys.
Beaked tracyina	*Tracyina rostrate*	--/--/1B.2	Open grassy meadows usually within oak woodland and grassland habitats. 150-2,609 ft (150-795 m)	Absent	Suitable habitat does not exist in the ESL None detected during floristic surveys for the project.
Beegum onion	*Allium hoffmanii*	--/--/4.3	Lower coniferous forest. Serpentine substrates. 3608-5905 ft (1,100-1,800 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Bensoniella	*Bensoniella oregona*	--/--/1B.1	Bogs and fens, lower montane coniferous forest, meadows and seeps. Wet meadows and openings in forest. 30,856-4,560 ft (9,405-1,390 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
California globe mallow	*Iliamna latibracteata*	--/--/1B.2	North Coast coniferous forest, chaparral, lower montane coniferous forest, riparian scrub (streambanks). Seepage areas in silty clay loam. 197-5,430 (60-1655 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
California pinefoot	*Pityopus californicus*	--/--/4.2	Broad-leaved upland forest, upper montane coniferous forest, North Coast coniferous forest, lower montane coniferous forest. Deep shade with few other understory species, often under a layer of duff, in rocky to clay loam soils. 49-7,30 ft (15-2,225 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Cascade downingia	*Downingia willamettensis*	--/--/2B.2	Cismontane woodland, valley and foothill grasslands, vernal pools. Lake margins. 49-3,641 ft (15-1,110 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Clustered lady's-slipper	*Cypripedium fasciculatum*	--/--/4.2	North Coast coniferous forest, lower montane coniferous forest. In serpentine seeps and on moist streambanks. 328-7,989 ft (100-2,435 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Coast checkerbloom	*Sidalcea oregana ssp. eximia*	--/--/1B.2	Meadows and seeps, North Coast coniferous forest, lower montane coniferous forest. Near meadows, in gravelly soil. 16-5,922 ft (5- 1,805 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Coast fawn lily	*Erythronium revolutum*	--/--/2B.2	Bogs and fens, broad-leaved upland forest, North Coast coniferous forest. Mesic sites; streambanks. 196-4,910 ft (60-1405 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Great burnet	*Sanguisorba officinalis*	--/--/2B.2	Bogs and fens, meadows and seeps, broad-leaved upland forest, marshes and swamps, North Coast coniferous forest, riparian forest. Rocky serpentine seepage areas and along stream 16-4,593 (5-1,400 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Giant fawn lily	*Erythronium oregonum*	--/--/2B.2	Cismontane woodland, meadows and seeps. Openings, sometimes on serpentine; rocky sites. 985-4708 ft (300-1435 m).	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Heart-leaved twayblade	*Listera cordata*	--/--/4.2	Bogs and fens, lower montane coniferous forest, north coast coniferous forest. 5-1370 m.	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Howell's manzanita	*Arctostaphylos hispidula*	--/--/4.2	Open sites on rocky serpentine or sandstone. 393-4,101 (120-1250 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Howell's montia	*Montia howellii*	--/--/2B.2	Meadows, North Coast coniferous forest, vernal pools. Vernally wet sites; often on compacted soil. 33-3,230 ft (10-1005 m).	Present	Suitable habitat may be present along disturbed areas, species was not present during botanical surveys.
Humboldt County fuchsia	*Epilobium septentrionale*	--/--/4.3	Broad-leaved upland forest, North Coast coniferous forest. Dry, sandy, or rocky ledges. 148-5,905 ft. (45-1800 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Humboldt County milk-vetch	*Astragalus agnicidus*	--/SE/1B.1	Broad-leafed upland forest, North Coast coniferous forest. Disturbed openings in partially timbered forest lands; also, along ridgelines; south aspects. 525-2,199 ft (160-670 m)	Present	Suitable habitat may be present along disturbed areas, but species was not present during botanical surveys.
Humboldt County wyethia	*Wyethia longicaulis*	--/--/4.3	Broad-leaved upland forest, coastal prairie, lower montane coniferous forest. Along streams, seepage areas, sometimes on serpentine. 2,460-5,002 ft (750-1,525 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Klamath arnica	*Arnica spathula*	--/--/4.3	Lower montane coniferous forest. Open, dry disturbed oak/conifer woodland; generally on serpentine. 2,99.2-5,904 ft (640-1,800 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Kneeland Prairie pennycress	*Noccaea fendleri ssp. californica*	FE/--/1B.1	Coastal prairie. Serpentine rock outcrops. 760-820 m. Rocky cliffs and ocean-facing bluffs. 0-4101.6 ft (0-1,220 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Konocti manzanita	*Arctostaphylos manzanita ssp. elegans*	--/--/1B.3	Chaparral, cismontane woodland, lower montane coniferous forest. Volcanic soils. 715.5-4,172.4 ft (225-1,830 meters.)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Leafy reed grass	*Calamagrostis foliosa*	--/Rare/4.2	Coastal bluff scrub, North Coast coniferous forest.	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Leafy-stemmed mitrewort	*Mitellastra caulescens*	--/--/4.2	Broad-leaved upland forest, lower montane coniferous forest, meadows and seeps, North Coast coniferous forest. Mesic sites. 11.4-3,876 ft (5-1,700 m)	Present	Species present in the ESL.
Mad River fleabane daisy	*Erigeron manipotamicus*	--/--/1B.2	Meadows and seeps (open and dry), lower montane coniferous forest. Open slopes, disturbed areas (road cuts); tan-colored, rocky soils. 2918.4-4,936.4 ft (1,280-1,505 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
maple-leaved checkerbloom	*Sidalcea malachroides*	--/--/4.2	Broad-leaved upland forest, coastal prairie, coastal scrub, North Coast coniferous forest, riparian forest. Woodlands and clearings near coast; often in disturbed areas. 13.12-2,509.2 ft (4-765 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Methuselah's beard lichen	*Usnea longissima*	--/--/4.2	North Coast coniferous forest, broad-leaved upland forest. Grows in the "redwood zone" on tree branches of a variety of trees, including big leaf maple, oaks, ash, Douglas-fir, and bay. 147.6-4,805.2 ft (45-1,465 m) in California.	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Mountain lady's slipper	*Cripedium montanum*	--/--/4.2	Lower montane coniferous forest, broad-leaved upland forest, cismontane woodland, North Coast coniferous forest. On dry, undisturbed slopes. 606.8—7,298 ft (185-2,225 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Northern clustered sedge	*Carex arcta*	--/--/2B.2	Bogs and fens, North Coast coniferous forest. Mesic sites. 197-4,609 ft (60-1,405 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Northern meadow sedge	*Carex practicola*	--/--2B.2	Meadows and seeps. Moist to wet meadows. 49.2—10496 ft (15-3,200 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Oregon fireweed	*Epilobium oreganum*	--/--/1B.2	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest mesic.	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Oregon golodtread	*Coptis laciniata*	--/--/4.2	North Coast coniferous forest, meadows and seeps. Mesic sites such as moist streambanks. 0-3,280 (0-1,000 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Pacific fuzzwort	*Meesia triquetra*	--/--/4.2	Bogs and fens, meadows and seeps, upper montane coniferous forest, subalpine coniferous forest. Moss growing on mesic soil. Saturated bogs, fens, seeps and meadows in coniferous to subalpine forests. 4,329.6—9692.4 ft (1,300-2,955 m)	Low	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Pacific gilia	*Gilia capitata ssp. Pacifica*	--/--/1B.2	Coastal bluff scrub, chaparral, coastal prairie, valley and foothill grassland. 16-4,413 ft (5-1345 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
pale yellow stonecrop	*Sedum laxum ssp. flavidum*	--/--/4.3	North Coast, the Klamath Mountain Range and North Coast Range regions. It tends to grow in rocky outcrops, at elevations from 2,600-6,600 feet	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Rattan's milk-vetch	*Astragalus rattanii var. rattanii*	--/--/4.3	Open grassy hillsides, gravelly flats in the valleys, and gravel bars of stream beds. 98.4-1,066 ft (30-825 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Red-stemmed cryptantha	*Cryptantha rostellata*	--/--/4.2	Often gravelly, volcanic openings; often roadsides. 131.2—2,624 ft (40-800 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Redwood lily	*Lilium rubescens*	--/--/4.2	Chaparral, lower montane coniferous forest, broad-leaved upland forest, upper montane coniferous forest, North Coast coniferous forest. Sometimes on serpentine. 98.4-6,264.8 ft (30-1,910 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Robust false lupine	*Thermopsis robusta*	--/--/1B.2	North Coast coniferous forest, broad-leaved up-land forest. Ridgetops; sometimes on serpentine. 1,197.2-4,608 ft (365-1,405 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Running-pine	*Lycopodium clavatum*	--/--/4.1	Lower montane coniferous forest, North Coast coniferous forest, marshes and swamps. Forest understory, edges, openings, roadsides; mesic sites with partial shade and light. 147.6—4,018 ft (45-1,225 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Scabrid alpine tarplant	*Anisocarpus scabridus*	--/--/1B.3	Upper montane coniferous forest. Open stony ridges, metamorphic scree slopes of mountain peaks, and cliffs in or near red fir forest 5,084—7,708 ft (1,550-2,350 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Seaside bittercress	*Cardamine angulate*	--/--/2B.1	North Coast coniferous forest, lower montane coniferous forest. Wet areas, streambanks. 295.2-508.4 ft (90-155 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Seacoast ragwort	*Packera bolanderi var. bolanderi*	--/--/2B.2	Coastal scrub, North Coast coniferous forest. Sometimes along roadsides. 30-3,002 ft (30-915 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Siskiyou checkerbloom	*Sidalcea malviflora ssp. Patula*	--/--/1B.2	Coastal bluff scrub, coastal prairie, North Coast coniferous forest. Open coastal forest; roadcuts. 16-4,118 ft (5-1255 m)	Present	Suitable habitat may be present along disturbed areas, species was not present during botanical surveys.
Siskiyou fritillaria	*Fritillaria glauca*	--/--/4.2	Serpentinite, talus slopes. Alpine boulder and rock field, subalpine coniferous forest, upper montane	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
			coniferous forest.		
Siskiyou sedge	*Carex scabriuscula*	--/--/4.2	Coastal prairie, marshes and swamps (lake margins), valley and foothill grassland.	Present	Suitable habitat may be present in the understory of adjacent forest, but species was not present during botanical surveys.
Slender bog-orchid	*Platanthera stricta*	--/--/4.2	Lower montane coniferous forest, meadows and seeps. Mesic sites. 2,280-7,544 ft (1,000-2,300 m).	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Small groundcone	*Kopsiopsis hookeri*	--/--/2B.3	North Coast coniferous forest. Open woods, shrubby places, generally on *Gaultheria shallon*. 394-4,708 ft (120-1,435 m)	Present	Suitable habitat may be present in the understory of adjacent forest, but species was not present during botanical surveys.
Small-flowered calycadenia	*Calycadenia micrantha*	--/--/1B.2	Chaparral, valley and foothill grasslands, meadows and seeps. Rocky talus or scree; sparsely vegetated areas. Occasionally on roadsides; sometimes serpentine.	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
South Fork Mountain lupine	*Lupinus elmeri*	--/--/1B.2	Lower montane coniferous forest. 4,395.2-5,904 ft (1,340-1,800 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
The Lassics lupine	*Lupinus constancei*	--/SE/1B.1	Lower montane coniferous forest. Serpentine barrens. 5,526.8-5,707 ft (1,685-1,740 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
The Lassics sandwort	*Sabulina decumbens*	--/--/1B.2	Lower montane coniferous forest, upper montane coniferous forest. Endemic to serpentine. Only known from upper, north-facing slopes under Jeffrey pines. 5,182.4-5,510.4 (1,580-1,680 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Tracy's collomia	*Collomia tracyi*	--/--/4.3	Lower montane coniferous forest, broad-leaved upland forest. On rock outcrops. On serpentine at least	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
			sometimes. 984-6,888 ft (300-2,100 m)		
Tracy's sanicle	*Sanicula tracyi*	--/--/4.2	Cismontane woodland, lower montane coniferous forest, upper montane coniferous forest. Dry gravelly slopes or flats, usually in or at the margin of oak woodland with scattered trees. In openings. 328-5,198.8 ft (100-1,585 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Trailing black current	*Ribes laxiflorum*	--/--/4.2	North Coast coniferous forest. Clambering over logs and stumps in moist, wet places. Redwood forests. 16.4-4,575.6 ft (5-1,395 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Two-flowered pea	*Lathyrus biflorus*	--/--/1B.1	Lower montane coniferous forest. Endemic to serpentine. 4,492-4,542.8 ft (1,370-1,385 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Water howellia	*Howellia aquatilis*	FT/--/2B.2	Freshwater marshes and swamps. In clear ponds with other aquatics and surrounded by ponderosa pine forest and sometimes riparian associates. 3,542.4-4,510 ft (1,080-1,375 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
White-flowered rein orchid	*Piperia candida*	--/--/1B.2	North Coast coniferous forest, lower montane coniferous forest, broad leafed upland forest. Sometimes on serpentine. Forest duff, mossy banks, rock outcrops, and muskeg. 3,543-5,300 ft (45-1,615 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.

Common Name	***Scientific Name***	**Status** USFWS/ CDFW/ CRPR**	**General Habitat Description**	**Habitat Present/ Absent**	**Potential for Occurrence and Rationale**
Western lily	*Lilium occidentale*	FE/SE/1B.1	Coastal scrub, freshwater marsh, bogs and fens, coastal bluff scrub, coastal prairie, North Coast coniferous forest, marshes and swamps. Well-drained, old beach washes overlain with wind-blown alluvium and organic topsoil; usually near margins of Sitka spruce. 9-361 ft (3-110 m).	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Yolla Bolly Mtns. bird's-foot trefoil	*Hosackia yollabolliensis*	--/--/1B.2	Upper montane coniferous forest, meadows and seeps. 5,182.4-7,002.8 ft (1,580-2,135 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.

***Federal**:* -- = No status definition. FE = Endangered. FPT = Proposed for federal listing as threatened under the Federal Endangered Species Act. FT = Listed as threatened under the Federal Endangered Species Act. FC = Candidate for Federal listing (taxa for which the U.S. Fish and Wildlife Service has sufficient biological information to support a proposal to list as Endangered or Threatened). DL = Delisted. FSC = Species of Concern (Species of Concern is an informal term. It is not defined in the federal Endangered Species Act. The term commonly refers to species that are declining or appear to be in need of conservation)

State: -- = No status definition***.*** SE = Listed as endangered under the California Endangered Species Act***.*** ST = Listed as threatened under the California Endangered Species Act***.*** SC = Proposed for state listing as threatened under the California Endangered Species Act FP = Fully protected, species may not be taken or possessed without a permit from the FG Commission and/or the CDFW***,*** SSC = Species of Special Concern, WL = Watch List that includes "Taxa to Watch".

California Rare Plant Rank (CRPR): -- = No status definition***.*** Rank 1A = Plants presumed extinct in California***.*** Rank 1B = Plants are rare and endangered in California***.*** Rank 2 = Plants endangered in California, but more common elsewhere***.*** Rank 3= Plants that need consideration per CEQA due to lack the necessary information to assign them to one of the other ranks or to reject them. Rank 4 = Plants of limited distribution or infrequent throughout a broader area in California, so that their vulnerability or susceptibility to threat appears low at this time, from a statewide perspective. However, these taxa warrant regular monitoring for evidence of decline and subsequent transfer to a more sensitive rank.

"Likelihood of Occurrence within the Study Area", unless noted within the analysis, is derived from the following formula:

None: Species, habitat, or community was not observed during biological field surveys conducted at an appropriate time for identification of the species; or species is restricted to habitats that do not occur within the Study Area.

Low: No records exist of the species occurring within the Study Area or its "vicinity" (within 5 miles); or on-site habitats needed to support the species are of poor quality.

Moderate: Both a historical record exists of the species within the vicinity of the Study Area and the habitat requirements associated with the species occur within the Study Area. The validity of a historical occurrence is weighted by the condition of on-site habitat at the time of occurrence versus existing habitat conditions.

High: Both a valid historical record exists of the species within the Study Area or its "immediate vicinity" (within 1 mile) and the habitat requirements associated with the species occur within the Study Area and are of high quality.

Observed: Species, habitat, or community was observed within the Study Area at the time of the biological field survey.

Appendix G. List of Plant Species Observed Within the ESL

Plants Species Observed in the Survey Area

Scientific Name	Common Name	Wetland Indicator Status
Trees		
Abies grandis	grand fir	FACU
Acer macrophyllum	bigleaf maple	FACU
Alnus rhombifolia	white alder	FACW
Alnus rubra	red alder	FAC
Arbutus menziesii	madrone	UPL
Frangula purshiana	cascara	FAC
Fraxinus latifolia	Oregon ash	FACW
Notholithocarpus densiflorus var. *densiflorus*	tanoak	UPL
Pinus ponderosa	Ponderosa pine	FACU
Pseudotsuga menziesii	Douglas-fir	FACU
Quercus garryana	Oregon white oak	FACU
Quercus kelloggii	California black oak	UPL
Populus trichocarpa	black cottonwood	FAC
Ribes menziesii	canyon gooseberry	UPL
Salix lasiandra	Pacific willow	FACW
Sequoia sempervirens	coast redwood	UPL
Umbellularia californica	California-bay	FAC
Shrubs		
Amelanchier alnifolia	western serviceberry	FACU
Baccharis pilularis	coyote brush	UPL
Berberis aquifolium	tall Oregon-grape	UPL
Corylus cornuta ssp. *californica*	California hazelnut	FACU
Crataegus gaylussacia	Klamath hawthorn	UPL
Gaultheria shallon	salal	FACU
Genista monspessulana	French broom	UPL
Holodiscus discolor	oceanspray	FACU
Oemleria cerasiformis	oso berry	FACU
Prunus virginiana var. *demissa*	western chokecherry	FACU
Rosa californica	rose	FAC

Scientific Name	Common Name	Wetland Indicator Status
Rubus parviflorus	thimbleberry	FACU
Rubus spectabilis	salmonberry	FAC
Salix lasiolepis	arroyo willow	FACW
Salix sitchensis	Sitka willow	FACW
Salix sp.	willow	>=FAC
Sambucus racemosa var. *racemosa*	red elderberry	FACU
Symphoricarpos albus	snowberry	FACU
Vaccinium ovatum	evergreen huckleberry	FACU
Vaccinium parvifolium	red huckleberry	FACU
Woody Vines		
Clematis sp.	clematis	undetermined
Hedera helix	English ivy	FACU
Lonicera hispidula	hairy honeysuckle	FACU
Rubus armeniacus	Himalayan blackberry	FAC
Rubus ursinus	California blackberry	FACU
Toxicodendron diversilobum	poison-oak	FAC
Herbaceous Plants		
Achillea millefolium	common yarrow	FACU
Acmispon americanus var. *americanus*	lotus	FACU
Aira caryophyllea	European hairgrass	FACU
Anaphalis margaritacea	pearly everlasting	FACU
Anthemis cotula	mayweed	FACU
Anthoxanthum odoratum	sweet vernal grass	FACU
Arrhenatherum elatius	tall oatgrass	UPL
Artemisia douglasiana	mugwort	FACW
Athyrium filix-femina	lady fern	FAC
Avena barbata	slender wild oat	FACU
Bellis perennis	English daisy	UPL
Briza maxima	rattlesnake grass	UPL
Brodiaea elegans	harvest brodiaea	FACU
Bromus hordeaceus	soft chess	FACU
Carduus pycnocephalus	Italian thistle	UPL
Carex buxbaumii	Buxbaum's sedge (CRPR 4.2)	OBL
Carex gynodynama	Olney’s hairy sedge	FAC
Carex leptopoda	short-scaled sedge	FAC

Scientific Name	Common Name	Wetland Indicator Status
Carex nudata	river sedge	OBL
Carex obnupta	slough sedge	OBL
Carex sp.	sedge	undetermined
Cerastium glomeratum	mouse ear chickweed	FACU
Chlorogalum pomeridianum	wavy-leaved soaproot	FACU
Cichorium intybus	chicory	FACU
Circaea alpina ssp. *pacifica*	enchanter's nightshade	FAC
Cirsium vulgare	bull thistle	FACU
Clarkia sp.	clarkia	UPL
Collomia grandiflora	large flowered collomia	UPL
Collomia heterophylla	varied-leaf collomia	UPL
Cynoglossum grande	hound's-tongue	UPL
Cynosurus echinatus	hedgehog dogtail grass	FACU
Cyperus eragrostis	nut-grass	FACW
Danthonia californica	California oatgrass	FAC
Darmera peltata	Indian rhubarb	OBL
Daucus carota	Queen Anne's lace	FACU
Delphinium sp.	larkspur	undetermined
Deschampsia elongata	slender hairgrass	FACW
Dichelostemma ida-maia	firecracker flower	UPL
Dipsacus fullonum	teasel	FAC
Elymus caput-medusae	Medusa head	UPL
Elymus glaucus ssp. *glaucus*	blue wildrye	FACU
Epilobium ciliatum	northern willow herb	FACW
Equisetum telmateia ssp. *braunii*	giant horsetail	FACW
Eschscholzia californica	California poppy	UPL
Festuca californica	California fescue	FACU
Foeniculum vulgare	fennel	UPL
Fragaria vesca	wood strawberry	FACU
Galium aparine	goose grass	FACU
Galium sp.	bedstraw	undetermined
Gastridium phleoides	nit grass	UPL
Goodyera oblongifolia	rattlesnake plantain	FACU
Hieracium albiflorum	white hawkweed	UPL
Holcus lanatus	common velvet grass	FAC

Scientific Name	Common Name	Wetland Indicator Status
Hordeum marinum	Mediterranean barley	FAC
Hydrophyllum tenuipes	Pacific waterleaf	FAC
Hypericum perforatum	St. John's-wort	FACU
Hypochaeris radicata	hairy cat's-ear	FACU
Iris douglasiana	Douglas iris	UPL
Iris purdyi	Purdy's iris	UPL
Juncus bolanderi	Bolander's rush	OBL
Juncus bufonius	common toad rush	FACU
Juncus effusus	common rush	FACW
Juncus ensifolius	dagger-leaf rush	FACW
Juncus patens	spreading rush	FACW
Juncus sp.	rush	>=FAC
Lapsana communis	nipplewort	FACU
Lathyrus latifolius	everlasting pea	UPL
Lathyrus polyphyllus	Oregon pea	UPL
Lathyrus tingitanus	Tangier pea	UPL
Lathyrus vestitus	wood pea	UPL
Leucanthemum vulgare	ox-eye daisy	FACU
Ligusticum apiifolium	lovage	UPL
Lilium sp.	lily	undetermined
Linum bienne	western blue flax	UPL
Logfia gallica	narrow-leaved filago	UPL
Lolium perenne [Festuca perennis]	perennial rye grass	FAC
Lotus corniculatus	birdfoot trefoil	FAC
Lupinus bicolor	miniature lupine	UPL
Lupinus latifolius	broad leaved lupine	UPL
Lupinus rivularis	riverbank lupine	FAC
Luzula sp.	wood rush	undetermined
Lysimachia latifolia	Pacific star flower	FACW
Lythrum sp.	loosestrife	undetermined
Madia exigua	small tarweed	UPL
Maianthemum dilatatum	false lily-of-the-valley	FAC
Maianthemum racemosa	feathery false lily of the valley	FAC
Marah oreganus	coast man-root	UPL
Melilotus albus	white sweetclover	UPL

Scientific Name	Common Name	Wetland Indicator Status
Mentha pulegium	pennyroyal	OBL
Mimulus guttatus	seep-spring monkey flower	OBL
Montia parvifolia	streambank spring beauty	FAC
Navarretia sp.	navarretia	undetermined
Nasturtium officinale	watercress	OBL
Nemophila parviflora	small-flowered nemophila	UPL
Oenanthe sarmentosa	Pacific water-parsley	OBL
Osmorhiza berteroi	sweet-cicely	FACU
Oxalis oregana	redwood sorrel	UPL
Parentucellia viscosa	yellow parentucellia	FAC
Petasites frigidus var. *palmatus*	western coltsfoot	FACW
Plantago lanceolata	English plantain	FACU
Plantago major	common plantain	FAC
Polypodium glycyrrhiza	licorice fern	UPL
Polystichum munitum	sword fern	FACU
Prosartes hookeri	Hooker's fairy bells	FAC
Prunella vulgaris	self-heal	FACU
Pteridium aquilinum var. *pubescens*	bracken fern	FACU
Ranunculus sp.	buttercup	undetermined
Rumex crispus	curly dock	FAC
Sanicula crassicaulis	Pacific snakeroot	UPL
Schedonorus arundinacea [Festuca]	tall fescue	FAC
Scoliopus bigelovii	slink-pod	UPL
Silene laciniata	catchfly	UPL
Spergularia rubra	purple sand spurry	FAC
Spiranthes porrifolia	lady's tresses	FACW
Stachys ajugoides	hedge nettle	OBL
Struthiopteris spicant	deer fern	FAC
Tellima grandiflora	fringe cups	FACU
Thalictrum fendleri var. *polycarpum*	meadow rue	FAC
Tiarella trifoliata var. *unifoliata*	sugar scoop	FAC
Torilis arvensis	rattlesnake weed	UPL
Trichostema sp.	vinegar or turpentine weed	FACU or UPL
Trifolium dubium	little hop clover	FACU
Trifolium fucatum	sour clover	UPL

Scientific Name	Common Name	Wetland Indicator Status
Trifolium repens	white clover	FAC
Trifolium resupinatum	reversed clover	UPL
Trifolium subterraneum	subterranean clover	UPL
Trillium albidum	giant wakerobin	FACU
Trillium ovatum	western trillium	FACU
Triteleia hyacinthina	white hyacinth	FAC
Vancouveria sp.	inside-out flower	UPL
Verbena lasiostachys	western verbena	FAC
Veronica americana	American brooklime	OBL
Vicia sativa	common vetch	UPL
Vinca major	greater periwinkle	UPL
Viola glabella	stream violet	FACW
Viola sempervirens	evergreen violet	UPL
Vulpia myuros [Festuca]	rattail sixweeks grass	FACU
Zeltnera sp.	centaury	undetermined

Appendix H. Tree Root Zone Impact Maps

123°58'30"W

123°58'25"W

40°30'0"N

40°29'58"N

240 ft

REDWOOD HOUSE RD

REDWOOD HO

36

Hely Creek

offsetHely

Environmental Study Limit (9.610 acres)
OHWM
Cut
Fill
Bridge Widening
Bridge Staging Area
Crane Pad
Crane Pad Radii
Contours (2ft Interval)
Structural Root Zone
Absorbing Root Zone

Large Diameter Tree "(2 ft Diameter or Greater)"

Fir
Other
Redwood
Tanoak

"Small Diameter Trees (Less Than 2ft Diameter)"

Other

0 12.5 25 50
Feet
1:600 --- 1 inch = 50 feet

N

Path: \\PDCCITRDSGIS1\Projects_1\Caltrans\00356_19_Three_Bridges\Figures\TreeSurvey\TreeSurvey_Hely_Cast_In_Place_20200128.mxd; Author: ; Date: 3/10/2020

Impacts on Tree Root Zones
Hely Creek - Cast-in-Place Option
Three Bridges Replacement and Widening Project, Humboldt County EA 01-0C500

123°58'30"W

123°58'25"W

40°30'0"N

40°29'58"N

240 ft

Redwood House Rd

REDWOOD HOUSE RD

REDWOOD HO

Hely Creek

Hely Creek

36

11.4

11.5

offsetHely

- Environmental Study Limit (9.610 acres)
- OHWM
- Cut
- Fill
- Bridge Widening
- Crane Pad
- Crane Pad Radii
- State Highway Post Mile
- Contours (2ft Interval)
- Structural Root Zone
- Absorbing Root Zone

Large Diameter Tree "(2 ft Diameter or Greater)"

- Fir
- Other
- Redwood
- Tanoak

"Small Diameter Trees (Less Than 2ft Diameter)"

- Other

0 12.5 25 50

Feet

1:600 --- 1 inch = 50 feet

N

Path: \\PDCCITRDSGIS1\Projects_1\Caltrans\00356_19_Three_Bridges\Figures\TreeSurvey\TreeSurvey_Hely_Precast_20200128.mxd; Author: ; Date: 3/10/2020

Impacts on Tree Root Zones
Hely Creek - Precast Option
Three Bridges Replacement and Widening Project, Humboldt County EA 01-0C500