ADDENDUM TO THE DIGITAL 299 BIOLOGICAL EVALUATION

Digital 299 Modified Proposed Action

Humboldt County, California

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ABBREVIATIONS

AC	Activity Center
ADSS	All-Dielectric Self-Supporting Cable
AMM	Avoidance and Minimization Measure
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BMP	Best Management Practice
CAI	Community Anchor Institution
CDF	Controlled Density Fill
CDFW	California Department of Fish and Wildlife
CALVEG	Classification and Assessment with Landsat of Visible Ecological Groupings Database
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Ranks
CWHR	California Wildlife Habitat Relationship
dB	Decibel
DBH	Diameter at Breast Height
DPS	Distinct Population Segment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESHA	Environmentally Sensitive Habitat Areas
ESU	Evolutionary Significant Unit
F	Fahrenheit
FC	Federal Candidate
FD	Federal Delisted
FE	Federal Endangered
FSS	USFS Sensitive Species
FP	Fully Protected
FT	Federal Threatened
HDD	Horizontal Directional Drilling
ILA	In-Line Amplifier
LOP	Limited Operating Period

LSR	Late-Successional Reserves
MAMU	Marbled Murrelet
MBTA	Migratory Bird Treaty Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NHD	National Hydrography Dataset
NLAA	Not Likely to Adversely Affect
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRA	National Recreation Area
NRIS	Natural Resource Information System
NSO	Northern Spotted Owl
NWFP	Northwest Forest Plan
NWI	National Wetland Inventory
PBF	Physical and Biological Features
PCE	Primary Constituent Elements
ROD	Record of Decision
ROW	Right-of-Way
RR	Riparian Reserves
SCE	State Candidate Endangered
SCT	State Candidate Threatened
SE	State Endangered
S&M	Survey and Manage Species
SPPP	Spill Prevention and Pollution Plan
SSC	Species of Special Concern (CDFW)
ST	State Threatened
USBR	Bureau of Reclamation
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service

CHAPTER A1 INTRODUCTION

A1.1 Purpose of Addendum Assessment

In December 2022, the California Public Utilities Commission approved the Environmental Assessment/Initial Study Mitigated Negative Declaration (EA/ISMND) for the Digital 299 Broadband Project, which proposes to install an approximately 300-mile fiber optic network in Humboldt, Shasta, and Trinity counties, California. The Proponent began construction on Phase 1 of the Digital 299 Project in January 2023, and Phase 2 will involve construction of a spur from Arcata to Trinidad. Instead of constructing the Phase 2 alignment along local roads in Arcata and along the Hammond Trail, the Proponent proposes to modify the alignment to head west along State Route (SR) 200 from the intersection with SR-299 to the intersection with Central Avenue, where the alignment will then head north to Airport Road. The alignment will then head north along U.S. Route 101 until following an on-ramp at Clam Beach Drive, where construction will follow the previously studied alignment, which follows Clam Beach Drive, U.S. Route 101, and other local roads north to the City of Trinidad.

As a part of the EA/ISMND, Vero Networks (Vero) contracted Eocene Environmental Group, Inc. (Eocene; formerly Transcon Environmental, Inc.) to prepare a Biological Evaluation to review the 300-mile project in sufficient detail to determine the potential impacts the Digital 299 Project may have on special-status species. Vero has contracted Eocene to perform a supplemental Biological Evaluation to determine the potential impacts the Proposed Action may have on special-status species along the modified alignment.

In this report, the term “alignment” refers to the primary underground conduit; “Construction Corridor” refers specifically to the Proposed Action footprint, a 25-foot corridor around the alignment where construction-related disturbance and structures may be located (described in detail in Chapter 1.2); “survey area” refers to the Proposed Action footprint plus a 50-foot corridor; and “Action Area” includes the footprint or area of direct disturbance of the Proposed Action facilities (permanent occupation of conduit and vaults) as well as lands needed to construct the facilities (temporary construction, staging, and laydown areas). The analysis presented in this report is based on currently available data and site conditions at the time of the site visits, which occurred in November and December 2023.

A1.2 Proposed Action Description

The Proposed Action is to install approximately seven miles of fiber optic cable buried along existing roads. New road construction is not proposed. This Biological Evaluation analyzes impacts from only the previously unstudied portion of the Proposed Action. Wireless facilities (e.g., cellular towers or equipment) are not proposed as part of this Proposed Action.

The Digital 299 Project evaluated construction of up to five prefabricated buildings to support signal regeneration, distribution, and interconnection, also referred to as in-line amplifier buildings, or “ILA locations.” No ILA buildings are proposed as a part of the modified alignment.

Proposed Action Location

The Proposed Action extends through unincorporated portions of Humboldt County, including McKinleyville and Clam Beach. The main route is described below, following the route from east to west.

The modified alignment begins at the intersection of SR-200 and SR-299 where it will then head west along SR-200 to the intersection with the U.S. Route-101 off-ramp and head north along Central Avenue. The modified alignment will follow Central Avenue until the intersection with Airport Road, where it will head west to U.S. Route 101 and then head north along the west-side of U.S. Route 101. After following an on-ramp at Clam Beach Drive, construction will follow the previously studied alignment, which follows Clam Beach Drive, U.S. Route 101, and other local roads north to the City of Trinidad.

Table A1 lists distances crossed under each agency jurisdiction, and **Figure 1** displays an overview map of the Proposed Action.

Figure 1


Digital 299 Broadband Project
Proposed Alignment
Trinidad Spur
Humboldt County, CA
Legend
Proposed Alignment
Approved Alignment
Clam Beach
Clam Beach Co Park
Arcata Airport
Fieldbrook
Mc Kinleyville
Fisher
Calville
Radio Facility
Tyee City
T30N R04W
T30N R03W
T29N R04W
T29N R03W
Strawberry Creek
Marbet Creek
Rose Creek
Norton Creek
Widow White Cr
Mill Creek
McCluski Hill
Mad
Essex Gluch
Essex Pond
Grassy Creek
Insufficient Data
0
1
2
Miles
Transcon environmental
Planners & Scientists
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TABLE 1 PROPOSED ACTION LOCATION BY LANDOWNER	
Agency/Landowner	**Distance Crossed (miles)**
Private/Other	2.9
Caltrans	4.4
TOTAL	7.3

Proposed Action Facilities and Construction

The Proposed Action will consist of three 1.25-inch buried conduits that will house the fiber optic cable. Barrel vaults will also be installed underground within the area of direct disturbance adjacent to the line to splice the cable and provide access to the underground conduits. Spurs will extend from the fiber optic cable to connect neighboring communities. These Proposed Action facilities and associated construction methods are described in Chapter 1.2.

Construction Schedule

The total duration of construction for the Proposed Action is estimated at up to 24 months, beginning in the third quarter of 2024. Construction crews generally work 8 to 10 hours a day, 5 days a week during daylight hours. Saturday work may be required in some areas as needed; approval from the proper agency would be obtained prior to construction on weekends. No work is anticipated to occur on major holidays or during Native American ceremonies.

Digital 299 would avoid lane closures during times of inclement weather, including but not limited to rain, snow, and ice. Construction schedules will be coordinated and in compliance with ordinances by land management agencies and ROW owners (i.e., California Department of Transportation and the County of Humboldt).

CHAPTER A2 REGULATORY REQUIREMENTS AND RELEVANT MANAGEMENT DIRECTION

A2.1 Federal Regulations

Endangered Species Act of 1973

The federal ESA and its subsequent amendments protect plants and wildlife (and their habitats) listed as endangered or threatened by the USFWS and National Marine Fisheries Service (NMFS). Section 9 of the ESA specifically prohibits the taking of ESA-protected wildlife and lists prohibited actions. The ESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct” (50 Code of Federal Regulations [CFR] 17.3). The ESA also governs the removal, possession, malicious damage, or destruction of endangered plants on federal land (United States 1983). A designation of critical habitat identifies areas essential to conservation of a species. Pursuant to the requirements of the ESA, an agency seeking to carry out a Proposed Action or reviewing a Proposed Action within its jurisdiction (action agency) must determine whether any federally listed species may be present in the area and determine whether the Proposed Action will have a significant effect upon such species or its habitat. The action agency is also encouraged to determine whether the Proposed Action is likely to jeopardize any proposed or candidate species in an effort to avert any potential future conflict.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) is the primary law governing marine fisheries management in United States federal waters. First passed in 1976, the MSA fosters long-term biological and economic sustainability of United States marine fisheries. Provisions of the MSA require consultation with the NMFS for actions that may adversely affect essential fish habitat (EFH) for federally managed fish and invertebrates. For the purposes of the MSA, EFH includes “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (MSA § 3(10)). In relation to EFH, “waters” include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle.

Migratory Bird Treaty Act

The MBTA (16 U.S.C. 703-712) implements international treaties between the United States and other nations to protect migratory birds and their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized by regulation or permit (MBTA 2019). The law, which protects all native birds regardless of their status, applies to the removal of occupied nests (such as swallow nests on bridges) during the breeding season. Any disturbance at a level that causes nest abandonment is considered take. However, it should be noted that incidental take is no longer prohibited per U.S. Department of the Interior Memorandum M-37050 (DOI 2017).

Bald and Golden Eagle Protection Act

The BGEPA of 1940 (16 U.S.C. 668-668c, enacted by 54 Stat. 250) protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this Act. The BGEPA defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb," while “disturb” means “to agitate or bother a

bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior." (72 FR 31132; 50 CFR 22.3) (BGEPA 2019).

A2.2 Federal Land Management Direction

Northwest Forest Plan, BLM, and USFS Guidance

Land management plans, including the Northwest Forest Plan, specific plans for the Arcata Field Office, and specific plans for USFS, apply to national forests, BLM lands, national parks, national wildlife refuges, and military bases. As the Proposed Action does not cross any of these jurisdictions, these plans are not directly considered in this assessment. The various management plans are discussed in Chapter 2.2.

Northern Spotted Owl Recovery Plan

On June 28, 2011, the USFWS released the *Revised Recovery Plan for the Northern Spotted Owl (Strix occidentalis caurina)*. The purpose of any recovery plan is to describe reasonable actions and criteria that are considered necessary to recover a listed species. Recovery criteria serve as objective, measurable guidelines to assist in determining when an endangered species has recovered to the point that it may be downlisted to threatened or when the protections afforded by the ESA are no longer necessary and the species may be delisted. Recovery actions are the USFWS's recommendations to guide the activities needed to accomplish the recovery criteria. The 2011 Revised Recovery Plan for the NSO represents the "best available science," recognizing the importance of maintaining and restoring habitat for the recovery and long-term survival of the spotted owl. The 2011 Recovery Plan relies on federal lands to provide the major contribution for recovery (USFWS 2011b).

Northern Spotted Owl Critical Habitat

The Proposed Action does not cross critical habitat for the Northern Spotted Owl. Chapter 4.9 includes further discussion of the critical habitat present along portions of the previously analyzed portion of the original alignment.

Marbled Murrelet Recovery Plan

Conservation management is contained in the NWFP Record of Decision (ROD) and was incorporated into the Land and Resource Management Plan land allocations and standards and guides. The Recovery Plan for the marbled murrelet (MAMU; *Brachyramphus marmoratus*) in Washington, Oregon, and California (USFWS 1997) forms the basis for the management direction, in part. The Recovery Plan calls for the protection of habitat essential for recovery in larger contiguous blocks; maintaining occupied habitat; and monitoring trends, productivity, and reproduction. In addition, the NWFP ROD contains standards and guidelines for management and protection of the MAMU, including the requirement for surveys to regional protocol prior to any modification of potentially suitable MAMU habitat.

Marbled Murrelet Critical Habitat

The Proposed Action does not cross critical habitat for the Marbled Murrelet. Chapter 4.9 includes further discussion of the critical habitat present along portions of the previously analyzed portion.

Fish Critical Habitat

The Construction Corridor intersects waterways that are designated critical habitat for one species of fish but runs parallel to the Mad River which is critical habitat for two additional fish species. Discussion of the characteristics of these critical habitats can be found in Chapter 4.9. **Table 12** details the distribution of critical habitat and EFH in the waterways and watersheds that are traversed by the Proposed Action.

A2.3 State Regulations

California Coastal Act

The California Coastal Act was established in 1976 to regulate development along the coast of California, prioritizing public access to the coast and the preservation of sensitive coastal resources while still allowing for balanced commercial and residential development. This area of the coast, called the "coastal zone," comes under the jurisdiction of the California Coastal Commission, the agency responsible for implementing the policies set forth in the California Coastal Act. In general, the "coastal zone" extends seaward for approximately 3 miles and inland for approximately 1,000 yards from the high tide line, depending on land uses and habitat values. Several segments of the Construction Corridor fall within the Coastal Zone, specifically those segments around Humboldt Bay and between the communities of Arcata and Trinidad.

The portion of the Coastal Act most relevant to the assessment presented in this report relates to Section 30240, which provides special protection for Environmentally Sensitive Habitat Areas, often referred to as ESHA. This section states:

> *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
>
> *(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas and shall be compatible with the continuance of those habitat and recreation areas.*

California Endangered Species Act

The CESA (California Fish and Game Code Sections 2050-2116) provides that certain species of fish, wildlife, and plants that are of ecological, educational, historical, recreational, aesthetic, economic, and scientific value to the people of California are of statewide concern and should be conserved, protected, and enhanced along with their habitats. The CESA establishes that it is the policy of the state that state agencies should not approve projects that would jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat that would prevent jeopardy.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) (California Public Resources Code §§ 21000-21177) requires state agencies, local governments, and special districts to evaluate and disclose impacts from "projects" in the state. Section 15380 of the CEQA Guidelines clearly indicate that wildlife and plant species designated by the CDFW as Fully Protected (FP) or Species of Special

Concern (SSC) should be included in an analysis of project impacts if they can be shown to meet the criteria of sensitivity outlined therein, as well as sensitive natural communities ranked 1-3 and those plants designated as California Rare Plant Ranks (CRPR) 1B and 2B (CEQA 2019a).

California Fish and Game Code

The California Fish and Game Code outlines protection for FP species of mammals, birds, reptiles, amphibian, and fishes. Species that are FP may not be taken or possessed at any time. The CDFW has designated certain species native to California as SSC to "focus attention on animals at conservation risk by the Department, other State, Local and Federal governmental entities, regulators, land managers, planners, consulting biologists, and others; stimulate research on poorly known species; achieve conservation and recovery of these animals before they meet CESA criteria for listing as threatened or endangered." Native birds are protected under Section 3513 of the Fish and Game Code, similar to protections by MBTA. California SSC, FP and native birds were considered in the following evaluation of impacts from the Proposed Action.

CHAPTER A3 STUDY METHODOLOGY

The following chapter describes how the Action Area was determined for the impacts analysis, defines which special-status species and other sensitive resources were assessed, and summarizes the methods used to conduct the assessment of any special-status species that may be directly or indirectly affected by the Proposed Action.

A3.1 Action Area

The Construction Corridor includes only areas proposed for ground disturbance and the associated construction activities (e.g., underground portions of the Proposed Action's alignment, facilities, and staging areas). The area considered in this impacts analysis, or the "Action Area," is defined as all areas that have the potential to be affected directly or indirectly by the Proposed Action.

In general, the Action Area encompasses the Construction Corridor in addition to a 0.25-mile buffer (or 0.5-mile-wide corridor). In some cases, the Action Area is larger or smaller, depending on the life history of the species being evaluated. For special-status wildlife species with disturbance buffer areas larger than the survey corridor, GIS and orthophotography were used to identify suitable habitat in the Action Area. For special-status plants, the Action Area was limited to a 25-foot buffer (in most cases resulting in a 50-foot-wide corridor) around the alignment. Specific parts of the Construction Corridor are referred to as "work areas."

A3.2 Special-Status Species

For the purposes of this evaluation, special-status species are plants or animals that are legally protected or prioritized under the regulations and management plans addressed in Chapter 2. Special-status species reviewed in this evaluation include:

- Species listed or proposed for listing as threatened or endangered under the ESA (50 CFR. 17.12, 50 CFR. 17.11, and various notices in the Federal Register [proposed species])
- Species that are candidates for possible future listing as threatened or endangered under the ESA (73 FR 75176, December 10, 2008)
- Species listed or proposed for listing by the State of California as threatened or endangered under the CESA (14 C.C.R. 670.5)
- Species that meet the definitions of rare or endangered under CEQA (Guidelines Sections 15380 and 15125) (CEQA 2019b)
- CDFW SSC (CDFW 2023)
- CDFW FP Species (California Fish and Game Code Sections 3511) (CDFW 2023)
- Plant species listed as rare under the California Native Plant Protection Act (Fish and Game Code 1900 et seq.)
- Plants listed by CNPS per the CRPR (CNPS 2019)
    - CRPR 1A List—Plants presumed by the CNPS to be "extinct in California"
    - CRPR List 1B and 2—Plants considered by the CNPS to be "rare, threatened, or endangered in California"
    - CRPR List 3—Plants listed by CNPS as plants about which more information is needed to determine their status, which may be included as special-status species on the basis of local significance or recent biological information

A3.3 Study Methodology

Background Research

Eocene biologists conducted initial background research by compiling a comprehensive list of special-status species and sensitive natural communities that may be present in the Action Area. Eocene biologists also queried available spatial geodatabases for known special-status species occurrences within 1.5 miles of the Construction Corridor. A 1.5-mile search radius was chosen to identify potential special-status species because it encompasses a sufficient distance to accommodate for local habitat diversity and account for species most likely to migrate into the Action Area. Information on potential special-status species were obtained from the following resources:

- CDFW Special Animals List (CDFW 2024)
- California Natural Diversity Database (CNDDB) (CNDDB 2024)
- Classification and Assessment with Landsat of Visible Ecological Groupings Database (CALVEG) (CALVEG 2024a, 2024b)
- CNPS Inventory of Rare Plants of California (CNPS 2024)
- National Hydrography Dataset (NHD) (USGS 2018)
- USFWS National Wetland Inventory (NWI) data
- USFWS Information for Planning and Consultation Database (USFWS 2024)
- Current and historical aerial imagery (Google Earth 2024; Esri 2024)

Site Assessment

Using the data gathered during background research, Eocene biologists assessed the extent of special-status species, their habitats, and sensitive biological resources within the Action Area where access was possible. Due to access issues and safety concerns associated with surveying highways and roads, assessment of certain portions of the alignment were conducted via desktop applications and vehicle only. When deemed safe to do so, portions of the Construction Corridor were surveyed on foot by Eocene biologists.

Desktop Analysis

Eocene biologists utilized CALVEG data and aerial imagery to map habitat/vegetation community types within and adjacent to the Construction Corridor. Biologists also used NWI and NHD spatial data to map potential sensitive aquatic resources within and adjacent to the Construction Corridor. In accessible portions of the Construction Corridor, these habitat types and sensitive aquatic resources identified during desktop analysis were ground-truthed during field reconnaissance surveys.

Field Reconnaissance Surveys

Eocene biologists conducted reconnaissance-level field surveys within 25 feet of the proposed alignment in November and December 2023 to characterize potential habitat for special-status species, map/confirm the presence of sensitive aquatic resources, and identify any special-status plants that may occur within the Construction Corridor. Incidental sightings of plant and wildlife species were also documented, although protocol-level surveys were not conducted for any special-status species. The entire survey area was accessible and investigated either on foot or from a vehicle when areas of the alignment followed major roads, passed through cities/towns, were unsafe to walk, or where desktop review determined that natural habitat or vegetation communities were not likely to be present.

During field surveys, Eocene biologists primarily used Esri mapping applications (Survey123, FieldMaps) on tablet computers with submeter-GPS devices to collect data. Biologists collected habitat-specific data, including habitat type, canopy cover, community successional stages, presence of habitat structures, and georeferenced photos. Biologists also collected data on aquatic resources such as feature type, periodicity, site-specific data, and georeferenced photos.

Special-Status Plant Surveys

Surveys for special-status plants were conducted in portions of the Construction Corridor where direct impacts to plants might be possible. These areas were primarily along the proposed alignment where suitable habitat directly abuts the roads. Special-status plant surveys were conducted in accordance with the CNPS Botanical Survey Guidelines (CNPS 2001) and the Protocols for Surveying and Evaluating Impacts to Special-status Native Plant Populations and Natural Communities (CDFW 2018a). Surveys were conducted between November 27 and November 29, December 12, and December 13, which is outside the blooming period for most plant species, and outside the blooming period for all special-status plants listed for analysis. Surveys included an assessment of the potential for special-status plants to occur in identified habitats. Surveys were floristic in nature, where every plant taxon that occurs in the Construction Corridor is identified to the taxonomic level necessary to determine rarity and listing status. All segments of the Construction Corridor were surveyed for special-status plants, with the exception certain small areas along S.R. 200, which were surveyed from a vehicle due to safety concerns.

CHAPTER A4 AFFECTED ENVIRONMENT

A4.1 Climate

The Action Area overlaps one Mediterranean subtype climate zone. The warm-summer Mediterranean climate subtype exists primarily along the immediate coast and coastal mountain ranges. Known for its warm (but not hot) and dry summers, average summer temperatures rarely exceed 70 degrees Fahrenheit (F) while average winter temperatures rarely drop below 40 degrees F. Much of the yearly precipitation in warm-summer Mediterranean climates, averaging 40 inches annually, occurs during the colder winter months (USCD 2019).

A4.2 Land Use

The Action Area overlaps one county with a variety of zoned land use types. In Humboldt County, the Action Area overlaps both public and private lands that are zoned for residential development, commercial/industrial development, agriculture (primarily livestock), recreation, and forest resources/timber production (Humboldt County 2017).

A4.3 Landscape Setting

The Action Area overlaps the Coast Range. The Coast Range region consists of coastal headlands, marine terraces, sand dunes, and beaches on the immediate coast and the inland coastal mountain range, which is dominated by highly productive evergreen forests.

Topography is generally flat around Humboldt Bay and inland until the community of Korbel, rarely exceeding 200 feet in elevation.

Geology

The Action Area is within the Northern Coast Ranges subset of the Coast Ranges Geomorphic Province. The Coast Ranges of California are north-west-trending mountain ranges (typically 2,000 to 4,000 feet elevation above sea level) and valleys that run subparallel to the San Andreas Fault. The province is bordered to the west by the Pacific Ocean, to the east by the Great Valley Geomorphic Province, to the south by the Transverse Ranges of southern California, and to the north by the Klamath Mountain Range.

A4.4 Vegetation/Habitat Communities

Vegetation/habitat communities were mapped using the CALVEG system to conform with federal mapping standards (USDA 2008). Each CALVEG community was also matched with the equivalent California Wildlife Habitat Relationship (CWHR) community (Mayer and Laudenslayer 1988). Community types are summarized in **Table 4**, and community descriptions are detailed below. Pacific Douglas-fir communities are the dominant habitat type found along much of the central portion of the Proposed Action at elevations below 5,000 feet.

TABLE 2 VEGETATION/HABITAT COMMUNITIES PRESENT WITHIN 100 FEET OF THE PROPOSED ACTION ALIGNMENT (ACRES)			
CALVEG Alliances	**CWHR Equivalent**	**Manual of California Vegetation Equivalent**	**Acres Within 100 Feet**
Annual Grasses and Forbs	Annual Grassland (AGS)	California Annual and Perennial Grassland	32.90
Barren	Barren (BAR)	n/a	43.76
Agriculture	Cropland (CRP)	n/a	7.87
Coyote brush	Coastal Scrub (CSC)	Coyote brush scrub	22.00
n/a	Marine (MAR)	n/a	1.96
Canyon Live Oak	Montane Hardwood-Conifer (MHC)	Canyon live oak forest and woodland	20.70
Black Cottonwood Forest & Woodland	Montane Riparian (MRI)	Black cottonwood	11.99
Redwood—Douglas-Fir	Redwood (RDW)	Redwood forest and woodland	23.40
Non-Native/ Ornamental; Urban or Developed	Urban (URB)	n/a	10.22

Conifer Forest/Woodlands

Redwood—Douglas-Fir Alliance

In this vegetation community type, the canopy is co-dominated by redwood and Douglas-fir with an understory consisting of tanoak, red alder, Pacific madrone, California bay, and Oregon white oak. Redwood—Douglas-fir communities are present in the western coastal portions of the Action Area, typically on protected upland slopes up to 3,200 feet in elevation. This community is an S3 ranked CDFW Sensitive Natural Community.

Hardwood Forest/Woodlands

Canyon Live Oak Alliance

Dominated by canyon live oak, this community is often found on steep and rocky south- or southwest-facing slopes. Associated trees typically include low- to mid-elevation conifers such as Douglas-fir, ponderosa pine, knobcone pine (*Pinus attenuata*), and redwood, as well as hardwoods such as Oregon white oak, California black oak, and tanoak. Canyon live oak communities are present intermittently throughout the central portion of the Action Area.

Black Cottonwood Forest & Woodland Alliance

This community includes a canopy and shrub layer that can vary from open to continuous. Dominant canopy or co-dominant species is black cottonwood (*trichocarpa*). This alliance includes a variety of willow species such as coastal willow (*Salix hookeriana*), Pacific willow (*Salix lasiandra*), arroyo willow (*Salix lasiolepis*), and Coulter willow (*Salix sitchensis*), this riparian-type community can be found along seasonally flooded and permanently saturated soils on stream banks and alluvial terraces.

Shrubland/Chaparral

Coyote Brush Alliance

This vegetation type has Coyote Brush (*Baccharis pilularis*) as the main shrub on certain coastal bluffs, slopes, terraces or sand dunes of northern California. May have a diversity of other shrubs and ferns, as well as associated tree species Douglas-fir (*Pseudotsuga menziesii*) and California Bay (*Umbellularia californica*), and an abundance of non-native grasses and forbs. Coyote Brush communities are present throughout the Action Area.

Willow Thickets

In addition to the CALVEG alliance and CWHR data, Eocene biologists identified Coastal dune willow – Sitka willow – Douglas spiraea thickets along the proposed Action Area, particularly between Vista Point and Clam Beach. Willow thickets are S3 ranked CDFW Sensitive Natural Communities. This community is found along coastal streams, tidal swamps, riparian areas, and areas near the ocean where water stands and seasonally floods.

Herbaceous

Annual Grasses and Forbs Alliance

This vegetation community is dominated by annual grasses and forbs. Species include introduced and native annual grasses such as brome (*Bromus* spp.), bluegrass (*Poa* spp.), wildoats (*Avena* spp.), fescue (*Vulpia* spp.), dogtail (*Cynosurus* spp.), barley (*Hordeum murinum*), needlegrass (*Stipa* spp.), oatgrass (*Danthonia* spp.), and a variety of forbs such as checker mallow (*Sidalcea* spp.), brodiaea (*Brodiaea* spp.), wild hyacinth (*Dichelostemma* spp.), yampah (*Perideridia* spp.)

and mariposa lily (*Calochortus* spp.). Annual grasses and forb communities are present throughout the Action Area.

Non-Native/Ornamental

Ornamental or non-native shrubs or trees dominate this alliance. Mapped areas of this community type, present around more developed portions of the Action Area, are usually in developed areas, including urban and residential landscapes, parks, recreational areas, highways, cemeteries, etc.

Developed/Non-Vegetated

Barren

Areas generally devoid of vegetation such as exposed bedrock, interior sandy areas, and bare dirt.

Agriculture

Agriculture areas are those lands used primarily for the production of food and fiber, including orchards, vineyards, and other field crops. Land used for livestock pasture may be mapped as annual grasses and forbs.

Urban or Developed

This category applies to landscapes that are dominated by urban structures, residential units, or other developed land use elements such as highways, city parks, or parking lots.

Wetland Habitats

The Construction Corridor runs adjacent several wetland habitats, including willow thickets and cottonwood forests, primarily along the coast and around Humboldt Bay. The exact locations, extent, and potential jurisdiction (e.g., U.S. Army Corps of Engineers) of wetland habitats delineated as a part of Phase 1 are described in further detail in the Digital 299 Preliminary Jurisdictional Delineation Report (Transcon 2021). Additional wetland habitats were mapped by Eocene biologists within the Action Area.

Aquatic Habitats

The Construction Corridor intersects several perennial, intermittent, and ephemeral waterways at numerous locations, and portions of the Construction Corridor run directly adjacent to the Mad River. The exact locations, extent, and potential jurisdiction (e.g., U.S. Army Corps of Engineers) of these waters mapped as a part of Phase 1 are described in further detail in the Digital 299 Preliminary Jurisdictional Delineation Report (Transcon 2021). Additional waters were mapped by Eocene biologists within the Action Area.

Major Rivers

One major river, Mad River, runs adjacent to the southern segment of the Construction Corridor, along SR 200/299. This river supports a number of native and non-native fishes and aquatic animal species, including several anadromous fish populations (**Table 3** and Chapter 5.3). The bank of the river is dominated by woody riparian plant species such as cottonwood, willow, and alder.

Perennial Streams

Perennial streams intersect the Construction Corridor at four separate locations either under bridges or through culvert crossings. The perennial creeks include Strawberry Creek, Norton

Creek, Widow White Creek, and Mill Creek. These NHD classified perennial streams/rivers support a variety of native and non-native fish species (including anadromous fish) and are dominated by a canopy of riparian tree species such as cottonwood, willow, and alder. When present, emergent wetland vegetation includes a variety of sedges, rushes, and other forbs and grasses.

Intermittent and Ephemeral Streams

The Construction Corridor is also intersected by 12 intermittent and ephemeral streams. The intermittent streams often support anadromous fish and other aquatic species when water is present (during the rainy season) but are dry during the hot summer months. The ephemeral streams, which are typically dry except during periods of high rainfall, do not typically support fish or other aquatic species. The intermittent waterways are typically dominated by a canopy of upland trees (e.g., Douglas-fir, redwood, or oak), a mid-story of alder and willow, and an herbaceous layer of emergent wetland vegetation such as sedges, rushes, horsetail, and other forbs and grasses. Ephemeral streams are dominated by a similar canopy of upland trees but typically lack the mid-story and emergent wetland species.

Seeps, Springs, and Associated Freshwater Wetland

Several seeps and springs often associated with intermittent streams, surface sheet flow, and ephemeral swales also occur along the Action Area and are typically found emerging alongside the northern portion of S.R. 200 and along the Clam Beach exit. Many of these seeps and springs are likely to flow year-round and have resulted in numerous ditches and drainages along S.R. 200 and where freshwater emergent wetland species were present.

A4.5 Sensitive Natural Communities and Environmentally Sensitive Habitat Areas

Sensitive natural communities, as defined by CDFW, were also identified in the Action Area. Sensitive natural communities are those communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects (CDFW 2018a). Sensitive natural communities are tracked by the CNDDB and may or may not contain individual plants or animals classified as special-status species. Sensitive natural communities ranked S1-S3 are to be addressed in CEQA environmental review processes. Other sensitive natural communities have no legal status alone (with the exception of some sensitive natural communities [i.e., wetlands, riparian areas] that are afforded protection separately under federal and/or state regulations), although lead and trustee agencies may request that impacts to these communities be addressed in environmental documents. Local agencies may also have policies requiring avoidance of rare community types.

Three sensitive natural communities have been identified within the study area: redwood–Douglas-fir, Black Cottonwood Forest & Woodland, and willow thickets (coastal dune willow – Sitka willow – Douglas spiraea thickets). CALVEG data was analyzed, and these communities are described in detail in the preceding chapter and their status noted in **Table 4**.

Additionally, portions of the Action Area within the Coastal Zone that may be considered ESHAs were identified per the California Coastal Act. These include “any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities” (CPRC 30107.5). Potential ESHA identified within the Action Area include the aforementioned willow thickets.

A4.6 Wildfire Effects to Habitat

A description of the impact and approach for evaluation in light of wildfires in eastern Humboldt County, Trinity County, and Shasta County can be found in Chapter 4.6. The modified construction corridor does not cross any areas with recent wildfire activity.

A4.7 General Wildlife

The Action Area includes a wide array of habitats which support a diversity of wildlife species. Common bird species found in the habitats present in the Action Area include marbled godwit (*Limosa fedoa*), osprey (*Pandion haliaetus*), Canada goose (*Branta canadensis*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), mallard (*Anas platyrhynchos*), red-winged blackbird (*Agelaius phoeniceus*), yellow-rumped warbler (*Setophaga coronate*), Anna's hummingbird (*Calypte anna*), California quail (*Callipepla californica*), spotted towhee (*Pipilo maculatus*), black phoebe (*Sayornis nigricans*), acorn woodpecker (*Melanerpes formicivorus*), common raven (*Corvus corax*), wild turkey (*Meleagris gallopavo*), black-capped chickadee (*Poecile atricapillus*), northern flicker (*Colaptes auratus*), Steller's jay (*Cyanocitta stelleri*), mourning dove (*Zenaida macroura*), and western kingbird (*Tyrannus verticalis*).

Common mammal species found in the habitats present in the Action Area include western gray squirrel (*Sciurus griseus*), California ground squirrel (*Otospermophilus beecheyi*), gray fox (*Urocyon cinereoargenteus*), black bear (*Ursus americanus*), black-tailed jackrabbit (*Lepus californicus*), California mule deer (*Odocoileus hemionus californicus*), brush rabbit (*Sylvilagus bachmani*), and Botta's pocket gopher (*Thomomys bottae).*

Common reptile and amphibian species found in the habitats present in the Action Area include coast gartersnake (*Thamnophis elegans terrestris*), Pacific gophersnake (*Pituophis catenifer catenifer*), western yellow-bellied racer (*Coluber constrictor mormon*), California toad (*Anaxyrus boreas halophilus*), northern pacific treefrog (*Pseudacris regilla*), rough-skinned newt (*Taricha granulosa*), California alligator lizard (*Elgaria multicarinata multicarinata*), California whiptail (*Aspidoscelis tigris munda*), and western fence lizard (*Sceloporus occidentalis*).

Common fish species found in aquatic habitats in the Action Area include native species such as freshwater sculpin (*Cottus* sp.), Pacific lamprey (*Lampetra tridentate*), and suckers (*Catostomus* sp.). Common non-native fish species include green sunfish (*Lepomis cyaneelus*), bluegill (*Lepomis macrochirus*), smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*), brown trout (*Salmo trutta*), and brook trout (*Salvelinus fontinalis*).

A4.8 Special-Status Plants

Eleven state-listed and/or other special-status plant species may be present within the Action Area, all vascular plants (perennial and annual herbs). There are two federally listed plants that may be present within the Action Area.

There is one special-status plant species that may be present in the region but *not* within the Action Area because it is either outside of the current known range of the species or there is no suitable habitat for the species within the Action Area. Also, while the Construction Corridor occurs near or adjacent to several vegetation community types, much of the disturbance from Proposed Action-related activities will be restricted to road shoulders and previously disturbed areas. Therefore, many of the other special-status plants were removed from further consideration due

to lack of suitable habitat. **Appendix E** details the habitat requirements and justification for why these species were removed from further consideration.

TABLE 3 SPECIAL-STATUS PLANTS THAT MAY BE PRESENT IN THE ACTION AREA					
Lifeform	**Species**	**Status**	**Habitat Requirements**	**Records Within 1.5 Miles of the Construction Corridor**	**Suitable Habitat in the Action Area (0.5-mile corridor)**
Vascular Plant (Annual herb)	Beach layia *Layia carnosa*	CRPR 1B.1 FT SE	This species occurs in open, loose sand in coastal dunes and coastal scrub. Bloom period: March through July.	One CNDDB occurrence that documents collections made in the sand dunes near the mouth of Little River in 1917, 1935, and 1937.	Suitable coastal scrub habitat may be present along Hammond Trail between McKinleyville and Clam Beach.
Vascular Plant *(Perennial herb)*	Coast checkerbloom *Sidalcea oregana ssp. exima*	CRPR 1B.2	This species occurs in meadows or seeps within North Coast and lower montane coniferous forest habitats. Bloom period: June through August.	One CNDBB occurrence along Central Avenue from Lenz Lane to north of Airport Road (2001)	Suitable habitat is present in the Action Area where wet meadows and seeps within conifer forest occur.
Vascular Plant (Annual herb)	Dark-eyed gilia *Gilia millefoliata*	CRPR 1B.2	This species occurs in coastal dunes. Bloom period: April through July	One CNDDB occurrence that documents collections made at the Clam Beach lagoons in 1917, 1937, and 1963.	Marginal habitat is present in the sandy dunes along Hammond Trail.
Vascular Plant (Annual herb)	Humboldt Bay owl's clover *Castilleja ambigua ssp. humboldtiensis*	CRPR 1B.2	This species occurs in coastal salt-marshes and occasionally in non-wetlands on the North Coast. Bloom period: April through August.	Two CNDBB occurrences near the confluence of the Mad River and Pacific Ocean (2003-2007).	Coastal salt marshes are not present in the Action Area, but suitable habitat could be present in non-wetlands.
Vascular Plant *(Perennial herb)*	Lyngbye's sedge *Carex lyngbyei*	CRPR 2B.2	This species occurs in brackish and freshwater marshes and swamps. Bloom period: April through August.	Two CNDDB occurrences north of Murray Road and along the Mad River (2003, 2019).	Suitable habitat may be present in the Action Area where freshwater wetlands occur.
Vascular Plant *(Perennial herb)*	Northern clustered sedge *Carex arcta*	CRPR 2B.2	This species occurs in bogs, fens, and mesic areas in North Coast coniferous forest. Bloom period: June through September.	One CNDDB occurrence mapped to Dows Prairie (location unknown) (1934).	Suitable habitat may be present in the Action Area where freshwater wetlands or mesic conifer forests occur.

TABLE 3 SPECIAL-STATUS PLANTS THAT MAY BE PRESENT IN THE ACTION AREA					
Lifeform	**Species**	**Status**	**Habitat Requirements**	**Records Within 1.5 Miles of the Construction Corridor**	**Suitable Habitat in the Action Area (0.5-mile corridor)**
Vascular Plant *(Perennial herb)*	Pink sand-verbena *Abronia umbellata* var. *breviflora*	CRPR 1B.1	This species occurs in coastal dunes. Bloom period: June through October.	Three CNDDB occurrences near Airport Road and Clam Beach (1987-2008)	Marginal habitat is present in the sandy dunes along Hammond Trail.
Vascular Plant *(Perennial herb)*	Seaside pea *Lathyrus japonicus*	CRPR 2B.1	This species occurs in coastal dunes. Bloom period: May through August.	There are two CNDDB occurrences near mouth of Strawberry Creek and Little River State Beach (1974 and 2012).	Suitable is present in the sandy dunes along Hammond Trail.
Vascular Plant *(Perennial herb)*	Siskiyou checkerbloom *Sidalcea malviflora* ssp. *patula*	CRPR 1B.2	This species occurs in coastal bluff scrub, coastal prairie, and North Coast coniferous forest, often on roadsides. Bloom period: (March-April) May through August.	Two CNDDB occurrences in McKinleyville near Airport Rd and Central Ave (unknown date, and 2005).	Suitable habitat is present where coastal scrub occurs along Hammond Trail, and along roadsides within conifer forest.
Vascular Plant *(Perennial herb)*	Western lily *Lilium occidentalei*	CRPR 1B.1 FE SE	This species can be found in various wetland habitats such as bogs, fens, marshes, swamps. It is also found in upland habitat such as North Coast conifer forest, coastal bluff scrub and coastal prairie. It is associated with Hookton soil series and Sitka spruce (Bencie & Wear, 2004). Bloom period: June through July.	One CNDBB occurrence within 1.5 miles (2011).	Potential habitat exists along Mill Creek and north of Mad River and Highway 200 where Sitka spruce and other associated species are present. Additionally, this species is predominantly found in Hookton soil series, which make up large portions of the Action Area.
Vascular Plant *(Perennial herb)*	Wolf's evening primrose *Oenothera wolfii*	CRPR 1B.2	This species can be found in mesic, sandy soils in coastal bluff scrub, coastal dunes, coastal prairie, and lower montane conifer forest. Bloom period: May through October.	One CNDBB occurrence near Clam Beach (1996)	Suitable coastal bluff scrub habitat is present along the Hammond Trail between McKinleyville and Clam Beach.

Special-Status Vascular Plants

The special-status vascular plants identified for analyses can be generally categorized based on suitable habitat preference, including mesic–moist habitats (springs, seeps, emergent wetlands, and riparian areas), coastal scrub, and coastal dunes. Species generally found in mesic–moist habitats include Lyngbye's sedge (*Carex lyngbyei*), northern clustered sedge (*Carex arcta),* Western lily (*Lilium occidentale)*, and coast checkerbloom (*Sidalcea oregana* ssp. *exima*). Species often found in coastal scrub include Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*) and Wolf's evening-primrose (*Oenothera wolfii*). Species found in coastal dune habitat includes seaside pea (*Lathyrus japonicus*), dark-eyed gilia (*Gilia millefoliata)* and pink sand-verbena (*Abronia umbellate* var. *breviflora*). Habitat requirements, range, and occurrence information for these species are detailed in **Table 5**.

While no special-status vascular plants were identified, surveys did identify suitable habitat (i.e., roadsides, roadcuts) for the following species that, due to their habitat preferences and natural history, are most sensitive to potential Proposed Action-induced stressors:

- Beach layia
- Coast checkerbloom
- Dark-eyed gilia
- Humboldt Bay owl's clover
- Lyngbye's sedge
- Northern clustered sedge
- Pink sand-verbena
- Seaside pea
- Siskiyou checkerbloom
- Western lily
- Wolf's evening primrose

Primary ongoing threats to these species include logging, road construction/maintenance, grazing, and competition from non-native invasive plants. Other threats include horticultural collecting (e.g., orchids, lilies, and stonecrops), alteration of fire regimes, and off-highway vehicle use.

A4.9 Special-Status Fish and Wildlife

A total of 10 special-status wildlife species were evaluated to determine if the Proposed Action would result in disturbance, injury, or mortality. After review and analysis, five wildlife species were excluded from further review because the Action Area is either outside of the current known range of the species or the nearest suitable habitat is outside of established disturbance noise buffers. **Appendix E** details the habitat requirements and justification for why these species were removed from further consideration. A total of seven wildlife species were retained for further review and analysis.

A total of nine special-status fishes were evaluated to determine if the Proposed Action would result in disturbance, injury, or mortality. After review and analysis, one fish was excluded from further review. A total of eight fishes were retained for further review and analysis. Rationale for excluding certain fishes is the same as the rationale for excluding certain other special-status species as discussed above.

Due to the length of the Action Area and the large number of special-status wildlife species that may be present, abbreviated natural history and occurrence information is presented in **Table 6**. More detailed descriptions of natural history, habitat requirements, and environmental baseline are presented below for special-status species with the greatest potential to be impacted by work activities.

TABLE 4 SPECIAL-STATUS WILDLIFE AND FISH SPECIES THAT MAY BE PRESENT IN THE ACTION AREA					
Lifeform	**Species**	**Status**	**Habitat Requirements**	**Records Within 1.5 Miles of the Construction Corridor**	**Suitable Habitat in the Action Area (0.5-mile corridor)**
Amphibian and Reptile	Foothill yellow-legged frog (North Coast DPS) Rana boylii	SSC	Streams and rivers with rocky substrate and open, sunny banks within woodlands, chaparral, and forests. Occasionally found in isolated pools, vegetated backwaters, and shaded, deep spring-fed pools. Rarely encountered far from permanent water. (CWHRS 2000b).	There are three CNDDB occurrences along the Mad River (2012 to 2018).	Suitable habitat for foothill yellow-legged frog is present in and adjacent to Mad River, Mill Creek, Widow White Creek and several other perennial and intermittent streams. Norton Creek may offer very poor quality habitat.
Amphibian and Reptile	Northern red-legged frog Rana aurora aurora	SSC	Humid forests, woodlands, grasslands, and streamsides with plant cover, but most commonly in lowlands or foothills (Nafis 2019). Individuals are frequently found in woods adjacent to streams.	There are seven CNDDB occurrences various locations including Mad River, Clam Beach County Park (1970 to 2012).	Suitable habitat for Northern red-legged frog is present in and adjacent to adjacent to Mad River, Mill Creek and Widow White Creek and several other perennial and intermittent streams. Norton Creek may offer very poor-quality habitat.
Amphibian and Reptile	Northwestern pond turtle Actinemys marmorata	FTP, SSC	Wide variety of intermittent and perennial freshwater aquatic habitats (Rosenberg et al. 2009). In streams and rivers, this species is associated with low-velocity flows and deep pools. Terrestrial activity includes nesting, overwintering (typically late fall to early spring), dispersal, and basking. Nest sites are most often located within 650 feet of aquatic habitat. They feature compact soil, sparse	There is one CNDDB occurrence on the south side of the Mad River (2017).	Suitable nesting and hibernation habitat may be present between Mad River and Hwy 200. Suitable aquatic habitat may be present in Mad River, Mill Creek, and Widow White Creek, and other intermittent or perennial streams. Norton Creek may offer very poor-quality habitat.

TABLE 4 SPECIAL-STATUS WILDLIFE AND FISH SPECIES THAT MAY BE PRESENT IN THE ACTION AREA					
Lifeform	**Species**	**Status**	**Habitat Requirements**	**Records Within 1.5 Miles of the Construction Corridor**	**Suitable Habitat in the Action Area (0.5-mile corridor)**
			vegetation, and sun exposure. Overwintering sites can be within aquatic habitats, in undercut stream banks, or upland sites in a variety of habitats. Some individuals are not reliant on refugia during winter months and may be active year-round.		
Bird	Bank swallow (Riparia riparia)	ST	Vertical banks, cliffs, and bluffs in alluvial, friable soils along rivers and lakes.	There are two CNDDB occurrences within 1.5 miles of the alignment. One occurrence documents active nest cavities in a sand bank along Clam Beach between 2003 and 2013 and is approximately 420 feet west of the proposed alignment.	Suitable nesting habitat may be present along the sand banks west of Hammond Trail between Airport Road and Clam Beach Road, which is within 500 feet of the proposed alignment.
Bird	Marbled murrelet Brachyramphus marmoratus	FT SE	This species nests on high platforms in mature conifers in mature, old growth coniferous forests within 32 miles of the coast. Further discussion can be found in Chapter 5.3.	There are six CNDDB occurrences within 1.5 miles of the alignment, but they are offshore observations.	Potential nesting habitat for marbled murrelet may be present in the mixed conifer forest north of the Hwy 299/Hwy 200 junction. This species is highly sensitive to disturbance, therefore is unlikely to be nesting in proximity to these high traffic roadways but could be disturbed by work activity-generated noise that may reach the interior of the forest.
Bird	Northern spotted owl Strix	FT ST SSC	This species occurs in old growth and mature second growth coniferous forests that	There is one CNDDB occurrences within 1.5 miles	Potential nesting habitat for northern spotted owl may be present in the mixed conifer

TABLE 4 SPECIAL-STATUS WILDLIFE AND FISH SPECIES THAT MAY BE PRESENT IN THE ACTION AREA					
Lifeform	**Species**	**Status**	**Habitat Requirements**	**Records Within 1.5 Miles of the Construction Corridor**	**Suitable Habitat in the Action Area (0.5-mile corridor)**
	occidentalis caurina		contain old trees and snags with high basal areas, as well as forests with dense canopies, multiple canopy layers, and downed woody debris. Their nests are often located in tree cavities or on broken-topped trees or snags in trees with a 35 inch or greater DBH.	of the alignment, located northwest of Central Ave.	forest north of the Hwy 299/Hwy 200 junction. This species is highly sensitive to disturbance, therefore is unlikely to be nesting in proximity to these high traffic roadways but could be disturbed by work activity-generated noise that may reach the interior of the forest.
Fish	Chinook salmon – California Coastal ESU (Oncorhynchus tshawytscha)	FT	This species occurs in flowing freshwater migration corridors and estuarine areas.	There are no CNDDB occurrences within the 1.5-mile assessment area, however NOAA mapped critical habitat within Mad River and Little River.	There is suitable habitat and range overlap for Chinook salmon in the Mad River and its tributaries.
Fish	Coast cutthroat trout Oncorhynchus clarkii clarkii	SCC	This species has diverse life history strategies occurring both in fresh and saltwater habitats. They require cool, clean water with deep pool habitat and cover. Coastal cutthroat trout rear in coastal lagoons and ponds. Individuals in large streams spawn from November to December while those in smaller streams spawn from January to February.	There are six CNDDB occurrences within 1.5 miles of the proposed alignment; however, only three occurrences overlap the proposed alignment in various streams including the Mill Creek, Widow White Creek and Strawberry Creek (1969 to 1995).	There is suitable habitat and range overlap for coastal cutthroat trout in the Mad River and its tributaries, including Mill Creek, Widow White Creek, and Strawberry Creek.
Fish	Coho salmon—Southern	FT ST	This species occurs in flowing freshwater migration corridors and estuarine areas,	There are two CNDDB occurrences within 1.5 miles (1998 to 2014).	There is suitable habitat and range overlap for Coho salmon in the Mad River and

TABLE 4 SPECIAL-STATUS WILDLIFE AND FISH SPECIES THAT MAY BE PRESENT IN THE ACTION AREA					
Lifeform	**Species**	**Status**	**Habitat Requirements**	**Records Within 1.5 Miles of the Construction Corridor**	**Suitable Habitat in the Action Area (0.5-mile corridor)**
	Oregon/ Northern California ESU Oncorhynchus kisutch		spawning from November to January in gravel river bottoms.		its tributaries including Mill Creek and Widow White Creek.
Fish	Pacific eulachon—Southern Distinct Population Segment (DPS) Thaleichthys pacificus	FT	This species occurs in the lower reaches of coastal rivers with moderate water velocities, woody debris, and sand and pea-sized gravel substrate. Most spawning (March through April) occurs within tidal influence though some spawning areas are located much further upstream of the river mouth.	There is one CNDDB occurrence in lower reaches of the North Fork Mad River (1976).	There is suitable habitat and range overlap for Pacific eulachon in the lower Mad River. No estuaries suitable for spawning are located within the Action Area, however this species could be impacted by activities occurring upstream that may result in sedimentation, introduction of pollutants, etc.
Fish	Steelhead – Northern California DPS summer-run Oncorhynchus mykiss irideus	FT SE	This species occurs in riverine and ocean environments, spawning in gravel river bottoms and stream tributaries. The summer run spawns from December to February.	There is one CNDDB occurrences in Mad River (2019) and USFWS-designated critical habitat is mapped to Mad River and its tributaries including Strawberry Creek and Widow White Creek.	There is suitable habitat and range overlap for steelhead in the Mad River and its tributaries including Mill Creek and Widow White Creek.
Fish	Steelhead—Northern California DPS winter-run Oncorhynchus mykiss irideus	FT	This species occurs in riverine and ocean environments, spawning in gravel river bottoms and stream tributaries. The winter run spawns from December to April.	There are four CNDDB occurrences within 1.5 miles (2004-2021) and USFWS-designated critical habitat is mapped to Mad River and its tributaries including Strawberry Creek and Widow White Creek.	There is suitable habitat and range overlap for steelhead in the Mad River and its tributaries including Mill Creek and Widow White Creek.

TABLE 4 SPECIAL-STATUS WILDLIFE AND FISH SPECIES THAT MAY BE PRESENT IN THE ACTION AREA					
Lifeform	**Species**	**Status**	**Habitat Requirements**	**Records Within 1.5 Miles of the Construction Corridor**	**Suitable Habitat in the Action Area (0.5-mile corridor)**
Fish	Tidewater Goby Eucyclogobius newberryi	FE	Brackish water lagoons, estuaries, and marshes	There are no CNDDB occurrences within the 1.5-mile study area, however the Action Area is within range of this species and habitat may be present.	No lagoons, estuaries, or marshes are located within the Action Area; however, this species could be impacted by activities occurring upstream that may result in sedimentation, introduction of pollutants, etc.
Fish	Western brook lamprey Lampetra richardsoni	SSC	This species inhabits gravel riffles and runs of clear, cool streams. Ammocetes occur in muddy and sandy backwaters and pools of streams. Spawning takes place from March to August.	There is one CNDDB occurrence within 1.5 miles (2001) at Janes Creek.	There is suitable habitat and range overlap for western brook lamprey in the Mad River and its tributaries including Mill Creek and Widow White Creek.
Mammal	Fisher—West Coast DPS Northern California–Southwestern Oregon ESU Pekania pennanti	SSC	This species occurs in dense, mature, mixed-conifer and ponderosa pine forests at elevations that support the greatest aboveground forest biomass (many large trees) and in areas that do not accumulate as much deep and persistent snow as higher elevations. Cavities in hardwoods greater than 15 inches DBH and conifer greater than 22 inches DBH as well as logs and snags are used for resting and denning. Denning season is February 1 to July 9.	There are two CNDDB occurrences within 1.5 miles near Janes Creek and east of Central Avenue near a golf course (2015).	Suitable habitat may be present in the dense, forested areas north of the Highway 299/Highway 200 junction and along Mill Creek where dense forest is contiguous with higher elevation forested areas.
Mammal	Pacific marten,	FT SE	Mixed evergreen forests with more than 40 percent crown	There are no CNDDB occurrences within the 1.5-	Suitable habitat may be present in the dense, forested

TABLE 4 SPECIAL-STATUS WILDLIFE AND FISH SPECIES THAT MAY BE PRESENT IN THE ACTION AREA					
Lifeform	**Species**	**Status**	**Habitat Requirements**	**Records Within 1.5 Miles of the Construction Corridor**	**Suitable Habitat in the Action Area (0.5-mile corridor)**
	Coastal Distinct Population Segment Martes caurina		cover and variation in stand age, especially old-growth conifers and snags to provide cavities for dens. Less commonly marten will den in woodpiles, cabins, and other human structures.	mile study area, however the Action Area is within range of this species and habitat may be present.	areas north of the Highway 299/Highway 200 junction and along Mill Creek where dense forest is contiguous with dense forested areas.

Federally-Listed Wildlife and Fishes

Birds

Two federally-listed bird species may occur in the Action Area: MAMU and NSO.

Marbled Murrelet

The MAMU is a small, nearshore seabird species that nests on high platforms in mature conifers within 32 miles of the coasts of Washington, Oregon and Northern California (USFWS 1997, 2009). Suitable nest structures include large, mossy horizontal branches 4 to 25 inches in diameter and at least 33 feet high in the live crown (Evans et al. 2003; Nelson and Hamer 1995). Squirrel nests, mistletoe (*Phoradendron* spp.) burls, and structural tree deformities are also utilized as nesting substrate for the single egg clutch (Nelson 1997). Nest trees found to date have been Douglas-fir, coast redwood, western hemlock, western red cedar, yellow cedar, mountain hemlock, and Sitka spruce (Hamer and Nelson 1995). MAMU has been found nesting in small areas of suitable habitat that are surrounded by unsuitable habitat (Nelson and Wilson 2001). In Northern California, the USFWS official nesting season is March 24 to September 15, with most MAMU fledged by August 5 (USFWS 2014). The Action Area is in NWFP MAMU Conservation Zone 4.

Suitable MAMU nesting habitat is present in mature conifer and mixed conifer-hardwood forest in the Action Area north of the CA S.R. 200/CA S.R. 299 junction. The nearest confirmed nesting location of MAMU is mapped approximately 11.0 miles south of the Construction Corridor (CNDDB [ds85] 2019). However, individuals have been observed during the breeding season foraging offshore or in flight over the Eureka and McKinleyville coast (CNDDB [ds31] 2019; eBird 2019) directly west of the Action Area. Annual presence in foraging habitat during the breeding season suggests that this species may nest in the Action Area in suitable habitat. MAMU nests are cryptic and even focused surveys can fail to identify their inconspicuous nests high in the canopy of large trees. The distribution and abundance of this species is not well understood due to insufficient survey and monitoring efforts. As a result, available occurrence data is unlikely to accurately reflect species presence in the vicinity of the Action Area.

Estimates of the amount of suitable MAMU nesting/roosting habitat, displayed in **Table 7**, were calculated using the “Existing Vegetation-CALVEG” data layers (USDA 2008). Within CALVEG, Eocene used CWHR attributes to define suitable MAMU nesting/roosting habitat as follows:

- CWHR Type = RDW (redwood) or DFR (Douglas-fir)
- CWHR Density = D (~60 percent canopy closure)
- CWHR Size = 5 (~24 inches mean DBH)

TABLE 5
ACRES OF MAMU NESTING/ROOSTING HABITAT IN THE ACTION AREA

Land Ownership	Acres of Habitat
Caltrans	71.9
Private lands	9.2
TOTAL	81.1

Northern Spotted Owl

The NSO is a medium-sized owl that inhabits the forests of the Pacific Coast region from southwestern British Columbia to Marin County in California, up to 5,800 feet in elevation (CDFW 2016; USFWS 2011b). Spotted owls are primarily nocturnal and normally spend their days perched in a protected roost. They prey on a wide range of mammals, birds, insects, amphibians, and reptiles. Small mammals such as the northern flying squirrel (*Glaucomys sabrinus*), red tree vole (*Arborimus longicaudus*), and dusky-footed woodrat (*Neotoma fuscipes*) make up the bulk of their diet (Gutiérrez et al. 1995).

Nest stands have high canopy cover (60 percent or higher) and, regardless of forest age, feature relatively high complexity and structure (e.g., with a hardwood understory or a variety of tree sizes). Nest sites are often broken-top trees and cavities, although NSO will also use existing platforms such as abandoned raptor nests, squirrel nests, mistletoe brooms, and debris piles. Nest sites are frequently sited near streams and creeks and are typically located low to mid-slope rather than near ridge lines (Folliard et al. 2000). NSO have strong breeding site fidelity, producing one brood per season. Regionally, NSO nests from approximately February 1 through July 31 (USFWS 2011b).

NSO habitat in many areas is intermixed with grasslands and other naturally occurring open habitats. Home ranges, which are often more than 1,000 acres in size, may include open areas. Nest stands are often adjacent to open areas, and recent clear cuts are well described in the literature. NSO may be found from sea level up to the transition to subalpine forest, where winter conditions are severe and forest structure is of suboptimal complexity.

NSO is most often associated with mature forest stands in redwood forests and mixed conifer-hardwood forests. However, along the coast of northwestern California, considerable numbers of NSO also occur in younger forest stands (USFWS 2011b), which is classified as “marginal” habitat. This phenomenon has been exacerbated in recent years by the colonization of NSO habitat by the invasive barred owl (*Strix varia*), which has pushed NSO to utilize younger forest stands (Dugger et al. 2016; USFWS 2004). This trend has resulted in more strict protection measures for work in habitats that may have previously been considered marginal for NSO nesting. In addition to mature forest stands that meet the established definition of potentially suitable NSO nesting/roosting habitat, the Action Area contains such “marginal” habitat. Acreage calculations for both suitable and marginal habitat in both the Construction Corridor and Action Area are presented in **Table 9**.

NSO occupancy and nesting behavior is well described in Humboldt County (Gutierrez et al. 1995; USFWS 2011b), due in part to extensive efforts by land management and regulatory agencies (USDA 1994). The scientifically accepted size of an individual NSO home range is 1.3 miles. Based on CNDDB, NRIS, and Green Diamond spatial data, there are 2,101 positive NSO observations, 199 NSO activity centers (ACs), and 433 NSO nests documented within 1.3 miles of the Construction Corridor. These records are summarized in **Table 9** and visually depicted in maps in **Appendix C**.

NSO may nest as close as 100 feet from the small, lightly traveled roads within the Construction Corridor and 200 feet from lightly or moderately traveled roads and heavily trafficked roads (e.g., stretches of Highway 101 in Humboldt County [CNDDB 2019]). Chapter 6 discusses the sensitivity of NSO and other wildlife to noise disturbance and how existing, ambient sound levels can influence calculations of auditory disturbance due to construction.

TABLE 6 NSO OCCURRENCE DATA AND ACS IN PROXIMITY TO THE CONSTRUCTION CORRIDOR		
Feature*	**Distance from Construction Corridor****	
	Within 0.5 mile	***Within 1.3 miles***
Nests	0	0
ACs	0	0
Positive Observations	0	1
Negative Observations	0	34
*Occurrence data from the following data sources: CNDDB, NRIS, Green Diamond, Multiple observations (i.e., over multiple years) of ACs/nests are included in these tallies. **0.5 mile represents the accepted nesting core area size, and 1.3 miles represents the accepted home range area for NSO.		

Estimates of the amount of suitable NSO nesting/roosting habitat were calculated using the "Existing Vegetation-CAL VEG" data layers (USDA 2008). Within CALVEG, Eocene used CWHR attributes to define potential suitable NSO nesting/roosting habitat as follows:

- CWHR Type = RDW (redwood), DFR (Douglas-fir), or MHC (Montane Hardwood-Conifer).
- CWHR Density = D (~60 percent canopy closure)
- CWHR Size = 5 (~24 inches mean DBH) = "*suitable* nesting/roosting habitat"
- CWHR Size = 4 (11 to 23.9 inches mean DBH) "*marginal* nesting/roosting habitat"

These calculations determined that the Action Area contains 103.2 acres of suitable NSO nesting/roosting habitat and 91 acres of "marginal" NSO nesting/roosting habitat, on private and Caltrans agency lands.

Fishes

Many of the waterways in the Action Area provide suitable spawning, rearing, and/or migration habitat for federally listed fish, three of which have NOAA-designated critical habitat in the Action Area (CNDDB 2023; NMFS 2005, 2014; Rupp 2019; USFWS 2005): California Coastal ESU Chinook salmon (*Oncorhynchus tshawytscha*), Southern DPS Eulachon (*Thaleichthys pacificus*), and Northern California DPS steelhead (*Oncorhynchus mykiss irideus*) are known to occur in waterways crossed by the Action Area.

Habitat requirements, range, and occurrence information for these species are detailed in **Table 6**. These special-status fishes have established populations in the Action Area and are assumed present within suitable habitat. **Table 12** indicates the waterways in the Action Area that are critical habitat for the one salmon ESU and/or one steelhead DPS. The waterways that serve as EFH are also denoted.

The PBFs that provide for anadromous salmonid life history requirements and that are essential to the conservation of Chinook salmon and steelhead are as follows (NMFS 1993, 1999, and 2005):

1. Freshwater spawning sites accessible at the time of the ruling that also have sufficient water quantity and quality suitable to support spawning, incubation, and larval development

2. Freshwater rearing sites with sufficient water quantity and floodplain connectivity to form and maintain habitat conditions that support juvenile growth and mobility; sufficient water quality and forage to support juvenile development and provide sufficient natural cover as shade; submerged and overhanging large woody debris, log jams, beaver dams, or aquatic vegetation, large rocks and boulders, side channels, and undercut banks
3. Freshwater migration corridors free of obstruction and excessive predation risk, with water quantity and quality conditions, as well as natural cover, that support juvenile and adult mobility and survival
4. Estuarine areas free from obstruction and excessive predation risk, with water quantity and quality and salinity conditions that support juveniles and adults during their physiological transitions between fresh water and salt water, including natural cover for both juvenile and adult forage species

TABLE 7
CRITICAL HABITAT AND ESSENTIAL FISH HABITAT OF SALMONIDS IN THE ACTION AREA

Watershed (Hydrological Unit Code 10)	Waterway	Steelhead—Northern California DPS	Chinook salmon—California Coastal ESU	
		Critical Habitat	Critical Habitat	EFH
Big Lagoon-Frontal Pacific Ocean	Mad River	✓	✓	✓
	Mill Creek	✓		
	Strawberry Creek	✓		
	White Widow Creek	✓		

Although the species is believed to be extirpated from the area, Pacific eulachon critical habitat is present in lower reaches of the North Fork Mad River (NOAA 2011) (**Appendix B**). Physical or biological features essential to Pacific eulachon conservation are 1) freshwater spawning and incubation sites with water flow, quality and temperature, 2) freshwater and estuarine migration corridors, and 3) nearshore and offshore marine foraging habitat. No work is planned in the North Fork Mad River.

State-Listed and Other Special-Status Wildlife and Fish

Amphibians

Two special-status amphibians are potentially present in the Action Area: foothill yellow-legged frog (Northwest/North Coast Clade) (*Rana boylii*) and northern red-legged frog (*Rana aurora aurora*). Although habitat preferences can vary during their adult stages, all amphibians require aquatic habitats early in their lifecycles (egg and larval stages) and for breeding. All special-status amphibians considered in this analysis require intermittent or perennial waters for early life stages and breeding. During their adult phases, they can often be found within a few feet of these waters, though adults can occasionally be found in surrounding woodland habitats. Specific habitat requirements and occurrence information for these species are detailed in **Table 6** (Stebbins and McGinnis 2012; Thomson et al. 2016). Neither of these species were observed during reconnaissance surveys. Due to the high potential for presence of foothill yellow-legged frog in the Action Area during construction, the life history and range of foothill yellow-legged frog are described in more detail below.

Foothill Yellow-Legged Frog (Northwest/North Coast Clade)

Although foothill yellow-legged frog occurs in a range of aquatic habitats, it is most strongly associated with rocky woodland streams and rivers that feature unconsolidated coarse substrates and shallow channels with riffles (CDFW 2018b). It is occasionally found in isolated pools, vegetated backwaters, and shaded or deep spring-fed pools. Unlike the majority of other ranid frogs in California, foothill yellow-legged frogs are rarely encountered more than 100 feet from permanent water, even following precipitation events (CWHRS 2000). Their range extends throughout the Action Area.

Mating and egg-laying occur in late spring and early summer (April through early July) when streams and rivers have slowed after winter runoff. Tadpoles remain near the egg mass for approximately 1 week, later moving away to feed, utilizing rocks and gravel for cover. Tadpoles transform over a period of 3 to 4 months, generally from July to October. The newly metamorphosed juveniles typically migrate upstream from the hatching site (Nafis 2019). Terrestrial individuals are primarily diurnal. In the warmest localities, frogs may be active all year but can potentially become inactive or hibernate in colder areas (CWHRS 2000). The main factor leading to the decline of the foothill yellow-legged frog is the alteration and destruction of aquatic habitat through stream scouring, non-selective logging practices, and the stabilization of historically fluctuating stream flows (Santos-Barrera et al. 2004).

Birds

A total of four state and other special-status bird species may occur in the Action Area. Specific habitat requirements and occurrence information for these species are detailed in **Table 6.** Species excluded from further review are listed in Table E.

Fishes

Waterways in the Action Area provide suitable spawning, rearing, and/or migration habitat for two other special-status fish species, including coastal cutthroat trout (*Oncorhynchus clarkii clarkii*) and western brook lamprey (*Lampetra richardsoni*). Habitat requirements, range, and occurrence information for these species are detailed in **Table 6**. Total barriers to fish passage were not identified in waterways downstream of the Action Area.

Insects

Suitable grassland, shrubland, and forested habitats are present throughout much of the Action Area for three special-status insect species: Crotch's bumble bee (*Bombus crotchii*), Monarch butterfly (*Danaus plexippus),* and Western bumble bee (*Bombus occidentalis*). None of these species are expected in the Action Area and were excluded from further review. Habitat requirements and occurrence information for these species is detailed in **Table E,** as these species were assessed as having either no potential to occur or no impacts are anticipated.

Mammals

Two special-status mammal species are potentially present in the Action Area. These include two denning mammals (fisher [*Pekania pennanti*] and Pacific marten [*Martes caurina]).* Suitable habitat for denning mammals is present along portions of the Action Area, mainly densely vegetated riparian zones along Highway 200. Specific habitat requirements and occurrence information for these species are detailed in **Table 6**.

Reptiles

Northwestern pond turtle (*Emys marmorata*) is the only special-status reptile potentially present in the Action Area. Northwestern pond turtle is typically found in or within 650 feet of perennial waters. Specific habitat requirements and occurrence information for this species is detailed in **Table 6**.

CHAPTER A5 PROPOSED ACTION IMPACTS/EFFECTS ANALYSIS

The following impacts/effects analysis includes an assessment of the potential direct and/or indirect effects the Proposed Action may have on the sensitive natural communities, wetlands, ESHA, and all special-status species identified in Chapter 4.

A5.1 Habitats and Natural Communities of Special Concern

The majority of the Proposed Action would be constructed along disturbed roadsides and other sparsely vegetated areas and permanent impacts to Habitats and Natural Communities of Special Concern are not expected. However, temporary impacts to some of these resources are discussed below. It should be noted that these communities often have multiple statuses associated with them. Potential temporary impacts to these communities are shown in **Table 14**.

Sensitive Natural Communities

Direct Effects

Redwood–Douglas-fir and Black Cottonwood Forest and Woodlands (both S3 ranked sensitive natural communities) all occur in the Action Area, direct effects to these communities are not expected. Any Proposed Action-related disturbances will not require the removal of vegetation within these communities and will be restricted to roadsides and other unvegetated areas.

Willow thickets (S3 ranked sensitive natural community) do occur at several locations immediately adjacent to the alignment, often immediately abutting the road in some coastal locations. AMM BIO-5 requires the Proponent use HDD to bore under and fully avoid willow thickets. Bore pits and access vaults will not be placed in or adjacent to these sensitive communities. Neither permanent nor temporary impacts are expected to willow thickets.

Indirect Effects

Indirect effects to sensitive natural communities may also occur from Proposed Action-related activities. Specifically, ground-disturbing activities during construction may cause indirect effects to willow thicket communities that include increased erosion and the potential introduction of non-native invasive species. Proposed Action Avoidance and Minimization Measures (AMMs) and BMPs will be implemented to minimize any indirect effects to wetlands.

Wetlands

Direct Effects

AMM BIO-5 requires the Proponent use HDD to bore under and fully avoid wetlands. Bore pits and access vaults will not be placed in or adjacent to wetlands. Neither permanent nor temporary impacts are expected to wetlands.

Indirect Effects

Indirect effects to wetlands may also occur from Proposed Action-related activities. Specifically, ground-disturbing activities during construction may cause indirect effects that include disruptions to the vegetative structure of the wetlands and/or changes to wetland hydrologic conditions. Possible indirect effects to the vegetative structure of wetlands in the Construction Corridor may include reduced wetland plant diversity and the potential introduction of non-native invasive species. Indirect effects to hydrologic conditions in wetlands from the Proposed Action may include changes to drainage patterns/characteristics, changes to the volume of water reaching the wetland via infiltration or surface run-off, or changes to water retention times in the wetland.

Proposed Action AMMs and BMPs will be implemented to minimize any indirect effects to wetlands.

Waterways

Direct Effects

Direct impacts to perennial and some intermittent waterways will be avoided by employing HDD construction methods to bore under these waterways and attaching conduit to bridges (if possible) No trenching or plowing is anticipated.

In the original EA/ISMND for Phase 1 of Digital 299, Vero retained the option to trench/plow through some of the ephemeral drainages and intermittent waterways when HDD, bridge attachments, or trenching above culverts was not feasible. The potential impacts to ephemeral and intermittent waterways from this option in the original EA/ISMND are outlined in **Table 14**. There are no additional potential impacts from the Proposed Action because only HDD construction methods are anticipated. Still, Proposed Action AMMs and BMPs (including the implementation of a SWPPP, Spill Prevention and Pollution Plan [SPPP], HDD Contingency and Resource Protection Plan, and Revegetation and Restoration Plan) would minimize any potential effects to waterways.

Indirect Effects

Indirect effects to waterways may also occur from the Proposed Action. Specifically, ground-disturbing activities during construction in or adjacent to waterways may cause indirect effects that include the potential introduction of hazardous materials (i.e., fuel, lubricants) from accidental spills, increased erosion, and increased sediment transport.

ESHA

Direct Effects

Coastal willow thickets and freshwater emergent wetlands identified within the Coastal Zone are also considered ESHA per the California Coastal Act. As mentioned in the two preceding chapters, permanent and temporary direct impacts to these coastal wetlands are not expected and construction activity will avoid ESHA.

Indirect Effects

Indirect effects to ESHA (coastal wetlands) equate to those indirect effects to wetlands described in the previous chapter.

TABLE 8
POTENTIAL TEMPORARY IMPACTS TO HABITATS AND NATURAL COMMUNITIES OF SPECIAL CONCERN

Community Type	Temporary Impacts (acres)			
	CDFW Sensitive Natural Community	Wetlands	Waterways	ESHA
Ephemeral drainages	-	-	0.07[a]	-
Intermittent waterways	-	-	0.11[a]	-

Temporary impacts calculated from the original EA/ISMND. No new impacts are anticipated from the Proposed Action.

Measures and Determinations

With the implementation of standard construction BMPs and the following AMMs and biological BMPs, permanent impacts to habitats and natural communities of special concern are not expected (**Table 9**). The full text of AMMs and BMPs are provided in **Appendix F**.

- **AMM BIO-1—Biological Monitoring Requirements**
- **AMM BIO-2—Environmental Awareness Training**
- **AMM BIO-3—Restoration Plan**
- **AMM BIO-4—Intermittent Waterways & Ephemeral Drainages**
- **AMM BIO-5—Wetlands**
- **AMM BIO-6—Riparian Areas**
- **AMM BIO-7—Riparian Reserves (*federal land only*)**
- **AMM BIO-9—Invasive Species Prevention**
- **BMP BIO-1—General Bio**
- **BMP BIO-2—SWPPP**
- **BMP BIO-3—SPPP**
- **BMP BIO-4—HDD FRAC-OUT Plan**

TABLE 9
FINDINGS FOR HABITATS AND NATURAL COMMUNITIES OF SPECIAL CONCERN

Community Type	CEQA Findings
Willow Thickets	Less than significant impacts
Freshwater Emergent Wetlands	
Ephemeral Drainages	
Intermittent Waterways	

A5.2 Special-Status Plants

The majority of the Proposed Action would be constructed along disturbed roadsides, other sparsely vegetated areas, or areas dominated by non-native plant species. However, some special-status plant species may occur in or immediately adjacent to the Construction Corridor.

Direct Effects

Direct mortality to special-status plants could occur from Proposed Action-related construction activities; specifically, ground-disturbing activities, such as access vault installation, installation of additional support cables for aerial portions, laydown areas, and installation of ILA locations all have the potential to impact plants . Individual plants could be inadvertently crushed or buried by heavy machinery and vehicles or trampled by personnel. While direct impacts to perennial special-status plants are possible year-round, direct impacts to annuals are restricted to the growing season. ILA locations will be installed in previously disturbed areas, and direct impacts to special-status plants are not expected.

Indirect Effects

Indirect effects to special-status vascular plants may also occur from the Proposed Action. Specifically, ground-disturbing activities during construction may cause indirect effects that

include disruptions to the native seedbank, localized changes to hydrologic conditions, increased erosion and sediment transport, and the potential introduction of non-native invasive species.

Ground-disturbing activities like soil removal, subsequent mixing of topsoil with subsoil, and compaction can degrade soil structure and quality. This often affects the ability of the disturbed soils to sustain basic soil functions like native plant growth, a healthy soil microbiome, and adequate water infiltration and retention. Consequently, special-status species may not be able to reestablish on these disturbed soils, which often results in the establishment of weedy non-native invasive plants which thrive in disturbed habitats and crowd out native plants.

As the majority of the Construction Corridor is located along existing roads and disturbed areas that often host invasive plants, a number of invasive plant species are considered widespread within the footprint of the Proposed Action. CNDDB/CalFlora occurrences of many invasive plant species are mapped in the Action Area, including black mustard (*Brassica nigra),* Queen Anne's lace (*Daucus carota),* and sweet fennel (*Foeniculum vulgare*). Additionally, many invasive plant species were observed during habitat surveys including Himalayan blackberry (*Rubus armeniacus*), yellow star-thistle (*Centaurea solstitialis*), and pampas grass (*Cortaderia spp*). AMM BIO-9 (Invasive Species Prevention) will minimize the potential spread of invasive plants.

Measures and Determinations

With the implementation of standard construction BMPs and the following AMMs and biological BMPs, significant impacts from the Proposed Action to special-status plants and fungi are unlikely **(Table 10)**. The full text of AMMs and BMPs are provided in **Appendix F**.

- **AMM BIO-1—Biological Monitoring Requirements**
- **AMM BIO-2—Environmental Awareness Training**
- **AMM BIO-3—Restoration Plan**
- **AMM BIO-8—Special-Status Plants**
- **AMM BIO-9—Invasive Species Prevention**
- **BMP BIO-1—General Bio**

TABLE 10
FINDINGS FOR HABITATS AND NATURAL COMMUNITIES OF SPECIAL CONCERN FOR SPECIAL-STATUS PLANTS

Lifeform	Common Name	Status	CEQA Findings
Annual herb	Beach layia	1B.1/FT/SE	No potential significant impacts
	Dark-eyed gilia	1B.2	
	Humboldt Bay owl's clover	1B.2	
Perennial herb	Coast checkerbloom	1B.2	
	Lyngbye's sedge	2B.2	
	Northern clustered sedge	2B.2	
	Pink sand-verbena	1B.1	
	Seaside pea	2B.1	
	Siskiyou checkerbloom	1B.2	
	Western lily	1B.1/FE/SE	

TABLE 10 FINDINGS FOR HABITATS AND NATURAL COMMUNITIES OF SPECIAL CONCERN FOR SPECIAL-STATUS PLANTS			
Lifeform	**Common Name**	**Status**	**CEQA Findings**
	Wolf's evening primrose	1B.2	

A5.3 Special-Status Fish and Wildlife

Analysis indicators facilitate the quantitative assessment of a proposed action's potential to effect special-status fish and wildlife species. This evaluation considers mortality, harm, or harassment (including failed breeding attempts) to be general analysis indicators for all species. All potential effects to these general analysis indicators (described below) are discountable. As a result, species-specific analysis indicators were not assigned.

What follows are assessments of federally-listed species, followed by assessments for other special-status species grouped by taxa at a level that is meaningful to the measures prescribed to protect them. For example, all amphibians have been grouped because similar AMMs will cover their most sensitive periods and habitat use areas. Mammals are grouped to a lesser extent due to the diversity in their habitat use and sensitivities. Following discussion of each species/taxa, AMMs specific to that group are listed. A complete list of AMMs that apply to the protection of all fish and wildlife species can be found in **Appendix F**.

The majority of the Construction Corridor follows existing roads in previously disturbed areas. In areas where the proposed line will travel aerially, existing poles in cleared ROWs will be utilized. Therefore, with the exception of six small buildings in previously disturbed areas, the Proposed Action will not require new aboveground structures (i.e., poles) in existing habitat. Bore pits and access vaults will not be placed in or adjacent to riparian vegetation and wetlands; as such, riparian and wetland habitats will not be altered, and herbicides will not be applied.

Desktop and field survey analyses have determined that the following Proposed Action-related factors may affect special-status wildlife and fish (detailed analysis follows):

- Noise from construction has the potential to disturb and directly affect the reproductive success of wildlife in and adjacent to the Construction Corridor. Species most sensitive to noise disturbance are MAMU, and raptors such as eagles and NSO
- Foot traffic near aquatic resources during construction has the potential to directly injure or kill protected amphibian species
- Ground disturbance could introduce sediment to waterways, thereby degrading water quality and altering stream substrates. Such disruption could decrease the suitability of aquatic habitat, causing direct (habitat) and indirect effects (water quality) to amphibians, and fish downstream of work areas
- Accidental chemical spills (e.g., lubricating fluids or fuel) near waterways could also degrade water quality for both terrestrial and aquatic wildlife in the Action Area
- Construction activities may temporarily decrease the ability of wildlife to move through the Action Area
- Increased vehicular and human traffic in work areas, on roads, and in staging areas could disturb wildlife in the Action Area

Federally-Listed Wildlife and Fish

Birds

Marbled Murrelet

Direct Effects

Suitable MAMU nesting/roosting habitat will not be degraded, downgraded, or removed by the Proposed Action's activities because large-scale clearing of vegetation is not anticipated during construction, operations, and maintenance activities. As such, there is very low potential of direct injury or mortality to MAMU. However, work during the nesting season may disturb nearby nesting birds and is therefore considered an analysis indicator. Noise and vibration created by heavy equipment during construction could lead to harassment of MAMU by causing birds to flush from their roosting or nesting sites. Harassment due to noise disturbance may occur when the sound level from Proposed Action-related activities exceeds ambient/pre-existing sound levels by 20 to 25 dB, as experienced by the animal (USFWS 2006). As a result, the required applied distance between work and potential MAMU nesting habitat will vary as a function of 1) ambient conditions (i.e., proximity to busy roads such as SR 299) and 2) the noise generated by construction equipment.

Construction methodology includes HDD only, no plowing, rock saw, and/or trenching is anticipated. The equipment associated with this method may produce noise levels in excess of 70 dB. This anticipated level of sound falls into the "extreme" (100-110 dB) category of noise, as defined by USFWS Harassment Guidelines (USFWS 2006). Harassment of nesting MAMU due to noise disturbance may occur to a distance of 0.25 mile in areas where ambient, existing background sound levels are less than 50 dB. These conditions are likely on the more remote segments of the Proposed Action's alignment, particularly those segments along or adjacent to narrow dirt roads that run through late-successional forest habitats. In proximity to busy roads such as SR 299, which has an estimated "high" (81 to 90 dB) ambient sound level, the USFWS estimated harassment distance drops to 500 feet.

In addition to the noise disturbance effects described above, MAMU individuals flying to and from nests are vulnerable to auditory and visual disturbance from construction that occurs within two hours of sunrise or sunset. During the nesting season, this disturbance may preclude the ability of MAMU to feed nestlings by interfering with the departure and/or return of foraging adults as they travel to and from marine feeding areas.

Indirect Effects

None anticipated.

Measures and Determinations

With the implementation of standard construction BMPs and the following AMMs and biological BMPs, effects to MAMU are unlikely and therefore discountable (**Tables 11 and 12**). The full text of AMMs and BMPs are provided in **Appendix F**.

- **AMM BIO-1—Biological Monitoring Requirements**
- **AMM BIO-2—Environmental Awareness Training**
- **AMM BIO-10—Marbled Murrelet**
- **BMP BIO-1—General Bio**

Northern Spotted Owl

Direct Effects
Since large-scale clearing of vegetation is not anticipated during construction, operations, and maintenance activities, no change in the acreage of suitable nesting/roosting, foraging, or dispersal habitat is expected as a result of Proposed Action activities. Critical habitat will not be directly downgraded or removed by Proposed Action activities. As such, there is no potential for direct injury or mortality to NSO. However, work during the nesting season may disturb nearby nesting birds. During construction, substantial increases in noise and vibration above existing (ambient) levels may be created by heavy equipment. This disturbance could lead to harassment of NSO by causing birds to flush from their roosting or nesting sites.

Like MAMU, harassment of nesting NSO due to noise disturbance may occur to a distance of 0.25 mile in areas where ambient, existing background sound levels are less than 50 dB. These conditions are likely on the more remote segments of the Proposed Action's alignment, particularly those segments along or adjacent to narrow dirt roads that run through late-successional forest habitats. In proximity to busy roads such as SR 299, which has an estimated "high" (81 to 90 dB) ambient sound level, the USFWS estimated harassment distance drops to 500 feet. NSO can also be sensitive to visual disturbance. However, the Construction Corridor is not within the line of sight of previously documented nests.

According to the *Protocol for Surveying Proposed Management Activities that May Impact Northern Spotted Owls* (USFWS 2012b), this Proposed Action should qualify as a "Disturbance-Only Project." As such, work in suitable habitat may occur during the breeding season within disturbance buffers if protocol surveys determine that there is no NSO nesting within 0.25 mile of the work (USFWS 2012b). Due to high ambient noise levels along SR 299 at work areas within or adjacent to the SR 299 ROW, the survey area requirement drops from 0.25 mile to 165 feet.

In suitable and relatively undisturbed habitat, foraging individuals may be directly affected by brief human presence which may temporarily cause an individual to avoid areas during construction that may otherwise serve as foraging habitat (USFWS 2011b). Project noise above background levels will cease either as the noise source moves away from the occupied habitat or when the Proposed Action is completed. Future operation and maintenance activities are not expected to produce noise above background levels.

Indirect Effects
None anticipated.

Measures and Determinations
With the implementation of standard construction BMPs and the following AMMs and biological BMPs, effects to NSO are unlikely and therefore discountable (**Tables 11 and 12**). The full text of AMMs and BMPs are provided in **Appendix F**.

- **AMM BIO-1—Biological Monitoring Requirements**
- **AMM BIO-2—Environmental Awareness Training**
- **AMM BIO-11—Northern Spotted Owl**
- **AMM BIO-12—Northern Spotted Owl**
- **BMP BIO-1—General Bio**

TABLE 11 FINDINGS AND DETERMINATIONS FOR FEDERALLY-LISTED BIRDS AND THEIR CRITICAL HABITAT					
Common Name	**Federal Listing**	**Critical Habitat**	**ESA Determinations**	**NEPA Findings**	**Notes**
Bald eagle	FD BGEPA	-	-	Not Likely to Adversely Affect (NLAA)	No BGEPA permit required
Golden eagle	BGEPA	-	-	No Effect	No BGEPA permit required
Marbled murrelet	FT	X	NLAA	NLAA	No destruction or adverse modification of critical habitat
Northern spotted owl	FT	X	NLAA	NLAA	No destruction or adverse modification of critical habitat

TABLE 12 FINDINGS AND DETERMINATIONS FOR STATE-LISTED BIRDS				
Common Name	**State Listing**	**CFGC Status**	**CESA Determinations**	**CEQA Findings**
Bald eagle	SE	FP	No incidental take will occur	No potential significant impacts
Bank swallow	ST	-	No incidental take will occur	
Golden eagle	-	FP	Will be fully avoided	
Marbled murrelet	SE	-	No incidental take will occur	
Northern spotted owl	ST	SSC	No incidental take will occur	

Fishes

Special-status fishes with suitable habitat in the Action Area are grouped for the following effects analysis because potential impacts and analysis indicators of these species are similar. These include both federally-listed species and other special-status species.

Direct Effects

No work is anticipated to occur below the ordinary highwater mark of any rivers, coastal lagoons, or perennial drainages. However, work has the potential to decrease water quality and to change channel substrate, which can be considered both direct and indirect effects to both the fish and to critical habitat, as described below.

If sediment or pollutants enter the waterway at the time of construction (USFWS and NMFS 1998), direct effects to fish and critical habitat may occur. A change in sediment levels or texture can decrease suitability for anadromous fish spawning, rearing and/or migration at, and also downstream of, the work area. Depending upon the composition of the sediment and the flow and turbidity of the waterway, sediment could fall out of the water column immediately or may be carried some distance and therefore, impact downstream species. Hence, sediment deposition at the time of construction can be considered both a direct and an indirect effect to fish and fish habitat.

Similarly, contamination by petroleum products or other pollutants (e.g., frac out of bentonite) could cause direct effects to any individual fish present in the waterway at the time of the work and could also cause decreases in water quality downstream of the work. Respiration and other physiological processes may be negatively affected by such actions both directly and indirectly. The implementation of BMPs and AMMs, specifically the implementation of the SWPPP and HDD FRAC-OUT Plan, will avoid or minimize the potential for sediment entry or adverse effects to water quality.

Indirect Effects

The Proposed Action will not result in any new roads or permanent aboveground infrastructure (e.g., ILA locations) in aquatic habitats. Additionally, neither long-term ecological changes (e.g., quality, extent) to fish habitat, fish habits, nor changes in land use are anticipated as a result of the Proposed Action. As such, no indirect effects to fish or EFH are expected.

Measures and Determinations

With the implementation of standard construction BMPs and the following AMMs and biological BMPs, effects to special-status fishes are unlikely and therefore discountable (**Tables 13 and 14**). The full text of AMMs and BMPs are provided in **Appendix F**.

- **AMM BIO-1—Biological Monitoring Requirements**
- **AMM BIO-2—Environmental Awareness Training**
- **AMM BIO-4—Intermittent Waterways & Ephemeral Drainages**
- **AMM BIO-6—Riparian Areas**
- **AMM BIO-7—Riparian Reserves (*federal lands only*)**
- **AMM BIO-14—Aquatic Resources / Fisheries**
- **BMP BIO-1—General Bio**
- **BMP BIO-2—SWPPP**
- **BMP BIO-3—SPPP**
- **BMP BIO-4—HDD FRAC-OUT Plan**
- **BMP BIO-5—Hazardous Materials**

TABLE 13
FINDINGS AND DETERMINATIONS FOR FEDERALLY-LISTED FISHES AND THEIR CRITICAL HABITAT

Common Name	Federal Listing	Critical Habitat	ESA Determinations	NEPA Findings	Notes
Chinook salmon—California Coastal ESU	FT	NLAAX	NLAA	NLAA	No destruction or adverse modification of critical habitat
Coho salmon—Southern Oregon/ Northern California ESU	FT	NLAAX	NLAA	NLAA	No destruction or adverse modification of critical habitat
Green sturgeon–Southern DPS	FT	NLAAX	NLAA	NLAA	No destruction or adverse modification of critical habitat

TABLE 13 FINDINGS AND DETERMINATIONS FOR FEDERALLY-LISTED FISHES AND THEIR CRITICAL HABITAT					
Common Name	**Federal Listing**	**Critical Habitat**	**ESA Determinations**	**NEPA Findings**	**Notes**
Pacific eulachon—Southern DPS	FT	NLAAX	NLAA	NLAA	No destruction or adverse modification of critical habitat
Steelhead—Northern California DPS	FT	NLAAX	NLAA	NLAA	No destruction or adverse modification of critical habitat
Tidewater goby	FE	NLAAX	NLAANo effect	NLAANo effect	No destruction or adverse modification of critical habitat

TABLE 14 FINDINGS AND DETERMINATIONS FOR STATE-LISTED FISHES				
Common Name	**State Listing**	**CFGC Status**	**CESA Determinations**	**CEQA Findings**
Coho salmon—Southern Oregon/Northern California ESU	ST	-	No incidental take will occur	No potential significant impacts
Green sturgeon–Southern DPS		SSC		
Tidewater goby	-	SSC		

State-Listed and Other Special-status Wildlife and Fish

Amphibians

Special-status amphibians with suitable habitat (**Table 3**) in the Action Area are grouped for the following effects analysis because potential impacts to each of these species are expected to be similar. All special-status amphibians considered in this analysis require intermittent or perennial waters for early life stages and breeding. During their adult phases they can often be found within a few feet of these waters, though adults can occasionally be found in surrounding woodland habitats. Since much of the Proposed Action would be constructed along disturbed shoulders of major roads away from suitable habitat for these species, impacts to special-status amphibians are expected to be minimal. However, there is the potential for impacts along the more remote segments of the Proposed Action's alignment, particularly those segments along or adjacent to narrow dirt roads that run through late-successional forest habitats and intersect suitable aquatic habitats.

Potential impacts to amphibians are greatest where the Proposed Action will travel under or over intermittent and perennial streams, particularly along those segments that follow dirt roads immediately adjacent to these streams. Seeps and springs that support emergent vegetation are also common occurrences along these dirt roads, often forming strips of potential amphibian habitat in roadside ditches. HDD and other ground-disturbing activities along these roadsides have the potential to impact these habitats and any amphibians that reside therein.

Direct Effects

Direct mortality to individuals could occur in both aquatic and upland dispersal habitat as a result of Proposed Action-related construction activities. During construction, individuals may be

crushed by heavy machinery and vehicles, trampled by personnel, or buried during soil-disturbing activities. If construction occurs during sensitive breeding seasons, noise and ground vibration from construction activities may result in physiological stress to breeding individuals, hampering their ability to find mates and reproduce (Megela and Narins 2018). Soil disturbance during construction could result in sedimentation of nearby waters, lowering water quality through increased turbidity. This increase in sediment has the potential to affect special-status amphibians by reducing overall abundance of eggs and larva, as well as affect overall growth and development rates (Woods and Richardson 2009). Lastly, the removal/disturbance of microhabitats (i.e., rocks, litter, large woody debris) due to ground-disturbing activities may temporarily eliminate suitable habitat for some species.

Indirect Effects

Indirect effects to special-status amphibians may also occur from Proposed Action-related activities in those areas deemed suitable for such species. Ground-disturbing and other construction activities have the potential to introduce non-native, invasive species (i.e., other amphibians, pathogens) that may displace or predate native amphibians. Amphibians can also be sensitive to environmental contaminants, and indirect effects may occur from unintentional chemical spills (e.g., fuel, lubricants, etc.) during construction activities (Mahaney 1994). Sedimentation from ground-disturbing activities has the potential to cause indirect effects to amphibians by altering water chemistry (increased pH), increasing water temperatures, and lowering macroinvertebrate productivity. The implementation of BMPs and AMMs, specifically the implementation of the SWPPP and HDD Contingency and Resource Protection Plan, will avoid or minimize the potential for sediment entry or adverse effects to water quality.

Measures and Determinations

With the implementation of standard construction BMPs and the following AMMs and biological BMPs, impacts to special-status amphibians will be avoided or minimized, and no potential significant impacts are likely to occur (**Table 15**). The full text of AMMs and BMPs are provided in **Appendix F**.

- **AMM BIO-1—Biological Monitoring Requirements**
- **AMM BIO-2—Environmental Awareness Training**
- **AMM BIO-5—Wetlands**
- **AMM BIO-15—Special-Status Amphibians**
- **BMP BIO-1—General Bio**
- **BMP BIO-2—SWPPP**
- **BMP BIO-3—SPPP**
- **BMP BIO-4—HDD FRAC-OUT Plan**
- **BMP BIO-5—Hazardous Materials**
- **BMP BIO-6—Air Quality/Dust Prevention**

TABLE 15
FINDINGS AND DETERMINATIONS FOR STATE-LISTED AMPHIBIANS

Common Name	State Listing	CFGC Status	CESA Determinations	CEQA Findings
Foothill yellow-legged frog (Northwest/North Coast Clade)	-	SSC	-	No potential significant impacts

TABLE 15 FINDINGS AND DETERMINATIONS FOR STATE-LISTED AMPHIBIANS				
Common Name	**State Listing**	**CFGC Status**	**CESA Determinations**	**CEQA Findings**
Northern red-legged frog	-	SSC	-	
Note: No federally listed amphibians have potential to occur.				

Birds

Direct Effects

During nesting season (February 15 to August 31; January 1 to August 31 for bald and golden eagles) in all habitat assemblages, elevated noise from construction could interfere with avian mating and territorial defense calls, possibly inhibiting or delaying breeding. Construction noise and activities and human presence could result in nest abandonment or neglect or disrupt foraging activity, reducing reproductive success. Construction disturbance to overwintering birds may cause individuals to temporarily change foraging locations. Direct effects are expected to be short term and temporary while construction and installation pass through a given area and are not expected to extend beyond one breeding season or overwintering period. Long-term effects are not expected because the Proposed Action will not modify or remove suitable roosting, hibernation, or foraging habitat for birds, and any soil disturbance will be reseeded to minimize noxious weed establishment. Only minimal vegetation removal (DBH<6 and <0.1 acre) is planned and no large trees or snags suitable for roosting will be removed.

Indirect Effects

None expected.

Measures and Determinations

With the implementation of standard construction BMPs and the following AMMs and biological BMPs, impacts to nesting birds may occur but Proposed Action-related activities will avoid or minimize impacts to the greatest extent practicable (**Table 16**). The full text of AMMs and BMPs are provided in **Appendix F**.

- **AMM BIO-1—Biological Monitoring Requirements**
- **AMM BIO-2—Environmental Awareness Training**
- **AMM BIO-13—Nesting Birds**
- **BMP BIO-1—General Bio**

Fishes

See federally listed fishes above.

Mammals

Work occurring during twilight hours has the potential to disrupt foraging behavior of special-status mammals (species which are generally nocturnal or crepuscular) that may be present in the Action Area. Although work does not have the potential to remove or alter important habitat elements, impacts to individual mammals are possible due to noise from construction equipment, as described below.

Fisher and Pacific Marten
Direct Effects

Both in and outside of natal season, noise may disturb fisher and/or Pacific marten in day resting sites (Purcell 2009). Increased vehicular and human traffic in work areas, on roads, and in staging areas may temporarily decrease the ability of wildlife such as fisher and marten to move through the Action Area. During natal denning season, noise from construction equipment and the presence of humans in the Construction Corridor could prompt change of denning sites, possibly impacting reproductive success. Foraging is unlikely to be affected because it occurs at night when work will not be performed. However, the fisher is curious in nature and may be attracted to work areas by open trash and food. Proposed Action activities will not modify or remove suitable denning or foraging habitat for fisher or marten. Since the Proposed Action will be located in previously disturbed, existing road ROWs or utility easements, no large trees, logs, snags, or brush piles suitable for fisher or marten will be removed.

Indirect Effects

None expected.

Measures and Determinations

With the implementation of standard construction BMPs and the following AMMs and biological BMPs, impacts to special-status mammals will be avoided or minimized, and no potential significant impacts are likely to occur (**Table 16**). The full text of AMMs and BMPs are provided in **Appendix F**.

- **AMM BIO-1—Biological Monitoring Requirements**
- **AMM BIO-2—Environmental Awareness Training**
- **AMM BIO-16—Special-Status Bats**
- **AMM BIO-17—Special-Status Mammals**
- **BMP BIO-1—General Bio**

TABLE 16
FINDINGS AND DETERMINATIONS FOR FEDERAL AND STATE-LISTED MAMMALS

Common Name	State Listing	CFGC Status	CESA Determinations	CEQA Findings
Fisher	-	SSC	-	No potential significant impacts
Pacific marten		FT, SE		

Reptiles

Northwestern pond turtle is typically found in or within 650 feet of perennial waters. Since much of the Proposed Action would be constructed along disturbed shoulders of major roads away from suitable habitat for these species, impacts to Northwestern pond turtle are expected to be minimal. However, there is the potential for impacts along CA S.R. 200 segments of the Proposed Action alignment, particularly those segments roadways that are immediately adjacent to suitable habitat.

Direct Effects

Direct mortality to individuals could occur as a result of Proposed Action-related construction activities. During construction, individuals could be crushed by heavy machinery and vehicles,

trampled by personnel, or buried during soil-disturbing activities. Since work is not occurring in any perennial aquatic resources, direct impacts to northwestern pond turtle would only occur in upland habitats within 650 feet of perennial waters where Northwestern pond turtle nests could be found or where nesting females may travel.

Indirect Effects

Northwestern pond turtles can be sensitive to environmental contaminants, and effects may occur from unintentional chemical spills (e.g., fuel, lubricants, etc.) in or near aquatic habitats during construction activities (Rosenberg et al. 2009).

Measures and Determinations

With the implementation of standard construction BMPs and the following AMMs and biological BMPs, impacts to special-status reptiles will be avoided or minimized, and no potential significant impacts are likely to occur (**Table 17**). The full text of AMMs and BMPs are provided in **Appendix F**.

- **AMM BIO-1— Biological Monitoring Requirements**
- **AMM BIO-2—Environmental Awareness Training**
- **BMP BIO-1—General Bio**
- **BMP BIO-2—SWPPP**
- **BMP BIO-3—SPPP**

TABLE 17
FINDINGS AND DETERMINATIONS FEDERAL AND STATE-LISTED REPTILES

Common Name	State Listing	CFGC Status	CESA Determinations	CEQA Findings
Northwestern pond turtle	-	FPE, SSC	-	No potential significant impacts

CHAPTER A6 CONCLUSIONS AND DETERMINATIONS

A6.1 Determinations–Federally-Listed Species

May affect, not likely to adversely affect due to discountable effects

- Chinook salmon—California Coastal ESU
- Coho salmon—Southern Oregon/Northern California ESU
- Marbled murrelet
- Northern spotted owl
- Pacific eulachon—Southern DPS
- Steelhead—Northern California DPS
- Tidewater goby

Critical Habitat—No destruction or adverse modification

- Chinook salmon—California Coastal ESU
- Coho salmon—Southern Oregon/Northern California ESU
- Marbled murrelet
- Northern spotted owl
- Pacific eulachon—Southern DPS
- Steelhead—Northern California DPS
- Tidewater goby

BGEPA—No permit required

- Bald eagle
- Golden eagle

The implementation of the proposed AMMs and BMPs will ensure that impacts are avoided or minimized to the greatest extent practicable.

A6.2 Determinations–State-listed Species

CEQA Considerations—No potential significant impacts

Fish and Wildlife

- Bald eagle
- Bank swallow
- Chinook salmon—Coastal California ESU
- Coho salmon—Southern Oregon/ Northern California ESU
- Foothill yellow-legged frog
- Fisher
- Golden eagle
- Green sturgeon—Southern DPS
- Marbled murrelet
- Northern red-legged frog
- Northern spotted owl
- Steelhead—Northern California DPS

Fish and Wildlife continued

- Tidewater goby
- Northwestern pond turtle
- Western snowy plover

Plants

- Dark-eyed Gilia
- Coast checkerbloom
- Lyngbye's sedge
- Siskiyou checkerbloom
- Wolf's evening primrose

Habitats and Natural Communities of Special Concern

- Willow Thickets
- Freshwater Emergent Wetlands
- Intermittent Waterways
- Ephemeral Drainages

CESA Considerations

Will be fully avoided

- Golden eagle

No incidental take will occur

- Bald eagle
- Chinook salmon—Upper Klamath/Trinity ESU
- Coho salmon—Southern Oregon / Northern California ESU
- Green sturgeon—Southern DPS
- Marbled murrelet
- Northern spotted owl

With the implementation of the proposed AMMs and BMPs, potential impacts to these species will be avoided or minimized, and no potential significant impacts are likely to occur.

A6.3 Determination–Other Special-Status Species

Based upon the size, nature, and duration of the Proposed Action, it is our determination that the Proposed Action may impact individuals but will not cause a trend towards listing or loss of viability for any, fish, or wildlife species. The implementation of the proposed AMMs and BMPs will minimize potential impacts.

CHAPTER A7 REFERENCES

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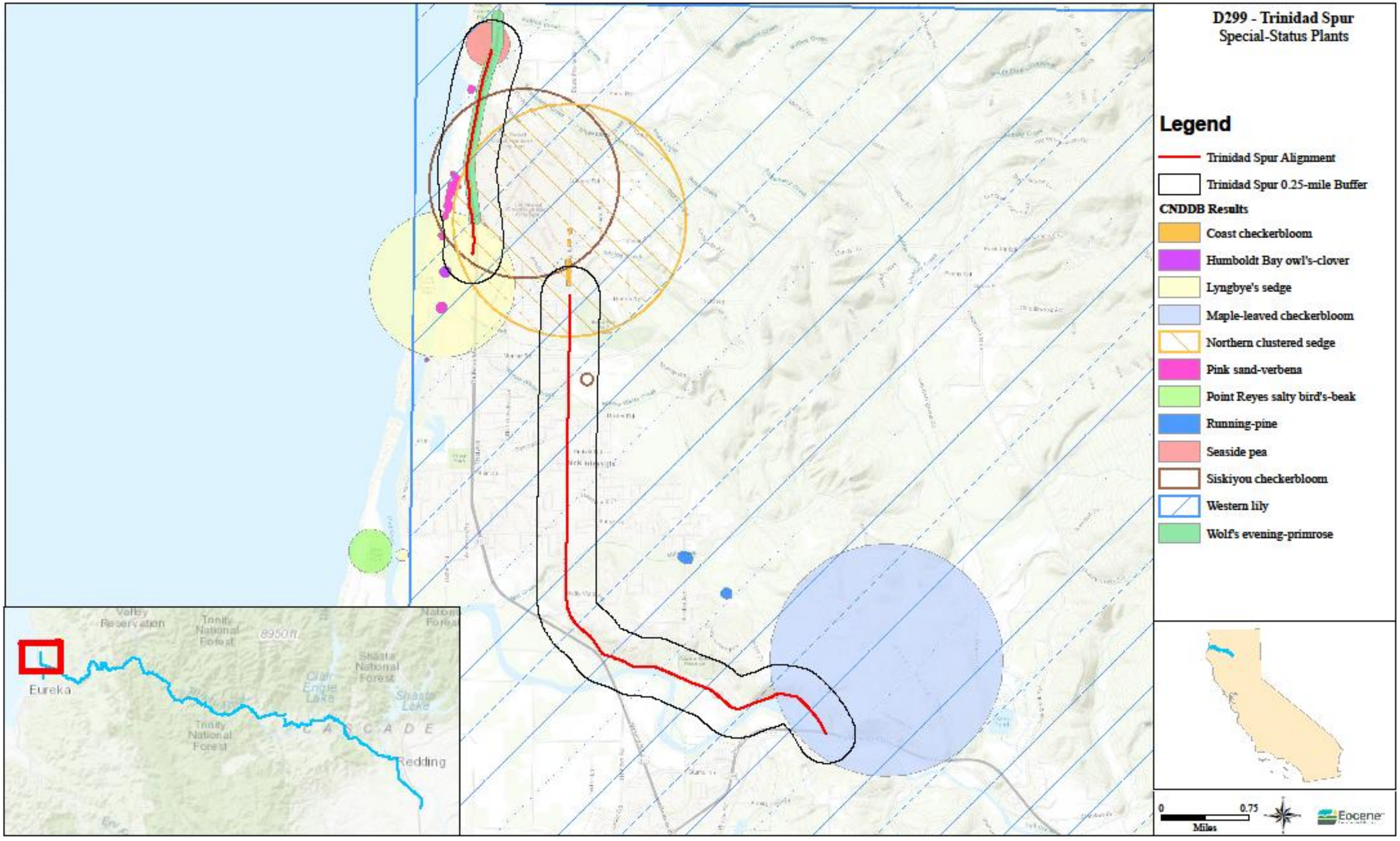
APPENDIX A

PROPOSED ACTION PLANT OCCURRENCES MAPS


D299 - Trinidad Spur
Special-Status Plants
Legend
Trinidad Spur Alignment
Trinidad Spur 0.25-mile Buffer
CNDDB Results
Coast checkerbloom
Humboldt Bay owl's-clover
Lyngbye's sedge
Maple-leaved checkerbloom
Northern clustered sedge
Pink sand-verbena
Point Reyes salty bird's-beak
Running-pine
Seaside pea
Siskiyou checkerbloom
Western lily
Wolf's evening-primrose
Eureka
Redding
Trinity National Forest
Shasta National Forest
Shasta Lake
Clair Engle Lake
CASCADE
8950ft
0
0.75
Miles
Eocene

APPENDIX B

PROPOSED ACTION WILDLIFE AND FISHES MAPS

D299 - Trinidad Spur
Northern Spotted Owl
Nesting/Roosting Habitat

Legend

- Trinidad Spur Alignment
- Trinidad Spur 1.3-mile Buffer
- NSO Suitable Habitat
- NSO Marginal Habitat

0 0.75 Miles

Eocene

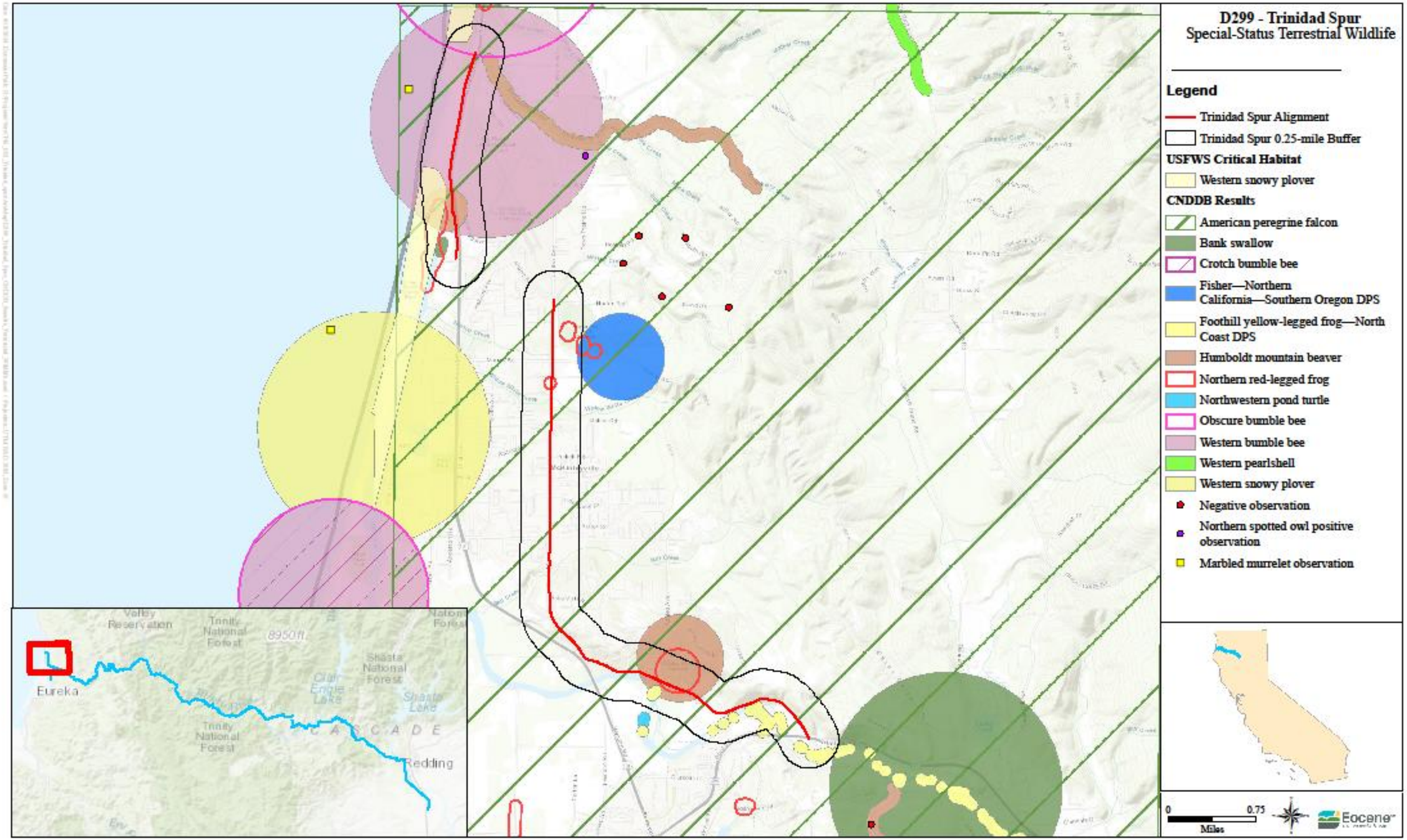
D299 - Trinidad Spur
Marbeled Murrelet
Nesting/Roosting Habitat

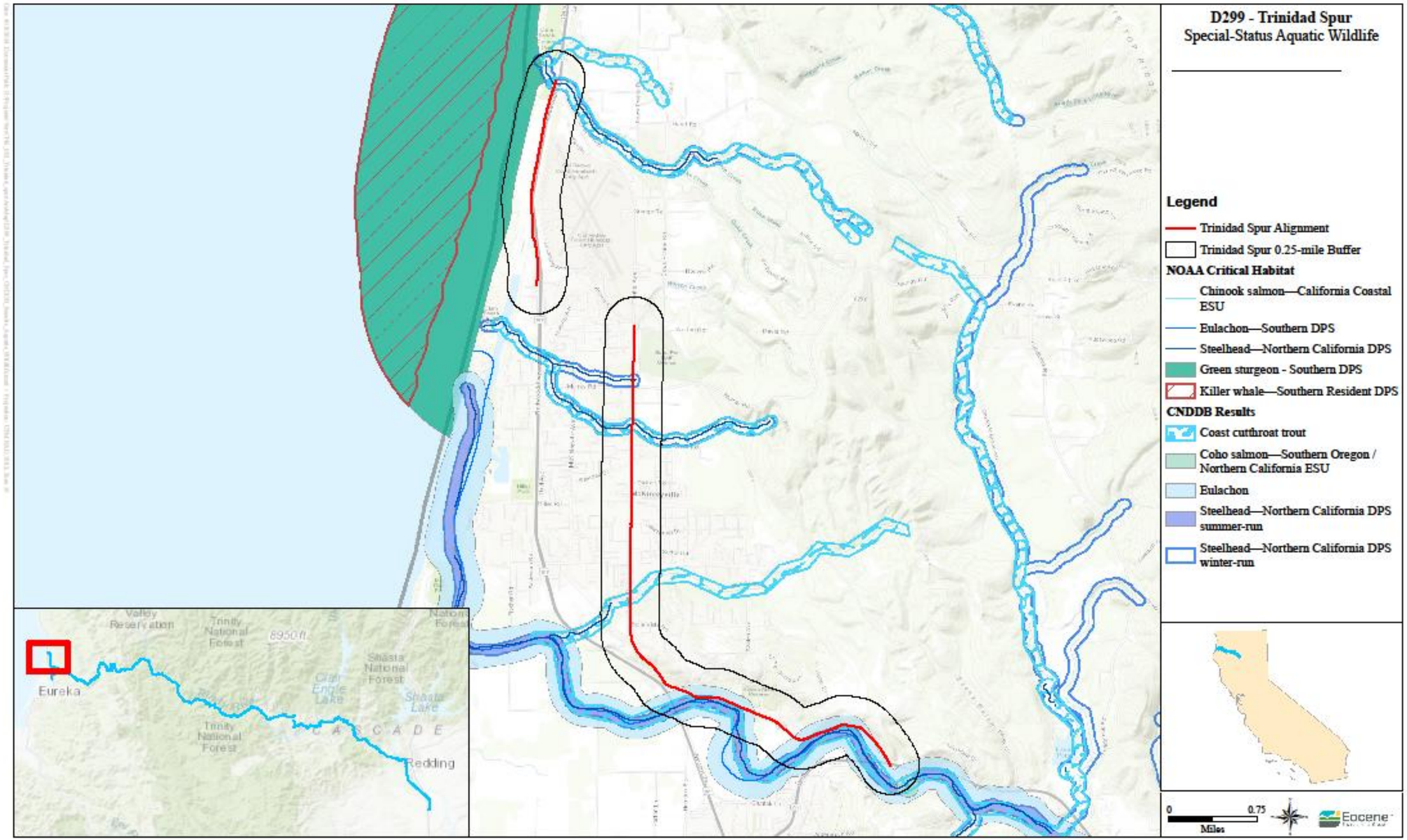
Legend

- Trinidad Spur Alignment
- Trinidad Spur 0.25-mile Buffer
- Marbled Murrelet Suitable Habitat

0 0.75
Miles

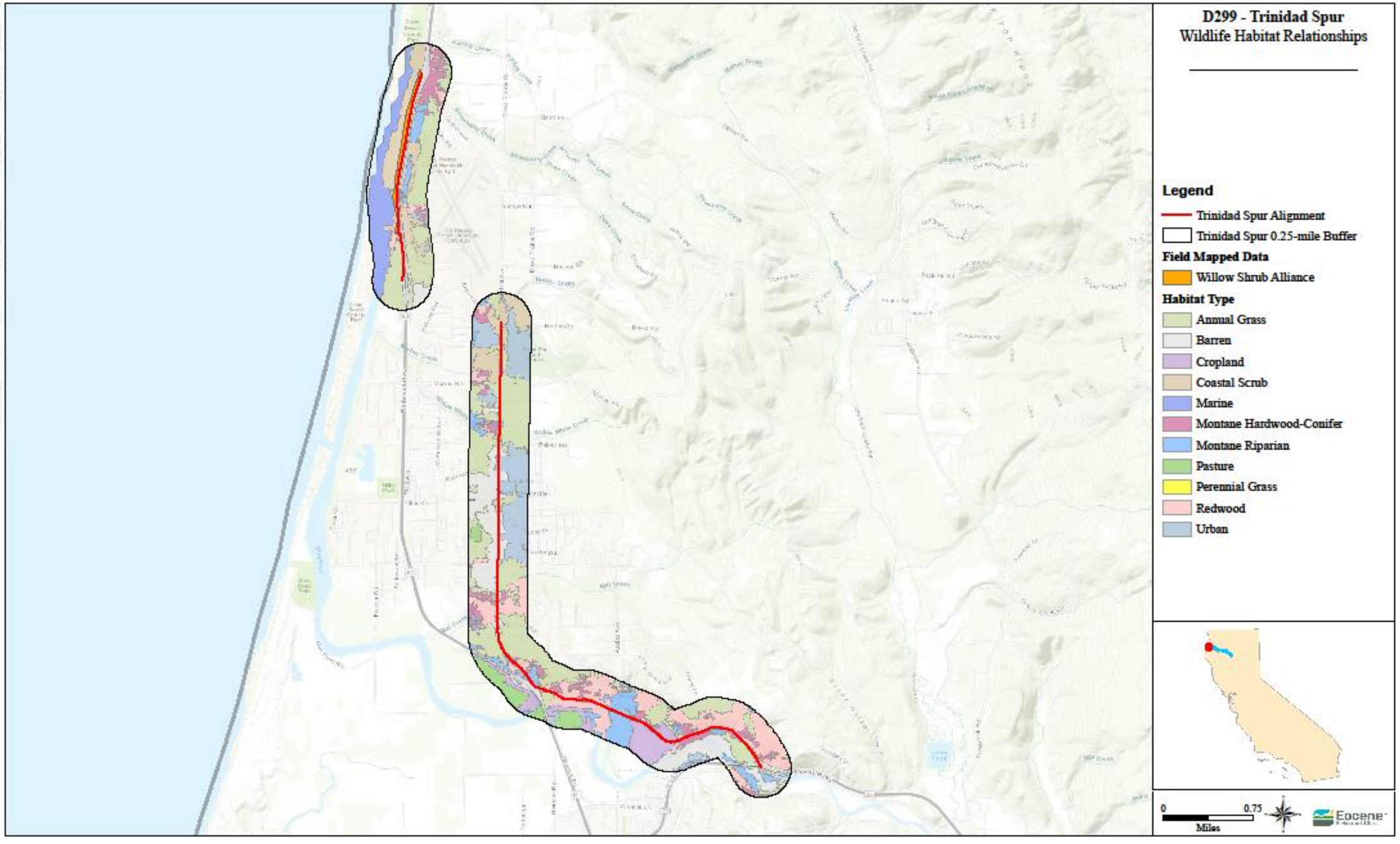
Eocene


D299 - Trinidad Spur
Special-Status Terrestrial Wildlife
Legend
Trinidad Spur Alignment
Trinidad Spur 0.25-mile Buffer
USFWS Critical Habitat
Western snowy plover
CNDDB Results
American peregrine falcon
Bank swallow
Crotch bumble bee
Fisher—Northern California—Southern Oregon DPS
Foothill yellow-legged frog—North Coast DPS
Humboldt mountain beaver
Northern red-legged frog
Northwestern pond turtle
Obscure bumble bee
Western bumble bee
Western pearlshell
Western snowy plover
Negative observation
Northern spotted owl positive observation
Marbled murrelet observation
Eureka
Redding
Trinity National Forest
Shasta National Forest
Valley Reservation
Clair Engle Lake
Shasta Lake
8950ft
0
0.75
Miles
Eocene


D299 - Trinidad Spur
Special-Status Aquatic Wildlife
Legend
Trinidad Spur Alignment
Trinidad Spur 0.25-mile Buffer
NOAA Critical Habitat
Chinook salmon—California Coastal ESU
Eulachon—Southern DPS
Steelhead—Northern California DPS
Green sturgeon - Southern DPS
Killer whale—Southern Resident DPS
CNDDB Results
Coast cutthroat trout
Coho salmon—Southern Oregon / Northern California ESU
Eulachon
Steelhead—Northern California DPS summer-run
Steelhead—Northern California DPS winter-run
Eureka
Redding
Trinity National Forest
Shasta National Forest
Shasta Lake
Clair Engle Lake
CASCADE
Valley Reservation
6950 ft
0
0.75
Miles
Eocene

APPENDIX C

PROPOSED ACTION VEGETATION/HABITAT COMMUNITIES MAPS


D299 - Trinidad Spur
Wildlife Habitat Relationships
Legend
Trinidad Spur Alignment
Trinidad Spur 0.25-mile Buffer
Field Mapped Data
Willow Shrub Alliance
Habitat Type
Annual Grass
Barren
Cropland
Coastal Scrub
Marine
Montane Hardwood-Conifer
Montane Riparian
Pasture
Perennial Grass
Redwood
Urban
0
0.75
Miles
Eocene

APPENDIX D

LIST OF REGIONALLY OCCURRING SPECIAL-STATUS SPECIES
REMOVED FROM FURTHER ANALYSIS

TABLE D-1 REGIONALLY OCCURRING SPECIAL-STATUS SPECIES REMOVED FROM FURTHER CONSIDERATION				
Common Name	**Species Name**	**Status**	**Habitat Requirements**	**Reason for Exclusion**
Crotch's bumble bee	*Bombus crotchii*	SCE	Relatively warm and dry sites at open grassland and scrub habitats with nesting occurring underground.	The species is thought to be extirpated north of Sacramento Valley.
Green Sturgeon	*Acipenser medirostris*	FT	Spawning in freshwater and fry may stay in rivers for up to three years. Juveniles migrate to estuaries and eventually into the Pacific Ocean, adults return to freshwater rivers to spawn in cobbled, deep, fast-moving water.	There is suitable spawning habitat for Green Sturgeon in Mad River, however spawning populations are believed to be restricted to Klamath River and its tributaries.
Monarch Butterfly	*Danaus plexippus*	FCE	Various stands of trees including pines, eucalyptus used for overwintering and breeding.	Tree removal impacting overwintering habitat will not occur.
Point Reyes Salty Bird's-beak	*Chloropyron maritimum ssp. palustre*	CRPR 1B.2	Coastal salt marshes and swamps.	No coastal salt marsh of swamp habitat is present in the Action Area.
Western bumble bee	*Bombus occidentalis*	SCE	Wide variety of habitats and forages on an array of flowering plants.	The species is extirpated from most of its historic range in California, particularly from lower elevations. Their current distribution is not well described but is likely limited to the Sierra and Cascade regions.
Western Snowy Plover	*Charadrius alexandrinus nivosus*	FT SSC	Coastal beaches, sand spits, dune-backed beaches, sparsely vegetated dunes, beaches at creek and river mouths, salt pans at lagoons, and estuaries.	Potential nesting habitat is present on the beaches and dunes on the west side of Hammond Trail; however, the Action Area is separated from this habitat by wide stretched of coastal scrub.

APPENDIX E

AVOIDANCE AND MINIMIZATION MEASURES AND BEST MANAGEMENT PRACTICES

TABLE E-1 AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)			
ID	**Subject**	**Measure to be Implemented**	**Areas Where Measures will be Implemented**
AMM BIO-1	Biological Monitoring Requirements	The Applicant shall designate one or more Project Biologists. Project Biologist refers to the qualified person assigned to ensure Project-wide biological measures identified in this document are followed and to document compliance with these measures. The Project Biologist will also oversee other biologists and/or Biological Monitors. Biological Monitor refers to a qualified person assigned to ensure biological measures are being implemented during construction activities. Project Biologist(s) or Biological Monitor(s) shall be on-site as needed according to AMMs. Project Biologists and Biological Monitors shall be familiar with sensitive species and resources and the minimization measures for this Proposed Project. The Project Biologist(s) shall be responsible for overseeing and training Biological Monitors; advising the Applicant and Contractor on compliance with biological mitigation measures; notifying the Applicant of noncompliance with biological resources conditions; responding directly to inquiries of the lead agencies or resource agencies regarding biological resource issues; maintaining records of tasks related to compliance and reporting for biological resource measures; preparing monthly, annual, and final compliance reports; establishing and enforcing speed limits at Project work areas; and maintaining the ability for regular, direct communication with representatives of the California Department of Transportation (Caltrans) Environmental Unit, California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), including notifying these agencies of dead or injured special-status species and reporting special-status species observations. Observations of special-status plant and wildlife species made during biological monitoring or other surveys will be submitted to the California Natural Diversity Database (CNDDB). Daily logs—When on site, the Project Biologist(s) and/or Biological Monitor(s) shall maintain electronic records of daily activities, observations, and communications with the Applicant or construction personnel. These records shall be made available for review to the lead agencies at any time during or following Project implementation. Stop Work Authority—The Project Biologist(s) and Biological Monitor(s) shall have written authority to require a halt to activities in any area when determined that there would be an unauthorized adverse impact to biological resources if the activities continued.	**Project-wide, where and when a monitor is needed.**

TABLE E-1 AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)			
ID	**Subject**	**Measure to be Implemented**	**Areas Where Measures will be Implemented**
		Applicability: Project wide, where and when a monitor is needed. (EA ID: BIO-1)	
AMM BIO-2	Environmental Awareness Training	Key personnel (e.g., crew leads, foremen) will complete an environmental awareness training on the protected species in and around the Project route and on required environmental protection measures. Training shall explain the need for and implementation of minimization measures. The training shall include: supporting written material and electronic media, including photographs of protected species; providing information regarding the locations and types of sensitive biological resources within the Project alignment and adjacent areas as well as explaining the reasons for protecting these resources; informing participants that no snakes, other reptiles, bats, or any other wildlife shall be harmed or harassed, with special emphasis on special-status species, and including information on physical characteristics, distribution, behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protection measures; identifying the Project Biologist(s) and Biological Monitor(s) for contact or further comments and questions about the material discussed in the program; educating crews on noxious plants known to occur near the Project alignment; directing trainees to report all observations of listed species and their sign to the Project biologist for inclusion in the compliance reports; a discussion of the Project Biologists' and Biological Monitors' stop work authority; and a training acknowledgment form to be signed by each worker indicating that they received training and shall abide by the guidelines. Applicability: Project wide. (EA ID: BIO-2)	**Project-wide**
AMM BIO-3	Restoration Plan	During final Project design, a Restoration Plan will be developed that provides detailed plans for the restoration of temporarily disturbed waterways and vegetated areas. The plan will outline restoration and conservation activities, locations, monitoring requirements, and criteria to measure mitigation success. Restoration shall include seeding with locally sourced native species, erosion control measures, non-native plant control, and site monitoring of the restoration of temporarily disturbed waterways and vegetated areas, including riparian habitat, if impacted. This plan shall also be submitted to and approved by the United States Army Corps of Engineers (USACE), USFWS, and CDFW prior to initiating any mitigation activities.	**Project-wide**
AMM BIO-4	Intermittent Waterways & Ephemeral Drainages	No trenching will occur in intermittent waterways or ephemeral drainages where water is present in these features. Following trenching, intermittent waterways and ephemeral drainages will be restored to their original condition and contours per the guidelines outlined in the Restoration Plan.	**Suitable habitat along all segments**

TABLE E-1 AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)			
ID	**Subject**	**Measure to be Implemented**	**Areas Where Measures will be Implemented**
		Applicability: Suitable habitat (will be mapped for construction crews). (EA ID: BIO-4)	
AMM BIO-5	Wetlands	Prior to construction, a qualified biologist will flag the boundaries of wetland resources delineated in the Preliminary Jurisdictional Delineation Report (Transcon 2021) and mapped in the Action Area. Project infrastructure will be designed to avoid these resources, including coastal willow thickets. Where willow thickets and wetlands have been identified, construction of the alignment via the HDD method is required. During construction, crews will stage construction outside of the flagged areas. Placement of manholes, handholes, and boring pits will be located outside the flagged areas, at least 50 feet from wetland boundaries. Applicability: Project wide. (EA ID: BIO-5)	**Project-wide**
AMM BIO-6	Riparian Areas	Prior to construction, a qualified biologist will flag the boundaries of riparian resources delineated in the Preliminary Jurisdictional Delineation Report (Transcon 2021) and mapped in the Action Area. Project infrastructure will be designed to avoid these resources to the greatest extent practicable. During construction, crews will limit construction activities to the extent practicable. Equipment staging and placement of manholes, handholes, and boring pits will all occur outside of flagged riparian resources. If construction activities fill or disturb riparian areas, then Vero will do the following: • Vero Networks will obtain and comply with all necessary USACE, SWRCB, CDFW, and California Coastal Commission permits • Impacted wetlands and/or riparian areas will be restored to pre-construction condition and monitored during and after disturbance. Restoration of temporarily impacted wetlands and riparian areas will be addressed in the Restoration Plan (AMM BIO-3) Applicability: Project wide. (EA ID: BIO-5)	**Project-wide**
AMM BIO-8	Special-Status Plants	Clearance surveys for special-status plant species will occur prior to construction in appropriate habitat during appropriate seasons when special-status plants are present and identifiable (typically in spring and summer). In areas affected by recent wildfire, surveys will be particularly thorough where occurrences of sensitive plants are mapped, due to the elevated potential for dormant plant populations to reappear following burns. If planned construction activities may result in an impact to special-status plant species, the following measures will be taken: (1) a minor re- route of the alignment would be made to avoid the	**Suitable habitat along Hammond Trail- Hwy 101 and within**

TABLE E-1 AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)			
ID	**Subject**	**Measure to be Implemented**	**Areas Where Measures will be Implemented**
		plant(s) and a suitable buffer area to prevent root damage or other incidental damage; or (2) in areas that cannot be avoided by a minor re-route, the Project Biologist will contact the appropriate agency to discuss the potential for salvaging the affected plants. A Biological Monitor shall be responsible for designating an appropriate buffer area or bore depth to minimize potential adverse impacts to the plants and their roots Applicability: Suitable habitat (will be mapped for construction crews). (Biology ID: AMM BIO-7)	**natural riparian and wetland communities**
AMM BIO-9	Invasive Species Prevention	Contractor vehicles, equipment, tools, boots, and clothing will be cleaned inside and out prior to mobilization of Project segments on federal lands or Caltrans ROW to limit the introduction on non-native species and pathogens (e.g., Port Orford cedar root fungus) on the Project corridor, including in areas potentially affected by recent wildfire. These measures will be applied project-wide. • Exterior cleaning will consist of washing vehicles and equipment at an off-site location, with attention paid to the tracks, feet, and/or tires and on the undercarriage, with special emphasis on axles, frame, cross members, motor mounts, and on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out, and refuse will be disposed of in waste receptacles to be disposed of at an approved off-site location. Hand tools and boots will be washed, and clothing laundered. The Contractor will inspect vehicles, equipment, tools, boots and clothing to ensure that they are free of soil and debris capable of transporting non-native vegetation seeds, roots, or rhizomes. Seeds and plant parts that result from the cleaning will be collected and bagged for disposal at an approved off-site location. If noxious or invasive weeds are within the Construction Corridor, vehicles will be cleaned before moving on to areas that are weed free, or any location affected by wildfire. Contractors will avoid or minimize all types of off-road travel that may result in the collection and dispersion of non-native vegetation by construction vehicles and equipment. Activity boundaries including equipment staging and parking areas shall avoid known noxious plant infestation. If unavoidable, prior to implementation of operations where invasive plants are present, invasive plant-infestations shall be bladed away from equipment and access routes before operations start. Removed invasive plants or shrubs should be located on the edge of the clearing out of the way of operations to avoid retrieval	**Project-wide**

TABLE E-1 AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)			
ID	**Subject**	**Measure to be Implemented**	**Areas Where Measures will be Implemented**
		on equipment. Equipment/machinery shall be cleaned prior to leaving the infested area to operate in another non-contiguous area. Activity boundaries shall avoid areas recently burned by wildfire to the extent possible. Rock, sand, or any material used for soil erosion control shall originate from a certified weed-free source if available. Rock source shall be inspected by staff trained in invasive plant identification. Permittee shall provide documentation that material is weed-free. (see https://www.cal-ipc.org/solutions/prevention/weedfreeforage/ and https://www.cal-ipc.org/solutions/prevention/weedfreegravel/ for more information about weed-free erosion control and aggregate sources) Applicability: Project wide. (EA ID: BIO-8)	
AMM BIO-10	Marbled Murrelet	The following measures will be observed between March 24 and August 5 per the USFWS Transmittal of Guidance: Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California (USFWS 2006): At work areas adjacent to SR 299 (which has high ambient noise levels): • Within 500 feet of suitable marbled murrelet habitat (Appendix H), no work activities will take place that generate sound levels 20 or more decibels above ambient sound levels OR that generate maximum sound levels (ambient sound level plus activity-generated sound level) above 90 decibels (excluding vehicle back-up alarms) • The LOP may be lifted at a particular segment if a field survey determines that suitable marbled murrelet habitat is not present within 0.25 mile of it At work areas NOT adjacent to SR 299: • Within 0.25 mile of suitable marbled murrelet nesting\roosting habitat (Appendix H), no work activities will take place that generate sound levels 20 or more decibels above ambient sound levels OR that generate maximum sound levels (ambient sound level plus activity-generated sound level) above 90 decibels (excluding vehicle back-up alarms)	**Suitable habitat along Segments 01-07, 11-12, 14-15, 25-27**

TABLE E-1 AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)			
ID	**Subject**	**Measure to be Implemented**	**Areas Where Measures will be Implemented**
		• The LOP may be lifted at a particular segment if a field survey determines that suitable marbled murrelet habitat is not present within 0.25 mile of it Applicability: Suitable habitat (will be mapped for construction crews). (EA ID: BIO-9)	
AMM BIO-11	Northern Spotted Owl	The following measures will be observed between February 1 and July 9 per the USFWS Transmittal of Guidance: Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California (USFWS 2006): At work areas adjacent to SR 299 (which has high ambient noise levels): • Within 500 feet of suitable northern spotted owl nesting\roosting habitat (Appendix H), no work activities will take place that generate sound levels 20 or more decibels above ambient sound levels OR that generate maximum sound levels (ambient sound level plus activity-generated sound level) above 90 decibels (excluding vehicle back-up alarms) • If suitable nesting habitat is present, the LOP may be lifted if disturbance-only USFWS protocol-level surveys are conducted and determine that no northern spotted owl is nesting within 500 feet • This LOP may be lifted at a particular segment if a field survey determines that suitable northern spotted owl habitat is not present within 500 feet of it • If an active nest is identified within 500 feet of work, the LOP will be extended through September 15 At work areas NOT adjacent to SR 299: • Within 0.25 mile of suitable northern spotted owl nesting\roosting habitat (Appendix H), no work activities will take place that generate sound levels 20 or more decibels above ambient sound levels OR that generate maximum sound levels (ambient sound level plus activity-generated sound level) above 90 decibels (excluding vehicle back-up alarms) • If suitable nesting habitat is present, the LOP may be lifted if disturbance-only USFWS protocol-level surveys are conducted and determine that no northern spotted owl is nesting within 0.25 mile	**Suitable habitat along Segments 01-11, 22-23, 25-27**

TABLE E-1 AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)			
ID	**Subject**	**Measure to be Implemented**	**Areas Where Measures will be Implemented**
		• This LOP may be lifted at a particular segment if a field survey determines that suitable northern spotted owl habitat is not present within 0.25 mile of it • If an active nest is identified within 500 feet of work, the LOP will be extended through September 15 Applicability: Suitable habitat (will be mapped for construction crews). (EA ID: BIO-10)	
AMM BIO-12	Northern Spotted Owl	At each discrete location in which vegetation is removed, removal is limited to 6-inch DBH trees and an area less than 0.1 acre in size. Applicability: Suitable habitat (will be mapped for construction crews). (EA ID: BIO-11)	**Suitable habitat along Segments 01-11, 22-23, 25-27**
AMM BIO-13	Nesting Birds	To avoid and minimize adverse effects to nesting birds, the following measures shall be implemented: • If work will occur during the nesting bird season (February 15 until August 31 OR January 1 until August 31 where there is potential for nesting eagles), nesting bird surveys will be conducted within seven days prior to the onset of construction by a project biologist or biological monitor familiar with the species that may nest in the Action Area with standard nest-locating techniques. Surveys will occur to a distance of 100 feet (for passerines) or 300 feet (for raptors) from the proposed work, access routes, and staging areas. In areas within 0.5 mile of suitable bald or golden eagle nesting habitat, nesting season begins January 1 and surveys will be performed within 2,640 feet of work. If an active nest is encountered in or adjacent to a work area, a no equipment/no activity buffer will be implemented around the nest (the size of which will be determined by the project biologist and shall depend on the species' tolerance to human activity, location of the nest relative to the work area, any vegetation or other materials that may screen the nest from noise and view of work, the nature of the work, and other pertinent information), OR the active nest will be continuously monitored by a project biologist or biological monitor for disturbance. If the monitoring biologist determines nesting may fail as a result of work activities, all work shall cease (except access along existing roadways) within the recommended avoidance area until the biologist determines the adults and young are no longer reliant on the nest site. If	**Project-wide**

TABLE E-1 AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)			
ID	**Subject**	**Measure to be Implemented**	**Areas Where Measures will be Implemented**
		an active nest of a listed bird is found, a 500-foot buffer will be established around the nest. If construction activities are delayed or suspended for more than one week after the completion of the nesting surveys, surveys will be performed again • If active nests are identified on bridges or associated structures by a Project Biologist or Biological Monitor during the nesting season (February 15 and August 31), work will not occur unless a Biological Monitor is present to monitor for disturbance. If active nests are identified on Caltrans bridges, Caltrans Environmental will be contacted Applicability: Project wide, including aerial attachments and last mile segments. (EA ID: BIO-13)	
AMM BIO-14	Aquatic Resources / Fisheries	To avoid and minimize adverse effects to federal-listed and special-status fish and wildlife, the following measures shall be implemented: • Avoid disruption of natural hydrologic flow paths, including diversion of streamflow and interception of surface and subsurface flow • Conduct operations at water source developments in such a manner and timing as to avoid and minimize adverse effects to aquatic species and habitat from sedimentation • No trenching or plowing activities are proposed to occur within perennial aquatic habitats. Perennial waterways will be crossed via one of three methods: (1) conduit attachment to existing bridge, (2) trenching to place conduit above a deep culvert, or (3) Horizontal Directional Drilling (HDD) • For all trenching or plowing in intermittent and ephemeral streams, ground disturbance and sidecasting (i.e., the controlled deposition of excavated material) will be done in a manner that will minimize potential for off-site sediment input into stream channels. In addition, these waterways will be restored and maintained in accordance with the SWPPP, Restoration Plan, and any applicable agency permit requirements, which aim to minimize any loose material from entering and remove any loose material that does enter dry channels • Within the Caltrans ROW, a contractor-supplied biologist will coordinate with a Caltrans Biologist to restrict ground disturbance and sidecasting of excavated material to minimize potential for off-site sediment input into stream channels. Work within	**Suitable habitat along all segments**

TABLE E-1 AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)			
ID	**Subject**	**Measure to be Implemented**	**Areas Where Measures will be Implemented**
		ephemeral and intermittent aquatic habitat or delineated wetlands will be coordinated with Caltrans biologists Applicability: Suitable habitat (will be mapped for construction crews). (EA ID: BIO-14)	
AMM BIO-15	Special-Status Amphibians	• When ground-disturbing work is occurring within 25-50 feet of waterways that have water present and that are suitable habitat for special-status amphibians, a qualified biologist will conduct a pre-disturbance survey for special-status amphibians (adults, subadults, tadpoles, or egg masses). The survey area will include suitable habitat within 50 feet of perennial and intermittent waterways, within 25 feet of ephemeral drainages, and at least 50 feet upstream and downstream of the work area. The biologist will conduct surveys for special-status amphibians prior to the start of ground-disturbing activities. If no special-status amphibians are detected, work may resume for 3 to 5 days before new surveys need to be conducted. If a special-status amphibian is confirmed to be present, then a qualified biologist will move the individual to a suitable off-site location within the same waterway. Applicability: Suitable habitat (will be mapped for construction crews). (EA ID: BIO-15)	**Suitable habitat along all segments**
AMM-BIO 16	Special-Status Bats	No CNDDB or special status species occurrences of bats are present within the proposed Action Area. Bridge attachments are not anticipated. In the event special status bat species is observed in close proximity to the Construction Corridor (within 100'), the following measures shall be implemented: • When work will occur during bat maternity (April 1 to September 15) or hibernation (November 1 to February 28) seasons, suitable habitat (mines, caves, tunnels, buildings, other manmade structures, and trees with a DBH of 45 inches or larger) within 100 feet of work areas will be a surveyed by a qualified biologist for suitable roost locations and signs of roosting bat colonies. If suitable roost locations, roosting bat colonies, or sign are detected within 100 feet of a work area, the Project Biologist will contact CDFW, Caltrans (if within the Caltrans ROW), and other relevant agencies to determine the best course of action. Surveys must occur a minimum of 7 days prior to construction	**Suitable habitat along all segments**

TABLE E-1 AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)			
ID	**Subject**	**Measure to be Implemented**	**Areas Where Measures will be Implemented**
		• Prior to initiating conduit installation on any bridge, the Project Biologist will conduct pre-disturbance bat roost surveys at the bridge site. If roosting bats may be present, then the Project Biologist shall identify the species and contact CDFW (and Caltrans if within the Caltrans ROW) to determine the best course of action. Where work areas may serve as maternity roosts, Project construction will be delayed until conclusion of the maternity season Applicability: All bridges and suitable habitat (will be mapped for construction crews). (EA ID: BIO-16)	
AMM BIO-17	Special-Status Mammals	To avoid and minimize adverse effects to mammals, the following measures shall be implemented: • If work is being conducted in suitable denning habitat during the denning mammal natal season (February 1 to July 15), the Project Biologist or Biological Monitor will conduct pre-disturbance denning mammal surveys at den sites within the Construction Corridor in addition to a 50-foot buffer area. If any potentially active dens are detected, a no work buffer will be established within 150 feet of the potential den until the Project Biologist determines that the den is not active, or that denning season is over • If a special-status denning mammal species is detected or directly observed within 150 feet of a construction area, the Biological Monitor will be notified immediately. Any work that may result in direct disturbance to the animal will be temporarily halted until the mammal leaves. If it does not leave on its own, the Biological Monitor would contact the appropriate agency to determine the best course of action • Work within 0.25 mile of a known fisher den or unsurveyed dens will not occur between the fisher denning season (February 1 to July 15) unless surveys determine the site to be unoccupied Applicability: Suitable habitat (will be mapped for construction crews). (EA ID: BIO-17)	**Suitable habitat along all segments**
BMP BIO-1	General Bio (Construction Sites & Facilities)	The Contractor shall implement the following measures to manage construction sites and related facilities to avoid or minimize impacts to biological resources:	**Project-wide**

TABLE E-1 AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)			
ID	**Subject**	**Measure to be Implemented**	**Areas Where Measures will be Implemented**
		Limit Disturbance Areas—The boundaries of areas to be disturbed (including staging areas, access roads, and sites for temporary placement of spoils) shall be clearly delineated with stakes and flagging prior to construction activities in consultation with the Project Biologist. Spoils and topsoil shall be stockpiled in areas already disturbed so that stockpile sites do not add to total disturbance footprint and in areas that would minimize the potential for off-site sediment input into steam channels. Disturbances, Project vehicles, and equipment shall be confined to the designated work areas. Parking areas, staging, and disposal site locations shall similarly be located in areas without native vegetation or special-status species habitat. Minimize Access Impacts—Where existing routes may need improvements, the improvements shall not extend beyond the flagged impact area as described above. Vehicles passing or turning around shall do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads or the construction zone, the route shall be clearly marked (i.e., flagged and/or staked) prior to the onset of construction. Minimize Traffic Impacts—Vehicular traffic during Project construction and operation shall be confined to existing designated routes of travel to and from work sites, and cross-country vehicle and equipment use outside designated work areas shall be prohibited. The speed limit within any part of the Project area shall be designated and enforced by the Project Biologist. Minimize Impacts of Alignments, Roads, Staging Areas—Staging areas for construction equipment, supplies, personnel parking, and other ancillary functions shall be designed and maintained with the goal of minimizing impacts to native plant communities and sensitive biological resources. Cover open trenches—Open trenches or other holes (e.g., HDD boring holes) created during construction that may entrap wildlife will be covered securely at the end of the workday or a ramp should be provided in the trench to prevent wildlife entrapment. Trash/Debris—Trash and food items including wrappers, cans, bottles, and ALL food scraps will be contained in closed containers in a manner that wildlife cannot access and removed daily to reduce attractiveness to opportunistic predators. Feeding of wildlife is strictly prohibited.	

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ID	**Subject**	**Measure to be Implemented**	**Areas Where Measures will be Implemented**
		Special-status species sightings—If any potentially special-status species is observed near a work area, work will halt, and the animal will be allowed to leave on its own volition before work commences. Under no circumstances should crew members encourage the departure of the animal. Pets/Firearms—Pets and firearms shall be prohibited from the construction site. If guard dogs are to be used, the Contractor shall ensure that such animals do not affect any special-status species. Applicability: Project wide. (EA ID: BIO-21)	
BMP BIO-2	Stormwater Pollution and Prevention Plan (SWPPP)	To minimize the potential for stormwater run-off to waters and wetlands within the Project area, an SWPPP will be prepared and implemented. The SWPPP will include, at a minimum: • Identification of potential sources of pollutants and toxic materials; • Identification of BMPs for storm water contact minimization, construction material distribution and access, equipment storage, vehicle maintenance and cleaning areas; • Erosion and sediment control measures for wet and dry-season activities; • Temporary and permanent erosion control techniques, sediment control on public roads, wind erosion, and non-stormwater management techniques; and • Waste management/disposal methods. Applicability: Project wide, where and when applicable. (EA ID: BIO-22)	**Project-wide, where and when applicable**
BMP BIO-3	Spill Prevention and Pollution Plan (SPPP)	To minimize the potential for accidental spill or pollutant discharge (i.e., fuels and lubricants used in Project equipment) into waters or wetlands within the Project area, Vero Networks will prepare an SPPP and will implement the BMPs specified in the plan. The SPPP will include, at a minimum: • Measures to ensure that petroleum products are not discharged into drainages or bodies of water; • A description of potentially hazardous and nonhazardous materials that could accidentally be spilled during construction (e.g., fuels, equipment lubricant, human waste and chemical toilets, and bentonite), potential spill sources, potential spill	**Project-wide, where and when applicable**

TABLE E-1 AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)			
ID	**Subject**	**Measure to be Implemented**	**Areas Where Measures will be Implemented**
		causes, proper storage and transport methods, spill containment, spill recovery, agency notification, and responsible parties; • Proper hazardous material storage procedures in staging areas (i.e., hazardous materials shall be stored in staging areas that are located at least 100 feet from ephemeral and intermittent streams and 300 feet from perennial streams, lakes and wetlands); • Proper refueling and vehicle maintenance procedures near waters or wetlands (i.e., these types of activities shall be performed at least 100 feet from ephemeral and intermittent streams and 300 feet from perennial streams, lakes, and wetlands; and • Other BMPs that will protect waters and wetlands from accidental spills (i.e., sedimentation fences, certified weed-free hay bales, sandbags, water bars, and baffles). Applicability: Project wide, where and when applicable. (EA ID: BIO-23)	
BMP BIO-4	HDD FRAC-OUT Plan	To protect waterways in the event of a frac-out during HDD activities, Vero Networks will prepare and implement an HDD FRAC-OUT Plan. The HDD FRAC-OUT Plan will include, at a minimum: • Monitoring procedures during drilling operations, (i.e., the bore path and waterways will be visually inspected at all times during drilling operations in the event of frac-outs); • Provision that all materials and equipment needed to implement the frac-out response procedures be onsite at all times during directional boring operations; • Clean-up and containment procedures in the event of accidental drilling fluid spills; • Detailed reporting procedures in the event of a drilling fluid release; and/or • Specific response procedures in the event of a drilling fluid release. Applicability: Project wide, where and when applicable. (EA ID: BIO-24)	**Project-wide, where and when applicable**
BMP BIO-5	Hazardous Materials	Any soil bonding and weighting agents used on unpaved surfaces shall be non-toxic to wildlife and plants. If a leak or spill from fuels and lubricants enters or threatens to enter a stream crossed or immediately adjacent to the Proposed Project ROW, response procedures specified in the SPPP will be implemented.	**Project-wide, where and when applicable**

TABLE E-1 AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)			
ID	**Subject**	**Measure to be Implemented**	**Areas Where Measures will be Implemented**
		Applicability: Project wide, where and when applicable. (EA ID: BIO-26)	

BMP BIO-6	Air Quality/Dust Prevention	For land preparation and excavation, the following dust control measures should be implemented:
		• All soil excavated or graded should be sufficiently watered to prevent excessive dust. Watering should occur as needed with complete coverage of disturbed soil areas
		• All clearing, grading, earth moving, and excavation activities should cease:
		  ○ During periods of winds greater than 20 mph (averaged over one hour), if disturbed material is easily windblown, or
		  ○ When dust plumes of 40 percent or greater opacity impact public roads, occupied structures, or neighboring property
		• All fine material transported off-site should be either sufficiently watered or securely covered to prevent excessive dust
		• Areas disturbed by clearing, earth moving, or excavation activities should be minimized at all times
		• Stockpiles of soil or other fine loose material shall be stabilized by watering or another appropriate method to prevent wind-blown, fugitive dust
		• Where acceptable to the fire department, weed control should be accomplished by mowing instead of disking, thereby leaving the ground undisturbed and with a mulch covering
		• Water applied to dirt roads and construction areas (trenches or spoil piles) for dust abatement shall use the minimal amount needed to meet safety and air quality standards in an effort to prevent the formation of puddles, which could attract special-status species to construction sites
		• For building construction, the following dust control measures should be implemented:
		  ○ Once initial leveling has ceased, all inactive soil areas within the construction site should either be seeded and watered until plant growth is evident, treated with a dust palliative, or watered sufficiently as to prevent excessive dust
			Project-wide, where and when applicable

TABLE E-1 AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)			
ID	**Subject**	**Measure to be Implemented**	**Areas Where Measures will be Implemented**
		○ All active disturbed soil areas should be sufficiently watered to prevent excessive dust, but no less than twice per day Applicability: Project wide, where and when applicable. (EA ID: BIO-27)	