

**COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT**

DATE: April 26, 2017

TO: Planning Commission

FROM: Planning Staff

SUBJECT: EXECUTIVE SUMMARY: Consideration of a Coastal Development Permit to allow the replacement of an existing concrete drainage ditch and repair of the adjacent embankment. The proposed project requires the removal of forty (40) trees. The project is located at Post Mile 4.29 on Highway 1 in the unincorporated Pescadero area of San Mateo County. This project is appealable to the California Coastal Commission.

County File Number: PLN 2016-00486 (CalTrans)

PROPOSAL

The applicant, CalTrans, is proposing to replace an existing concrete lined trapezoidal drainage ditch (5 ft. wide by 463 ft. long) with a new concrete lined v-ditch (6 ft. wide by 463 ft. long) within the Right-of-Way (ROW) of northbound Highway 1, as the existing ditch has failed and has caused subsidence along the embankment supporting Highway 1. Several storms in recent winters, combined with drainage and hydrologic issues, have contributed to the destabilization of the roadway embankment along the northbound lane of Highway 1 at Post Mile 4.29. Per the applicant, the roadway embankment could become undermined in the near future if no action is taken. The project includes the installation of three new drainage inlets and culverts, the replacement of a concrete drainage ditch, and the reconstruction of a segment of the northbound travel lane and shoulder. The project proposal includes the removal of forty (40) trees for the removal and replacement of the concrete drainage ditch.

The objective of this project is to stabilize and rehabilitate the roadway embankment to protect it from any further slippage by improving drainage flow away from the roadway and repairing the roadway through the project limits. Construction phase and post-construction erosion control measures will be implemented. Proposed work will involve approximately 76 cubic yards (c.y.) of excavation and 33 c.y. of fill (concrete) and should take approximately 60 days to construct.

RECOMMENDATION

That the Planning Commission approve the Coastal Development Permit, County File PLN 2016-00486, by making the required findings and adopting the conditions of approval as listed in Attachment A.

SUMMARY

CalTrans wishes to reconstruct an existing concrete lined v-ditch to properly capture and convey stormwater that is destabilizing an existing segment of Highway 1. The current drainage ditch is poorly designed and is failing to adequately drain stormwater away from the road during rain events. The purpose of the project is to repair the cracked road embankment and address the hydrological problems at this location by improving drainage flow underneath and away from the roadway to prevent future slip-out failures.

Staff completed a review of the project against the policies of the Local Coastal Program (LCP) and has determined that the project, as proposed and with the recommended conditions of approval prepared by staff and the project applicant, will comply with the County's LCP. The components of the LCP relevant to this project include the Public Works, Sensitive Habitats, and Visual Resources chapters. Specific policies applicable to the project include: Policy 2.1 (*Development Review of Public Works*), Policy 2.42 (*Capacity Limits*), Policy 7.3 (*Protection of Sensitive Habitats*), Policy 8.5 (*Location of Development*), Policy 8.9 (*Trees*), and Policy 8.31 (*Regulation of Scenic Corridors in Rural Areas*). The project also complies with the PAD Zoning Regulations. CalTrans is also the Lead Agency for the purposes of environmental review, and has filed a categorical exemption for this project.

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**COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT**

DATE: April 26, 2017

TO: Planning Commission

FROM: Planning Staff

SUBJECT: Consideration of a Coastal Development Permit, pursuant to Section 6328.4 of the County Zoning Regulations, to allow the replacement of an existing concrete drainage ditch and repair of the adjacent embankment. The proposed project requires the removal of forty (40) trees. The project is located at Post Mile 4.29 on Highway 1 in the unincorporated Pescadero area of San Mateo County. This project is appealable to the California Coastal Commission.

County File Number: PLN 2016-00486 (CalTrans)

PROPOSAL

The applicant, CalTrans, is proposing to replace an existing concrete lined trapezoidal drainage ditch (5 ft. wide by 463 ft. long) with a new concrete lined v-ditch (5 ft. wide by 463 ft. long) within the Right-of-Way (ROW) of northbound Highway 1, as the existing ditch has failed and has caused subsidence along the embankment supporting Highway 1. Several storms in recent winters, combined with drainage and hydrologic issues, have contributed to the destabilization of the roadway embankment along the northbound lane of Highway 1 at Post Mile 4.29. Per the applicant, the roadway embankment could become undermined in the near future if no action is taken. The project includes the installation of three new drainage inlets and culverts, the replacement of a concrete drainage ditch, and the reconstruction of a segment of the northbound travel lane and shoulder. The project proposal includes the removal of forty (40) trees for the removal and replacement of the concrete drainage ditch.

The objective of this project is to stabilize and rehabilitate the roadway embankment to protect it from any further slippage by improving drainage flow away from the roadway and repairing the roadway through the project limits. Construction phase and post-construction erosion control measures will be implemented. Proposed work will involve approximately 76 cubic yards (c.y.) of excavation and 33 c.y. of fill (concrete) and should take approximately 60 days to construct.

RECOMMENDATION

That the Planning Commission approve the Coastal Development Permit, County File PLN 2016-00486, by making the required findings and adopting the conditions of approval as listed in Attachment A.

BACKGROUND

Report Prepared By: Rob Bartoli, Planner III, Telephone 650/363-1857

Applicants/Owners: CalTrans (Jo Ann Cullom)

Location: Highway 1, Post Mile 4.29 (approximately 7.3 miles south of Pescadero) between Rossi Road and Whitehouse Canyon Road

APN: Public R-O-W (adjacent to 089-200-190)

Size: Project footprint is 2.9 acres

Existing Zoning: PAD/CD (Planned Agricultural District/Coastal District)

General Plan Designation: Agriculture

Existing Land Use: State Highway

Flood Zone: The project site is in Flood Zone X as defined by FEMA (Community Panel Number 06081C0465E, dated October, 16, 2012), which is an area of minimal potential for flooding.

Environmental Evaluation: CalTrans is the lead agency for the project. As such, they have filed a Categorical Exemption under Section 15302(b) of the California Environmental Quality Act (see Attachment D).

Setting: The project site consists of approximately 500 linear feet of an existing drainage ditch located along the northbound side of Highway 1. Whitehouse Creek, a perennial stream, is located to the northeast of the project site and crosses under Highway 1 east of Rossi Road. Within the project area, Whitehouse Creek flows entirely through a subsurface culvert. A eucalyptus forest is located adjacent to the northbound lanes of Highway 1, between Whitehouse Canyon Road and Rossi Road. The area across Highway 1 from the project site is characterized by eucalyptus forest and riparian forest and coastal-scrub annual grassland. No listed animal or plant species were identified in the project area during site reconnaissance surveys by the project applicant. Within the Biological Study Area (BSA), which encompasses 31 acres, Steelhead trout and the monarch butterfly were observed during site visits. The following seven protected wildlife species have the potential to occur in the BSA: The California red-legged Frog, the San Francisco garter snake, the Coho Salmon,

the marbled murrelet, the Townsend's big-eared bat, the western pond turtle, and the San Francisco dusky-footed Woodrat. Nesting birds protected by the Migratory Bird Treaty Act may also occur in the BSA. Because of the presence of Whitehouse Creek and the eucalyptus forest, there is marginal potential for the California Red-legged frog (CRLF) and the San Francisco garter snake (SFGS) to use the site as dispersal and upland habitat and for the marbled murrelet to occur within the project area.

DISCUSSION

A. KEY ISSUES

1. Conformance with the County General Plan and Zoning Regulations

As a State agency, CalTrans is exempt from compliance with the County's General Plan and Zoning Regulations.

2. Conformance with the Local Coastal Program (LCP)

A Coastal Development Permit is required, pursuant to San Mateo County Local Coastal Program (LCP) Policy 2.1, which mandates compliance with the California Coastal Act for any government agency wishing to undertake development in the Coastal Zone. Staff has reviewed the project and found it to be in compliance with the policies of the Local Coastal Program. The relevant policies are discussed below:

a. Public Works Component

Policy 2.42 (*Capacity Limits*). This policy limits the expansion of roadway capacity which does not exceed the needed amount to accommodate peak traffic and maintaining Highway 1 as a scenic two-lane road outside of the Urban Midcoast area. The proposed project will remove and replace an existing drainage ditch, reconstruct 500 feet of the exiting northbound lane of Highway 1, and install associated drainage and road improvements. These improvements will not increase the traffic capacity of Highway 1 in this location or in the Pescadero area of the County. The project is not growth-inducing and is not anticipated to result in an increase in vehicular traffic. Two-way and one-way traffic control will be necessary for the construction of the project. These impacts will be temporary and will only last during construction of the project, estimated to be 60 days.

b. Sensitive Habitats Component

Policy 7.1 (*Definition of Sensitive Habitat*). This policy defines "sensitive habitat" as any area which meets one of the following criteria: (1) habitats containing or supporting "rare and endangered"

species as defined by the State Fish and Game Commission; and (2) all perennial and intermittent streams and their tributaries.

Whitehouse Creek is a perennial stream and, as outlined above, this area provides potential habitat for three listed species: The California red-legged frog (CRLF), the San Francisco garter snake (SFGS), and the marbled murrelet.

Policy 7.3 (*Protection of Sensitive Habitats*). This policy prohibits any land use or development which would have a significant adverse impact on sensitive habitat areas. Additionally, development in areas adjacent to sensitive habitats shall be sited and designed to prevent impacts that could significantly degrade the sensitive habitats. All uses shall be compatible with the maintenance of biologic productivity of the habitats. The potential for the federally listed CRLF, SFGS, and marbled murrelet to occur in the action area, potential effects of the proposed project on these species, and avoidance and minimization measures for each species are discussed in the following sections. The biological assessment submitted by the applicant has determined that the proposed project will have no effect on any other listed wildlife species.

The project is not expected to result in adverse effects on the marbled murrelet, because this species is not expected to occur in the action area except as an occasional flyover, and no impacts to suitable habitat for this species (e.g., near-shore marine habitat and old-growth coniferous forest) is present.

The project area does not fall within a designated Critical Habitat for the California red-legged frog (CRLF). The closest critical habitat for the CRLF is 0.75 miles to the north of the project site. The biological report submitted by the applicant analyzed the potential impact of the project upon this habitat. The project site does not contain the primary constituent elements of critical habitat for the CRLF. Suitable aquatic (non-breeding) habitat is present in the action area adjacent to the project footprint in Whitehouse Creek.

Within the action area, the creek flows almost entirely through a subsurface culvert that is not suitable for the CRLF breeding because of a lack of riparian or emergent vegetation for breeding. The proposed project will result in permanent direct effects on approximately 0.5 acres of suitable upland habitat for the CRLF in the project footprint. Eucalyptus tree removal will result in an increase in light exposure and reduced shading within the project footprint and to areas immediately adjacent to the footprint. This could alter habitat suitability for the CRLF, but dense eucalyptus and riparian forest present along Whitehouse Creek in and adjacent to the action area

would remain intact, providing abundant shade for the CRLF in the project vicinity after construction. Changes in surface hydrology would be unlikely to result in any substantial change in the CRLF aquatic habitat.

The SFGS was not detected during the habitat assessment and site reconnaissance; however, this species has been documented previously at an unspecified location along Whitehouse Creek that crosses the action area, and a known breeding population occurs to the south in Año Nuevo State Park. Aquatic breeding habitat for the SFGS does not occur in the action area. The only aquatic habitat in the action area is Whitehouse Creek, which is not suitable for the SFGS breeding. The roadside ditch adjacent to Highway 1 between Rossi Road and Whitehouse Canyon Road does not provide aquatic habitat for the SFGS because it does not retain water for any substantial length of time and no emergent or other wetland type vegetation is present there.

The proposed project will result in direct and indirect effects on the SFGS habitat in the action area and may result in adverse effects on individuals during construction. The proposed project will result in permanent direct effects on approximately 0.5 acres of suitable upland habitat for the SFGS within the project footprint. Because trees, primarily Eucalyptus species, will be removed as a result of the proposed project and the area will be re-seeded with native plant species such as coyote brush, the project may result in slightly improved habitat conditions over the environmental baseline for the SFGS within the action area. Construction staging and site access will be restricted to existing paved roadways and in the permanently affected project footprint. Therefore, no additional temporary direct effects on the SFGS habitat will occur because of staging and site access.

To mitigate against potential impacts to the CRLF, the SFGS, and the marbled murrelet, the applicant has proposed a number of avoidance and minimization measures, including pre-construction/daily surveys and biological monitoring and wildlife exclusion fencing. These measures are included as Conditions of Approval Nos. 6-14 in Attachment A. In addition, no work will occur within the creek, and direct impacts to Whitehouse Creek, its riparian habitat, and fish species within the creek habitat by this project are not anticipated.

c. Visual Resources Component

Policy 8.5 (*Location of Development*). This policy requires that development be located on a portion of a parcel where it is least visible from State and County Scenic Roads. The new drainage system will be below the road level and will not be visible to motorists traveling on Highway 1.

Policy 8.9 (*Trees*). This policy is comprised of seven statements regarding goals and requirements for trees in the coastal zone, including minimizing tree removal for new development, limiting the removal of trees in scenic corridors, and allowing the removal of trees which are a threat to public health, safety, and welfare.

There are forty (40) trees proposed for removal, mainly consisting of Eucalyptus trees, with one larger Cedar and several smaller pine trees also proposed for removal. The trees will be removed from an existing Eucalyptus forest adjacent to the northbound travel lanes of Highway 1 and within the proposed project footprint. The tree removal will allow for the regrading and expansion of the existing drainage ditch from 5 feet in width to 6 feet in width, installation of a new guardrail, and reconstruction of the northbound edge of the Highway 1 travel lane. The trees have grown into the ditch and are impeding the flow of water. The removal of the trees will occur along the roadway embankment immediately adjacent to the paved roadway. The trees to be removed are in the CalTrans' Right-Of-Way, while leaving the bulk of the Eucalyptus forest intact.

The project is located in the Cabrillo Highway State Scenic Corridor. The proposed removal of trees in the scenic corridor will have a minimal visual impact. The trees proposed for removal are adjacent to the existing roadway of Highway 1 and the existing culvert. An existing dirt path separates the majority of the Eucalyptus forest from the project area. The majority of trees that will be removed range from 4 to 12" in diameter, with only a few larger Eucalyptus trees up to 48" in diameter, and one 36" Cedar tree in the project area which will be removed. The applicant is proposing to re-seed the area, where the tree removal will occur, with native plant species such as coyote brush.

Policy 8.31 (*Regulation of Scenic Corridors in Rural Areas*). The project is located in the Cabrillo Scenic Highway State Corridor. The policies of this chapter generally refer to above-grade structures (such as houses) that are visible to travelers from a distance. The replacement or reattachment of road culverts and the repairing of road slip-outs will be at road level or below and, in most cases, will not be

visible to motorists traveling on the roads adjacent to the proposed project. The main project features include new pavement and guardrail. These elements will not result in a change to visual quality since they already exist at the project location and along the corridor.

However, as part of the project, forty (40) trees, primarily Eucalyptus trees with one larger Cedar and several smaller pine trees, are proposed to be removed from an existing Eucalyptus forest adjacent to the northbound travel lanes of Highway 1. In review of the scenic resource evaluation submitted by the applicant, the removal of the forty (40) trees from the existing Eucalyptus forest to allow the drainage ditch replacement and guardrail improvements will have minimal visual impact. Removal of the trees is permitted by the LCP as long as the proposal does not allow the removal of more than 50% of the tree coverage, which is not proposed under this project. Tree removal will occur along the roadway embankment immediately adjacent to the paved roadway. The area of the Eucalyptus forest that will be impacted is approximately 0.2 acres of the 8-acre forest.

The slopes along the Highway 1 travel lanes are vegetated with annual grasses and a eucalyptus forest. The existing landscape is an alternating pattern of small groups of dense trees, open plains of lower grasses and scrub, and ocean bluffs and beaches. Removal of these trees will be consistent with this pattern. The area for removal will be re-seeded with native plant species such as coyote brush. This re-seeding will be open grasslands intermixed with clumps of coyote brush, which is the dominant native landscape in the area. The removal of the non-native Eucalyptus trees will allow for native vegetation to take hold within the project area. The native plants have the potential to provide habitat for the CRLF as well. The visual quality will be slightly altered, primarily because the removal of the trees will make the adjacent power lines more visible. However, the power lines will not introduce a new visual element since power lines are intermittently visible along the highway corridor. Because of the density and mass of surrounding trees and other vegetation, the tree removal will be compatible with the visual character of the setting. The overall resource change will be low, and the visual impact will be minimal.

3. Compliance with the PAD Zoning Regulations

a. Substantive Criteria for Issuance of a Planned Agricultural Permit

Section 6355 - *Substantive Criteria for Issuance of a Planned Agricultural Permit.*

Each application for conversion of PAD zoned land must be found consistent with the following criteria:

(1) General Criteria

- (a) *The encroachment of all development upon land which is suitable for agricultural use shall be minimized.*

The entire project area is located within CalTrans Right-of-Way and is immediately adjacent to the existing roadway. The project area has not been farmed in recent years. The new culvert will be located in an already disturbed area and will replace an existing failed culvert. A eucalyptus forest is located adjacent to the northbound lanes of Highway 1, between Whitehouse Canyon Road and Rossi Road. Agriculture uses on surrounding parcels are separated from this project by the existing roadway.

- (b) *All development permitted on a site shall be clustered.*

The nature of the proposed use does not necessarily lend itself to clustering as is typical with structural development. However, the area proposed for the new culvert will abut the existing roadway.

- (c) *That every project shall conform to Chapter 20A.2 of the Zoning Regulations (Site Design Criteria). Applicable criteria stated in these sections include location, siting, and design to: (1) fit the environment and preserve the pre-existing character; (2) preserve and fit to the natural topography and minimization of grading; and (3) not substantially detract from natural characteristics or wildlife habitats. In addition, all development is to be sited to minimize the impacts of noise, light, and glare on adjacent properties and the larger community.*

As noted in Section A.2, the project has been conditioned to mitigate against potential impacts to the CRLF, the SFGS, and the marbled murrelet. The biological

assessment submitted by the applicant has determined that the proposed project will have no effect on any other listed wildlife species. The proposed project is to allow the replacement of an existing concrete drainage ditch and repair of the adjacent embankment. No new land use will be introduced to the project area.

The existing landscape is an alternating pattern of small groups of dense trees, open plains of lower grasses and scrub, and ocean bluffs and beaches. Removal of these trees will be consistent with this pattern. The area for removal will be re-seeded with native plant species such as coyote brush. This re-seeding will be open grasslands intermixed with clumps of coyote brush, which is the dominant native landscape in the area. The replacement or reattachment of road culverts and the repairing of road slip-outs will be at road level or below and, in most cases, will not be visible to motorists traveling on the roads adjacent to the proposed project. The main project features include new pavement and guardrail. These elements will not result in a change to visual quality since they already exist at the project location and along the corridor.

(2) Criteria for the Conversion of Prime Agricultural Lands

Conversion of Prime Agricultural Lands shall not be converted to a use not principally permitted on them unless it be demonstrated that:

(a) *No alternative site exists on the parcel for the use.*

While a portion of the project area is considered to be prime agricultural land, as it has either a Land Capability Classification of Class II or a Storie Rating of Grade 1, the project area has historically not been farmed, but instead used for a Right-of-Way for Highway 1 and the associated improvements for the Highway, such as drainage facilities. The new culvert that is proposed to replace the existing culvert will be increased from 5 feet in width to 6 feet in width, converting a minimal amount of prime soils. Locating the new culvert off of prime soils could result in the removal of more trees and habitat and may reduce the functionality of the culvert to stabilize the roadway embankment and to protect it from any further slippage by improving drainage flow away from the roadway.

- (b) *Clearly defined buffer areas are developed between agricultural and non-agricultural uses.*

A eucalyptus forest is located adjacent to the northbound lanes of Highway 1, between Whitehouse Canyon Road and Rossi Road. Agriculture uses on surrounding parcels are separated from this project by the existing roadway.

- (c) *The productivity of any adjacent agricultural lands is not diminished.*

As stated previously, there is no active agriculture occurring in the project area. No loss in productivity will occur.

- (d) *Public service and facility expansion and permitted uses do not impair agricultural viability, including by increased assessments costs or degrading air and water quality.*

As stated previously, there is no active agriculture occurring in the project area. A Stormwater Pollution Prevention Plan (SWPPP) and erosion control BMPs will be developed and implemented, in compliance with the requirements of the Central Coast Regional Water Quality Control Board (RWQCB) to minimize any wind- or water-related erosion.

B. ENVIRONMENTAL REVIEW

The environmental review of this project was conducted by CalTrans. Section 15050 of the CEQA Guidelines states that where a project is to be carried out or approved by more than one public agency, one public agency shall be responsible for preparing the environmental review. That agency shall be referred to as the Lead Agency. For the purposes of this project, CalTrans, as the agency that will actually carry out the project, is the Lead Agency. On June 2, 2016, CalTrans filed with the State Clearinghouse a Notice of Categorical Exemption under Section 15302 (*Replacement or Reconstruction of Existing Facilities*) of the CEQA Guidelines (see Attachment D).

C. REVIEWING AGENCIES

California Coastal Commission
San Mateo County Department of Public Works

The California Coastal Commission response letter (dated March 20, 2017) requested that the project evaluate San Mateo Local Coastal Programs Policies related to Biological Resources, Visual Resources, and Coastal Access related to road capacity and public infrastructure. See Section A above for evaluations of these LCP policies.

ATTACHMENTS

- A. Recommended Findings and Conditions of Approval
- B. Location Map
- C. Site Plan
- D. CalTrans' Categorical Exemption
- E. CalTrans' Natural Environment Study
- F. CalTrans' Biological Assessment
- G. CalTrans' Scenic Resources Evaluation
- H. United States Fish and Wildlife Service Biological Opinion
- I. Photos

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County of San Mateo
Planning and Building Department

RECOMMENDED FINDINGS AND CONDITIONS OF APPROVAL

Permit or Project File Number: PLN 2016-00486

Hearing Date: April 26, 2017

Prepared By: Rob Bartoli, Planner III

For Adoption By: Planning Commission

RECOMMENDED FINDINGS

Regarding the Environmental Review, Find:

1. That the Commission, acting as a responsible agency, has reviewed and considered the Categorical Exemption, prepared by CalTrans as the Lead Agency.

Regarding the Coastal Development Permit, Find:

2. That the project, as described in the application and accompanying materials required by Section 6328.7 of the Zoning Regulations and as conditioned in accordance with Section 6328.14, conforms with the plans, policies, requirements, and standards of the San Mateo County Local Coastal Program (LCP). The plans and materials have been reviewed against the application requirement in Section 6328.7 of the Zoning Regulations and the project has been conditioned to minimize impacts to land use, sensitive habitats, and visual resources in accordance with the components of the LCP.
3. That the project conforms to the findings required by policies of the San Mateo County Local Coastal Program, specifically in regard to the Sensitive Habitats Component. The project will be constructed in a manner that minimizes ground disturbance and will not impact sensitive habitat. Conditions have been placed on the project that will ensure that potential impacts to listed species will be minimized.

RECOMMENDED CONDITIONS OF APPROVAL

Current Planning Section

1. This approval applies only to the proposal as described in this report and materials submitted for review and approval by the Planning Commission on April 26, 2017. The Community Development Director may approve minor

revisions or modifications to the project if they are found to be consistent with the intent of and in substantial conformance with this approval.

2. This permit shall be valid for two (2) years from the date of approval. Any extension of the permits shall require submittal of an application for permit extension and payment of applicable extension fees sixty (60) days prior to the expiration date.
3. Removal of trees not identified as part of the project scope with a diameter greater than 12 inches as measured 4.5 feet above the ground shall require a review by the Planning and Building Department.
4. The applicant shall implement their construction Best Management Practices that conform to the San Mateo Countywide Storm Water Pollution Prevention Program "General Construction and Site Supervision Guidelines" and include, but not be limited to:
 - a. Sequence construction to install sediment-capturing devices first, followed by runoff control measures and runoff conveyances. No construction activities shall begin until after all proposed measures are in place.
 - b. Minimize the area of bare soil exposed at one time (phased grading).
 - c. Clear only areas essential for construction.
 - d. Within five days of clearing or inactivity in construction, stabilize bare soils through either non-vegetative BMPs, such as mulching or vegetative erosion control methods, such as seeding. Vegetative erosion control shall be established within two weeks of seeding/planting.
 - e. Construction entrances shall be stabilized immediately after grading and frequently maintained to prevent erosion and control dust.
 - f. Control wind-born dust through the installation of wind barriers such as hay bales and/or sprinkling.
 - g. Soil and/or other construction-related material stockpiled on-site shall be placed a minimum of 200 feet from all wetlands and drain courses. Stockpiled soils shall be covered with tarps at all times of the year.
 - h. Intercept runoff above disturbed slopes and convey it to a permanent channel or storm drains by using earth dikes, perimeter dikes or swales, or diversions. Use check dams where appropriate.
 - i. Provide protection for runoff conveyance outlets by reducing flow velocity and dissipating flow energy.

- j. Install storm drain inlet protection that traps sediment before it enters any adjacent storm sewer systems. This barrier shall consist of filter fabric, straw bales, gravel, or sand bags.
 - k. Install sediment traps/basins at outlets of diversions, channels, slope drains, or other runoff conveyances that discharge sediment-laden water. Sediment traps/basins shall be cleaned out when 50% full (by volume).
 - l. Use silt fence and/or vegetated filter strips to trap sediment contained in sheet flow. The maximum drainage area to the fence should be 0.5 acres or less per 100 feet of fence. Silt fences shall be inspected regularly and sediment removed when it reaches 1/3 the fence height. Vegetated filter strips should have relatively flat slopes and be vegetated with erosion-resistant species.
 - m. Throughout the construction period, the applicant shall conduct regular inspections of the condition and operational status of all structural BMPs required by the approved erosion control plan.
 - n. The contractor shall train and provide instruction to all employees and subcontractors regarding the construction Best Management Practices (as listed above).
5. A Stormwater Pollution Prevention Plan (SWPPP) and erosion control BMPs will be developed and implemented, in compliance with the requirements of the Central Coast Regional Water Quality Control Board (RWQCB) to minimize any wind- or water-related erosion. The SWPPP will provide guidance for design staff to include provisions in construction contracts for measures to protect sensitive areas and to prevent and minimize stormwater and non-stormwater discharges. Protective measures will include, at a minimum:
- a. Example BMPs include but are not limited to: dedicated refueling areas will be located at least 50 feet away from downslope drainage facilities, protecting graded areas with erosion-control netting, having spill containment kits on-site, storing hazardous materials in sealable containers in a designated location that is at least 100 feet from hydrologic features, and implementing dust control measures such as spraying excavated areas with water on a regular basis. Others are iterated below:
 - b. Project-related vehicle traffic will be restricted to established roads and construction areas. Project vehicles will observe a 20 mile per hour speed limit on the project site.
 - c. All food-related trash items (e.g., wrappers, cans, bottles, and food scraps) will be disposed of in closed containers and removed at least once daily from the project site.

- d. All equipment will be properly maintained and free of leaks. Servicing of vehicles and construction equipment, including fueling, cleaning, and maintenance, will occur at least 100 feet from any hydrologic features unless it is done at an existing gas station.
 - e. All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 50 feet from any downstream riparian habitat, aquatic habitat, culvert, or drainage feature.
 - f. Any and all excavated material produced as a result of roadway stabilization and repair activities or drainage improvements will be reused and fully contained within the project limits or will be properly disposed of off-site.
6. Before any work is done on-site, a qualified biologist will conduct visual encounter surveys for special-status species on-site. These surveys will be done within 24 hours of the start of ground-disturbing activities. Visual encounter surveys will be conducted within all areas subject to ground-disturbing activities and areas immediately adjacent. All suitable habitat, including refugia habitat (e.g., under shrubs, downed logs, small woody debris, burrows) will be thoroughly inspected.
7. As a first order of work, the perimeter of the project footprint will be delineated with temporary, high-visibility wildlife exclusion fencing. This fencing will be at least four feet in height. This will prevent the encroachment of construction workers and equipment into sensitive areas during construction activities, and to prevent the inadvertent encroachment of the California red-legged frog (CRLF) (*Rana draytonii*), the San Francisco garter snake (SFGS) (*Thamnophis sirtalis tetrataenia*), or other sensitive wildlife into the project footprint. The fencing will remain in place throughout the project and will be inspected regularly and fully maintained. Repairs will be made within 24 hours of discovery of damage that can compromise the purpose of the fencing. The fencing will be removed only when all construction equipment is removed from the job site.
8. Vegetation will be cleared only where necessary; grubbing will be minimized to the maximum extent practicable. Efforts will be taken to minimize effects on well-established vegetation. If clearing and grubbing occurs between February 1 and August 31, a qualified biologist will survey for nesting birds within areas to be disturbed and an appropriate buffer will be established, as described below for compliance with the Migratory Bird Treaty Act.
9. To protect migratory birds and their nests, the following will be implemented:
- a. All initial vegetation clearing, but not grubbing, will be conducted outside the usual bird nesting season of February 1 to August 31 to the extent feasible.

- b. No more than 7 days before the start of construction or any vegetation clearing occurring during the bird nesting season (February 1 to August 31), a qualified biologist will survey the project footprint and an area 300 feet beyond the project footprint boundaries to search for active nests of migratory birds. If an active nest is found within the survey area, a non-disturbance buffer will be established around the nest until the young have fledged and departed from the nest area. These buffers will cover an area of 50 feet from active nests of passerine birds and 300 feet from active raptor nests. A smaller buffer may be established with approval from the United States Fish and Wildlife Service (Service) and/or the California Department of Fish and Wildlife (CDFW).
10. To protect the California red-legged frog and the San Francisco garter snake, the following will be implemented:
- a. Construction activities will be scheduled to minimize effects on listed species and habitats. Construction will be limited to the summer dry season (e.g., April 15 through October 31) to avoid the period when the CRLF is most active.
 - b. Pre-construction surveys. Before any work is done on-site, a United States Fish and Wildlife Service -approved biologist will conduct a pre-construction clearance survey for listed species, including the CRLF and the SFGS, and other protected resources. Visual encounter surveys will be conducted within the project footprint and all accessible areas within 50 feet of the footprint. All suitable habitat, including refugia habitat (e.g., under shrubs, downed logs, small woody debris, burrows, within dense vegetation, etc.), will be thoroughly inspected. If the Service-approved biologist identifies a burrow that has a potential to be occupied by a CRLF or a SFGS, CalTrans will consult with the Service to determine an appropriate course of action to avoid impacts that could result in the take of the CRLF and the SFGS during construction. These actions may include monitoring of the burrow during pile driving or other activities that have the potential to collapse burrows, and careful hand excavation of the burrows if necessary. If burrow excavation is undertaken, the individual(s) would be allowed to move out of the area unharmed and on its/their own, as determined and monitored by the Service-approved biologist or biological monitor. The pre-construction survey will be done prior to installation of wildlife exclusion fencing and prior to the start of ground-disturbing activities so that any CRLF or SFGS present in the project footprint will have sufficient time to move out of the area and can find a suitable alternative retreat outside the project footprint before work commences. A second pre-construction clearance survey of the project footprint may be necessary after installation of the wildlife exclusion fencing and before the start of ground-disturbing activities if too much time lapses between the fencing installation and the start of ground-disturbing activities. The need for a second pre-construction survey would

be determined by the Service-approved biologist based on site conditions and realized construction timelines.

- c. Silt fencing or other wildlife exclusion fencing will be installed around the perimeter of the project footprint to prevent the CRLF and the SFGS from entering the work area. Fencing will be placed around the perimeter of the project footprint, together with the ESA fencing, and will be installed prior to any work within the project footprint. Exclusion fencing will be at least 3 feet high with the lower 6 inches of the fence buried in the ground. The fence will be pulled taut at each support to prevent folds or snags. Fencing will be installed and maintained in good working condition until completion of the project.
- d. A Service-approved biologist(s) will be on-site to monitor all construction activities that could reasonably result in the take of the CRLF or the SFGS (e.g., grubbing activities, pile installation). The qualifications of all proposed biological monitors will be presented to the Service for review and written approval at least 30 calendar days before the start of construction. Once on-site, the Service-approved biologist(s) will maintain complete monitoring records with relevant species observations and other site-specific information. If requested, all monitoring records will be provided to the Service within 30 days of completion of monitoring work.
- e. The Service-approved biologist will conduct clearance surveys at the beginning of each day and regularly throughout the workday during the early phases of construction. The appropriate level of monitoring will be determined through regular coordination with the Service once the project footprint has been fully cleared and grubbed. Other monitoring responsibilities may be deferred to an assigned inspector following Service approval.
- f. The Service-approved biologist will have the authority to halt work through coordination with the Resident Engineer (hereafter Engineer) in the event that a CRLF or a SFGS is observed in the action area. The Engineer will keep construction activities suspended in any construction area where the biologist has determined that a potential take of the CRLF or the SFGS can occur. Work will resume after observed CRLF or SFGS individuals leave the site voluntarily, or the biologist determines that no listed species is being harassed or harmed by construction activities. If take of the CRLF or the SFGS occurs, the biologist will immediately notify the Service contact by telephone and by electronic mail within one (1) working day.
- g. To prevent the inadvertent entrapment of the CRLF or the SFGS, all excavated, steep-walled holes or trenches more than 1-ft. deep will be covered at the close of each working day with plywood. If it is not feasible to cover an excavation, one or more escape ramps constructed of earthen fill

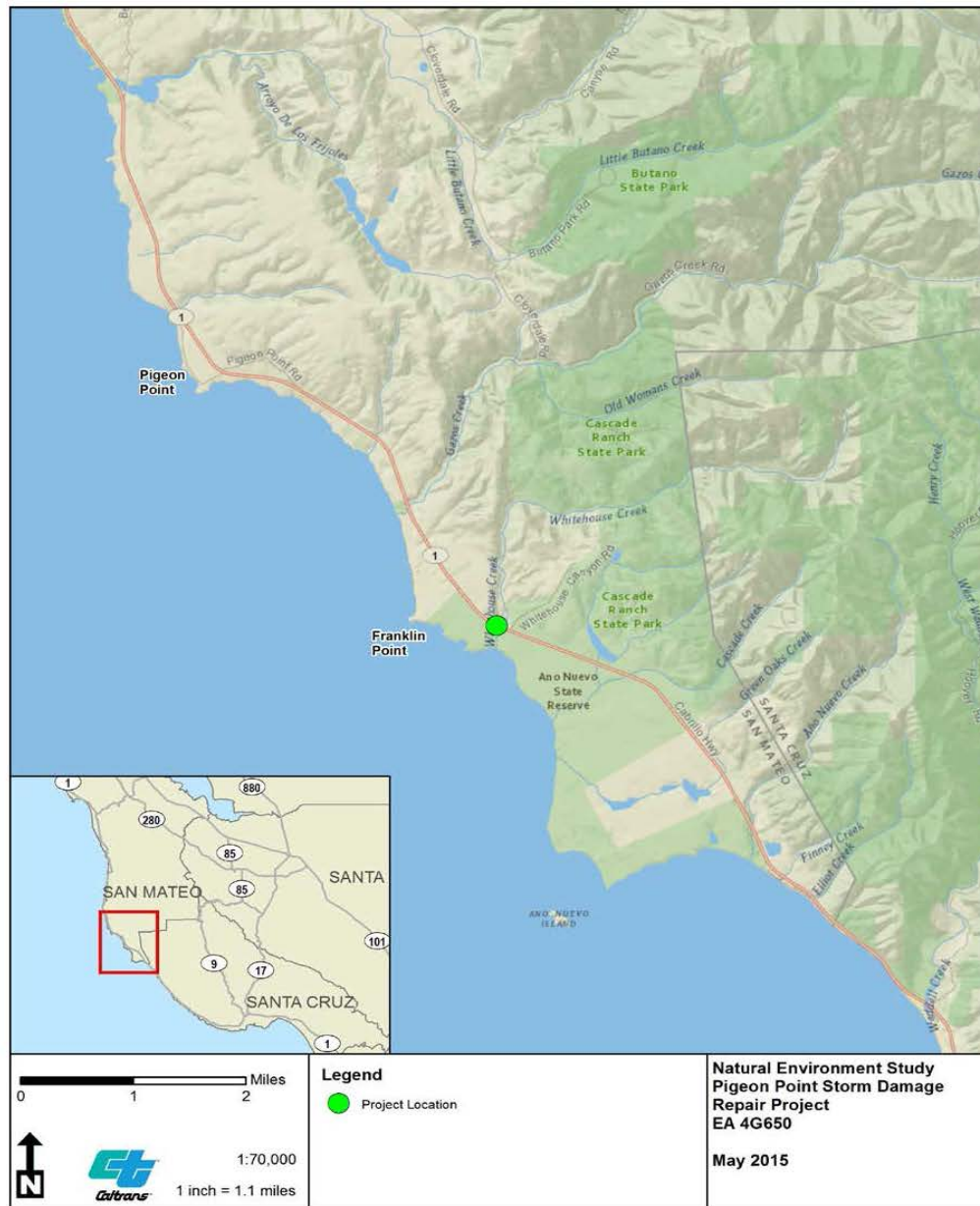
or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. All replacement pipes, culverts, or similar structures stored in the action area overnight will be inspected before they are subsequently moved, capped, and/or buried. If at any time a trapped, listed animal is discovered, the Service-approved biologist immediately will place escape ramps or other appropriate structures to allow the animal to escape, or the Service will be contacted by telephone for guidance. The Service will be notified of the incident by telephone and electronic mail within one (1) working day.

- h. To prevent the CRLF or the SFGS from becoming entangled, trapped, or injured, plastic mono-filament netting (erosion control matting) will not be used on the job site. Acceptable substitutes will include coconut coir matting or tackified hydroseeding compounds.
- i. If requested, before, during, or after completion of ground breaking and construction activities, CalTrans will allow access by Service personnel into the project footprint for inspection of construction work. CalTrans requests that all agency representatives contact the Engineer before accessing a work site, and review and sign the Safe Work Code of Practices before accessing a work site for the first time.
- j. Before moving construction equipment or vehicles into the project site, operators will check underneath those that have been parked on-site for more than 30 minutes and will notify the Service-authorized biological monitor if any reptile or amphibian is observed.
- k. Injured CRLF or SFGS will be cared for by a Service-approved biologist or a licensed veterinarian, if necessary. Any deceased CRLF or SFGS will be preserved according to standard museum techniques and will be held in a secure location. The Service will be notified within one (1) working day of the discovery of a death or an injury to any listed species resulting from project-related activities or if a listed species is observed at a construction site. Notification will include the date, time, and location of the incident or the finding of a deceased or injured animal, clearly indicated on a United States Geological Service (USGS) 7.5-minute quadrangle and other maps at a finer scale, as requested by the Service, and any other pertinent information.
- l. CalTrans will submit post-construction compliance reports to the Service, prepared by the Service-approved biologist within 60 calendar days after completion of construction activities or within 60 calendar days of any break in construction activities lasting more than 60 calendar days. This report will detail: (1) dates that relevant construction activities occurred; (2) pertinent information concerning the success of construction activities in implementing avoidance and minimization measures for listed species;

(3) an explanation of failure to meet such measures, if any; (4) known project-related effects on the CRLF and the SFGS, if any; (5) occurrences of incidental take of any listed species; (6) documentation of construction worker environmental training; and (7) other pertinent information.

11. Nighttime work will be avoided, with the exception of a single night operation to replace the AC over the northbound and southbound lanes. During nighttime work, all lighting will be directed downward and toward the construction work taking place.
12. No work will occur on any day when there is a 40 percent or more chance of precipitation or during or within 24 hours after a rain event exceeding 0.2 inches of precipitation, as measured by the National Oceanic and Atmospheric Administration's National Weather Service for the La Honda, CA (LAHC1) base station (available online at: <http://www.wrh.noaa.gov/mesowest/getobext.php?sid=LAHC1&table=1&banner=off>).
13. Before construction, all construction workers will attend an environmental training program taught by a Service-approved biologist. The program will include an explanation of how to avoid the incidental take of listed species and migratory birds, species identification, life history, descriptions, and habitat requirements during various life stages. Emphasis will be placed on the importance of the habitat and life stage requirements within the context of project maps showing areas where avoidance and minimization measures are to be implemented. The program will include an explanation of applicable federal and state laws protecting endangered species as well as the importance of compliance with CalTrans and other appropriate resource agency regulations.
14. To reduce and limit the spread of invasive, non-native plant species, CalTrans will comply with Executive Order 13112. This order is provided to prevent the introduction of invasive species and to provide for their control to minimize the economic, ecological, and human health effects associated with invasive species. In the event that high- or medium-priority noxious weeds, as defined by the California Department of Food and Agriculture or the California Invasive Plant Council, are disturbed or removed during construction-related activities, the contractor will contain the plant material associated with these noxious weeds and will dispose of it in a manner that will not promote the spread of the species. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing the materials. In addition, all imported materials (e.g., fill soil, gravel, rock, mulch) used in the construction will be certified weed-free, including straw and/or hay bales used for sediment control or mulch distribution.

RJB;jlh – RJB0148_WJU.DOCX



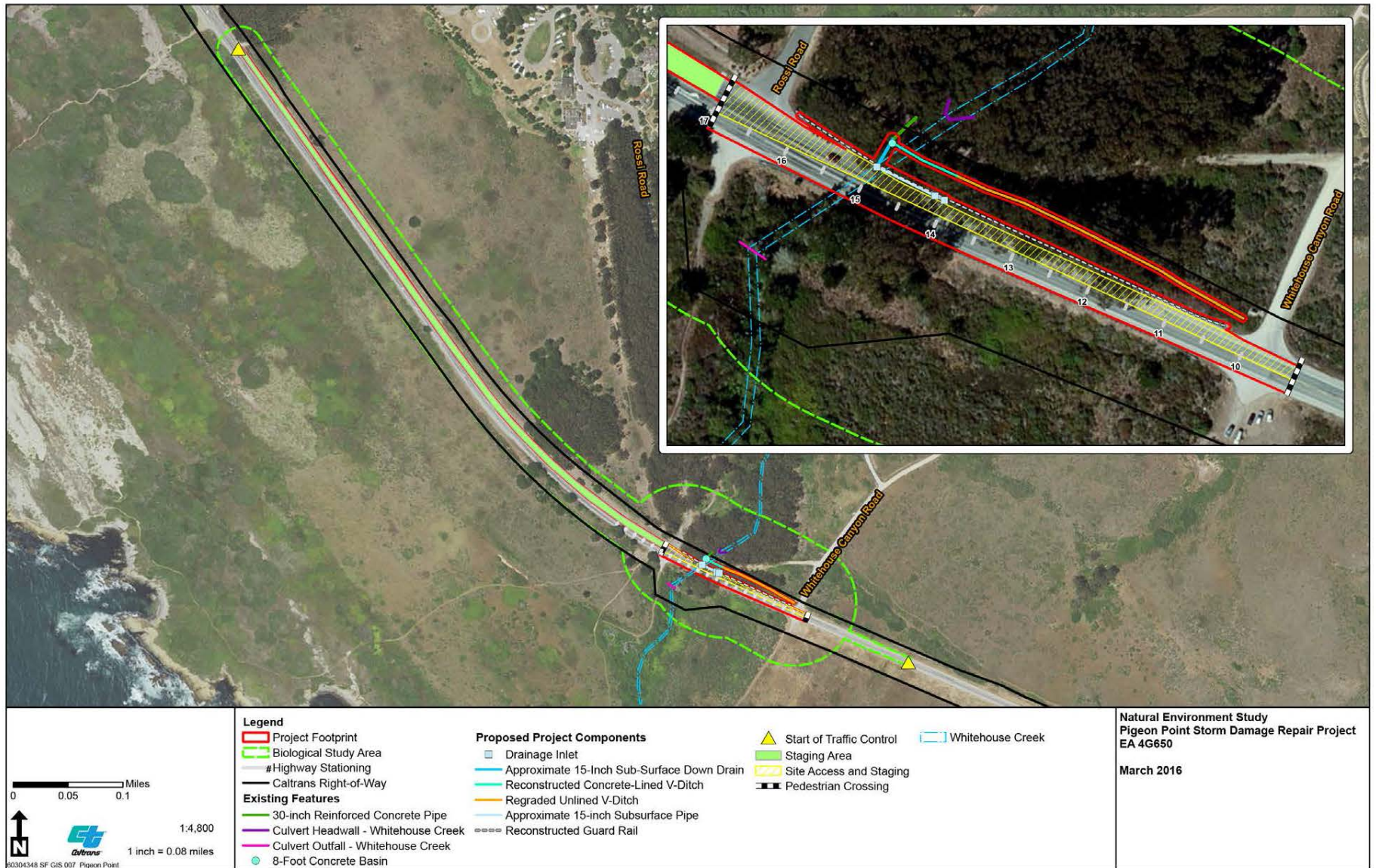
Source: data compiled by AECOM in 2014
Figure 1. Project Location

San Mateo County Planning Commission Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____



Sources: Caltrans 2014; Service 2014
Figure 2. Project Components

San Mateo County Planning Commission Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

INDEX OF PLANS

SHEET No.	DESCRIPTION
1	TITLE SHEET AND LOCATION MAP
2	TYPICAL CROSS SECTIONS
3	LAYOUT
4	CONSTRUCTION DETAILS
5	TEMPORARY WATER POLLUTION CONTROL PLAN
6 - 8	DRAINAGE PLAN, PROFILES, DETAILS AND QUANTITIES
9	UTILITY PLAN
10	CONSTRUCTION AREA SIGNS
11 - 12	TRAFFIC HANDLING PLAN AND QUANTITIES
13 - 14	PAVEMENT DELINEATION PLAN AND QUANTITIES
15	SUMMARY OF QUANTITIES
16 - 17	EROSION CONTROL LEGEND, QUANTITIES, AND PLAN
18 - ?	REVISED STANDARD PLANS

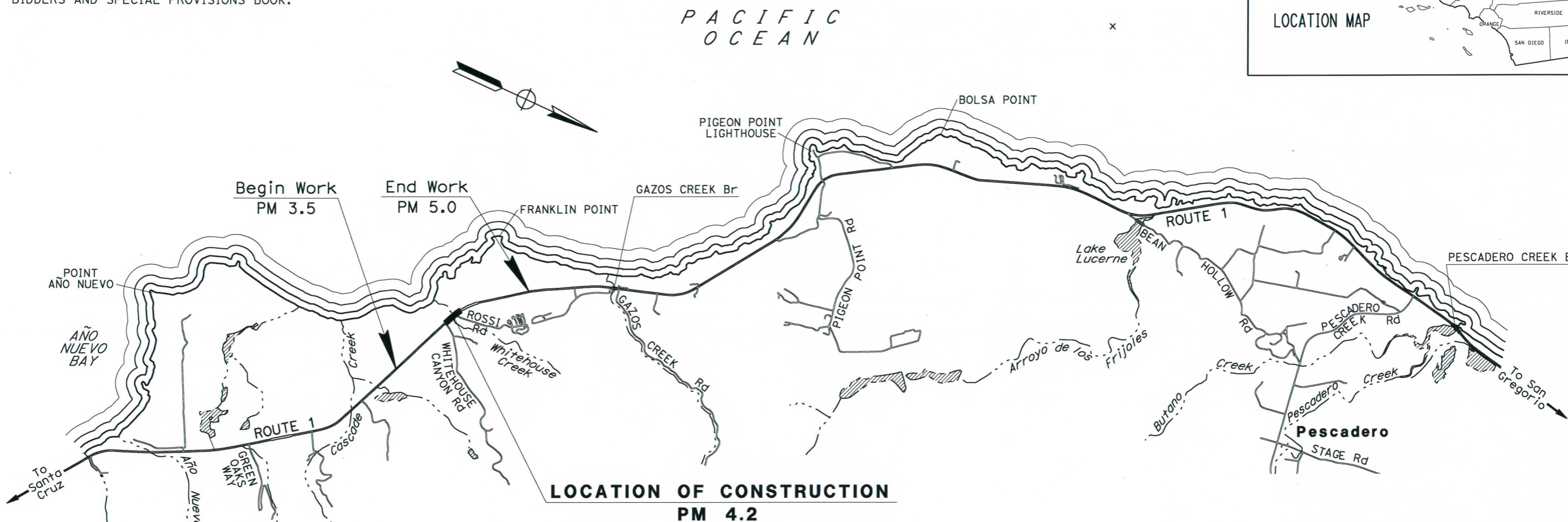
STRUCTURE PLANS
?? GENERAL PLAN

THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN SAN MATEO COUNTY
AT 3 MILES SOUTH OF
PIGEON POINT ROAD**

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2015

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.2	1	



PROJECT MANAGER
KANNU BALAN

DESIGN MANAGER
MANNY CALUYA

ATTACHMENT C

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

NO SCALE

PROJECT ENGINEER DATE
REGISTERED CIVIL ENGINEER



PLANS APPROVAL DATE

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

CONTRACT No.	04-4G6504
PROJECT ID	0412000624

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.2		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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



NOTES:

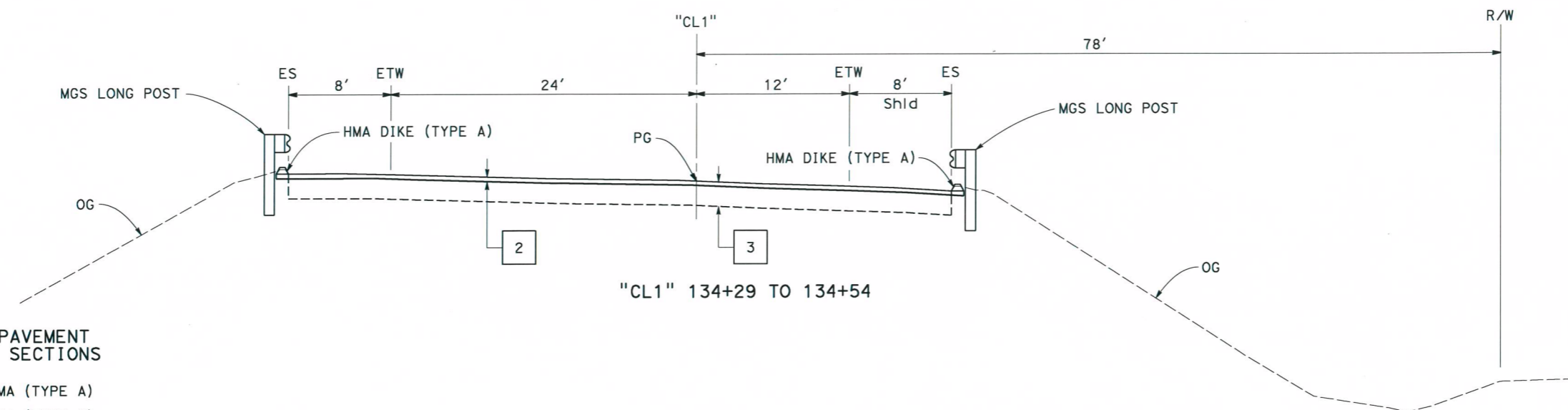
- DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
- EXACT LOCATIONS AND TYPES OF DIKE ARE SHOWN ON THE LAYOUTS AND IN THE SUMMARY OF QUANTITIES SHEETS.

ABBREVIATION:

PF PERFORATED FABRIC

LEGEND:

No. STRUCTURAL SECTION NUMBER

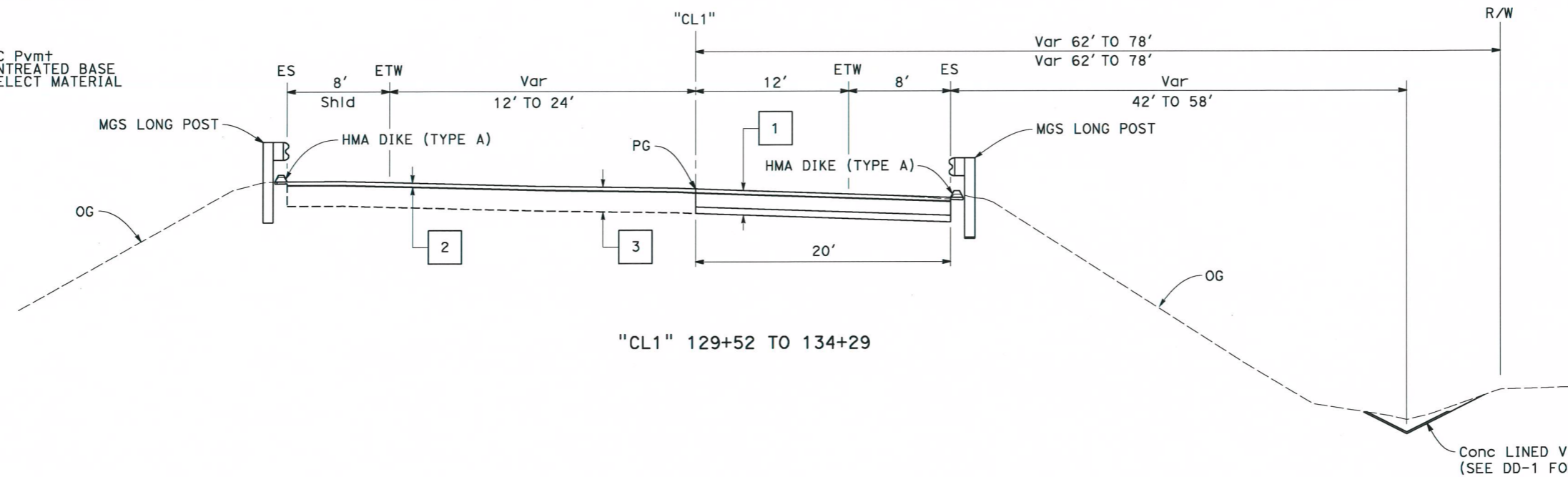


TYPICAL PAVEMENT STRUCTURE SECTIONS

- 1
- 0.15' HMA (TYPE A)
 - PF
 - 0.65' HMA (TYPE A)
 - 0.33' AS (CLASS 4)

- 2
- 0.25' COLD PLANE AC Pvm+
 - 0.15' HMA (TYPE A)
 - PF
 - 0.10' HMA (TYPE A)

- 3
- Exist
 - 0.25' AC Pvm+
 - 0.50' UNTREATED BASE
 - 0.50' SELECT MATERIAL



TYPICAL CROSS SECTIONS
NO SCALE

X-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN
 FUNCTIONAL SUPERVISOR: GHULAM POPAL
 CHECKED BY: GHULAM POPAL
 CALCULATED-DESIGNED BY: GHULAM POPAL
 REVISIONS: A, A
 REVISOR: DON BREEDEN, GHULAM POPAL
 DATE: [blank], [blank]

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.2		

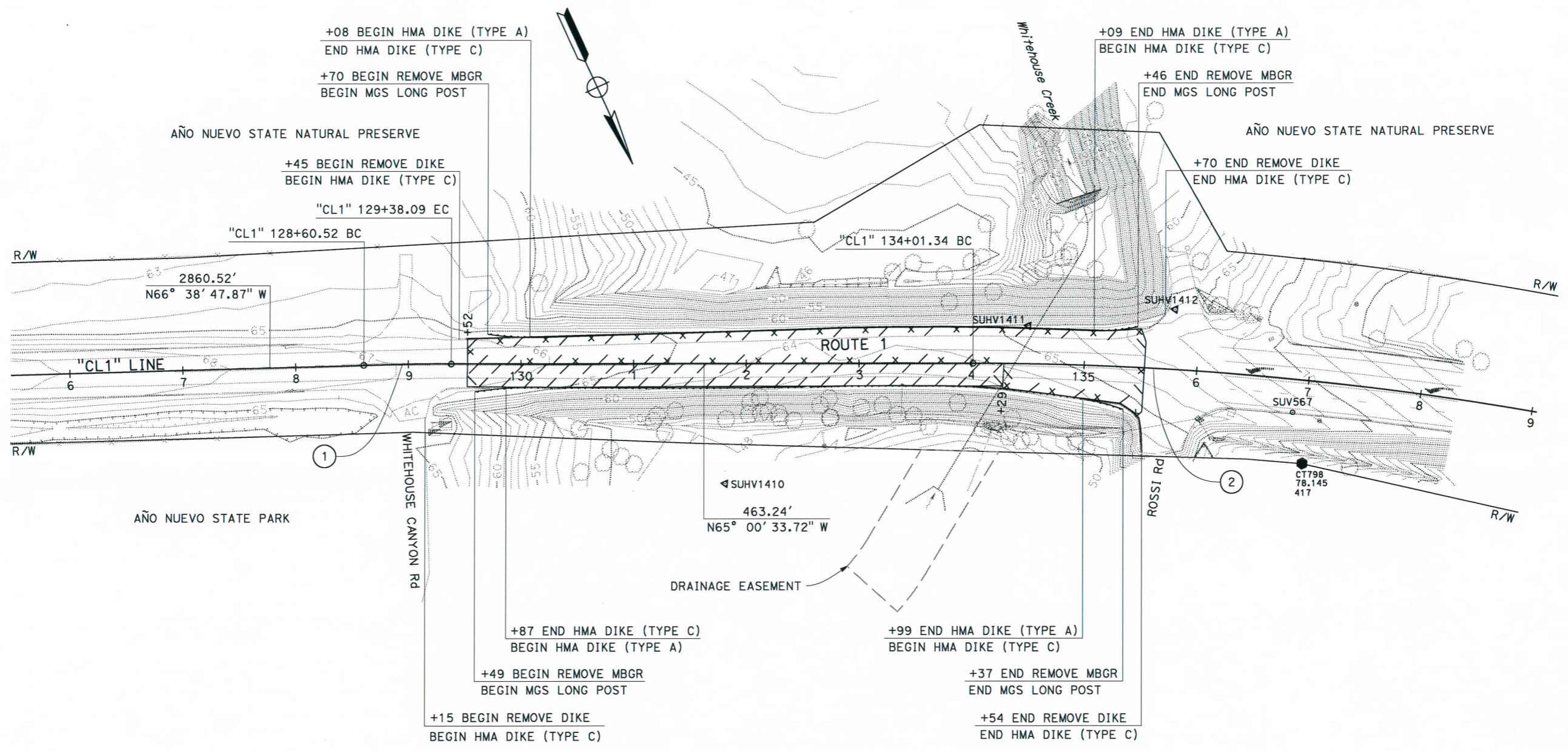
REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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



NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

- LEGEND:**
- COLD PLANE AC PAVEMENT (0.20') AND PLACE (0.20') HMA (TYPE A)
 - RESURFACE 0.8' HMA (TYPE A) REMOVE BASE & AC SURFACING
 - CURVE DATA NUMBER



CURVE DATA

No.	⊕	R	Δ	T	L
1		2714.75'	01° 38' 14"	38.79'	77.58'
2		2868.76'	27° 42' 08"	707.35'	1387.04'

LAYOUT
SCALE: 1" = 50'

L-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN
 GHULAM POPAL
 FUNCTIONAL SUPERVISOR
 GHULAM POPAL
 CHECKED BY
 DON BREEDEN
 REVISOR
 GHULAM POPAL
 REVISOR
 A
 A
 REVISIONS: A, A

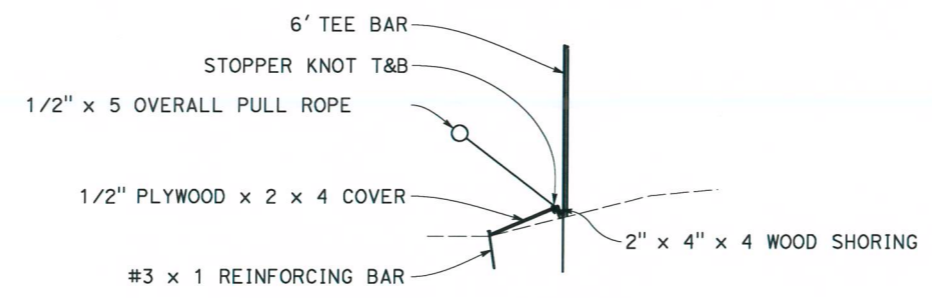
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.2		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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



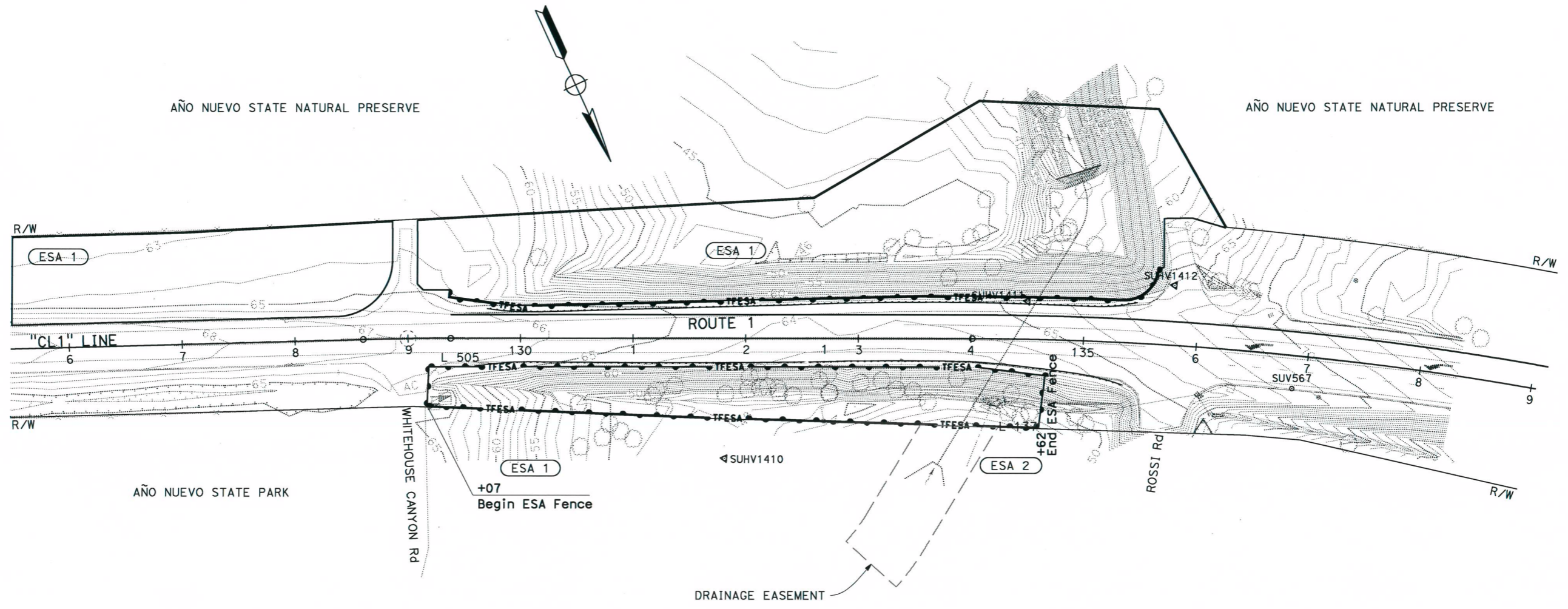
NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



LEGEND:

WILDLIFE EXCLUSION FENCE

TYPICAL CROSS SECTION
NO SCALE



CONSTRUCTION DETAILS
WILDLIFE EXCLUSION FENCE
SCALE: 1" = 50'

C-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN
 FUNCTIONAL SUPERVISOR: GHULAM POPAL
 CHECKED BY: GHULAM POPAL
 CALCULATED/DESIGNED BY: GHULAM POPAL
 DON BREEDEN
 REVISED BY: A
 DATE REVISED: A

BORDER LAST REVISED 7/2/2010

USERNAME => s112357
DGN FILE => 0412000624ga001.dgn



UNIT 0708

PROJECT NUMBER & PHASE

04120006241

LAST REVISION: 10-24-16
 DATE PLOTTED => 04-NOV-2016
 TIME PLOTTED => 11:05

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.2		

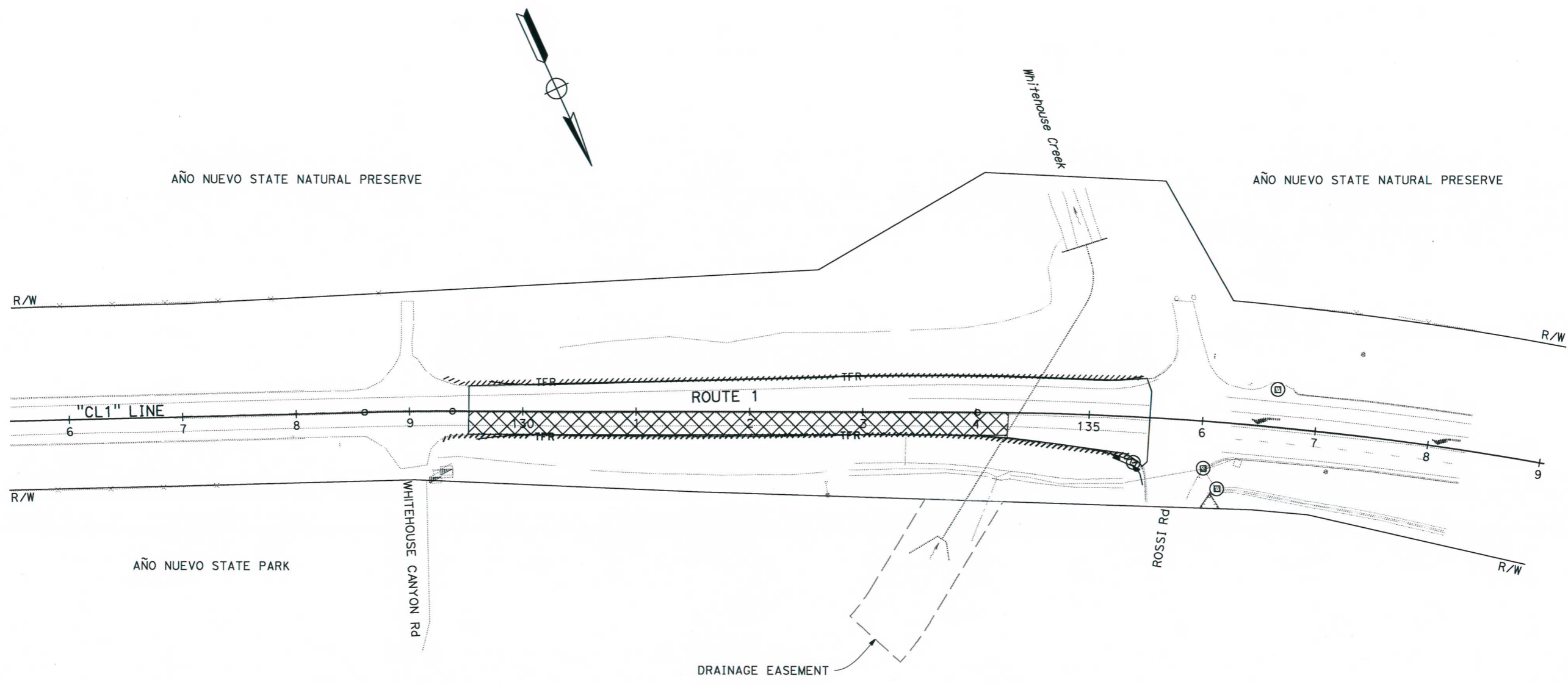
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

LEGEND:
 TEMPORARY COVER



TEMPORARY WATER POLLUTION CONTROL QUANTITIES

ITEM	UNIT	LOCATION	QUANTITY
TEMPORARY FIBER ROLL	ft	"CL1" 10+00 TO 19+00	1250
TEMPORARY COVER	SQYD	"CL1" 10+00 TO 19+00	1100
TEMPORARY DRAINAGE INLET PROTECTION	EA	"CL1" 10+00 TO 19+00	3

TEMPORARY WATER POLLUTION CONTROL PLAN
SCALE: 1" = 50'

APPROVED FOR TEMPORARY WATER POLLUTION CONTROL WORK ONLY

WPC-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans WATER QUALITY
 FUNCTIONAL SUPERVISOR
 KAMRAN NAKHJURI
 CALCULATED-DESIGNED BY
 CHECKED BY
 KAMRAN NAKHJURI
 REVISIONS:
 A
 REVISIONS:
 A
 REVISIONS:
 A
 REVISIONS:
 A

BORDER LAST REVISED 7/2/2010

USERNAME => s112357
DGN FILE => 0412000624gb001.dgn

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT 0708

PROJECT NUMBER & PHASE

04120006241

DATE PLOTTED => 04-NOV-2016
 TIME PLOTTED => 11:05
 LAST REVISION
 10-19-15

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.2		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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

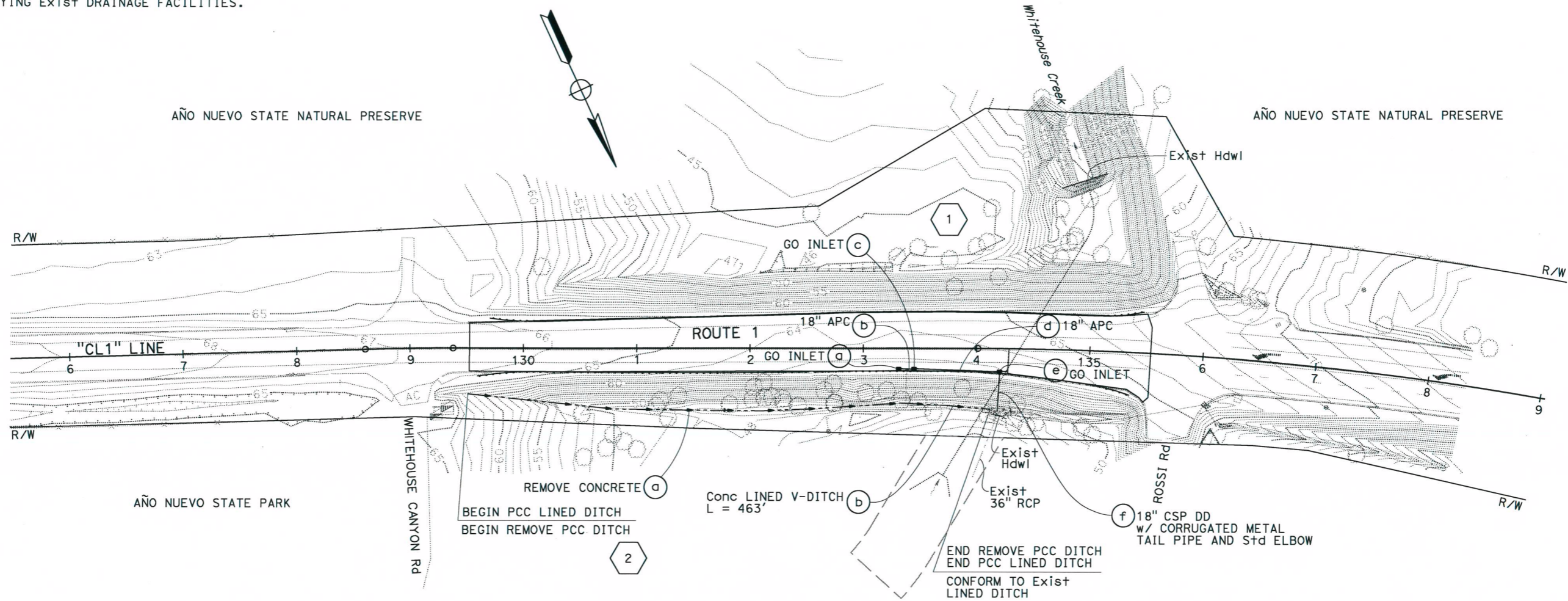


NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

NOTES:

1. PROJECT VERTICAL DATUM IS NAVD88.
2. CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.
3. ALL TIES ARE TO THE CENTER OF DRAINAGE INLET OR MANHOLES UNLESS OTHERWISE NOTED.
4. Exist DRAINAGE LOCATIONS ARE APPROXIMATE ONLY, VERIFY LOCATION AND ELEVATION BEFORE MODIFYING Exist DRAINAGE FACILITIES.




STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN
 FUNCTIONAL SUPERVISOR: DIXON LAU
 CALCULATED-DESIGNED BY: DIXON LAU
 CHECKED BY: DIXON LAU
 REVISIONS: A, A
 REVISOR: ERIC WONG, DIXON LAU
 DATE: [blank], [blank]

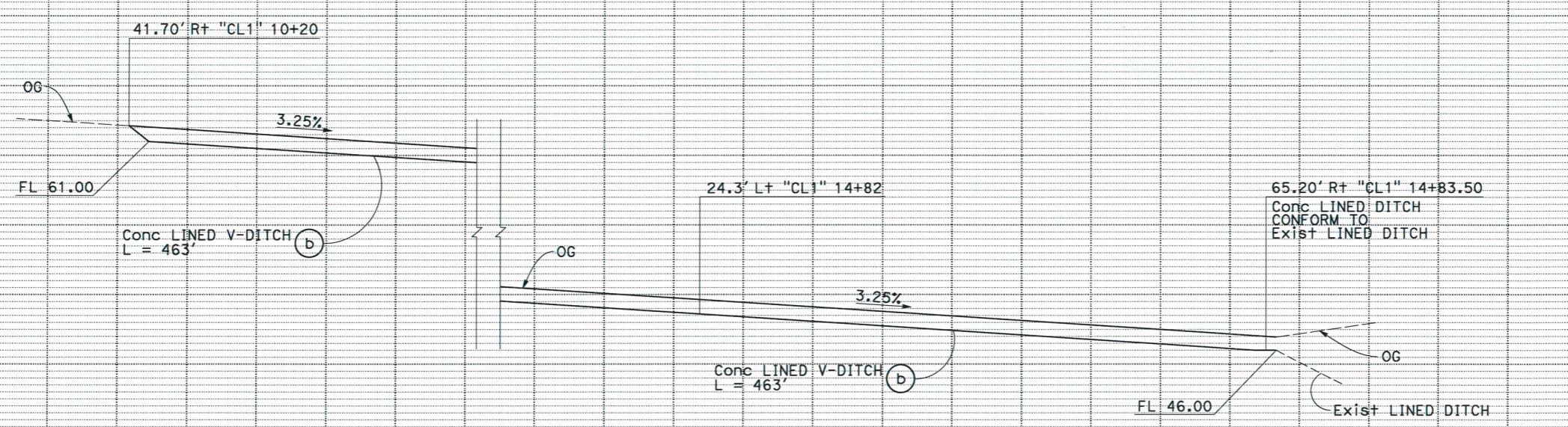
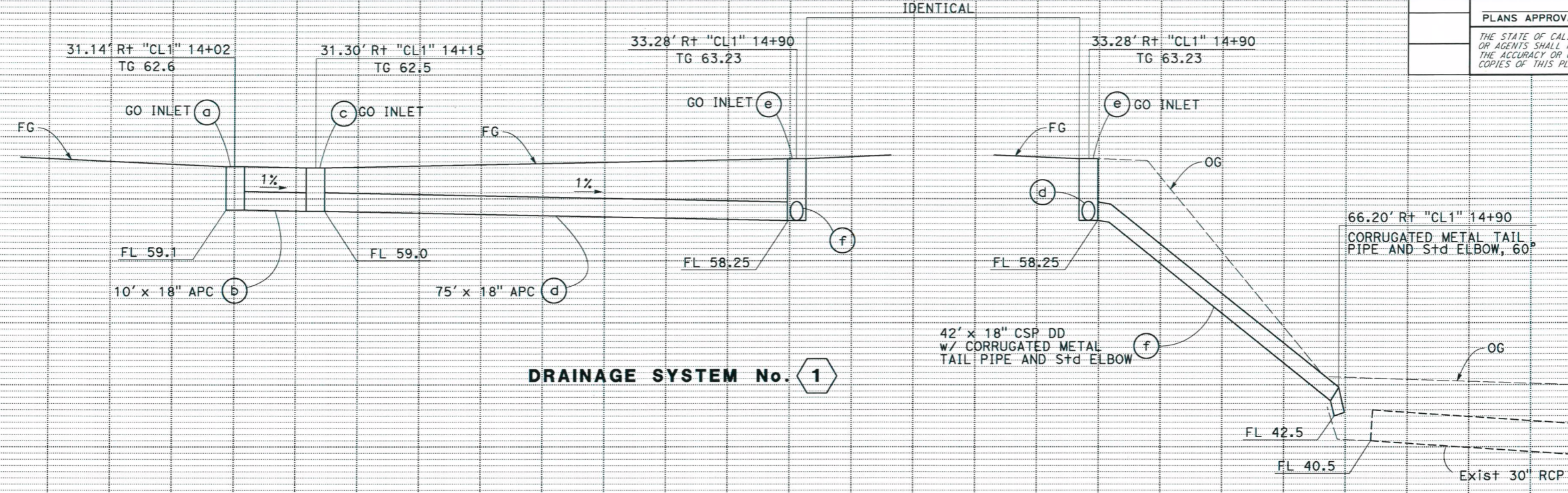
DRAINAGE PLAN
SCALE: 1" = 50'

APPROVED FOR DRAINAGE WORK ONLY

D-1

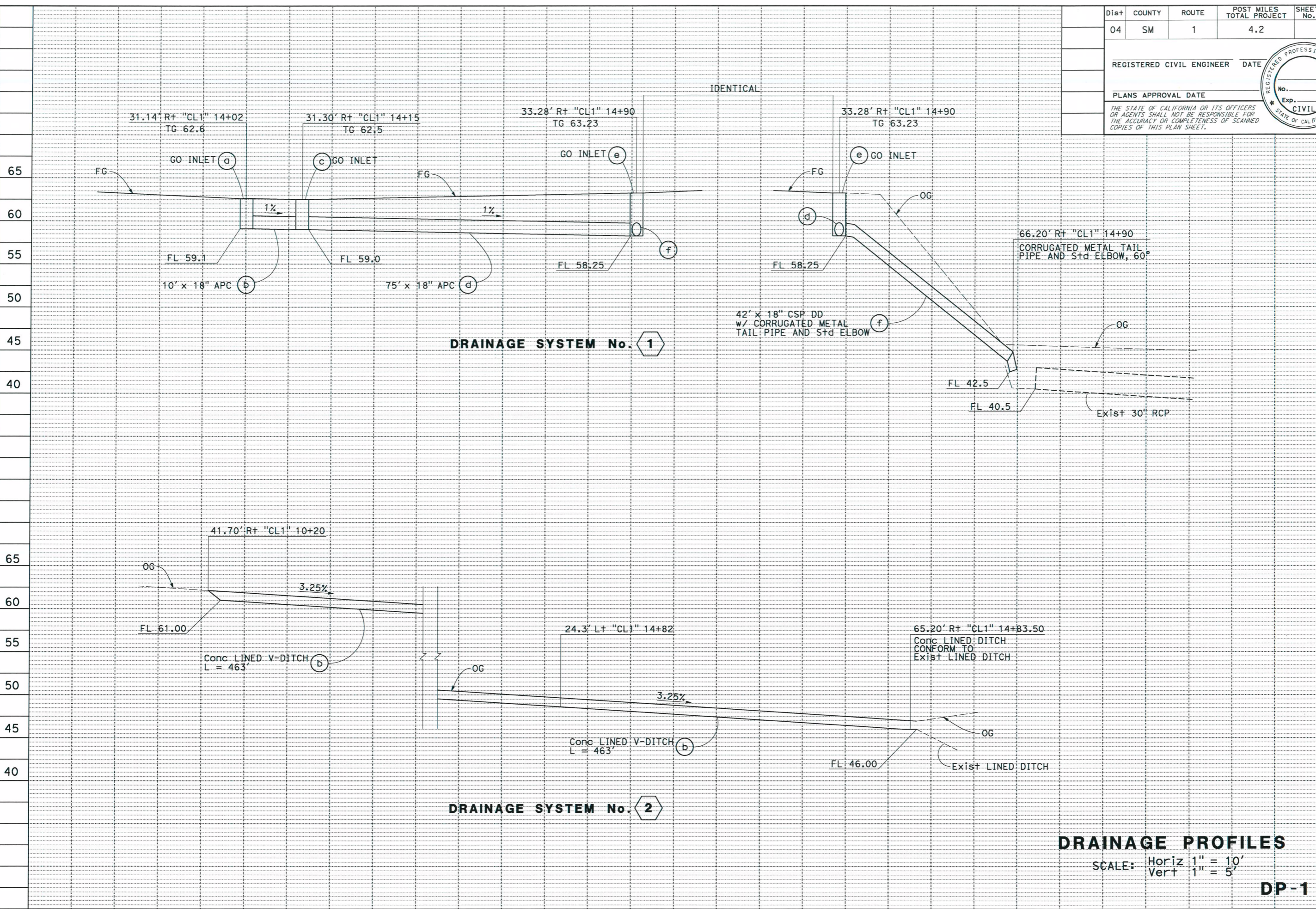
LAST REVISION: 10-19-16
 DATE PLOTTED => 04-NOV-2016
 TIME PLOTTED => 11:06

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.2		
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



DRAINAGE PROFILES
 SCALE: Horiz 1" = 10'
 Vert 1" = 5'
DP-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 HYDRAULICS
 FUNCTIONAL SUPERVISOR: DIXON LAU
 ERIC WONG
 DIXON LAU
 REVISIONS: A, A



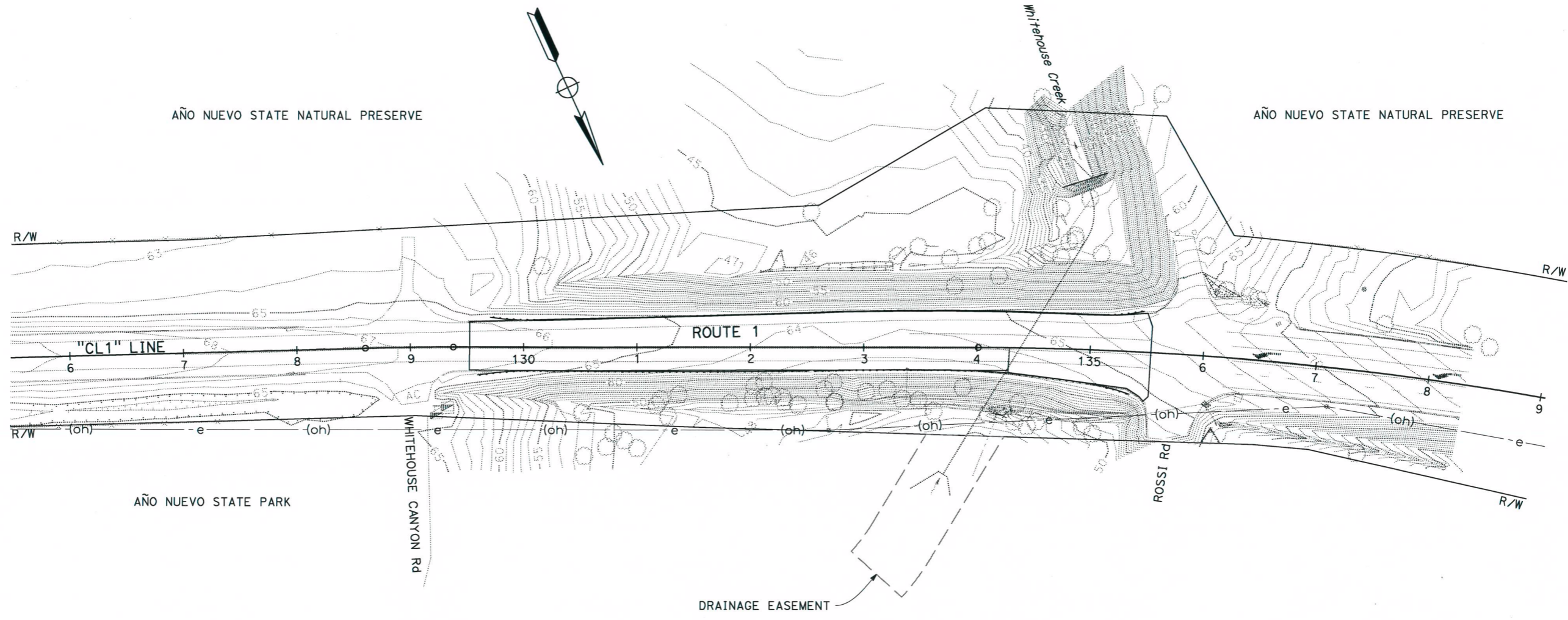
DATE PLOTTED => 04-NOV-2016
 TIME PLOTTED => 11:06
 LAST REVISION 09-19-16

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.2		
REGISTERED CIVIL ENGINEER				DATE	
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

UTILITIES EXISTING UTILITIES OWNERSHIP
ELECTRIC (oh) -e- PG&E



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN
 FUNCTIONAL SUPERVISOR
 GHULAM POPAL
 CALCULATED-DESIGNED BY
 CHECKED BY
 GHULAM POPAL
 REVISED BY
 DATE REVISED
 A
 A
 DON BREEDEN
 GHULAM POPAL

UTILITY PLAN
SCALE: 1" = 50'

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

U-1

BORDER LAST REVISED 7/2/2010

USERNAME => s112357
DGN FILE => 0412000624ka001.dgn

RELATIVE BORDER SCALE IS IN INCHES

UNIT 0708

PROJECT NUMBER & PHASE

04120006241

LAST REVISION: 10-20-16
 DATE PLOTTED => 04-NOV-2016
 TIME PLOTTED => 11:07

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.2		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN No.	MUTCD CODE	MESSAGE	PANEL SIZE	NUMBER OF POST AND SIZE	No. OF SIGNS
1	W20-1	ROAD WORK AHEAD	48" x 48"	(ONE) 4" x 6"	2
2	G20-2	END ROAD WORK	36" x 18"	(ONE) 4" x 4"	2

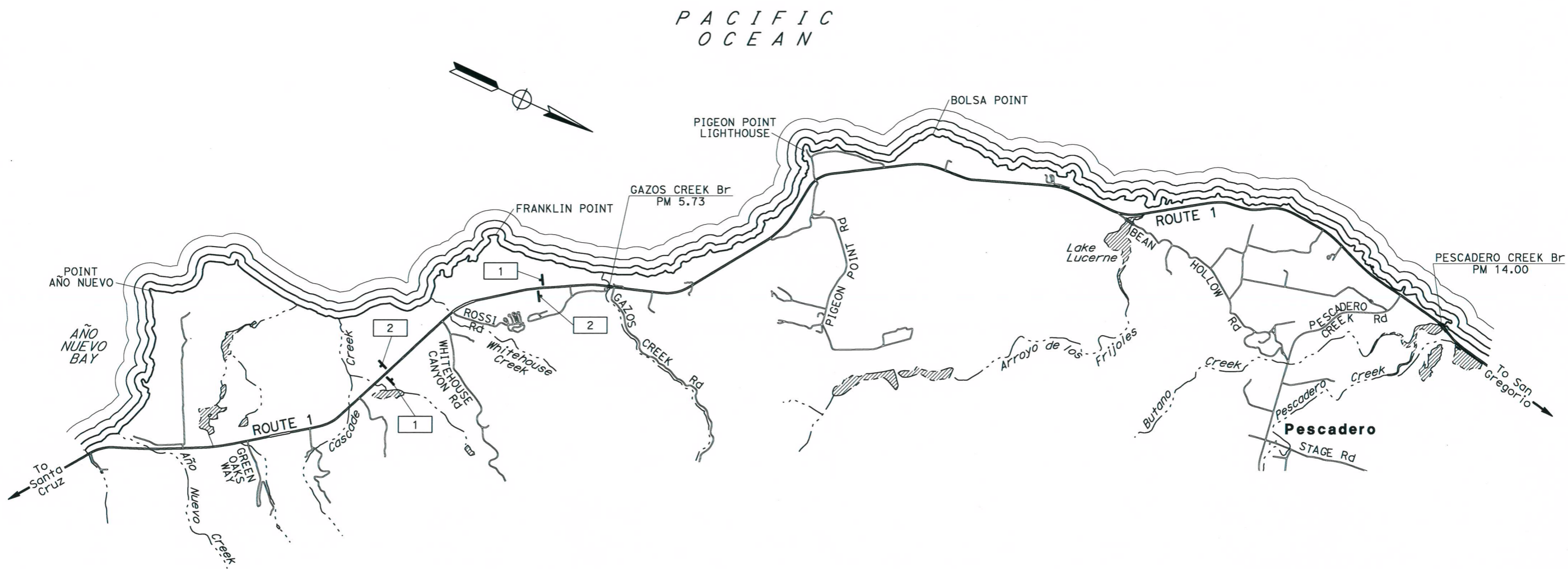
LEGEND:

No. CONSTRUCTION AREA SIGN NUMBER

NOTES:

- EXACT LOCATION AND POSITION OF SIGNS TO BE DETERMINED BY THE ENGINEER.
- DIMENSIONS FOR SIGN PANELS AND POSTS ARE IN INCHES.
- LETTERING SIZES FOR SIGN PANELS ARE IN INCHES.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 TRAFFIC
 FUNCTIONAL SUPERVISOR ROLAND AU-YEUNG
 CALCULATED-DON BREEDEN
 DESIGNED BY GHULAM POPAL
 CHECKED BY
 REVISED BY
 DATE REVISED



CONSTRUCTION AREA SIGNS

NO SCALE

APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY

CS-1

DATE PLOTTED => 04-NOV-2016
 TIME PLOTTED => 11:07
 LAST REVISION
 04-21-16

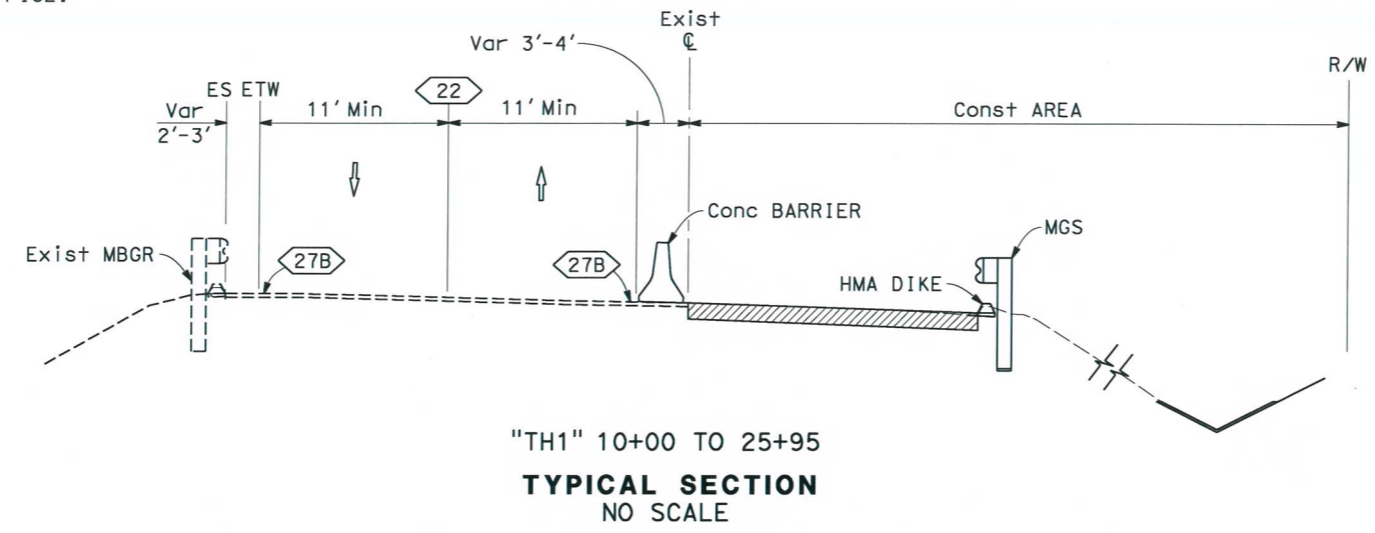
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.2		

REGISTERED CIVIL ENGINEER	DATE
Rajesh Oberoi	
No. 46046	
Exp. 12-31-16	
CIVIL	

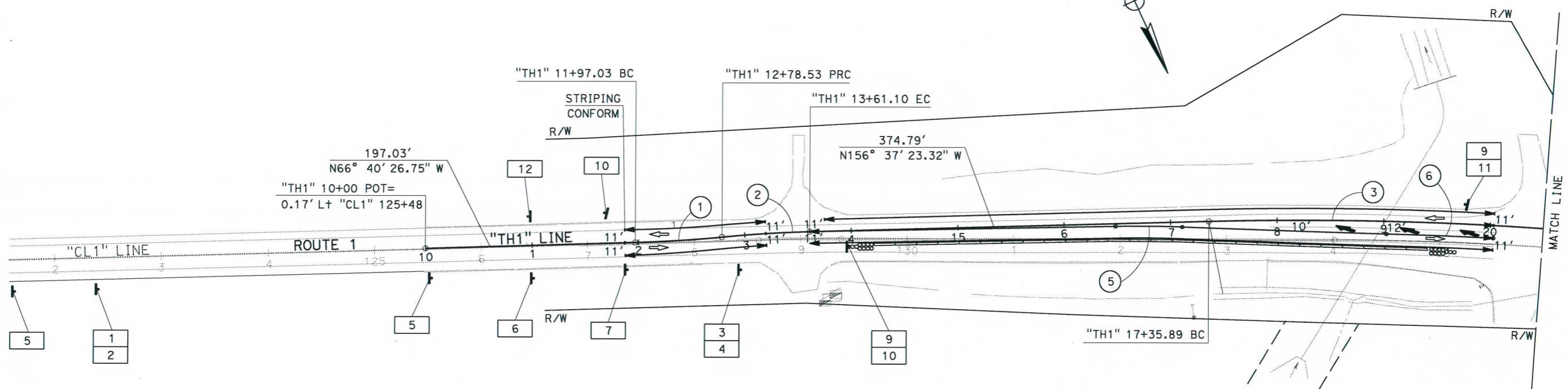
PLANS APPROVAL DATE _____

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NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



- LEGEND:**
- (No.) CURVE DATA NUMBER
 - [No.] CONSTRUCTION ARE SIGN & NUMBER
 - ◊(No.) TEMPORARY TRAFFIC STRIPING



CURVE DATA

No. @	R	Δ	T	L
1	1200.00'	03° 53' 29"	40.77'	81.50'
2	1200.00'	03° 56' 32"	41.30'	82.57'
3	3206.00'	10° 27' 33"	293.44'	585.25'
4	1324.00'	05° 51' 15"	67.70'	135.28'
5	1200.00'	02° 59' 05"	31.26'	62.51'
6	3194.00'	01° 47' 53"	50.12'	100.23'
7	1312.00'	05° 45' 50"	66.05'	131.98'
8	1300.00'	06° 03' 28"	68.79'	137.45'

SCALE: 1" = 50'

TRAFFIC HANDLING PLAN
SCALE: AS SHOWN

APPROVED FOR TRAFFIC HANDLING WORK ONLY

TH-1

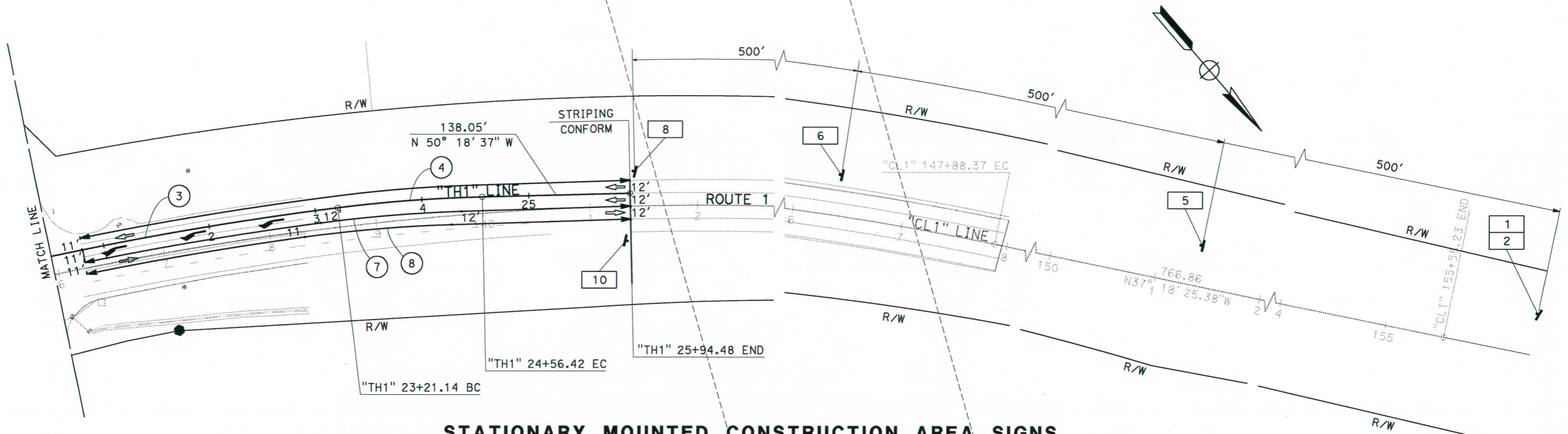
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 FUNCTIONAL SUPERVISOR: ROLAND AU-YEUNG
 CALCULATED-DESIGNED BY: DON BREEDEN
 CHECKED BY: GHULAM POPAL
 REVISIONS: A, A
 REVISOR: A, A
 DATE: A, A

DATE PLOTTED => 04-NOV-2016
 TIME PLOTTED => 11:08
 LAST REVISION 11-02-16

NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

TEMPORARY TRAFFIC HANDLING QUANTITIES

SHEET No.	STATION	TEMPORARY RAILING (TYPE K)	TEMPORARY TRAFFIC STRIPE (PAINT)	REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS WASTE)	REMOVE PAINTED TRAFFIC STRIPE	TEMPORARY ALTERNATIVE CRASH CUSHION	REMOVE PAVEMENT MARKER	CHANNELIZERS (SURFACE MOUNTED)
				LF			EA	
TH-1	"CL1" 128+60 TO 136+25	600	2400	1200	2400	2	52	40



STATIONARY MOUNTED CONSTRUCTION AREA SIGNS (TRAFFIC HANDLING)

SHEET No.	SIGN No.	MUTCD CODE	MESSAGE	PANEL SIZE	NUMBER OF POSTS AND SIZE	No. OF SIGNS	REMARKS
TH-1	1	P13-1P	45 MPH	48" x 48"	1 - 4" x 4"	2	
	2	W16-2P	500 FT	30" x 18"		2	
	3	W11-1	BICYCLE WARNING	48" x 48"		2	
	4	W16-1P	SHARE THE ROAD	24" x 36"	1 - 4" x 4"	2	
	5	W20-1	ROAD WORK AHEAD	48" x 48"	1 - 4" x 4"	2	
	6	W20-2	DETOUR AHEAD	48" x 48"	1 - 4" x 4"	2	
	7	W1-4L	LEFT REVERSE CURVE	48" x 48"	1 - 4" x 4"	1	
	8	W1-4R	RIGHT REVERSE CURVE	48" x 48"	1 - 4" x 4"	1	
	9	W6-3	TWO WAY TRAFFIC	48" x 48"	1 - 4" x 4"	2	
	10	R4-4A	KEEP LEFT	18" x 30"	1 - 4" x 4"	1	
	11	R4-11	KEEP RIGHT	24" x 30"	1 - 4" x 4"	1	
	12	G20-2	END ROAD WORK	24" x 30"	1 - 4" x 4"	2	

APPROVED FOR TRAFFIC HANDLING WORK ONLY

TRAFFIC HANDLING PLAN

FOR LEGEND, SEE SHEET TH-1

TH-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 FUNCTIONAL SUPERVISOR: ROLAND AU-YEUNG
 CHECKED BY: GHULAM POPAL
 DESIGNED BY: DON BREEDEN
 REVISIONS: A, A
 REVISOR: A, A
 DATE: A, A

DATE PLOTTED => 04-NOV-2016
 TIME PLOTTED => 11:10

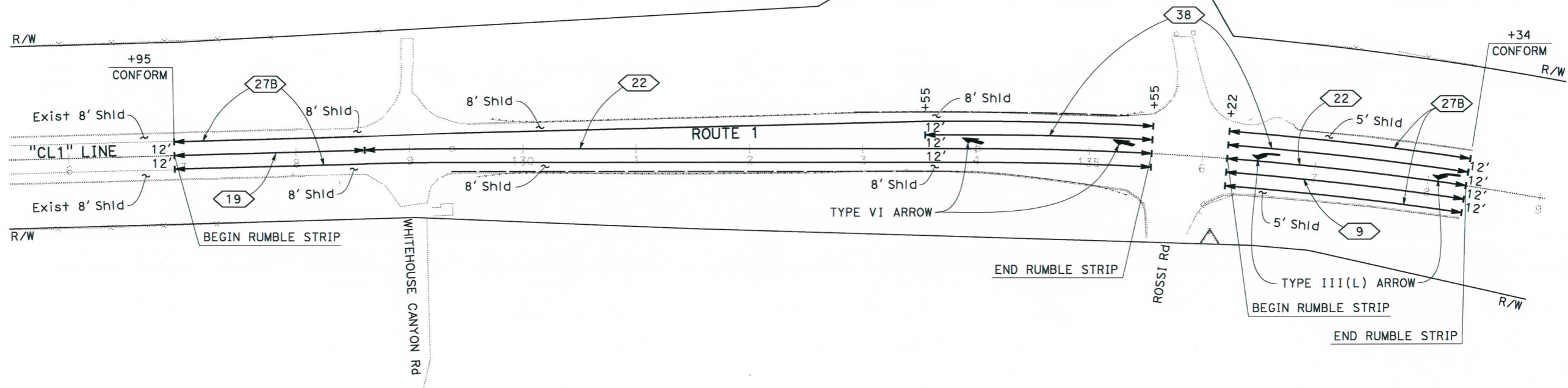
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.2		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.




STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN
 FUNCTIONAL SUPERVISOR: GHULAM POPAL
 CHECKED BY: GHULAM POPAL
 DESIGNED BY: GHULAM POPAL
 REVISIONS: A, A
 REVISOR: DON BREEDEN, GHULAM POPAL
 DATE: [blank], [blank]

PAVEMENT DELINEATION PLAN
SCALE: 1" = 50'

PD-1

APPROVED FOR PAVEMENT DELINEATION WORK ONLY

LAST REVISION: 10-21-16
 DATE PLOTTED => 04-NOV-2016
 TIME PLOTTED => 11:10

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.2		
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

PAVEMENT MARKING ARROWS

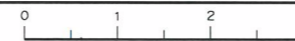
STATIONS	ARROWS	
	TYPE III (L)	TYPE IV
SQFT		
"CL1" 136+40	42	
"CL1" 138+10	42	
"CL1" 133+90		42
"CL1" 135+20		42
TOTAL	84	84

TRAFFIC STRIPES AND PAVEMENT MARKERS

SHEET No.	STATIONS	LOCATION	DETAIL No. OR PAVEMENT MARKING	LENGTH	PAVEMENT MARKER			THERMOPLASTIC TRAFFIC STRIPE			RUMBLE STRIP	REMOVE		
					TYPE D	TYPE G	TYPE H	4" YELLOW	4" WHITE	8" WHITE		THERMOPLASTIC TRAFFIC STRIPE	PAVEMENT MARKER	
														WHITE
LF	EA	LF	EA											
PD-1	"CL1" 126+90 TO 128+60	L+	27B	170					170			170		
	"CL1" 129+38 TO 135+60	L+	27B	622					622			622		
	"CL1" 136+25 TO 141+30	L+	27B	505					505			505		
	"CL1" 133+50 TO 135+50	L+	38	200		8				200		200		8
	"CL1" 136+25 TO 140+30	L+	38	405		16				405		405		16
	"CL1" 126+90 TO 128+60	R+	27B	170					170			170		
	"CL1" 129+38 TO 135+60	R+	27B	622					622			622		
	"CL1" 136+25 TO 141+30	R+	28B	505					505			505		
	"CL1" 136+25 TO 141+30	R+	9	505		10			505			505		10
	"CL1" 126+90 TO 128+60	CENTERLINE	19	170	3		6	340					340	3
	"CL1" 129+38 TO 135+60	CENTERLINE	22	622	50			1244					1244	50
	"CL1" 136+25 TO 141+30	CENTERLINE	22	505	42			1010					1010	42
	"CL1" 126+90 TO 135+55	CENTERLINE								865				
	"CL1" 136+20 TO 138+25	CENTERLINE								205				
TOTAL					95	34	6	2594	3099	605	1070	3704	2594	129

PAVEMENT DELINEATION QUANTITIES

PDQ-1




Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.2		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

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



ROADWAY QUANTITIES

SHEET No.	DIRECTION	STATION	COLD PLANE ASPHALT CONCRETE PAVEMENT	HOT MIX ASPHALT (TYPE A)	TACK COAT	AGGREGATE SUBBASE (CLASS 4)	ROADWAY EXCAVATION	REMOVE AC DIKE
			SQYD	TON		CY	LF	
L-1	NB	"CL1" 129+52 TO 134+29		609	1.9	377	426	505
	NB	"CL1" 134+29 TO 135+54	389	51	0.2			150
	SB	"CL1" 129+52 TO 135+54	1994	260	0.9			630
TOTAL			2383	920	3.0	377	426	1285

PLACE HOT MIX ASPHALT DIKE

SHEET No.	DIRECTION	STATION	(TYPE C)	(TYPE A)	HOT MIX ASPHALT (TYPE A)	FOG SEAL COAT
			LF		TON	
L-1	NB	"CL1" 129+15 TO 135+54	125	505	0.93	
	SB	"CL1" 129+45 TO 135+70	125	505	13.35	
		"CL1" 126+90 TO 135+55				X.XX
		"CL1" 136+20 TO 138+25				X.XX
TOTAL			250	1010	14.28	X.XX

GUARDRAIL QUANTITIES

SHEET No.	DIRECTION	STATION	REMOVE GUARDRAIL	TREATED WOOD WASTE	MIDWEST GUARDRAIL SYSTEM (WOODPOST)	ALTERNATIVE FLARED TERMINAL SYSTEM	VEGETATION CONTROL (MINOR CONCRETE)	OBJECT MARKER (TYPE P)	GUARDRAIL DELINEATOR (TYPE F)	MIDWEST GUARDRAIL SYSTEM STANDARD PLAN LAYOUT
			LF	LB	LF	EA	SQYD	EA		
L-1	NB	"CL1" 129+59 TO 135+37	580	6960	505	2	338	2	24	11E
	SB	"CL1" 129+70 TO 135+46	580	6960	505	2	338	2	24	11E
TOTAL			1160	13920	1010	4	676	4	48	

TEMPORARY FENCE (TYPE ESA)

SHEET No.	Loc	STATION	LF
C-1	L+	"CL1" 129+07 TO 134+62	1200
	R+		
TOTAL			3165

SUMMARY OF QUANTITIES

Q-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CH2M HILL
 DESIGN
 FUNCTIONAL SUPERVISOR: GHULAM POPAL
 CALCULATED/DESIGNED BY: SAMMUEL WOLDESEWAYAT
 CHECKED BY: DONALD BREEDEN
 REVISED BY: A
 DATE REVISED: A

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.2		

95%
LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

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

DATE 09-30-11
RENEWAL DATE

STATE OF CALIFORNIA

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

LEGEND:

[---] EROSION CONTROL TYPE 1

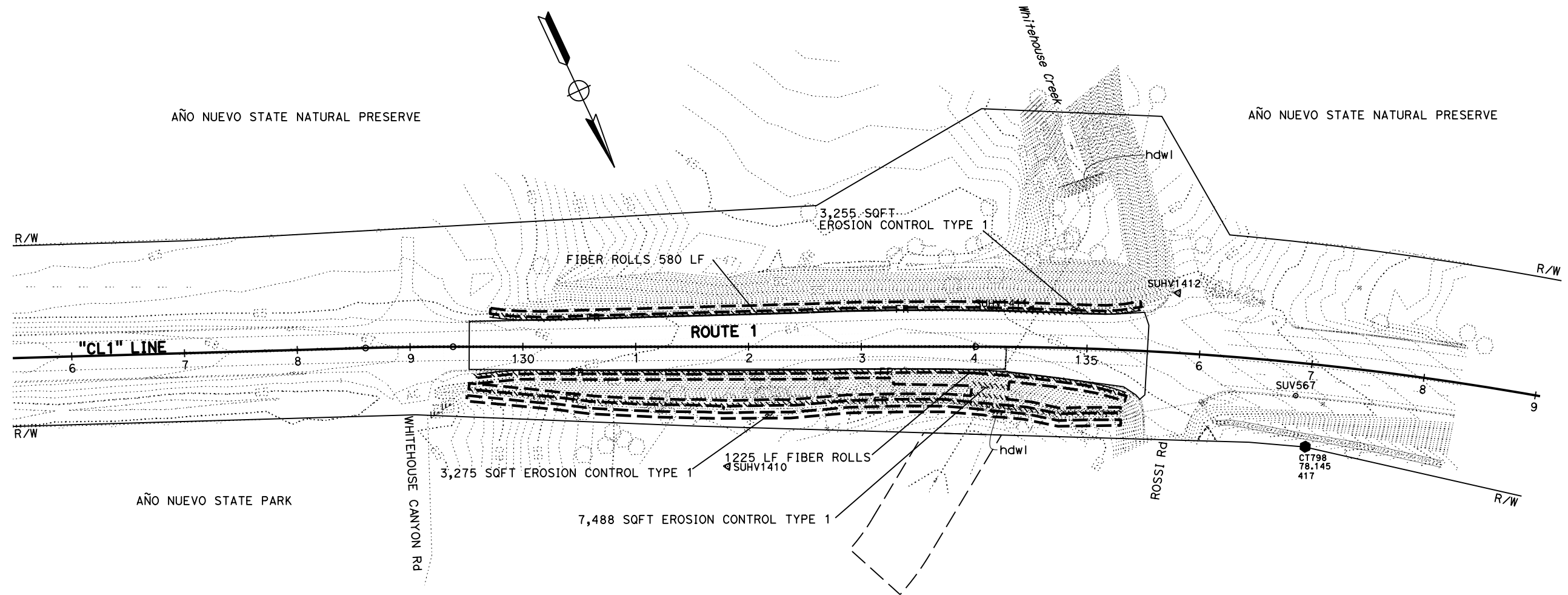
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
WATER QUALITY
 CALIBERS®

SENIOR LANDSCAPE ARCHITECT
 DAVID W. YAM

CHECKED BY

REVISOR
 CALIE TSUI
 ANGELA KWAN

REVISOR
 DATE
 DATE



EROSION CONTROL PLAN
 SCALE: 1" = 50'

APPROVED FOR EROSION CONTROL WORK ONLY

EC-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.2		

95%
 LICENSED LANDSCAPE ARCHITECT
 PLANS APPROVAL DATE
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.
 DRAFT
 LANDSCAPE ARCHITECT
 09-347
 Renewal Date
 STATE OF CALIFORNIA

EROSION CONTROL TYPE 1

SEQUENCE	ITEM	MATERIAL		APPLICATION RATE	REMARKS
		DESCRIPTION	TYPE		
STEP 1	ROLLED EROSION CONTROL PRODUCT (NETTING)	NETTING	A	-	-
STEP 2	FIBER ROLLS	FIBER ROLL	TYPE B 8" TO 10" Dia	-	TYPE 1 FIBER ROLL INSTALLATION
STEP 3	COMPOST	COMPOST	FINE	68 CY/ACRE	-
STEP 4	HYDROSEED	SEED	MIX 1	50 LB/ACRE	-
		FIBER	WOOD	500 LB/ACRE	-
STEP 5	HYDROMULCH	FIBER	WOOD	1500 LB/ACRE	-
		TACKIFIER	PSYLLIUM	200 LB/ACRE	-

SEED MIX

SEED	BOTANICAL NAME (COMMON NAME)	PERCENT GERMINATION (MINIMUM)	POUNDS PURE LIVE SEED PER ACRE (SLOPE MEASUREMENT)
MIX 1	ACHILLEA MILLEFOLIUM (WESTERN YARROW)	50	8
	BROMUS CARINATUS (CALIFORNIA BROME)	67	8
	ELYMUS GLAUCUS, BERKELEY (BLUE WILDRYE, BERKELEY)	50	8
	ERIOGONUM LATIFOLIUM (COAST BUCKWHEAT)	41	2
	HORDEUM BRACHYANTHERUM (MEADOW BARLEY)	47	8
	LASTHENIA CALIFORNICA (DWARF GOLDFIELDS)	47	2
	STIPA PULCHRA (PURPLE NEEDLEGRASS)	47	6
	VULPIA MICROSTACHYS (SMALL FESCUE)	47	8
TOTALS			50

EROSION CONTROL QUANTITIES


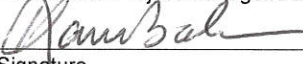
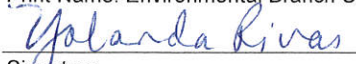
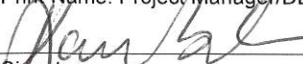
SHEET	DESCRIPTION	HYDROSEED	HYDROMULCH	ROLLED EROSION CONTROL PRODUCT (NETTING)	FIBER ROLLS	COMPOST
		SQFT	SQFT	SQFT	LF	SQFT
EC-1	EROSION CONTROL TYPE 1	14,018	14,018	14,018	1,805	14,018
TOTAL		14,018	14,018	14,018	1,805	14,018

EROSION CONTROL LEGEND & QUANTITIES ECL-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 WATER QUALITY
 SENIOR LANDSCAPE ARCHITECT
 DAVID W. YAM
 CALIE TSUI
 ANGELA KWAN
 REVISOR BY
 DATE REVISOR
 CHECKED BY
 DESIGNED BY

ATTACHMENT D

CATEGORICAL EXEMPTION/CATEGORICAL EXCLUSION DETERMINATION FORM

04/SM/001	4.63	04-4G650	0412000624
Dist.-Co.-Rte. (or Local Agency)	P.M./P.M.	E.A/Project No.	Federal-Aid Project No. (Local Project)/Project No.
PROJECT DESCRIPTION: (Briefly describe project including need, purpose, location, limits, right-of-way requirements, and activities involved in this box. Use Continuation Sheet, if necessary.)			
To address and fix a roadway failure along the northbound edge of travel way and shoulder of SR 1, Caltrans proposes to: construct three drainage inlets along the low side of the northbound shoulder; construct an additional 15-inch corrugated steel pipe down drain; remove the existing metal beam guardrail and replace it with approximately 500 feet of Midwest Guardrail System; remove the existing 4-inch-high HMA Dike (Type F) and replace it with a 6-inch-high HMA Dike (Type A); regrade the existing unlined ditch, line 84 feet of the existing unlined V-ditch; reconstruct the northbound travel way and shoulder to a depth of 3 feet, 500 feet long and 20 feet wide; cold plane the balance of the northbound travel way and shoulder and the entire southbound travel way and shoulder to a depth of 0.15 of a foot and resurface with asphalt concrete; place thermoplastic pavement markings and traffic stripes to original conditions to the finished roadway.			
CEQA COMPLIANCE (for State Projects only)			
Based on an examination of this proposal and supporting information, the following statements are true and exceptions do not apply (See 14 CCR 15300 et seq.):			
<ul style="list-style-type: none">• If this project falls within exempt class 3, 4, 5, 6 or 11, it does not impact an environmental resource of hazardous or critical concern where designated, precisely mapped and officially adopted pursuant to law.• There will not be a significant cumulative effect by this project and successive projects of the same type in the same place, over time.• There is not a reasonable possibility that the project will have a significant effect on the environment due to unusual circumstances.• This project does not damage a scenic resource within an officially designated state scenic highway.• This project is not located on a site included on any list compiled pursuant to Govt. Code § 65962.5 ("Cortese List").• This project does not cause a substantial adverse change in the significance of a historical resource.			
CALTRANS CEQA DETERMINATION (Check one)			
<input type="checkbox"/> Exempt by Statute. (PRC 21080[b]; 14 CCR 15260 et seq.)			
Based on an examination of this proposal, supporting information, and the above statements, the project is:			
<input checked="" type="checkbox"/> Categorically Exempt. Class 1. (PRC 21084; 14 CCR 15300 et seq.)			
<input type="checkbox"/> Categorically Exempt. General Rule exemption. [This project does not fall within an exempt class, but it can be seen with certainty that there is no possibility that the activity may have a significant effect on the environment (CCR 15061[b][3].)]			
Yolanda Rivas		Kannu Balan	
Print Name: Environmental Branch Chief		Print Name: Project Manager/DLA Engineer	
 5/27/16		 5/27/16	
Signature Date		Signature Date	
NEPA COMPLIANCE			
In accordance with 23 CFR 771.117, and based on an examination of this proposal and supporting information, the State has determined that this project:			
<ul style="list-style-type: none">• does not individually or cumulatively have a significant impact on the environment as defined by NEPA and is excluded from the requirements to prepare an Environmental Assessment (EA) or Environmental Impact Statement (EIS), and• has considered unusual circumstances pursuant to 23 CFR 771.117(b).			
CALTRANS NEPA DETERMINATION (Check one)			
<input checked="" type="checkbox"/> 23 USC 326: The State has determined that this project has no significant impacts on the environment as defined by NEPA, and that there are no unusual circumstances as described in 23 CFR 771.117(b). As such, the project is categorically excluded from the requirements to prepare an environmental assessment or environmental impact statement under the National Environmental Policy Act. The State has been assigned, and hereby certifies that it has carried out the responsibility to make this determination pursuant to Chapter 3 of Title 23, United States Code, Section 326 and a Memorandum of Understanding dated June 07, 2013, executed between the FHWA and the State. The State has determined that the project is a Categorical Exclusion under:			
<input type="checkbox"/> 23 CFR 771.117(c): activity (c)(___)			
<input type="checkbox"/> 23 CFR 771.117(d): activity (d)(___)			
<input checked="" type="checkbox"/> Activity 4 listed in Appendix A of the MOU between FHWA and the State			
<input type="checkbox"/> 23 USC 327: Based on an examination of this proposal and supporting information, the State has determined that the project is a CE under 23 USC 327.			
Yolanda Rivas		Kannu Balan	
Print Name: Environmental Branch Chief		Print Name: Project Manager/DLA Engineer	
 5/27/16		 5/27/16	
Signature Date		Signature Date	
Date of Categorical Exclusion Checklist completion:		Date of ECR or equivalent :	

CATEGORICAL EXEMPTION/CATEGORICAL EXCLUSION DETERMINATION FORM
Continuation Sheet

04/SM/001	4.63	04-4G650	0412000624
Dist.-Co.-Rte. (or Local Agency)	P.M./P.M.	E.A/Project No.	Federal-Aid Project No. (Local Project)/Project No.

Continued from page 1:

Two-way & one-way traffic control will be necessary for the construction of the project. Construction will be behind temporary K Rail. The project will require approximately 60 working days. All disturbed pavement will be resurfaced and restriped. All disturbed areas will be restored using stockpiled native topsoil and will be hydro-seeded with a native seed mix. No trees will be removed.

The Northbound roadway will have the distressed pavement, subbase, and underlying embankment removed to a depth of 3 feet. The embankment material will be replaced and compacted in uniform lifts. New subbase will be placed and compacted and asphalt concrete will be placed to finish reconstructing the roadway. In the Southbound direction a 0.15-foot AC overlay will be placed over the full width of the roadway. The overlay will conform to the northbound lane and extend approximately 500 feet.

The project will add a culvert downdrain, construct three new drainage inlets, replace 84 feet of an existing unlined ditch with a lined V-ditch, and regrade the remaining 400 feet of the unlined ditch. The existing 12-inch-diameter corrugated metal pipe downdrain will remain in place. A new 15-inch-diameter corrugated steel spiral reinforced concrete or plastic pipe and drainage inlets will be placed longitudinally in the roadway shoulder. These will connect as one system to outflow to a new 15-inch downdrain with energy dissipator outflowing to the existing basin and headwall. There will be no work within Whitehouse Creek.

The project will be constructed in one stage. Work will involve northbound lane and shoulder closure. A two-way traffic control system will be installed to facilitate the roadway reconstruction activities. Traffic will be shifted to the west with temporary 12 foot lane widths. K Rail will be installed to separate the construction zone from live traffic shifted to the west. The lanes will be 12 feet through this section of the project limits. One-way reversing control flagging will be needed to install and remove the K Rail and occasionally, as needed, to allow access of equipment and work at the roadway conforms. The area behind the K Rail will be used to temporarily store materials and equipment.

The contractor will be permitted to use the northbound shoulder and one northbound lane north of Rossi Road intersection for storing materials and equipment and to establish site offices for Caltrans and contractor personnel. All work will be performed within State right of way. No easements will be needed.

Biological Opinion 08ESMF00-2015-F-0742-1

To reduce potential effects to sensitive biological resources, Caltrans proposes to incorporate construction best management practices (BMP) and avoidance and minimization measures into the proposed project. These measures are enumerated in the United States Fish and Wildlife Service Biological Opinion (BO), the entirety of which is incorporated into this CE/CE by reference. The measures, which will be included in the Notice to Bidders and Special Provisions, include: seasonal avoidance, environmental awareness training, environmental sensitive areas, limited nighttime work, weather restrictions, avoidance of entrapment, BMPs, construction site management, following vegetation removal measures provided in the BO, reducing the spread of invasive species, and restore disturbed areas. The Term and Conditions enumerated in the BO are nondiscretionary. They include: compliance with the BO, implementation of the BO, biological monitor approval, biological monitoring, biological monitoring records, agency access, proper use of erosion control, wildlife exclusion fencing, biological monitoring and preconstruction surveys, implementing protocols for species observation and handling. For details on each measure, term and condition, reference the BO.

Environmental Commitments Record

The ECR for this project shows all commitments the Department has made to avoid or minimize impacts.

ATTACHMENT E

Pigeon Point Storm Damage Repair Project

Attachment 3: Caltrans Natural Environment Study

Natural Environment Study



Pigeon Point Storm Damage Repair Project

Caltrans District 04

San Mateo County, California

SM 1 – PM 4.29

EA 04-4G6500

April 2016



For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Gregory Pera, District 4, 111 Grand Avenue, Oakland CA 94612; (510) 286-5617 Voice, or use the California Relay Service TTY number, (800) 711-2929.

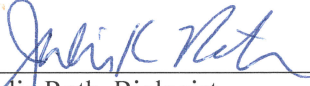
Natural Environment Study
Pigeon Point Storm Damage
Repair Project

Caltrans District 04

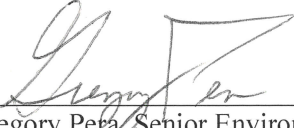
San Mateo County, California
SM 1 – PM 4.29
EA 04-4G650

April 2016

STATE OF CALIFORNIA
Department of Transportation, District 04

Prepared By:  Date: 4/1/16
Julie Roth, Biologist
(916) 414-5800
AECOM
2020 L Street, Suite 400, Sacramento, CA 95811

Reviewed By:  Date: 04/01/2016
Lindsay A. Vivian, Associate Environmental Planner (NS)
(510) 286-5604
Office of Biological Sciences and Permits
Caltrans, District 04

Approved By:  Date: 4/1/16
Gregory Pera, Senior Environmental Planner
(510) 286-5617
Office of Biological Sciences and Permits
Caltrans, District 04

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Executive Summary

The California Department of Transportation (Caltrans) has proposed the Pigeon Point Storm Damage Repair Project (project). This Natural Environment Study (NES) has been prepared to describe the existing biological environment and evaluate the potential effects of the project on biological resources, in support of project environmental documentation. The purpose of the project is to restore a stretch of the roadway on State Route (SR) 1 from Whitehouse Canyon Road northward to Rossi Road in San Mateo County, by addressing the drainage issues at this location.

The project will stabilize and rehabilitate the roadway embankment to protect the embankment from any further slippage by (1) improving drainage flow away from the roadway to prevent future slip-out failures and (2) repairing the roadway through the project limits.

Caltrans staff members and AECOM biologists have conducted field studies of the biological study area (BSA), to assess existing natural resources and identify community and habitat types, potential wetlands, and indicators for the potential presence of special-status species. The biologists analyzed potential project effects on these resources to develop this NES.

Vegetation communities in the BSA, which is located along the central coast of California, include eucalyptus forest, riparian forest, and coastal scrub. Whitehouse Creek crosses the BSA from north to south, immediately east of the intersection of SR 1 and Rossi Road, and is adjacent to the project footprint.

Nine special-status wildlife species, but no special-status plants, are known or have the potential to occur in the BSA and could be affected by the project. Two of the special-status wildlife species were observed during project surveys in the BSA: Steelhead (*Oncorhynchus mykiss*), the Central California Coast distinct population segment, federally threatened; and monarch butterfly (*Danaus plexippus plexippus*), under review for potential listing under the Endangered Species Act (ESA). Of the remaining seven potentially occurring wildlife species, five are listed as threatened/endorsed or as a candidate under the ESA and/or California Endangered Species Act: California red-legged frog (*Rana aurora draytonii*; CRLF) is federally threatened; San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) is federally endangered; coho Salmon (*Oncorhynchus kisutch*), the Central California Coast evolutionarily significant unit, is federally endangered; marbled murrelet (*Brachyramphus marmoratus*) is federally threatened; and Townsend's big-eared bat (*Corynorhinus townsendii*) is a candidate for

listing as state threatened. Additional special-status wildlife with potential to occur in the BSA include western pond turtle (*Emys marmorata*) and San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*); both are California species of special concern. Nesting birds protected by the Migratory Bird Treaty Act may also occur in the BSA.

The project will result in the temporary removal of the understory vegetation within approximately 0.2 acre of eucalyptus forest along an existing roadway embankment and adjacent roadside drainage ditch that can support special-status species. The project will ultimately stabilize and restore these areas by seeding with native grasses and shrubs. The project will avoid and minimize potential effects on individuals special-status species through implementation of general and species-specific avoidance and minimization measures.

Sensitive natural community types located in the BSA include riparian forest and potentially jurisdictional waterways (e.g., Whitehouse Creek and a roadside drainage ditch). The project will not directly affect riparian habitat or Whitehouse Creek. However, the project will result in permanent direct effects to 0.03 acre of potentially jurisdictional waterways (e.g., the roadside drainage ditch) because of proposed reconstruction of the drainage ditch. No compensation is proposed for effects on this potentially jurisdictional feature because the area to be affected is negligible and post-project conditions will be similar to existing conditions.

Construction-related indirect effects to adjacent Whitehouse Creek that can result from increased erosion and sedimentation or pollution will be avoided or minimized through standard construction best management practices, including development of a storm water pollution prevention plan.

This project will require coordination with resource and regulatory agencies. Caltrans will conduct formal consultation pursuant to ESA Section 7 with the United States Fish and Wildlife Service. Caltrans will also obtain a coastal development permit from the California Coastal Commission; a Clean Water Act (CWA) Section 401 water quality certification from the Central Coast Regional Water Quality Control Board; and CWA Section 404 Nationwide permit from the United States Army Corps of Engineers. The project is not expected to require submittal of a Fish and Game Code Section 1602 notification of a lake or streambed alteration to the California Department of Fish and Wildlife (CDFW); however, confirmation by CDFW is recommended.

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List of Abbreviated Terms

°F	degrees Fahrenheit
AC	asphalt concrete
BMP	best management practice
BSA	biological study area
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CCC	Central California Coast
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
cfs	cubic foot per second
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Coastal Commission	California Coastal Commission
CRLF	California red-legged frog
CWA	Clean Water Act
dbh	diameter at breast height
DI	drainage inlet
DPS	distinct population segment
EFH	essential fish habitat
EO	Executive Order
ESA	Federal Endangered Species Act
ESU	evolutionarily significant unit
FHWA	Federal Highway Administration
FMP	fishery management plan
HMA	hot mix asphalt
LSAA	Lake or Streambed Alteration
MBTA	Migratory Bird Treaty Act
MSA	Magnuson-Stevens Act
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
NWP	nationwide permit
project	Pigeon Point Storm Damage Repair Project
ROW	right-of-way
RPW	relatively permanent water

RWQCB	Regional Water Quality Control Board
Service	United States Fish and Wildlife Service
SFGS	San Francisco garter snake
SR 1	State Route 1
SWPPP	Storm Water Pollution Prevention Plan
U.S.	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USGS	United States Geological Survey
WPT	western pond turtle

Chapter 1. Introduction

The purpose of this Natural Environment Study (NES) is to provide technical information about the proposed Pigeon Point Storm Damage Repair Project (project) and evaluate the potential effects this project may have on special-status species and protected biological resources that occur in the biological study area (BSA). This NES describes project activities and conditions within the BSA and provides a discussion of species and habitats subject to various environmental regulations. These include the Endangered Species Act of 1973 (ESA), California Endangered Species Act (CESA), California Environmental Quality Act (CEQA), Migratory Bird Treaty Act (MBTA), and other federal and state authorities.

This document discusses the criteria used to determine which biological resources and special-status species were considered for evaluation, as well as the potential adverse effects of project implementation on those biological resources. In addition, this NES recommends measures to avoid and/or minimize effects on affected biological resources.

1.1. Project History

Several storm events in recent winters and hydrologic and drainage issues have contributed to the formation of longitudinal pavement cracks and destabilization of the roadway embankment along the northbound lane on State Route (SR) 1 at post mile 4.29 in San Mateo County (Figure 1). This stretch of roadway is located between Whitehouse Canyon Road and Rossi Road just south of the Costanoa Campground and Pigeon Point Lighthouse. The roadway embankment could become undermined in the near future if no action is taken. The main purpose of the project is to restore the roadway by addressing the drainage issues at this location. The objectives of this project are to stabilize and rehabilitate the roadway embankment to protect the embankment from any further slippage by (1) improving drainage flow away from the roadway to prevent future slip-out failures and (2) repairing the roadway through the project limits. Project Description

To address and repair the failing roadway embankment along the edge of the northbound lane and associated shoulder of SR 1, the California Department of Transportation (Caltrans) proposes to:

- construct three drainage inlets along the northbound shoulder;
- construct a new 15-inch corrugated steel pipe down drain;

- remove the existing metal beam guardrail and replace it with approximately 500 feet of Midwest Guardrail System;
- remove the existing 4-inch-high hot mix asphalt (HMA) dike (Type F) and replace it with a 6-inch HMA dike (Type A);
- regrade the existing unlined ditch and line 84 feet of the existing unlined V-ditch;
- reconstruct the northbound lane and shoulder to a depth of 3 feet (the section of roadway to be repaired will be 500 feet long and 20 feet wide);
- cold plane the southbound lanes and shoulders to a depth of 0.15 foot and resurface the entire roadway through the project limits with asphalt concrete (AC); and
- replace thermoplastic pavement markings and traffic stripes to original conditions.

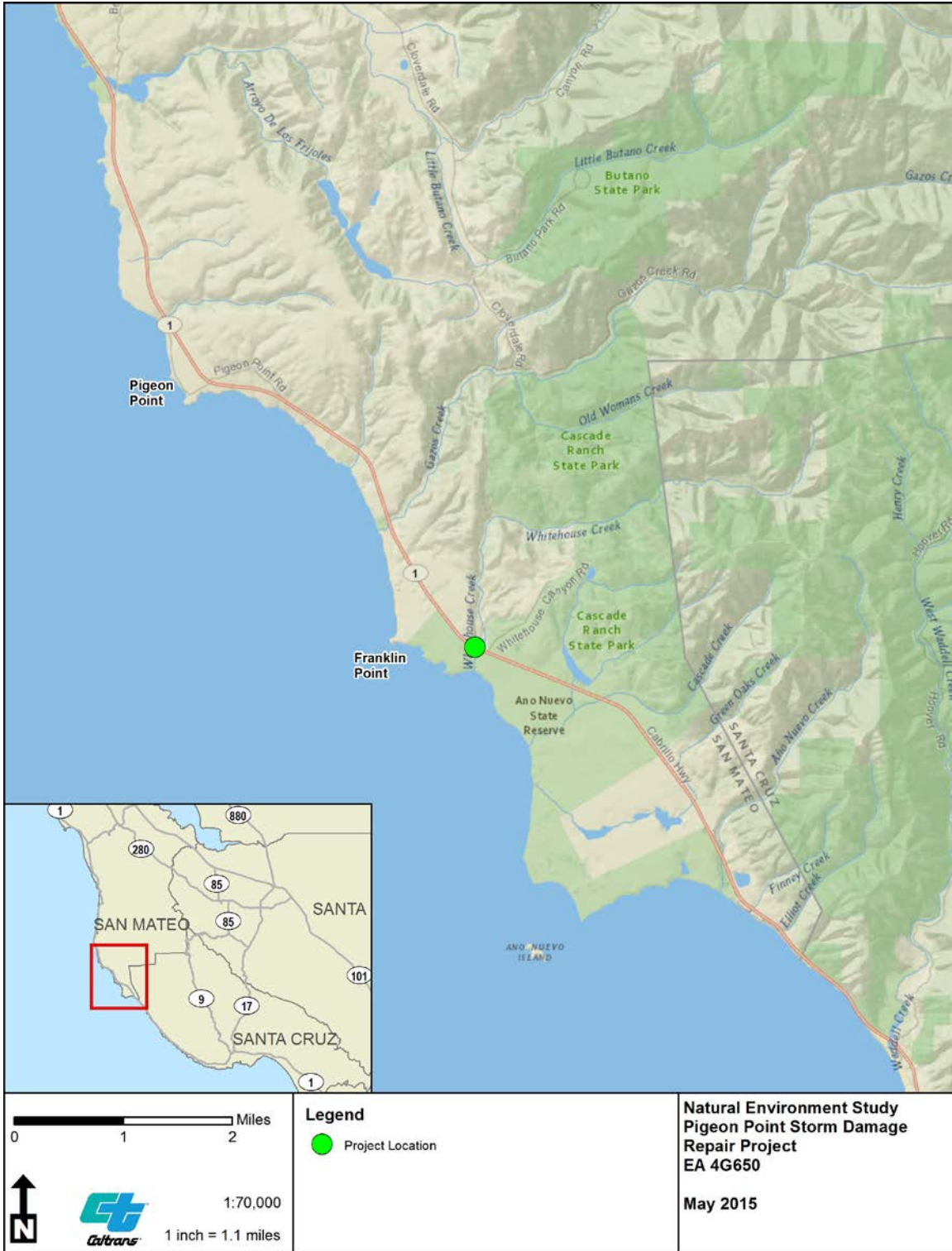
Two-way and one-way traffic control will be necessary for the construction of the project. Construction will be completed mostly behind temporary K-rail. All disturbed pavement will be resurfaced and restriped. All disturbed areas will be restored using stockpiled native topsoil and will be hydroseeded with a native seed mix. No trees will be removed.

1.2. Project Components

The project components that are described in the following sections include roadway stabilization; drainage improvements, construction staging, access, and traffic handling; and bicycle and pedestrian traffic. An overview of the spatial layout of the project components is shown in Figure 2. The draft project plans are provided in Appendix A.

1.2.1. Roadway Stabilization

Along the northbound roadway, the existing distressed pavement, subbase, and underlying embankment will be removed to a depth of 3 feet. The embankment material will be replaced and compacted in uniform lifts. New subbase will be placed and compacted and AC will be placed to finish reconstructing the roadway. In the southbound direction, a 0.15-foot AC overlay will be placed over the full width of the roadway. The overlay will conform to the northbound lane and extend approximately 500 feet.



Source: data compiled by AECOM in 2014

Figure 1. Project Location

1.2.2. Drainage Improvements

To address the current drainage conditions at the project site, a culvert downdrain and three new drainage inlets will be installed. The existing 12-inch-diameter corrugated metal pipe downdrain will remain in place. A new 15-inch-diameter corrugated steel spiral reinforced concrete or plastic pipe and drainage inlets will be placed longitudinally in the roadway shoulder. These will connect as one system to outflow to a new 15-inch downdrain with energy dissipator outflowing to the existing basin and headwall. There will be no work within Whitehouse Creek. Additionally, 84 feet of the existing unlined ditch will be lined with concrete and 400 feet of the remaining ditch will be regraded.

1.2.3. Construction Staging, Access, and Traffic Handling

The project will be constructed in one stage. The northbound lane and shoulder will be closed throughout construction. A two-way traffic control system will be installed to facilitate roadway reconstruction activities. Traffic will be shifted to the southbound lane (west of the construction zone); two temporary, 12-foot lanes will be provided throughout construction with temporary 12-foot lane widths. K-rail will be installed to separate the construction zone from live traffic. One-way control flagging will be needed to install and remove the K-rail, and occasionally as needed to allow equipment and construction crews to access work at the roadway conforms. The area behind the K-rail will be used to temporarily store materials and equipment.

1.2.4. Bicycle and Pedestrian Traffic

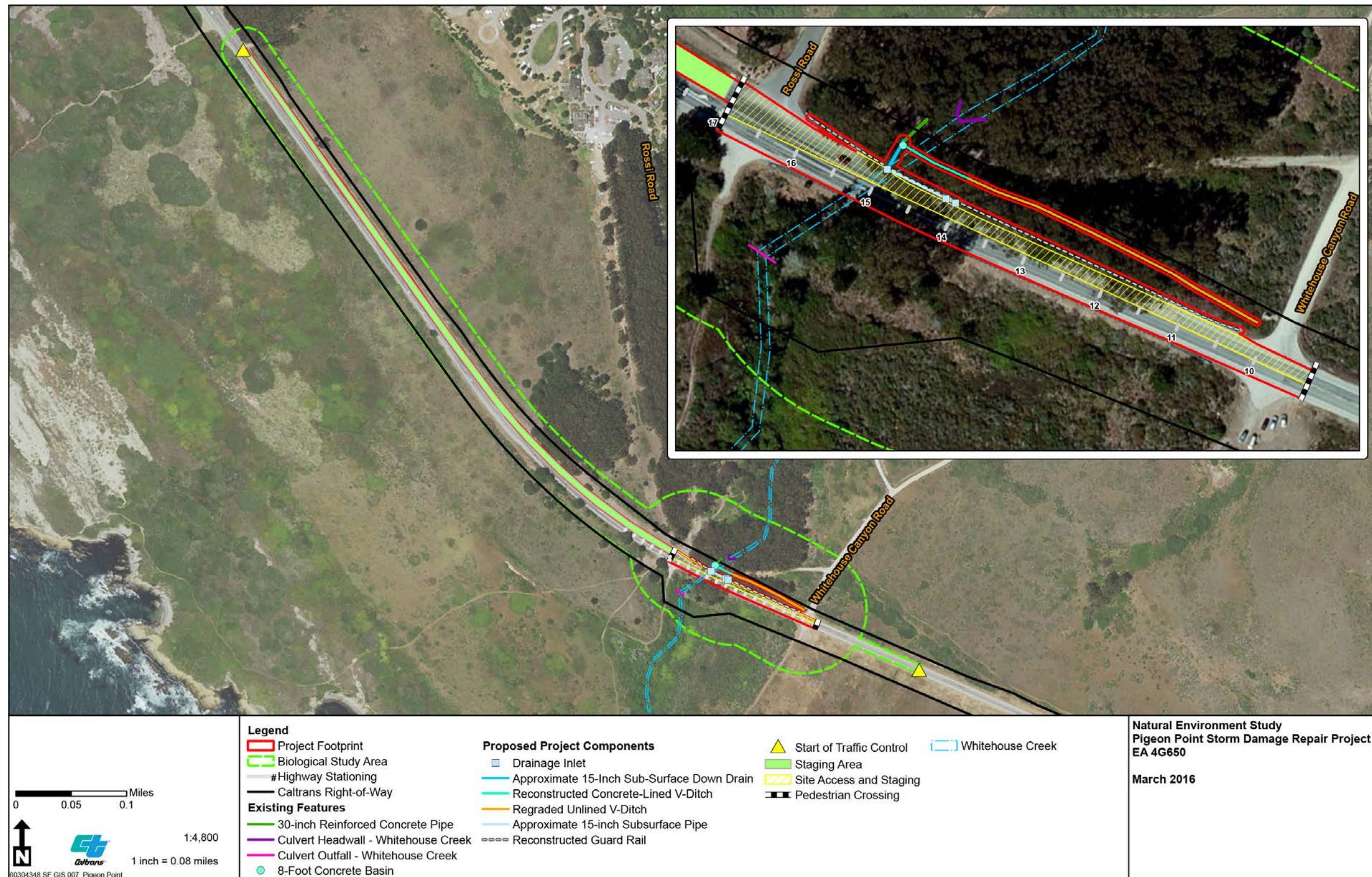
Bicycle traffic will be accommodated by the two-way traffic control system as non-motorized traffic on through lanes. Pedestrian access across the highway will be provided at Rossi Road and Whitehouse Creek Road via temporary crosswalk delineations. No pedestrian access between Rossi Road and Whitehouse Canyon Road will be available within the construction zone.

1.2.5. Roadway Finishing

An AC dike will be placed along the edge of the northbound shoulder and Midwest Guardrail System will replace the existing metal beam guardrail. The roadway will be restriped to maintain the existing lane and shoulder widths.

1.2.6. Right-of-Way

The contractor will be permitted to use the northbound shoulder and one northbound lane north of the Rossi Road intersection for storing materials and equipment and to establish site offices for Caltrans and contractor personnel. All work will be performed within Caltrans' right-of-way (ROW). No construction easements or acquisitions will be required.



Sources: Caltrans 2014; Service 2014

Figure 2. Project Components

1.3. Construction Schedule and Equipment

The project will be constructed over the course of one construction season and will require 60 working days to complete. The project is anticipated to start in June 2017. All construction activities will occur during daylight hours, with the exception of an anticipated single night of construction for installation of the 0.15-foot AC overlay. The contractor will work longitudinally west to east and will begin with the excavation of the road embankment.

The following construction equipment and vehicles will be used to complete the project, ranging from hand work items to excavation equipment:

- pickup truck
- loader
- bulldozer
- 3-in-1 loader-backhoe-dozer
- excavator
- paver
- compactor (sheepsfoot)
- compactor (vibratory)
- semi-tractor and flatbed trailer
- semi-tractor and bottom dump trailer
- semi-tractor and end dump trailer
- semi-tractor and depressed center flatbed
- semi-tractor and tank trailer
- 10-wheel dump truck
- concrete truck
- portable changeable message sign
- air compressor
- water truck
- fuel, oil, and lube truck

1.4. General Avoidance and Minimization Measures

To avoid and minimize effects on special-status species and their habitats and sensitive biological resources, Caltrans will implement general avoidance and minimization measures, including standard best management practices (BMPs), and species-specific avoidance and minimization measures throughout project construction. These measures, which will be incorporated into the project, will be communicated to the contractor

through special provisions to be included in the contract bid solicitation package. Species-specific measures are described, where relevant, in Chapter 4. The general avoidance and minimization measures and BMPs will include the following:

1. **Pre-construction surveys.** Before any work is done on site, a qualified biologist will conduct visual encounter surveys for special-status species on-site. This survey will be done within 24 hours of the start of ground-disturbing activities. Visual encounter surveys will be conducted within all areas subject to ground-disturbing activities and areas immediately adjacent. All suitable habitat, including refugia habitat (e.g., under shrubs, downed logs, small woody debris, burrows), will be thoroughly inspected.
2. **Wildlife exclusion fencing.** As a first order of work, the perimeter of the project footprint will be delineated with temporary, high-visibility wildlife exclusion fencing. This fencing will be at least four feet in height. This will prevent the encroachment of construction workers and equipment into sensitive areas during construction activities, and to prevent the inadvertent encroachment of California red-legged frog (CRLF) (*Rana draytonii*), San Francisco garter snake (SFGS) (*Thamnophis sirtalis tetrataenia*), or other sensitive wildlife into the project footprint. The fencing will remain in place throughout the project and will be inspected regularly and fully maintained. Repairs will be made within 24 hours of discovery of damage that can compromise the purpose of the fencing. The fencing will be removed only when all construction equipment is removed from the job site.
3. **Vegetation removal.** Vegetation will be cleared only where necessary; grubbing will be minimized to the maximum extent practicable. Efforts will be taken to minimize effects on well-established vegetation. If clearing and grubbing occurs between February 1 and August 31, a qualified biologist will survey for nesting birds within areas to be disturbed and an appropriate buffer will be established, as described below for compliance with the Migratory Bird Treaty Act.
4. **Migratory Bird Treaty Act.** To protect migratory birds and their nests, the following will be implemented:
 - a. All initial vegetation clearing, but not grubbing, will be conducted outside the usual bird nesting season of February 1 to August 31 to the extent feasible.
 - b. No more than 7 days before the start of construction or any vegetation clearing occurring during the bird nesting season (February 1 to August 31), a qualified

- biologist will survey the project footprint and an area 300 feet beyond the project footprint boundaries to search for active nests of migratory birds. If an active nest is found within the survey area, a non-disturbance buffer will be established around the nest until the young have fledged and departed from the nest area. These buffers will cover an area of 50 feet from active nests of passerine birds and 300 feet from active raptor nests. A smaller buffer may be established with approval from the United States Fish and Wildlife Service (Service) and/or California Department of Fish and Wildlife (CDFW).
5. **Nighttime work restriction.** Nighttime work will be avoided, with the exception of a single night operation to replace AC over the northbound and southbound lanes. During nighttime work, all lighting will be directed downwards and towards the construction work taking place.
 6. **Inclement weather work restriction.** No work will occur on any day when there is a 40 percent or more chance of precipitation or during or within 24 hours after a rain event exceeding 0.2 inch of precipitation, as measured by the National Oceanic and Atmospheric Administration's National Weather Service for the La Honda, CA (LAHC1) base station (available online at <http://www.wrh.noaa.gov/mesowest/getobext.php?sid=LAHC1&table=1&banner=off>).
 7. **Worker environmental awareness training.** Before construction, all construction workers will attend an environmental training program, taught by a Service-approved biologist. The program will include an explanation of how to avoid the incidental take of listed species and migratory birds, species identification, life history, descriptions, and habitat requirements during various life stages. Emphasis will be placed on the importance of the habitat and life stage requirements within the context of project maps showing areas where avoidance and minimization measures are to be implemented. The program will include an explanation of applicable federal and state laws protecting endangered species as well as the importance of compliance with Caltrans and other appropriate resource agency regulations.
 8. **Best management practices.** To minimize any wind or water-related erosion, a Storm Water Pollution Prevention Plan (SWPPP) and erosion-control best management practices will be developed and implemented, in compliance with the requirements of the Central Coast Regional Water Quality Control Board (RWQCB). The SWPPP will provide guidance for design staff to include provisions

in construction contracts for measures to protect sensitive areas and prevent and minimize stormwater and non-stormwater discharges.

- a. Example BMPs include but are not limited to: dedicated refueling areas will be located at least 50 feet away from downslope drainage facilities, protecting graded areas with erosion-control netting, having spill containment kits on-site, storing hazardous materials in sealable containers in a designated location that is at least 100 feet from hydrologic features, and implementing dust control measures such as spraying excavated areas with water on a regular basis. Others are iterated below.
 - b. Project-related vehicle traffic will be restricted to established roads and construction areas. Project vehicles will observe a 20 mile-per-hour speed limit on the project site.
 - c. All food-related trash items (e.g., wrappers, cans, bottles, and food scraps) will be disposed of in closed containers and removed at least once daily from the project site.
 - d. All equipment will be properly maintained and free of leaks. Servicing of vehicles and construction equipment, including fueling, cleaning, and maintenance, will occur at least 100 feet from any hydrologic features unless it is done at an existing gas station.
 - e. All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 50 feet from any downstream riparian habitat, aquatic habitat, culvert, or drainage feature.
 - f. Any and all excavated material produced as a result of roadway stabilization and repair activities or drainage improvements will be reused and fully contained within the project limits or will be properly disposed of off-site.
9. **Invasive species.** To reduce and limit the spread of invasive, nonnative plant species, Caltrans will comply with Executive Order 13112. This order is provided to prevent the introduction of invasive species and provide for their control to minimize the economic, ecological, and human health effects associated with invasive species. In the event that high or medium-priority noxious weeds, as defined by the California Department of Food and Agriculture or the California Invasive Plant Council, are disturbed or removed during construction-related activities, the

contractor will contain the plant material associated with these noxious weeds and will dispose of it in a manner that will not promote the spread of the species. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing materials. In addition, all imported materials (e.g., fill soil, gravel, rock, mulch) used in construction will be certified weed-free, including straw and/or hay bales used for sediment control or mulch distribution.

Chapter 2. Study Methods

This chapter describes the studies that were conducted to evaluate the potential presence of special-status wildlife and plant species, hydrologic features, and other sensitive biological resources in and around the project limits. Caltrans has used the best scientific and commercial data available to fully assess the habitats and potential for special-status species and sensitive biological resources to occur in the BSA. Caltrans and its consultants searched existing databases and literature (including CDFW reports) and conducted field studies by qualified, locally experienced biologists.

Based on the literature and field reviews, nine special-status wildlife species and no special-status plants were identified that have the potential to occur in the BSA; these species required additional evaluation. The results of this evaluation are presented in Chapters 3 and 4. A summary of database and literature review and field studies conducted as part of this evaluation is provided in the subsequent sections.

2.1. Regulatory Requirements

2.1.1. Federal Laws

Several federal environmental laws apply to this project because of its location and resources known to occur in the BSA. In addition, some laws apply to all Caltrans projects regardless of their size, scope, or scale of impacts. Federal laws applying to this project include:

The National Environmental Policy Act (NEPA) (42 United States Code [USC] 4321 et seq.) established a national policy for promoting environmental protection. NEPA requires federal agencies to analyze and publicly disclose the environmental effects of a proposed project. The NEPA process is a framework for the environmental evaluation of federal actions.

Endangered Species Act of 1973, as Amended. Under the ESA, the Secretary of the Interior and the Secretary of Commerce have joint authority to list a species as threatened or endangered (16 USC 1533[c]). The Service has jurisdiction over plants, wildlife, and resident fish, and the National Marine Fisheries Service (NMFS) has jurisdiction over anadromous fish and marine fish and mammals. Federal agencies that fund, authorize, or carry out actions that “may affect” a listed species and its habitat, must consult with the Service and/or NMFS according to the provisions in Section 7(a) of the ESA so that the federal agencies’ actions do not jeopardize the continued existence of a listed species or [to destroy or] adversely modify critical habitat for listed species. Endangered species consultation with the Service and/or NMFS is necessary when a proposed project has the

potential to affect a federally listed species and/or destroy or adversely modify designated critical habitat. Because the project requires authorization by the United States Army Corps of Engineers (USACE) under Sections 401 and 404 of the Clean Water Act (CWA) (see Section 2.1.1), it is subject to compliance with Section 7 of the ESA.

2.1.1.1. CLEAN WATER ACT OF 1972

The CWA of 1972 (33 USC 1251 et seq.) establishes the basic structure for regulating discharges of pollutants (including dredged or fill material) into waters of the United States (U.S.) and regulating quality standards for surface waters.

CWA Section 404 prohibits the discharge of dredged or fill material into waters of the U.S., including wetlands, without a permit from USACE. The project may be authorized through an existing USACE nationwide permit (NWP) if it meets all of the NWP General Conditions. A pre-application meeting with the USACE is essential to determine whether the project will be permitted under the NWP or individual permit.

CWA Section 401 requires an applicant for a federal license or permit that allows activities with potential to result in a discharge to waters of the U.S. to obtain a state 401 water quality certification from the applicable RWQCB. The certification allows the discharge, provided the applicant complies with provisions of the CWA.

Because the project has potential to result in discharge to waters of the U.S., it is subject to issuance of a water quality certification under CWA Section 401. Caltrans will prepare and submit a Section 401 Water Quality Certification Application to the Central Coast RWQCB.

2.1.1.2. MIGRATORY BIRD TREATY ACT

The MBTA provides protection for most birds from incidental take. This law prohibits the take of birds, active nests, eggs, and nestlings without a special-circumstance permit. Activities that cause nest abandonment are also considered nonpermitted take, prohibited by the MBTA. The MBTA protects not only listed sensitive species, but also common bird species. Inactive nests are not protected by the MBTA and may be removed during non-nesting season. Exclusionary structures (such as netting or plastic sheeting) may be used to discourage birds from constructing nests within the project construction zone.

2.1.1.3. MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT

The Magnuson-Stevens Act (MSA) of 1976 (as amended in 1996) applies to fisheries resources and fishing activities in federal waters. The MSA provides for the conservation and management of domestic fishery resources through preparation and implementation of fishery management plans (FMPs), which are required to designate essential fish habitat (EFH). Section 305(b)(2)-(4) of the MSA requires federal agencies to consult with

NMFS on any action authorized, funded, or undertaken that may adversely affect areas designated as EFH. EFH is the aquatic habitat (i.e., water and substrate) that is necessary for fish to spawn, breed, feed, or mature (62 Federal Register 2343), and that allow production levels needed to (1) support a long-term, sustainable commercial fishery; and (2) contribute to a healthy ecosystem. This consultation process usually is integrated into existing environmental review processes, in accordance with NEPA or the ESA, or the Fish and Wildlife Coordination Act, when necessary.

Habitat for one fish species (Central California Coast [CCC] Coho Salmon evolutionarily significant unit [ESU]) of Pacific salmon that are federally managed by the Pacific States Marine Fisheries Council under the Pacific Coast Salmon FMP occurs in the BSA within Whitehouse Creek. EFH for Pacific salmon generally will be avoided because no project actions will occur within the bed or bank or along the riparian corridor of the channel; potential adverse effects on EFH in Whitehouse Creek may include minor indirect effects resulting from ground-disturbing activities occurring in proximity to Whitehouse Creek, and beneficial effects of the project will result from decreased erosion potential, as described in Sections 4.4 and 4.6. Therefore, consultation with the NMFS regarding EFH is not anticipated to be required for the project.

2.1.1.4. EXECUTIVE ORDER 13112, “INVASIVE SPECIES”

Executive Order (EO) 13112 (February 3, 1999) directs all federal agencies to prevent and control introductions of invasive species in a cost-effective and environmentally sound manner. The EO and directives from the Federal Highway Administration (FHWA) require consideration of invasive species in NEPA analyses, including the identification and distribution of species, their potential effects, and measures to prevent or eradicate them.

2.1.2. State Laws

2.1.2.1. CALIFORNIA ENDANGERED SPECIES ACT OF 1984 (SECTIONS 2050–2098 OF THE CALIFORNIA FISH AND GAME CODE)

The basic policy of the CESA is to conserve and enhance endangered species and their habitats. As such, state agencies cannot approve any action under their jurisdiction when the action will result in the extinction of endangered and threatened species or destroy habitat essential to their continued existence, if reasonable and prudent alternatives exist. Sections 2080 and 2085 of the California Fish and Game Code (CFGC) generally prohibit taking of state-listed and candidate species without authorization from CDFW. Take is defined in Section 86 of the CFGC as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA requires that the lead agency conduct an endangered species consultation with CDFW if the proposed action may affect a state-listed species. This process is similar to a federal Section 7 consultation

with the Service and requires providing CDFW with information about the proposed action and its potential effects. CDFW then prepares a written finding on whether the proposed action will jeopardize the listed species or destroy essential habitat. In the case of an affirmative finding, CDFW presents alternatives to avoid jeopardy. Under Section 2081 of the CFGC, the CDFW may authorize take of endangered, threatened or candidate species through issuance of permits or memorandum of understanding, if that take is incidental to otherwise lawful actions. CDFW recommendations become mandatory components of a proposed project.

Three state-listed endangered species—SFGS, CCC Coho Salmon, and marbled murrelet—and one candidate species for state listing as threatened—Townsend’s big-eared bat (*Corynorhinus townsendii*)—are known or have the potential to occur in the BSA and are subject to the regulation under CESA. CESA requires that the lead agency (Caltrans in the case of the project) conduct an endangered-species consultation with CDFW if the project will result in take of a state-listed species. Take of state-listed and candidate species with potential to occur in the BSA is not anticipated because of the implementation of avoidance and minimization measures for the project. Therefore Caltrans has determined that a 2081(b) Incidental Take Permit is not required for the project.

2.1.2.2. SECTIONS 3511, 4700, 5050, AND 5515 OF THE CALIFORNIA FISH AND GAME CODE, “FULLY PROTECTED SPECIES”

The classification of “Fully Protected” was the State’s initial effort in the 1960s to identify and provide protection to wildlife that faced possible extinction. Lists were created for fish, mammals, amphibians and reptiles, birds, and mammals; most of which also have been listed as threatened or endangered species under the more recent CESA.

Fully Protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock. One Fully Protected species—SFGS—has the potential to occur in the BSA and will be subject to protection under these regulations.

2.1.2.3. SECTIONS 1600–1616 OF THE CALIFORNIA FISH AND GAME CODE

CDFW regulates activities that will interfere with the natural flow of, or substantially alter, the channel, bed, or bank of a lake, river, or stream. Section 1602 of the CFGC requires that CDFW be notified of lake or stream alteration activities. If CDFW subsequently determines that such an activity may adversely affect an existing fish and wildlife resource, CDFW has the authority to issue a streambed alteration agreement. Requirements to protect biological resources and water quality often are conditions of

streambed alteration agreements. These requirements may include avoidance or minimization of heavy equipment use within stream zones, limitations on work periods to avoid adverse effects on wildlife and fisheries resources, and measures to restore degraded sites or compensate for permanent habitat losses.

The project will include placement of fill in an existing, concrete-lined, man-made roadside drainage ditch that does not follow a historic natural drainage feature. Therefore, the project is not expected to require submittal of a CFGC Section 1602 notification of a lake or streambed alteration to CDFW.

2.1.2.4. PORTER-COLOGNE WATER QUALITY CONTROL ACT OF 1969

The Porter-Cologne Act designates the State Water Resources Control Board and the RWQCBs as the state agencies with primary responsibility for water quality control in California and mandates them to address actions that can affect the quality of waters of the state. “Waters of the state” are defined as all surface water or groundwater within the boundaries of the state, including “isolated” waters and wetlands.

These agencies are authorized to designate beneficial uses of the waters of the state, establish water quality objectives to protect those uses, and develop programs to meet water quality objectives and maintain or restore designated beneficial uses. Section 13263 of the Porter-Cologne Act authorizes the RWQCB to regulate discharges of waste and fill material to waters of the state through the issuance of waste discharge requirements.

2.1.2.5. CALIFORNIA COASTAL ACT OF 1976

The California Coastal Act established the California Coastal Commission (Coastal Commission) as responsible for regulating development within the California coastal zone according to the act. Development activities, which are broadly defined by the act to include (among others) construction of buildings, divisions of land, and activities that change the intensity of use of land or public access to coastal waters, generally require a coastal permit from either the Coastal Commission or the local government. Development within the coastal zone may not commence until a coastal development permit has been issued by either the Coastal Commission or a local government that has a Coastal Commission-certified local coastal program.

The California coastal zone is defined by law as an area that extends from the State’s seaward boundary of jurisdiction, and inland for a distance from the Mean High Tide Line of a range between a few hundred feet in urban areas to up to 5 miles in rural areas (Public Resources Code Division 20, California Coastal Act Section 30103). The BSA for the project is located within the California coastal zone, and therefore is subject to the Coastal Commission’s jurisdiction.

2.2. Study Area Definitions

The project footprint and biological study area are defined as follows:

Project Footprint: The project footprint is the maximum extent of construction-related, ground-disturbing activities, including staging and access. The project footprint is 2.9 acres and includes a portion of the existing roadway between Rossi Road and Whitehouse Canyon Road (Figure 2). The project footprint occurs entirely within Caltrans' ROW.

Biological Study Area: The BSA for this project encompasses approximately 31 acres, all areas of direct and indirect, temporary and permanent effects. Direct effects are caused by the project action and occur at the same time and place as the project action; indirect effects are those effects that will be caused by the project action and are later in time or farther removed in distance, but are still reasonably foreseeable (40 Code of Federal Regulations [CFR] Section 1508.8). Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems (40 CFR Section 1508.8).

Direct effects associated with the project will include construction-related noise, vibration, ground disturbance, light, minor vegetation removal, compaction, and dust. Indirect effects can include noise, vibrations, potential erosion or sedimentation outside the project footprint or after construction. These effects will be avoided or minimized through implementation of avoidance and minimization measures.

The BSA encompasses the project footprint, a 100-foot buffer beyond the boundaries of the proposed construction and staging areas, and a 300-foot buffer around areas of proposed ground disturbance (Figure 2). The BSA is sufficiently large to accommodate the analysis of potential effects of noise and vibrations (and light during nighttime operations) resulting from construction equipment operation, staging, and access in the project footprint.

The BSA likely is an overrepresentation of potential for effects west and south of SR 1 because the elevated roadway prism will provide a topographic buffer to construction noise and visual disturbances and possibly vibrations occurring primarily across the roadway.

2.3. Studies Conducted

A combination of database searches, literature reviews, site reconnaissance, and field surveys were conducted to prepare this document. Details regarding the studies that were conducted are described in the following sections.

2.3.1. Database Searches and Literature Review

Project biologists conducted a query of the 7.5-minute United States Geological Survey (USGS) topographic quadrangle in which the BSA occurs (Franklin Point) and the eight surrounding quadrangles (nine-quad search). Project biologists reviewed available literature to consider the potential presence of various special-status species and their habitats in the BSA, including sources to determine the range, habitat, and life history of each species. These investigations identified special-status species with known occurrences in the project vicinity and those that have potential to occur in and around the BSA. The following sources were used:

- The Service's Sacramento Office online database for these USGS 7.5-minute quadrangles: Franklin Point (409A), Big Basin (408B), Pigeon Point (409B), Año Nuevo (409D), Davenport (408C) [although no listed species were identified for this quadrangle], Mindego Hill (428C), San Gregorio (429C), and La Honda (429D) (Appendix B). There is no quadrangle southwest of Franklin Point because that area encompasses the Pacific Ocean. Therefore, only eight quads were relevant to this database query.
- The California Natural Diversity Database (CNDDDB) RareFind 3 occurrence records within 5 miles of the BSA (CDFW 2015).
- The California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants database for the eight aforementioned quads (CNPS 2015); refer to the list of quadrangles provided above regarding the Service's online database search.
- The *Federal Register* for selected species, including listing status and critical habitat.
- Recovery plans for selected species, to determine its current and historical range.

Special-status species include species that are: federally endangered or threatened; state endangered or threatened; state fully protected; CDFW species of special concern; bird species protected under the MBTA, CFGC, and/or federal Bald and Golden Eagle Protection Act; and plants that are designated California Rare Plant Ranks 1 and 2. Based

on the results of these database queries, special-status species were individually evaluated for their potential to occur in the BSA, based on their specific habitat requirements.

Those species that are entirely ocean-dwelling and meet all of their life history needs in the marine environment are not addressed in this document because the project will not affect marine or pelagic environments along or off the Pacific Coast adjacent to the BSA. These include species such as southern sea otter (*Enhydra lutris nereis*), short-tailed albatross (*Diomedea albatrus*), and other NMFS-managed species provided in Appendix B.

Vegetation types identified in this document are based on the CDFW's List of Vegetation Alliances and Associations (CDFG 2010), *A Manual of California Vegetation* (Sawyer et al. 2009), and field observations by AECOM biologists.

2.3.2. Site Reconnaissance and Field Surveys

AECOM biologists conducted site visits on July 9 and September 9, 2014, and on February 24, 2015, to assess existing conditions, biological resources (including a wetlands assessment), and habitat for special-status plants, aquatic, and terrestrial wildlife potentially present in the BSA, and to conduct a preliminary assessment of the tree removal required for the project.

2.3.2.1. CALIFORNIA RED-LEGGED FROG AND SAN FRANCISCO GARTER SNAKE SITE ASSESSMENT

On September 9, 2014, AECOM biologist Derek Jansen conducted a focused survey to assess the potential for the BSA to support the CRLF and SFGS and to document existing habitat conditions for both species. Mr. Jansen possesses a 10(a)(1)(A) Recovery Permit with the Service for CRLF and is knowledgeable about the habitat requirements of CRLF and SFGS. The entire BSA between Rossi Road and Whitehouse Canyon Road was surveyed on foot, as was Whitehouse Creek approximately 0.25 mile upstream and downstream from the BSA. The remainder of the BSA associated with construction staging and traffic control was evaluated from the car and using satellite imagery.

The field evaluation followed standard Service guidelines for CRLF and SFGS site assessments (Service 2005a). A daytime visual encounter survey was performed to detect CRLF and SFGS, if present. The survey was conducted outside the typical breeding season for CRLF and SFGS (discussed further below). Daytime surveys were performed to look for sub-adult and non-breeding adult CRLF, as well as for SFGS, one hour after sunrise as well as to characterize habitat conditions for this species. Habitat conditions for both species were also documented.

2.3.2.2. JURISDICTIONAL WETLAND DELINEATION

A formal delineation of potentially jurisdictional wetlands and waters of the U.S. and state was conducted on February 24, 2015, by AECOM wetland biologists Kristin Tremain and Kristina Bischel, to determine the presence of potential wetlands and other waters of the United States in the BSA. Methods used to formally delineate potential wetlands and other waters of the U.S. followed those described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE 2010). The jurisdictional delineation report is provided in Appendix C.

During the site visit on February 24, 2015, AECOM biologists Kristin Tremain and Kristina Bischel also conducted an evaluation of the potential for special-status plants to occur within the delineation study area boundary, which included the project footprint and adjacent areas.

2.4. Personnel and Survey Dates

Biological field studies in the BSA were conducted in 2014, as described above. Details of these site visits are summarized in Table 1.

Table 1. Site Visits and Surveys Conducted in the Biological Study Area

Survey Type	Personnel	Agency/ Firm	Survey Dates
Site reconnaissance and preliminary habitat assessment for special-status species potentially occurring in the BSA	Julie Roth Kristina Bischel	AECOM AECOM	July 9, 2014
Project field meeting to discuss the project	D.J. Allison Lindsay Vivian Brian Gassner Donald Breeden	AECOM Caltrans Caltrans Caltrans	September 9, 2014
California red-legged frog and San Francisco garter snake habitat assessment	Derek Jansen	AECOM	September 9, 2014
Delineation of potentially jurisdictional wetlands and waters of the U.S. and state; follow-up habitat assessment for special status plants potentially occurring in the BSA.	Kristin Tremain Kristina Bischel	AECOM AECOM	February 24, 2015
Project site visit with Service staff to discuss downscaling project and issues related to federally listed species.	Frances Malamud- Roam Lindsay Vivian Jerry Roe	Caltrans Caltrans Service	August 11, 2015
Source: Data compiled by AECOM in 2015			

2.5. Agency Coordination and Professional Contacts

This section summarizes coordination with Service staff that has occurred for the project. Lindsay Vivian requested technical assistance from the Service on December 17, 2014. Julie Roth of AECOM obtained an official species list from the Service's Sacramento Fish and Wildlife Office's website on May 6, 2015 (Appendix B). A biological assessment was prepared for the project submitted to the Service for review on June 18, 2015. A project site visit with Service staff occurred on August 11, 2015; attendees included Jerry Roe from the Service and Frances Malamud-Roam and Lindsay Vivian from Caltrans. The site visit included discussion of the site and proposed downscaling of the project, as well as a proposed schedule for Caltrans submittal of a revised project description and cover letter and Service review of the biological assessment. Caltrans submitted a revised project cover letter on October 1, 2015, and the revised project description on February 2, 2016.

2.6. Limitations that May Influence Results

Because of a lack of access, detailed foot surveys were not conducted in portions of the BSA northwest of the intersection of SR 1 and Rossi Road, nor southeast of the intersection of SR 1 and Whitehouse Canyon Road where construction activities (e.g., traffic control and staging) will be limited to paved portions of the roadway. This area was evaluated from the car and by using aerial imagery and available vegetation-based geographic information systems layers. No protocol-level surveys for protected wildlife species or rare plants have been conducted to date.

Chapter 3. Results: Environmental Setting

This chapter describes the environmental setting of the project, including the physical and biological characteristics of the BSA. It also identifies the sensitive biological resources, including sensitive habitats and special-status species that have the potential to occur in or near the BSA.

3.1. Physical and Biological Conditions

3.1.1. Physical Conditions

3.1.1.1. BIOLOGICAL STUDY AREA

The 31-acre BSA includes the 2.9-acre project footprint, Caltrans' ROW, and additional areas beyond the ROW that will be subject to potential direct and indirect effects of the project. The project will be implemented along the central coast of California, 0.8 mile east of Franklin Point, 3 miles southeast of Pigeon Point immediately north and east of Año Nuevo State Park (Figure 1). Whitehouse Creek flows southwest and roughly perpendicular to SR 1, immediately east of Rossi Road. The landscape surrounding the BSA is undeveloped, including Año Nuevo State Park and private properties.

Representative photographs of the project footprint and BSA are provided in Appendix D. Photographs 1 and 2 in Appendix D show views of the project footprint where some project ground disturbances will occur.

3.1.1.2. CLIMATE AND TOPOGRAPHY

The BSA occurs in a region with a coastal Mediterranean climate, with dry, mild summers and moist, cool winters. About 80 percent of the annual precipitation occurs from November through March. The average annual precipitation in the town of Half Moon Bay, 20 miles north of the BSA, is approximately 29 inches (U.S. Climate Data 2015). The annual temperatures range from an average daily maximum of 66 degrees Fahrenheit (°F) from August through October, and 59°F in December and January, with a corresponding average daily minimum of 52°F in July and August and 42°F from December through February.

California has been experiencing a drought since 2012. Total annual precipitation recorded at a nearby weather station in Santa Cruz for 2014 was similar to the average annual precipitation. Total annual precipitation recorded in the 2014 was 29.48 inches (WRCC 2015), compared to an average of 29.33 inches annually (Caltrans 2016). Precipitation recorded in the 2015 water year through the most recent site visit on February 24, 2015, was 14.89 inches, which is less than the average of 21.5 inches normally received at this point in the water year at this location (Caltrans 2016).

In the BSA, the elevation ranges from approximately 25 to 100 feet. SR 1 in the project vicinity meanders along the Pacific coast south from the Town of Pescadero into the BSA. In the BSA, the roadway slopes slightly downhill from west to east (heading southbound along the roadway). Immediately adjacent to the roadway on either side, in the portion of the BSA between Rossi Road and Whitehouse Canyon Road, the terrain drops steeply downhill from the road shoulder (more than 2:1 slope) for approximately 25 to 35 feet until it meets the natural terrain of the surrounding landscape. North of the roadway in this area, the natural terrain generally levels out and follows the gently sloping Whitehouse Creek drainage upstream with adjacent rolling hills. South of the roadway, the natural terrain slopes more steeply downhill towards Whitehouse Creek, as it travels approximately 1,000 feet down to the Pacific Ocean with steep, eroded banks amongst adjacent coastal bluffs. Elsewhere in the BSA, the terrain along and adjacent to the roadway is relatively flat, with the exception of a short section northwest of Rossi Road where the roadside slopes form a tall berm adjacent to the roadway.

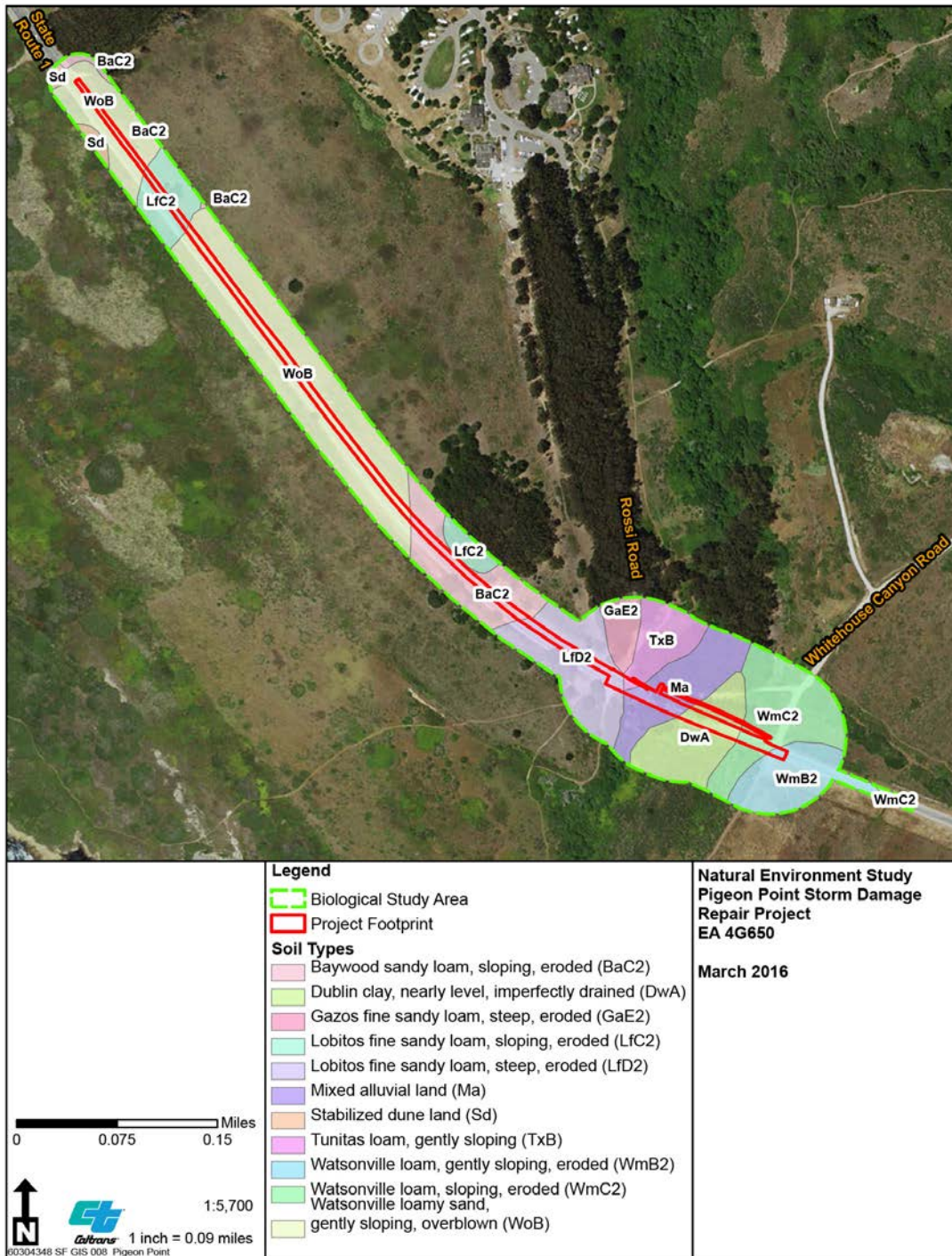
3.1.1.3. SOILS

Soil types in the BSA were identified based on information received from the United States Department of Agriculture's Natural Resources Conservation Service (NRCS) web soil survey (NRCS 2013). The dominant soil types include alluvial deposits, sandy loam, loam, and clay-type soils (Figure 3).

Soil series represented in portions of the BSA where ground-disturbing activities will occur include: Watsonville, Dublin, Tunitas, and mixed alluvial soils. Watsonville soils have a dense claypan subsoil above marine sediments; associated vegetation consists of coyote brush with a grass understory (NRCS 2015). Dublin soils are formed in alluvium from sedimentary rocks and are found on alluvial fans or flood plains, primarily grasses, and some willows along streams, and are associated with Dublin soils (NRCS 2015). Tunitas soils are formed in alluvium from sandstone, shale, and basic igneous rocks; associated vegetation primarily consists of grasslands, with coyote brush and willows; some brush and herbs grow along waterways (NRCS 2015). Watsonville, Dublin, and Tunitas soils are moderately well drained to imperfectly drained. Mixed alluvial soils include sandy and gravelly deposits along streams with vegetative cover (NRCS 2015). Two soil types occurring in the BSA—Dublin clay, nearly level, imperfectly drained (DwA) and Mixed alluvial land (Ma)—are considered hydric according to the National Hydric Soils List (NRCS 2014a, as cited in Caltrans 2016).

3.1.1.4. HYDROLOGY

Whitehouse Creek, located between Rossi Road and Whitehouse Canyon Road, is the dominant hydrologic feature in the BSA and vicinity. It is a perennial stream that flows predominantly north to south, crossing the BSA and SR 1 just east of Rossi Road



Source: NRCS 2013

Figure 3. Soil Types in the Biological Study Area

(Figure 2; see also Appendix D, photographs 3 to 5). The Whitehouse Creek drainage occupies nearly 5 square miles within the largely undeveloped southern portion of San Mateo County and discharges into the Pacific Ocean approximately 1,500 feet downstream (south) from the BSA, where it exits along a steep eroded cliff and spills across a relatively wide beach (Appendix D, photographs 6 and 7). Upstream, Whitehouse Creek is fed by an ephemeral drainage system, entering the creek predominantly from the east.

In the BSA, Whitehouse Creek flows almost entirely through a subsurface cross culvert (see Figure 2 for location of headwall and outfall). The cross culvert is a 400-foot by 96-inch-diameter concrete down drain, which is buried approximately 50 feet below the surface, originating approximately 200 feet upstream and terminating approximately 200 feet downstream from SR 1 (Appendix D, photograph 8). Upstream from the cross-culvert, but in the BSA, Whitehouse Creek has a nearly linear form typical of a run with relatively steep, moderately tall (approximately 5 feet), and predominantly earthen vegetated banks with an ordinary high water mark of approximately 10 feet (see Appendix D, photograph 9). At the time of the September 9 survey, the creek channel was approximately 5 feet wide by 6 inches deep, with a gradient of approximately 2:1. No deep pools occur along the creek in the BSA; however, one small pool, with emergent vegetation and a few downed logs, occurs approximately 750 feet upstream within a small opening in the riparian canopy; the pool had a depth of 1.5 feet on September 9, 2014 (Appendix D, photograph 10). Downstream from the BSA, Whitehouse Creek was approximately 10 feet wide by 1 foot deep at the time of the September 9 survey, with a slightly steeper 1:1 downward gradient. Multiple small pools were observed with a depth of 2 feet. In the BSA, Whitehouse Creek is heavily shaded by a dense canopy of eucalyptus forest. Emergent vegetation was present within the last 200 feet of the channel before the ocean, where a break occurred in the vegetation canopy. The lowermost reach of Whitehouse Creek adjacent to the ocean is tidally influenced (Jansen, pers. comm., 2014) (Appendix D, photographs 6 and 7).

Portions of Whitehouse Creek downstream from the BSA traverse a large incised and relatively steep channel that eventually meets the ocean at a fairly shallow stream gradient before spilling across a broad sandy, rocky beach and into the ocean. Upstream from the BSA, Whitehouse Creek traverses a large creek bed with banks that are considerably less steep than downstream from the BSA.

Substrates in Whitehouse Creek are made up of loam, sandy loam, sand, alluvial, and clay soils. Substrate conditions within the creek are somewhat degraded because of siltation, primarily resulting from adjacent agriculture and grazing. At the time of the field survey on September 9, 2014, the creek was flowing at approximately 1 cubic foot

per second (cfs); however, based on flows observed during the site visit, and considering the drought conditions of the survey year (2014), this creek is expected to carry substantially greater amounts of water during rain events.

During rain events, run-off is collected from the roadway (SR 1) and is directed into an above-ground culvert and roadside ditch drainage system. The drainage system begins with roadside drainage that collects in a predominantly concrete lined V-ditch that is approximately 615 feet in length and parallels SR 1 from Rossi Road to Whitehouse Canyon Road (Caltrans 2016). This concrete ditch is approximately 25 feet downslope at the toe of the roadway berm, between the northbound side of SR 1 and an unnamed dirt frontage road (Figure 2). The portion of the roadside ditch east of Whitehouse Creek (between an existing concrete drainage basin and Whitehouse Canyon Road) is currently filled with several (up to 14) inches of sediment runoff from upslope and organic material from surrounding vegetation (Caltrans 2016) to the extent that the concrete-lining is no longer visible and the margins of the ditch have become overgrown with vegetation, giving it an appearance of being an earthen ditch. Vegetation in and along the V-ditch mainly consists of blue gum, Douglas fir, Harding grass (*Phalaris aquatica*), poison oak (*Toxicodendron diversilobum*), and California blackberry (*Rubus ursinus*) (Caltrans 2016). The roadside ditch drainage system was dry during the surveys on July 9 and September 9, 2014, and no aquatic habitat or emergent vegetation was in the earth-filled portions.

The earth-filled concrete-lined ditch directs roadside drainage and collected overland flow towards two existing drainage inlets (i.e., concrete-lined drainage basins; see Appendix D, photograph 11) and associated underground box culverts. These culverts direct flows into a 30-inch reinforced concrete pipe and ultimately discharge them into Whitehouse Creek at the headwall along the north bank via overland flow after exiting the concrete pipe, approximately 200 feet northeast of SR 1 (Figure 2). From here the creek flows south towards the ocean. At the time of the September 9, 2014 site visit, the 30-inch concrete pipe was almost entirely plugged with sediment (see Appendix D, photograph 12) and had a damaged concrete spillway that discharged over land and eventually onto slope-stabilizing sacked concrete that was along the banks of Whitehouse Creek (see Appendix D, photograph 9).

At this location, Whitehouse Creek is directed into a concrete sack-lined cross culvert (described above) that bisects SR 1 from northeast to southwest immediately southeast of Rossi Road.

3.1.2. Biological Conditions

The following sections describe the biological conditions in and near the BSA, including vegetation, aquatic habitats, wildlife, invasive species, special-status species and natural communities of concern.

3.1.2.1. VEGETATION

Land cover types in the BSA include developed (e.g., paved and unpaved roadways), eucalyptus forest, riparian forest, and coastal scrub (Figure 4). Annual grasslands also intermix with coastal scrub in and around the BSA, primarily along SR 1.

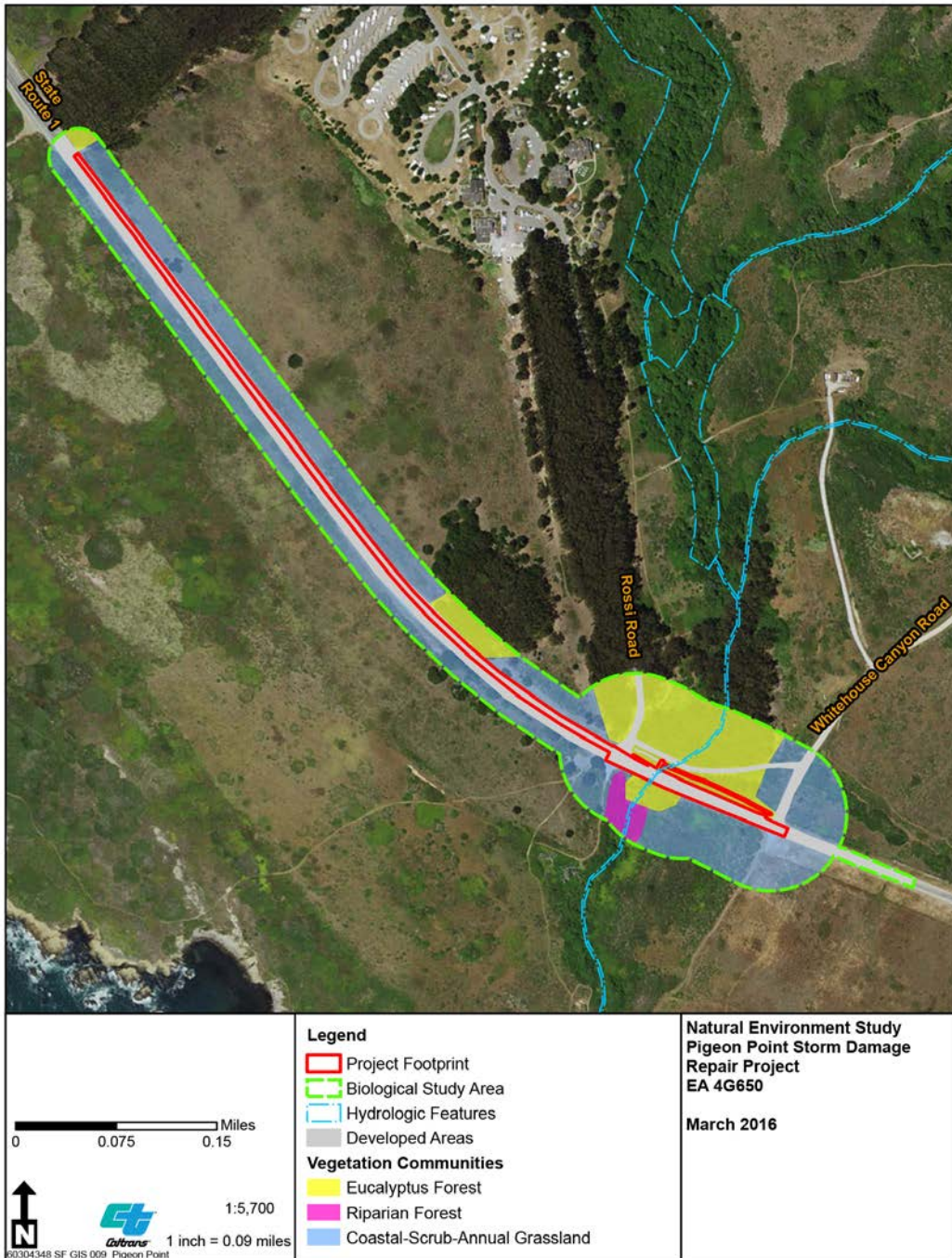
At the time of the July 9, 2014 site reconnaissance and the September 9, 2014 habitat mapping, all portions of the BSA (except Whitehouse Creek itself) were dry; no aquatic habitat or emergent vegetation was present. Saturated soils and some standing water were in the roadside drainage ditch nearest Whitehouse Creek during the February 24, 2015 site visit (Caltrans 2016). Vegetation communities in the BSA are described below, and a list of plant species observed during the 2014 and 2015 site visits is provided in Appendix E.

Eucalyptus Forest

Eucalyptus forest occurs in the BSA north of SR 1, primarily between Rossi and Whitehouse Canyon Road, and as a small patch immediately south of SR 1 along Whitehouse Creek. This community occurs along Whitehouse Creek from SR 1 to approximately 350 feet north and approximately 100 feet south before transitioning to riparian forest and coastal scrub communities (described below). Dominant species within eucalyptus forest include blue gum, forming a densely shaded canopy, with California blackberry and poison oak dominating the understory.

In the BSA, this community mainly includes eucalyptus individuals with heights greater than 150 feet, which shade the forest floor below, creating a dimly lit environment. The forest floor in this community is dense and covered in a layer of duff, mainly fallen limbs and leaves. Understory species include western lady fern (*Athyrium filix-femina*), common horsetail (*Equisetum arvense*), and California swordfern (*Polystichum californicum*). Representative photographs of eucalyptus forest in the BSA are provided in Appendix D (photographs 1, 2, and 13).

Douglas fir, Monterey cypress, and Monterey pine occasionally are interspersed within eucalyptus forest in the BSA, primarily along the roadway embankment south of SR 1 in the vicinity of Whitehouse Creek and along the northbound lane of SR 1 approximately 500 feet northwest of the intersection of SR 1 and Rossi Road.



Sources: AECOM 2014; Service 2014

Figure 4. Vegetation Communities in the Biological Study Area

Riparian Forest

Upstream and downstream from the eucalyptus forest, approximately 350 feet north of SR 1 and immediately south of SR 1, the vegetation community transitions to dense riparian forest. This community is dominated by white alder (*Alnus rhombifolia*) and willow (*Salix* spp.) in the overstory, and California blackberry and poison oak in the understory. This community mainly includes alder and willow individuals that shade the riparian forest floor below, creating a dimly lit and damp environment. The understory contains a thick layer of duff, mainly including fallen limbs and leaves. Understory species include western lady fern, common horsetail, and California swordfern. Representative photographs of riparian forest in and near the BSA are provided in Appendix D (photographs 4, 5, and 8).

Whitehouse Creek flows through the riparian and eucalyptus forest community with minimal changes in vegetation structure or composition. In and near the BSA, the creek is covered by overhanging vegetation and broken branches; very few openings in the canopy allow sunlight to reach the creek bed. Downstream from the BSA, the banks are heavily vegetated for nearly the entire reach downstream from the BSA. During the site visit on September 9, water in the creek was clear and had a slight sulfurous odor. Plant species found along the Whitehouse Creek corridor, in addition to those described for riparian habitats above, include cape ivy (*Delairea odorata*), French broom (*Genista monspessulana*), California coffeeberry (*Rhamnus californica*), and big leaf maple (*Acer macrophyllum*). Habitat within and surrounding the riparian corridor is consistent with the sandy loam and clay soils in these areas.

Coastal Scrub and Annual Grassland

In the BSA, coastal scrub is found adjacent to eucalyptus and riparian forest, and along SR 1. Dominant species within coastal scrub habitat in the project vicinity include coyote brush (*Baccharis pilularis*), the non-native bulbous canarygrass (*Phalaris aquatica*), California coffeeberry (*Frangula californica*), California blackberry, and poison oak (*Toxicodendron diversilobum*). In the BSA, this community mainly includes coyote brush, California blackberry, the non-native orchard morning glory (*Convolvulus arvensis*), and poison oak, which provides a densely vegetated environment. Representative photographs of coastal scrub communities in and near the BSA are provided in Appendix D (photographs 14 and 15).

Annual grassland intermixes with coastal scrub; in the BSA, annual grassland occurs primarily along both sides of SR 1. Dominant grassland species in the BSA include slender wild oats (*Avena barbata*) and Italian rye grass (*Festuca perennis*); other grassland associates observed included rattlesnake grass (*Briza maxima*) and blue wild

rye (*Elymus glaucus*). A representative photograph of annual grassland communities mixed with coastal scrub communities is provided in Appendix D (photograph 15).

3.1.2.2. AQUATIC HABITATS

Whitehouse Creek is a perennial stream that flows across the BSA from north to south. For the majority of its length in the BSA, the creek is confined to a 50-foot-deep, 8-foot-diameter, 400-foot-long concrete culvert that carries flows beneath the roadway (SR 1). Outside the cross-culvert, the creek flows in the form of a run with earthen substrates; no pools are present. In and near the BSA, the creek is covered by overhanging vegetation and broken branches; very few openings in the canopy allow sunlight to the creek bed. Whitehouse Creek has been noted for its typically low summer flows that may limit habitat quality for CCC Steelhead and other cold water dependent fisheries (Becker and Reining 2008), such as CCC Coho Salmon. In addition, heavy siltation and the presence of several potential barriers within the lower watershed (e.g., perched culverts and dam structures) also may limit habitat quality for special-status salmonids along Whitehouse Creek (Becker and Reining 2008; CDFW 2014). A more detailed description of bank and channel characteristics outside the cross-culvert, as observed during the site survey on September 9, 2014, is provided in Section 3.1.1, under Hydrology.

The roadside ditch, described above, may provide seasonal aquatic refuge for some species that make overland movements because the ditch appears to hold water for periods up to 3 months or more during winter. Fish species that are in Whitehouse Creek will not be able to enter the drainage ditch because the ditch ultimately drains to Whitehouse Creek via overland sheet flow to the north bank. No other waterways or wetland habitats are in or adjacent to the BSA (Caltrans 2016).

3.1.2.3. COMMON WILDLIFE SPECIES

Wildlife species observed in the BSA and vicinity during the reconnaissance surveys include Steelhead (*Oncorhynchus mykiss*), monarch butterfly (*Danaus plexippus*), wrentit (*Chamaea fasciata*), bushtit (*Psaltriparus minimus*), winter wren (*Troglodytes troglodytes*), European starling (*Sturnus vulgaris*), California quail (*Callipepla californica*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), lesser goldfinch (*Spinus psaltria*), black phoebe (*Sayornis nigricans*), dark-eyed junco (*Junco hyemalis*), California thrasher (*Toxostoma redivivum*), northern flicker (*Colaptes auratus*), spotted towhee (*Pipilo maculatus*), Anna's hummingbird (*Calypte anna*), house finch (*Haemorhous mexicanus*), western scrub jay (*Aphelocoma californica*), common raven (*Corvus corax*), American kestrel (*Falco sparverius*), white-crowned sparrow (*Zonotrichia leucophrys*), chestnut-backed chickadee (*Poecile rufescens*), band-tailed pigeon (*Patagioenas fasciata*), western fence lizard (*Sceloporus occidentalis*), and three-spined stickleback (*Gasterosteus aculeatus*);

western gull (*Larus occidentalis*), Heermann's gull (*Larus heermanni*), and California brown pelican (*Pelecanus occidentalis californicus*) were also observed along the coastline downstream from the BSA. Signs of Botta's pocket gopher (*Thomomys bottae*), brush rabbit (*Sylvilagus bachmani*), mule deer (*Odocoileus hemionus*), and coyote (*Canis latrans*) also were observed in grasslands and scrub in and adjacent to the BSA. The gopher and rabbit burrows that were observed were sparse in the project footprint, but they were more prevalent in adjacent grasslands and scrub. Additional special-status wildlife species with potential to occur in the BSA are identified in Section 3.2, (also see Table 2).

3.1.2.4. INVASIVE SPECIES

Invasive plant species, listed by the California Invasive Plant Council (Cal-IPC), occur in the eucalyptus forest and adjacent coastal scrub/annual grasslands of the BSA. Cal-IPC defines high priority invasive species as those species that "have severe ecological effects on physical processes, plant and animal communities, and vegetation structure" (Cal-IPC 2015). High priority invasive plant species that were observed during habitat assessments (July 9 and September 9, 2014) and wetland surveys (February 24, 2015) in the BSA included invasive brooms (*Cytisus* spp. or *Genista* spp.), cape ivy (*Delairea odorata*), and fennel (*Foeniculum vulgare*). Other non-native invasive species observed in the BSA included slender wild oats (*Avena barbata*), black mustard (*Brassica nigra*), rattlesnake grass (*Briza maxima*), poison hemlock (*Conium maculatum*), blue gum, Harding grass, cultivated radish (*Raphanus sativus*), rape (*Brassica rapa*), cutleaf geranium (*Geranium dissectum*), sourgrass (*Oxalis pes-caprae*), curly dock (*Rumex crispus*), and periwinkle (*Vinca major*). A complete list of plants observed during 2014 and 2015 site visits is provided in Appendix E.

3.2. Regional Species and Habitats and Natural Communities of Concern

3.2.1. Natural Communities of Special Concern

Natural communities of special concern include the following:

- Vegetation communities documented as sensitive communities because of restricted distribution and/or threats in the Preliminary Descriptions of the Terrestrial Natural Communities of California (CDFG 2010), the California Natural Diversity Database (CDFW 2014), and *A Manual of California Vegetation* (Sawyer et al. 2009)
- Riparian communities
- Waters of the U.S. and state, including wetlands

Chapter 4. Results: Biological Resources, Discussion of Impacts and Mitigation

This chapter describes the survey results of natural communities of special concern and special-status plants and wildlife that could occur in the BSA, and the potential effects that the project may have on them. Avoidance and minimization measures are provided for biological resources that could be affected by project construction.

Project implementation will result in potential effects associated with the following components:

- Excavation and replacement of the existing roadway surface
- Replacement of metal beam guardrail
- Construction of the subsurface drainage system
- Regrading and lining of a portion of the existing roadside drainage ditch
- Staging and site access

The project is not a part of any larger project action, and no other projects have been identified in the project vicinity that will be dependent on completion of the project for their implementation. The project is not growth-inducing, and it is not anticipated to result in an increase in vehicular traffic, any new development, or any associated future increases in lighting, noise, or vibrations as a result.

4.1. Special-Status Species

Based on the database and literature review, a list of special-status species that may occur in the BSA was compiled. Table 2 summarizes the federal and state candidate, proposed, listed, or otherwise special-status species that may occur in the BSA. The table details the general habitat requirements for each species and evaluates the likelihood that appropriate habitat occurs in the BSA.

4.2. Natural Communities of Concern

Based on review of conditions within and surrounding the BSA, the following natural communities of concern occur in or adjacent to the BSA: potentially jurisdictional waters of the U.S. and state.

Table 2. Potential for Special-Status Species to Occur in the Biological Study Area

Scientific Name	Common Name	Status ¹	Specific Habitat Requirements	Habitat Present/Absent ²	Potential for Species to Occur/Rationale
Plants					
<i>Agrostis blasdalei</i>	Blasdale's bent grass	1B.2	Coastal bluff scrub, coastal dunes, coastal prairie. Grows in habitat along the immediate coastline along dunes and bluffs. Endemic to northern California coast. Blooming period: May-July Elevation range: 15-500 feet	Absent	No potential to occur. Suitable habitat does not occur in the BSA; the BSA does not include immediate coastline dunes and bluffs that this species requires.
<i>Arctostaphylos andersonii</i>	Anderson's manzanita	1B.2	Broadleafed upland forest, Chaparral, North Coast coniferous forest along openings and edges. Range limited to Santa Cruz Mountains, typically in redwood forest openings. Blooming period: Nov-May Elevation range: 195-25,000 feet	Absent	No potential to occur. Suitable habitat does not occur in the BSA. Coniferous forest and redwood forest do not occur in BSA. The species elevation range is greater than elevation of BSA (approximately 60 feet).
<i>Arctostaphylos glutinosa</i>	Schreiber's manzanita	1B.2	Closed-cone coniferous forest, Chaparral on limestone and diatomaceous shale along ridgelines. Endemic to Santa Cruz County Blooming period: Nov-Apr Elevation range: 550-2,250 feet	Absent	No potential to occur. Suitable habitat does not occur in the BSA. The BSA is not in closed-cone forest, nor along ridgelines; does not support limestone and diatomaceous shale substrate. Elevation range for this species is greater than that of BSA.
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	Coastal marsh milk-vetch	1B.2	Coastal dunes (mesic), Coastal scrub, Marshes and swamps (coastal salt, streambanks). Occurs almost always in wetlands. Blooming period: Apr-Oct Elevation range: 0-100 feet	Absent	No potential to occur. Suitable habitat does not occur in the BSA. Wet areas in BSA restricted to ruderal habitat dominated by dense Eucalyptus forest, poison oak, and California blackberry that are not suitable for this species.
<i>Chorizanthe pungens</i> var. <i>hartwegiana</i>	Ben Lomond spine flower	FE, CRPR 1B.1	Lower montane coniferous forest, especially maritime ponderosa pine forest in Santa Cruz County. Found on sandy Zayante soils in Ben Lomond sandhill communities of the Santa Cruz mountains; considered intolerant of shade (Service 1998b). Blooming period: April-July Elevation range: 300-2,000 feet	Absent	No potential to occur. Suitable habitat does not occur in the BSA; sandy Zayante soils are absent from the BSA. Furthermore, the project footprint is too shaded to support the species. Four CNDDB occurrences are recorded, all approximately 9 miles from the BSA (CDFW 2015). In addition, the BSA is outside the species known range and within sandhill communities of the Santa Cruz mountains (Service 1998b).

Table 2. Potential for Special-Status Species to Occur in the Biological Study Area

Scientific Name	Common Name	Status ¹	Specific Habitat Requirements	Habitat Present/Absent ²	Potential for Species to Occur/Rationale
<i>Cirsium andrewsii</i>	Franciscan thistle	1B.2	Broadleafed upland forest, Coastal bluff scrub, Coastal prairie, Coastal scrub on mesic soils, steep slopes. Has affinity to grow on serpentine soils. Equally likely to occur in wetlands or non-wetlands. Blooming period: Mar-Jul Elevation range: 0–500 feet	Present (marginal)	Very low potential to occur. Serpentine soils are absent from the BSA. Mesic areas in the BSA are restricted to Eucalyptus forest and ruderal roadside habitat dominated by poison oak and California blackberry thickets that are not suitable for this species. This species has very low potential to occur in coastal scrub/annual grasslands outside the project footprint; however these areas occur along the roadside (SR 1) and are largely ruderal. Furthermore, no project activities will occur in potentially suitable habitat, and adjacent staging on SR 1 will not affect adjacent potential habitat. Therefore, this species is not addressed further in this NES.
<i>Collinsia multicolor</i>	San Francisco collinsia	1B.2	Closed-cone coniferous forest, Coastal scrub affinity to serpentine soils. Blooming period: Mar-may Elevation range: 100–830 feet	Present (marginal)	Very low potential to occur. Serpentine soils are absent from the BSA. Elevation range is greater than that of BSA. This species has very low potential to occur in coastal scrub/annual grasslands outside the project footprint; however these areas occur along the roadside (SR 1) and are largely ruderal. Furthermore, no project activities will occur in potentially suitable habitat, and adjacent staging on SR 1 will not affect adjacent potential habitat. Therefore, this species is not addressed further in this NES.
<i>Cupressus abramsiana</i>	Santa Cruz cypress	FE, C(SE), CRPR 1B.2	Closed-cone coniferous forest, chaparral, Lower montane coniferous forest on sandstone or granitic soils. Blooming period: N/A Elevation range: 920–2,600 feet	Absent	No potential to occur. Suitable habitat does not occur in the BSA. Species restricted to five known, relatively isolated populations in the Santa Cruz mountains (Service 1998a). No CNDDDB occurrences are recorded within 10 miles of the BSA (CDFW 2015). The nearest populations include the Butano Ridge and Eagle Rock populations, approximately 8 miles to the northeast and east, respectively, from the BSA (Service 1998a).

Table 2. Potential for Special-Status Species to Occur in the Biological Study Area

Scientific Name	Common Name	Status ¹	Specific Habitat Requirements	Habitat Present/Absent ²	Potential for Species to Occur/Rationale
<i>Eriophyllum latilobum</i>	San Mateo wooly sunflower	FE, C(SE), CRPR 1B.1	Cismontane woodland; often on serpentine soils and on roadcuts. Found in shaded moist sites on grassy or sparsely wooded slopes in San Mateo County (Service 2011a). Blooming period: May—June Elevation range: 150—500 feet	Absent	No potential to occur. Suitable habitat does not occur in the BSA. Currently known from only a few extant occurrences outside the BSA: along Crystal Springs Road near the City of Hillsborough, California; on cut and fill slopes between Sawyer Ridge and San Mateo Creek along San Mateo Road in the Peninsula Watershed; along Outgoing Road also in the Peninsula Watershed; and on private property near Half Moon Bay (Service 2011a). The nearest location and CNDDB occurrence is recorded approximately 8 miles from the BSA (CDFW 2015).
<i>Erysimum ammophilum</i>	sand-loving wallflower	1B.2	Chaparral (maritime), Coastal dunes, Coastal scrub on sandy soils in openings. Blooming period: Feb-Jun Elevation range: 0—200 feet	Absent	No potential to occur. Suitable habitat does not occur in the BSA; sandy soils and coastal dunes are absent from the BSA.
<i>Erysimum teretifolium</i>	Santa Cruz wallflower	FE, C(SE), CRPR 1B.1	Open areas within chaparral and lower montane coniferous forest on inland marine sands. Endemic to pockets of sandstone soils in Santa Cruz mountains (Service 1998b). Blooming period: March—July Elevation range: 390—2,000 feet	Absent	No potential to occur. Suitable habitat does not occur in the BSA; sandstone soils absent from the BSA. Furthermore, the project footprint is too shaded to support this species. No CNDDB occurrences are recorded within 10 miles of the BSA (CDFW 2015).
<i>Fritillaria liliacea</i>	Fragrant fritillary	1B.2	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill open grassland often on serpentine soils. Blooming period: Feb-Apr Elevation range: 10—1,350 feet	Present (marginal)	Very low potential to occur. Serpentine soils absent from BSA. This species has very low potential to occur in coastal scrub/annual grasslands outside the project footprint; however these areas occur along the roadside (SR 1) and are largely ruderal. Furthermore, no project activities will occur in potentially suitable habitat, and adjacent staging on SR 1 will not affect adjacent potential habitat. Therefore, this species is not addressed further in this NES.
<i>Fissidens pauperculus</i>	minute pocket moss	1B.2	North coast coniferous forest (damp coastal soil). Blooming period: moss Elevation range: 30—3,360 feet	Absent	No potential to occur. Suitable habitat does not occur in the BSA; north coast coniferous forest is absent from the BSA.

Table 2. Potential for Special-Status Species to Occur in the Biological Study Area

Scientific Name	Common Name	Status ¹	Specific Habitat Requirements	Habitat Present/Absent ²	Potential for Species to Occur/Rationale
<i>Hesperocyparis abramsiana</i> var. <i>butanoensis</i>	Butano Ridge cypress	FE, C(SE), CRPR 1B.2	Closed-cone coniferous forest, chaparral, and lower montane coniferous forest on sandstone soils; only found in the Butano Ridge area. Blooming period: N/A Elevation range: 1,300—1,600 feet	Absent	No potential to occur. The BSA is outside the range of this species. It is known only from a single population in the Butano Ridge area, approximately 8 miles northeast of the BSA (Service 1998a).
<i>Horkelia marinensis</i>	Point Reyes horkelia	1B.2	Coastal dunes, coastal prairie, coastal scrub on sandy soils. Blooming period: May-Sept Elevation range: 15–1,150 feet	Absent	No potential to occur. Suitable habitat does not occur in the BSA; sandy soils are absent from the BSA.
<i>Lasthenia californica macrantha</i>	Perennial goldfields	1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub. Blooming period: Jan-Nov Elevation range: 15 – 1,710 feet	Present (marginal)	Very low potential to occur. This species has very low potential to occur in coastal scrub/annual grasslands outside the project footprint; however these areas occur along the roadside (SR 1) and are largely ruderal. Furthermore, no project activities will occur in potentially suitable habitat, and adjacent staging on SR 1 will not affect adjacent potential habitat. Therefore, this species is not addressed further in this NES.
<i>Limnanthes douglasii sulphurea</i>	Point Reyes meadowfoam	1B.2	Coastal prairie, Meadows and seeps (mesic), Marshes and swamps (freshwater), Vernal pools. Blooming period: Mar – May Elevation range: 0–460 feet	Absent	No potential to occur. Suitable habitat is absent from the BSA. Mesic areas in BSA consist of the ruderal roadside ditch, dominated by nonnative annuals, California blackberry, and poison oak thickets.
<i>Pentachaeta bellidiflora</i>	white-rayed pentachaeta	FE, C(SE), CRPR 1B.1	Cismontane woodland and valley and foothill grassland; often on serpentinite soils. Blooming period: March—May Elevation range: 115—2,050 feet	Absent	No potential to occur. Suitable habitat does not occur in the BSA. Serpentine soils absent from the BSA. Annual grassland is present in the BSA outside the project footprint; however, it is roadside and largely ruderal. The nearest CNDDDB occurrence is recorded approximately 6 miles from the BSA (CDFW 2015).

Table 2. Potential for Special-Status Species to Occur in the Biological Study Area

Scientific Name	Common Name	Status ¹	Specific Habitat Requirements	Habitat Present/Absent ²	Potential for Species to Occur/Rationale
<i>Pinus radiata</i>	Monterey Pine	1B.1 (native stands)	Closed-cone coniferous forest; cismontane woodland. Blooming period: N/A Elevation range: 82—607 feet	Species Present (within non-native stand)	No potential to occur. While Monterey pine is present within the BSA, and two trees of this species will be removed as part of the project, individuals in the BSA do not occur within three remnant protected native stands (CNPS 2015); therefore, protected native Monterey pine do not occur in the BSA.
<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>	Choris' popcorn-flower	1B.2	Chaparral, Coastal prairie, Coastal scrub on mesic soils. Blooming period: Mar-June Elevation range: 50—525 feet	Absent	No potential to occur. Suitable habitat does not occur in the BSA. Coastal scrub is present in the BSA, however, is it roadside and largely ruderal; mesic areas in BSA restricted to ruderal habitat dominated by dense Eucalyptus forest, poison oak, and California blackberry that are not suitable for this species.
<i>Plagiobothrys diffuses</i>	San Francisco popcorn-flower	1B.2	Coastal prairie, Valley and foothill grassland. Sparsely vegetated mesic sites in coastal prairie or serpentine bunchgrass habitat. Blooming period: Mar – June Elevation range: 200—1,190 feet	Present (marginal)	Very low potential to occur. Elevation range is greater than that of BSA; mesic areas in BSA restricted to ruderal habitat dominated by dense Eucalyptus forest, poison oak, and California blackberry that are not suitable for this species. This species has very low potential to occur in coastal scrub/annual grasslands outside the project footprint; however these areas occur along the roadside (SR 1) and are largely ruderal. Furthermore, no project activities will occur in potentially suitable habitat, and adjacent staging on SR 1 will not affect adjacent potential habitat. Therefore, this species is not addressed further in this NES.
<i>Rosa pinetorum</i>	Pine rose	1B.2	Closed-cone coniferous forest. Blooming period: May-Jul Elevation range: 5—1,000 feet	Absent	No potential to occur. Suitable habitat does not occur in the BSA; closed-cone coniferous forest is absent from the BSA.

Table 2. Potential for Special-Status Species to Occur in the Biological Study Area

Scientific Name	Common Name	Status ¹	Specific Habitat Requirements	Habitat Present/Absent ²	Potential for Species to Occur/Rationale
<i>Stebbinsoseris decipiens</i>	Santa Cruz microseris	1B.2	Broadleaved upland forest, Closed-cone coniferous forest, Chaparral, Coastal prairie, Coastal scrub, Valley and foothill grassland in open areas, sometimes serpentine. Known from fewer than twenty occurrences. Blooming period: Apr-May Elevation: 30—1650 feet	Present (marginal)	Very low potential to occur. This species has very low potential to occur in coastal scrub/annual grasslands outside the project footprint; however these areas occur along the roadside (SR 1) and are largely ruderal. Furthermore, no project activities will occur in potentially suitable habitat, and adjacent staging on SR 1 will not affect adjacent potential habitat. Therefore, this species is not addressed further in this NES.
<i>Stuckenia filiformis</i> ssp. <i>alpina</i>	slender-leaved pondweed	1B.2	Marshes and swamps (assorted shallow freshwater). Blooming period: May-Jul Elevation range: 985—7,060 feet	Absent	No potential to occur. Suitable habitat does not occur in the BSA; marshes and swamps are absent from the BSA. BSA is below known elevation range.
Invertebrates					
<i>Callophrys mossii bayensis</i>	San Bruno elfin butterfly	FE	Typical habitat consists of coastal grassland and low scrub on north-facing slopes within the fog belt, where the larval host plant grows. Restricted to San Mateo County, California. Associated with the larval host plant, <i>Sedum spathulifolium</i> (stonecrop).	Absent	No potential to occur. Suitable habitat does not occur in the BSA; no grasslands or low scrub supporting larval host plants for this species are in the BSA. No CNDDDB occurrences are recorded within 10 miles of the BSA (CDFW 2015).
<i>Danaus plexippus plexippus</i>	Monarch butterfly	Under petition to list as FT	In spring and summer, found in open fields and meadows with milkweed (<i>Asclepias</i> spp.); in winter, can be found congregated in large numbers on the central and southern California coast in protected forested stands.	Species Present	Known to occur during winter. A few adult monarch butterflies were observed among eucalyptus forest along Whitehouse Creek in the BSA, during a site visit by AECOM ecologists on February 24, 2015. In addition, individuals were documented along Whitehouse Creek during annual Thanksgiving counts by the Xerces Society along the central coast in 2011 (Monroe et al. 2015). A CNDDDB record for this species from 1998 overlaps the BSA along Whitehouse Creek (CDFW 2015).

Table 2. Potential for Special-Status Species to Occur in the Biological Study Area

Scientific Name	Common Name	Status ¹	Specific Habitat Requirements	Habitat Present/Absent ²	Potential for Species to Occur/Rationale
<i>Euphydryas editha bayensis</i>	Bay checkerspot butterfly	FT	Usually associated with populations of dwarf plantain (<i>Plantago erecta</i>), the primary larval host plant, in native grasslands on Service 1998c).	Absent	No potential to occur. Suitable habitat does not occur in the BSA; no serpentine soils or grasslands supporting larval host and nectar plants for this species are in the BSA. No CNDDDB occurrences are recorded within 10 miles of the BSA (CDFW 2015).
Amphibians					
<i>Rana draytonii</i>	California red-legged frog	FT, CH, SSC	Freshwater habitats. Prefers semi-permanent and permanent stream pools, ponds, and creeks with emergent riparian vegetation. Occupies adjacent upland areas, especially during the wet winter months.	Present	Could occur. Two known breeding ponds occur 0.6 mile and 0.9 mile northeast, upstream from the BSA; however, suitable breeding habitat does not occur in the BSA. Suitable aquatic (non-breeding) habitat is in the BSA adjacent to the project footprint in Whitehouse Creek. Upland habitat suitable for foraging, aestivation, and dispersal also is present in the BSA, but very few signs of fossorial mammal activity (e.g., burrows, runways) were observed during the habitat evaluation on September 9, 2014. This suggests that a paucity of upland refugia exists for the species in the BSA. Nineteen CNDDDB-documented occurrences, most within the last two decades, are within 5 miles of the BSA (CDFW 2015). Critical habitat is not present in the BSA.
<i>Ambystoma californiense</i>	California tiger salamander (Central population)	FT, ST, SSC	Breeds in ponds, vernal pools, or other seasonal water bodies that hold water for an adequate duration for larval metamorphosis. Spends most of the year in rodent burrows or other subterranean refuges in grassland and oak savannas within 1.3 miles of breeding pools. Migrates seasonally from upland to aquatic habitat.	Absent	No potential to occur. Suitable habitat does not occur in the BSA; no vernal pools, ponds, or other suitable aquatic breeding habitat occurs in or within 1.3 miles of the BSA.

Table 2. Potential for Special-Status Species to Occur in the Biological Study Area

Scientific Name	Common Name	Status ¹	Specific Habitat Requirements	Habitat Present/ Absent ²	Potential for Species to Occur/Rationale
Reptiles					
<i>Thamnophis sirtalis tetrataenia</i>	San Francisco garter snake	FE, SE, FP	Found in the vicinity of freshwater marshes, ponds, and slow-moving streams in San Mateo County and Santa Cruz County. Prefers dense cover and water depths of at least 1 foot.	Present	Could occur. This species has been documented along Whitehouse Creek, which bisects the BSA (see below). Suitable aquatic breeding habitat does not occur in the BSA; however, potential aquatic habitat suitable for movement and/or dispersal and foraging is present in Whitehouse Creek, adjacent to the project footprint in the BSA. Upland dispersal habitat for this species also is present in the BSA. One CNDDDB occurrence of this species (two individuals) was recorded along Whitehouse Creek, which crosses the BSA; five additional CNDDDB records are within 2 miles of the BSA (Acord, pers. comm., 2014).
<i>Emys marmorata</i>	western pond turtle	SSC	Associated with permanent or nearly permanent water in a variety of habitats. Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms, and with watercress, cattails, water lilies, or other aquatic vegetation. Requires basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks. Nests and may overwinter in nearby uplands.	Present	Could occur. Suitable upland/aestivation habitat present in the BSA, although it is relatively far from suitable aquatic habitat. Potential aquatic dispersal and/or movement habitat present along Whitehouse Creek in the BSA. Small pool along Whitehouse Creek upstream from the BSA may be suitable for foraging, but is likely too shaded and shallow. Suitable nesting habitat does not occur in the BSA; sunny openings with exposed sand or soil banks are absent along Whitehouse Creek in the BSA. Two CNDDDB records within 5 miles, located in pond 0.9 mile northeast of the BSA and along Waddell Creek 5 miles south (CDFW 2015).
Fish					
<i>Eucyclogobius newberryi</i>	tidewater goby	FE, SSC	Coastal California lagoons, estuaries, and stream mouths separated by mostly marine conditions (Service 2005b); found up to 3 miles upstream in slow-moving water. Absent where coastline is steep and streams do not form lagoons or estuaries (Service 2005b).	Absent	No potential to occur. Suitable habitat does not occur in or downstream from the BSA. The closest CNDDDB-documented occurrence is in Waddell Creek, approximately 5 miles southeast of the BSA (CDFW 2015).

Table 2. Potential for Special-Status Species to Occur in the Biological Study Area

Scientific Name	Common Name	Status ¹	Specific Habitat Requirements	Habitat Present/ Absent ²	Potential for Species to Occur/Rationale
<i>Hypomesus transpacificus</i>	Delta Smelt	FT, SE	Brackish water. Found only in the Sacramento–San Joaquin Estuary, as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River. Found downstream as far as San Pablo Bay.	Absent	No potential to occur. The BSA is outside the range of this species.
<i>Oncorhynchus kisutch</i>	Coho Salmon–Central California Coast ESU	FE, CH, SE	Spawn in streams at riffles with small-to-medium gravel substrates. Juvenile salmon require relatively deep pools with woody material for cover, especially during summer months.	Present	Could occur in Whitehouse Creek. Suitable adult and smolt migration habitat is present in Whitehouse Creek, in the BSA. One CNDDDB record exists within 5 miles, from Waddell Creek approximately 5 miles south of the BSA (CDFW 2015). Critical habitat is present in the BSA along Whitehouse Creek.
<i>Oncorhynchus mykiss</i>	Steelhead–Central California Coast DPS	FT, CH	Anadromous. Inhabits cold headwaters, creeks, and small-to-large rivers and lakes with swift, shallow water and clean, loose gravel for spawning. Requires large pools during summer months. Spawns in spring. Populations inhabiting coastal streams from Santa Maria River to the Russian River.	Species Present	Known to occur in Whitehouse Creek. A single juvenile Steelhead was observed in Whitehouse Creek during a habitat assessment that was conducted on September 9, 2014. The species was documented in Whitehouse Creek during California Department of Fish and Game (CDFG) surveys in 1997 and 2007 (Becker and Reining 2008). In addition, four CNDDDB-documented occurrences are within 5 miles of the BSA (CDFW 2015). Critical habitat is present in the BSA along Whitehouse Creek.

Table 2. Potential for Special-Status Species to Occur in the Biological Study Area

Scientific Name	Common Name	Status ¹	Specific Habitat Requirements	Habitat Present/ Absent ²	Potential for Species to Occur/Rationale
Birds					
<i>Brachyramphus marmoratus</i>	marbled murrelet	FT, CH, SE (Nesting)	Breeds in coastal forests; tree nests require large-diameter limbs or other suitable platforms in large conifers.	Absent	Could occur. Suitable habitat does not occur in the BSA; no suitable large conifers along drainages occur in the BSA, and marine foraging environments are not present in the BSA. However, the BSA is situated along a riparian corridor between suitable marine and inland habitats; therefore, this species could occur in the BSA during flights between these suitable habitats. No CNDDDB occurrences within 5 miles of the BSA; one nesting record within 10 miles of the BSA, from Big Basin Redwoods State Park (from 1974) east of the BSA (CDFW 2015). Critical habitat does not occur in the BSA.
<i>Charadrius alexandrinus nivosus</i>	western snowy plover	FT, CH, SSC (Nesting)	Habitats used by nesting and non-nesting birds include sandy coastal beaches, salt pans, coastal dredged spoils sites, dry salt ponds, salt pond levees, and gravel bars.	Absent	No potential to occur. Suitable coastal beach/mud flat habitat does not occur in the BSA. The nearest CNDDDB occurrence is approximately 5 miles southeast of the BSA (CDFW 2015). Critical habitat is not present in the BSA.
<i>Cypseloides niger</i>	black swift	SSC (Nesting)	Nests in moist crevices or caves on cliffs in proximity to waterfalls. Forages widely over many habitats.	Absent	No potential to occur. No suitable nesting cliffs in proximity to waterfalls are present in or near BSA. One CNDDDB record is within 5 miles of the BSA, approximately 2 miles south of the BSA along cliffs at the north end of Monterey Bay (CDFW 2015).
<i>Laterallus jamaicensis coturniculus</i>	California black rail	ST, FP	Inhabits tidal marshes and freshwater wetlands.	Absent	No potential to occur. No suitable marshes or wetlands are present in the BSA. The closest CNDDDB occurrence is from Waddell Creek lagoon, approximately 5 miles south of the BSA (CDFW 2015).
<i>Riparia riparia</i>	bank swallow	ST (Nesting)	Uses holes dug in cliffs and vertical river banks in alluvial, friable soils for cover and nesting sites; typically in low gradient, meandering waterways. Will forage over riparian areas, and occasionally over brushland, grassland, wetlands, water, and cropland.	Absent	No potential to occur. No suitable cliffs or banks of rivers for nesting occur in or near the BSA.

Table 2. Potential for Special-Status Species to Occur in the Biological Study Area

Scientific Name	Common Name	Status ¹	Specific Habitat Requirements	Habitat Present/ Absent ²	Potential for Species to Occur/Rationale
<i>Sternula antillarum browni</i>	California least tern	FE, SE, FP (Nesting colony)	Migratory in California; breeding colonies are located along marine and estuarine shores, and in abandoned salt ponds; feeds in nearby shallow, estuarine waters or lagoons. Prefers undisturbed nest sites on open, sandy, or gravelly shores near shallow-water feeding areas in estuaries.	Absent	No potential to occur. Suitable habitat does not occur in the BSA. No CNDDDB-documented occurrences are within 10 miles of the BSA (CDFW 2015).
<i>Pelecanus occidentalis californicus</i>	California brown pelican	FD, SD, FP (Nesting colony and communal roosts)	Inhabits estuaries and coastal marine habitats year-round; breeds on dry, rocky offshore islands; roosts on sandbars, pilings, jetties, breakwaters, mangrove islets, and offshore rocks (Shields 2014).	Absent	No potential to occur. Suitable habitat does not occur in the BSA. This species was removed from the endangered species list in November 2009 (74 Federal Register [FR] 59444). No CNDDDB-documented occurrences are within 10 miles of the BSA (CDFW 2015).
Mammals					
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	C (ST), SSC	Most common in mesic sites. Roosts in the open, hanging from walls and ceilings of caves, mines, buildings, tunnels, or other human-made structures, but may use hollow trees as roost sites. Roosting sites are limiting. Extremely sensitive to human disturbance. Forages in edge habitats along streams and in a variety of wooded habitats; will travel long distances while foraging.	Present	Could occur. Suitable foraging habitat is present along Whitehouse Creek. Large trees may provide marginal roost sites, if sufficient cavities are present. One CNDDDB occurrence (1987) is recorded approximately 1 mile north of the BSA in an abandoned house near Gazos Creek State Beach (CDFW 2015).
<i>Neotoma fuscipes annectens</i>	San Francisco dusky-footed woodrat	SSC	Grasslands, scrub, and wooded areas of the San Francisco Bay area. Evergreen or live-oaks or other thick leaved trees and shrubs are important habitat component.	Present	Could occur. No den sites were observed during the habitat reconnaissance and creek survey conducted on September 9, 2014, and no CNDDDB records exist for this species within 5 miles of the BSA (CDFW 2015). Suitable dense riparian habitat is present, but the BSA lacks the species' preferred evergreen and thick-leaved trees and shrubs in the understory.

Table 2. Potential for Special-Status Species to Occur in the Biological Study Area

Scientific Name	Common Name	Status ¹	Specific Habitat Requirements	Habitat Present/Absent ²	Potential for Species to Occur/Rationale
1 Status					
C	Candidate for listing		BSA	biological study area	
CH	Critical Habitat		CNDDDB	California Natural Diversity Database	
FE	Federal Endangered		DPS	distinct population segment	
FT	Federal Threatened		ESU	evolutionarily significant unit	
FD	Federally Delisted				
SE	State Endangered				
ST	State Threatened				
FP	State Fully Protected				
SD	State Delisted				
SSC	State Species of Special Concern				
2 Habitat Present/Absent					
Absent	No suitable habitat present				
Present	Suitable habitat present; species may be present				
Species Present	Species present in the biological study area				

4.3. Impacts on Habitats and Natural Communities of Special Concern

The project will temporarily affect the understory within approximately 0.2 acre of non-native eucalyptus forest in the BSA; remaining temporary impacts would occur on existing developed (i.e., paved) areas (Figure 5). Regrading and lining of the existing roadside ditch and, in part, construction of the subsurface drainage system and metal beam guardrail will temporarily remove areas of natural vegetation, but these areas will be restored to pre-project conditions.

No additional impacts on native or non-native vegetation communities will occur because of the project; all roadway work, including staging and site access, will be restricted to the existing paved roadway or adjacent unvegetated shoulder along SR 1 (Figure 5).

4.3.1. Waters of the U.S. and State

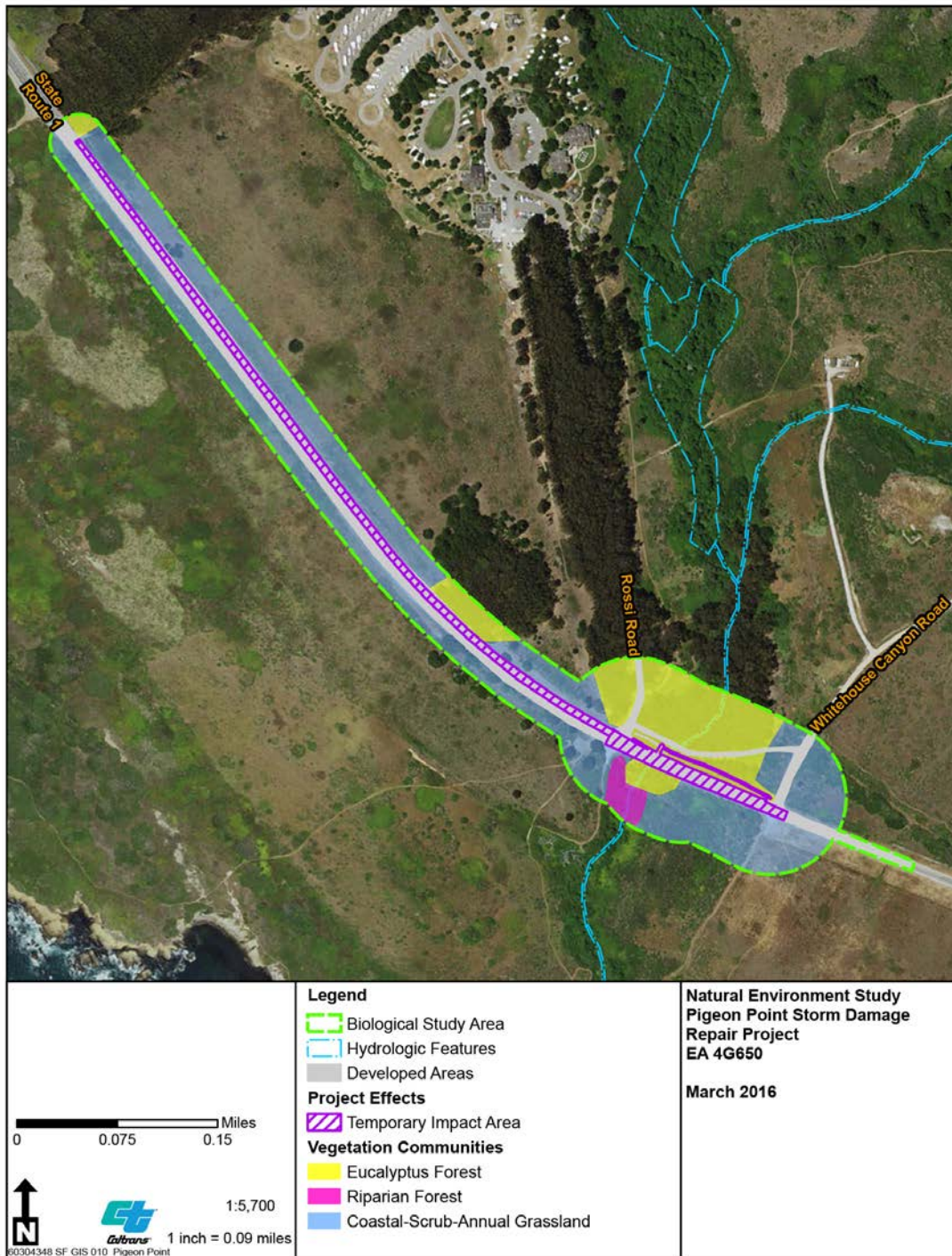
Wetlands and waters are considered sensitive communities because of their specific state and federal protections under Sections 401 and 404 of the CWA, the Porter-Cologne Water Quality Control Act, and Section 1602 of the CFGC. Wetlands and waters are considered “special aquatic sites” for the functions and values that they provide to wildlife, as well as for their water detention/recharge properties.

A preliminary jurisdictional delineation of wetlands and waters of the U.S. and state was conducted in the BSA (Caltrans 2016) and is provided in Appendix C.

Wetlands and waters in the BSA may function as potential foraging/nesting areas for common birds, reptiles, and small mammals, and potentially can support special-status species identified for coastal stream and riparian habitats, such as CCC Steelhead, CCC Coho Salmon, CRLF, SFGS, and western pond turtle (WPT).

4.3.1.1. SURVEY RESULTS

Approximately 0.05 acre of potentially jurisdictional waters of the U.S. and state occur in the BSA, representing two potentially jurisdictional features: Whitehouse Creek and the roadside drainage ditch (i.e., Drainage 1) (Figure 6; see also Caltrans 2016). Whitehouse Creek is a perennial stream, subject to USACE jurisdiction pursuant to Section 404 of the CWA. The roadside drainage ditch is an artificially created concrete V-ditch, likely subject to USACE jurisdiction under the significant nexus test (Caltrans 2016). These features also are potentially jurisdictional under Coastal Commission jurisdiction; the roadside drainage ditch is considered a potential wetland under the jurisdiction of the Coastal Commission (Caltrans 2016). No potential wetlands under the jurisdiction of the U.S. or state are in the BSA.



Sources: AECOM 2014; Service 2014

Figure 5. Potential Project Effects on Vegetation Communities in the Biological Study Area

Table 3 summarizes the acreages of other waters potentially subject to U.S., State, and Coastal Commission jurisdiction. All estimates of resources are subject to change, pending USACE official review and final jurisdictional determination.

Table 3. Potentially Jurisdictional Features in the Biological Study Area

Feature	Acreage ¹
Whitehouse Creek	0.01
Roadside Drainage Ditch (i.e., Drainage 1)	0.04
Total Potentially Jurisdictional Features	0.05
Note: ¹ Acreage is reported to the hundredth place and is rounded as mathematically appropriate for reporting purposes. Source: Data compiled by AECOM in 2016	

4.3.1.2. PROJECT IMPACTS

The project will result in temporary direct effects on 0.03 acre of potentially jurisdictional other waters of the U.S. and state as a result of construction activities in the roadside drainage ditch (Drainage 1) (Figure 6). Regrading and lining of a portion of the existing concrete-lined drainage ditch will result in temporary ground disturbances in the ditch and will permanently replace (i.e., re-fill) portions of the concrete lining of the ditch. After completing construction, the potential for erosion and associated sedimentation in the ditch likely will be reduced because the project ultimately will improve the shape and grade of the ditch so that sheet flow that drains from the roadway embankment into the ditch does not continue to undermine the stability of the adjacent slope.

No direct effects will occur on Whitehouse Creek because no project activities are proposed in the channel, along the banks, or within the adjacent riparian vegetation of Whitehouse Creek. Potential indirect effects on Whitehouse Creek as a result of potential sedimentation or contamination from adjacent ground-disturbing construction activities will be avoided or minimized by implementation of standard construction BMPs (see Section 1.5, General Avoidance and Minimization Measures).

4.3.1.3. AVOIDANCE AND MINIMIZATION MEASURES

Caltrans will implement the general avoidance and minimization measures as outlined in Section 1.5, including worker environmental awareness training, and construction BMPs and implementation of an SWPPP.



Source: AECOM 2015

Figure 6. Potential Jurisdictional Features in the Biological Study Area

4.3.1.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed for project effects on other waters of the U.S. and state (i.e., roadside drainage ditch) because fill added to other waters of the U.S. and state will be minimal in extent (0.03 acre), and because impacts will be temporary. The project will reconstruct the existing ditch such that post-project conditions will be similar to existing conditions. Furthermore, the project ultimately will provide minor water quality benefits by reducing erosion and sedimentation into the ditch, because the ditch will be regraded so that it no longer undermines the roadway embankment, causing erosion.

4.3.1.5. CUMULATIVE EFFECTS

Cumulative effects are those effects which result from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects (40 CFR Section 1508.7; OPR 2014).

Caltrans and AECOM biologists reviewed CEQAnet, an online searchable database that contains a listing of all CEQA documents submitted to the State Clearinghouse for State review, to query planned projects in and adjacent to the BSA, and determined that no other planned projects, including future projects by Caltrans, are proposed in the BSA or within the Whitehouse Creek watershed. Additionally, the area surrounding the BSA is largely State Park land and not vulnerable to development. As part of their Park Plan, Año Nuevo State Park established a long-range vision and purpose for continued resource protection and preservation (California State Parks 2008), such as those addressed in this document (i.e., wetlands, waters, and special-status species). Adherence to the guiding principles described in the Park Plan will result in protection and enhancement of sensitive biological resources in Año Nuevo State Park, and it is expected that resource conditions on these lands would remain similar to current conditions or would improve over time.

Therefore, the project will not incrementally contribute to cumulative effects on potentially jurisdictional waters of the U.S. or state.

4.4. Impacts on Special-Status Plant Species

The project will not affect special-status plants. Special-status plants have no potential or very low potential to occur in the BSA (Table 2); only coastal scrub/annual grassland communities occurring outside the project footprint and along the SR 1 roadside have low potential to support some special-status, non-listed plant species, and these areas are largely ruderal. If special-status plants were to occur in these areas, no direct adverse

effects will result from the project because these areas are outside the project footprint where ground-disturbing activities will occur.

Implementation of BMPs and avoidance and minimization measures will avoid potential indirect effects such as dust, spread of invasive species, or downstream changes in hydrology or sedimentation.

Potential special-status plant habitat (i.e., roadside coastal scrub/annual grasslands) does not occur immediately adjacent to the project footprint where dust from ground-disturbing actions could affect plants. Additionally, staging will be limited to paved surfaces; hence equipment operation in paved staging areas will not generate dust that could affect adjacent plant habitat. Standard construction BMPs that limit dust, downstream erosion/sedimentation, and the spread of invasive weeds also will be implemented (see Section 1.5, General Avoidance and Minimization Measures).

4.5. Impacts on Special-Status Wildlife Species

This section describes the life history and ecology of special-status wildlife species that have potential to occur in and near the BSA, the potential project effects on these species, and proposed avoidance and minimization measures that will be implemented.

Nine special-status wildlife species are known or have potential to occur in the BSA, based on a review of the CNDDDB and a review of habitats in the BSA. CCC distinct population segment (DPS) Steelhead and monarch butterfly were observed during project surveys in the BSA. Based on the habitats in the BSA and nearby occurrences of the species, the following special-status species also have potential to occur in the BSA: CRLF, SFGS, WPT, CCC Coho Salmon ESU, marbled murrelet, Townsend's big-eared bat, and San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*).

4.5.1. California Red-Legged Frog

CRLF was federally listed as a threatened species on May 23, 1996 (Service 1996a). A recovery plan was published for CRLF on September 12, 2002 (Service 2002). Critical habitat was designated for this species on April 13, 2006 (Service 2006a), and a final revision was published on March 17, 2010 (Service 2010). There is no critical habitat for CRLF in the BSA; the closest unit is 0.75 mile to the north. The BSA occurs within the Central Coast recovery unit for this species (Service 2002). CRLF is also a California species of special concern.

The historical range of CRLF extended coastally from the vicinity of Elk Creek in Mendocino County, California, and inland from the vicinity of Redding, Shasta County, California, southward to northwestern Baja California, Mexico (Jennings and Hayes

1985; Hayes and Krempels 1986; Fellers 2005). CRLF historically was documented in 46 counties, but the species now is extant in 238 drainages in 23 counties, representing a loss of 70 percent of its former range (Service 2002). CRLF still is locally abundant in portions of the San Francisco Bay Area and the Central Coast.

CRLF predominantly inhabits permanent water sources, such as streams, lakes, marshes, natural and constructed ponds, and ephemeral drainages in valley bottoms and foothills up to 4,921 feet in elevation (Jennings and Hayes 1994; Bulger et al. 2003; Stebbins 2003). These areas are characterized by the presence of dense, shrubby, or emergent vegetation, closely associated with deep water pools with fringes of cattails and dense stands of overhanging vegetation (Service 2002). The species also may be found in ephemeral creeks and drainages, and in disturbed areas, such as channelized creeks and drainage ditches in urban and agricultural areas (Service 2002).

The Central Coast recovery unit for CRLF, which overlaps the BSA, supports the greatest number of currently occupied drainages; most coastal streams and ponds (natural and artificial) in San Mateo County from Pacifica south to Half Moon Bay support this species (S. Larson, pers. comm. 1998; as cited in Service 2002).

CRLF habitats have been characterized by the Service, based on functional value, as aquatic breeding habitat, non-breeding aquatic and riparian habitat, upland habitat, and dispersal habitat (Service 2010).

Aquatic breeding habitat includes natural water features, such as slow-moving streams and pools within streams and human-made ponds that are capable of sustaining all aquatic life stages of CRLF. These areas must hold water for at least 20 weeks during the year, which is the minimum amount of time needed for CRLF breeding and tadpole development and metamorphosis (Storer 1925; Wright and Wright 1949; Jennings 1988; Service 2010). Aquatic habitat need not be present every year, because CRLF can live 8 to 10 years in the wild (Service 2010).

Non-breeding aquatic and riparian habitat includes areas such as springs, seeps, moist cracks within dried ponds, and vegetated areas growing within the floodplains of rivers and streams. These areas do not hold enough water for CRLF breeding but provide the space needed for foraging and cover to sustain CRLF individuals. These areas are also important for retaining moisture and avoiding solar exposure, and they are important particularly during drought periods and for dispersal to other breeding habitats (Alvarez 2004; Fellers and Kleeman 2007; Service 2010).

Upland habitats are important because they help protect the appropriate hydrological, physical, and water quality conditions of aquatic sites and provide space for foraging, sheltering, and avoiding predation (Service 2010). These areas generally support plant species such as blackberry, poison oak (*Toxicodendron diversilobum*), coyote brush (*Baccharis pilularis*), oaks (*Quercus* spp.), and grasses (Service 2002, 2010; Fellers and Kleeman 2007). Upland habitat also consists of areas where CRLF can seek shelter, such as under boulders, rocks, animal burrows, fallen logs, and agricultural debris like watering troughs and hay stacks (Jennings and Hayes 1994; Fellers and Kleeman 2007; Service 2010).

Dispersal habitat refers to accessible upland or riparian habitat that is located typically within 1 mile of occupied breeding areas. This includes natural habitats and altered habitats, such as agricultural fields that do not contain barriers to dispersal (e.g., heavily traveled roads without bridges or culverts) (Service 2010).

CRLF typically breed between November and April, with earlier breeding records occurring in southern localities (Hayes and Jennings 1988; Storer 1925). Breeding often occurs in still or slow moving water, at least 2.5 feet deep with emergent vegetation, such as cattails (*Typha* spp.), tules (*Scirpus* spp.), or overhanging willows (*Salix* spp.) (Hayes and Jennings 1988). Female CRLF deposit egg masses on emergent vegetation so that the egg mass floats on or near the surface of the water (Hayes and Miyamoto 1984). Siltation during the breeding season can cause asphyxiation of eggs and small larvae (Service 2010).

CRLF do not have a distinct breeding migration (Fellers 2005). Adult CRLF are often associated with permanent bodies of water. Some CRLF remain at breeding sites all year while others disperse. Dispersal distances typically are less than 0.5 mile, with a few individuals moving up to distances of 1 to 2 miles (Fellers 2005). CRLF have been observed dispersing along riparian corridors and overland to other aquatic sites (Bulger et al. 2003; Fellers and Kleeman 2007). CRLF may move through riparian corridors, but some individuals, especially on rainy nights, move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas (Fellers 2005). Migratory movements have been characterized as the movement between aquatic sites and are associated most often with breeding activities (Bulger et al. 2003). CRLF have been documented traveling up to 2 miles without apparent regard to topography, vegetation type, or riparian corridors (Bulger et al. 2003, Service 2010). Non-migrating frogs typically stay within 200 feet of aquatic habitat and are associated most often with dense vegetative cover, such as California blackberry, poison oak, and coyote brush (Bulger et al. 2003). Individuals occurring in coastal drainages are active year-round (Jennings et al. 1992).

Various factors likely have contributed to the decline of CRLF throughout its range. Habitat loss resulting from urbanization and agriculture, water impoundments, stream channelization, and the introduction of non-native species all have been cited as factors that have adversely affected CRLF and its habitat (Service 2002). These factors may act synergistically and with natural factors to result in CRLF population declines (Service 2002). Other threats to CRLF include the overgrazing of aquatic and riparian habitats, pesticide use, and water quality degradation (Service 2002). Urban and suburban development and roads may block CRLF dispersal and leave occupied habitat fragments isolated from one another (Service 2002).

4.5.1.1. SURVEY RESULTS

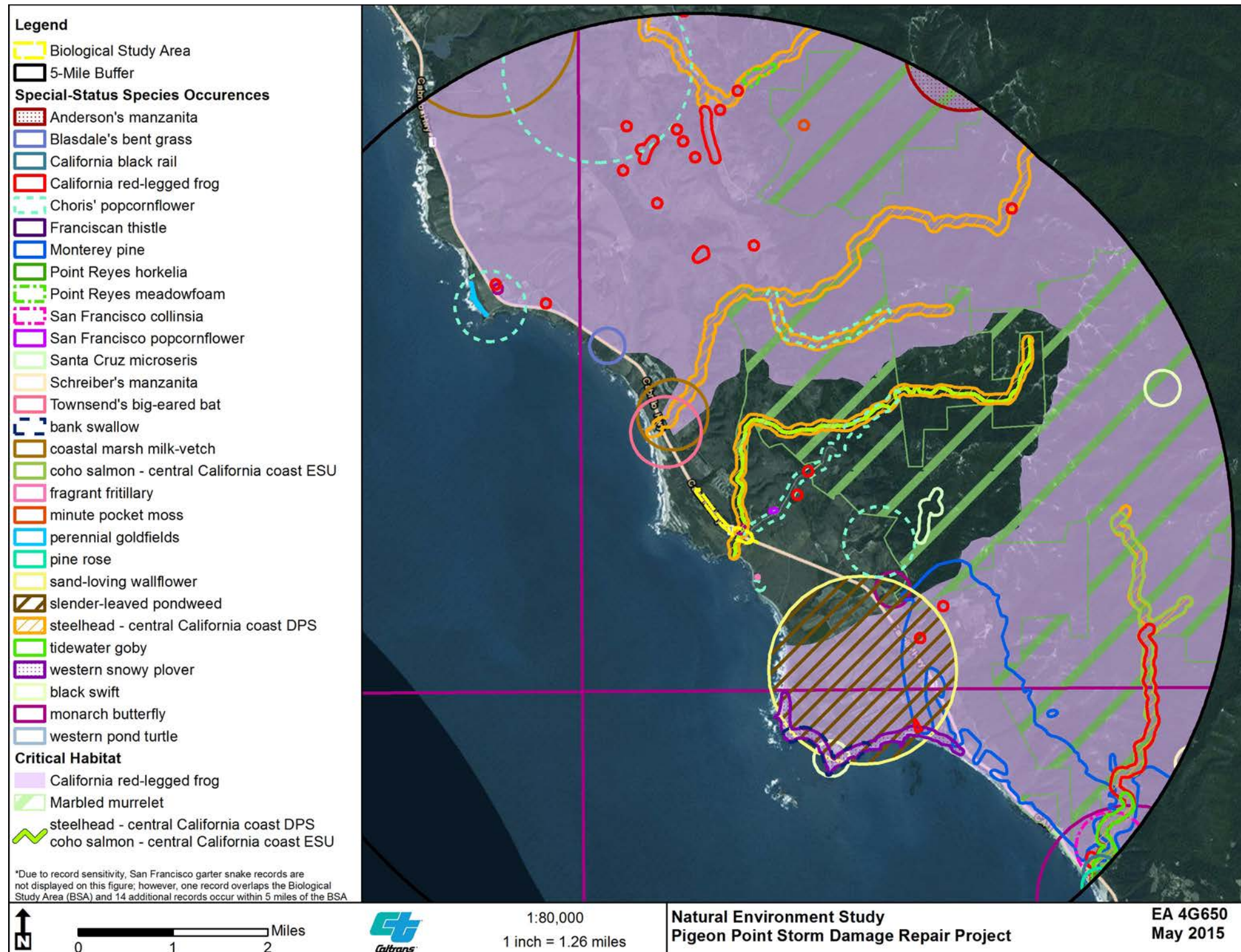
Caltrans used available literature, results of standard database searches, and the habitat assessment to categorize CRLF habitat suitability in the BSA and the potential for occurrence. No protocol-level surveys for CRLF have been conducted in the BSA. A habitat assessment and site reconnaissance for CRLF (and for SFGS) were completed on September 9, 2014. No CRLF were detected during the habitat assessment and site reconnaissance, nor have any been documented previously in the BSA (CDFW 2015; also see Figure 7). However, CRLF occurrences have been documented within the normal dispersal distance for the species; no substantial barriers exist between the BSA and documented populations within 1 mile to the northeast (Figure 8), and potential non-breeding aquatic and upland habitats are present in the BSA (Figure 9). Therefore, CRLF presumably could occur in the BSA.

A review of the CNDDDB identified four documented occurrences of CRLF within 2 miles and an additional 15 occurrences within 5 miles of the BSA (Figures 7 and 8; CDFW 2015).

Of these, occurrence 505 was from a breeding pond in the Whitehouse Creek Watershed, approximately 0.9 mile northeast of the BSA; and occurrence 969 was from an impoundment in the adjacent Cascade Creek Watershed, approximately 0.6 mile northeast of the BSA (Figure 8).

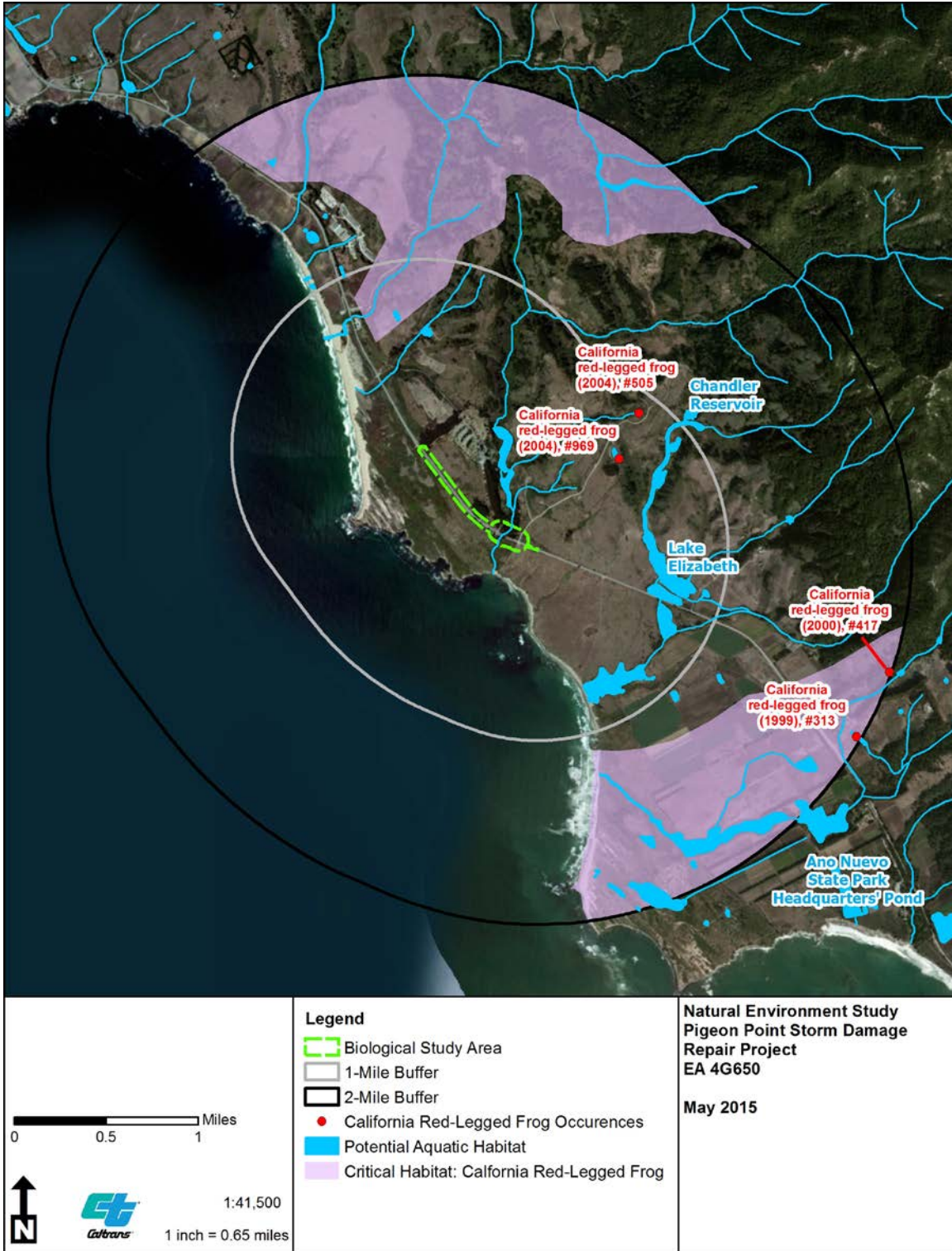
Occurrence 969 documented finding an unknown number of CRLF during surveys from May to June 2003 and May to August 2004, at a permanent impoundment surrounded by a thin band of emergent vegetation and willows (Appendix D, photograph 16).

Occurrence 505 documented finding as many as six adults (including two calling males) between March and May 2001, and an unknown number of CRLF from May to June 2003 and May to August 2004, at a smaller permanent pond surrounded by a dense band of willow with coastal scrub and annual grassland in the adjacent uplands (Appendix D, photograph 17). These ponds are protected by boundary fencing.



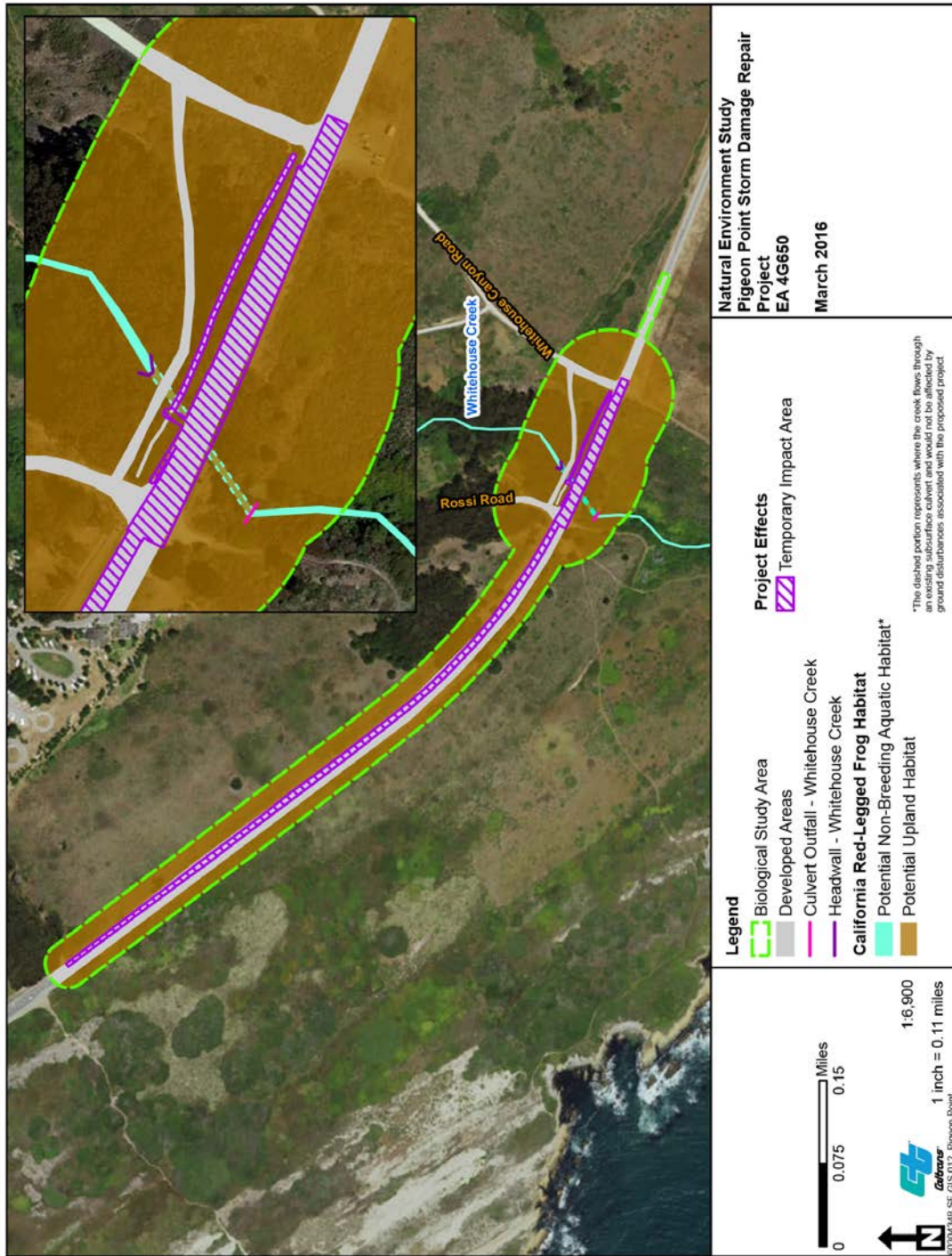
Sources: CDFW 2015; Service 2015

Figure 7. Recorded Occurrences of Special-Status Species and Critical Habitat within 5 Miles of the Biological Study Area



Sources: CDFW 2015; Service 2014, 2015

Figure 8. California Red-legged Frog Records, Potential Aquatic Habitat, and Critical Habitat within 2 Miles of the Biological Study Area



Sources: Caltrans 2014, Service 2014

Figure 9. Potential Project Effects on California Red-Legged Frog Habitat

Outside a 5-mile radius, the remaining CRLF occurrences have been reported northwest and southeast of the BSA (CDFW 2015). No other occurrences are documented northeast or east of the BSA, where the majority of the landscape is forested, or south or southwest, which extends off the coast into the Pacific Ocean.

Aquatic breeding habitat for CRLF does not occur in the BSA. The only aquatic habitat in the BSA is Whitehouse Creek. Within the BSA, Whitehouse Creek flows almost entirely through a subsurface culvert that is not suitable for CRLF breeding because of a lack of riparian or emergent vegetation or other suitable substrate for the attachment of eggs and absence of slow-moving backwaters or pools. Upstream from the culvert in the BSA, no slow-moving backwaters or pools occur that will provide suitable breeding habitat. The roadside ditch, adjacent to SR 1 between Rossi Road and Whitehouse Canyon Road, does not provide suitable aquatic habitat (breeding or non-breeding) for CRLF because it retains water only immediately after storm events, and for only somewhat longer periods during winter; no emergent or other wetland-type vegetation is in the ditch (Appendix D, photograph 18).

In the BSA, Whitehouse Creek could provide suitable non-breeding aquatic habitat for CRLF because known breeding ponds occur within 1 mile of the BSA and no significant barriers to movement are present. During winter storms, flows in Whitehouse Creek likely will be too swift (because of the steepness of the slope and narrowness of the channel) to provide movement corridors or suitable aquatic breeding habitat for CRLF. Approximately 0.2 acre of potential non-breeding aquatic habitat occurs along Whitehouse Creek in the BSA; this includes portions within the subsurface culvert beneath SR 1 that could serve as a movement corridor outside the breeding season (Figure 9).

All upland habitats in the BSA (approximately 24.2 acres of forest and coastal scrub/annual grassland) provide potentially suitable upland and dispersal habitat for CRLF because the entire BSA occurs within 2 miles of known breeding sites. However, relatively few signs of fossorial mammals were observed in the project footprint and adjacent portions of the BSA during the September 9, 2014, site reconnaissance. Forests bordering Whitehouse Creek in the BSA have abundant amounts of duff and leaf litter that could provide upland refugia or support upland dispersal and potential foraging habitat outside the breeding season for this species. However, these upland habitats lack the more typical dense understory vegetation that CRLF prefer for overwintering shelter. In addition, the upland habitats in the BSA are subject to ongoing disturbance from SR 1, and they are more than 0.6 mile (3,200 feet) from suitable aquatic breeding habitat; dispersal distances are typically less than 0.5 mile (see “Movement” under Section 4.3.1,

California Red-Legged Frog). Therefore, CRLF upland habitat in the BSA is considered marginal.

Whitehouse Creek downstream from the BSA is shaded by dense riparian vegetation, making upland conditions better there for CRLF during the non-breeding season. In addition, coastal scrub and grasslands on State Parks property outside the BSA (primarily to the northeast) probably provide higher quality upland habitat for CRLF because they are farther from roadway disturbances, closer to known breeding sites, and evidence of fossorial mammal activity is present there.

4.5.1.2. CRITICAL HABITAT

The BSA is not within federally designated critical habitat for CRLF (Service 2006a, 2010). The closest critical habitat unit is approximately 0.75 mile north of the BSA in the vicinity of Gazos Creek and approximately 1.25 miles south of the BSA in the Año Nuevo State Park, in San Mateo County.

4.5.1.3. PROJECT IMPACTS

The project will result in direct and potentially indirect effects on CRLF habitat and may result in adverse effects on individuals during construction. Project effects are described in detail below. Figure 8 shows CRLF habitat in the BSA and vicinity. Figure 9 shows project-related temporary impact areas relative to CRLF habitat in the BSA.

The project will result in temporary direct effects on approximately 0.2 acre of suitable upland habitat for CRLF in the project footprint. No direct effects on CRLF aquatic habitat are anticipated from construction. Direct, temporary effects on upland habitat for CRLF will result from replacement of the metal beam guardrail, construction of the subsurface drainage system, and regrading and lining of a portion of the existing roadside ditch. These impacts will occur outside the existing roadway. All disturbed areas that were previously vegetated, except the concrete-lined ditch, will be seeded with a native hydroseed mix after completion of construction; these areas will ultimately provide upland habitat for CRLF, but not for at least 2 years after restoration activities are completed. This is sufficient time to allow for grasses to grow to the point they will provide sufficient cover and for duff layers to rebuild.

Construction staging and site access will be restricted to existing paved roadways. Therefore, no additional temporary direct effects on CRLF habitat will occur as a result of staging and site access.

Construction activities are not expected to increase sedimentation to Whitehouse Creek, to introduce chemical contaminants to this waterway and the site, or to result in the

spread of invasive plants because of implementation of avoidance and minimization measures, such as standard construction BMPs and spill prevention practices.

The project may result in direct and indirect effects on individual CRLF. The project may potentially harass or harm individuals present during construction-related activities; the likelihood of CRLF occurrence is low because of the distance of the BSA from suitable and known breeding sites, and the overall marginal habitat quality for CRLF in the BSA. Nonetheless, there is a potential for construction activities to affect juvenile and adult life stages that disperse into the BSA, because known breeding sites do occur within 1 mile of the BSA. The project will not affect CRLF egg masses and tadpoles or adults during the breeding season, because construction will be done outside the breeding season and suitable aquatic breeding habitat does not occur in the BSA.

CRLF could be displaced temporarily from the project footprint and vicinity during the 60-day construction period, if present, resulting from placement of wildlife exclusion fencing or because of avoidance of construction noise or vibrations. However, because of the relatively short construction duration and abundant suitable upland habitat adjacent to the BSA, this effect will be unlikely to substantially disrupt essential CRLF life history functions.

In the event of a summer rainstorm during the construction period, adult CRLF could initiate movements and disperse throughout the BSA, including along the roadway used for construction staging and site access or along portions of the roadway that will be resurfaced during the one-night construction operation. Individuals moving into the BSA after rainfall events could be inadvertently injured or killed by construction activities.

Implementation of avoidance and minimization measures, described for this species below, will lessen potential adverse effects of the project on CRLF during the project. However, not all adverse effects can be eliminated because disturbance of potentially suitable upland habitat will be essential in implementation of the project. In addition, harm, harassment, and other direct adverse effects on individuals could result from capture and relocation of CRLF, if found during pre-construction surveys and monitoring of the project footprint. Inadvertent direct injury and/or mortality of CRLF that are not found and relocated could occur if individuals are present in the project footprint during construction activities.

4.5.1.4. CRITICAL HABITAT

The project will not adversely affect CRLF critical habitat because the project will not occur in or adjacent to CRLF critical habitat.

4.5.1.5. AVOIDANCE AND MINIMIZATION MEASURES

Caltrans will implement the general avoidance and minimization measures as outlined in Section 1.5, to reduce potential adverse effects on CRLF. The following additional species-specific measures will be implemented to further avoid and minimize effects on CRLF:

1. **Seasonal avoidance.** Construction activities will be scheduled to minimize effects on CRLF. Except for vegetation clearing necessary to minimize effects on nesting birds, construction will be conducted outside the rainy season (November 1 through April 15) to protect CRLF, because this window will avoid the period when the species is most active.
2. **Biological monitoring.** A Service and CDFW-approved (hereafter referred to as “Agency-approved”) biologist(s) will be on site to monitor all construction activities that can reasonably result in the take of CRLF (e.g., vegetation removal, drainage improvements). The qualifications of all proposed biological monitors will be presented to the Service and CDFW for review and written approval at least 30 calendar days before the start of construction.

Once on site, the Agency-approved biologist(s) will maintain monitoring records that will include (1) the beginning and ending time of each day’s monitoring effort; (2) a statement identifying the listed species encountered, including the time and location of the observation; (3) the time the specimen is identified and by whom and its condition; and (4) a description of any actions taken. The Agency-approved biologist(s) will maintain complete records in their possession while conducting monitoring activities, and will immediately surrender records to the Service, CDFW, and/or their designated agents on request. If requested, all monitoring records will be provided to the Service and CDFW within 30 days of completion of monitoring work.

3. **Construction monitoring.** The Agency-approved biologist(s) will conduct a pre-construction survey for CRLF before any ground-disturbing activities. Pre-construction surveys will be conducted within 24 hours before the start of any ground-disturbing activities and vegetation clearing that may result in take of CRLF. All suitable aquatic and upland habitats, including refugia habitat (e.g., fossorial mammal burrows), such as dense vegetation, small woody debris, and burrows, will be thoroughly inspected. If a burrow is present in the project footprint and may be occupied by a CRLF, the burrow will be excavated by hand, if possible, and the individual(s) will be allowed to move out of the area on its/their own, as determined and monitored by the Agency-approved biologist or biological monitor. Ideally burrow surveys and excavation will take place before installation of wildlife

exclusion fencing (see Measure 2, “Wildlife Exclusion Fencing,” in Section 1.5, General Avoidance and Minimization Measures), so that any CRLF in the project footprint will have sufficient time to move and find a suitable alternative retreat, and will not be able to move back into the project footprint after the start of construction. The biologist will conduct clearance surveys at the beginning of each day and regularly throughout the workday during the early phases of construction. The appropriate level of monitoring will be determined through regular coordination with the Service and CDFW once the project footprint has been fully cleared and grubbed. Other monitoring responsibilities may be deferred to an assigned inspector following Service and CDFW approval.

4. **Protocol for species observation.** The Agency-approved biologist will have the authority to halt work through coordination with the resident engineer in the event that a CRLF is observed in the BSA. The resident engineer will keep construction activities suspended in any construction area where the biologist has determined that a potential take of CRLF can occur. Work will resume after observed CRLF individuals leave the site voluntarily, the biologist determines that no wildlife is being harassed or harmed by construction activities, or the wildlife is removed by the biologist to a release site using Agency-approved handling techniques. If take of CRLF occurs, the biologist will notify the Service and CDFW contact by telephone and electronic mail within 1 working day.
5. **Entrapment avoidance.** To prevent the inadvertent entrapment of CRLF, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day with plywood. If it is not feasible to cover an excavation, one or more escape ramps constructed of earthen fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. All replacement pipes, culverts, or similar structures stored at the project site overnight will be inspected before they are subsequently moved, capped, and/or buried. If at any time a trapped, listed animal is discovered, the Agency-approved biologist immediately will place escape ramps or other appropriate structures to allow the animal to escape, or the Service and CDFW will be contacted by telephone for guidance. The Service and CDFW will be notified of the incident by telephone and electronic mail within 1 working day.
6. **Proper use of erosion control devices.** To prevent CRLF from becoming entangled, trapped, or injured, plastic mono-filament netting (erosion control matting) will not be used on the job site. Acceptable substitutes will include coconut coir matting or tackified hydroseeding compounds.

7. **Site access to agency personnel.** If requested, before, during, or after completion of ground-breaking and construction activities, Caltrans will allow access by the Service and CDFW personnel into the project footprint for inspection of construction work. Caltrans requests that all agency representatives contact the resident engineer before accessing a work site, and review and sign the Safe Work Code of Practices before accessing a work site for the first time.
8. **Vehicle and equipment checks.** Before moving construction equipment or vehicles into the project site, operators will check underneath those that have been parked on-site for more than 30 minutes and will notify the Agency-authorized biological monitor if any reptile or amphibian is observed.
9. **Reporting of project-related take.** Injured CRLF will be cared for by an Agency-approved biologist or a licensed veterinarian, if necessary. Any deceased CRLF will be preserved according to standard museum techniques and will be held in a secure location. The Service and CDFW will be notified within 1 working day of the discovery of a death or an injury to any listed species resulting from project-related activities or if a listed species is observed at a construction site. Notification will include the date, time, and location of the incident or the finding of a deceased or injured animal, clearly indicated on a USGS 7.5-minute quadrangle and other maps at a finer scale, as requested by the Service or CDFW, and any other pertinent information.
10. **Post-construction compliance reporting.** Caltrans will submit post-construction compliance reports to the Service, prepared by the Agency-authorized biologist within 60 calendar days after completion of construction activities or within 60 calendar days of any break in construction activities lasting more than 60 calendar days. This report will detail (1) dates that relevant construction activities occurred; (2) pertinent information concerning the success of construction activities in implementing avoidance and minimization measures for listed species; (3) an explanation of failure to meet such measures, if any; (4) known project-related effects on CRLF, if any; (5) occurrences of incidental take of any listed species; (6) documentation of construction worker environmental training; and (7) other pertinent information.

4.5.1.6. COMPENSATORY MITIGATION

No compensatory mitigation is proposed, because implementation of the project will affect only a small area of marginal upland habitat for CRLF along an existing roadway embankment. Implementation of avoidance and minimization measures will minimize potential for take and other adverse effects on CRLF during project activities.

4.5.1.7. CUMULATIVE IMPACTS

As described under “Cumulative Effects” in Section 4.1.1, Waters of the U.S. and State, there are no other projects or adverse impacts to sensitive biological resources to consider with respect to cumulative effects from the project. Hence, the project will not incrementally contribute to adverse cumulative effects on CRLF.

4.5.2. San Francisco Garter Snake

SFGS was federally listed as endangered in 1967 (Service 1967). A recovery plan was published for SFGS on September 11, 1985 (Service 1985). No critical habitat for SFGS has been designated. SFGS is listed as a fully protected species under Section 5050 of the CFGC, which prevents CDFW from authorizing take of the species for projects not related to scientific research. Take is defined in Section 86 of the CFGC as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

SFGS is one of 11 recognized subspecies of the common garter snake (*T. sirtalis*). It is endemic to the San Francisco peninsula and is known only from San Mateo County (Service 1985).

Historically, SFGS occurred in scattered wetlands along the San Francisco Peninsula from just south of the San Francisco county line to Waddell Creek in Santa Cruz County, and along the base of the Santa Cruz Mountains to at least Upper Crystal Springs Reservoir (Service 1985). SFGS enters into a zone of intergradation with the conspecific California red-sided garter snake (*T. sirtalis infernalis*) just south of the Pulgas Water Temple at Crystal Springs Reservoir in San Mateo County into extreme northern Santa Clara County, near the Stanford University campus.

SFGS mating occurs in either spring or fall, with a concentrated period of breeding in the first warm days of spring, typically in March (Service 1985). Males likely search for mates using scent; mating aggregations have been observed on open grassy, sunny slopes during fall (Service 1985). Females ovulate in late spring and bear live young in summer, typically between July and August (Service 1985).

SFGS typically is found in the vicinity of permanent and seasonal freshwater wetlands and marshes with emergent and bankside vegetation that support breeding ranid frog, as well as Pacific tree frog, populations (McGinnis et al. 1987; Stebbins 2003; Service 1985, 2006b). Upland sites, such as grassy slopes near drainages and ponds, are used for basking, rodent burrows in areas adjacent to water for shelter and escape, and low-lying marsh areas for feeding and breeding (Service 1985). The species thermoregulates by basking in open habitats, such as grassland or scrubland, and it requires basking spots in close proximity the aquatic habitat.

The species occurs infrequently in upland grasslands away from streams and ponds (Service 1985). All age classes of SFGS require an adequate prey base, most notably native ranid frogs (such as CRLF). Pacific chorus frogs (*Pseudacris regilla*) are also critical for SFGS, especially for neonate snakes. SFGS also preys on bullfrogs and salamanders, including newts. It requires upland refugia for winter hibernation and for daily retreat from thermal extremes and predators during the active season. SFGS may seek refuge in rodent burrows in open meadows, grassland, and grassland/scrub matrix. Upland retreats used in winter can be more distant from the aquatic habitat than the retreats used on a daily basis during the active season, spring through fall. The above habitat and prey use information discussed by McGinnis et al. (1987) and Larsen (1994) are important indicators of habitat quality for SFGS. However, SFGS also can be found outside areas with these features when the species searches for mates, disperses, forages, and moves between aquatic habitats.

Threats to SFGS identified in the species' recovery plan (Service 1985) include loss and isolation of habitat resulting from development and illegal collecting by amateur herpetologists. Since publication of the recovery plan, additional threats have been identified, including the reduction of CRLF to the point that it has been listed as federally threatened, predation by the bullfrog (*Rana catesbeiana*) and centrarchid fish, disease and parasites, seral succession of grassland and aquatic habitats to shrubland or forest communities by lack of or incorrect management, and vehicle strikes and barriers to movement caused by roads (Service 2006b).

4.5.2.1. SURVEY RESULTS

No protocol-level surveys for SFGS have been conducted in the BSA. No SFGS were detected during the habitat assessment and site reconnaissance; however, this species has been documented previously at an unspecified location along Whitehouse Creek (CDFW 2015) and a known breeding population occurs to the south in Año Nuevo State Park. In addition, potential non-breeding aquatic habitat and upland habitat are present in the BSA (Figure 10). Therefore, SFGS could occur in the BSA.

A review of the CNDDDB identified one documented occurrence (two individuals) of SFGS along Whitehouse Creek that bisects the BSA, five additional records within 2 miles, and nine additional records within 5 miles of the BSA (CDFW 2015).

Aquatic breeding habitat for SFGS does not occur in the BSA. The only aquatic habitat in the BSA is Whitehouse Creek, which is not suitable for SFGS breeding. SFGS uses freshwater wetlands and marshes with emergent vegetation that support breeding ranid and Pacific tree frogs, not fast-moving streams such as Whitehouse Creek. However, Whitehouse Creek could provide suitable non-breeding aquatic dispersal habitat for

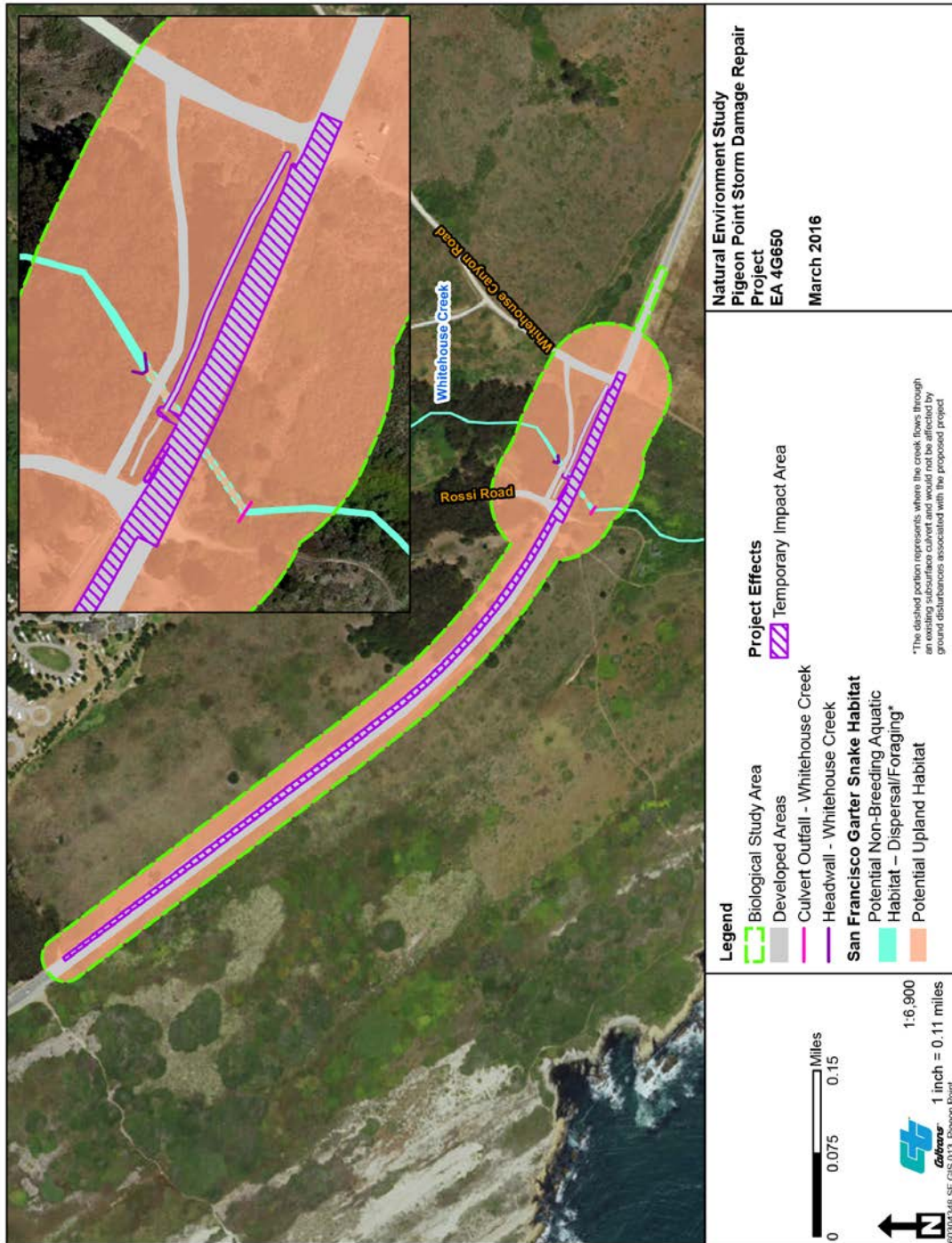
SFGS because known breeding sites occur in the vicinity of the BSA, such as approximately 2.5 miles southeast in Año Nuevo State Park, and because SFGS has been detected along Whitehouse Creek (CDFW 2015).

In addition, CRLF is a primary food source for SFGS, and suitable SFGS breeding habitat occurs in ponds known to support CRLF within 1 mile of the BSA (see Section 4.3.1, California Red-Legged Frog). Suitable aquatic breeding habitat also occurs in nearby Lake Elizabeth to the east and, to some extent, Chandler Reservoir to the northeast, within the Cascade Creek Watershed (see Figure 8), where emergent wetlands border these impoundments. Whitehouse Creek could provide opportunities for dispersal and foraging, if and when frogs or other suitable prey are available. A total of 0.2 acre of potential non-breeding aquatic habitat for SFGS occurs along Whitehouse Creek in the BSA; this includes portions within the subsurface culvert beneath SR 1 that could serve as a movement corridor (Figure 10).

The roadside ditch adjacent to SR 1 between Rossi Road and Whitehouse Canyon Road does not provide suitable aquatic habitat for SFGS because it does not retain water for any substantial length of time so as to support important prey species (e.g., CRLF) and no emergent or other wetland type vegetation is present there (Appendix D, photograph 18).

Coastal scrub/annual grasslands throughout the BSA could provide suitable upland habitat for SFGS because of the proximity to Whitehouse Creek where SFGS have been observed. The BSA is also adjacent to two of six “significant” populations identified for protection in the SFGS recovery plan for this species: (1) Pescadero Marsh and Año Nuevo State Reserve Properties, owned by the California Department of Parks and Recreation and (2) Cascade Ranch property, privately owned (Service 2006b). However, relatively few signs of fossorial mammals were observed in areas with coastal scrub/annual grassland habitats during the September 9, 2014, site reconnaissance of the BSA. Therefore, upland scrub and grassland habitats in the BSA provide relatively few opportunities for refugia for SFGS.

The “significant” Año Nuevo State Reserve population includes all areas within the park, including areas in the Cascade Creek Watershed (such as Chandler Reservoir and Lake Elizabeth) (see Figures 1 and 8) immediately adjacent to and south of the Whitehouse Creek drainage; this population is thought to contain one of the largest known SFGS populations (Service 2006b).



Sources: Caltrans 2014, Service 2014

Figure 10. Potential Project Effects on San Francisco Garter Snake Habitat

The “significant” Cascade Ranch population occurs on private property within the Whitehouse Creek Watershed. Therefore, approximately 24.2 acres of potential uplands for SFGS occur in the BSA. However, SFGS typically does not stray far from aquatic habitats, and portions of the BSA farthest from Whitehouse Creek (to the north-northwest) may be of limited value to SFGS. In addition, uplands adjacent to Whitehouse Creek generally lack burrows typically used for short-term refuge and overwintering, and are well-shaded, thereby reducing opportunities for basking. Coastal scrub and grasslands outside the BSA probably provide higher quality upland habitat than in the BSA, based on evidence of fossorial mammal activity there that could provide opportunities for escape and shelter.

4.5.2.2. CRITICAL HABITAT

No federally designated critical habitat has been designated for this species.

4.5.2.3. PROJECT IMPACTS

The project will result in direct and potentially indirect effects on SFGS habitat in the BSA and may result in adverse effects on individuals during construction. Project effects are described in detail below. Figure 10 shows project-related temporary impact areas relative to SFGS habitat in the BSA.

The project will result in temporary direct effects on approximately 0.2 acre of suitable upland habitat for SFGS within the project footprint. No direct effects on SFGS aquatic habitat are anticipated as a result of construction. Direct, temporary effects on upland habitat for SFGS will result from replacement of the metal beam guardrail, construction of the subsurface drainage system, and regrading and lining of a portion of the existing roadside ditch. These impacts will occur outside the existing roadway. All disturbed areas, except the concrete-lined ditch, will be seeded with a native hydroseed mix after construction; these areas ultimately will provide upland habitat for the SFGS after construction, but not for at least two years after restoration activities are completed. This will allow time for grasses to grow to the point that they provide sufficient cover and for duff layers to rebuild. In the interim, these disturbed areas potentially could be used for basking, but occur predominantly along steep slopes and adjacent to SR 1, and therefore will be marginal for this purpose because of adjacent disturbance from the roadway.

Construction staging and site access will be restricted to existing paved roadways. Therefore, no additional temporary direct effects on SFGS habitat will occur because of staging and site access.

Construction activities are not expected to increase sedimentation to Whitehouse Creek, to introduce chemical contaminants to this waterway and the site, or to result in the

spread of invasive plants because of implementation of avoidance and minimization measures, such as standard construction BMPs and spill prevention practices.

The project may result in direct and indirect effects on individual SFGS. The project may result in the harm or harassment of individuals present during construction-related activities; the likelihood of effects on individuals in the form of harm or harassment is relatively low, because the project is not in close proximity to known or potential breeding habitat and the majority of the BSA (along SR 1) occurs relatively far from suitable non-breeding aquatic habitat in Whitehouse Creek.

SFGS could be displaced temporarily from the project footprint and vicinity during construction, if present, because of placement of wildlife exclusion fencing or avoidance of construction noise or vibrations; however, because of the relatively short construction duration (approximately 60 days) and the abundant and more suitable upland habitat that is available outside the BSA, this effect will be unlikely to disrupt essential SFGS life history functions.

SFGS could use portions of the BSA on or adjacent to the roadway for basking and could be inadvertently crushed by construction equipment; however, SFGS would likely be highly conspicuous under such circumstances and should be able to be avoided by construction operations. As described in the avoidance and minimization measures for this species below, biological monitors will be present during construction to search for SFGS.

Implementation of the avoidance and minimization measures for this species, described below, will lessen the adverse effects and will reduce the potential for direct take of SFGS. However, not all adverse effects and the potential for take can be eliminated because disturbance of potentially suitable upland habitat is essential for implementation of the project.

4.5.2.4. AVOIDANCE AND MINIMIZATION MEASURES

Caltrans will implement the general avoidance and minimization measures as outlined in Section 1.5, to reduce potential adverse effects on SFGS. The following additional species-specific measures will be implemented to further avoid and minimize effects on SFGS:

1. **Biological monitoring.** A Service- and CDFW-approved (hereafter referred to as “Agency-approved”) biologist(s) will be on site to monitor all construction activities that can reasonably result in the take of SFGS (e.g., vegetation removal, drainage improvements). The qualifications of all proposed biological monitors will be

presented to the Agencies for review and written approval at least 30 calendar days before the start of construction.

Once on site, the Agency-approved biologist(s) will maintain monitoring records that will include (1) the beginning and ending time of each day's monitoring effort; (2) a statement identifying the listed species encountered, including the time and location of the observation; (3) the time the specimen is identified and by whom and its condition; and (4) a description of any actions taken. The Agency-approved biologist(s) will maintain complete records in their possession while conducting monitoring activities, and will immediately surrender records to the Service, CDFW, and/or their designated agents on request. If requested, all monitoring records will be provided to the Service and CDFW within 30 days of completion of monitoring work.

2. **Construction monitoring.** The Agency-approved biologist(s) will conduct a pre-construction survey for SFGS before any ground-disturbing activities. Pre-construction surveys will be conducted within 24 hours before the start of any ground-disturbing activities and vegetation clearing that may result in take of SFGS. All suitable aquatic and upland habitats, including refugia habitat (e.g., fossorial mammal burrows), such as dense vegetation, small woody debris, and burrows, will be thoroughly inspected. If a burrow is present in the project footprint and may be occupied by a SFGS, the burrow will be excavated by hand, if possible, and the individual(s) will be allowed to move out of the area on its/their own, as determined and monitored by the Agency-approved biologist or biological monitor. Ideally burrow surveys and excavation will take place before installation of wildlife exclusion fencing (see Measure 2, "Wildlife Exclusion Fencing," in Section 1.5, General Avoidance and Minimization Measures,) so that any SFGS in the project footprint will have sufficient time to move and find a suitable alternative retreat, and will not be able to move back into the project footprint after the start of construction. The biologist will conduct clearance surveys at the beginning of each day and regularly throughout the workday during the early phases of construction. The appropriate level of monitoring will be determined through regular coordination with the Service and CDFW once the project footprint has been fully cleared and grubbed. Other monitoring responsibilities may be deferred to an assigned inspector following Service and CDFW approval.
3. **Protocol for species observation.** The Agency-approved biologist will have the authority to halt work through coordination with the resident engineer in the event that a SFGS is observed in the BSA. The resident engineer will keep construction activities suspended in any construction area where the biologist has determined that

a potential take of SFGS can occur. Work will resume after observed SFGS individuals leave the site voluntarily, the biologist determines that no wildlife is being harassed or harmed by construction activities, or the wildlife is removed by the biologist to a release site using Service and CDFW-approved handling techniques. If take of SFGS occurs, the biologist will notify the Service and CDFW contact by telephone and electronic mail within one (1) working day.

4. **Entrapment avoidance.** To prevent the inadvertent entrapment of SFGS, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day with plywood. If it is not feasible to cover an excavation, one or more escape ramps constructed of earthen fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. All replacement pipes, culverts, or similar structures stored at the project site overnight will be inspected before they are subsequently moved, capped, and/or buried. If at any time a trapped, listed animal is discovered, the Agency-approved biologist immediately will place escape ramps or other appropriate structures to allow the animal to escape, or the Service and CDFW will be contacted by telephone for guidance. The Service and CDFW will be notified of the incident by telephone and electronic mail within one (1) working day.
5. **Proper use of erosion control devices.** To prevent SFGS from becoming entangled, trapped, or injured, plastic mono-filament netting (erosion control matting) will not be used on the job site. Acceptable substitutes will include coconut coir matting or tackified hydroseeding compounds.
6. **Site access to agency personnel.** If requested, before, during, or after completion of ground-breaking and construction activities, Caltrans will allow access by Service and CDFW personnel into the project footprint for inspection of construction work. Caltrans requests that all agency representatives contact the resident engineer before accessing a work site, and review and sign the Safe Work Code of Practices before accessing a work site for the first time.
7. **Vehicle and equipment checks.** Before moving construction equipment or vehicles into the project site, operators will check underneath those that have been parked on-site for more than 30 minutes and will notify the Agency-authorized biological monitor if any reptile or amphibian is observed.
8. **Reporting of project-related take.** Injured SFGS will be cared for by an Agency-approved biologist or a licensed veterinarian, if necessary. Any deceased SFGS will be preserved according to standard museum techniques and will be held in a secure

location. The Service and CDFW will be notified within one (1) working day of the discovery of a death or an injury to any listed species resulting from project-related activities or if a listed species is observed at a construction site. Notification will include the date, time, and location of the incident or the finding of a deceased or injured animal, clearly indicated on a USGS 7.5-minute quadrangle and other maps at a finer scale, as requested by the Service or CDFW, and any other pertinent information.

9. **Post-construction compliance reporting.** Caltrans will submit post-construction compliance reports to the Service, prepared by the Agency-authorized biologist within 60 calendar days after completion of construction activities or within 60 calendar days of any break in construction activities lasting more than 60 calendar days. This report will detail (1) dates that relevant construction activities occurred; (2) pertinent information concerning the success of construction activities in implementing avoidance and minimization measures for listed species; (3) an explanation of failure to meet such measures, if any; (4) known project-related effects on SFGS, if any; (5) occurrences of incidental take of any listed species; (6) documentation of construction worker environmental training; and (7) other pertinent information.

4.5.2.5. COMPENSATORY MITIGATION

No compensatory mitigation is proposed, because implementation of the project will affect only a small area of marginal upland habitat for SFGS along an existing roadway embankment. Implementation of avoidance and minimization measures will minimize potential for take and other adverse effects on SFGS during project activities.

4.5.2.6. CUMULATIVE IMPACTS

As described under “Cumulative Effects” in Section 4.1.1, Waters of the U.S. and State, there are no other projects or adverse impacts to sensitive biological resources to consider with respect to cumulative effects from the project. Hence, the project will not incrementally contribute to adverse cumulative effects on SFGS.

4.5.3. Central California Coast Steelhead DPS

CCC Steelhead DPS was federally listed as a threatened ESU on August 18, 1997, and was re-classified as a federally threatened DPS on January 5, 2006 (NMFS 2011).

The CCC Steelhead DPS includes winter-run Steelhead populations from the Russian River inclusive (Sonoma County), in-stream tributaries to the San Francisco/San Pablo Bay system, and extends south to Aptos Creek (Santa Cruz County), inclusive. Populations have been aggregated into five geographically-based diversity strata; the

BSA occurs within the Santa Cruz Mountains diversity stratum, in which most watersheds appear to support at least some Steelhead production (NMFS 2011). Recent juvenile surveys in the Santa Cruz Mountain stratum of this DPS indicate that Steelhead remain in all major watersheds from San Gregorio Creek south to Aptos Creek; however, other than Scott Creek population estimates, little is known about adult population sizes in this diversity stratum (Williams et al. 2011).

Adult CCC Steelhead typically enter streams from the ocean in late fall and early winter to migrate to upstream, and spawn from late December through April, with the peak between January and March. Migrating fish require deep holding pools with cover, such as underwater ledges and caverns. Coarse gravel beds in riffle areas are used for egg laying and yolk sac fry habitat after the eggs have hatched. Juvenile Steelhead typically rear in freshwater for a longer time than other salmonids, typically ranging from 1 to 3 years. Juveniles then migrate downstream in late winter and spring. Throughout their range, Steelhead typically remain at sea for 1 to 4 growing seasons before returning to freshwater to spawn (Moyle 2002). Unlike Chinook and Coho Salmon, Steelhead commonly spawns more than once, returning to the ocean from its natal streams after spawning.

Steelhead requires cool, clean, well-oxygenated water, and appropriate gravel/cobble for spawning. The spawning habitat condition is strongly affected by water flow and quality, especially temperature, dissolved oxygen, shade, and silt load, all of which can greatly affect the survival of eggs and larvae (NMFS 2006).

The greatest threat to this species is placement of migration barriers that prevent access to spawning habitat (NMFS 2007). Water diversions further reduce freshwater habitat quality throughout the range of these species. Other threats to Steelhead include agricultural operations, forestry operations, gravel extraction, illegal harvest, streambed alteration, unscreened or substandard fish screens on diversions, suction dredging, urbanization, water pollution, potential genetic modification in hatchery stocks resulting from domestication selection, incidental mortality from catch-and-release hooking, climatic variation leading to drought, flooding, variable ocean conditions, and predation (NMFS 2007). Secondly, the quantity and quality of summer rearing habitat with cool water pools and extensive cover for older juvenile Steelhead can be considered limiting factors for Steelhead in California streams.

4.5.3.1. SURVEY RESULTS

No fisheries surveys were conducted in the BSA; however, Steelhead is known to occur in Whitehouse Creek in the BSA (Becker and Reining 2008). A single juvenile Steelhead

was observed in the roadway culvert beneath SR 1 during the September 9, 2015 site reconnaissance.

The CNDDDB documents that Whitehouse Creek historically has been, and continues to be, a Steelhead stream, per a 1987 report (CDFW 2015). Three additional CNDDDB records for this species occur within 5 miles of the BSA, from the late 1980s and 1990s, and include records within Pescadero, Gazos, and Waddel creek watersheds in the vicinity of the BSA.

In the BSA, Whitehouse Creek provides suitable upstream and downstream migration habitat for Steelhead adults and outmigrating smolts; however, it does not provide suitable spawning habitat because of a lack of gravel or cobble substrate. Whitehouse Creek in the BSA may provide suitable juvenile rearing habitat as a result of dense shading and vegetative cover along its banks, but the BSA lacks deep pools for maintaining cooler water temperatures, especially during summer. The lack of pools also may limit holding habitat for adults migrating upstream.

4.5.3.2. CRITICAL HABITAT

Federally designated critical habitat for CCC Steelhead (NMFS 2005) includes Whitehouse Creek, which occurs in the BSA.

4.5.3.3. PROJECT IMPACTS

The project will not have any direct effects on CCC Steelhead habitat in Whitehouse Creek; no project actions are proposed within the creek channel or on its banks (including the subsurface culvert under SR 1), nor will any riparian vegetation be removed. Ground-disturbing activities will occur more than 75 feet from the banks of Whitehouse Creek.

The project could result in indirect effects on CCC Steelhead habitat in Whitehouse Creek, such as a short-term increase in sediment runoff during ground-disturbing activities or pollution from equipment leaks/spills during construction that could degrade creek conditions and Steelhead habitat. Project-related ground-disturbing activities will include vegetation removal, replacement of the metal beam guardrail, construction of the subsurface drainage system, and regrading and lining of a portion of the existing roadside drainage ditch. These activities will occur in and adjacent to the roadside ditch, which is connected hydrologically to Whitehouse Creek via a subsurface culvert drainage system and ultimately overland flow (see discussion in Section 3.1.1, under “Hydrology”; also see Figure 2). The likelihood of such effects will be low because construction will occur during the dry season (July and August), when the risk for runoff is low, and because standard construction BMPs (discussed further below) will be implemented for spill prevention and erosion/sedimentation control. Furthermore, the current drainage system

(i.e., ditch and culvert) is almost completely filled with existing sediment runoff from the destabilized roadway embankment (Caltrans 2016; see also Appendix D, photographs 12 and 18); therefore, existing conditions already threaten Whitehouse Creek with potential for sediment runoff. Any residual sedimentation runoff effects from the project likely will be negligible relative to existing levels of sedimentation that is ongoing. In addition, the project ultimately will reduce the potential for sedimentation runoff into Whitehouse Creek, because it will improve the shape and grade of the existing drainage ditch so that sheet flow that drains from the roadway embankment into the ditch does not continue to undermine the stability of the adjacent slope.

Vibrations and noise from ground-disturbing activities and staging/site access will not affect adult Steelhead because construction will occur during summer, outside adult upstream (fall/winter) and downstream (spring) migration periods. Vibrations and noise would have minimal effects on juveniles, rearing year-round in Whitehouse Creek, or on outmigrating smolts because pools suitable for rearing generally are not in the BSA, particularly during summer low-flow conditions when construction will occur, and because construction will occur outside the typical outmigration period of smolts (late winter and spring). However, because this portion of Whitehouse Creek lacks pools that could serve as holding habitat and generally lacks suitable rearing habitat, and because low flow conditions will prevail during the summer construction period, any use of Whitehouse Creek in the BSA will likely be brief and/or by few individuals. In addition, dense vegetation along the creek will provide some shielding from construction disturbances for fish in Whitehouse Creek. For these reasons, the potential effects of noise and vibrations on fish using Whitehouse Creek in the BSA during construction are considered to be negligible.

Project Effects on Critical Habitat

The project will not adversely affect CCC Steelhead critical habitat because no direct effects on the primary constituent elements of CCC Steelhead habitat will occur. Furthermore, potential indirect effects will be negligible because Caltrans will implement avoidance and minimization measures to reduce potential adverse effects on water quality in Whitehouse Creek.

Project Effects on Essential Fish Habitat

CCC Steelhead is not included in the designation of any EFH specified in FMPs developed by the Pacific Fishery Management Council under the requirements of MSA. Therefore, a discussion of effects on EFH does not apply to this species.

4.5.3.4. AVOIDANCE AND MINIMIZATION MEASURES

Caltrans will implement the general avoidance and minimization measures during project construction, as outlined in Section 1.5, to minimize the potential for disturbance to sensitive species and habitats. These measures will avoid potential for sedimentation or pollution effects on Whitehouse Creek, where CCC Steelhead are known to occur. Species-specific measures will not be necessary to avoid adverse effects on CCC Steelhead because few individuals are likely to use Whitehouse Creek in the BSA during construction, reflecting the low-flow conditions that prevail during the summer construction period. In addition, this portion of Whitehouse Creek generally lacks pools that typically are used by juveniles during rearing.

4.5.3.5. COMPENSATORY MITIGATION

No compensatory mitigation is proposed because the project is anticipated to have negligible effects on CCC Steelhead.

4.5.3.6. CUMULATIVE IMPACTS

The project is not expected to affect CCC Steelhead DPS as a result of the implementation of adequate avoidance and minimization measures; therefore, the project will not contribute to cumulative effects on this species.

4.5.4. Central California Coast Coho Salmon ESU

CCC Coho Salmon ESU was listed as endangered under the ESA in November 1996 (Service 1996b).

Adult CCC Coho Salmon ESU currently uses the coastal waters of California, from the California/Oregon border to Santa Cruz County, California, migrating into coastal streams and rivers to spawn in northwestern California. The species accesses a few small Bay tributary drainages in Marin County, with limited distribution in other portions of the Bay. Information on Coho Salmon in the San Joaquin and Sacramento rivers is sparse; the few individuals found in either of these rivers are believed to either be strays from other rivers or from a historic hatchery program.

The Coho Salmon, along with other salmonids, is anadromous. Like Chinook Salmon, Coho Salmon are semelparous. Pacific salmonids are divided into ESUs.

Adult Coho Salmon enter freshwater from September through January to spawn in the gravel and cobble substrate of freshwater rivers and tributary streams of northern California (and northward), the timing of which varies with stream flow and water temperature. In California, the eggs incubate from November through April. Fry emerge from the gravel between March and July, with peak emergence occurring from March to May. Juvenile Coho Salmon rear in low-gradient coastal streams, lakes, sloughs, side

channels, estuaries, low-gradient tributaries to large rivers, beaver ponds, and large slackwaters. After 1 year in freshwater, smolts begin migrating downstream to the ocean in late March or early April, although this time frame fluctuates on a year-to-year basis. Coho Salmon then spends a variable amount of time in estuarine environments; the time spent in estuaries is less in the southern portion of its range. On entry to the ocean, the immature salmon remain in in-shore waters, congregating in schools as they move north along the continental shelf. Coho Salmon remain in the ocean for 1 to 2 years before returning to natal streams to spawn.

The prevailing threats to this species include loss and degradation of spawning habitat and restricted access to spawning habitat from river and stream blockages.

4.5.4.1. SURVEY RESULTS

No fisheries surveys were conducted for this project; however, potential habitat for CCC Coho Salmon is present in Whitehouse Creek in the BSA, and the species is known to occur in adjacent watersheds in the vicinity (Figure 7). Therefore, this species could occur within Whitehouse Creek in the BSA.

A review of the CNDDDB (CDFW 2015) revealed one record (1995) from Waddell Creek, approximately 5 miles southeast of the BSA (Figure 7).

In the BSA, Whitehouse Creek provides suitable up- and downstream migration habitat for adults and outmigrating smolts; however, it does not provide suitable spawning habitat because of a lack of gravel or cobble substrate, nor does it provide suitable juvenile rearing habitat because of a lack of pools. The lack of pools also limits the value of the BSA for adults migrating upstream, which require deep holding pools with extensive cover.

4.5.4.2. CRITICAL HABITAT

Critical habitat for the CCC Coho Salmon was designated on May 5, 1999 (NMFS 1999). Critical habitat for this species encompasses accessible reaches of all rivers (including estuarine areas and tributaries) between Punta Gorda and the San Lorenzo River (inclusive) in California, including two streams entering San Francisco Bay: Arroyo Corte Madera Del Presidio and Corte Madera Creek; this includes Whitehouse Creek in the BSA.

4.5.4.3. PROJECT IMPACTS

The project will have similar effects on CCC Coho Salmon as described above for CCC Steelhead (refer to the previous discussion for “Project Impacts” under Section 4.3.3).

Project Effects on Critical Habitat

The project will not adversely affect CCC Coho Salmon critical habitat because no direct effects on the principal constituent elements of critical habitat will occur as a result of the project. Potential indirect project effects will be negligible because Caltrans will implement avoidance and minimization measures to reduce adverse effects on Whitehouse Creek water quality.

Project Effects on Essential Fish Habitat

The BSA is included in the designation of EFH for the Coho Salmon covered by the Pacific Coast Salmon FMP, developed by the Pacific Fishery Management Council under the requirements of the MSA.

EFH is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. The following EFH components must be adequate for spawning, rearing, and migration: substrate composition; water quality; water quantity, depth, and velocity; channel gradient and stability; food; cover, and habitat complexity; space; access and passage; and habitat connectivity. Whitehouse Creek in the BSA provides limited migration and rearing habitat components of EFH. Potential effects on EFH in the BSA for Pacific salmon are similar to those described for Coho Salmon habitat above. These include the potential for minor indirect effects from sedimentation/erosion/pollution that will be avoided or minimized through standard construction BMPs.

Therefore, project effects will be minimal to negligible, and are not likely to adversely affect EFH.

4.5.4.4. AVOIDANCE AND MINIMIZATION MEASURES

Caltrans will implement the general avoidance and minimization measures, as outlined in Section 1.5, to minimize the potential for disturbance to sensitive species and habitats. These measures will avoid potential for sedimentation effects on Whitehouse Creek. Species-specific measures will not be necessary to avoid adverse effects on CCC Coho Salmon because few individuals are likely to use Whitehouse Creek in the BSA during construction, reflecting the low-flow conditions that will prevail during the summer construction period. In addition, this portion of Whitehouse Creek generally lacks pools that are typically used by juveniles during rearing.

4.5.4.5. COMPENSATORY MITIGATION

No compensatory mitigation is proposed because the project is anticipated to have negligible effects on CCC Coho Salmon.

4.5.4.6. CUMULATIVE IMPACTS

The project is not expected to affect CCC Coho Salmon ESU as a result of the implementation of adequate avoidance and minimization measures; therefore, the project will not contribute to cumulative effects on this species.

4.5.5. Marbled Murrelet

The marbled murrelet was federally listed as a threatened species on September 28, 1992 (Service 1992). A recovery plan was published for this species on September 24, 1997 (Service 1997). Critical habitat was designated (final rule) on May 24, 1996 (Service 1996c), and a final revision was published on October 4, 2011 (Service 2011b). There is no critical habitat for marbled murrelet in the BSA; the closest critical habitat unit for this species is 0.75 mile upstream from the BSA along the Whitehouse Creek drainage.

The marbled murrelet is a relatively small, chunky seabird. The breeding range for this species occurs in six geographic zones along the Pacific Coast from Alaska south coastally through British Columbia, Washington, Oregon, to northern Monterey Bay in central California (Service 1997). These geographic zones of occurrence are generally associated with large tracts of old growth forest in proximity to the coast, three of which are located in California (i.e., Siskiyou Coast Range, Mendocino, and Santa Cruz Mountains). Birds winter throughout the breeding range and also in small numbers off the southern California coast (Service 1997). The southernmost Santa Cruz Mountains breeding population, located nearest the BSA, is separated by nearly 300 miles from the neighboring population to the north (Service 1997). Population estimates from the late 1990s suggest several thousand up to 6,000 individuals may occur in California, compared to estimates of 60,000 that may have occurred historically (Service 1997).

Marbled murrelet has a unique life history compared to most seabirds; they forage in nearshore marine waters, but fly inland (up to 50 miles) to nest on large limbs of mature conifers (Service 1997). Individuals have been detected at inland sites during any time of year, however, detections at inland sites are more frequent during the breeding season (late March through late September). During the nesting season, adults take turns incubating nests and feeding young between foraging bouts to the ocean that can occur up to eight times a day; flights between foraging and nesting sites occur at all times during the day, but most often occur at dawn and dusk (Service 1997).

Marbled murrelet uses forest stands with old-growth characteristics generally within 50 miles of the coast (Service 1997). For nesting, they require old-growth or mature trees (more than 30 inches in diameter at breast height [dbh]) with large branches or deformities for nest platforms, or platforms created by mistletoe infestations (Service

1997). Nests in California have been located in stands containing old-growth redwood and Douglas fir (Service 1997).

Primary threats to this species include loss of nesting habitat, poor reproductive success and predation, marine pollution, and possibly changes in prey abundance and distribution (Service 1997).

4.5.5.1. SURVEY RESULTS

No protocol-level surveys for marbled murrelet have been conducted in the BSA. None were observed during site reconnaissance visits on July 9 and September 9, 2015; however, the species is very secretive and generally hard to observe, even during focused surveys. While foraging, roosting, and nesting habitats are not present in the BSA, the BSA is situated along a riparian corridor between suitable marine and inland habitats for this species. According to the CNDDDB, the nearest recorded occurrence of marbled murrelet is approximately 7 miles from the BSA (CDFW 2015). Therefore, marbled murrelets could fly over the BSA while moving to and from marine and inland habitats.

4.5.5.2. CRITICAL HABITAT

The BSA does not occur within federally designated critical habitat for marbled murrelet (Service 2011b).

4.5.5.3. PROJECT IMPACTS

The project is not expected to result in adverse effects on marbled murrelet because this species is not expected to occur in the BSA except as an occasional flyover. No suitable foraging, nesting, or roosting habitat is present in the BSA. Individuals may occur above the BSA during flights between suitable marine and inland habitats in the region, and could therefore be subject to noise and visual disturbances from project construction; however, inland flights primarily occur at dawn and dusk when construction activities will not normally occur. Therefore, the potential for exposure of marbled murrelets to construction disturbance will be low, and duration brief because individuals will only be near the BSA for very short periods when flying over the project site. Furthermore, construction disturbance will occur over a relatively short time period (2-month construction period relative to the 6-month breeding season), and over a minimal area relative to the distance they are accustomed to traveling between marine and inland sites, and will occur in the context of existing roadway disturbance along SR 1.

4.5.5.4. AVOIDANCE AND MINIMIZATION MEASURES

Caltrans will implement the general avoidance and minimization measures, as outlined in Section 1.5, to minimize the potential for disturbance to sensitive species and habitats. However, marbled murrelet is not expected to use habitat in the BSA for any essential life

history functions such as foraging, roosting, or nesting; therefore, species-specific measures will not be necessary to avoid adverse effects on this species.

4.5.5.5. COMPENSATORY MITIGATION

No compensatory mitigation is proposed because the project is not likely to adversely affect marbled murrelet.

4.5.5.6. CUMULATIVE IMPACTS

The project is not expected to affect marbled murrelet; therefore, the project will not contribute to cumulative effects on this species.

4.5.6. Monarch Butterfly

The monarch butterfly, a species tracked by the CNDDDB (CDFW 2015), is not protected under federal or State law. However, on August 26, 2014, the Center for Biological Diversity and Center for Food Safety, joined by the Xerces Society for Invertebrate Conservation and Dr. Lincoln Brower, submitted a petition to list the monarch butterfly as a threatened species under the ESA (CBD et al. 2014), and the species currently is under review by the Service.

The monarch butterfly is in the family *Nymphalidae* and subfamily *Danaianae*, “milkweed butterflies,” which lay their eggs only on milkweed (*Asclepias* spp. and related genera). Adult monarchs, however, are not directly dependent on milkweeds for food. Both breeding and migrating adults sip nectar from many native and nonnative flowers, including milkweeds, asters (*Asteraceae* spp.), forget-me-nots (*Boraginaceae* spp.), lilies (*Liliaceae* spp.), verbenas (*Verbenaceae* spp.), mallows (*Ranunculaceae* spp.), wild carrots (*Apiaceae* spp.), legumes (*Fabaceae* spp.), goldenrod (*Solidago* spp.), clover (*Trifolium* spp.), alfalfa (*Medicago* spp.), and butterfly bush (*Buddleia* spp.). These and numerous other nectar-producing plants on which monarch butterflies feed are likely to occur within open meadow and grassland habitats.

During the spring and summer breeding season, monarch butterflies disperse throughout the U.S. and southern Canada as successive generations migrate and expand north, following the availability of suitable milkweeds as summer progresses. During winter, monarch butterflies from west of the Rockies primarily fly to a series of roosting sites centered along coastal areas of south-central California, although some migrate to the Mexican roosts used by individuals from the eastern U.S. Monarchs begin to arrive at overwintering sites along the California coast in October, and the majority are gone by early March. Suitable overwintering sites are protected from wind and storms, from freezing temperatures, and contain dappled sunlight and high humidity, often occurring where the coastline runs in an east-west orientation, offering protection from prevailing

west-northwest winds (CBD et al. 2014). Winter-blooming flowers that provide nectar to monarchs also may be important at overwintering sites (CBD et al. 2014). Monarch butterflies generally are inactive in winter but take flight on warm and/or sunny days, when above their thermal flight threshold of approximately 55°F (Masters et al. 1988), visiting flowers for nectar and damp areas for moisture (Monarch Watch 2002). Overwintering butterflies can live up to 9 months, in contrast to the few weeks lifespan of spring and summer generation adults. Overwintering sites that are known to have hosted more than 1,000 individuals occur throughout the San Francisco Bay and from Monterey Bay and southward; the intervening coastline where the project BSA is located appears to host smaller overwintering populations in general (CBD et al. 2014).

4.5.6.1. SURVEY RESULTS

Monarch butterfly is known to occur in the BSA. No focused surveys for butterflies have been conducted for this project; however, a few adult monarchs were observed among the eucalyptus forest along Whitehouse Creek in the BSA by AECOM ecologists on February 24, 2015. Individuals were previously documented along Whitehouse Creek in 2011, as part of annual Thanksgiving counts that were conducted by the Xerces Society along the central coast (Monroe et al. 2015). A CNDDDB record for this species along Whitehouse Creek in 1998 also overlaps the BSA (CDFW 2015). All occurrences along Whitehouse Creek were documented during winter. No milkweed larval host plants or flowering plants that could serve as nectar plants for adults, such as those mentioned above, were observed during site visits in the BSA (see Appendix E), but focused plant surveys were not conducted for the project. Potential habitat that could support milkweed host plants or adult nectaring plants occurs in open coastal scrub/annual grasslands of the BSA, but it is absent from the densely shaded project footprint.

4.5.6.2. PROJECT IMPACTS

The project will not affect the breeding habitat (i.e., milkweed larval host) of monarch butterfly, because suitable habitat that potentially could support larval host plants does not occur in the project footprint. The project footprint is dominated by heavily shaded eucalyptus forest not suitable for milkweed plants.

Project implementation will result in the direct temporary removal of the understory vegetation within 0.2 acre of eucalyptus forest as a result of replacement of the metal beam guardrail, construction of the subsurface drainage system, and regrading and lining of a portion of the existing roadside ditch. The minor temporary removal of understory vegetation as part of the project is not likely to substantially reduce availability of suitable overwintering habitat and microclimates for monarchs in the project vicinity, and disturbed areas would be restored so that understory vegetation would eventually reestablish after project implementation. In addition, records suggest that overwintering

sites in the vicinity of Whitehouse Creek and the BSA have not historically supported large numbers of overwintering monarchs; therefore, these minor project-related effects along Whitehouse Creek are not likely to substantially affect overwintering monarch populations along the California coast.

Minor vegetation removal could result in injury and mortality of adult butterflies, if conducted during the monarch overwintering period (October through March), and if monarch butterflies are within understory vegetation proposed for removal. Monarch butterflies typically are inactive during winter and are not able to take flight to avoid disturbances or unfavorable conditions (unless air temperatures allow them to exceed their thermal flight threshold of approximately 55°F). Relatively few monarch butterflies are anticipated to overwinter in the BSA, and vegetation disturbances will occur over a relatively short time period (probably no more than a week or two); therefore, few monarch butterflies potentially will be affected in this manner. However, implementation of avoidance and minimization measures (described below) should adequately avoid this potential effect.

4.5.6.3. AVOIDANCE AND MINIMIZATION MEASURES

Caltrans will implement the general avoidance and minimization measures as outlined in Section 1.5. In addition, the following species-specific measure will be implemented to minimize effects on the monarch butterfly by requiring suitable vegetation removal to occur when butterflies are expected to be active and mobile (e.g., flying and nectaring), and therefore less vulnerable to effects from tree removal:

- **Remove potentially suitable vegetation when monarch butterflies are active:** If vegetation suitable as a monarch overwintering site is removed during the overwintering period for monarch butterflies (October through March), Caltrans will, to the extent feasible, conduct vegetation removal activities when air temperatures are at or exceed the thermal flight threshold for monarch butterflies (55°F).

4.5.6.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed because the project, including avoidance and minimization efforts, is not likely to adversely affect the monarch butterfly.

4.5.6.5. CUMULATIVE IMPACTS

The project is not expected to affect the monarch butterfly as a result of the implementation of adequate avoidance and minimization measures; therefore, the project will not contribute to cumulative effects on this species.

4.5.7. Western Pond Turtle

WPT is listed as a California species of special concern. This species range occurs from Washington southward to Mexico (Service 1993). WPT is distributed along Pacific slope drainages, from elevations near sea level to above 5,000 feet. Occurrences have been recorded on the eastern and western margins of the Santa Cruz Mountains, including in San Mateo County (CDFW 2015), where they are common in relatively natural lowland streams, ponds, and some reservoirs (SCMBC 2004).

WPT occurs in both perennial and intermittent waters, including marshes, streams, rivers, ponds, and lakes. The species uses aquatic habitats primarily for foraging, thermoregulation, and avoidance of predators. It typically uses habitats with large amounts of emergent logs, vegetation, or boulders on which it can bask. It also basks on top of aquatic vegetation or positions itself just below the surface, where water temperatures are elevated. WPT requires slack or slow-moving water for foraging; it is an omnivore and most of its animal diet includes insects, crayfish, and other aquatic invertebrates. Fishes, tadpoles, and frogs are eaten occasionally, and carrion is eaten when available. Vegetative food includes algae, tule, and cattail roots. It nests on streambanks or in other upland areas, often within 300 feet of a water source, but it has been documented wandering up to 0.5 mile to nest (Service 1993). For nesting, it uses soils in nearby uplands with low, sparse vegetation, and sometimes with a duff layer, on unshaded or south-facing slopes. After hatching, young normally overwinter in the nest and emerge the next spring. WPT also requires cover for refugia, including deep waters, undercut banks, and woody debris. The species is rare or absent from shaded streams, channelized habitats without deep pools with basking sites, and sites without adequate uplands for overwintering and nesting (SCMBC 2004).

WPT activity is water temperature dependent. Along the central and southern coasts of California where the BSA is located, WPT may be active year-round. However, hibernation may occur in aquatic habitats or in burrows of adjacent uplands, typically with the presence of a duff layer within a few hundred feet of aquatic habitats (Rathbun et al. 2002). In woodland and sage scrub habitats along coastal streams in central California, most WPTs leave the drying creeks in late summer and return after winter floods (Rathbun et al. 2002).

4.5.7.1. SURVEY RESULTS

No WPT were observed during the site reconnaissance on July 9, 2014, or during habitat surveys conducted in Whitehouse Creek in the BSA or both upstream and downstream from the BSA on September 9, 2014. Water was in Whitehouse Creek on both occasions; however, relatively low flows were observed during habitat surveys (approximately 1 cfs). Two CNDDDB records of WPT occur within 5 miles of the BSA (CDFW 2015; see

also Figure 7): one along Waddell Creek approximately 5 miles south of the BSA and a second at a permanent pond approximately 0.9 mile northeast of the BSA concurrent with CRLF record #505 (see previous description under “Survey Results” in Section 4.3.1; also see Figure 8).

Whitehouse Creek in the BSA is not likely to provide suitable aquatic habitat for WPT because the species generally is absent from heavily shaded streams that lack deep pools and basking sites. Similarly, the BSA does not provide suitable nesting habitat because the nearest suitable aquatic habitat is approximately 0.7 mile to the northeast and the BSA lacks suitable open unvegetated areas that could be used for nesting. However, the BSA could provide an aquatic corridor for dispersal or other seasonal movements for this species because it is within 0.9 mile of a known off-channel WPT site upstream. In addition, coastal scrub/annual grassland habitats surrounding Whitehouse Creek could provide suitable upland (i.e., aestivation) habitat for WPT that occur in suitable aquatic habitats further upstream along Whitehouse Creek and elsewhere in the project vicinity.

4.5.7.2. PROJECT IMPACTS

The project will result in a temporary loss of approximately 0.2 acre of potential low quality WPT upland aestivation habitat (i.e., eucalyptus forest) as a result of replacement of the metal beam guardrail, construction of the subsurface drainage system, and regrading and lining of a portion of the existing roadside ditch (refer to Figure 5). The potentially affected habitat is of low quality for WPT because it is along and adjacent to a steep roadway embankment, composed primarily of roadway base that is subject to heavy traffic disturbances from SR 1, and it is relatively far (approximately 0.7 mile) from suitable aquatic habitat in the vicinity.

Ground-disturbing activities could result in increased sedimentation or pollution to Whitehouse Creek, reducing stream quality as a movement corridor for WPT, and perhaps subjecting WPT individuals to injury or mortality associated with harmful chemicals.

Project construction also could disturb, injure, or kill WPT that are in the project footprint, because of ground-disturbing activities that may crush or entomb individuals using suitable upland habitats during aestivation. Movement or staging of construction equipment and materials along SR 1 near suitable habitat also could injure or kill WPTs from adjacent areas that move onto roads or into other open areas for basking or dispersal. The potential for this effect to occur is relatively low because the BSA is relatively far from suitable aquatic habitat and known WPT-occupied sites.

4.5.7.3. AVOIDANCE AND MINIMIZATION MEASURES

Caltrans will implement the general avoidance and minimization measures as outlined in Section 1.5 to reduce potential adverse effects of the project on WPT. The following additional species-specific measures will be implemented to further minimize adverse effects on WPT:

- **Pre-construction Surveys for Western Pond Turtle.** A qualified biologist will conduct a pre-construction survey for WPT in suitable habitat in the project footprint and in a 100-foot buffer beyond the project footprint boundaries. Surveys will be conducted within 3 days of the start of construction and installation of environmentally sensitive area fencing. If WPT is found during pre-construction surveys, a qualified biologist, with CDFW approval, will move the turtle(s) to the nearest suitable habitat outside the construction site that will not be disturbed. The construction site will be re-inspected whenever a lapse in construction activities of 2 weeks or more has occurred in suitable WPT habitat. Caltrans will obtain the required CDFW Scientific Collecting Permit to handle and/or relocate WPT.
- **Biological Monitoring.** A qualified biologist, approved by CDFW, will be on-site during construction, within 100 feet of suitable habitat for WPT. If any WPT is observed on-site during construction, activities will cease within 50 feet of the individual until it moves sufficiently outside the work area, or the biologist will move the WPT out of harm's way, as needed.

4.5.7.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed for WPT because effects of the project on this species will be adequately avoided or minimized.

4.5.7.5. CUMULATIVE IMPACTS

As described under "Cumulative Effects" in Section 4.1.1, Waters of the U.S. and State, there are no other projects or adverse impacts to sensitive biological resources to consider with respect to cumulative effects from the project. Hence, the project will not incrementally contribute to adverse cumulative effects on WPT.

4.5.8. Townsend's Big-Eared Bat

Townsend's big-eared bat is a California species of special concern and a state candidate for listing as threatened. This species requires caves, mines, tunnels, buildings or other human-made structures for roosting, but may use hollow trees as roost sites. It may use separate sites for night, day, hibernation, and maternity roosts. Maternity roosts form from about March to June, and pups are born (typically one per female) between May and July (depending on local climatic conditions). Roosting sites are the most limiting

resource for this species. It feeds on moths, beetles, and a variety of soft-bodied insects. It forages in edge habitats along streams, adjacent to and within a variety of wooded habitats, and often travels large distances while foraging. (WBWG 2005)

4.5.8.1. SURVEY RESULTS

A review of the CNDDDB (CDFW 2015) revealed one documented occurrence of Townsend's big-eared bat from 1987, in an abandoned house approximately 1 mile north of the BSA within the Gazos Creek watershed (Figure 7).

Preferred daytime roosting sites for this species (e.g., caves, mines, bridges, abandoned buildings) are absent from the BSA. Large trees along Whitehouse Creek in and near the BSA may provide suitable roosting habitat, if sufficiently large cavities or hollows are present. However, trees large enough to support maternity roosts for up to 100 individuals are not present within the project footprint.

Forested areas in the BSA also may provide temporary night roosting habitat while foraging. Whitehouse Creek and forest edge habitat present along the creek and Rossi Road in the BSA also could provide potential foraging habitat for the Townsend's big-eared bat.

4.5.8.2. PROJECT IMPACTS

Project implementation will not remove any vegetation that could serve as temporary day or night roosts for this species; the project will only temporarily disturb a minor amount (approximately 0.2 acre) of understory vegetation within eucalyptus forest that would be restored post-project. No suitable structures for maternity roosts for this species are present in the BSA, and therefore will not be affected by the project.

Project construction is not expected to disrupt foraging activities in and around the BSA because construction generally will occur during the day, when bats will be roosting. The single night operation to resurface the roadway between Rossi Road and Whitehouse Canyon Road will have negligible effects on foraging because the species is mobile and generally forages over large areas; avoidance of the BSA for one night is not expected to affect the local population.

Because abundant foraging habitat and forests suitable for temporary night roosts are present in and near the BSA (and elsewhere in the upper Whitehouse Creek watershed), project construction is not expected to substantially reduce foraging or temporary roosting opportunities for this species or to adversely affect local or regional populations. Bats are mobile and should be able to temporarily shift foraging patterns and roost sites to other available habitats in the BSA during construction.

4.5.8.3. AVOIDANCE AND MINIMIZATION MEASURES

Caltrans will implement the general avoidance and minimization measures as outlined in Section 1.5.

4.5.8.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed for Townsend's big-eared bat because effects of the project on this species will be adequately avoided or minimized; residual effects will be negligible.

4.5.8.5. CUMULATIVE IMPACTS

The project is not expected to affect Townsend's big eared bat; therefore, the project will not contribute to cumulative effects on this species.

4.5.9. San Francisco Dusky-Footed Woodrat

The San Francisco dusky-footed woodrat is listed as a California species of special concern. This species is found throughout the San Francisco Bay Area and south to Monterey (Hall 1981, as cited in CSUS 2014; Carraway and Verts 1991), generally in forested habitats with moderate canopy, year-round greenery, a brushy understory, and a sufficient supply of suitable nest building materials (see below) (CDFG 2008). Evergreen or live oaks or other thick-leaved trees and shrubs are important habitat elements for this species (Kelly 1990 and Williams et al. 1992; as cited in CSUS 2014).

The San Francisco dusky-footed woodrat is highly arboreal (Kelly 1990). The species is a generalist herbivore, and individuals forage on the ground and in bushes and trees, primarily on woody plants such as live oak, maple, alder, coffeeberry, and elderberry; they also consume fungi, flowers, grasses, and acorns (CDFG 2008). Dusky-footed woodrat is nocturnal and active all year long. The breeding season spans from December to September, with a peak in mid-spring (CDFG 2008).

San Francisco dusky-footed woodrat builds mounded stick nests that can measure 3 to 8 feet across and as much as 6 feet tall (SCMBC 2004). Nests typically are placed on the ground in areas of dense brush, against or straddling a log or roots of an adjacent tree. They may also be constructed in crotches or cavities of trees or logs, or occasionally higher up in trees, primarily evergreen oaks (CSUS 2014). A well-developed understory at the base of a single evergreen may be suitable for a single individual (CDFG 2008).

4.5.9.1. SURVEY RESULTS

No San Francisco dusky-footed woodrat or its den has been documented in the BSA; however, no focused surveys for this species have been conducted for the project. No CNDDDB records for this species occur within 5 miles of the BSA (CDFW 2015). Eucalyptus forest along the Whitehouse Creek corridor in the BSA may provide suitable

habitat for this species. Dense understory forest habitat is present; but evergreen or live oaks or other thick-leaved trees and shrubs, considered important habitat elements for this species, are not in the BSA. In addition, potential habitat in the BSA occurs adjacent to a heavily traveled roadway (SR 1) with persistent noise disturbance. Therefore, San Francisco dusky-footed woodrat could occur in the BSA, albeit habitat suitability is low.

4.5.9.2. PROJECT IMPACTS

The temporary removal of the understory vegetation within approximately 0.2 acre of eucalyptus forest along the roadway embankment will constitute a minor loss in low quality potential habitat for San Francisco dusky-footed woodrat. Because understory vegetation removal will occur along or adjacent to a steep roadway embankment that is subject to regular disturbance from a highly traveled roadway (SR 1), the loss of this low quality potential habitat is not likely to adversely affect the local population.

Ground-disturbing activities could destroy woodrat dens or injure or kill woodrats inhabiting dens, if they occur within the project footprint. Woodrats are nocturnal and will be expected to reside within dens during daytime construction activities. The project also could disturb or displace woodrats from nearby dens if they occur in proximity to construction activities.

4.5.9.3. AVOIDANCE AND MINIMIZATION MEASURES

Caltrans will implement the general avoidance and minimization measures as outlined in Section 1.5, to reduce potential adverse effects on San Francisco dusky-footed woodrat. The following additional species-specific measures will be implemented to minimize potential adverse effects on the woodrat:

- 1. Pre-construction Surveys for San Francisco Dusky-Footed Woodrat.** Before the start of construction, a qualified biologist will conduct a survey of the project footprint and a 30-foot buffer beyond the project footprint boundaries to determine the location of active and inactive woodrat dens. Any dens detected during the surveys will be recorded and mapped in relation to the construction disturbance footprint. In addition, the biologist will evaluate any signs of current woodrat activity, including the presence of fresh scat, freshly chewed vegetation, and the presence of cobwebs covering nest entrances. A 30-foot equipment exclusion buffer will be established around active and inactive dens that can be avoided; within such buffers, all vegetation will be retained and nests will remain undisturbed.
- 2. Potential Trapping and Relocation.** If the project cannot avoid effects on an active den(s), then a trapping and relocation effort will be implemented. Relocation of trapped woodrats will occur as close as possible to the original den site. If suitable

habitat is not available for relocation of woodrats in the project vicinity, offsite locations will be identified. Trapping of woodrats will be conducted by a qualified biologist who has a current CDFW collection permit to trap and relocate the species. Such trapping will occur outside the breeding season, between September and December. Specific methods for trapping woodrats and relocation of individuals and their nest sites, including identification of suitable sites for relocation, will be developed in collaboration with CDFW, but likely will be similar to methods employed for other projects in the region, such as those used for the SR-152 Hecker Pass Safety Improvements Project (CDFW 2013) or State Route 9 Storm Damage Project.

4.5.9.4. COMPENSATORY MITIGATION

Caltrans will not implement compensatory mitigation for effects on San Francisco dusky-footed woodrat because only a relatively small area (0.2 acre) of low-quality habitat for this species along an existing roadway will be temporarily affected by the project. In addition, avoidance and minimization measures will be implemented to avoid and minimize adverse effects on this species. For these reasons, no compensatory mitigation is proposed for the anticipated minor project effects on San Francisco dusky-footed woodrat.

4.5.9.5. CUMULATIVE IMPACTS

As described under “Cumulative Effects” in Section 4.1.1, Waters of the U.S. and State, there are no other projects or adverse impacts to sensitive biological resources to consider with respect to cumulative effects from the project. Hence, the project will not incrementally contribute to adverse cumulative effects on San Francisco dusky-footed woodrat.

4.5.10. Nesting Birds

All migratory birds, including feathers or other parts, nests, eggs, or products, are protected under the MBTA of 1918 (16 USC 703–712). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in Title 50, Part 10 of the CFR, except as allowed by implementing regulations (50 CFR 21). All nesting birds protected under this law must be avoided during project construction. Active nests of most birds also are protected under Section 3503 of the CFGC, and raptor nests are protected under Section 3503.5.

4.5.10.1. SURVEY RESULTS

No specific surveys for nesting birds have been conducted in the BSA, but raptors and other birds could nest in various habitats in and adjacent to the BSA. Numerous birds were observed during site reconnaissance surveys and could nest in the BSA during the

breeding season. Birds use a variety of locations for nesting: on the ground, in shrubs and trees, in cavities, in crevices, and on human-made structures.

4.5.10.2. PROJECT IMPACTS

Ground-disturbing activities or equipment operations within the project footprint could affect raptors and other birds nesting in vegetation in or adjacent to work sites. Potential effects could occur from the destruction of active nest sites or from disturbances (e.g., noise, visual) that cause nest abandonment. Potential adverse effects on nest sites also could occur from project-related activities including removal of approximately 0.2 acre of the understory vegetation within eucalyptus forest, drainage improvements, roadway resurfacing and staging, and site access. These effects will be avoided, however, by implementation of avoidance and minimization efforts described below.

4.5.10.3. AVOIDANCE AND MINIMIZATION MEASURES

Caltrans will implement the general avoidance and minimization measures as outlined in Section 1.5, in particular Measure 4, “Migratory Bird Treaty Act,” to minimize potential adverse effects on nesting migratory birds.

4.5.10.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed for nesting birds because potential effects causing failure of active nests will be avoided.

4.5.10.5. CUMULATIVE IMPACTS

The project is not expected to affect nesting birds; therefore, the project will not contribute to cumulative effects on nesting birds.

Chapter 5. Results: Conclusions and Regulatory Determinations

This chapter summarizes the federal, State, and local laws and regulations that are relevant to the project, and the permits that are required to comply with them.

The following agencies will be involved with review and approval of the project:

- The Service’s Sacramento office
- NMFS North–Central Coast office
- CDFW Bay–Delta Region
- USACE San Francisco District
- Central Coast RWQCB

5.1. National Environmental Policy Act Compliance Summary

Because the project will require federal permits or approvals (e.g., from the Service), it is subject to the requirements of NEPA.

In its regulations for implementation of NEPA, the Council on Environmental Quality has directed all federal agencies to adopt procedures that, among other things, identify actions that are “categorically excluded.” Such actions normally do not require the preparation of either an environmental impact statement or an environmental assessment. Pursuant to these regulations, FHWA has defined categories of actions that do not include significant environmental impacts. Such actions are defined in a categorical exclusion assignment memorandum of understanding between Caltrans and FHWA, pursuant to 23 USC 326 (FHWA and Caltrans 2013). The project will include actions that fall under Appendix A, Category 4, “Routine repair of facilities due to storm damage, including permanent repair, to return the facility to operational condition that meets current standards of design and public health and safety without expanding capacity (e.g., slide repairs, construction or repair of retaining walls).” Therefore, a categorical exclusion is applicable.

5.2. Federal Endangered Species Act Consultation Summary

Endangered species consultation with the Service and/or NMFS is necessary when a project has the potential to affect a federally listed species and/or to destroy or adversely modify designated critical habitat for species managed by the Service and/or NMFS.

A species list was obtained from the Service’s Sacramento Office on May 6, 2015, identifying listed species that may occur in the BSA and project vicinity. After evaluating site conditions and species’ life histories and location records, it was determined that three Service-managed federally listed species—CRLG, SFGS, and marbled murrelet—are known or have the potential to occur in the project vicinity. Critical habitat for these species does not overlap the project footprint or BSA.

Caltrans submitted a biological assessment to the Service on June 18, 2015 in support of Section 7 consultation regarding potential adverse effects on Service-managed federally listed species. Anticipated effects conclusions for each Service-managed federally listed species that potentially can be affected by the project are summarized in Table 4.

Table 4. Anticipated Effects Conclusions for Service-Managed Federally Listed Threatened and Endangered Species

Common Name	Effects Conclusion ¹
California red-legged frog	MALAA
San Francisco garter snake	MALAA
Marbled murrelet	NE
Note: 1 MALAA = may affect likely to adversely affect; MANLAA = may affect, not likely to adversely affect; NE = no effect Source: Caltrans 2014b	

It was determined that two NFMS-managed federally listed species—CCC Steelhead and central CCC Coho Salmon—are known or have the potential to occur in the project vicinity, specifically in Whitehouse Creek adjacent to the project footprint. Critical habitat for these two fish species occurs in Whitehouse Creek, outside the project footprint but in the BSA. However, the project will not affect these NMFS-managed federally listed species; therefore, consultation with NMFS regarding potential impacts on these species is not necessary.

5.3. Wetlands and Other Waters Coordination Summary

A preliminary jurisdictional delineation of waters of the U.S. and state has been completed for the project (see Appendix C); 0.05 acre of potentially jurisdictional waters of the U.S. and state occur in the BSA, 0.03 acre of which will be affected by the project. At the time of preparation of this NES, the jurisdictional delineation had not been verified by the USACE. The results are subject to change, based on USACE review.

CWA Section 404 prohibits the discharge of dredged or fill material into waters of the U.S., including wetlands, without a permit from USACE. The four basic processes for obtaining Section 404 authorization are: an NWP, a regional permit, a letter of

permission, and an individual permit. Most existing NWP's are only applicable to projects that will result in effects on less than one-third acre of tidal waters or less than one-half acre of nontidal waters and wetlands. NWP No. 3 (Maintenance) authorizes the repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure, or fill, provided the structure or fill is not put to uses differing from the original permitted purpose. As a result of removing and replacing the concrete-lined ditch, the project will result in the loss of 0.03 acre of a potentially jurisdictional water of the U.S. Because fill to potentially jurisdictional waters is *de minimis*, according to the USACE mitigation rule, and Caltrans would reestablish the hydrologic connectivity, compensatory mitigation is not being proposed; the project is likely to be appropriately permitted under a NWP No. 3.

Because the project has potential to result in discharge to waters of the U.S., it will be subject to issuance of a water quality certification under CWA Section 401. Caltrans will prepare and submit a Section 401 Water Quality Certification Application to the Central Coast RWQCB.

CDFW regulates activities that will interfere with the natural flow of, or substantially alter, the channel, bed, or bank of a lake, river, or stream. Section 1602 of the CFGC requires that CDFW be notified of lake or stream alteration activities. If CDFW subsequently determines that such an activity may adversely affect an existing fish and wildlife resource, CDFW has authority to issue a streambed alteration agreement. Requirements to protect biological resources and water quality often are conditions of streambed alteration agreements. These requirements may include avoidance or minimization of heavy equipment use within stream zones, limitations on work periods to avoid effects on wildlife and fisheries resources, and measures to restore degraded sites or compensate for permanent habitat losses. The project will include disturbance to an ephemeral man-made roadside drainage ditch; the project is not expected to require submittal of a CFGC Section 1602 notification of a lake or streambed alteration to CDFW; however, confirmation by CDFW is recommended.

The California Coastal Act Permit Requirements, Public Resources Code Section 30610, states, in part, under the "General Provisions of the Repair, Maintenance and Utility Hook-Up Exclusions":

... no coastal development permit shall be required for... (c) Repair or maintenance activities that do not result in an addition to, or enlargement or expansion of, the object of such repair or maintenance activities; provided, however, that if the Commission determines that certain extraordinary methods of repair and maintenance that involve a risk of

substantial adverse environmental impact, it shall, by regulation, require that a permit be obtained under this chapter.

Furthermore, under II. Description of Activities Excluded, A. “Roads,” the act states in part:

No permit is required for repair and maintenance of existing public roads including landscaping, signalization, lighting, signing, resurfacing, installation or expansion of retaining walls, safety barriers and railings and other comparable development within the existing rim of-way as specified below. Maintenance activities are generally those necessary to preserve the highway facility as it was constructed, including: construction of temporary detours, removal of slides and slip cuts, restoration and repair of drainage appurtenances, slope protection devices, installation of minor drainage facilities for preservation of the roadway or adjacent properties, restoration, repair and modifying for public safety bridges and other highway structures, restoring pavement and base to original condition by replacement, resurfacing, or pavement grooving. A permit is required for excavation or disposal of fill outside of the roadway prism.

While potentially exempt from a Coastal Development Permit, the project will obtain a coastal development permit from the Coastal Commission.

5.4. Invasive Species

Invasive plants are defined under EO 13112 as alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. Cal-IPC maintains a list of species that have been designated as invasive in California. As described in Section 3.1.2, under Invasive Species, high priority invasive plant species observed in the BSA during the 2014 and 2015 site visits included: invasive brooms, cape ivy, and fennel (Appendix E). Additional invasive plants observed in the BSA during site surveys included slender wild oats, black mustard, rattlesnake grass, poison hemlock, blue gum, Harding grass, cultivated radish, rape, cutleaf geranium, sourgrass, curly dock, and periwinkle (Appendix E). Implementation of the General Avoidance and Minimization Measure “Invasive Species” (see Section 1.5) will help to prevent the spread or infestation of invasive species and will constitute compliance with this EO.

5.5. Migratory Bird Treaty Act

The MBTA of 1918 (16 USC 703-712) makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). All nesting birds protected under this act must be avoided during project construction. Avoidance will be accomplished by adhering to the general avoidance and minimization measures as outlined in Section 1.5, including Measure 4, “Migratory Bird Treaty Act.”

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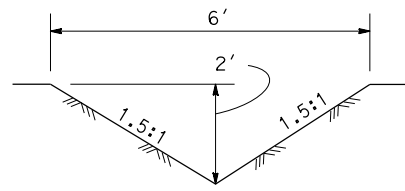
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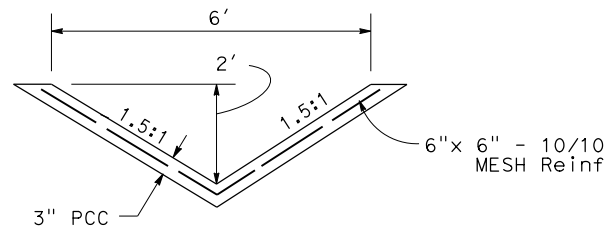
Appendix A. Project Drawings

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.25		
REGISTERED CIVIL ENGINEER			DATE	REGISTERED PROFESSIONAL ENGINEER	
PLANS APPROVAL DATE				No. _____	
				Exp. _____	
				CIVIL	
				STATE OF CALIFORNIA	

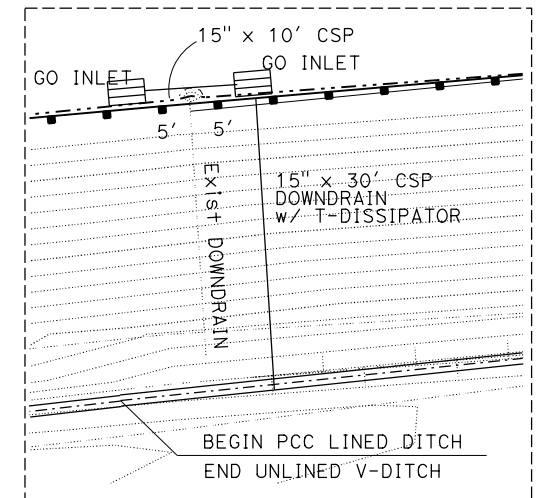
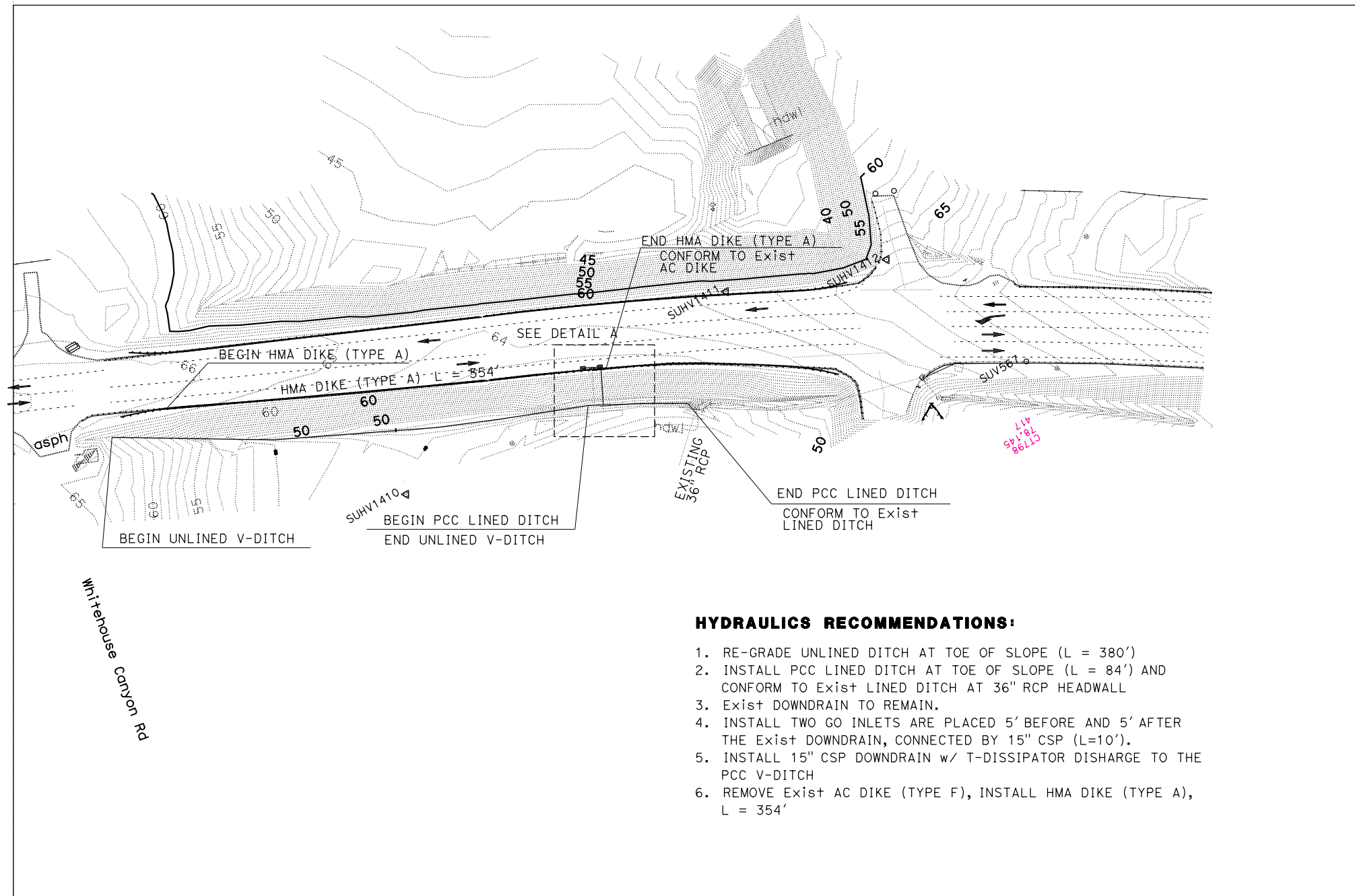
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



UNLINED DITCH
TYPICAL SECTION



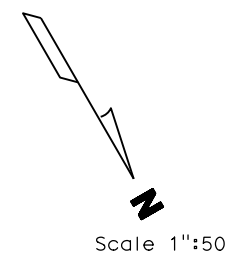
LINED DITCH
TYPICAL SECTION



DETAIL A

HYDRAULICS RECOMMENDATIONS:

1. RE-GRADE UNLINED DITCH AT TOE OF SLOPE (L = 380')
2. INSTALL PCC LINED DITCH AT TOE OF SLOPE (L = 84') AND CONFORM TO Exist LINED DITCH AT 36" RCP HEADWALL
3. Exist DOWNDRAIN TO REMAIN.
4. INSTALL TWO GO INLETS ARE PLACED 5' BEFORE AND 5' AFTER THE Exist DOWNDRAIN, CONNECTED BY 15" CSP (L=10').
5. INSTALL 15" CSP DOWNDRAIN w/ T-DISSIPATOR DISCHARGE TO THE PCC V-DITCH
6. REMOVE Exist AC DIKE (TYPE F), INSTALL HMA DIKE (TYPE A), L = 354'



DRAINAGE PLAN

D-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 FUNCTIONAL SUPERVISOR: Ghulam Popal 510-286-5072
 CALCULATED/DESIGNED BY: Don Breedon 510-622-5774
 CHECKED BY:
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DATE PLOTTED => 22-JUL-2015
 TIME PLOTTED => 14:05
 LAST REVISION 08-05-14

Appendix B. Service Species List



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office

FEDERAL BUILDING, 2800 COTTAGE WAY, ROOM W-2605

SACRAMENTO, CA 95825

PHONE: (916)414-6600 FAX: (916)414-6713

Consultation Code: 08ESMF00-2015-SLI-0469

May 06, 2015

Event Code: 08ESMF00-2015-E-01978

Project Name: Pigeon Point Storm Damage Repair Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2)

of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

The table below outlines lead FWS field offices by county and land ownership/project type. Please refer to this table when you are ready to coordinate (including requests for section 7 consultation) with the field office corresponding to your project, and send any documentation regarding your project to that corresponding office. Therefore, the lead FWS field office may not be the office listed above in the letterhead. Please visit our office's website (<http://www.fws.gov/sacramento>) to view a map of office jurisdictions.

Lead FWS offices by County and Ownership/Program

County	Ownership/Program	Species	Office Lead*
Alameda	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO
Alameda	All ownerships but tidal/estuarine	All	SFWO
Alpine	Humboldt Toiyabe National Forest	All	RFWO
Alpine	Lake Tahoe Basin Management Unit	All	RFWO
Alpine	Stanislaus National Forest	All	SFWO
Alpine	El Dorado National Forest	All	SFWO
Colusa	Mendocino National Forest	All	AFWO
Colusa	Other	All	By jurisdiction (see map)
Contra Costa	Legal Delta (Excluding ECCHCP)	All	BDFWO
Contra Costa	Antioch Dunes NWR	All	BDFWO
Contra Costa	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO
Contra Costa	All ownerships but tidal/estuarine	All	SFWO

El Dorado	El Dorado National Forest	All	SFWO
El Dorado	LakeTahoe Basin Management Unit		RFWO
Glenn	Mendocino National Forest	All	AFWO
Glenn	Other	All	By jurisdiction (see map)
Lake	Mendocino National Forest	All	AFWO
Lake	Other	All	By jurisdiction (see map)
Lassen	Modoc National Forest	All	KFWO
Lassen	Lassen National Forest	All	SFWO
Lassen	Toiyabe National Forest	All	RFWO
Lassen	BLM Surprise and Eagle Lake Resource Areas	All	RFWO
Lassen	BLM Alturas Resource Area	All	KFWO
Lassen	Lassen Volcanic National Park	All (includes Eagle Lake trout on all ownerships)	SFWO
Lassen	All other ownerships	All	By jurisdiction (see map)

Marin	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO
Marin	All ownerships but tidal/estuarine	All	SFWO
Mendocino	Russian River watershed	All	SFWO
Mendocino	All except Russian River watershed	All	AFWO
Napa	All ownerships but tidal/estuarine	All	SFWO
Napa	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
Nevada	Humboldt Toiyabe National Forest	All	RFWO
Nevada	All other ownerships	All	By jurisdiction (See map)
Placer	Lake Tahoe Basin Management Unit	All	RFWO
Placer	All other ownerships	All	SFWO
Sacramento	Legal Delta	Delta Smelt	BDFWO
Sacramento	Other	All	By jurisdiction (see map)
San Francisco	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO

San Francisco	All ownerships but tidal/estuarine	All	SFWO
San Mateo	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO
San Mateo	All ownerships but tidal/estuarine	All	SFWO
San Joaquin	Legal Delta excluding San Joaquin HCP	All	BDFWO
San Joaquin	Other	All	SFWO
Santa Clara	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO
Santa Clara	All ownerships but tidal/estuarine	All	SFWO
Shasta	Shasta Trinity National Forest except Hat Creek Ranger District (administered by Lassen National Forest)	All	YFWO
Shasta	Hat Creek Ranger District	All	SFWO
Shasta	Bureau of Reclamation (Central Valley Project)	All	BDFWO
Shasta	Whiskeytown National Recreation Area	All	YFWO
Shasta	BLM Alturas Resource Area	All	KFWO

Shasta	Caltrans	By jurisdiction	SFWO/AFWO
Shasta	Ahjumawi Lava Springs State Park	Shasta crayfish	SFWO
Shasta	All other ownerships	All	By jurisdiction (see map)
Shasta	Natural Resource Damage Assessment, all lands	All	SFWO/BDFWO
Sierra	Humboldt Toiyabe National Forest	All	RFWO
Sierra	All other ownerships	All	SFWO
Solano	Suisun Marsh	All	BDFWO
Solano	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
Solano	All ownerships but tidal/estuarine	All	SFWO
Solano	Other	All	By jurisdiction (see map)
Sonoma	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
Sonoma	All ownerships but tidal/estuarine	All	SFWO
Tehama	Mendocino National Forest	All	AFWO
	Shasta Trinity National Forest		

Tehama	except Hat Creek Ranger District (administered by Lassen National Forest)	All	YFWO
Tehama	All other ownerships	All	By jurisdiction (see map)
Yolo	Yolo Bypass	All	BDFWO
Yolo	Other	All	By jurisdiction (see map)
All	FERC-ESA	All	By jurisdiction (see map)
All	FERC-ESA	Shasta crayfish	SFWO
All	FERC-Relicensing (non-ESA)	All	BDFWO
*Office Leads:			
AFWO=Arcata Fish and Wildlife Office			
BDFWO=Bay Delta Fish and Wildlife Office			
KFWO=Klamath Falls Fish and Wildlife Office			
RFWO=Reno Fish and Wildlife Office			
YFWO=Yreka Fish and Wildlife Office			

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: Pigeon Point Storm Damage Repair Project

Official Species List

Provided by:

Sacramento Fish and Wildlife Office
FEDERAL BUILDING
2800 COTTAGE WAY, ROOM W-2605
SACRAMENTO, CA 95825
(916) 414-6600

Consultation Code: 08ESMF00-2015-SLI-0469

Event Code: 08ESMF00-2015-E-01978

Project Type: TRANSPORTATION

Project Name: Pigeon Point Storm Damage Repair Project

Project Description: At post mile 4.29 on State Route 1 in San Mateo County near the Costanoa Campground and adjacent to Año Nuevo State Park, Caltrans proposes to: (1) construct a 450-foot-long subsurface cutoff wall; (2) replace the existing embankment with Hilfiker lightweight cellular concrete; (3) construct a new subsurface drainage system within the rebuilt embankment; and (4) repair the roadway through the project limits. The project would occur on approx. 3 acres over approx. 60 days starting July 2017.

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior
Fish and Wildlife Service

Project name: Pigeon Point Storm Damage Repair Project

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-122.3443643019979 37.14814861075451, -122.3460027537067 37.14869186812953, -122.34677306557099 37.14898615037208, -122.34671738984007 37.149070944989816, -122.34737549242101 37.149377109294484, -122.34796345999997 37.14969560899982, -122.34862886817547 37.15013822360303, -122.34917319540791 37.1505590806431, -122.34969470072453 37.15103110264982, -122.35047978862006 37.15183927117826, -122.35389666699999 37.15555132699982, -122.3538442089999 37.15557981299976, -122.35034917336962 37.15183438404629, -122.34961642699987 37.15107447599987, -122.3490799840842 37.15059482688203, -122.34820558753391 37.14995251238488, -122.34736930653642 37.149470024429974, -122.34607393098251 37.14887287515184, -122.34601795017733 37.148930279188214, -122.34639090895418 37.149081889453846, -122.34639753234035 37.14910883764361, -122.34637168922933 37.14912690330369, -122.34625488177255 37.149091884559446, -122.3457538708366 37.1488795121962, -122.34487431273973 37.1485689156254, -122.34452134902304 37.14841106760335, -122.34454463551151 37.14832192191811, -122.34431318300831 37.148238158930106, -122.3443643019979 37.14814861075451)))



United States Department of Interior
Fish and Wildlife Service

Project name: Pigeon Point Storm Damage Repair Project

Project Counties: San Mateo, CA



United States Department of Interior
Fish and Wildlife Service

Project name: Pigeon Point Storm Damage Repair Project

Endangered Species Act Species List

There are a total of 11 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Amphibians	Status	Has Critical Habitat	Condition(s)
California red-legged frog (<i>Rana draytonii</i>) Population: Entire	Threatened	Final designated	
Birds			
California Least tern (<i>Sterna antillarum browni</i>)	Endangered		
Marbled murrelet (<i>Brachyramphus marmoratus</i>) Population: CA, OR, WA	Threatened	Final designated	
Short-Tailed albatross (<i>Phoebastria (=diomedea) albatrus</i>) Population: Entire	Endangered		
western snowy plover (<i>Charadrius nivosus ssp. nivosus</i>) Population: Pacific coastal pop.	Threatened	Final designated	
Conifers and Cycads			
Santa Cruz cypress (<i>Cupressus abramsiana</i>)	Endangered		



United States Department of Interior
Fish and Wildlife Service

Project name: Pigeon Point Storm Damage Repair Project

Fishes			
Delta smelt (<i>Hypomesus transpacificus</i>) Population: Entire	Threatened	Final designated	
steelhead (<i>Oncorhynchus (=salmo) mykiss</i>) Population: Northern California DPS	Threatened	Final designated	
Tidewater goby (<i>Eucyclogobius newberryi</i>) Population: Entire	Endangered	Final designated	
Mammals			
Southern Sea otter (<i>Enhydra lutris nereis</i>)	Threatened		
Reptiles			
San Francisco Garter snake (<i>Thamnophis sirtalis tetrataenia</i>) Population: Entire	Endangered		



United States Department of Interior
Fish and Wildlife Service

Project name: Pigeon Point Storm Damage Repair Project

Critical habitats that lie within your project area

There are no critical habitats within your project area.

Appendix C. Jurisdictional Delineation

Appendix D. Representative Photographs



Photograph 1. View looking east from Rossi Road at the project footprint adjacent to SR 1.



Photograph 2. View looking west from Whitehouse Canyon Road at the project footprint adjacent to SR 1.



Photograph 3. Whitehouse Creek looking east (upstream) just northeast of the project footprint from the headwall.



Photograph 4. Whitehouse Creek, looking downstream (south-southeast) from pedestrian bridge along existing trail approximately 800 feet upstream from the biological study area.



Photograph 5. Whitehouse Creek, looking upstream (north) from the pedestrian bridge approximately 800 feet upstream from the biological study area.



Photograph 6. Looking upstream along Whitehouse Creek at the outflow to the Pacific Ocean.



Photograph 7. Looking downstream along Whitehouse Creek at the outflow to the Pacific Ocean.



Photograph 8. Looking downstream (southwest) along Whitehouse Creek through culvert beneath SR 1 towards riparian forest west of the project footprint.



Photograph 9. Whitehouse Creek, looking upstream and northeast at the approximate location of the headwall; showing slope-stabilizing sacked concrete lining the north bank where flows from the 30-inch concrete culvert are directed into Whitehouse Creek.



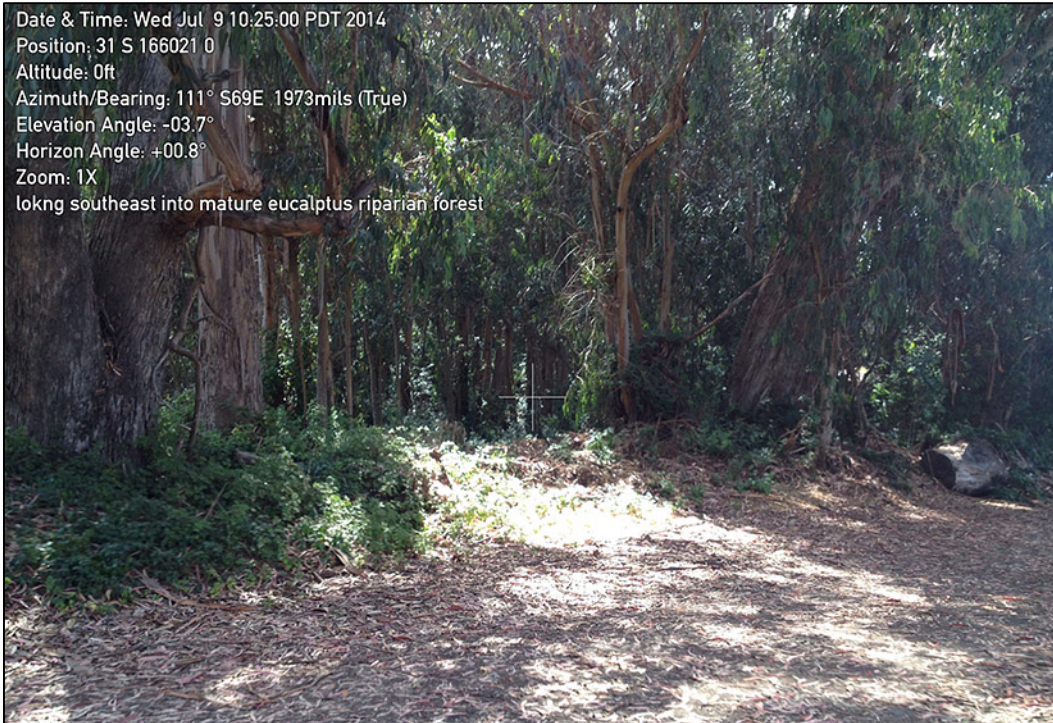
Photograph 10. Pool with emergent vegetation along Whitehouse Creek located within a small opening in the riparian canopy approximately 750 feet north of the biological study area.



Photograph 11. Looking into the northern end of two concrete-lined drainage basins along the roadside drainage ditch that directs flows into a concrete box culvert and ultimately into Whitehouse Creek.



Photograph 12. Looking south at the nearly clogged outflow of the 30-inch concrete pipe that carries flows from the roadside drainage ditch to Whitehouse Creek.



Photograph 13. Eucalyptus forest between Rossi Road and Whitehouse Canyon Road, north of the project footprint.



Photograph 14. Coastal scrub communities north of the biological study area between Rossi Road and Whitehouse Canyon Road.



Photograph 15. Annual grassland/coastal scrub communities, north of the biological study area between Rossi Road and Whitehouse Canyon Road.



Photograph 16. Known California red-legged frog breeding habitat in the project vicinity, approximately 0.6 mile northeast of the biological study area.



Photograph 17. Known California red-legged frog breeding habitat in the project vicinity, approximately 0.9 mile northeast of the biological study area.



Photograph 18. Looking east-southeast along roadside ditch in the project footprint. Photograph taken approximately 200 feet east of Rossi Road.

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Appendix E. Plant List

Table E. Plant List

Scientific Name	Common Name	Native, Non-native, Invasive
<i>Alnus spp.</i>	alder species	Native
<i>Avena barbata</i>	slender wild oats	Non-native/Invasive
<i>Baccharis pilularis</i>	coyote brush	Native
<i>Brassica nigra</i>	black mustard	Non-native/Invasive
<i>Brassica rapa</i>	rape	Non-native/Invasive
<i>Briza maxima</i>	rattlesnake grass	Non-native/Invasive
<i>Carex subbracteata</i>	Small-bract sedge	Native
<i>Conium maculatum</i>	poison hemlock	Non-native/Invasive
<i>Convolvulus arvensis</i>	bindweed	Non-native
<i>Cytisus sp. or Genista sp.</i>	broom species	Non-native/Invasive
<i>Delairea odorata</i>	cape ivy	Non-native/Invasive
<i>Elymus glaucus</i>	blue wild rye	Native
<i>Eriophyllum sp.</i>	wooly sunflower species	Native
<i>Eucalyptus globulus</i>	Blue gum	Non-native/Invasive
<i>Euphorbia sp.</i>	euphorbia species	
<i>Festuca perennis</i>	Italian rye grass	Non-native
<i>Foeniculum vulgare</i>	fennel	Non-native/Invasive
<i>Frangula californica</i>	coffee berry	Native
<i>Galium aparine</i>	bedstraw	Native
<i>Geranium dissectum</i>	cutleaf geranium	Non-native/Invasive
<i>Juncus effuses</i>	common rush	Native
<i>Marah fabaceus</i>	California manroot	Native
<i>Oxalis pes-caprae</i>	sourgrass	Non-native/Invasive
<i>Phalaris aquatica</i>	Harding grass (bulbous canary grass)	Non-native/Invasive
<i>Pinus radiata</i>	Monterey pine	Native
<i>Pseudotsuga menziesii</i>	Douglas fir	Native
<i>Quercus agrifolia</i>	California coast live oak	Native
<i>Raphanus sativus</i>	cultivated radish	Non-native/Invasive
<i>Rubus ursinus</i>	California blackberry (California dewberry)	Native
<i>Rumex crispus</i>	curly dock	Non-native/Invasive
<i>Solanum nigrum</i>	European black nightshade	Non-native
<i>Toxicodendron diversilobum</i>	Pacific poison-oak	Native
<i>Vinca major</i>	periwinkle	Non-native/Invasive

ATTACHMENT F

Pigeon Point Storm Damage Repair Project

Attachment 4: Caltrans Biological Assessment

Biological Assessment



Pigeon Point Storm Damage Repair Project

Caltrans District 04

San Mateo County, California

SM 1 – PM 4.29

EA 04-4G650

May 2015



For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Frances Malamud-Roam, District 4, 111 Grand Avenue, Oakland CA 94612; (510) 286-5376 Voice, or use the California Relay Service TTY number, (800) 711-2929.

Biological Assessment
Pigeon Point Storm Damage
Repair Project

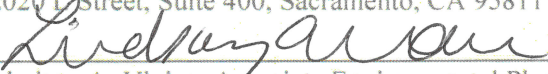
Caltrans District 04
San Mateo County, California
SM 1 – PM 4.29
EA 04-4G650

May 2015

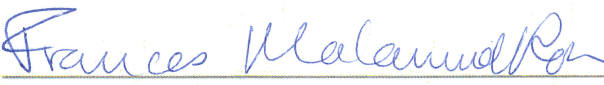
STATE OF CALIFORNIA
Department of Transportation, District 04

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Summary of Findings, Conclusions and Determinations

The California Department of Transportation (Caltrans) is proposing to construct the Pigeon Point Storm Damage Repair Project (project). This biological assessment (BA) has been prepared to evaluate the potential effects this project may have on species that are regulated by the United States Fish and Wildlife Service (Service) and are either listed, proposed, or candidates for listing as endangered or threatened under the federal Endangered Species Act. The purpose of the project is to repair a failing stretch of highway on State Route 1 (SR 1) in San Mateo County from Whitehouse Canyon Road northward to Rossi Road, by addressing the underlying hydrological and geotechnical problems at this location.

The proposed project will repair the damaged stretch of roadway by stabilizing the adjacent slope to improve the integrity of the roadway, upgrading the current drainage system, and restoring the roadway surface. Specific actions will include installing a subsurface sheet pile cutoff wall, partially replacing the existing highway embankment with reinforced cellular concrete, modifying and reconstructing the existing drainage system to more effectively divert water away from the toe of the highway embankment, replacing the failed roadbed, and resurfacing the highway.

Vegetation communities in the action area, which is located along the central coast of California, include eucalyptus forest, riparian forest, and coastal scrub. Whitehouse Creek crosses the action area from north to south just east of the intersection of SR 1 and Rossi Road and is adjacent to the project footprint.

Field surveys and a review of available databases and scientific literature were used to determine the potential for federally listed species to occur in the action area. The action area is the total area that would potentially be directly and indirectly affected by construction activities. Nineteen federally proposed or listed plant and wildlife species were considered for this BA. Of these, 16 were eliminated from further consideration because of a lack of suitable habitat, local range restrictions, regional extirpations, lack of connectivity between areas of suitable or occupied habitat, and/or habitat degradation/alteration of on-site or adjacent lands. No federally listed plant species have the potential to occur in the action area.

The following federally listed species have the potential to occur in the action area and were given further consideration in this BA:

- California red-legged frog (CRLF) (*Rana draytonii*), federally listed as threatened
- San Francisco garter snake (SFGS) (*Thamnophis sirtalis tetrataenia*), federally listed as endangered
- Marbled murrelet (*Brachyramphus marmoratus*), federally listed as threatened

The proposed project will result in permanent direct effects to approximately 0.5 acre of suitable upland habitat for CRLF and SFGS in the project footprint. The project footprint is the area where all construction activities will occur including staging. The proposed project will also reduce shading in potential CRLF and SFGS habitat adjacent to the project footprint as a result of tree removal. In addition, vibrations associated with pile-driving activities could result in the collapse of burrows utilized by CRLF and SFGS for refuge, but this effect likely would be minimal because the action area generally lacks burrows in areas that would be affected by pile-driving vibrations. Indirect effects on suitable habitat could result from increased sedimentation or pollution to Whitehouse Creek or from the spread of invasive weeds should any contaminated soil or equipment enter the action area.

During construction, the proposed project also could result in harassment or harm to individual CRLF and SFGS because suitable non-breeding aquatic habitat and adjacent uplands for both species occur in the action area. Individual CRLF and SFGS could also be exposed to pollutants inadvertently released from construction activities.

The project is not expected to result in adverse effects on marbled murrelet because this species is not expected to occur in the action area except as an occasional flyover, and no impacts to suitable habitat for this species (e.g., near-shore marine habitat and old-growth coniferous forest) will occur.

The project action area falls outside federally designated critical habitat for the CRLF and marbled murrelet; no critical habitat has been designated for SFGS. The nearest critical habitat unit for CRLF is approximately 0.75 mile north of the action area in the Gazos Creek Watershed. The nearest critical habitat unit for marbled murrelet is approximately 0.75 mile north-northeast of the action area along the Whitehouse Creek drainage. Because the effects of the proposed project will be localized, Caltrans has

concluded that the proposed project will have no effect on federally designated critical habitat.

The proposed project will not affect any other federally threatened, endangered, or proposed plants or wildlife under the U.S. Fish and Wildlife Service's authority.

No other federal, state, or privately planned projects in or adjacent to the action area have been identified; therefore, no cumulative effects are anticipated to occur as a result of this project.

Based on the information collected for and presented in this BA, Caltrans has determined that the proposed project may affect, is likely to adversely affect CRLF and SFGS; and that the proposed project may affect, is not likely to adversely affect marbled murrelet.

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List of Abbreviated Terms

°F	degrees Fahrenheit
AC	asphalt concrete
BA	biological assessment
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRLF	California red-legged frog
dbh	diameter at breast height
DI	drainage inlet
ESA	federal Endangered Species Act
FGC	California Fish and Game Code
FR	Federal Register
ROW	right-of-way
Service	United States Fish and Wildlife Service
SFGS	San Francisco garter snake
SR 1	State Route 1
SWPPP	Storm Water Pollution Prevention Plan
USGS	United States Geological Survey

Chapter 1 Introduction

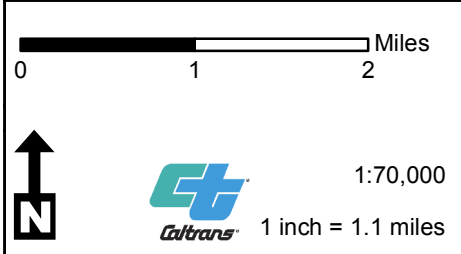
The purpose of this biological assessment (BA) is to provide technical information and a review of the Pigeon Point Storm Damage Repair Project (project) in sufficient detail to determine to what extent the proposed federal action may affect species that are federally listed as endangered or threatened under the Endangered Species Act (ESA). This document presents technical information upon which later decisions regarding project effects are to be developed. This BA has been prepared in accordance with section 7(a)(2) of the ESA (16 U.S. Code 1536[c]) and Federal Highway Administration and California Department of Transportation (Caltrans) regulations, policies, and guidance.

This document discusses the criteria used to determine which listed species were considered for evaluation, as well as the potential adverse effects of construction activities on those species and their designated critical habitat. In addition, this BA recommends measures to avoid and/or minimize take or disturbance of potentially affected species.

1.1. Project Purpose and Need

At post mile 4.29 on State Route 1 (SR 1) in San Mateo County near the Costanoa Campground just south of Pigeon Point and adjacent to Año Nuevo State Park (see Figure 1), several storm events in the winter of 2012 destabilized the roadway embankment under the northbound side of the roadway, resulting in longitudinal pavement cracks. Caltrans has determined that the inadequate drainage of stormwater away from the roadway regularly saturates the low-lying area adjacent to the bottom of the embankment between Whitehouse Canyon Road and Rossi Road. The lowest lying area abuts Whitehouse Canyon Road. This can result in an oversaturated roadway embankment. This has caused the roadway to gradually subside under its own weight. The localized occurrence of the longitudinal cracking indicates the problem is currently affecting only the eastern edges of the highway, where the edge meets the roadway shoulder.

The purposes of the project are to repair the cracked road embankment and address the hydrological problems at this location by improving drainage flow underneath and away from the roadway to prevent future slip-out failures. The project is driven by the need to prevent further roadway slippage and damage.



Legend

- Project Location

**Biological Assessment
Pigeon Point Storm Damage
Repair Project
EA 4G650**

April 2015

1.2. Project Description

To stabilize the road embankment and restore the roadway along the northbound edge of the SR 1 shoulder within the project limits, Caltrans proposes to: (1) construct a 450-foot-long subsurface sheet pile cutoff wall; (2) replace the existing embankment with Hilfiker lightweight cellular concrete and road surface of the northbound lanes; (3) construct a new subsurface drainage system within the rebuilt embankment; and (4) repair the roadway through the project limits. The project will not involve activities within the bed or bank or ordinary high water mark of Whitehouse Creek. The details of each project component are described in Section 1.4.

1.3. Project Footprint and Action Area

The project footprint and action area are defined as follows:

Project Footprint: The project footprint is the maximum extent of construction-related, ground-disturbing activities, including staging and access. The project footprint is 3.3 acres and is made up of an area approximately 30 feet northeast (the roadway has a northwest orientation through the project limits) of the edge of the existing roadway along SR 1 between Rossi Road and Whitehouse Canyon Road and the northbound lanes of SR 1 from approximately 0.1 mile east of Whitehouse Canyon Road to approximately 0.6 mile north of Rossi Road; it also includes a portion of the southbound lane between Rossi Road and Whitehouse Canyon Road (Figure 2). The project footprint occurs entirely within Caltrans' right-of-way (ROW).

Action Area: The action area for this project encompasses approximately 31 acres. According to the U.S. Fish and Wildlife Service (Service), the action area includes areas of direct effects and indirect effects, and the extent of interrelated and interdependent activities. Indirect effects are those effects that would be caused by the project at a later time, but are still reasonably certain to occur (50 Code of Federal Regulations [CFR] Section 402.02). Interrelated actions are part of a larger action and depend on the larger action for their justification (50 CFR Section 402.02). Interdependent actions have no independent utility apart from the project (50 CFR Section 402.02).

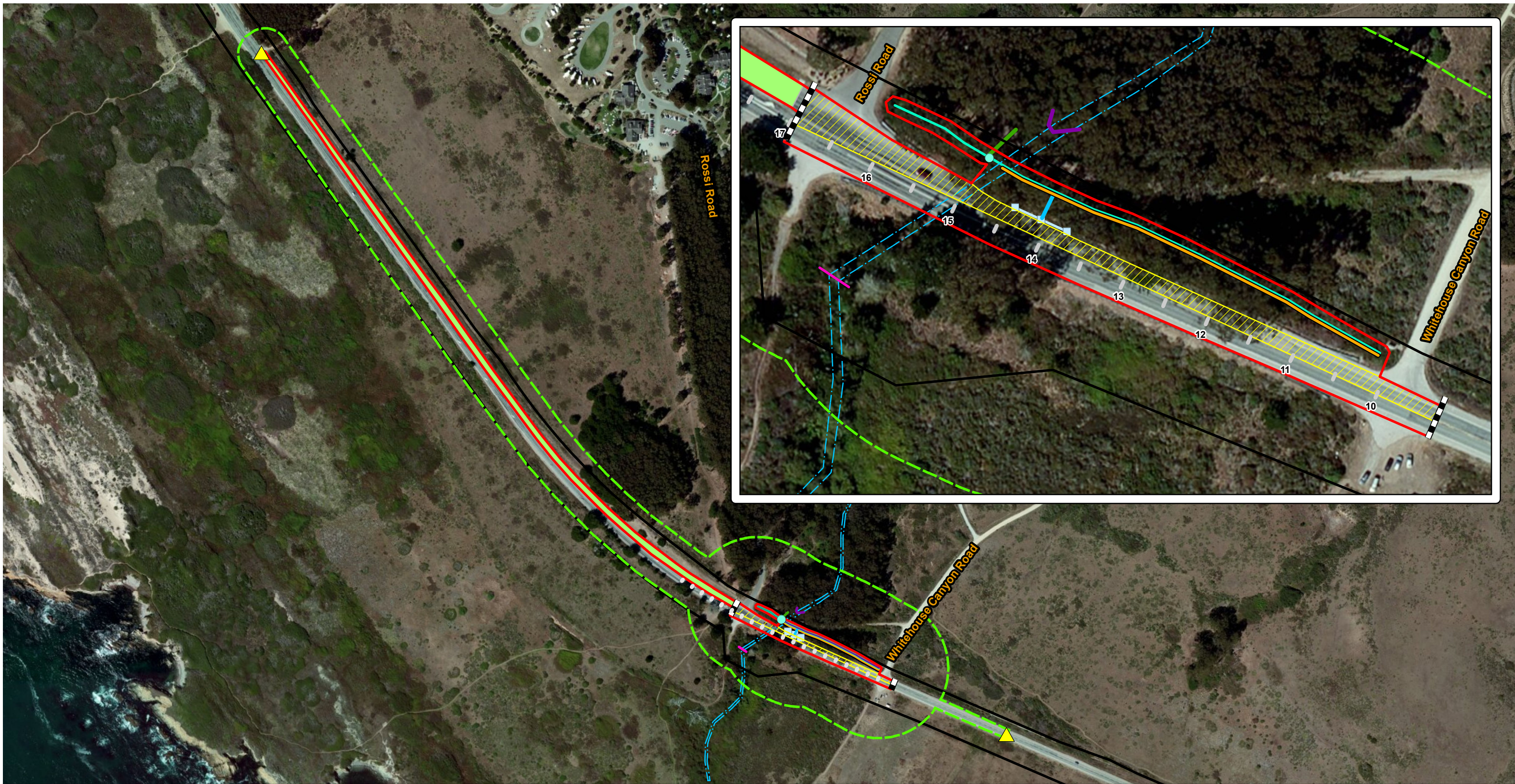
Direct effects associated with the project would include construction-related noise, vibration, ground disturbance, light, vegetation (including tree) removal, compaction, and dust. Indirect construction effects would include potential erosion or

sedimentation within or outside the project footprint after construction. These effects will be avoided through implementation of avoidance and minimization measures for water quality and erosion control. Because of these measures, sedimentation is unlikely to impact areas outside the project footprint following construction.

For the proposed project, the action area encompasses the project footprint, a 100-foot buffer beyond the boundaries of the proposed construction and staging areas, and a 300-foot buffer around areas of proposed ground disturbance which includes the proposed cutoff wall (Figure 2). The action area is sufficiently large to accommodate the analysis of potential effects of noise and vibrations (and light during nighttime operations) resulting from construction equipment operation, staging, and access in the project footprint, including excavation and pile driving during construction.

Action area boundaries were developed according to Caltrans' guidance on estimating construction-induced vibrations at various distances from vibration-generating equipment, including pile drivers (Caltrans 2004); and vibratory thresholds used for an analysis of potential vibratory-induced collapse of Hawaiian petrel (*Pterodroma phaeopygia sandwichensis*) burrows on Maui as a reference for potential collapse of CRLF and SFGS burrows in the action area (Service 2007). Vibrational energy is dependent on the type and size of the source equipment and decreases fairly rapidly with distance from the source, proportional to the inverse of the square of the distance from the source; and in addition, it attenuates with dampening because of the composition of the soil (Attewell and Farmer 1973, as cited in Service 2007; Caltrans 2004). A 300-foot action area buffer to pile driving activities was estimated to be sufficient to reduce vibrations of even the largest of pile drivers to levels that would likely be below the assumed threshold for burrow collapse (Service 2007).

The action area also accounts for potential changes in shading resulting from the removal of trees in the project footprint. The proposed project would not cause increased amounts of traffic, which would result in future increases in light, noise, and vibration disturbances after its completion. The action area likely is an overrepresentation of potential for effects west and south of SR 1 because the elevated highway prism would provide a topographic buffer to construction noises and possibly vibrations occurring primarily across the highway.



0 0.05 0.1 Miles



1:4,800

1 inch = 0.08 miles

Legend

- Project Footprint
- Action Area
- #Highway Stationing
- Caltrans Right-of-Way

Existing Features

- 30-inch Reinforced Concrete Pipe
- Culvert Headwall - Whitehouse Creek
- Culvert Outfall - Whitehouse Creek

Proposed Project Components

- Drainage Inlet
- Approximate 15-Inch Sub-Surface Down Drain
- Reconstructed Concrete-Lined V-Ditch*
- Reconstructed 8-Foot Concrete Basin

- Sub-Surface Cutoff Wall
- Approximate 15-inch Subsurface Pipe
- Start of Traffic Control
- Staging Area
- Site Access and Staging
- Pedestrian Crossing

Whitehouse Creek

**Biological Assessment
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The proposed project is not a part of any larger federal actions, and no other projects have been identified in the project vicinity that would be dependent upon completion of the proposed project for their implementation. The proposed project is not a growth-inducing action, and it is not anticipated to result in an increase in vehicular traffic or any new development. Therefore, no interrelated or interdependent actions need to be analyzed to delineate the extent of the action area or as part of the proposed project.

1.4. Project Components

The project components that are described in the following sections include: roadway stabilization and repair; drainage improvements; construction staging, access, and traffic handling; and bicycle and pedestrian traffic. An overview of the spatial layout of the project components is shown in Figure 2. The draft project plans are provided in Appendix A.

1.4.1. Roadway Stabilization and Repair

A 450-foot-long, 15-foot-wide, and 15-foot-deep section of the northbound lane and adjacent embankment of SR 1 will be excavated. Temporary sheet pile shoring will be required during excavation and construction to stabilize the two southbound lanes and will be installed within the existing area of excavation, described above.

Steel sheet piles acting as a seepage cutoff wall will be driven along the toe of the existing embankment slope up to 60 feet in depth, using a vibratory type hammer, and they will be installed entirely below the soil surface. The excavated roadway embankment will be rebuilt using lightweight, cellular concrete material. This cellular concrete will be impermeable and less dense than the existing native material, which has a tendency to sink and compact over time. The new, impermeable layer will reduce the potential for stormwater to affect the underlying native material over time. The new material will have the same load-bearing capacity as the existing concrete but will better prevent water from undermining the roadbed even as the underlying native material continues to settle over time.

A new 4-foot choker will also be constructed as part of the new embankment, replacing the existing choker. This choker is a transitional feature between the edge of the shoulder and the embankment. Layers of aggregate base and subbase will be laid over the cellular concrete, and new roadway pavement (asphalt concrete [AC]) will be placed over the new embankment. The choker will be constructed at a 5 percent slope down towards the embankment, which will be constructed at a 1.5:1 slope.

A 0.12-foot AC overlay will be placed, in a one-night operation, over both the north and southbound lanes of the roadway for a distance of 500 feet. This work will be done after roadway reconstruction is completed and the K-rail is removed. The proposed project will restripe the roadway to maintain the existing roadway widths of two 12-foot lanes and 8-foot shoulders in each direction.

1.4.2. Drainage Improvements

The proposed project will replace a culvert, will construct three new drainage inlets (DI), and will reconstruct an existing concrete-lined V-ditch that runs parallel to and north of SR 1. After the subsurface sheet pile wall is in place, and as the embankment is rebuilt, the V-ditch will be reconstructed directly adjacent to the north side of the sheet pile wall, as close to the location of the existing ditch as possible. The ditch will be lined with Portland cement concrete. The new drainage inlets will be placed 25 feet apart around station 14 (see Figure 2). The pipe connecting the DIs will be approximately 15 inches in diameter (plastic pipe). Bicycle-proof grates will be placed over the DIs. An existing 12-inch-diameter corrugated metal pipe will be replaced with an approximately 15-inch-diameter corrugated steel spiral pipe or plastic pipe. This downdrain will direct water into the V-ditch southeast of the creek. The V-ditch currently drains towards two existing drainage inlets (i.e., concrete basins) and into one 30-inch pipe that directs water into Whitehouse Creek at the headwall via the north bank. Two new 8-foot-diameter concrete basins will be built to direct water towards the headwall. The headwall will not be replaced.

1.4.3. Construction Staging, Access, and Traffic Handling

A two-way traffic control system will be installed to maintain traffic movement through the project area during construction. Northbound and southbound traffic will be reduced to one travel lane each and will be detoured onto the existing southbound lanes. Temporary railing (type K) will be installed between traffic and the construction activities. The lanes will be 12 feet through this section of the project limits. One-way reverse control flagging will be used for installation and removal of the K-rail and occasionally, as needed, to allow for access of equipment and to conduct work at the roadway conforms. The area behind the K-rail will also be used to temporarily store materials and equipment for staging purposes. Traffic control signs to alert motorists will be placed outside the work area on paved surfaces.

The majority of the work will be conducted within the existing roadbed to minimize the lateral extent of ground disturbance. The work limits will extend about 10 feet north of the reconstructed V-ditch and 10 feet on either end. All vegetation within the project

footprint, including trees, will be removed before excavating and rebuilding the embankment and ditches (see Section 2.3 for an estimate of anticipated tree removal resulting from the project).

The new roadway section will be resurfaced and restriped. A new asphalt dike and approximately 500 feet of Midwest Guardrail System and end treatments will be constructed along the edge of the northbound lane. The new dike will direct surface runoff towards the DIs.

All disturbed areas that will not result in establishment of a new hard surface will be restored using stockpiled native topsoil and will be hydroseeded with a native seed mix. Any excess embankment material will become the property of the contractor and will be hauled offsite.

1.4.4. Bicycle and Pedestrian Traffic

Bicycle traffic will be accommodated as part of the two-way traffic control system, with one travel lane in each direction. Pedestrian access across the highway will be constructed at Rossi Road and Whitehouse Creek Road; this will include placing thermoplastic striping across these intersections. Pedestrian access longitudinally will continue to be provided within State Park lands along the north side of the roadway. Longitudinal pedestrian access along the southbound shoulder will be restricted.

1.5. Construction Schedule and Equipment

The project will be constructed over the course of one construction season and will require 60 working days to complete. The project is anticipated to start in June 2017. All construction activities will occur during daylight hours, with the exception of an anticipated single night of construction for installation of the 0.12-foot AC overlay. The contractor will work longitudinally west to east and will begin with the excavation of the road embankment.

The following construction equipment and vehicles will be used to complete the project, ranging from tools to excavation equipment:

- pickup truck
- loader
- bulldozer
- 3-in-1 loader-backhoe-dozer
- excavator

- paver
- compactor (sheepsfoot)
- compactor (vibratory)
- semi-tractor and flatbed trailer
- semi-tractor and bottom dump trailer
- semi-tractor and end dump trailer
- semi-tractor and depressed center flatbed
- semi-tractor and tank trailer
- 10-wheel dump truck
- concrete truck
- vibratory pile driver
- wheel-mounted crane
- portable changeable message sign
- air compressor
- water truck
- fuel, oil, and lube truck

1.6. Avoidance and Minimization Measures

Caltrans will implement the following avoidance and minimization measures into the proposed project to protect federally listed species and the surrounding environment from project-related effects. The proposed project could result in adverse effects to the federally threatened California red-legged frog (*Rana draytonii*) and federally endangered San Francisco garter snake (*Thamnophis sirtalis tetrataenia*, SFGS). Caltrans is proposing to implement the below measures to minimize the likelihood of “take” of listed species throughout the life of this project.

1.6.1. General Avoidance and Minimization Measures

1. **Environmentally Sensitive Area (ESA) fencing.** As a first order of work, the perimeter of the project footprint will be delineated with temporary, high-visibility temporary fencing. This fencing will be at least four feet in height. This will prevent the encroachment of construction workers and equipment into sensitive areas outside the project footprint during construction activities. The fencing will be inspected regularly and fully maintained and will remain in place throughout the duration of the project.
2. **Vegetation removal.** Vegetation will be cleared only where necessary; grubbing will be minimized to the maximum extent practicable. If clearing and

grubbing occurs between February 1 and August 31, a qualified biologist will survey for nesting birds within areas to be disturbed and an appropriate buffer will be established, as described below for compliance with the Migratory Bird Treaty Act.

3. **Migratory Bird Treaty Act.** To protect migratory birds and their nests, the following will be implemented:
 - No more than seven (7) days before the start of construction or any vegetation clearing occurring during the bird nesting season (February 1 to August 31), a qualified biologist will survey the project footprint and an area 300 feet beyond the project footprint boundary to search for active nests of migratory birds. If an active nest is found within the survey area, a non-disturbance buffer will be established around the nest until the young have fledged and departed from the nest area. These buffers will cover an area of 50 feet from active nests of passerine birds and 300 feet from active raptor nests. A smaller buffer may be established with approval from the Service and/or California Department of Fish and Wildlife (CDFW).
4. **Nighttime work restriction.** Nighttime work will be avoided to the maximum extent practicable. Nighttime work will be required during a single night operation to replace the existing AC over the northbound and southbound lanes. During nighttime work, all lighting will be directed downwards and towards the construction work taking place.
5. **Inclement weather work restriction.** No work will occur on any day when there is a 40 percent or more chance of precipitation or during or within 24 hours after a rain event exceeding 0.2 inch of precipitation, as measured by the National Oceanic and Atmospheric Administration's National Weather Service for the La Honda, CA (LAHC1) base station, available online at – <http://www.wrh.noaa.gov/mesowest/getobext.php?sid=LAHC1&table=1&banner=off>.
6. **Worker environmental awareness training.** Before construction, all construction and field personnel will attend an environmental training program, taught by a Service-approved biologist. The program will include an explanation of how to avoid the incidental take of listed species and migratory birds, species identification, life history, descriptions, and habitat requirements during various life stages. Emphasis will be placed on the importance of the

habitat and life stage requirements within the context of project maps showing areas where avoidance and minimization measures are to be implemented. The program will include an explanation of applicable federal and state laws protecting endangered species as well as the importance of compliance with Caltrans and other appropriate resource agency regulations.

7. **Best management practices (BMPs).** To minimize any wind or water-related erosion, a Storm Water Pollution Prevention Plan (SWPPP) and erosion-control best management practices will be developed and implemented, in compliance with the requirements of the Central Coast Regional Water Quality Control Board. The SWPPP will provide guidance for design staff to include provisions in construction contracts for measures to protect sensitive areas and prevent and minimize stormwater and non-stormwater discharges.
 - a. Example BMPs include but are not limited to: dedicated refueling areas will be located at least 50 feet away from downslope drainage facilities for waterways, protecting graded areas with erosion-control netting, having spill containment kits onsite, storing hazardous materials in sealable containers in a designated location that is at least 100 feet from hydrologic features, and implementing dust control measures such as spraying excavated areas with water on a regular basis. Others are iterated below.
 - b. Project-related vehicle traffic will be restricted to established roads and construction areas. Project vehicles will observe a 20 mile-per-hour speed limit in the project footprint.
 - c. All food-related trash items (e.g., wrappers, cans, bottles, and food scraps) will be disposed of in closed containers and removed at least once daily from the project site.
 - d. No pets or firearms, except those used by law enforcement personnel, will be permitted in the action area.
 - e. All equipment will be properly maintained and free of leaks. Servicing of vehicles and construction equipment, including fueling, cleaning, and maintenance, will occur at least 100 feet from any hydrologic features unless it is done at an existing gas station.

- f. All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 50 feet from any downstream riparian habitat, aquatic habitat, culvert, or drainage feature.
 - g. Any and all excavated material produced as a result of roadway stabilization and repair activities or drainage improvements will be reused and fully contained within the project limits or will be properly disposed of off-site.
8. **Invasive species.** To reduce and limit the spread of invasive, nonnative plant species, Caltrans will comply with Executive Order 13112. This order is provided to prevent the introduction of invasive species and provide for their control to minimize any potential economic, ecological, and human health effects caused by their spread. As there are noxious weeds as defined by the California Department of Food and Agriculture or the California Invasive Plant Council on site, any invasive plant material disturbed or removed during construction-related activities will be properly contained and disposed of in an appropriate manner so as not to promote the spread of the species. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of such materials. In addition, all imported materials (e.g., fill soil, gravel, rock, mulch) used in construction will be certified weed-free, including straw and/or hay bales used for sediment control or mulch distribution.

1.6.2. California Red-Legged Frog and San Francisco Garter Snake Avoidance and Minimization Measures

1. **Seasonal avoidance.** Construction activities will be scheduled to minimize effects on listed species and habitats. Construction will be limited to the summer dry season (e.g. April 15 through October 31) to avoid the period when the CRLF is most active.
2. **Pre-construction surveys.** Before any work is done on site, a Service-approved biologist will conduct a pre-construction clearance survey for listed species, including CRLF and SFGS, and other protected resources. Visual encounter surveys will be conducted within the project footprint and all accessible areas within 50 feet of the footprint. All suitable habitat, including refugia habitat (e.g., under shrubs, downed logs, small woody debris, burrows, within dense vegetation etc.), will be thoroughly inspected. If the Service-approved biologist identifies a burrow that has a potential to be occupied by a CRLF or SFGS, Caltrans will

consult with the Service to determine an appropriate course of action to avoid impacts that could result in the take of CRLF and SFGS during construction. These actions may include monitoring of the burrow during pile driving or other activities that have the potential to collapse burrows, and careful hand excavation of the burrows if necessary. If burrow excavation is undertaken, the individual(s) would be allowed to move out of the area unharmed and on its/their own, as determined and monitored by the Service-approved biologist or biological monitor. The pre-construction survey will be done prior to installation of wildlife exclusion fencing and prior to the start of ground-disturbing activities so that any CRLF or SFGS present in the project footprint will have sufficient time to move out of the area and can find a suitable alternative retreat outside the project footprint before work commences. A second pre-construction clearance survey of the project footprint may be necessary after installation of the wildlife exclusion fencing and before the start of ground disturbing activities if too much time lapses between fencing installation and the start of ground-disturbing activities. The need for a second pre-construction survey would be determined by the Service-approved biologist based on site conditions and realized construction timelines.

3. **Wildlife exclusion fencing.** Silt fencing or other wildlife exclusion fencing will be installed around the perimeter of the project footprint to prevent CRLF and SFGS from entering the work area. Fencing will be placed around the perimeter of the project footprint, together with the ESA fencing, and will be installed prior to any work within the project footprint. Exclusion fencing will be at least 3 feet high with the lower 6 inches of the fence buried in the ground. The fence will be pulled taut at each support to prevent folds or snags. Fencing will be installed and maintained in good working condition until completion of the project.
4. **Biological monitoring.** A Service-approved biologist(s) will be on site to monitor all construction activities that could reasonably result in the take of CRLF or SFGS (e.g., grubbing activities, pile installation). The qualifications of all proposed biological monitors will be presented to the Service for review and written approval at least 30 calendar days before the start of construction. Once on site, the Service-approved biologist(s) will maintain complete monitoring records with relevant species observations and other site-specific information. If requested, all monitoring records will be provided to the Service within 30 days of completion of monitoring work.

5. **Construction monitoring.** The Service-approved biologist will conduct clearance surveys at the beginning of each day and regularly throughout the workday during the early phases of construction. The appropriate level of monitoring will be determined through regular coordination with the Service once the project footprint has been fully cleared and grubbed. Other monitoring responsibilities may be deferred to an assigned inspector following Service approval.

6. **Protocol for species observation.** The Service-approved biologist will have the authority to halt work through coordination with the Resident Engineer (hereafter Engineer) in the event that a CRLF or SFGS is observed in the action area. The Engineer will keep construction activities suspended in any construction area where the biologist has determined that a potential take of CRLF or SFGS can occur. Work will resume after observed CRLF or SFGS individuals leave the site voluntarily, or the biologist determines that no listed species is being harassed or harmed by construction activities. If take of CRLF or SFGS occurs, the biologist will immediately notify the Service contact by telephone and by electronic mail within one (1) working day.

7. **Entrapment avoidance.** To prevent the inadvertent entrapment of CRLF or SFGS, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day with plywood. If it is not feasible to cover an excavation, one or more escape ramps constructed of earthen fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. All replacement pipes, culverts, or similar structures stored in the action area overnight will be inspected before they are subsequently moved, capped, and/or buried. If at any time a trapped, listed animal is discovered, the Service-approved biologist immediately will place escape ramps or other appropriate structures to allow the animal to escape, or the Service will be contacted by telephone for guidance. The Service will be notified of the incident by telephone and electronic mail within one (1) working day.

8. **Proper use of erosion control devices.** To prevent CRLF or SFGS from becoming entangled, trapped, or injured, plastic mono-filament netting (erosion control matting) will not be used on the job site. Acceptable substitutes will include coconut coir matting or tackified hydroseeding compounds.

9. **Site access to agency personnel.** If requested, before, during, or after completion of ground-breaking and construction activities, Caltrans will allow access by Service personnel into the project footprint for inspection of construction work. Caltrans requests that all agency representatives contact the Engineer before accessing a work site, and review and sign the Safe Work Code of Practices before accessing a work site for the first time.
10. Before moving construction equipment or vehicles into the project site, operators will check underneath those that have been parked on-site for more than 30 minutes and will notify the Service-authorized biological monitor if any reptile or amphibian is observed.
11. **Reporting of project-related take.** Injured CRLF or SFGS will be cared for by a Service-approved biologist or a licensed veterinarian, if necessary. Any deceased CRLF or SFGS will be preserved according to standard museum techniques and will be held in a secure location. The Service will be notified within one (1) working day of the discovery of a death or an injury to any listed species resulting from project-related activities or if a listed species is observed at a construction site. Notification will include the date, time, and location of the incident or the finding of a deceased or injured animal, clearly indicated on a United States Geological Service (USGS) 7.5-minute quadrangle and other maps at a finer scale, as requested by the Service, and any other pertinent information.
12. **Post-construction compliance reporting.** Caltrans will submit post-construction compliance reports to the Service, prepared by the Service-approved biologist within 60 calendar days after completion of construction activities or within 60 calendar days of any break in construction activities lasting more than 60 calendar days. This report will detail: (1) dates that relevant construction activities occurred; (2) pertinent information concerning the success of construction activities in implementing avoidance and minimization measures for listed species; (3) an explanation of failure to meet such measures, if any; (4) known project-related effects on CRLF and SFGS, if any; (5) occurrences of incidental take of any listed species; (6) documentation of construction worker environmental training; and (7) other pertinent information.

1.7. Summary of Consultation to Date

An official species list was obtained from the Service's Sacramento Field Office website on December 5, 2014; a revised official species list was obtained on May 6,

2015 (Appendix B). Requests for technical assistance were made in December 2014 and April 2015. The Service is aware of this project. No other agency coordination or consultation has been initiated with respect to the proposed project. Submittal of this BA to the Service will initiate formal consultation under Section 7 of the ESA.

1.8. Document Preparation History

This document was prepared by AECOM and reviewed by Caltrans for approval. It is based upon information received from Caltrans, including a description of the proposed project and plans, and biological investigations conducted by AECOM in the action area. No other previous BAs have been prepared for the proposed project.

Chapter 2. Study Methods

This chapter describes the methods that were used to evaluate the potential for federally endangered and threatened species to occur in the action area. Caltrans has used the best scientific and commercial data available to fully assess the habitats and potential for federally listed species to occur in the action area. Caltrans and its consultants searched existing databases and literature (including CDFW reports), conducted field studies by qualified, locally experienced biologists, and sought expert opinion from Año Nuevo State Park ecologists in preparing this BA. A summary of database and literature review and field studies conducted as part of this evaluation is provided in the subsequent sections.

2.1. Database Searches and Literature Review

Project biologists conducted a query of the 7.5-minute USGS topographic quadrangle in which the action area occurs (Franklin Point) and the eight surrounding quadrangles (nine-quad search). Project biologists also conducted a literature review to consider the potential presence of various listed species and their habitats in the action area, including sources to determine the species range, habitat, and life history; and to assess the potential for each species to occur in the action area. These investigations identified all listed species either known or with potential to occur in and around the action area. The following sources were used:

- The Service's Sacramento Office online database for these USGS 7.5 minute quadrangles: Franklin Point (409A), Big Basin (408B), Pigeon Point (409B), Año Nuevo (409D), Davenport (408C) [although no listed species were identified for this quadrangle], Mindero Hill (428C), San Gregorio (429C), and La Honda (429D) (Appendix B). The quadrangle southwest of Franklin Point occurs entirely within the Pacific Ocean and is not included in the Service's database; therefore, only eight quads were relevant to this database query.
- The California Natural Diversity Database (CNDDDB) RareFind 3 occurrence records within five miles of the action area (CDFW 2014).
- The California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants database for the eight aforementioned quads (CNPS 2014); refer to the list of quadrangles provided above regarding the Service's online database search.

- The Federal Register for selected species, including listing status and critical habitat.
- Recovery plans for selected species to determine their current and historical range.

Those species that are under National Marine Fisheries Service's (NMFS) authority and/or entirely marine and included in the Service's list (Appendix B) are not addressed in this BA. Caltrans does not anticipate any project-related effects on any marine species or protected salmonids such as steelhead (*Oncorhynchus mykiss*, federally threatened), which occur in Whitehouse Creek. Other examples include the southern sea otter (*Enhydra lutris nereis*) and short-tailed albatross (*Diomedea albatrus*), which do not occur onsite because there is no marine habitat in the action area. The proposed project will not involve activities within the bed or bank of nearby Whitehouse Creek and no pelagic habitat occurs in or near the action area. With implementation of the aforementioned avoidance and minimization measures, the proposed project will not adversely affect water quality or other in-stream conditions.

Vegetation types identified in this document are based on the CDFW's List of Vegetation Alliances and Associations (CDFW 2010), A Manual of California Vegetation (Sawyer et al. 2009), and field observations by AECOM biologists.

2.2. Site Reconnaissance

AECOM biologists conducted site visits on July 9, 2014, and September 9, 2014, to assess existing conditions, biological resources, and habitat for special-status plants, aquatic, and terrestrial wildlife potentially present in the action area, and to conduct a preliminary assessment of the tree removal required for the proposed project.

2.2.1. California Red-Legged Frog and San Francisco Garter Snake Site Assessment

On September 9, 2014, AECOM biologist Derek Jansen conducted a focused survey to assess the potential for the action area to support the CRLF and SFGS and to document existing habitat conditions for both species. Mr. Jansen possesses a 10(a)(1)(A) Recovery Permit with the Service for CRLF and is knowledgeable about the habitat requirements of CRLF and SFGS. The entire action area between Rossi Road and Whitehouse Canyon Road was surveyed on foot, as was Whitehouse Creek approximately 0.25 mile upstream and downstream of the action area. The remainder of the action area associated with construction staging and traffic control was evaluated from the car and using satellite imagery.

The field evaluation followed standard Service guidelines for CRLF and SFGS site assessments (Service 2005a). A daytime visual encounter survey was performed to detect CRLF and SFGS presence. The survey was conducted outside the typical breeding season for CRLF and SFGS (see Sections 4.2.1.2 and 4.2.2.2., below). Daytime surveys were performed to look for sub-adult and non-breeding adult CRLF, as well as for SFGS, one hour after sunrise as well as to characterize habitat conditions for this species. Habitat conditions for both species were also documented.

2.3. Tree Removal Inventory

AECOM biologists conducted a preliminary assessment on September 9, 2014 during a site visit with the Caltrans project development team, to identify trees that may need to be removed or trimmed because of the proposed project (Table 1). Approximately 82 trees are likely to be removed in preparation for the proposed project, including an estimated 76 Eucalyptus (*Eucalyptus* spp.), three Douglas fir (*Pseudotsuga menziesii*), two Monterey pine (*Pinus radiata*), and one Monterey cypress (*Cupressus macrocarpa*); the majority of trees that would be removed are under six inches diameter at breast height (dbh); six trees greater than 24 inches dbh are likely to be removed. Tree removal will occur along the roadway embankment immediately adjacent to the paved roadway.

Table 1. Number, Species, and Size of Trees Proposed for Removal

Species	Under 6" dbh	6"-12" dbh	12"-24" dbh	Greater than 24" dbh
Eucalyptus	35+	3	25	6
Douglas fir	2	1	0	0
Monterey pine	0	2	0	0
Monterey cypress	0	0	1	0

Note:

dbh = diameter at breast height

Source: compiled by AECOM in 2014

2.4. Personnel and Survey Dates

Biological field studies of the action area were conducted in 2014, as described above. Details of these site visits are summarized in Table 2.

Table 2. Site Visits and Surveys Conducted in the Action Area

Survey Type	Personnel	Agency/Firm	Survey Dates
Site reconnaissance and preliminary habitat assessment for federally listed species potentially occurring in the action area	Julie Roth Kristina Bischel	AECOM AECOM	July 9, 2014
Project field meeting to discuss the proposed project, including a preliminary tree removal assessment	D.J. Allison Lindsay Vivian Brian Gassner Donald Breeden	AECOM Caltrans Caltrans Caltrans	September 9, 2014
California red-legged frog and San Francisco garter snake habitat assessment	Derek Jansen	AECOM	September 9, 2014
Delineation of potentially jurisdictional wetlands and waters of the U.S. and State; follow-up habitat assessment for special-status plants potentially occurring in the BSA.	Kristin Tremain Kristina Bischel	AECOM AECOM	February 24, 2015

Source: data compiled by AECOM in 2014

2.5. Agency Coordination and Professional Contacts

Caltrans biologist, Lindsay Vivian, requested technical assistance from the Service on December 17, 2014 and April 2, 2015; a field visit is pending. Julie Roth of AECOM obtained an official species list from the Service's Sacramento Fish and Wildlife Office's website on December 5, 2014; a revised official species list was obtained on May 6, 2015 (Appendix B).

2.6. Limitations that May Influence Results

Because of a lack of access, detailed foot surveys were not conducted in portions of the action area northwest of the intersection of SR 1 and Rossi Road, nor southeast of the intersection of SR 1 and Whitehouse Canyon Road where construction activities (e.g., traffic control and staging) will be limited to paved portions of the roadway. This area was evaluated from the car and by using aerial imagery and available vegetation-based geographic information systems (GIS) layers. No protocol-level surveys for protected wildlife species or rare plants have been conducted to date. Additionally, drought conditions during 2014 may have affected site conditions and survey outcomes for this project; however, the potential influence of dry site conditions was considered during the evaluation of project-related effects on protected resources.

Chapter 3. Environmental Setting

This chapter presents the environmental setting of the action area, including topography, soils, vegetation, watercourses, level of human or natural disturbance, and ecological context within the region.

3.1. Existing Biological and Physical Conditions

This section describes the physical and biological conditions of the action area and vicinity.

3.1.1. Action Area and Project Vicinity

The 31-acre action area includes the 3.3-acre project footprint, Caltrans' ROW, and additional areas beyond the ROW that may be subject to potential direct and indirect effects of the proposed project. The proposed project will be implemented along the Central California Coast, 0.8 mile east of Franklin Point, three miles southeast of Pigeon Point immediately north and east of Año Nuevo State Park (Figure 1). Whitehouse Creek flows southwest and roughly perpendicular to SR 1, immediately east of Rossi Road. The landscape surrounding the action area is undeveloped and includes Año Nuevo State Park and private properties. Representative photographs of the project footprint and action area are provided in Appendix C. Photographs 1 and 2 in Appendix C show views of the project footprint where ground disturbances will occur.

3.1.2. Climate and Topography

The action area occurs in a region with a coastal Mediterranean climate, with dry, mild summers and moist, cool winters. About 80 percent of the annual precipitation occurs from November through March. The average annual precipitation in the town of Half Moon Bay, 20 miles north of the action area, is approximately 29 inches (U.S. Climate Data 2015). The annual temperatures range from an average daily maximum of 66 degrees Fahrenheit (°F) from August through October, and 59°F in December and January, with a corresponding average daily minimum of 52°F in July and August and 42°F from December through February.

California has been experiencing a drought since 2012. Total annual precipitation recorded at a nearby weather station in Santa Cruz for 2014 was similar to the average annual precipitation. Total annual precipitation recorded in 2014 was 29.48 inches (WRCC 2015), compared to an average of 29.33 inches annually (Caltrans 2015).

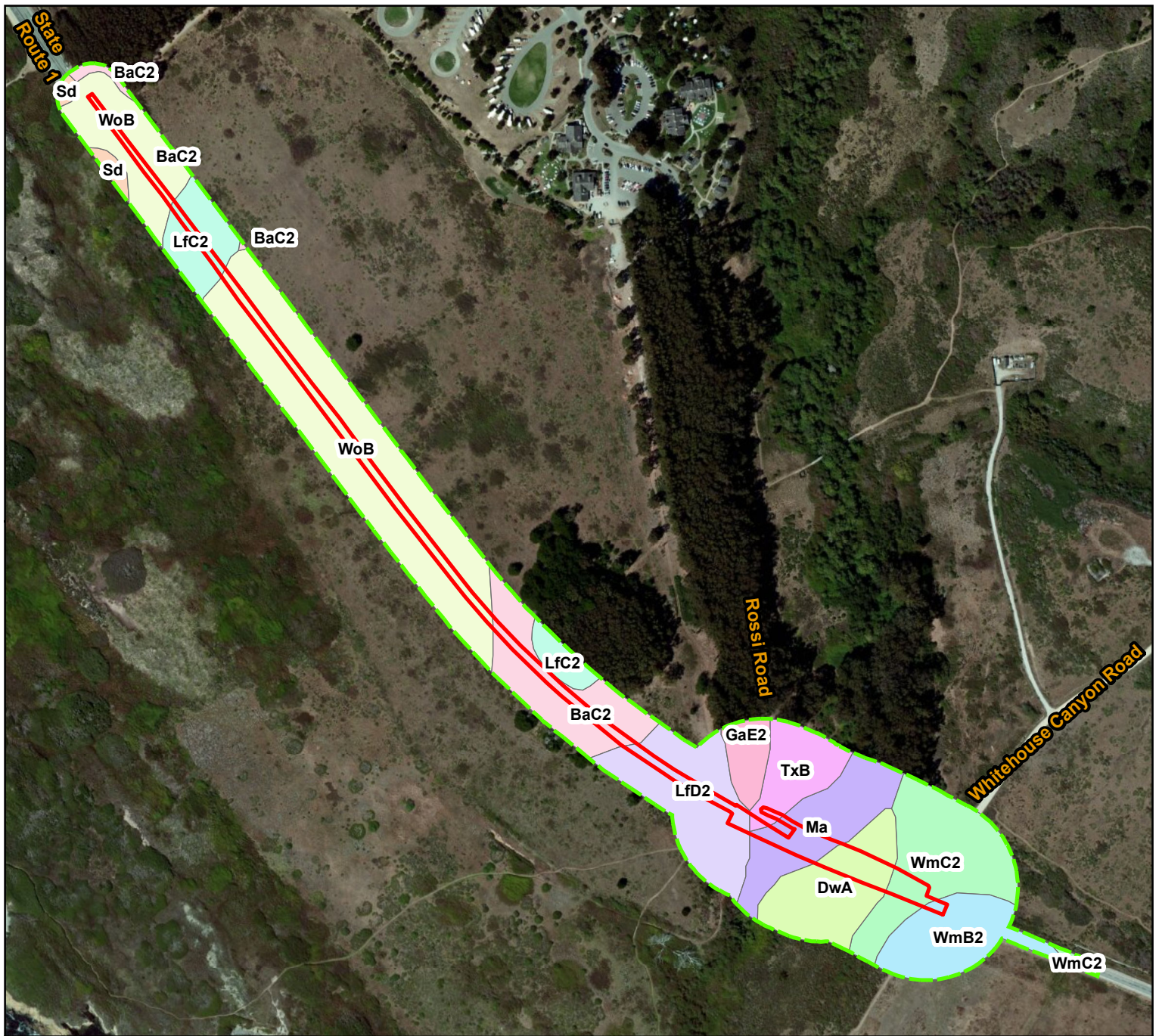
Precipitation recorded in the 2015 water year through the most recent site visit on February 24, 2015 was 14.89 inches, which is less than the average of 21.5 inches normally received at this point in the water year at this location (Caltrans 2015).

In the action area, the elevation ranges from approximately 25 to 100 feet. SR 1 in the project vicinity meanders along the Pacific Coast south from the Town of Pescadero into the action area. In the action area, the roadway slopes slightly downhill from west to east (heading southbound along the highway). Immediately adjacent to the roadway on either side, in the portion of the action area where ground-disturbing activities will occur (between Rossi Road and Whitehouse Canyon Road), the terrain drops steeply downhill from the road shoulder (more than 2:1 slope) for approximately 25 to 35 feet until it meets the natural terrain of the surrounding landscape. North of the highway in this area, the natural terrain generally levels out and follows the gently sloping Whitehouse Creek drainage upstream with adjacent rolling hills. South of the roadway, the natural terrain slopes more steeply downhill towards Whitehouse Creek, as it travels approximately 1,000 feet down to the Pacific Ocean with steep, eroded banks amongst adjacent coastal bluffs. Elsewhere in the action area, the terrain along and adjacent to the highway is relatively flat, with the exception of a short section northwest of Rossi Road where the roadside slopes form a tall berm adjacent to the highway.

3.1.3. Soils

Soil types in the action area were identified based on information received from the United States Department of Agriculture's Natural Resource Conservation Service (NRCS) Web Soil Survey (NRCS 2013). The dominant soil types include alluvial deposits, sandy loam, loam, and clay-type soils (Figure 3).

Soil series represented in portions of the action area where ground-disturbing activities will occur include: Watsonville, Dublin, Tunitas, and mixed alluvial soils. Watsonville soils have a dense claypan subsoil above marine sediments; associated vegetation consists of coyote brush with a grass understory (NRCS 2015). Dublin soils are formed in alluvium from sedimentary rocks and are found on alluvial fans or floodplains. Grasses and some willows along streams is the primary vegetation associated with Dublin soils (NRCS 2015). Tunitas soils are formed in alluvium from sandstone, shale, and basic igneous rocks; associated vegetation primarily consists of grasslands, with coyotebrush and willows; some brush and herbs grow along waterways (NRCS 2015). Watsonville, Dublin, and Tunitas soils are moderately well drained to imperfectly drained. Mixed alluvial soils include sandy and gravelly deposits along streams with



Legend

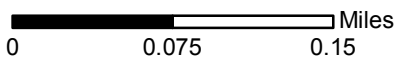
- Action Area
- Project Footprint

Soil Types

- Baywood sandy loam, sloping, eroded (BaC2)
- Dublin clay, nearly level, imperfectly drained (DwA)
- Gazos fine sandy loam, steep, eroded (GaE2)
- Lobitos fine sandy loam, sloping, eroded (LfC2)
- Lobitos fine sandy loam, steep, eroded (LfD2)
- Mixed alluvial land (Ma)
- Stabilized dune land (Sd)
- Tunitas loam, gently sloping (TxB)
- Watsonville loam, gently sloping, eroded (WmB2)
- Watsonville loam, sloping, eroded (WmC2)
- Watsonville loamy sand, gently sloping, overblown (WoB)

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1 inch = 0.09 miles

Vegetative cover (NRCS 2015). Two soil types occurring in the action area—Dublin clay, nearly level, imperfectly drained (DwA) and Mixed alluvial land (Ma)—are considered hydric according to the National Hydric Soils List (NRCS 2014, as cited in Caltrans 2015).

3.1.4. Hydrology

Whitehouse Creek, located between Rossi Road and Whitehouse Canyon Road, is the dominant hydrologic feature in the action area and general vicinity. It is a perennial stream that flows from north to south, crossing the action area and SR 1 just east of Rossi Road (Figure 2; see also Appendix C, photographs 3 to 5). The Whitehouse Creek drainage occupies nearly five square miles within the largely undeveloped southern portion of San Mateo County and discharges into the Pacific Ocean approximately 1,500 feet downstream (south) of the action area, where it exits along a steeply eroded cliff and spills across a relatively wide beach (Appendix C, photographs 6 and 7). Upstream, Whitehouse Creek is fed by an ephemeral drainage system, entering the creek predominantly from the east.

In the action area, Whitehouse Creek flows almost entirely through a subsurface cross culvert (see Figure 2 for location of headwall and outfall). The cross culvert is a 400-foot by 96-inch-diameter concrete downdrain, which is buried approximately 50 feet below the surface, originating approximately 200 feet upstream and terminating approximately 200 feet downstream of SR 1 (Appendix C, photograph 8). Upstream from the cross-culvert, but in the action area, Whitehouse Creek has a nearly linear form typical of a run with relatively steep, moderately tall (approximately 5 feet), and predominantly earthen vegetated banks with an ordinary high water mark of approximately 10 feet (see Appendix C, photograph 3). No deep pools occur along the creek in the action area; however, one small pool, with emergent vegetation and a few downed logs, occurs approximately 750 feet upstream within a small opening in the riparian canopy; the pool had a depth of 1.5 feet on September 9, 2014. In the action area, Whitehouse Creek is heavily shaded by a dense canopy of eucalyptus forest.

Portions of Whitehouse Creek downstream of the action area traverse a large incised and relatively steep channel that eventually meets the ocean at a fairly shallow stream gradient before spilling across a broad sandy, rocky beach and into the ocean. Upstream of the action area, Whitehouse Creek traverses a large creek bed with banks that are considerably less steep than downstream of the action area. Substrates in Whitehouse Creek are made up of loam, sandy loam, sand, alluvial, and clay soils (Jansen, pers. comm., 2014). Substrate conditions within the creek are somewhat degraded because

of siltation, primarily resulting from severe overgrazing through the late 1980's on private lands of the Cascade Ranch within the watershed (Service 2006). At the time of the field survey on September 9, 2014, the creek was flowing at approximately one cubic foot per second; however, based on flows observed during the site visit, and considering the drought conditions of the survey year (2014), this creek is expected to carry substantially greater amounts of water during rain events.

During rain events, run-off is collected from the roadway (SR 1) and is directed into an above-ground culvert and roadside ditch drainage system. The drainage system begins with roadside drainage that collects in a concrete-lined V-ditch that is approximately 635 feet in length and parallels SR 1 from Rossi Road to Whitehouse Canyon Road (Caltrans 2015). This concrete ditch is approximately 25 feet downslope at the toe of the roadway berm, between the northbound side of SR 1 and an unnamed dirt frontage road (see Figure 2). The portion of the roadside ditch east of Whitehouse Creek (between the existing concrete drainage basin and Whitehouse Canyon Road) is currently filled with several (up to 14) inches of sediment runoff from upslope and organic material from surrounding vegetation (Caltrans 2015) to the extent that the concrete lining is no longer visible and the margins of the ditch have become overgrown with vegetation, giving it an appearance of being an earthen ditch. Vegetation in and along the V-ditch mainly consists of eucalyptus, Douglas fir, Harding grass (*Phalaris aquatica*), poison oak (*Toxicodendron diversilobum*), and California blackberry (*Rubus ursinus*) (Caltrans 2015). The roadside drainage ditch system was dry during the surveys on July 9 and September 9, 2014 and no aquatic habitat or emergent vegetation was present in the earth-filled portions.

The earth-filled concrete-lined ditch directs roadside drainage and collected overland flow towards two existing drainage inlets and associated underground box culverts. These culverts direct flow into a 30-inch reinforced concrete pipe. This flow ultimately discharges into Whitehouse Creek approximately 200 feet northeast of SR 1 (see Figure 2). From here the creek flows south towards the ocean. At the time of the September 9, 2014, site visit, the 30-inch concrete pipe was almost entirely plugged with sediment and had a damaged concrete spillway that discharged over land and eventually onto slope-stabilizing sacked concrete that was present along the banks of Whitehouse Creek.

At this location, Whitehouse Creek is directed into a concrete sack-lined cross culvert (described above) that bisects SR 1 from northeast to southwest immediately southeast of Rossi Road.

3.1.5. Vegetation

Land cover types in the action area include developed (e.g., paved and unpaved roadways), eucalyptus forest, riparian forest, and coastal scrub (Figure 4). Annual grasslands also intermix with coastal scrub in and around the action area, primarily along SR 1.

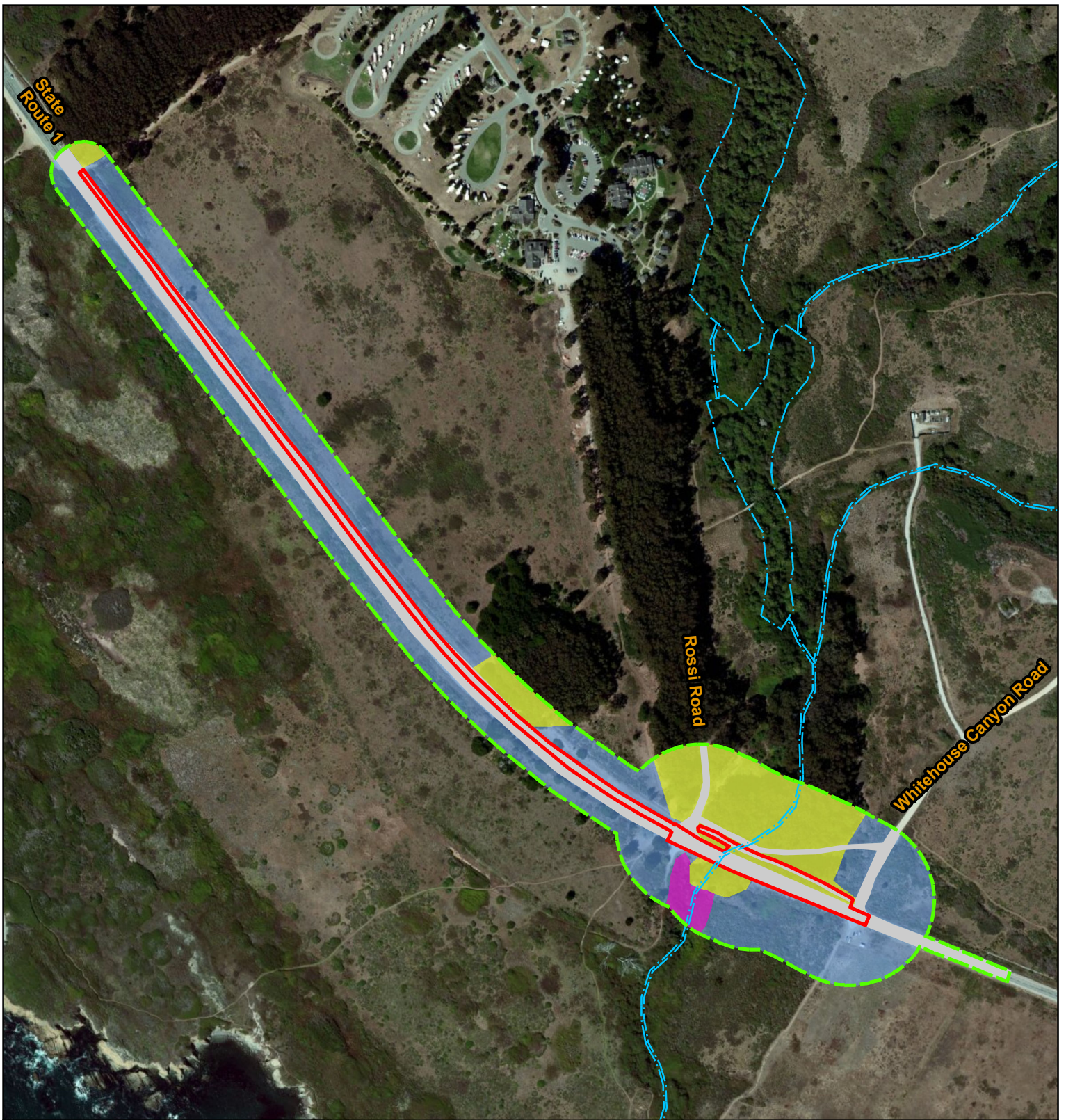
At the time of the July 9, 2014, site reconnaissance and the September 9 habitat mapping, all portions of the action area (except Whitehouse Creek itself) were dry; no aquatic habitat or emergent vegetation was present. Saturated soils and some standing water were present in the roadside drainage ditch nearest Whitehouse Creek during the February 24, 2015, site visit (Caltrans 2015). Vegetation communities present in the action area are described below and a list of plant species observed during the July 9, 2014, site reconnaissance is provided in Appendix D.

3.1.5.1. EUCALYPTUS FOREST

Eucalyptus forest occurs in the action area north of SR 1, primarily between Rossi Road and Whitehouse Canyon Road, and as a small patch immediately south of SR 1 along Whitehouse Creek. This community occurs along Whitehouse Creek from SR 1 to approximately 350 feet north and approximately 100 feet south before transitioning to riparian forest and coastal scrub communities (described below). Dominant species within this eucalyptus forest include blue gum eucalyptus (*Eucalyptus globulus*) which forms a densely shaded canopy. California blackberry and poison oak dominate the understory.

In the action area, this community mainly includes eucalyptus individuals with heights greater than 150 feet, which shade the forest floor below, creating a dimly lit environment. The forest floor in this community is dense and covered in a layer of duff, mainly fallen limbs and leaves. Understory species include western lady fern (*Athyrium filix-femina*), common horsetail (*Equisetum arvense*), and California swordfern (*Polystichum californicum*). Representative photographs of eucalyptus forest in the action area are provided in Appendix C (photographs 1, 2, and 9).

Douglas fir, Monterey cypress, and Monterey pine occasionally intersperse with eucalyptus in the action area, primarily along the roadway embankment south of SR 1 in the vicinity of Whitehouse Creek and along the northbound lane of SR 1 approximately 500 feet northwest of the intersection of SR 1 and Rossi Road.

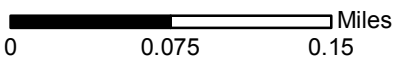


Legend

- Project Footprint
 - Action Area
 - Hydrologic Features
 - Developed Areas
- Vegetation Communities**
- Eucalyptus Forest
 - Riparian Forest
 - Coastal-Scrub-Annual Grassland

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1 inch = 0.09 miles

3.1.5.2. RIPARIAN FOREST

Upstream and downstream of the eucalyptus forest, approximately 350 feet north of SR 1 and immediately south of SR 1, the vegetation community transitions to dense riparian forest. This community is dominated by white alder (*Alnus rhombifolia*) and willow (*Salix* spp.) in the overstory and California blackberry and poison oak in the understory. This community mainly includes alder and willow individuals that shade the riparian forest floor below, creating a dimly lit and damp environment. The understory contains a thick layer of duff, mainly including fallen limbs and leaves. Understory species include western lady fern, common horsetail, and California swordfern. Representative photographs of riparian forest in and near the action area are provided in Appendix C (photographs 4, 5, and 8).

Whitehouse Creek flows through the riparian and eucalyptus forest community with minimal changes in vegetation structure or composition. In and near the action area, the creek is covered by overhanging vegetation and broken branches; very few openings in the canopy allow sunlight to reach the creek bed. During the site visit on September 9, water in the creek was clear and had a slight sulfurous odor. Plant species found along the Whitehouse Creek corridor, in addition to those described for riparian habitats above, include non-native and invasive cape ivy (*Delairea odorata*) and French broom (*Genista monspessulana*) and native California coffeeberry (*Rhamnus californica*) and big leaf maple (*Acer macrophyllum*). Habitat within and surrounding the riparian corridor is consistent with the sandy loam and clay soils in these areas.

North of the action area at the time of the September 9 survey, the creek channel was approximately five feet wide by six inches deep, with a gradient of approximately 2:1. One small pool with emergent vegetation was observed in a small opening within the canopy, approximately 750 feet north of the action area; the pool had a depth of 1.5 feet.

South of the action area (and south of SR 1), Whitehouse Creek was approximately ten feet wide by one foot deep at the time of the September 9 survey, with a slightly steeper 1:1 downward gradient. Banks in this area were heavily vegetated for nearly the entire reach downstream of the action area. Multiple small pools were observed along this reach, with a depth of approximately two feet. Emergent vegetation was present within the last 200 feet of the channel before the ocean, where a break occurred in the vegetation canopy. The lowermost reach of Whitehouse Creek adjacent to the ocean is tidally influenced (Jansen, pers. comm. 2014) (Appendix C, photographs 6 and 7).

Coastal Scrub and Annual Grassland

In the action area, coastal scrub is found adjacent to eucalyptus and riparian forest, including the easternmost portion of the project footprint, and along SR 1. Dominant species within coastal scrub habitat in the project vicinity include coyote brush (*Baccharis pilularis*), the non-native bulbous canarygrass (*Phalaris aquatica*), California coffeeberry (*Frangula californica*), California blackberry (*Rubus ursinus*), and poison oak (*Toxicodendron diversilobum*). In the action area, this community mainly includes coyote brush, California blackberry, the non-native orchard morning glory (*Convolvulus arvensis*), and poison oak, which provides a densely vegetated environment. Representative photographs of coastal scrub communities in and near the action area are provided in Appendix C (photographs 2, 10, and 11).

Annual grassland intermixes with coastal scrub; in the action area annual grassland occurs primarily along both sides of SR 1. Dominant grassland species in the action area include slender wild oats (*Avena barbata*) and Italian rye grass (*Festuca perennis*); other grassland associates observed included rattlesnake grass (*Briza maxima*) and blue wild rye (*Elymus glaucus*). A representative photograph of annual grassland communities mixed with coastal scrub communities is provided in Appendix C (photograph 11).

3.1.6. Listed and Proposed Species Potentially Occurring in the Action Area

Several listed species were identified that occur within the Franklin Point quadrangle and seven surrounding quads (Table 3, Figure 5). The potential for listed species to occur within the action area was determined based on known habitat requirements for each species. Habitat suitability was determined based on survey results and knowledge of species life histories, quality and quantity of habitat within the action area, historic records of occurrence, and communication with local experts.

A total of 18 Service-regulated taxa (including six plants and 11 animals) that are federally listed as endangered or threatened, or proposed for listing, and included on the Service's Official Species List (Appendix B) or in other databases were considered for analysis in this BA (Table 3). Based on information from the site surveys and review of available databases and literature, including the Service's official species list (Appendix B) and other relevant databases, all six plants and 8 wildlife taxa were eliminated from further consideration. These species were excluded based on there being a lack of suitable habitat in the action area, local range restrictions, regional

Table 3. Species Listed or Proposed for Listing that May Occur or Are Known to Occur in the Action Area

Scientific Name	Common Name	Federal Status ¹	Habitat Requirements	Habitat Present/Absent	Potential for Species to Occur and Rationale
Plants					
<i>Cupressus abramsiana</i>	Santa Cruz cypress	E	Closed-cone coniferous forest, chaparral, Lower montane coniferous forest on sandstone or granitic soils. Blooming period: N/A Elevation range: 920–2,600 feet	Absent	No potential to occur. Suitable habitat is not present in the action area. Species restricted to five known, relatively isolated populations within the Santa Cruz mountains (Service 1998a). No CNDDDB occurrences are recorded within 10 miles of the action area (CDFW 2014). The nearest populations include the Butano Ridge and Eagle Rock populations, approximately eight miles to the northeast and east, respectively, from the action area (Service 1998a).
<i>Chorizanthe pungens</i> var. <i>hartwegiana</i>	Ben Lomond spine flower	E	Lower montane coniferous forest, especially maritime ponderosa pine forest in Santa Cruz County. Found on sandy Zayante soils in Ben Lomond sandhill communities of the Santa Cruz mountains; considered intolerant of shade (Service 1998b). Blooming period: April–July Elevation range: 300–2,000 feet	Absent	No potential to occur. Suitable habitat is not present in the action area; action area too shaded to support the species. Four CNDDDB occurrences, all approximately 9 miles from the action area (CDFW 2014). Additionally, the action area is outside the species known range within sandhill communities of the Santa Cruz mountains (Service 1998b).
<i>Eriophyllum latilobum</i>	San Mateo wooly sunflower	E	Cismontane woodland; often on serpentine soils and on roadcuts. Found in shaded moist sites on grassy or sparsely wooded slopes in San Mateo County (Service 2011a). Blooming period: May–June Elevation range: 150–500 feet	Absent	No potential to occur. Suitable habitat is not present in the action area. Currently known from only a few extant occurrences outside the action area: along Crystal Springs Road near the City of Hillsborough, California; on cut and fill slopes between Sawyer Ridge and San Mateo Creek along San Mateo Road in the Peninsula Watershed; along Outgoing Road also in the Peninsula Watershed; and on private property near Half Moon Bay (Service 2011a). The nearest location and CNDDDB occurrence is recorded approximately eight miles from the action area (CDFW 2014).
<i>Erysimum teretifolium</i>	Santa Cruz wallflower	E	Open areas within chaparral and lower montane coniferous forest on inland marine sands. Endemic to pockets of sandstone soils in Santa Cruz mountains (Service 1998b). Blooming period: Mar–July Elevation range: 390–2,000 feet	Absent	No potential to occur. Suitable habitat is not present in the action area; action area too shaded to support this species. No CNDDDB occurrences are recorded within 10 miles of the action area (CDFW 2014).

Scientific Name	Common Name	Federal Status ¹	Habitat Requirements	Habitat Present/Absent	Potential for Species to Occur and Rationale
<i>Hesperocypris abramsiana</i> var. <i>butanoensis</i>	Butano Ridge cypress	E	Closed-cone coniferous forest, chaparral, and lower montane coniferous forest on sandstone soils; only found in the Butano Ridge area. Blooming period: N/A Elevation range: 1,300—1,600 feet	Absent	No potential to occur. Action area is outside range of this species. Known only from a single population in the Butano Ridge area, approximately eight miles northeast from the action area (Service 1998a).
<i>Pentachaeta bellidiflora</i>	white-rayed pentachaeta	E	Cismontane woodland and valley and foothill grassland; often on serpentine soils. Blooming period: Mar—May Elevation range: 115—2,050 feet	Absent	No potential to occur. Suitable habitat is not present in the action area. The nearest CNDDDB occurrence is recorded approximately 6 miles from the action area (CDFW 2014).
Invertebrates					
<i>Callophrys mossii bayensis</i>	San Bruno elfin butterfly	E	Typical habitat is coastal grassland and low scrub of north-facing slopes within the fog belt where the larval host plant grows. Restricted to San Mateo County, California. Associated with the larval host plant, <i>Sedum spathulifolium</i> (stonecrop).	Absent	No potential to occur. Suitable habitat not present in the action area; no grasslands or low scrub supporting larval host plants for this species are present in the action area. No CNDDDB occurrences are recorded within 10 miles of the action area (CDFW 2014).
<i>Danaus plexippus</i>	Monarch butterfly	Under review for ESA listing	In spring and summer, found in open fields and meadows with milkweed (<i>Asclepias</i> spp.); in winter, can be found congregated in large numbers on the central and southern California coast in protected forested stands.	Present	Known to occur during winter. A few adult monarch butterflies were observed among eucalyptus forest along Whitehouse Creek in the BSA during a site visit by AECOM ecologists on February 24, 2015. In addition, individuals were documented along Whitehouse Creek during annual Thanksgiving counts by the Xerces Society along the Central Coast in 2011 (Monroe et al. 2015). A CNDDDB record for this species from 1998 overlaps the BSA along Whitehouse Creek (CDFW 2015).
<i>Euphydryas editha bayensis</i>	Bay checkerspot butterfly	T	Usually associated with populations of dwarf plantain (<i>Plantago erecta</i>), the primary larval host plant, in native grasslands on serpentine soils, or similar derived soils (Service 1998).	Absent	No potential to occur. Suitable habitat is not present; no serpentine or similar soils or grasslands supporting larval host and nectar plants for this species present in the action area. No CNDDDB occurrences are recorded within 10 miles of the action area (CDFW 2014).

Scientific Name	Common Name	Federal Status ¹	Habitat Requirements	Habitat Present/Absent	Potential for Species to Occur and Rationale
Amphibians					
<i>Rana draytonii</i>	California red-legged frog	T, CH	Freshwater habitats. Prefers semi-permanent and permanent stream pools, ponds, and creeks with emergent riparian vegetation. Occupies adjacent upland areas, especially during the wet winter months.	Present	Could occur. Two known breeding ponds occur 0.6 mile and 0.9 mile northeast upstream of the action area; however, suitable breeding habitat does not occur in the action area. Suitable aquatic (non-breeding) habitat is present in the action area adjacent to the project footprint in Whitehouse Creek. Upland habitat suitable for foraging, aestivation, and dispersal is also present in the action area, but very little sign of fossorial mammal activity (e.g., burrows, runways) was observed during a habitat evaluation on September 9, 2014. This suggests there is a paucity of upland refugia for the species within the action area. Critical habitat is not present in the action area. Nineteen CNDDDB-documented occurrences, most within the last two decades, are within five miles of the action area (CDFW 2014).
<i>Ambystoma californiense</i>	California tiger salamander (Central population)	T	Breeds in ponds, vernal pools, or other seasonal water bodies that hold water for an adequate duration for larval metamorphosis. Spends most of the year in rodent burrows or other subterranean refuges in grassland and oak savannas within 1.3 miles of breeding pools, Migrates seasonally from upland to aquatic habitat.	Absent	No potential to occur. No suitable habitat present in the action area; no vernal pools in or within 1.3 miles of the action area.

Scientific Name	Common Name	Federal Status ¹	Habitat Requirements	Habitat Present/Absent	Potential for Species to Occur and Rationale
Reptiles					
<i>Thamnophis sirtalis tetrataenia</i>	San Francisco garter snake	E	Found in the vicinity of freshwater marshes, ponds, and slow-moving streams in San Mateo County and Santa Cruz County. Prefers dense cover and water depths of at least 1 foot.	Present	Could occur. This species has been documented along Whitehouse Creek which bisects the action area (see below). Suitable aquatic breeding habitat does not occur in the action area; however potential aquatic habitat suitable for movement and/or dispersal and foraging is present in Whitehouse Creek adjacent to the project footprint in the action area. Upland dispersal habitat for this species is also present in the action area. One CNDDDB occurrence of this species (two individuals) was recorded along Whitehouse Creek which crosses the action area; five additional CNDDDB records are within two miles of the action area (Acord, pers. comm., 2014).
Fish					
<i>Eucyclogobius newberryi</i>	tidewater goby	E	Coastal California lagoons, estuaries, and stream mouths separated by mostly marine conditions (Service 2005b); found up to three miles upstream in slow-moving water. Absent where the coastline is steep and streams do not form lagoons or estuaries (Service 2005b).	Absent	No potential to occur. Suitable habitat is not present in or downstream of the action area. Closest CNDDDB-documented occurrence in lowest portions of Waddell Creek, approximately 5 miles southeast of the action area (CDFW 2014).
<i>Hypomesus transpacificus</i>	Delta smelt	T	Brackish water. Found only in the Sacramento–San Joaquin Estuary, as far upstream as the mouth of the American River on the Sacramento River, and the Mossdale on the San Joaquin River. Found downstream as far as San Pablo Bay.	Absent	No potential to occur. The action area is outside the range of this species.

Scientific Name	Common Name	Federal Status ¹	Habitat Requirements	Habitat Present/Absent	Potential for Species to Occur and Rationale
Birds					
<i>Brachyramphus marmoratus</i>	marbled murrelet	T, CH	Breeds in coastal forests; tree nests require large-diameter limbs or other suitable platform in large conifers. Forages off the coast in marine environments.	Present	Could occur. Suitable habitat is not present in the action area; no suitable large conifers along drainages occur in the action area. Marine environments are not present in the action area. However, individuals may fly over the action area during foraging flights between ocean foraging grounds and inland breeding sites in nearby swaths of coniferous forest. No CNDDDB occurrences within 5 miles of the action area; one nesting record within 10 miles of the action area, from Big Basin Redwoods State Park (from 1974) east of the action area (CDFW 2014). Critical habitat does not occur in the action area; the closest designated critical habitat is approximately 0.75 mile north-northeast and 1 mile east of the action area (Figure 5).
<i>Charadrius alexandrinus nivosus</i>	western snowy plover	T, CH	Habitats used by nesting and non-nesting birds include sandy coastal beaches, salt pans, coastal dredged spoils sites, dry salt ponds, salt pond levees and gravel bars.	Absent	No potential to occur. Suitable coastal beach/mud flat habitat is not present in the action area. Critical habitat is not present in the action area. The nearest CNDDDB occurrence occurs approximately 5 miles southeast of the action area (CDFW 2014).
<i>Sternula antillarum browni</i>	California least tern	E	Migratory in California; breeding colonies are located along marine and estuarine shores, and in abandoned salt ponds; feeds in nearby shallow, estuarine waters or lagoons. Prefers undisturbed nest sites on open, sandy, or gravelly shores near shallow-water feeding areas in estuaries.	Absent	No potential to occur. Suitable habitat is not present in the action area. No CNDDDB-documented occurrences are within 10 miles of the action area (CDFW 2014).
<i>Pelecanus occidentalis californicus</i>	California brown pelican	D	Coastal marine and estuarine environments. Nest on small, predator-free coastal islands.	Absent	No potential to occur. Suitable habitat is not present in the action area. This species was removed from the endangered species list in November 2009 (Service 2009). No CNDDDB-documented occurrences are within 10 miles of the action area (CDFW 2014).

Notes:

DPS = distinct population segment; E = federally listed as endangered; T = federally listed as threatened; D = Delisted; CH = Critical Habitat

Source: Data compiled by AECOM in December 2014

extirpations, and/or lack of connectivity between areas of suitable or occupied habitat and the action area.

Species with a marine-associated life history (e.g., southern sea otter [*Enhydra lutris nereis*], short-tailed albatross [*Diomedea albatrus*], sei whale [*Balaenoptera musculus*]) do not occur in the action area and will not be affected by the proposed project and were not considered further in this BA; such species are not included in Table 3. Additionally, other species under NMFS' jurisdiction such as steelhead (*Oncorhynchus mykiss*) occur in the action area in Whitehouse Creek but are unlikely to be affected by project activities Caltrans will implement several best management practices to ensure there are no adverse effects to Whitehouse Creek during construction and that no take of salmonids occurs.

The following three federally listed species have potential to occur in the action area and be directly or indirectly affected by the proposed project:

- California red-legged frog (CRLF) (*Rana draytonii*), federally listed as threatened
- San Francisco garter snake (SFGS) (*Thamnophis sirtalis tetrataenia*), federally listed as endangered
- Marbled murrelet (*Brachyramphus marmoratus*), federally listed as threatened

Chapter 4. Results: Biological Resources, Discussion of Project Effects and Mitigation

This chapter discusses all federally listed species that are known to occur or that may occur in the action area: California red-legged frog (CRLF), San Francisco garter snake (SFGS), and marbled murrelet. The following sections provide a discussion of each species, survey results, and an analysis of project effects on those species with the potential to occur in the action area. Chapter 1 outlined species-specific avoidance and minimization measures that Caltrans will implement, where appropriate, to reduce the potential for this project to adversely affect listed species and result in the take of listed species throughout the life of the project. The analysis of project effects includes direct effects (e.g., take associated with construction activities and habitat loss) and indirect effects (e.g., potential changes in hydrology, spread of invasive species).

4.1. Federally Listed Plant Species

Caltrans has determined that the proposed project will have no effect on listed plant species for various reasons. There is no suitable habitat for listed plant species in the action area, the project may be outside the current known range of listed plant species, or the species is only known to occur in locations relatively far (more than five miles) from the action area.

4.2. Federally Listed Animal Species

The potential for the federally listed CRLF, SFGS, and marbled murrelet to occur in the action area, potential effects of the proposed project on these species, and avoidance and minimization measures for each species are discussed in the following sections. Caltrans has determined that the proposed project will have no effect on any other listed wildlife species. Either there is no suitable habitat for any other listed species within the action area or the action area is outside the species' known range.

The monarch butterfly (*Danaus plexippus*) also occurs in the action area (Table 3). However, this species is not currently listed under ESA. The Service is completing a 12-month finding to determine if this species should be listed as threatened or endangered pursuant to ESA. At this time, the species has no formal protection under ESA and is not given full consideration in this BA. The removal of eucalyptus trees in the project footprint will likely result in a reduction of overwintering sites for this species within the action area. Tree removal will occur outside the species'

overwintering period and when the species is absent from the action area. There is an abundance of eucalyptus trees upstream of the action area along Whitehouse Creek. Therefore, this project is anticipated to result in a minimal reduction of overwintering habitat for the monarch butterfly and is unlikely to have a population-level effect on the species.

4.2.1. California Red-Legged Frog

4.2.1.1. STATUS

The California red-legged frog (*Rana draytonii*, CRLF) was federally listed as a threatened species on May 23, 1996 (Service 1996). A recovery plan was published for CRLF on September 12, 2002 (Service 2002). Critical habitat was designated for this species on April 13, 2006 (Service 2006), and a final revision was published on March 17, 2010 (Service 2010). There is no critical habitat for CRLF within the action area; the closest unit is 0.75 mile to the north. The action area occurs within the Central Coast recovery unit for this species (Service 2002).

4.2.1.2. NATURAL HISTORY

CRLF is the largest native frog in the western United States (Wright and Wright 1949), ranging from 1.5 to 5.1 inches long (Stebbins 2003). Individuals occurring in coastal drainages are active year-round (Jennings et al. 1992), whereas those found at interior sites normally are less active, and seek refuge, during the cold (at higher elevations) and/or dry season.

Distribution

The historical range of CRLF extended coastally from the vicinity of Elk Creek in Mendocino County, California, and inland from the vicinity of Redding, Shasta County, California, southward to northwestern Baja California, Mexico (Jennings and Hayes 1985, Hayes and Krempels 1986, Fellers 2005). CRLF historically was documented in 46 counties, but the species now is extant in 238 drainages in 23 counties, representing a loss of 70 percent of its former range (Service 2002). CRLF still is locally abundant in portions of the San Francisco Bay Area and the Central Coast. Within the remaining distribution of the species, only isolated populations have been documented in the Sierra Nevada, Northern Coast, and North Transverse Ranges. The species is believed to be extirpated from the southern Transverse and Peninsular Ranges but still is present in Baja California, Mexico (Service 2002).

CRLF predominantly inhabits permanent water sources, such as streams, lakes, marshes, natural and constructed ponds, and ephemeral drainages in valley bottoms and foothills up to 4,921 feet in elevation (Jennings and Hayes 1994, Bulger et al. 2003,

Stebbins 2003). These areas are characterized by the presence of dense, shrubby, or emergent vegetation, closely associated with deep water pools with fringes of cattails and dense stands of overhanging vegetation (Service 2002). The species may also be found in ephemeral creeks and drainages, and in disturbed areas, such as channelized creeks and drainage ditches in urban and agricultural areas (Service 2002).

The Central Coast recovery unit for CRLF, which overlaps the action area, supports the greatest number of currently occupied drainages; most coastal streams and ponds (natural and artificial) in San Mateo County from Pacifica south to Half Moon Bay support this species (S. Larson, pers. comm. 1998; as cited in Service 2002).

Habitat Classifications

CRLF habitats have been characterized by the Service, based on functional value, as aquatic breeding habitat, non-breeding aquatic and riparian habitat, upland habitat, and dispersal habitat (Service 2010). These habitats comprise the primary constituent elements for CRLF (Service 2010), which are physical or biological features essential to the conservation of a species and for which designation of its critical habitat is based. Such features include areas used for normal feeding and sheltering behaviors and space for breeding, population growth, and undisturbed habitats.

For CRLF, aquatic breeding habitat includes natural water features, such as slow-moving streams and pools within streams and human-made ponds that are capable of sustaining all aquatic life stages of CRLF. These areas must hold water for at least 20 weeks during the year, which is the minimum amount of time needed for CRLF breeding and tadpole development and metamorphosis (Storer 1925; Wright and Wright 1949, Jennings 1988, Service 2010). Aquatic habitat need not be present every year, because CRLF can live 8 to 10 years in the wild (Service 2010).

Non-breeding aquatic and riparian habitat includes areas such as springs, seeps, moist cracks within dried ponds, and vegetated areas growing within the floodplains of rivers and streams. These areas do not hold enough water for CRLF breeding but provide the space needed for foraging and cover to sustain CRLF individuals. These areas are also important for retaining moisture and avoiding solar exposure, and they are important particularly during drought periods and for dispersal to other breeding habitats (Alvarez 2004, Fellers and Kleeman 2007, Service 2010).

Upland habitats are important because they help protect the appropriate hydrological, physical, and water quality conditions of aquatic sites and provide space for foraging, sheltering, and avoiding predation (Service 2010). These areas generally support plant

species such as blackberry (*Rubus* spp.), poison oak (*Toxicodendron diversilobum*), coyote brush (*Baccharis pilularis*), oaks (*Quercus* spp.), and grasses (Service 2002, Fellers and Kleeman 2007, Service 2010). Upland habitat also consists of areas where CRLF can seek shelter during summer if water is not available, such as under boulders, rocks, animal burrows, fallen logs, and agricultural debris like watering troughs and hay stacks (Jennings and Hayes 1994, Fellers and Kleeman 2007, Service 2010). During summer CRLF may use small mammal burrows, moist leaf litter, or pools within stream channels (Service 2002).

Dispersal habitat refers to accessible upland or riparian habitat that is located typically within one mile of occupied breeding areas. This includes natural habitats and altered habitats, such as agricultural fields that do not contain barriers (e.g., heavily traveled roads without bridges or culverts) to dispersal (Service 2010).

Feeding

The diet of the CRLF is highly variable. Hayes and Tennant (1985) found invertebrates to be the most frequent component of CRLF juveniles and adults; whereas vertebrates such as the Pacific tree frog (*Pseudacris regilla*) and California mouse (*Peromyscus californicus*) represent more than half the prey mass eaten by larger CRLF (Hayes and Tennant 1985). The diet of CRLF tadpoles is not well studied, but their diet is probably similar to other ranid tadpoles that feed on algae, diatoms, and detritus by grazing on the surface of rocks and vegetation (Kupferberg 1996a, 1996b; Fellers 2005). Hayes and Tennant (1985) found juvenile CRLF to be active diurnally and nocturnally, whereas adult CRLF were largely nocturnal. Feeding activity probably occurs along the shoreline and on the surface of water bodies (Hayes and Tennant 1985).

Reproduction

CRLF typically breed between November and April, with earlier breeding records occurring in southern localities (Hayes and Jennings 1988, Storer 1925). Breeding often occurs in still or slow moving water, at least 2.5 feet deep with emergent vegetation, such as cattails (*Typha* spp.), tules (*Scirpus* spp.), or overhanging willows (*Salix* spp.) (Hayes and Jennings 1988). CRLF have paired vocal sacs and vocalize in air (Hayes and Krempels 1986). Female CRLF deposit egg masses on emergent vegetation so that the egg mass floats on or near the surface of the water (Hayes and Miyamoto 1984).

CRLF are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). Egg masses containing 2,000 to 5,000 eggs are attached to vegetation below the water surface and hatch after six to 14 days (Storer 1925, Jennings and Hayes 1994). In coastal lagoons,

the most significant mortality factor in the pre-hatching stage is water salinity (Jennings et al. 1992). Additionally, increased siltation during the breeding season can cause asphyxiation of eggs and small larvae (USFWS 2010).

Larvae undergo metamorphosis 3.5 to 7 months after hatching and reach sexual maturity at 2 to 4 years of age (Storer 1925, Wright and Wright 1949, Jennings and Hayes 1985, 1990, 1994). Of the various life stages, larvae probably experience the highest mortality rates, with less than one percent of eggs laid reaching metamorphosis (Jennings et al. 1992). CRLF populations can fluctuate from year to year and individuals may live eight to ten years (Jennings et al. 1992). When conditions are favorable, CRLF can experience extremely high rates of reproduction, producing large numbers of dispersing young and a concomitant increase in the number of occupied sites. In contrast, when conditions are stressful (e.g., during drought), CRLF may temporarily disappear from an area.

Movement

CRLF do not have a distinct breeding migration (Fellers 2005). Adult CRLF are often associated with permanent bodies of water. Some CRLF remain at breeding sites all year while others disperse. Dispersal distances typically are less than 0.5 mile, with a few individuals moving up to distances of one to two miles (Fellers 2005). CRLF have been observed dispersing along riparian corridors and overland to other aquatic sites (Bulger et al. 2003, Fellers and Kleeman 2007). CRLF may move through riparian corridors, but some individuals, especially on rainy nights, move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas (Fellers 2005). Migratory movements have been characterized as the movement between aquatic sites and are associated most often with breeding activities (Bulger et al. 2003). CRLF have been documented traveling up to two miles without apparent regard to topography, vegetation type, or riparian corridors (Bulger et al. 2003, Service 2010). Non-migrating frogs typically stay within 200 feet of aquatic habitat and are associated most often with dense vegetative cover, such as California blackberry, poison oak, and coyote brush (Bulger et al. 2003).

Population Threats

Various factors have likely contributed to the decline of CRLF throughout its range. Habitat loss resulting from urbanization and agriculture, water impoundments, stream channelization, and the introduction of non-native species have all been cited as factors that have adversely affected CRLF and its habitat (Service 2002). These factors may act synergistically and with natural factors to result in CRLF population declines

(Service 2002). Other threats to CRLF include the overgrazing of aquatic and riparian habitats, pesticide use, and water quality degradation (Service 2002).

The diking and filling of wetlands for agricultural and urban development is one of the primary factors that has resulted in a loss of habitat throughout the range of CRLF, particularly in the Central Valley (Dahl 1990, Service 2002). Impoundments and water diversions for agriculture have also contributed to CRLF habitat losses. These structures can create dispersal barriers, alter the hydroperiod of breeding ponds, reduce high flows that would otherwise maintain downstream habitat, such as instream pools, and alter channel morphology (Service 2002, Fellers 2005). These impoundments may subsequently become suitable for non-native predators that prey on CRLF (Service 2002).

Dredging projects for flood control have also been known to adversely affect CRLF, because such projects reduce instream complexity and the amount of vegetation along a watercourse (Harding 1960, Service 2002) which can provide potential attachment sites for eggs. Urbanization and land development also have contributed to the decline of CRLF and its habitat. For example, urban and suburban development and roads may block CRLF dispersal and leave occupied habitat fragments isolated from one another (Service 2002).

Worldwide, non-native species are known to outcompete and displace native flora and fauna. Several researchers in Central California have noted the decline and eventual local disappearance of CRLF and northern red-legged frogs (*Rana aurora aurora*) in systems supporting bullfrogs (*Rana catesbeiana*) (Jennings and Hayes 1990, Twedt 1993), red swamp crayfish (*Procambarus clarkii*), signal crayfish (*Pacifastacus leniusculus*), and several species of warm-water fish, including sunfish (*Lepomis* spp.), goldfish (*Carassius auratus*), common carp (*Cyprinus carpio*), and mosquitofish (*Gambusia affinis*) (Moyle 1976, Barry 1992, Hunt 1993, Fisher and Schaffer 1996). This disappearance has been attributed to predation, competition, and reproduction interference. However, the presence of bullfrogs alone does not preclude the potential for CRLF to occur in otherwise suitable aquatic habitats (Barry and Fellers 2013).

4.2.1.3. SURVEY RESULTS

Caltrans used available literature, results of standard database searches, and the habitat assessment to categorize CRLF habitat suitability in the action area and the potential for occurrence. No protocol-level surveys for CRLF have been conducted in the action area. The species is cryptic and generally difficult to observe, even during focused surveys, and negative results may not preclude the need for consultation. A habitat

assessment and site reconnaissance for CRLF (and for SFGS) were completed on September 9, 2014. No CRLF were detected during the habitat assessment and site reconnaissance, nor have any been documented previously in the action area (CDFW 2014; see also Figure 5). However, CRLF occurrences have been documented within the typical dispersal distance for the species; no substantial barriers exist between the action area and documented populations within one mile to the northeast (Figure 6), and potential non-breeding aquatic and upland habitats are present in the action area (Figure 7). Therefore, CRLF presumably could occur in the action area and Caltrans has inferred presence.

A review of the CNDDDB identified four documented occurrences of CRLF within two miles and an additional 15 occurrences within five miles of the action area (Figures 5 and 6; CDFW 2014). Of these, occurrence 505 was from a breeding pond in the Whitehouse Creek Watershed, approximately 0.9 mile northeast of the action area; and occurrence 969 was from an impoundment in the adjacent Cascade Creek Watershed, approximately 0.6 mile northeast of the action area (Figure 6).

Occurrence 969 documented finding an unknown number of CRLF during surveys from May to June 2003 and May to August 2004, at a permanent impoundment surrounded by a thin band of emergent vegetation and willows (Appendix C; photograph 12). Occurrence 505 documented finding as many as six adults (including two calling males) between March and May 2001, and an unknown number of CRLF from May to June 2003 and May to August 2004, at a smaller permanent pond surrounded by a dense band of willow with coastal scrub and annual grassland in the adjacent uplands (Appendix C; photograph 13). These ponds are protected by boundary fencing.

Outside a five-mile radius, the remaining CRLF occurrences have been reported northwest and southeast of the action area (CDFW 2014). No other occurrences are documented northeast or east of the action area, where the majority of the landscape is forested, or south or southwest, which extends off the coast into the Pacific Ocean.

Breeding habitat for CRLF does not occur in the action area. The only aquatic habitat in the action area is Whitehouse Creek. Within the action area, the creek flows almost entirely through a subsurface culvert that is not suitable for CRLF breeding because of a lack of riparian or emergent vegetation or other suitable substrate for the attachment of eggs and absence of slow-moving backwaters or pools. Upstream of the culvert, no slow moving backwaters or pools occur in the action area that would provide suitable

breeding habitat. The roadside ditch, adjacent to SR 1 between Rossi Road and Whitehouse Canyon Road, does not provide suitable aquatic habitat (breeding or non-breeding) for CRLF because it retains water only after storm events, and no emergent or other wetland-type vegetation is present there (Appendix C, photograph 15).






Potentially suitable aquatic breeding habitat is located about 0.25 mile downstream (south) of the action area, where several slow-moving pools approximately two feet deep were recorded on September 9, 2014, and about 750 feet upstream of the action area, where one small pool (1.5 foot deep) with emergent vegetation was observed in a small opening within the riparian canopy (Appendix C, photograph 14). Any breeding attempts here or elsewhere upstream of the action area would likely result in eggs being washed downstream because the relatively steep and constricted channel is likely to carry relatively high winter and spring flows (Jansen, pers. comm., 2014). Known breeding ponds occur 0.6 mile and 0.9 mile northeast of the action area, where CNDBB occurrences 505 and 969 were documented (CDFW 2014; but also see discussion above).

Whitehouse Creek could provide suitable non-breeding aquatic habitat for CRLF in the action area because known breeding ponds occur within one mile of the action area and no significant barriers to movement are present. However, during winter storms, flows in Whitehouse Creek likely would be too swift (because of the steepness of the slope and narrowness of the channel) to provide movement corridors for CRLF. Approximately 0.2 acre of potential non-breeding aquatic habitat occurs along Whitehouse Creek in the action area; this includes portions within the subsurface culvert beneath SR 1 that could serve as a movement corridor outside the breeding season (Figure 7).

All upland habitats in the action area (approximately 24.2 acres of forest and coastal scrub/annual grassland) provide potentially suitable upland and dispersal habitat for CRLF because the entire action area occurs within two miles of known breeding sites. Although no California ground squirrel (*Spermophilus beecheyi*) burrows were observed within or adjacent to the action area, a few small burrows were observed in the project footprint and may constitute suitable CRLF refugia; these burrows were consistent with those typical of Botta's pocket gopher (*Thomomys bottae*) and brush rabbit (*Sylvilagus bachmani*). In general, however, relatively few signs of fossorial mammals were observed in the project footprint and adjacent portions of the action area during the September 9, 2014, site visit.



Legend

-  Action Area
-  1-Mile Buffer
-  2-Mile Buffer
-  California Red-Legged Frog Occurrences
-  Potential Aquatic Habitat
-  Critical Habitat: California Red-Legged Frog

**Biological Assessment
Pigeon Point Storm Damage
Repair Project
EA 4G650**

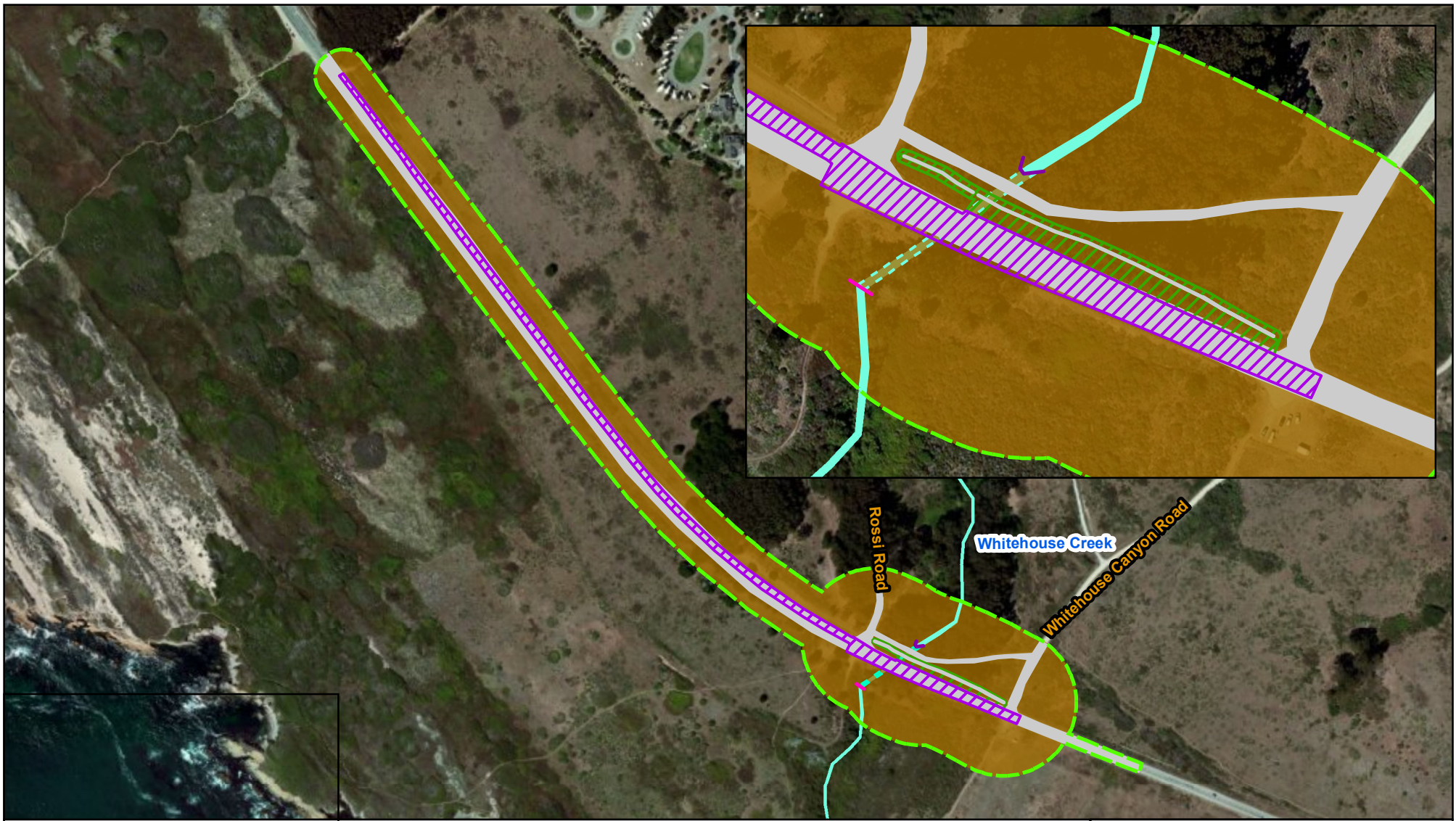
April 2015

0 0.5 1 Miles



1:41,500

1 inch = 0.65 miles



Legend

- Action Area
- Developed Areas
- Culvert Outfall - Whitehouse Creek
- Headwall - Whitehouse Creek

California Red-Legged Frog Habitat

- Potential Non-Breeding Aquatic Habitat*
- Potential Upland Habitat

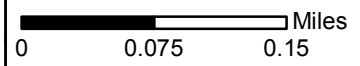
Project Effects

- Temporary Impact Area**
- Permanent Impact Area

*The dashed portion represents where the creek flows through an existing subsurface culvert and would not be affected by ground disturbances associated with the proposed action
 **Temporary impacts of the proposed project are limited to the existing developed roadway and do not occur in suitable California red-legged frog habitat

**Biological Assessment
 Pigeon Point Storm Damage Repair
 Project
 EA 4G650**

April 2015



1:6,900
 1 inch = 0.11 miles

A higher frequency of fossorial mammal activity was observed in grassland and scrub habitats adjacent to the action area and upstream (and north) of SR 1, which may provide a greater amount of refugia compared to within the action area. However, forests bordering Whitehouse Creek in the action area have abundant amounts of duff and leaf litter that could provide upland refugia or support upland dispersal and potential foraging habitat outside the breeding season for this species. However, these upland habitats lack the more typical dense understory vegetation that CRLF prefer. In addition, the upland habitats in the action area are subject to ongoing disturbance from SR 1, and they are more than 0.6 mile (3,200 feet) from suitable aquatic breeding habitat; dispersal distances are typically less than 0.5 mile (see Section 4.2.1.2, Natural History, above). Therefore, CRLF upland habitat in the action area is considered marginal.

Whitehouse Creek downstream of the action area is shaded by dense riparian vegetation, making upland conditions there better for CRLF during the non-breeding season. Coastal scrub and associated annual grasslands in the action area also provide potential upland and dispersal habitat, but the general lack of burrows and proximity to SR 1 lessen the value of these areas for CRLF. In addition, suitable aquatic breeding habitat (e.g., slow-moving pools, ponds, and creeks with emergent riparian vegetation) is not present in the immediate vicinity of the action area; the nearest known breeding sites are 0.6 mile and 0.9 mile to the northeast and the closest potential breeding habitat is approximately 0.25 mile downstream. Coastal scrub and grasslands on State Parks property outside the action area (primarily to the northeast) probably provide higher quality upland habitat for CRLF because they are farther from highway disturbances, closer to known breeding sites, and evidence of fossorial mammal activity was observed in uplands northeast of the action area during the site visit on September 9, 2014.

4.2.1.4. CRITICAL HABITAT

The action area is not within federally designated critical habitat for CRLF (75 FR 12816). The closest critical habitat unit is approximately 0.75 mile north of the action area in the vicinity of Gazos Creek and approximately 1.25 miles south of the action area in Año Nuevo State Park, in San Mateo County (San Mateo Unit 2); this unit covers the majority of southwestern San Mateo County. Caltrans has determined that the proposed project will not adversely affect CRLF critical habitat because the proposed project action area does not occur in or adjacent to CRLF critical habitat. With the implementation of several avoidance and minimization measures, Caltrans

does not anticipate project-related effects to extend beyond the action area including to nearby critical habitat.

4.2.1.5. AVOIDANCE AND MINIMIZATION EFFORTS

As required under the ESA, Caltrans will implement reasonable and prudent measures to minimize the likelihood of take of CRLF throughout the project. The avoidance and minimization measures for the proposed project are presented in Section 1.6.

4.2.1.6. PROJECT EFFECTS

The proposed project will result in direct and indirect effects on CRLF habitat in the action area and may result in the take of individuals during construction activities. Project effects are described in detail below. Figure 6 shows CRLF habitat in the action area and vicinity. Figure 7 shows those areas that will be temporarily and permanently affected by project construction relative to CRLF habitat in the action area.

The proposed project will result in permanent direct effects on approximately 0.5 acre of suitable upland habitat for CRLF in the project footprint. No direct effects on CRLF aquatic habitat are anticipated from construction. Direct, permanent effects on upland habitat for CRLF will result from excavation of the roadway embankment for reconstruction using lightweight cellular concrete, installation of the cutoff wall, and placement of a concrete lining along the existing earthen roadside ditch. These permanent effects will occur outside the existing roadway. All disturbed areas that were previously vegetated, except the concrete-lined ditch, will be seeded with a native hydroseed mix after completion of construction; these areas will ultimately provide upland habitat for CRLF about two years after construction.

The entire 0.5 acre disturbed by construction activities outside existing hard surfaces (e.g., paved roadways and concrete-lined ditches) will presumably constitute a permanent effect on the species in the form of habitat loss. However, not to the point that would result in the take of CRLF. Although the majority of the disturbance area will be restored using native topsoil and will be reseeded after construction, these areas would not be expected to provide potential upland habitat suitable for CRLF for at least two years after restoration activities. This should allow sufficient time for native vegetation to grow to the point that it provides sufficient cover for CRLF.

Construction staging and site access will be restricted to existing paved roadways and the permanently affected project footprint. Therefore, no additional temporary direct effects on CRLF habitat will occur as a result of staging and site access.

Eucalyptus tree removal will result in an increase in light exposure and reduced shading within the project footprint and to areas immediately adjacent to the footprint. This could alter habitat suitability for CRLF, but dense eucalyptus and riparian forest present along Whitehouse Creek in and adjacent to the action area would remain intact, providing abundant shade for CRLF in the project vicinity after construction. Additionally, affected areas are located in a depression below the SR 1 embankment where sun exposure to the ground is currently somewhat limited by the elevated highway prism and adjacent riparian forest. Therefore, this effect on the species will be minimal. Furthermore, the site will be restored using native species such as coyote brush (*Baccharis pilularis*), which is likely to result in an improvement in upland habitat suitability following construction.

Installation of the subsurface cutoff wall could cause vibrations from pile driving activities that could temporarily displace CRLF from suitable habitat in the action area or result in the collapse (i.e., loss) of burrows in adjacent areas that CRLF utilize for refuge. Temporary displacement of individuals from the action area during pile driving activities would not be likely to substantially interfere with CRLF life history functions because habitat in the action area is marginal for CRLF and abundant, higher quality habitat for this species occurs in the project vicinity, outside the action area.

Construction activities are not expected to result in increased sedimentation to Whitehouse Creek, to introduce chemical contaminants to this waterway and the site, or to result in the spread of invasive plants because of implementation of avoidance and minimization measures, such as standard construction BMPs and spill prevention practices.

Installation of the subsurface cutoff wall could result in changes to subsurface hydrology, such as altering groundwater flows beneath the highway; however, because the cutoff wall will be relatively short (450 feet in length) and the total volume of groundwater in the action area is not expected to change, such alteration in subsurface hydrology would be unlikely to result in any noticeable change to surface conditions that would affect CRLF or its habitat in the action area. Project-related drainage improvements could result in changes in surface water hydrology, such as lowered groundwater recharge because of increased impervious surfaces associated with drainage inlets and placement of concrete along the roadside ditch. However, because these improvements will occur over a relatively small area, changes in surface hydrology would be unlikely to result in any substantial change in CRLF aquatic habitat.

The proposed project may also result in direct and indirect effects on individual CRLF. The proposed project may potentially harass or harm individuals present during construction-related activities. The likelihood of CRLF occurrence is low because of the distance of the action area from suitable and known breeding sites, and the overall habitat conditions of the action area are considered marginal for CRLF. Nonetheless, there is a potential for construction activities to affect juvenile and adult life stages that may disperse through the project site, because known breeding sites do occur within one mile of the action area. The proposed project will not affect CRLF egg masses and tadpoles or adults during the breeding season, because construction will be done outside the breeding season and suitable aquatic breeding habitat does not occur in the action area.

If CRLF are present, they could be displaced temporarily from the project footprint and vicinity during the 60-day construction period due to placement of wildlife exclusion fencing or construction-related noise and vibrations. However, because of the relatively short construction duration (approximately 60 days) and because abundant and more suitable upland habitat occurs outside and adjacent to the action area, this effect would be unlikely to substantially disrupt essential CRLF life history functions.

In the event of a summer rainstorm during the construction period, adult CRLF could initiate movements and disperse throughout the action area, including along the highway used for construction staging and site access or along portions of the highway that will be resurfaced during the one-night construction operation. Regular biomonitoring will ensure any individuals moving through the project footprint would be detected and avoided during construction.

Construction-related vibrations resulting in the collapse of burrows could cause injury or mortality to CRLF if individuals are present in burrows at the time of their collapse. However, burrows that could provide CRLF refugia are largely absent from the project footprint (only a few small burrows were observed during site reconnaissance) and are generally lacking in remaining portions of the action area that could be affected by construction-related vibrations. In contrast, abundant suitable upland habitat with increased evidence of burrowing mammal activity is present in the open space, primarily State Park land, surrounding the action area to the north. Furthermore, the energy associated with pile-driving vibrations decreases fairly rapidly with distance from the source (Attewell and Farmer 1973, as cited in Service 2007, Caltrans 2004). The action area boundaries were developed in consideration of potential vibratory effects on CRLF and potential refugia. This potential adverse effect will be avoided

through implementation of pre-construction surveys and avoidance measures (e.g., burrow excavation) as described in Measure 2, “Pre-construction surveys” in Section 1.6.2).

Implementation of avoidance and minimization measures, described in Section 1.6, will lessen the potential for this project to adversely affect CRLF. However, not all adverse effects and the potential for take can be eliminated because disturbance of potentially suitable upland habitat will be essential in implementation of the proposed project. The harassment and disturbance of CRLF individuals could result if the species is present during construction. The inadvertent direct injury and/or mortality of CRLF that are not found could also occur if individuals are present in the project footprint during construction activities.

CRLF is known to occur within 0.6 mile and 0.9 mile of the action area. However, the potential for take of CRLF is considered low because suitable CRLF breeding habitat is not located in or adjacent to the action area and CRLF were not detected along Whitehouse Creek during early morning surveys within the channel. Suitable burrows where the CRLF may seek refuge are also generally lacking from the action area and only marginal upland habitat will be directly affected by the proposed project. In addition, project effects will be further reduced through implementation of the avoidance and minimization measures described in Section 1.6.

4.2.2. San Francisco Garter Snake

4.2.2.1. STATUS

The San Francisco garter snake (*Thamnophis sirtalis tetrataenia*, SFGS) was federally listed as endangered in 1967 (Service 1967). No critical habitat for SFGS has been designated. SFGS is listed as a fully protected species under Section 5050 of the California Fish and Game Code (FGC), which prevents CDFW from authorizing take of the species for projects not related to scientific research. Take is defined in Section 86 of the FGC as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

4.2.2.2. NATURAL HISTORY

SFGS is one of 11 recognized subspecies of the common garter snake (*T. sirtalis*). It is endemic to the San Francisco peninsula and is known only from San Mateo County (Service 1985).

Distribution

Historically, SFGS occurred in scattered wetlands along the San Francisco Peninsula from just south of the San Francisco county line to Waddell Creek in Santa Cruz County, and along the base of the Santa Cruz Mountains to at least Upper Crystal Springs Reservoir (Service 1985). Recent surveys indicate that the current distribution of SFGS remains similar to its historic range (USFWS 2006). SFGS enters into a zone of intergradation with the conspecific California red-sided garter snake (*T. sirtalis infernalis*) just south of the Pulgas Water Temple at Crystal Springs Reservoir in San Mateo County into extreme northern Santa Clara County, near the Stanford University campus.

Reproduction

SFGS mating occurs in either spring or fall, with a concentrated period of breeding in the first warm days of spring, typically in March (Service 1985). Males likely search for mates using scent; mating aggregations have been observed on open grassy, sunny slopes during fall (Service 1985). Females ovulate in late spring and bear live young in summer, typically between July and August (Service 1985).

Habitat Associations

SFGS is typically found in the vicinity of permanent and seasonal freshwater wetlands and marshes with emergent and bankside vegetation that support breeding ranid frog and Pacific tree frog populations (Service 1985, McGinnis et al. 1987, Stebbins 2003, Service 2006). Upland sites, such as grassy slopes near drainages and ponds are used for basking. Rodent burrows in areas adjacent to water are used for shelter and escape. Low-lying marsh areas are typically used for feeding and breeding activities (Service 1985). The species thermoregulates by basking in open habitats, such as grassland or scrubland, and it requires basking spots in close proximity to its aquatic habitat.

The species occurs infrequently in upland grasslands away from streams and ponds (Service 1985). All age classes of SFGS require an adequate prey base, most notably native ranid frogs (CRLF). Pacific chorus frogs (*Pseudacris regilla*) are also critical for SFGS, especially for neonate snakes. The presence of both the Pacific chorus frog and CRLF are considered crucial components of SFGS habitat (Service 2006). SFGS also preys on bullfrogs and salamanders, including newts. It requires upland refugia for winter hibernation and for daily retreat from thermal extremes and predators during the active season. SFGS may seek refuge in rodent burrows in open meadows, grasslands, and grassland/scrub matrices. Upland retreats used in winter can be more distant from the aquatic habitat than the retreats used on a daily basis during the active season, spring

through fall. The above habitat and prey use information discussed by McGinnis et al. (1987) and Larsen (1994) are important indicators of habitat quality for SFGS.

SFGS can also be found outside areas with typical habitat features when the species searches for mates, disperses, forages, and moves between aquatic habitats. For instance, as ephemeral ponds dry and Pacific chorus frogs metamorphose and disperse, the species shifts to foraging around more permanent ponds with CRLF. SFGS may also readily disperse along riparian corridors as frogs disperse to upland areas and other non-breeding aquatic habitat (Environmental Protection Agency [EPA] 2010).

Population Threats

Threats to SFGS identified in the species' recovery plan (Service 1985) include loss and isolation of habitat resulting from development and illegal collecting by amateur herpetologists. Since publication of the recovery plan, additional threats have been identified, including the reduction of CRLF to the point that it has been listed as federally threatened, predation by the bullfrog (*Rana catesbeiana*) and centrarchid fish, disease and parasites, seral succession of grassland and aquatic habitats to shrubland or forest communities by lack of or incorrect management, and vehicle strikes and barriers to movement caused by roads (Service 2006).

4.2.2.3. SURVEY RESULTS

No protocol-level surveys for SFGS have been conducted in the action area. The species is generally difficult to observe, even during focused surveys, and negative results may not preclude the need for consultation. No SFGS were detected during the habitat assessment and site reconnaissance; however, this species has been documented previously at an unspecified location along Whitehouse Creek that crosses the action area (CDFW 2014; see also Figure 5) and a known breeding population occurs to the south in Año Nuevo State Park. In addition, potential non-breeding aquatic habitat and upland habitat are present in the action area (Figure 7). Therefore, SFGS could occur in the action area and Caltrans has inferred presence.

A review of the CNDDDB identified one documented occurrence (two individuals) of SFGS along Whitehouse Creek that bisects the action area, five additional records within two miles, and nine additional records within five miles of the action area (CDFW 2014).

Aquatic breeding habitat for SFGS does not occur in the action area. The only aquatic habitat in the action area is Whitehouse Creek, which is not suitable for SFGS breeding. SFGS uses freshwater wetlands and marshes with emergent vegetation that support

breeding ranid and Pacific tree frogs, not fast-moving streams such as Whitehouse Creek. However, Whitehouse Creek could provide suitable non-breeding aquatic dispersal habitat for SFGS because known breeding sites occur in the vicinity of the action area, such as approximately 2.5 miles southeast in Año Nuevo State Park, and because SFGS has been detected along Whitehouse Creek (CDFW 2014). The species may also use the creek for dispersal between foraging or breeding habitats (EPA 2010).

In addition, because CRLF is a primary food source for SFGS, suitable SFGS breeding habitat occurs in ponds known to support CRLF within one mile of the action area (see Section 4.2.1, California Red-legged Frog). Suitable aquatic breeding habitat also occurs in nearby Lake Elizabeth to the east and, to some extent, Chandler Reservoir to the northeast, within the Cascade Creek Watershed (see Figure 6), where emergent wetlands border these impoundments. Whitehouse Creek could provide opportunities for dispersal and foraging, if and when frogs or other suitable prey are available. A total of 0.2 acre of potential non-breeding aquatic habitat for SFGS occurs along Whitehouse Creek in the action area; this includes portions within the subsurface culvert beneath SR 1 that could serve as a movement corridor (Figure 8).

The roadside ditch adjacent to SR 1 between Rossi Road and Whitehouse Canyon Road does not provide aquatic habitat for SFGS because it does not retain water for any substantial length of time and no emergent or other wetland type vegetation is present there (Appendix C, photograph 15).

Coastal scrub/annual grasslands throughout the action area could provide suitable upland habitat for SFGS because of the proximity to Whitehouse Creek where SFGS have been observed. The action area is also adjacent to two of six “significant” populations identified for protection in the SFGS recovery plan for this species: (1) Pescadero Marsh and Año Nuevo State Reserve Properties, owned by the California Department of Parks and Recreation and (2) Cascade Ranch property, privately owned (Service 2006). However, relatively few signs of fossorial mammals were observed in areas with coastal scrub/annual grassland habitats during the September 9, 2014 site reconnaissance of the action area. Therefore, upland scrub and grassland habitats in the action area provide relatively few opportunities SFGS to seek refuge. In addition, the upland habitats in the action area are subject to ongoing disturbance from SR 1, and they are more than 0.6 mile from suitable aquatic breeding habitat. Therefore, SFGS upland habitat in the action area is considered marginal.

The “significant” Año Nuevo State Reserve population includes all areas within the park, including areas in the Cascade Creek Watershed (such as Chandler Reservoir and Lake Elizabeth) (see Figures 1 and 6) immediately adjacent to and south of the Whitehouse Creek drainage; this population is thought to contain one of the largest known SFGS populations (Service 2006).

The “significant” Cascade Ranch population occurs on private property within the Whitehouse Creek Watershed. Therefore, approximately 24.2 acres of potential uplands for SFGS occur in the action area. However, SFGS typically does not stray far from aquatic habitats, and portions of the action area farthest from Whitehouse Creek (to the north-northwest) may be of limited value to SFGS. In addition, uplands adjacent to Whitehouse Creek generally lack burrows typically used for short-term refuge and overwintering, and are well-shaded, thereby reducing opportunities for basking. Coastal scrub and grasslands outside the action area probably provide higher quality upland habitat than in the action area, based on evidence of fossorial mammal activity there that could provide opportunities for escape and shelter.

4.2.2.4. CRITICAL HABITAT

No federally designated critical habitat has been designated for this species.

4.2.2.5. AVOIDANCE AND MINIMIZATION EFFORTS

As required under the ESA, Caltrans will implement measures to minimize and avoid the potential take of SFGS during the project. A complete list of the avoidance and minimization measures for the proposed project is presented in Section 1.6.

4.2.2.6. PROJECT EFFECTS

The proposed project will result in direct and indirect effects on SFGS habitat in the action area and may result in adverse effects on individuals during construction. Project effects are described in detail below. Figure 8 shows the areas that will be temporarily and permanently affected by this project relative to SFGS habitat in the action area.

The proposed project will result in permanent direct effects on approximately 0.5 acre of suitable upland habitat for SFGS within the project footprint. No direct effects on SFGS aquatic habitat are anticipated as a result of construction. Direct, permanent effects on upland habitat for SFGS will result from excavation of the roadway embankment for reconstruction using lightweight cellular concrete, installation of the cutoff wall, and replacement of the concrete lining along the existing roadside ditch. These permanent effects will occur outside the existing roadway. All disturbed areas, except the concrete-lined ditch, will be seeded with a native hydroseed mix after

construction; these areas will ultimately provide upland habitat for SFGS after construction. Because trees, primarily *Eucalyptus* spp., will be removed as a result of the proposed project and the area reseeded with native plant species such as coyote brush (*Baccharis pilularis*), the project may result in slightly improved habitat conditions over the environmental baseline for SFGS within the action area.



Legend

- Action Area
- Developed Areas
- Culvert Outfall - Whitehouse Creek
- Headwall - Whitehouse Creek

San Francisco Garter Snake Habitat

- Potential Aquatic Habitat - Dispersal/Foraging
- Potential Upland Habitat

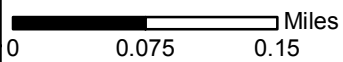
Project Effects

- Temporary Impact Area
- Permanent Impact Area

*The dashed portion represents where the creek flows through an existing subsurface culvert and would not be affected by ground disturbances associated with the proposed action
 **Temporary impacts of the proposed project are limited to the existing developed roadway and do not occur in suitable San Francisco garter snake habitat

**Biological Assessment
 Pigeon Point Storm Damage Repair
 Project
 EA 4G650**

April 2015



1:6,900
 1 inch = 0.11 miles

The entire 0.5 acre disturbed by construction activities outside existing hard surfaces (e.g., paved roadways and concrete lined ditches) will presumably constitute permanent habitat loss but not to the point that would result in the take of SFGS. Although the majority of the disturbance area will be restored using native topsoil and reseeded after construction, these areas would not be expected to provide potential upland habitat suitable for SFGS for at least two years after implementation. This should allow sufficient time for native vegetation to grow to the point that it provides sufficient upland cover for this species.

In the interim, these disturbed areas potentially could be used for basking, but occur predominantly along steep slopes and adjacent to SR 1, and therefore would be marginal for this purpose because of adjacent disturbance from the roadway.

Construction staging and site access will be restricted to existing paved roadways and in the permanently affected project footprint. Therefore, no additional temporary direct effects on SFGS habitat will occur because of staging and site access.

Tree removal will result in an increase in light exposure and reduced shading within the project footprint and to areas immediately adjacent to the footprint. This could result in an increase in potential basking sites in the vicinity of Whitehouse Creek. Potential adverse effects resulting from tree removal will be minimal, because the area affected will be relatively small and is not adjacent to aquatic breeding habitat. Furthermore, the site will be restored using native species such as coyote brush, which is likely to result in an improvement in upland habitat suitability following construction.

Installation of the subsurface cutoff wall could result in changes to subsurface hydrology, such as altering groundwater flows beneath the highway; however, because the cutoff wall will be relatively short (450 feet in length) and the total volume of groundwater in the action area is not expected to change, any such alteration in subsurface hydrology would be unlikely to result in any noticeable change to surface conditions that would affect SFGS or its habitats in the action area. Project-related drainage improvements could result in changes in surface water hydrology, such as lowered groundwater recharge because of increased impervious surfaces associated with drainage inlets and placement of concrete along the roadside ditch. However, because these improvements will occur over a relatively small area, changes in surface hydrology would be unlikely to result in any substantial change in SFGS aquatic habitat.

Construction activities are not expected to result in increased sedimentation to Whitehouse Creek, to introduce chemical contaminants to this waterway and the site, or to result in the spread of invasive plants because of implementation of avoidance and minimization measures, such as standard construction BMPs and spill prevention practices.

The proposed project may also result in direct and indirect effects on individual SFGS. The proposed project may result in the harm or harassment of individuals present during construction-related activities. However, the likelihood this project will result in adverse effects on individuals in the form of harm or harassment is relatively low. The proposed project is not in close proximity to known or potential breeding habitat and the majority of the action area (along SR 1) occurs relatively far from suitable non-breeding aquatic habitat in Whitehouse Creek. Optimal, SFGS upland habitat (open hillsides near breeding habitat) is also absent from the project site, and there is a general lack of suitable-sized mammal burrows within the project footprint and action area. Furthermore, SFGS are generally thought to remain in close proximity (within 200 meters) of breeding habitat and wintering habitat (Service 2006).

Installation of the subsurface cutoff wall may cause pile-driving induced vibrations that could temporarily displace SFGS from suitable habitat in the action area. Construction-related vibrations resulting in the collapse of burrows could cause injury or mortality to SFGS if vibrations are sufficient to result in the collapse of burrows in the action area and individuals are simultaneously present in burrows at the time of their collapse. These vibrations could also result in the temporary displacement of individuals from the action area during pile driving activities.

The energy associated with vibrations decreases fairly rapidly with distance from the source (Attewell and Farmer 1973, as cited in Service 2007; Caltrans 2004), and the action area boundaries for the proposed project were developed in consideration of potential vibratory effects on SFGS and potential refugia. Burrows that may constitute SFGS refugia are largely absent from the project footprint (only a few small burrows were observed during site reconnaissance) and generally are lacking in remaining portions of the action area that could be affected by vibrations from installation of the proposed cutoff wall. In contrast, abundant amounts of upland habitat with evidence of burrowing mammal activity (indicative of pocket gophers and brush rabbits) is present in the open space surrounding the action area to the north. Therefore, the potential for vibrational collapse of burrows to result in the direct harm, injury or mortality of SFGS individuals is considered unlikely and would be avoided through implementation of

avoidance and minimization measures described in Section 1.6.2. These vibrations would also be unlikely to substantially interfere with SFGS life history functions because of the abundant amount of higher quality habitat for this species outside the action area.

SFGS could be displaced temporarily from the project footprint and vicinity during construction, if present, because of the placement of wildlife exclusion fencing and construction-related noise and vibrations; however, because of the relatively short duration of this project (approximately 60 days) and the abundant and more suitable upland habitat that is available outside the action area, this effect would be unlikely to disrupt essential SFGS life history functions.

SFGS could use portions of the action area on or adjacent to the highway for basking and could be inadvertently crushed by construction equipment; however, SFGS would be highly conspicuous under such circumstances and should be able to be avoided by construction operations. As described in the avoidance and minimization measures in Section 1.6, biological monitors will be present during construction to search for SFGS.

Implementation of the avoidance and minimization measures, described in Section 1.6, will lessen the potential for this project to adversely affect SFGS. However, not all adverse effects and the potential for take can be eliminated, because disturbance of potentially suitable upland habitat is essential for implementation of the proposed project. In addition, harm and/or harassment of individuals could occur if individuals are present in the action area during construction and remain undetected or are disturbed by construction activities prior to them leaving the work site on their own. This is because suitable SFGS breeding habitat occurs within two miles of the action area. This includes the two identified CRLF breeding ponds identified above and other high-quality breeding habitat elsewhere in the vicinity (e.g., Lake Elizabeth, Chandler Reservoir). However, because suitable breeding habitat is not located in or immediately adjacent to the action area and only marginal upland habitat will be directly affected by the proposed project, and Caltrans will implement several avoidance and minimization measures, including pre-construction surveys, burrow excavation, and installation of exclusion fencing, the injury or mortality of SFGS can be avoided during this project.

4.2.3. Marbled Murrelet

4.2.3.1. STATUS

The marbled murrelet was federally listed as a threatened species on September 28, 1992 (Service 1992). A recovery plan was published for this species on September 24, 1997 (Service 1997). Critical habitat was designated (final rule) on May 24, 1996

(Service 1996), and a final revision was published on October 4, 2011 (Service 2011b). There is no critical habitat for marbled murrelet within the action area; the closest critical habitat unit for this species (CA-14-b) is 0.75 mile upstream of the action area along the Whitehouse Creek drainage. Critical habitat unit CA-14-b encompasses approximately 20,482 acres (less than 0.1%) (Service 1996) near the southernmost extent of the total 3,698,100 acres of critical habitat that has been designated for this species. A total of 597,713 acres of critical habitat for marbled murrelet are located in California (Service 2011b).

4.2.3.2. NATURAL HISTORY

The marbled murrelet is a relatively small, chunky seabird. The breeding range for this species occurs in six geographic zones along the Pacific Coast from Alaska south coastally through British Columbia, Washington, Oregon, to northern Monterey Bay in central California (Service 1997). These geographic zones of occurrence are generally associated with large tracts of old growth forest in proximity to the coast, three of which are located in California (Siskiyou Coast Range, Mendocino, and Santa Cruz Mountains). Birds winter throughout the breeding range and also in small numbers off the southern California coast (Service 1997). The southernmost Santa Cruz Mountains breeding population, located nearest the action area, is separated by nearly 300 miles from the neighboring population to the north (Service 1997). Population estimates from the late 1990's suggest several thousand up to 6,000 individuals may occur in California, compared to estimates of 60,000 that may have occurred historically (Service 1997).

Marbled murrelet has a unique life history compared to most seabirds; they forage in nearshore marine waters, but fly inland (up to 50 miles) to nest on large limbs of mature conifers (Service 1997). Individuals have been detected at inland sites during any time of year, however, detections at inland sites are more frequent during the breeding season (late March through late September). During the nesting season, adults take turns incubating nests and feeding young between foraging bouts to the ocean that can occur up to eight times a day; flights between foraging and nesting sites occur at all times during the day, but most often occur at dawn and dusk (Service 1997).

Marbled murrelets utilize forest stands with old-growth characteristics generally within 50 miles of the coast (Service 1997). For nesting, they require old-growth or mature trees (more than 30-inch dbh) with large branches or deformities for nest platforms, or platforms created by mistletoe infestations (Service 1997). Nests in California have been located in stands containing old-growth redwood and Douglas fir (Service 1997).

Primary threats to this species include: loss of nesting habitat, poor reproductive success and predation, marine pollution, and possibly changes in prey abundance and distribution (Service 1997).

4.2.3.3. SURVEY RESULTS

No protocol-level surveys for marbled murrelet have been conducted in the action area. The species is generally difficult to observe, even during focused surveys, and negative results may not preclude the need for consultation. Reconnaissance surveys were conducted on July 9 and September 9, 2014 to determine whether the habitat for this species is present in the action area. No marbled murrelets were observed during these site reconnaissance visits. While foraging, roosting, and nesting habitats are not present in the action area, the action area is situated along a riparian corridor between suitable marine and inland habitats for this species. According to the CNDDDB, the nearest recorded occurrence of marbled murrelet is approximately seven miles from the action area. Therefore, marbled murrelet could occur in or near the action area during flights to and from marine and inland habitats.

4.2.3.4. CRITICAL HABITAT

The action area is not within federally designated critical habitat for marbled murrelet (Service 2011b). The closest critical habitat unit is approximately 0.75 mile upstream (north) of the action area along Whitehouse Creek (Unit CA-14-b), which is located in San Mateo and Santa Cruz counties. Caltrans has determined that the proposed project will not adversely affect marbled murrelet critical habitat because the proposed project will not occur in or adjacent to critical habitat for this species.

4.2.3.5. AVOIDANCE AND MINIMIZATION EFFORTS

Caltrans will implement standard construction best management practices during project construction, including pre-construction surveys for nesting birds, as described in Section 1.6, to minimize the potential for disturbance to sensitive species and habitats. However, marbled murrelet is not expected to utilize the action area for any essential life history functions such as foraging, roosting, or nesting; therefore, species-specific measures will not be necessary to avoid take of this species.

4.2.3.6. PROJECT EFFECTS

The proposed project is not expected to result in adverse effects on marbled murrelet because this species is not expected to occur in the action area except as an occasional flyover. No suitable foraging, nesting, or roosting habitat is present in the action area. Individuals may occur above the action area during flights between suitable marine and inland habitats in the region, and could therefore be subject to noise and visual

disturbances from construction of the proposed project; however, inland flights primarily occur at dawn and dusk when construction activities would not normally occur (see Section 1.5, Construction Schedule and Equipment). Therefore, the potential for exposure of marbled murrelets to construction disturbance would be low, and duration brief because individuals would only be present near the action area for very short periods when flying over the project site. Furthermore, construction disturbance would occur over a relatively short time period (two month construction period relative to the six-month breeding season) and over a minimal area relative to the distance they are accustomed to traveling between marine and inland sites. The project would also occur in the context of existing roadway disturbance along SR 1. Therefore, potential effects of the proposed project on marbled murrelet are considered insignificant and discountable and are unlikely to rise to the level of take.

4.2.3.7. CUMULATIVE EFFECTS

Cumulative effects are those effects of future state, tribal, local, or private activities, not including federal activities, that would be reasonably certain to occur in the action area of the federal action subject to consultation (50 CFR Section 402.02). Future federal activities that would be unrelated to the proposed project are not considered in this section because they would require separate consultation (unrelated to the proposed project), pursuant to section 7 of the ESA. This definition applies only to section 7 analyses and should not be confused with the broader use of this term in the National Environmental Policy Act or other environmental laws.

Caltrans and AECOM biologists reviewed CEQAnet, an online searchable database that contains a listing of all CEQA documents submitted to the State Clearinghouse for state review, to query planned projects in and adjacent to the action area, and determined that no other planned projects are proposed in the action area or immediate vicinity. Additionally, the majority of the land in the immediate project vicinity is owned by State Parks and not vulnerable to development. The proposed project will not make a considerable contribution to any potential adverse cumulative effects, because potential adverse effects of construction activities will be very limited in extent and duration. Therefore, Caltrans has determined that no cumulative effects to listed species will occur as a result of the proposed project.

4.3. Proposed Compensatory Mitigation

As required by the ESA, Caltrans will implement reasonable and prudent measures to minimize and avoid the take of listed species throughout the life of the project. Although the proposed project is likely to adversely affect CRLF and SFGS, planned

avoidance and minimization measures will minimize these potential adverse effects. No compensatory mitigation is proposed as part of the proposed project, because it will affect only a small area of marginal upland habitat for both species along an existing highway embankment. Furthermore, the removal of primarily, non-native eucalyptus trees and subsequent replanting of the action area with native species is likely to result in an overall slight improvement in habitat conditions for these species within the project footprint.

Chapter 5. Conclusions and Determination

This chapter presents the conclusions of the BA and the effect determinations for each of the federally listed species that are addressed: CRLF, SFGS, and marbled murrelet.

5.1. Conclusions

The proposed project will permanently affect 0.5 acre of suitable upland habitat for CRLF and SFGS. No suitable habitat for marbled murrelet will be affected by the proposed project. If CRLF and SFGS are present in the action area during construction activities, the proposed project could result in a take of either or both species from potential harm or harassment because of construction noise, visual disturbances, or vibrations. Implementation of general and species-specific avoidance and minimization measures will lessen these adverse effects and will reduce the potential for direct take of CRLF and SFGS. However, not all adverse effects and potential for take can be eliminated because disturbance of suitable habitat will be essential in implementing the proposed project. In particular, the use of exclusion fencing cannot be avoided; this will avoid any direct harm to the species, but can “harass” the species. Although implementation of the proposed project will result in disturbance of suitable habitat for CRLF and SFGS, the habitat in the action area is considered marginal.

The proposed project is not expected to result in adverse effects on marbled murrelet because this species is not expected to occur in the action area except as an occasional flyover, and no impacts to suitable habitat for this species will occur. Potential effects of the proposed project on marbled murrelet are therefore considered insignificant.

5.2. Determinations

5.2.1. California Red-legged Frog

Based on the analysis presented in this BA, Caltrans has determined that the proposed project **may affect, is likely to adversely affect** CRLF in the form of harassment. Implementation of the avoidance and minimization measures described in Section 1.6 will minimize the potential effects of this project on CRLF and its associated habitat.

5.2.2. San Francisco Garter Snake

Based on the analysis presented in this BA, Caltrans has determined that the proposed project **may affect, is likely to adversely affect** SFGS in the form of harassment. Implementation of the avoidance and minimization measures described in Section 1.6 will minimize the potential effects of this project on SFGS and its associated habitat.

5.2.3. Marbled Murrelet

Based on the analysis presented in this BA, Caltrans has determined that the proposed project **may affect, but is not likely to adversely affect**, marbled murrelet.

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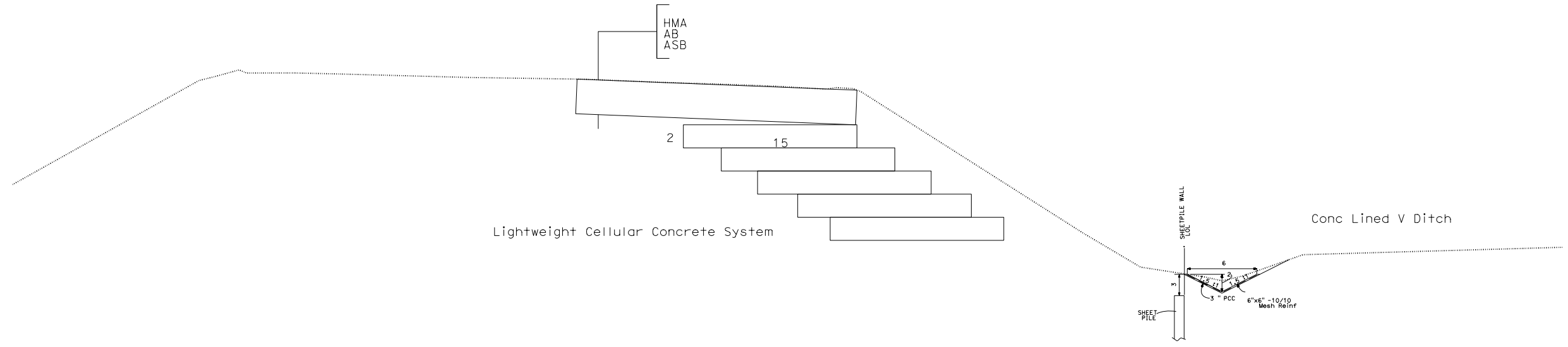
Appendix A Project Plans

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.25		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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CROSS SECTIONS
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04	SM	1	4.25		

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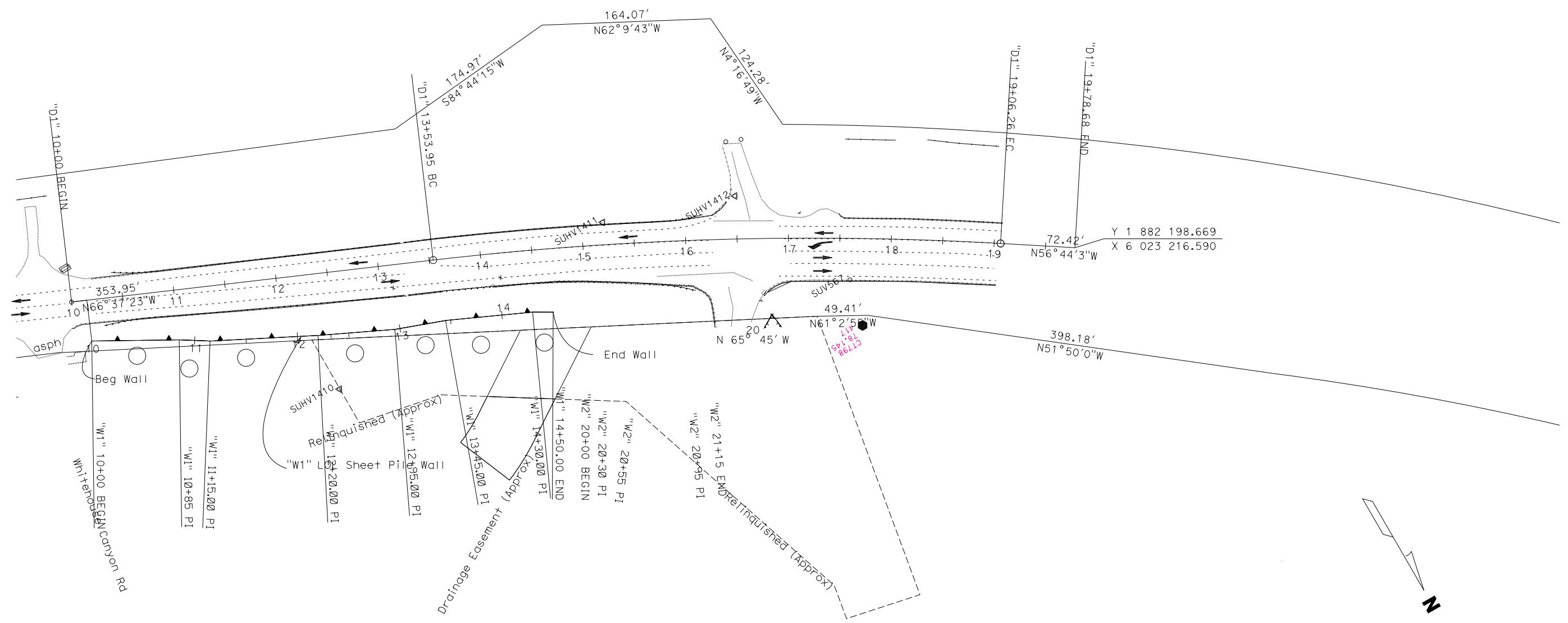
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- "W1" Wall
- 85 N 60° 45' W
- 30 N 57° 45' W
- 105 N 63° W
- 75 N 64° 30' W
- 50 N 70° W
- 85 N 65° 30' W
- 20 N 59° 45' W

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Layout

Scale 1"=50'

L-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.25		

REGISTERED CIVIL ENGINEER	DATE
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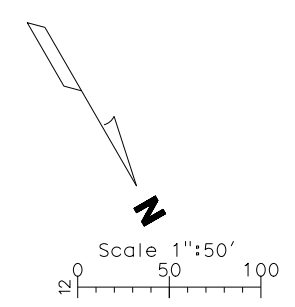
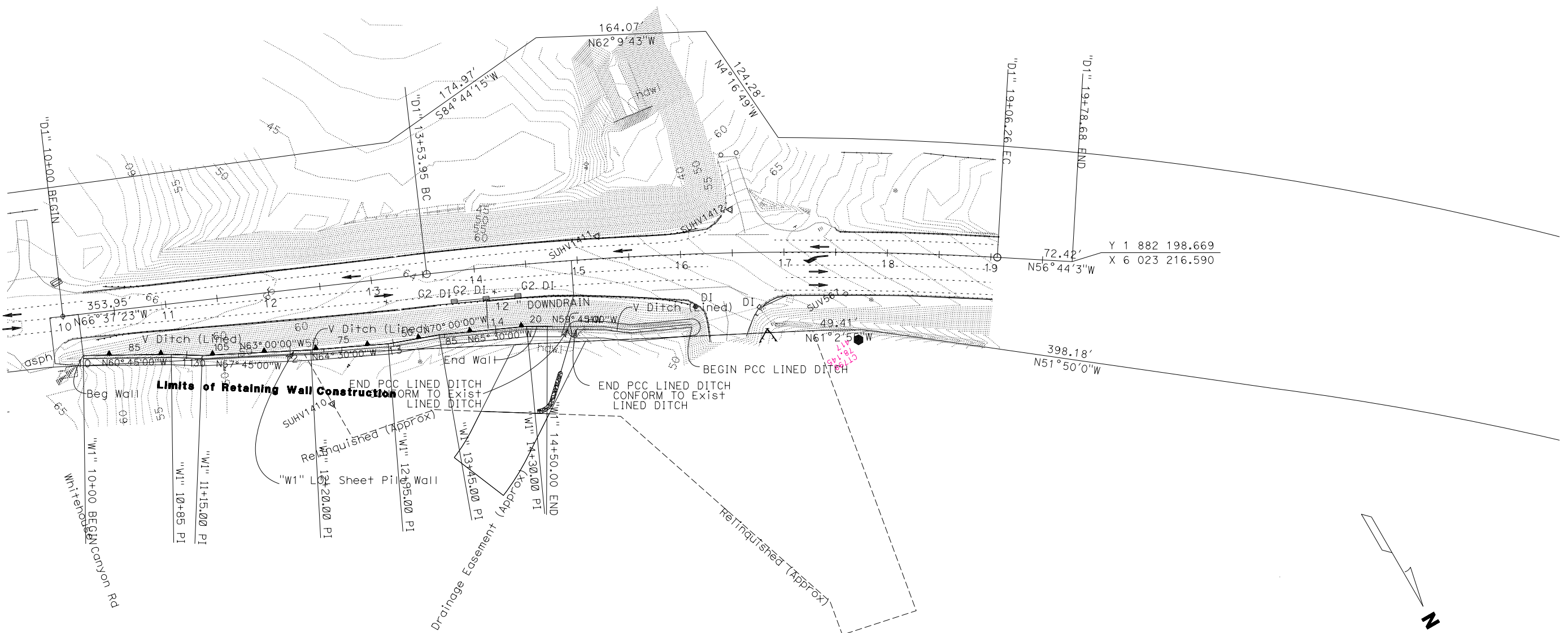
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REVISIONS

RCP



CONSTRUCTION DETAILS
Ground Soil Disturbance C-1

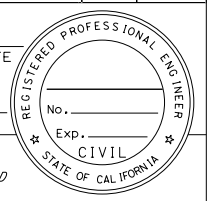
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REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

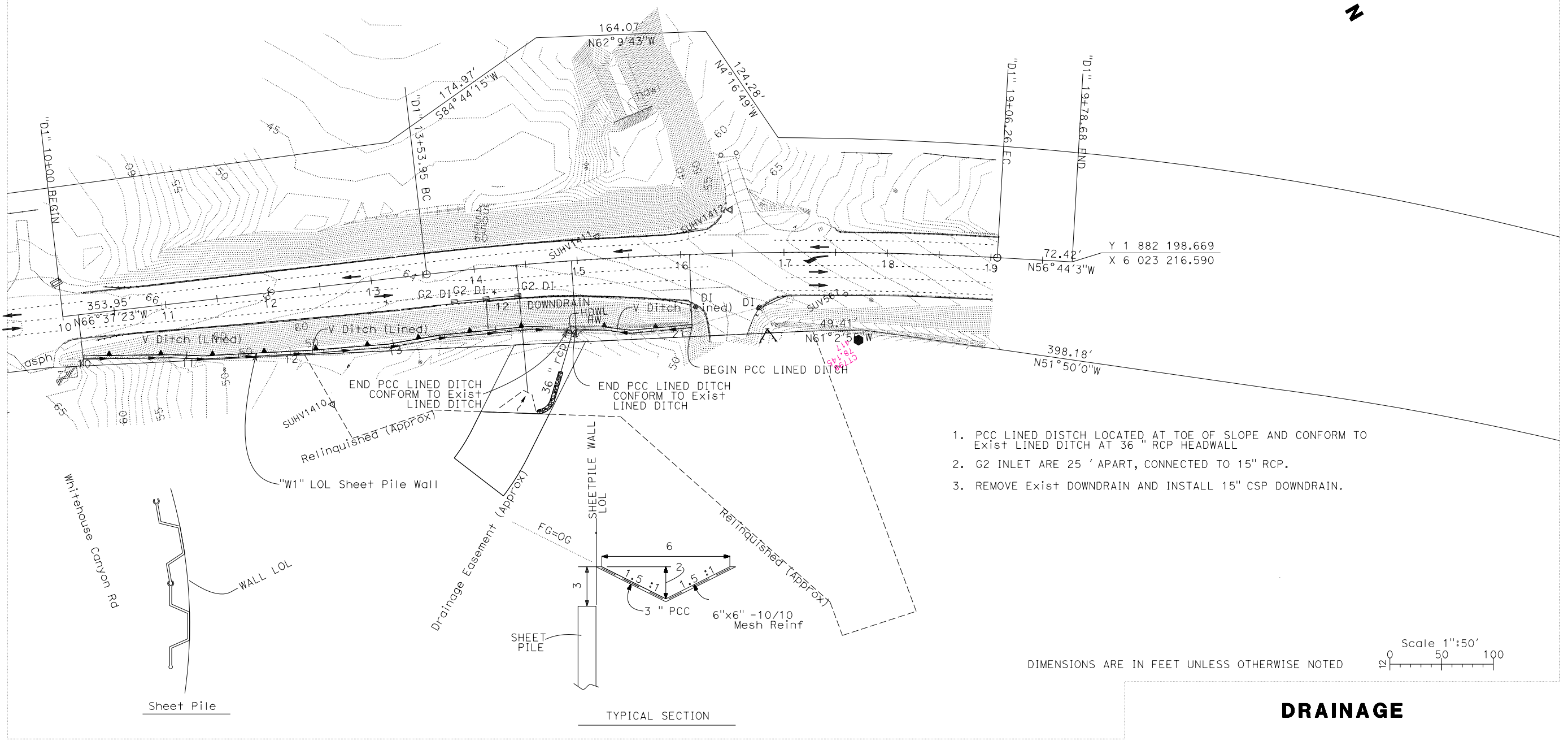
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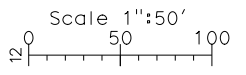
LEGEND

- HW Headwall
- DI DRAINAGE INLET
- CMP CORRUGATED METAL PIPE
- RCP REINFORCED CONCRETE PIPE
- RSP Rock Slope Protection
- DIRECTION OF FLOW
- RETAINING WALL

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- PCC LINED DISTCH LOCATED AT TOE OF SLOPE AND CONFORM TO Exist LINED DITCH AT 36" RCP HEADWALL
- G2 INLET ARE 25' APART, CONNECTED TO 15" RCP.
- REMOVE Exist DOWNDRAIN AND INSTALL 15" CSP DOWNDRAIN.



DRAINAGE

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TRAFFIC HANDLING

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TH-1

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TRAFFIC HANDLING

Scale 1":50"

TH-2

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04	SM	1	4.25		

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TRAFFIC HANDLING

Scale 1"=50'

TH-3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1	4.25		

REGISTERED CIVIL ENGINEER DATE

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TRAFFIC HANDLING

SCALE 1":50'

TH-4

Appendix B Official Species List

United States Department of the Interior



FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825



December 5, 2014

Document Number: 141205123517

Julie Roth
AECOM
2020 L Street Suite 400
Sacramento, CA 95811

Subject: Species List for Pigeon Point Storm Damage Repair Project

Dear: Ms.

We are sending this official species list in response to your December 5, 2014 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be March 05, 2015.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found http://www.fws.gov/sacramento/es/Branch-Contacts/es_branch-contacts.htm.

Endangered Species Division

These buttons will not appear on your list.

Print species list before going on to letter.

U.S. Fish & Wildlife Service Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 141205123517

Current as of: December 5, 2014

Quad Lists

Listed Species

Invertebrates

- Euphydryas editha bayensis*
bay checkerspot butterfly (T)
- Haliotes cracherodii*
black abalone (E) (NMFS)
- Haliotes sorenseni*
white abalone (E) (NMFS)
- Incisalia mossii bayensis*
San Bruno elfin butterfly (E)

Fish

- Eucyclogobius newberryi*
critical habitat, tidewater goby (X)
tidewater goby (E)
- Hypomesus transpacificus*
delta smelt (T)
- Oncorhynchus kisutch*
coho salmon - central CA coast (E) (NMFS)
Critical habitat, coho salmon - central CA coast (X) (NMFS)
- Oncorhynchus mykiss*
Central California Coastal steelhead (T) (NMFS)
Central Valley steelhead (T) (NMFS)
Critical habitat, Central California coastal steelhead (X) (NMFS)

Amphibians

- Ambystoma californiense*
California tiger salamander, central population (T)
- Rana draytonii*
California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Reptiles

- Caretta caretta*
loggerhead turtle (T) (NMFS)
- Chelonia mydas (incl. agassizi)*
green turtle (T) (NMFS)

- Dermochelys coriacea*
leatherback turtle (E) (NMFS)
- Lepidochelys olivacea*
olive (=Pacific) ridley sea turtle (T) (NMFS)
- Thamnophis sirtalis tetrataenia*
San Francisco garter snake (E)

Birds

- Brachyramphus marmoratus*
Critical habitat, marbled murrelet (X)
marbled murrelet (T)
- Charadrius alexandrinus nivosus*
Critical habitat, western snowy plover (X)
western snowy plover (T)
- Diomedea albatrus*
short-tailed albatross (E)
- Pelecanus occidentalis californicus*
California brown pelican (E)
- Sternula antillarum* (=Sterna, =albifrons) browni
California least tern (E)

Mammals

- Arctocephalus townsendi*
Guadalupe fur seal (T) (NMFS)
- Balaenoptera borealis*
sei whale (E) (NMFS)
- Balaenoptera musculus*
blue whale (E) (NMFS)
- Balaenoptera physalus*
finback (=fin) whale (E) (NMFS)
- Enhydra lutris nereis*
southern sea otter (T)
- Eubalaena* (=Balaena) glacialis
right whale (E) (NMFS)
- Eumetopias jubatus*
Steller (=northern) sea-lion (T) (NMFS)
- Physeter catodon* (=macrocephalus)
sperm whale (E) (NMFS)

Plants

- Cupressus abramsiana*
Santa Cruz cypress (E)
- Eriophyllum latilobum*
San Mateo woolly sunflower (E)

Quads Containing Listed, Proposed or Candidate Species:

- BIG BASIN (408B)
- FRANKLIN POINT (409A)
- PIGEON POINT (409B)
- ANO NUEVO (409D)
- MINDEGO HILL (428C)
- SAN GREGORIO (429C)
- LA HONDA (429D)

County Lists

San Mateo County

Listed Species

Invertebrates

Branchinecta lynchi

vernal pool fairy shrimp (T)

Euphydryas editha bayensis

bay checkerspot butterfly (T)

Critical habitat, bay checkerspot butterfly (X)

Haliotes cracherodii

black abalone (E) (NMFS)

Haliotes sorenseni

white abalone (E) (NMFS)

Icaricia icarioides missionensis

mission blue butterfly (E)

Incisalia mossii bayensis

San Bruno elfin butterfly (E)

Lepidurus packardii

vernal pool tadpole shrimp (E)

Speyeria callippe callippe

callippe silverspot butterfly (E)

Speyeria zerene myrtleae

Myrtle's silverspot butterfly (E)

Fish

Acipenser medirostris

green sturgeon (T) (NMFS)

Eucyclogobius newberryi

critical habitat, tidewater goby (X)

tidewater goby (E)

Hypomesus transpacificus

delta smelt (T)

Oncorhynchus kisutch

coho salmon - central CA coast (E) (NMFS)

Critical habitat, coho salmon - central CA coast (X) (NMFS)

Oncorhynchus mykiss

Central California Coastal steelhead (T) (NMFS)

Central Valley steelhead (T) (NMFS)

Critical habitat, Central California coastal steelhead (X) (NMFS)

Oncorhynchus tshawytscha

Central Valley spring-run chinook salmon (T) (NMFS)

winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense

California tiger salamander, central population (T)

Rana draytonii

California red-legged frog (T)

Critical habitat, California red-legged frog (X)

Reptiles

Caretta caretta

loggerhead turtle (T) (NMFS)

Chelonia mydas (incl. agassizi)

green turtle (T) (NMFS)

Dermochelys coriacea

leatherback turtle (E) (NMFS)

Lepidochelys olivacea

olive (=Pacific) ridley sea turtle (T) (NMFS)

Masticophis lateralis euryxanthus

Alameda whipsnake [=striped racer] (T)

Critical habitat, Alameda whipsnake (X)

Thamnophis sirtalis tetrataenia

San Francisco garter snake (E)

Birds

Brachyramphus marmoratus

Critical habitat, marbled murrelet (X)

marbled murrelet (T)

Charadrius alexandrinus nivosus

Critical habitat, western snowy plover (X)

western snowy plover (T)

Coccyzus americanus occidentalis

Western yellow-billed cuckoo (T)

Diomedea albatrus

short-tailed albatross (E)

Pelecanus occidentalis californicus

California brown pelican (E)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Mammals

Arctocephalus townsendi
Guadalupe fur seal (T) (NMFS)

Balaenoptera borealis
sei whale (E) (NMFS)

Balaenoptera musculus
blue whale (E) (NMFS)

Balaenoptera physalus
finback (=fin) whale (E) (NMFS)

Enhydra lutris nereis
southern sea otter (T)

Eubalaena (=Balaena) glacialis
right whale (E) (NMFS)

Eumetopias jubatus
Steller (=northern) sea-lion (T) (NMFS)

Physeter catodon (=macrocephalus)
sperm whale (E) (NMFS)

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Plants

Acanthomintha duttonii
San Mateo thornmint (E)

Arctostaphylos hookeri ssp. ravenii
Presidio (=Raven's) manzanita (E)

Chorizanthe robusta var. robusta
robust spineflower (E)

Cirsium fontinale var. fontinale
fountain thistle (E)

Cupressus abramsiana
Santa Cruz cypress (E)

Eriophyllum latilobum
San Mateo woolly sunflower (E)

Hesperolinon congestum
Marin dwarf-flax (=western flax) (T)

Lasthenia conjugens
Contra Costa goldfields (E)

Layia carnosa
beach layia (E)

Lessingia germanorum
San Francisco lessingia (E)

Pentachaeta bellidiflora
white-rayed pentachaeta (E)

Potentilla hickmanii
Hickman's potentilla (=cinquefoil) (E)

Suaeda californica
California sea blite (E)

Trifolium amoenum
showy Indian clover (E)

Proposed Species

Plants

Arctostaphylos Franciscana
Critical Habitat, Franciscan Manzanita (X)

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](#). Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) *Vacated* by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our [Protocol](#) and [Recovery Permits](#) pages.

For plant surveys, we recommend using the [Guidelines for Conducting and Reporting Botanical Inventories](#). The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal [consultation](#) with the Service.

During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that

minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our [Map Room](#) page.


Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. [More info](#)

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520 .

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be March 05, 2015.



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office

FEDERAL BUILDING, 2800 COTTAGE WAY, ROOM W-2605

SACRAMENTO, CA 95825

PHONE: (916)414-6600 FAX: (916)414-6713

Consultation Code: 08ESMF00-2015-SLI-0469

May 06, 2015

Event Code: 08ESMF00-2015-E-01978

Project Name: Pigeon Point Storm Damage Repair Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2)

of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

The table below outlines lead FWS field offices by county and land ownership/project type. Please refer to this table when you are ready to coordinate (including requests for section 7 consultation) with the field office corresponding to your project, and send any documentation regarding your project to that corresponding office. Therefore, the lead FWS field office may not be the office listed above in the letterhead. Please visit our office's website (<http://www.fws.gov/sacramento>) to view a map of office jurisdictions.

Lead FWS offices by County and Ownership/Program

County	Ownership/Program	Species	Office Lead*
Alameda	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO
Alameda	All ownerships but tidal/estuarine	All	SFWO
Alpine	Humboldt Toiyabe National Forest	All	RFWO
Alpine	Lake Tahoe Basin Management Unit	All	RFWO
Alpine	Stanislaus National Forest	All	SFWO
Alpine	El Dorado National Forest	All	SFWO
Colusa	Mendocino National Forest	All	AFWO
Colusa	Other	All	By jurisdiction (see map)
Contra Costa	Legal Delta (Excluding ECCHCP)	All	BDFWO
Contra Costa	Antioch Dunes NWR	All	BDFWO
Contra Costa	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO
Contra Costa	All ownerships but tidal/estuarine	All	SFWO

El Dorado	El Dorado National Forest	All	SFWO
El Dorado	LakeTahoe Basin Management Unit		RFWO
Glenn	Mendocino National Forest	All	AFWO
Glenn	Other	All	By jurisdiction (see map)
Lake	Mendocino National Forest	All	AFWO
Lake	Other	All	By jurisdiction (see map)
Lassen	Modoc National Forest	All	KFWO
Lassen	Lassen National Forest	All	SFWO
Lassen	Toiyabe National Forest	All	RFWO
Lassen	BLM Surprise and Eagle Lake Resource Areas	All	RFWO
Lassen	BLM Alturas Resource Area	All	KFWO
Lassen	Lassen Volcanic National Park	All (includes Eagle Lake trout on all ownerships)	SFWO
Lassen	All other ownerships	All	By jurisdiction (see map)

Marin	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO
Marin	All ownerships but tidal/estuarine	All	SFWO
Mendocino	Russian River watershed	All	SFWO
Mendocino	All except Russian River watershed	All	AFWO
Napa	All ownerships but tidal/estuarine	All	SFWO
Napa	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
Nevada	Humboldt Toiyabe National Forest	All	RFWO
Nevada	All other ownerships	All	By jurisdiction (See map)
Placer	Lake Tahoe Basin Management Unit	All	RFWO
Placer	All other ownerships	All	SFWO
Sacramento	Legal Delta	Delta Smelt	BDFWO
Sacramento	Other	All	By jurisdiction (see map)
San Francisco	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO

San Francisco	All ownerships but tidal/estuarine	All	SFWO
San Mateo	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO
San Mateo	All ownerships but tidal/estuarine	All	SFWO
San Joaquin	Legal Delta excluding San Joaquin HCP	All	BDFWO
San Joaquin	Other	All	SFWO
Santa Clara	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO
Santa Clara	All ownerships but tidal/estuarine	All	SFWO
Shasta	Shasta Trinity National Forest except Hat Creek Ranger District (administered by Lassen National Forest)	All	YFWO
Shasta	Hat Creek Ranger District	All	SFWO
Shasta	Bureau of Reclamation (Central Valley Project)	All	BDFWO
Shasta	Whiskeytown National Recreation Area	All	YFWO
Shasta	BLM Alturas Resource Area	All	KFWO

Shasta	Caltrans	By jurisdiction	SFWO/AFWO
Shasta	Ahjumawi Lava Springs State Park	Shasta crayfish	SFWO
Shasta	All other ownerships	All	By jurisdiction (see map)
Shasta	Natural Resource Damage Assessment, all lands	All	SFWO/BDFWO
Sierra	Humboldt Toiyabe National Forest	All	RFWO
Sierra	All other ownerships	All	SFWO
Solano	Suisun Marsh	All	BDFWO
Solano	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
Solano	All ownerships but tidal/estuarine	All	SFWO
Solano	Other	All	By jurisdiction (see map)
Sonoma	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
Sonoma	All ownerships but tidal/estuarine	All	SFWO
Tehama	Mendocino National Forest	All	AFWO
	Shasta Trinity National Forest		

Tehama	except Hat Creek Ranger District (administered by Lassen National Forest)	All	YFWO
Tehama	All other ownerships	All	By jurisdiction (see map)
Yolo	Yolo Bypass	All	BDFWO
Yolo	Other	All	By jurisdiction (see map)
All	FERC-ESA	All	By jurisdiction (see map)
All	FERC-ESA	Shasta crayfish	SFWO
All	FERC-Relicensing (non-ESA)	All	BDFWO
*Office Leads:			
AFWO=Arcata Fish and Wildlife Office			
BDFWO=Bay Delta Fish and Wildlife Office			
KFWO=Klamath Falls Fish and Wildlife Office			
RFWO=Reno Fish and Wildlife Office			
YFWO=Yreka Fish and Wildlife Office			

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: Pigeon Point Storm Damage Repair Project

Official Species List

Provided by:

Sacramento Fish and Wildlife Office
FEDERAL BUILDING
2800 COTTAGE WAY, ROOM W-2605
SACRAMENTO, CA 95825
(916) 414-6600

Consultation Code: 08ESMF00-2015-SLI-0469

Event Code: 08ESMF00-2015-E-01978

Project Type: TRANSPORTATION

Project Name: Pigeon Point Storm Damage Repair Project

Project Description: At post mile 4.29 on State Route 1 in San Mateo County near the Costanoa Campground and adjacent to Año Nuevo State Park, Caltrans proposes to: (1) construct a 450-foot-long subsurface cutoff wall; (2) replace the existing embankment with Hilfiker lightweight cellular concrete; (3) construct a new subsurface drainage system within the rebuilt embankment; and (4) repair the roadway through the project limits. The project would occur on approx. 3 acres over approx. 60 days starting July 2017.

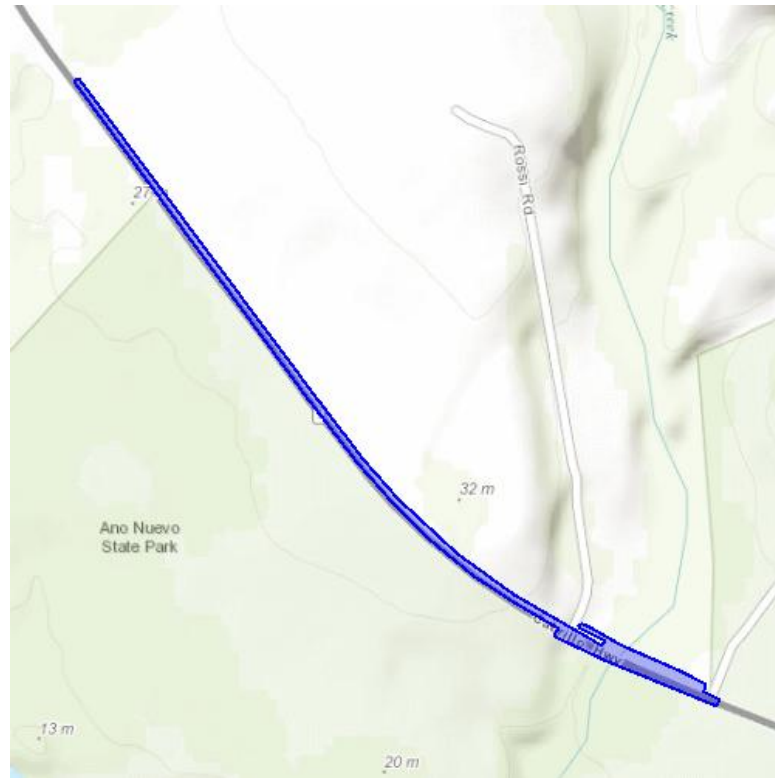
Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior
Fish and Wildlife Service

Project name: Pigeon Point Storm Damage Repair Project

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-122.3443643019979 37.14814861075451, -122.3460027537067 37.14869186812953, -122.34677306557099 37.14898615037208, -122.34671738984007 37.149070944989816, -122.34737549242101 37.149377109294484, -122.34796345999997 37.14969560899982, -122.34862886817547 37.15013822360303, -122.34917319540791 37.1505590806431, -122.34969470072453 37.15103110264982, -122.35047978862006 37.15183927117826, -122.35389666699999 37.15555132699982, -122.3538442089999 37.15557981299976, -122.35034917336962 37.15183438404629, -122.34961642699987 37.15107447599987, -122.3490799840842 37.15059482688203, -122.34820558753391 37.14995251238488, -122.34736930653642 37.149470024429974, -122.34607393098251 37.14887287515184, -122.34601795017733 37.148930279188214, -122.34639090895418 37.149081889453846, -122.34639753234035 37.14910883764361, -122.34637168922933 37.14912690330369, -122.34625488177255 37.149091884559446, -122.3457538708366 37.1488795121962, -122.34487431273973 37.1485689156254, -122.34452134902304 37.14841106760335, -122.34454463551151 37.14832192191811, -122.34431318300831 37.148238158930106, -122.3443643019979 37.14814861075451)))



United States Department of Interior
Fish and Wildlife Service

Project name: Pigeon Point Storm Damage Repair Project

Project Counties: San Mateo, CA



United States Department of Interior
Fish and Wildlife Service

Project name: Pigeon Point Storm Damage Repair Project

Endangered Species Act Species List

There are a total of 11 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Amphibians	Status	Has Critical Habitat	Condition(s)
California red-legged frog (<i>Rana draytonii</i>) Population: Entire	Threatened	Final designated	
Birds			
California Least tern (<i>Sterna antillarum browni</i>)	Endangered		
Marbled murrelet (<i>Brachyramphus marmoratus</i>) Population: CA, OR, WA	Threatened	Final designated	
Short-Tailed albatross (<i>Phoebastria (=diomedea) albatrus</i>) Population: Entire	Endangered		
western snowy plover (<i>Charadrius nivosus ssp. nivosus</i>) Population: Pacific coastal pop.	Threatened	Final designated	
Conifers and Cycads			
Santa Cruz cypress (<i>Cupressus abramsiana</i>)	Endangered		



United States Department of Interior
Fish and Wildlife Service

Project name: Pigeon Point Storm Damage Repair Project

Fishes			
Delta smelt (<i>Hypomesus transpacificus</i>) Population: Entire	Threatened	Final designated	
steelhead (<i>Oncorhynchus (=salmo) mykiss</i>) Population: Northern California DPS	Threatened	Final designated	
Tidewater goby (<i>Eucyclogobius newberryi</i>) Population: Entire	Endangered	Final designated	
Mammals			
Southern Sea otter (<i>Enhydra lutris nereis</i>)	Threatened		
Reptiles			
San Francisco Garter snake (<i>Thamnophis sirtalis tetrataenia</i>) Population: Entire	Endangered		



United States Department of Interior
Fish and Wildlife Service

Project name: Pigeon Point Storm Damage Repair Project

Critical habitats that lie within your project area

There are no critical habitats within your project area.

Appendix C Representative Photographs



Photograph 1. View looking east from Rossi Road at the project footprint adjacent to SR 1.



Photograph 2. View looking west from Whitehouse Canyon Road at the project footprint adjacent to SR 1.



Photograph 3. Whitehouse Creek looking east (upstream) just northeast of the project footprint from the headwall.



Photograph 4. Whitehouse Creek, looking downstream (south-southeast) from pedestrian bridge along existing trail approximately 800 feet upstream of the action area.



Photograph 5. Whitehouse Creek, looking upstream (north) from the pedestrian bridge approximately 800 feet upstream of the action area.



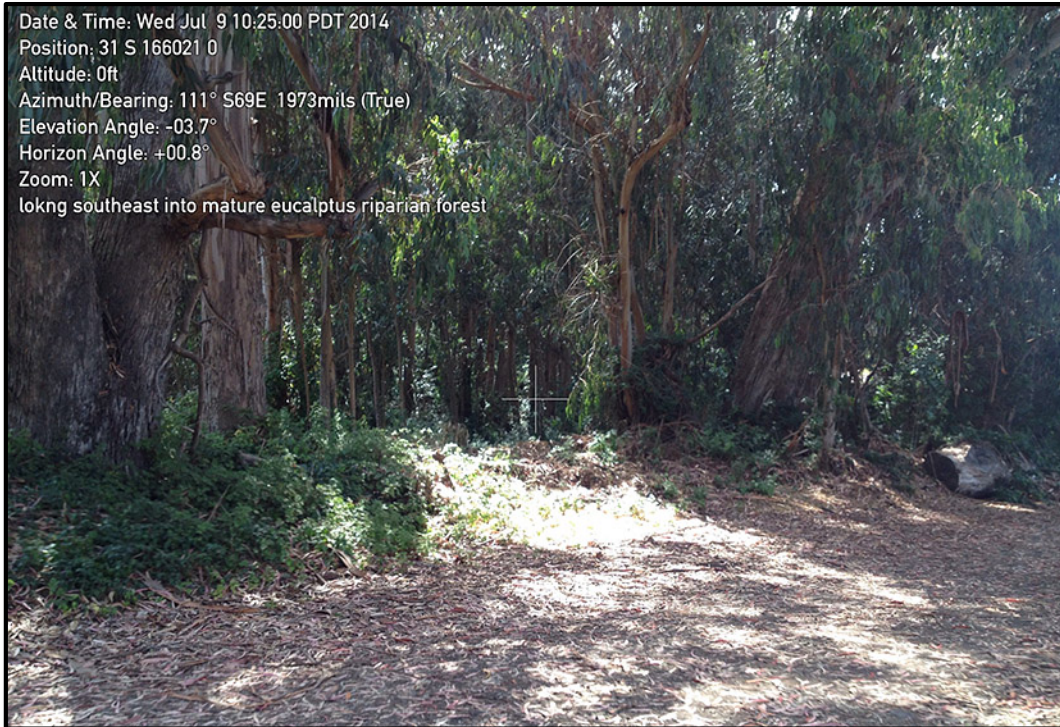
Photograph 6. Looking upstream along Whitehouse Creek at the outflow to the Pacific Ocean.



Photograph 7. Looking downstream along Whitehouse Creek at the outflow to the Pacific Ocean.



Photograph 8. Looking downstream (southwest) along Whitehouse Creek through culvert beneath SR 1 towards riparian forest west of the project footprint.



Photograph 9. Eucalyptus forest between Rossi Road and Whitehouse Canyon Road, north of the project footprint.



Photograph 10. Coastal scrub communities north of the action area between Rossi Road and Whitehouse Canyon Road.



Photograph 11. Annual grassland/coastal scrub communities, north of the action area between Rossi Road and Whitehouse Canyon Road.



Photograph 12. Known California red-legged frog breeding habitat in the project vicinity, approximately 0.6 mile northeast of the action area.



Photograph 13. Known California red-legged frog breeding habitat in the project vicinity, approximately 0.9 mile northeast of the action area.



Photograph 14. Pool with emergent vegetation along Whitehouse Creek located within a small opening in the riparian canopy approximately 750 feet north of the action area.



Photograph 15. Looking east-southeast along roadside ditch in the project footprint. Photograph taken approximately 200 feet east of Rossi Road.

Appendix D Plant List

Scientific Name	Common Name	Native/Non-Native/Invasive
<i>Alnus</i> spp.	alder species	Native
<i>Avena barbata</i>	slender wild oats	Non-native/Invasive
<i>Baccharis pilularis</i>	coyote brush	Native
<i>Brassica nigra</i>	black mustard	Non-native/Invasive
<i>Briza maxima</i>	rattlesnake grass	Non-native/Invasive
<i>Conium maculatum</i>	poison hemlock	Non-native/Invasive
<i>Convolvulus arvensis</i>	bindweed	Non-native
<i>Cytisus</i> sp. or <i>Genista</i> sp.	broom species	Non-native/Invasive
<i>Delairea odorata</i>	cape ivy	Non-native/Invasive
<i>Elymus glaucus</i>	blue wild rye	Native
<i>Eriophyllum</i> sp.	wooly sunflower species	Native
<i>Eucalyptus globulus</i>	blue gum	Non-native/Invasive
<i>Euphorbia</i> sp.	euphorbia species	Native and Non-native/Invasive
<i>Festuca perennis</i>	Italian rye grass	Non-native
<i>Foeniculum vulgare</i>	fennel	Non-native/Invasive
<i>Frangula californica</i> ssp. <i>californica</i>	California coffee berry	Native
<i>Phalaris aquatica</i>	Harding grass (bulbous canary grass)	Non-native/Invasive
<i>Pinus radiata</i>	Monterey pine	Native
<i>Pseudotsuga menziesii</i>	Douglas fir	Native
<i>Quercus agrifolia</i>	coast live oak	Native
<i>Raphanus sativus</i>	cultivated radish	Non-native/Invasive
<i>Rubus ursinus</i>	California blackberry (California dewberry)	Native
<i>Toxicodendron diversilobum</i>	poison oak	Native

ATTACHMENT G

Pigeon Point Storm Damage Repair Project

Attachment 5: Caltrans Scenic Resources Evaluation

Memorandum

*Serious drought.
Help save water!*

To: KANNU BALAN
Project Manager

Date: January 4, 2017

File: 04-SM-1-4.2
EA 4G6501
04120006241

From: KIMBERLY WHITE
Senior Landscape Architect
Landscape Architecture, Branch A



Subject: SCENIC RESOURCE EVALUATION

The Office of Landscape Architecture has reviewed this project to repair storm damage in San Mateo County on State Route (SR) 1 for visual impacts. The project proposes to repair the SR 1 roadway between Whitehouse Canyon Road and Rossi Road. Work will include cold-planing and overlaying pavement on the southbound side of the highway and resurfacing pavement on the northbound side. HMA dikes will be placed at the edge of pavement, and metal beam guardrail will be removed and replaced with Midwest Guardrail System. Additionally, a concrete-lined ditch parallel to northbound SR 1 will be removed and replaced. Removal of approximately 40 trees will be required to perform guardrail and drainage improvements.

The project is located south of Pescadero, adjacent to Ano Nuevo Coast Natural Preserve; Costanoa, a private resort and campground; and other mostly undeveloped private property. SR 1 is an officially designated State Scenic Highway from the Santa Cruz County line approximately four miles south of the project site, to the City of Half Moon Bay, located 26 miles to the north. In San Mateo County, Highway 1 travels through small coastal towns, sparsely situated residences, coastal scrub covered hills, riparian vegetated corridors, and coastal bluffs and beaches. The character of the landscape is primarily natural and scenic. Vegetation is a mixture of native and introduced species. Dense groups of pines, cedars, and eucalyptus occur sporadically, and often in association with residential developments. Travelling south, more expansive views of the Pacific Ocean become available.

Project plan review and a site visit were performed to assess potential visual impacts. As this project is a spot location, views were considered from both the northbound and southbound directions of travel in the immediate vicinity of the proposed work. Views at the project site and directly north of it are of the immediate surroundings, and feel enclosed due to the topography and existing vegetation. Just north of the site, the roadway is slightly depressed with gentle slopes rising on either side of the road. The slopes are vegetated with annual grasses and low scrub. There are some trees visible in the background to the east. At the project location there are dense trees bordering the road on both sides. Two small dirt, parking areas on the west side of the road provide access to trail heads. The entrance to Costanoa is on the east side of the highway accessed via a left turn lane to Rossi Road. South of the site, the Pacific Ocean comes in to view to the west, and a flat open plain stretches to the east that is part of Ano Nuevo State Park. Whitehouse

Canyon Road provides access to this part of Ano Nuevo.

The proposed project will be compatible with the existing visual character. The main project features include new pavement and Midwest guardrail. These elements will not result in a change to visual quality since they already exist at the project location and along the corridor.

The most notable visual change will be the removal of approximately 40 trees. At the project location, the terrain slopes steeply down from the highway to the east. At the base of this slope, there is a concrete lined ditch that is in disrepair, and at the top of the slope is metal beam guardrail that no longer meets Caltrans Standard requirements. Both of these features will be removed and replaced, necessitating the removal of the trees along the bank. The trees are primarily Eucalyptus, some of which were planted, and others, which have spread from the original trees. The Eucalyptus trees vary in size with the largest trees being 48" diameter at breast height (DBH) while many of the volunteer trees are only 4 to 12" DBH. There is also a large Cedar, approximately 36" DBH and some small pines 4 to 12" DBH. Because of the density and mass of surrounding trees and other vegetation, the tree removal will be compatible with the visual character of the setting. The existing landscape is an alternating pattern of small groups of dense trees, open plains of lower grasses and scrub, and ocean bluffs and beaches. Removal of these trees will be consistent with this pattern. The visual quality will be slightly altered, primarily because removal of the trees will make the adjacent power lines more visible. The overall resource change will be low.

Viewers of the project site are travelers on SR 1, both bicyclists and drivers. Roadway users consist of local residents and recreational users. The parking areas for coast and trail access, as well as a trail crossing just south of Whitehouse Canyon Road, accommodate pedestrian use. The project site is bound by the access roads to Ano Nuevo State Park and Costanoa east of the site along the northbound side, and the dirt parking areas to the west on the southbound side. Visitors to these locations and local residents traveling on SR 1 will be exposed to the project. Their exposure will be brief as they are only passing this location on their way to other destinations. However, their sensitivity will be high as their expectations will be of high scenic quality. This will result in an overall viewer response of moderate-low.

The project's resource change and viewer response will result in a low visual impact. The new project features are already present in the corridor and at the project site. The tree removal will be apparent during and soon after construction. However, the visual changes resulting from this work will not be apparent in a lasting way. The area of tree removal will blend with the existing pattern of alternating tree groupings and open scrub, and the background of dense Eucalyptus will minimize the visual impact of the removal. Power lines will be slightly more visible at the project site since the trees will no longer screen them. However, the power lines will not introduce a new visual element since power lines are intermittently visible along the highway corridor. The project will not create impacts to scenic vistas, visual character, or scenic resources along the scenic highway.

To minimize the visual impact of tree removal, the project should leave tree duff and existing shrubs along the slope in place to the maximum extent feasible. Both construction requirements

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January 4, 2017

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and environmental protective measures will ultimately dictate how much vegetation can be left in place.

Attachment(s)

(1) Site Photographs

(2) Tree Removal Plan

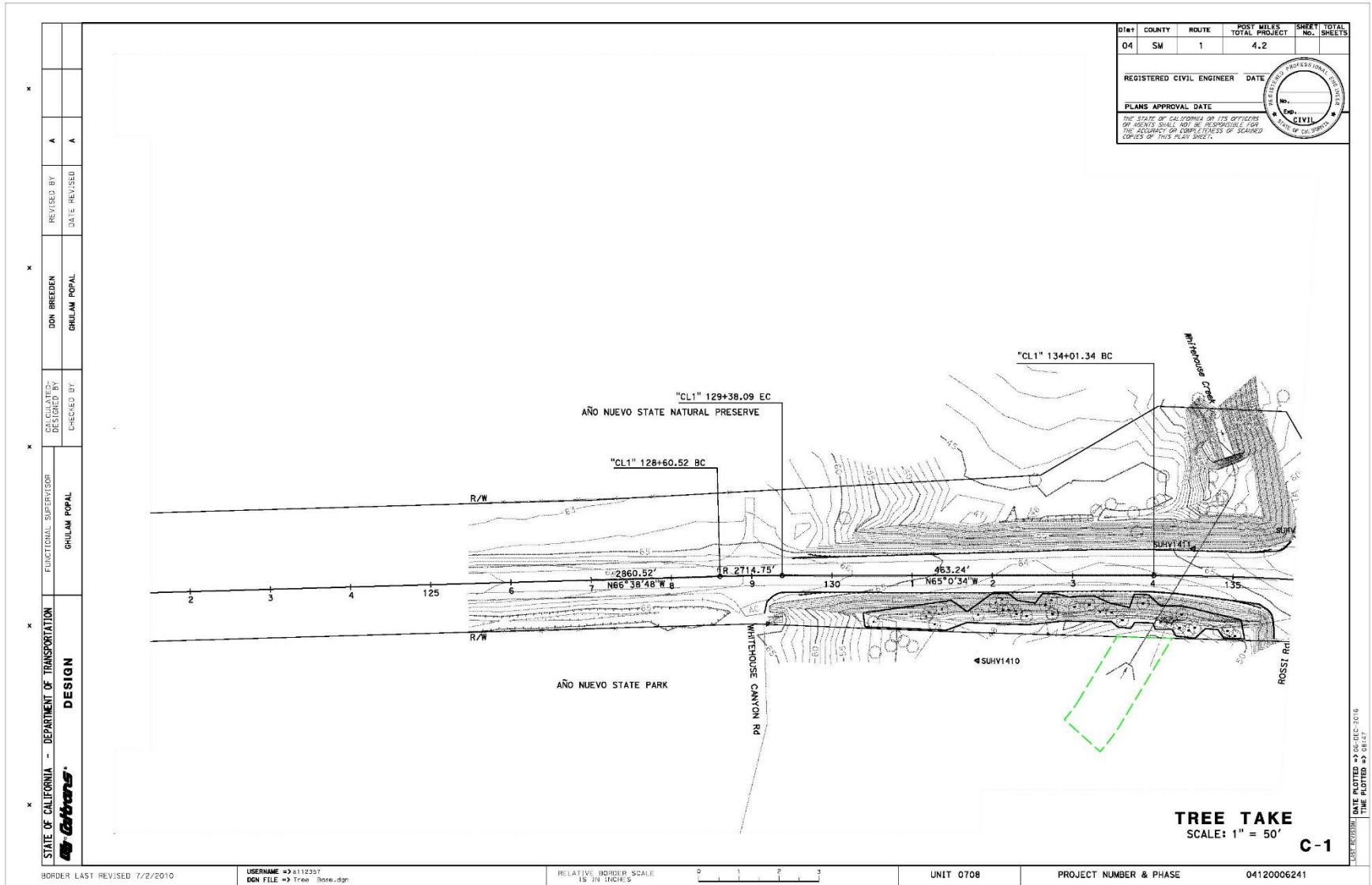
c: Don Breeden, Project Engineer
Brian Gassner, Environmental Planner



View from Northbound State Route 1
The row of trees along the roadway directly behind the "Keep Right" sign will be removed.



View from Southbound State Route 1



ATTACHMENT H

Pigeon Point Storm Damage Repair Project

Attachment 6: United States Fish and Wildlife Service Biological Opinion



United States Department of the Interior



In Reply Refer to:
08ESMF00-2015-F-
0742-1

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

MAY 18 2016

Ms. Melanie Brent, Office Chief
Caltrans District 4 Environmental Analysis
California Department of Transportation
P.O. Box 23660
Oakland, California 94623-0660

Subject: Formal Consultation on the State Route 1 Pigeon Point Storm Damage Repair Project,
San Mateo County, California (Caltrans EA 4G650)

Dear Ms. Brent:

This letter is in response to the California Department of Transportation's (Caltrans), September 28, 2015, request for initiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed State Route 1 (SR-1) Pigeon Point Storm Damage Repair Project (Caltrans EA 4G650), San Mateo County, California. Your request was received by the Service on October 1, 2015. The revised project description was received by the Service on February 2, 2016. At issue are the proposed project's effects on the federally threatened California red-legged frog (*Rana draytonii*) and endangered San Francisco garter snake (*Thamnophis sirtalis tetrataenia*). This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) legislation (23 U.S.C. 327) allows the Secretary of the U.S. Department of Transportation acting through the Federal Highway Administration (FHWA) to establish a Surface Transportation Project Delivery Pilot Program, whereby a State may assume the FHWA responsibilities under the National Environmental Policy Act (NEPA) for environmental review, agency consultation and other action pertaining to the review or approval of a specific project. Caltrans assumed these responsibilities for the FHWA on July 1, 2007 through a Memorandum of Understanding (MOU) within the State of California (http://www.dot.ca.gov/ser/downloads/MOUs/nepa_delegation/sec6005mou.pdf).

The federal action we are consulting on the repair of longitudinal pavement cracks and roadway embankment destabilization along the northbound lane on State Route (SR) 1 at post mile 4.29 in San Mateo County. Pursuant to 50 CFR 402.12(j), you submitted a biological assessment dated May 2015, for our review and requested concurrence with the findings presented therein. These findings conclude that the proposed project may affect, and is likely to adversely affect the California red-legged frog and San Francisco garter snake. Critical habitat has been designated for the California red-legged frog; however, the proposed action does not occur within designated critical habitat for this species.

In considering your request, we based our evaluation on the following: (1) the Pigeon Point Storm Damage Repair Project, Biological Assessment dated May 2015; (2) the August 11, 2015, site visit; (3) the revised project description received on February 2, 2016; (4) miscellaneous correspondence and electronic mail concerning the proposed action between Caltrans and the Service; and (5) other information available to the Service. The remainder of this document provides our biological opinion on the effects of the proposed project on California red-legged frog and San Francisco garter snake.

Consultation History

June 3, 2015	The Service received a letter requesting the technical assistance of formal consultation dated July 1, 2014, and a Biological Assessment for the SR-1 Pigeon Point Storm Damage Repair Project.
June 18, 2015	The Service received a letter requesting the initiation of formal consultation dated June 15, 2015, and the biological assessment dated May 2015 for the SR-1 Pigeon Point Storm Damage Repair Project.
August 11, 2015	The Service attended a site visit with Caltrans to discuss the proposed project and potential project effects on listed species and determine what areas posed risks based on on-site habitat suitability.
August 21, 2015	The Service was informed that Caltrans was revising the project and would be submitting a revised project description and biological assessment.
October 1, 2015	The Service received a letter requesting the initiation of formal consultation dated September 28, 2015, for the SR-1 Pigeon Point Storm Damage Repair Project.
November 20, 2015	The Service received a revised project description for the SR-1 Pigeon Point Storm Damage Repair Project.
February 2, 2016	The Service received a revised project description for the SR-1 Pigeon Point Storm Damage Repair Project.
June 3, 2015 - May 12, 2016	Electronic and phone correspondence between Caltrans and the Service.

Description of the Action

The following project description, inclusive of the proposed compensation and proposed conservation measures, was provided by Caltrans and is an excerpt from the May 2015 Biological Assessment, as revised, with minor modifications for reasons of clarity and accuracy provided by the Service.

Project Description

The purpose of the proposed project is to improve roadway drainage to prevent future slip-out failures, remove non-native trees to reduce the presence of leaf litter in the drainage ditches; thereby, improving drainage, and repair the roadway through the project limits. The project is located at post mile (PM) 4.29 on SR-1 in San Mateo County near the Costanoa Campground just south of Pigeon

Point and adjacent to Año Nuevo State Park and extends 0.7 miles from approximately 0.1 mile east of Whitehouse Canyon Road to approximately 0.6 mile north of Rossi Road.

Several storm events in recent winters and hydrologic and drainage issues have contributed to the formation of longitudinal pavement cracks and destabilization of the roadway embankment along the northbound lane on State Route (SR) 1 at post mile 4.29 in San Mateo County. Caltrans has determined that the inadequate drainage of stormwater away from the roadway regularly saturates the low-lying area adjacent to the bottom of the embankment between Whitehouse Canyon Road and Rossi Road. The roadway embankment could become undermined in the near future if no action is taken. The main purpose of the proposed project is to restore the roadway by addressing the drainage issues at this location. The objectives of this project are to stabilize and rehabilitate the roadway embankment to protect it from any further slippage by: (1) improving drainage flow away from the roadway to prevent future slip-out failures, and (2) repairing the roadway through the project limits. The project will include the following activities:

1. Construct three drainage inlets along the northbound shoulder;
2. Construct a new 15-inch corrugated steel pipe down drain;
3. Remove the existing metal beam guardrail and replace it with approximately 500 feet of Midwest Guardrail System;
4. Remove the existing 4-inch-high hot mix asphalt (HMA) dike (Type F) and replace it with a 6-inch HMA dike (Type A);
5. Regrade the existing unlined ditch and line 84 feet of the existing unlined V-ditch;
6. Reconstruct the northbound lane and shoulder to a depth of 3 feet; the section of roadway to be repaired will be 500 feet long and 20 feet wide;
7. Cold plane the southbound lanes and shoulders to a depth of 0.15 foot and resurface the entire roadway through the project limits with asphalt concrete; and
8. Replace thermoplastic pavement markings and traffic stripes to original conditions.

Two-way and one-way traffic control will be necessary for the construction of the project. Construction will mostly be completed behind temporary K-rail. The project will require approximately 60 working days to complete. All disturbed pavement will be resurfaced and restriped. All disturbed areas will be restored using stockpiled native topsoil and will be hydro-seeded with a native seed mix. No trees will be removed.

Roadway Stabilization

Along the northbound roadway, the existing distressed pavement, subbase, and underlying embankment will be removed to a depth of 3 feet. The embankment material will be replaced and compacted in uniform lifts. New subbase will be placed and compacted and asphalt concrete will be placed to finish reconstructing the roadway. In the southbound direction, a 0.15-foot asphalt concrete (AC) overlay will be placed over the full width of the roadway. The overlay will conform to the northbound lane and extend approximately 500 feet.

Drainage

To address the current drainage conditions at the project site, a culvert downdrain and three new drainage inlets will be installed. The existing 12-inch-diameter corrugated metal pipe downdrain will remain in place. A new 15-inch-diameter corrugated steel spiral reinforced concrete or plastic pipe and drainage inlets will be placed longitudinally in the roadway shoulder. These will connect as one system to outflow to a new 15-inch downdrain with energy dissipator outflowing to the existing basin and headwall. There will be no work within Whitehouse Creek. Additionally, 84 feet of the existing unlined ditch will be lined with concrete and 400 feet of the remaining ditch will be regraded.

Stage Construction and Traffic Handling

The project will be constructed in one stage. The northbound lane and shoulder will be closed throughout construction. A two-way traffic control system will be installed to facilitate roadway reconstruction activities. Traffic will be shifted to the southbound lane (west of construction zone); two temporary, 12-foot lanes will be provided throughout construction with temporary 12-foot lane widths. K-rail will be installed to separate the construction zone from vehicle traffic. One-way control flagging will be needed to install and remove the K-rail and occasionally, as needed, to allow equipment and construction crews to access work at the roadway conforms. The area behind the K-rail will be used to temporarily store materials and equipment.

Bicycle and Pedestrian Traffic

Bicycle traffic will be accommodated by the two-way traffic control system as non-motorized traffic on through lanes. Pedestrian access across the highway will be provided at Rossi Road and Whitehouse Creek Road via temporary crosswalk delineations. No pedestrian access between Rossi Road and Whitehouse Canyon Road will be available within the construction zone.

Roadway Finishing

An AC dike will be placed along the edge of the northbound shoulder and Midwest Guardrail System will replace the existing metal beam guardrail. The roadway will be restriped to maintain the existing lane and shoulder widths.

Right-of-Way

The contractor will be permitted to use the northbound shoulder and one northbound lane north of the Rossi Road intersection for storing materials and equipment and to establish site offices for Caltrans and contractor personnel. All work will be performed within Caltrans' right-of-way. No construction easements or acquisitions will be required.

Proposed Conservation Measures

General Conservation Measures

To reduce potential effects to sensitive biological resources, Caltrans proposes to incorporate construction best management practice (BMP) and avoidance and minimization measures into the proposed roadway construction project. These measures will be communicated to the contractor through the use of special provisions included in the contract bid solicitation package. These measures include the following:

1. **Seasonal Avoidance.** Construction actions will be scheduled to minimize effects on listed species and habitats. Except for limited vegetation clearing necessary to minimize effects to

nesting birds, all ground-disturbing activities in species habitat will be conducted between April 15 and October 15.

2. **Environmental Awareness Training.** Prior to the start of construction, a qualified biologist will conduct an educational training program for all construction personnel including contractors and subcontractors. The training will include, at a minimum, a description of the California red-legged frog, San Francisco garter snake, and their habitat within the action area; an explanation of the status of these species and protection under state and federal laws; the avoidance and minimization measures to be implemented to reduce take of these species; communication and work stoppage procedures in case a listed species is observed within the action area; and an explanation of the Environmentally Sensitive Areas (ESAs) and WEF and the importance of maintaining these structures. An informational brochure conveying this information with images of these species to aid in identification will be prepared and distributed to all construction personnel. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all the avoidance and minimization measures and implications of the Act.
3. **Environmentally Sensitive Areas.** Prior to the start of construction all ESAs – defined as areas containing sensitive habitats adjacent to or within construction work areas for which physical disturbance is not allowed – will be clearly delineated using high visibility orange fencing. Construction work areas include the active construction site and all areas providing support for the proposed action including areas used for vehicle parking, equipment and material storage and staging, access roads, etc. The ESA fencing will remain in place throughout the duration of the proposed action, while construction activities are ongoing, and will be regularly inspected and fully maintained at all times. The final project plans will depict all locations where ESA fencing will be installed and will provide installation specifications. The bid solicitation package special provisions will clearly describe acceptable fencing material and prohibited construction-related activities including vehicle operation, material and equipment storage, access roads and other surface-disturbing activities within ESAs.
4. **Nighttime Work Restriction.** Nighttime work will be avoided to the maximum extent practicable. Nighttime work will be required during a single night operation to replace the existing AC over the northbound and southbound lanes. During nighttime work, all lighting will be directed downwards and towards the construction work taking place.
5. **Weather Restrictions.** The Service-approved biologist will observe 72-hour weather forecasts and will notify the resident engineer of the potential of any storm events that have a 40 percent or greater chance of precipitation. No work will occur during or within 24 hours after a rain event exceeding 0.2-inch, as measured by the NOAA Weather Report for La Honda, CA (LAHC1) base station, available online at – <http://www.wrh.noaa.gov/mesowest/getobext.php?sid=LAHC1&table=1&banner=off>. Service approval to continue work during or within 24 hours of a rain event will be considered on a case-by-case basis.
6. **Avoidance of Entrapment.** To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than one foot deep will be covered with plywood or similar materials at the close of each working day or provided with one or more escape ramps constructed of earth fill or wooden planks. The Service-

approved biologist shall inspect all holes and trenches at the beginning of each workday and before such holes or trenches are filled. All replacement pipes, culverts, or similar structures stored in the action area overnight will be inspected before they are subsequently moved, capped, and/or buried. If at any time a listed species is discovered, the Resident Engineer and Service-approved biologist will be notified immediately and the Service-approved biologist shall implement the species observation and handling protocol outlined below.

7. **Best Management Practices.** Storm Water Pollution Prevention Plans (SWPPP) and erosion control BMP will be developed and implemented to minimize any wind or water-related erosion and will be in compliance with the requirements of the Regional Water Quality Control Board. The SWPPP will reference the Caltrans Construction Site BMP Manual. This manual is comprehensive and includes many other protective measures and guidance to prevent and minimize pollutant discharges and can be found online at: <http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm>. Protective measures will include, at a minimum:
 - a. No discharge of pollutants from vehicle and equipment cleaning is allowed into any storm drains or watercourses.
 - b. Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facility.
 - c. Concrete wastes are collected in washouts and water from curing operations is collected and disposed. Neither will be allowed into watercourses.
 - d. Spill containment kits will be maintained onsite at all times during construction operations and/or staging or fueling of equipment.
 - e. Dust control measures will include use of water trucks and dust palliatives to control dust in excavation-and-fill areas, covering temporary access road entrances and exits with rock (rocking), and covering of temporary stockpiles when weather conditions require.
 - f. Coir rolls or straw wattles that do not contain plastic or synthetic monofilament netting will be installed along or at the base of slopes during construction to capture sediment.
 - g. Protection of graded areas from erosion using a combination of silt fences, fiber rolls, etc. along toes of slopes or along edges of designated staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas. Erosion control materials that use plastic or synthetic monofilament netting will not be used within the action area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine or other similar fibers.
 - h. Permanent erosion control measures such as bio-filtration strips and swales to receive storm water discharges from the highway, or other impervious surfaces will be incorporated to the maximum extent practicable.
 - i. All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 50 feet from any aquatic habitat, culvert, or drainage feature.

8. **Construction Site Management Practices.** The following site restrictions will be implemented to avoid or minimize effects on listed species and their habitats:
- a. A speed limit of 15 miles per hour (mph) in the project footprint in unpaved areas will be enforced to reduce dust and excessive soil disturbance.
 - b. Construction access, staging, storage, and parking areas, will be located within the project Caltrans ROW outside of any designated ESA or outside of the Caltrans ROW in areas environmentally cleared by the contractor. Access routes and the number and size of staging and work areas will be limited to the minimum necessary to construct the proposed project. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.
 - c. To the maximum extent practicable, any borrow material will be certified to be non-toxic and weed free.
 - d. All food and food-related trash items will be enclosed in sealed trash containers and properly disposed of off-site.
 - e. No pets from project personnel will be allowed anywhere in the action area during construction.
 - f. No firearms will be allowed on the project site except for those carried by authorized security personnel, or local, State or Federal law enforcement officials.
 - g. A Spill Response Plan will be prepared. Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in a designated location that is at least 50 feet from hydrologic features.
 - h. All equipment will be properly maintained and free of leaks. Servicing of vehicles and construction equipment including fueling, cleaning, and maintenance will occur at least 50 feet from any hydrologic features.
9. **Vegetation Removal.** Any vegetation that is within the cut and fill line or growing in locations where temporary or permanent structures will be placed (e.g., shoulder widening, staging or access areas) will be cleared. Vegetation will be cleared only where necessary and will be cut above soil level except in areas that will be excavated for roadway construction. This will allow plants that reproduce vegetatively to resprout after construction. All clearing and grubbing of woody vegetation will occur by hand or using light construction equipment such as backhoes. If clearing and grubbing occurs between February 1 and August 31, a qualified biologist(s) will survey for nesting birds within the area(s) to be disturbed including a perimeter buffer of 100 feet for passerines and 300 feet for raptors before clearing activities begin. All nest avoidance requirements of the Migratory Bird Treaty Act and California Fish and Game Code Sections 3503 and 3503.5 will be observed. All cleared vegetation will be removed from the project footprint to prevent attracting animals to the project site. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of such materials. A Service-approved biologist will be present during all vegetation clearing and grubbing activities. Prior to vegetation removal, the Service-approved biologist shall thoroughly survey the area for California red-legged frogs or Central California tiger salamanders. Once the Service-approved biologist has thoroughly surveyed the area, clearing and grubbing may continue

without further restrictions on equipment; however, the Service-approved biologist shall remain onsite to monitor for California red-legged frogs or Central California tiger salamanders until all clearing and grubbing activities are complete. After project completion, all temporarily affected areas shall be returned to original grade and contours to the maximum extent practicable, protected with proper erosion control materials, and revegetated with native species appropriate for the region and habitat communities on site.

10. **Reduce Spread of Invasive Species.** To reduce the spread of invasive non-native plant species and minimize the potential decrease of palatable vegetation for wildlife species, Caltrans will comply with Executive Order 13112. This order is provided to prevent the introduction of invasive species and provide for their control in order to minimize the economic, ecological, and human health impacts. In the event that high- or medium-priority noxious weeds, as defined by the California Department of Food and Agriculture or the California Invasive Plant Council, are disturbed or removed during construction-related activities, the contractor will contain the plant material associated with these noxious weeds and dispose of it in a manner that will not promote the spread of the species. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of materials. Areas subject to noxious weed removal or disturbance will be replanted with fast-growing native grasses or a native erosion control seed mixture. If seeding is not possible, the area should be covered to the extent practicable with heavy black plastic solarization material until the end of the project.
11. **Replant, Reseed, and Restore Disturbed Areas.** All slopes or unpaved areas affected by the proposed action will be restored to natural conditions. Slopes and bare ground will be reseeded with native grasses and shrubs characteristic of the floristic region and native local habitats to stabilize soils and prevent erosion. Where disturbance includes the removal of trees or plants, native species will be replanted and maintained until they become established. A revegetation plan with success criteria will be submitted to the Service for review and approval. Temporary effects comprise areas denuded, manipulated, or otherwise modified from their existing, pre-project conditions, thereby removing one or more essential components of a listed species' habitat as a result of project activities that include, but are not limited to, construction, staging, storage, lay down, vehicle access, parking, etc. Temporary effects must be restored to baseline habitat values or better within one year following initial disturbance. Areas subject to ongoing operations and maintenance are not considered temporary even if they are restored within one year following initial disturbance. Affected areas not fulfilling these criteria are considered permanent.

Action Area

The action area is defined in 50 CFR § 402.02, as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the proposed project, the action area encompasses 31.0 acres and includes the 3.3-acre project footprint, Caltrans ROW, and surrounding lands along the Central California Coast extending from 0.8-mile east of Franklin Point to three miles southeast of Pigeon Point, immediately north and east of Año Nuevo State Park. The action area includes the project footprint along SR-1 from 0.1 mile east of Whitehouse Canyon Road to approximately 0.6 mile north of Rossi Road, equipment staging area, access routes, Caltrans ROW, and adjacent lands that will be subjected to physical, noise, light, and vibration disturbance. Whitehouse Creek flows southwest and roughly perpendicular to SR-1, immediately east of Rossi Road. The landscape surrounding the action area is undeveloped and includes Año

Nuevo State Park and private properties. Habitat within the action area comprises paved roadway, coastal scrub, eucalyptus, and riparian forest.

Analytical Framework for the Jeopardy Determinations

In accordance with policy and regulation, the jeopardy analyses in this biological opinion relies on four components: (1) the *Status of the Species*, which evaluates the California red-legged frog and San Francisco garter snake range-wide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the California red-legged frog and San Francisco garter snake in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the California red-legged frog and San Francisco garter snake; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the California red-legged frog and San Francisco garter snake; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the California red-legged frog and San Francisco garter snake.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the California red-legged frog and San Francisco garter snake current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of these species in the wild.

The jeopardy analysis in this biological opinion places an emphasis on consideration of the range-wide survival and recovery needs of the California red-legged frog and San Francisco garter snake and the role of the action area in the survival and recovery of California red-legged frogs and San Francisco garter snakes as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Status of the Species

California Red-legged Frog

Listing Status: The California red-legged frog was listed as a threatened species on May 23, 1996 (61 FR 25813) (Service 1996). Critical habitat was designated for this species on April 13, 2006 (71 FR 19244) (Service 2006a) and revisions to the critical habitat designation were published on March 17, 2010 (75 FR 12816) (Service 2010). At this time, the Service recognized the taxonomic change from *Rana aurora draytonii* to *Rana draytonii* (Shaffer *et al.* 2010). A recovery plan was published for the California red-legged frog on September 12, 2002 (Service 2002).

Description: The California red-legged frog is the largest native frog in the western United States (Wright and Wright 1949), ranging from 1.5 to 5.1 inches in length (Stebbins 2003). The abdomen and hind legs of adults are largely red, while the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background color. Dorsal spots usually have light centers (Stebbins 2003), and dorsolateral folds are prominent on the back. Larvae (tadpoles) range from 0.6 to 3.1 inches in length, and the background color of the body is dark brown and yellow with darker spots (Storer 1925).

Distribution: The historic range of the California red-legged frog extended from the vicinity of Elk Creek in Mendocino County, California, along the coast inland to the vicinity of Redding in Shasta County, California, and southward to northwestern Baja California, Mexico (Fellers 2005; Jennings and Hayes 1985; Hayes and Krempels 1986). The species was historically documented in 46 counties but the taxa now remains in 238 streams or drainages within 23 counties, representing a loss of 70 percent of its former range (Service 2002). California red-legged frogs are still locally abundant within portions of the San Francisco Bay area and the central California coast. Isolated populations have been documented in the Sierra Nevada, northern coast, and northern Transverse Ranges. The species is believed to be extirpated from the southern Transverse and Peninsular Ranges, but is still present in Baja California, Mexico (CDFW 2016).

Status and Natural History: California red-legged frogs predominately inhabit permanent water sources such as streams, lakes, marshes, natural and manmade ponds, and ephemeral drainages in valley bottoms and foothills up to 4,921 feet in elevation (Jennings and Hayes 1994, Bulger *et al.* 2003, Stebbins 2003). However, they also inhabit ephemeral creeks, drainages, and ponds with minimal riparian and emergent vegetation. California red-legged frogs breed from November to April, although earlier breeding records have been reported in southern localities. Breeding generally occurs in still or slow-moving water often associated with emergent vegetation, such as cattails, tules, or overhanging willows (Storer 1925, Hayes and Jennings 1988). Female frogs deposit egg masses on emergent vegetation so that the egg mass floats on or near the surface of the water (Hayes and Miyamoto 1984).

Habitat includes nearly any area within 1-2 miles of a breeding site that stays moist and cool through the summer including vegetated areas with coyote brush, California blackberry thickets, and root masses associated with willow and California bay trees (Fellers 2005). Sheltering habitat for California red-legged frogs potentially includes all aquatic, riparian, and upland areas within the range of the species and includes any landscape feature that provides cover, such as animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris. Agricultural features such as drains, watering troughs, spring boxes, abandoned sheds, or haystacks may also be used. Incised stream channels with portions narrower and depths greater than 18 inches also may provide important summer sheltering habitat. Accessibility to sheltering habitat is essential for the survival of California red-legged frogs within a watershed, and can be a factor limiting frog population numbers and survival.

California red-legged frogs do not have a distinct breeding migration (Fellers 2005). Adults are often associated with permanent bodies of water. Some individuals remain at breeding sites year-round, while others disperse to neighboring water features. Dispersal distances are typically less than 0.5 mile, with a few individuals moving up to 1-2 miles (Fellers 2005). Movements are typically along riparian corridors, but some individuals, especially on rainy nights, move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas (Fellers 2005).

In a study of California red-legged frog terrestrial activity in a mesic area of the Santa Cruz Mountains, Bulger *et al.* (2003) categorized terrestrial use as migratory and non-migratory. The latter occurred from one to several days and was associated with precipitation events. Migratory movements were characterized as the movement between aquatic sites and were most often associated with breeding activities. Bulger *et al.* (2003) reported that non-migrating frogs typically stayed within 200 feet of aquatic habitat 90 percent of the time and were most often associated with dense vegetative cover, *i.e.*, California blackberry, poison oak, and coyote brush. Dispersing frogs in

northern Santa Cruz County traveled distances from 0.25 mile to more than 2 miles without apparent regard to topography, vegetation type, or riparian corridors (Bulger *et al.* 2003).

In a study of California red-legged frog terrestrial activity in a xeric environment in eastern Contra Costa County, Tatarian (2008) noted that 57 percent of frogs fitted with radio transmitters in the Round Valley study area stayed at their breeding pools, whereas 43 percent moved into adjacent upland habitat or to other aquatic sites. Her study reported a peak seasonal terrestrial movement occurring in the fall months associated with the first 0.2 inch of precipitation and tapering off into spring. Upland movement activities ranged from 3 to 233 feet, averaging 80 feet, and were associated with a variety of refugia including grass thatch, crevices, cow hoof prints, ground squirrel burrows at the base of trees or rocks, logs, and under man-made structures; others were associated with upland sites lacking refugia (Tatarian 2008). The majority of terrestrial movements lasted from 1 to 4 days; however, one adult female was reported to remain in upland habitat for 50 days (Tatarian 2008). Upland refugia closer to aquatic sites were used more often and were more commonly associated with areas exhibiting higher object cover, *e.g.*, woody debris, rocks, and vegetative cover. Subterranean cover was not significantly different between occupied upland habitat and non-occupied upland habitat.

California red-legged frogs are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). Egg masses containing 2,000 - 5,000 eggs are attached to vegetation below the surface and hatch after 6 - 14 days (Storer 1925, Jennings and Hayes 1994). In coastal lagoons, the most significant mortality factor in the pre-hatching stage is water salinity (Jennings *et al.* 1992). Eggs exposed to salinity levels greater than 4.5 parts per thousand resulted in 100 percent mortality (Jennings and Hayes 1990). Increased siltation during the breeding season can cause asphyxiation of eggs and small larvae. Larvae undergo metamorphosis 3.5 - 7 months following hatching and reach sexual maturity at 2 - 3 years of age (Storer 1925; Wright and Wright 1949; Jennings and Hayes 1985, 1990, 1994). Of the various life stages, larvae probably experience the highest mortality rates, with less than 1 percent of eggs laid reaching metamorphosis (Jennings *et al.* 1992). California red-legged frogs may live 8 to 10 years (Jennings *et al.* 1992). Populations can fluctuate from year to year; favorable conditions allow the species to have extremely high rates of reproduction and thus produce large numbers of dispersing young and a concomitant increase in the number of occupied sites. In contrast, the animal may temporarily disappear from an area when conditions are stressful (*e.g.*, during periods of drought, disease, etc.).

The diet of California red-legged frogs is highly variable and changes with the life history stage. The diet of the larvae is not well studied, but is likely similar to that of other ranid frogs, feeding on algae, diatoms, and detritus by grazing on the surface of rocks and vegetation (Fellers 2005; Kupferberg 1996a, 1996b, 1997). Hayes and Tennant (1985) analyzed the diets of California red-legged frogs from Cañada de la Gaviota in Santa Barbara County during the winter of 1981 and found invertebrates (comprising 42 taxa) to be the most common prey item consumed; however, they speculated that this was opportunistic and varied based on prey availability. They ascertained that larger frogs consumed larger prey and were recorded to have preyed on Pacific chorus frogs, threespine stickleback, and, to a limited extent, California mice, which were abundant at the study site (Hayes and Tennant 1985, Fellers 2005). Although larger vertebrate prey was consumed less frequently, it represented over half of the prey mass eaten by larger frogs suggesting that such prey may play an energetically important role in their diets (Hayes and Tennant 1985). Juvenile and subadult/adult frogs varied in their feeding activity periods; juveniles fed for longer periods throughout the day and night, while subadult/adults fed nocturnally (Hayes and Tennant 1985).

Juveniles were significantly less successful at capturing prey and all life history stages exhibited poor prey discrimination, feeding on several inanimate objects that moved through their field of view (Hayes and Tennant 1985).

Threats: Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the California red-legged frog throughout its range. Several researchers in central California have noted the decline and eventual local disappearance of California and northern red-legged frogs in systems supporting bullfrogs (Jennings and Hayes 1990, Twedt 1993), red swamp crayfish, signal crayfish, and several species of warm water fish including sunfish, goldfish, common carp, and mosquitofish (Moyle 1976; Barry 1992; Hunt 1993; Fisher and Schaffer 1996). This has been attributed to predation, competition, and reproduction interference. Twedt (1993) documented bullfrog predation of juvenile northern red-legged frogs, and suggested that bullfrogs could prey on subadult California red-legged frogs as well. Bullfrogs may also have a competitive advantage over California red-legged frogs. For instance, bullfrogs are larger and possess more generalized food habits (Bury and Whelan 1984). In addition, bullfrogs have an extended breeding season (Storer 1933) during which an individual female can produce as many as 20,000 eggs (Emlen 1977). Furthermore, bullfrog larvae are unpalatable to predatory fish (Kruse and Francis 1977). Bullfrogs also interfere with California red-legged frog reproduction by eating adult male California red-legged frogs. Both California and northern red-legged frogs have been observed in amplexus (mounted on) with both male and female bullfrogs (Jennings and Hayes 1990, Jennings 1993, Twedt 1993). Thus bullfrogs are able to prey upon and out-compete California red-legged frogs, especially in sub-optimal habitat.

The urbanization of land within and adjacent to California red-legged frog habitat has also affected the threatened amphibian. These declines are attributed to channelization of riparian areas, enclosure of the channels by urban development that blocks dispersal, and the introduction of predatory fishes and bullfrogs. Diseases may also pose a significant threat, although the specific effects of disease on the California red-legged frog are not known. Pathogens are suspected of causing global amphibian declines (Davidson *et al.* 2003). Chytridiomycosis and ranaviruses are a potential threat because these diseases have been found to adversely affect other amphibians, including the listed species (Davidson *et al.* 2003; Lips *et al.* 2006). Mao *et al.* (1999 cited in Fellers 2005) reported northern red-legged frogs infected with an iridovirus, which was also presented in sympatric threespine sticklebacks in northwestern California. Non-native species, such as bullfrogs and non-native tiger salamanders that live within the range of the California red-legged frog have been identified as potential carriers of these diseases (Garner *et al.* 2006). Human activities can facilitate the spread of disease by encouraging the further introduction of non-native carriers and by acting as carriers themselves (*i.e.*, contaminated boots, waders, or fishing equipment). Human activities can also introduce stress by other means, such as habitat fragmentation, that results in the listed species being more susceptible to the effects of disease.

Recovery Plan: The recovery plan for the California red-legged frog identifies eight recovery units (Service 2002). The establishment of these recovery units is based on the determination that various regional areas of the species' range are essential to its survival and recovery. The status of the California red-legged frog was considered within the small-scale recovery units as opposed to their overall range. These recovery units are delineated by major watershed boundaries as defined by U.S. Geological Survey hydrologic units and the limits of its range. The goal of the recovery plan is to protect the long-term viability of all extant populations within each recovery unit. Within each recovery unit, core areas have been delineated and represent contiguous areas of moderate to high California red-legged frog densities that are relatively free of exotic species such as bullfrogs. The

goal of designating core areas is to protect metapopulations. Thus when combined with suitable dispersal habitat, will allow for the long-term viability within existing populations. The management strategy identified within the Recovery Plan will allow for the recolonization of habitats within and adjacent to core areas that are naturally subjected to periodic localized extinctions, thus assuring the long-term survival and recovery of California red-legged frogs.

San Francisco Garter Snake

Refer to the five-year review for the species status (Service 2006b).

Environmental Baseline

California Red-legged Frog

The action area is located within the South San Francisco Bay Core Area (Año Nuevo Hydrologic Sub-Area) and the Central Coast Recovery Unit (Service 2002, 2006a). The recovery action guidelines provide recommendations for protecting existing populations, control non-native predators, increase connectivity between populations, reduce erosion, implement guidelines for recreation activities to reduce impacts, implement forest practice guidelines, and reduce impacts of urbanization. These recommendations assist in the conservation and recovery of the species, protect high quality habitat within core areas and priority watersheds, increase opportunities for dispersal, population expansion, and recolonization, and provide connectivity between core areas and occupied watersheds. The conservation needs for the East San Francisco Bay Core Area are: (1) protect existing populations; (2) control non-native predators; (3) study the effects of grazing in riparian corridors, ponds and uplands; (4) reduce impacts associated with livestock grazing; (5) protect habitat connectivity; (6) minimize effects of recreation and off-road vehicle use, e.g. Corral Hollow watershed; (7) avoid and reduce impacts of urbanization; and (8) protect habitat buffers from nearby urbanization.

There are four California red-legged frog occurrences reported within two miles and an additional 15 reported within five miles of the action area. The nearest occurrence (Occurrence #969) is located approximately 0.6-mile to the northeast from an impoundment in the adjacent Cascade Creek Watershed, which were observed during surveys in 2003 and 2004. Occurrence #505 reported six adults during the same survey periods within a smaller permanent pond surrounded by a dense band of willow with coastal scrub and annual grassland in the adjacent uplands. No other occurrences have been documented northeast or east of the action area, where the majority of the landscape is forested, or south or southwest, which extends off the coast into the Pacific Ocean. The reach of Whitehouse Creek flowing through the action area is not considered suitable breeding habitat because this section flows almost entirely through a subsurface culvert. Upstream of the culvert, no slow moving backwaters or pools occur in the action area that would provide suitable breeding habitat. The roadside ditch, adjacent to SR-1 between Rossi Road and Whitehouse Canyon Road, does not provide suitable aquatic habitat (breeding or nonbreeding), since it retains water only after storm events, and no emergent or other wetland-type vegetation is present there.

Potentially suitable aquatic breeding habitat is located about 0.25-mile downstream (south) of the action area, where several slow-moving pools approximately two feet deep were recorded on September 9, 2014, and about 750 feet upstream of the action area, where one small pool (1.5 foot deep) with emergent vegetation was observed in a small opening within the riparian canopy. Any breeding attempts here or elsewhere upstream of the action area would likely result in eggs being washed downstream because the relatively steep and constricted channel is likely to carry relatively high winter and spring flows. The nearest known breeding sites are located 0.6-mile and 0.9-mile

northeast of the action area corresponding to occurrences #505 and #969. Furthermore, no barriers exist between the action area and these breeding sites.

Suitable non-breeding aquatic habitat is present within the day-lighted portions of Whitehouse Creek within the action area. Adjacent streambanks are heavily vegetated with blackberry and poison oak, providing suitable upland foraging and refugia habitat. All upland habitats in the action area (approximately 24.2 acres of forest and coastal scrub/annual grassland) provide potentially suitable upland and dispersal habitat.

Based on the habitat suitability within the action area, known occupancy of California red-legged frogs within the project vicinity, connectivity to adjacent occupied habitats and the presence of suitable breeding habitat within dispersal distance to the action area, the Service has determined there is a reasonable potential for California red-legged frogs to inhabit and disperse through the action area.

San Francisco Garter Snake

The action area is located within the range of the Cascade Ranch and Año Nuevo State Park garter snake populations and is set within a linear riparian corridor associated with Whitehouse Creek. The creek enters into a steeply incised drainage west of SR-1 and empties into the Pacific Ocean approximately 1,500 feet downstream of the action area. Habitat within the action area comprises eucalyptus forest (covering the majority of the riparian corridor within the action area), riparian forest in the westernmost portion of the action area west of SR-1, and coastal scrub/annual grassland outside of the riparian corridor. Whitehouse Creek is a perennial stream fed by numerous ephemeral drainages within undeveloped lands upstream of the action area to the east. A review of aerial photography within the project vicinity identified three potential breeding ponds, all presumably perennial waterbodies based on historic image analysis, within 1.2 miles of the action area to the north, east, and southeast, respectively. San Francisco garter snakes have been reported along Whitehouse Creek and are known to breed in Año Nuevo State Park to the south.

The riparian corridor is characterized by full canopy cover with dense streamside vegetation consisting of blackberry and poison oak. Aquatic habitat and adjacent streambanks lack basking sites and are not characteristic of typical breeding habitat. However, habitat within the action area likely supports prey species such as California red-legged frogs and Sierra treefrogs; hence, it may function as suitable foraging habitat. The dense vegetation and open coastal scrub/annual grasslands provide suitable refugia habitat and the entire action area is situated between potential and known breeding sites suggesting San Francisco garter snakes may disperse through the area.

Based on habitat suitability within the action area, connectivity to occupied habitats at Cascade Ranch and Año Nuevo State Park, proximity to potential breeding sites within 1.2 miles of the action area, and the presence of suitable foraging, sheltering and dispersal habitat within the action area, the Service has determined there is a reasonable probability for San Francisco garter snakes to inhabit or disperse through the action area.

Effects of the Action

California Red-legged Frog and San Francisco Garter Snake

For the purposes of this biological opinion, temporary effects are defined as those areas denuded, manipulated, or otherwise modified from their existing, pre-project conditions, thereby removing one or more essential components of a listed species' habitat as a result of project activities that

include, but are not limited to, construction, staging, storage, lay down, vehicle access, parking, etc. Temporary effects must be restored to baseline habitat values or better within one year following initial disturbance. Areas subject to ongoing operations and maintenance are not considered temporary even if they are restored within one year following initial disturbance. Affected areas not fulfilling these criteria are considered permanent. This habitat would become unavailable to these species during the construction phase and could result in loss of foraging or movement habitat, altered behavioral displays (e.g., flushing from cover during vegetation clearing or ground disturbing activities, decreased foraging success, increased risk of predation, etc.), and displacement from or avoidance of habitat features within the action area. Based on a review of the project activities and the May 2015 biological assessment, the proposed action would result in the permanent loss and/or degradation of 0.5-acre of California red-legged frog and San Francisco garter snake upland foraging, refugia, and dispersal habitat.

The proposed project will likely adversely affect adult, subadult, and juvenile California red-legged frog and adult and juvenile San Francisco garter snake life history stages through harassment, harm, injury and mortality during the construction phase. The aspects of the proposed action most likely to affect the California red-legged frog and San Francisco garter snake include the excavation of the roadway embankment for reconstruction using lightweight cellular concrete, installation of the cutoff wall, and placement of a concrete lining along the existing earthen roadside ditch. These effects will occur outside the existing roadway. All disturbed areas that were previously vegetated, except the concrete-lined ditch, will be seeded with a native hydroseed mix after completion of construction and will restore the functions and values of upland habitat for California red-legged frogs and San Francisco garter snakes within two years following construction. Construction staging and site access will be restricted to existing paved roadways and the permanently affected project footprint. Therefore, no additional temporary direct effects on species habitat will occur as a result of staging and site access.

Eucalyptus tree removal will result in an increase in light exposure and reduced shading within the action area and areas immediately adjacent to the project footprint. This could alter habitat suitability for California red-legged frogs and San Francisco garter snakes, but dense eucalyptus and riparian forest present along Whitehouse Creek in and adjacent to the action area would remain intact, providing abundant shade for these species in the project vicinity after construction. Additionally, affected areas are located in a depression below the SR-1 embankment where sun exposure to the ground is currently somewhat limited by the elevated highway prism and adjacent riparian forest. Therefore, this effect on the species will be minimal. Furthermore, the site will be restored using native species such as coyote brush, which is likely to result in an improvement in upland habitat suitability following construction.

Installation of the subsurface cutoff wall could cause vibrations from pile driving activities that may temporarily interfere with normal behaviors – feeding, sheltering, movement between refugia and foraging grounds, and other essential behaviors of the California red-legged frog and San Francisco garter snake – resulting in avoidance of areas that provide suitable habitat but intolerable levels of disturbance. Temporary displacement of individuals from the action area during pile driving activities would not be likely to substantially interfere with California red-legged frog and San Francisco garter snake life history functions.

Construction activities are not expected to result in increased sedimentation to Whitehouse Creek, to introduce chemical contaminants to this waterway and the site, or to result in the spread of invasive plants because of implementation of avoidance and minimization measures, such as standard construction BMPs and spill prevention practices. Installation of the subsurface cutoff wall

could result in changes to subsurface hydrology, such as altering groundwater flows beneath the highway; however, because the cutoff wall will be relatively short (450 feet in length) and the total volume of groundwater in the action area is not expected to change, such alteration in subsurface hydrology would be unlikely to result in any noticeable change to surface conditions that would affect California red-legged frogs or their habitat in the action area. Project-related drainage improvements could result in changes in surface water hydrology, such as lowered groundwater recharge because of increased impervious surfaces associated with drainage inlets and placement of concrete along the roadside ditch. However, because these improvements will occur over a relatively small area, changes in surface hydrology would be unlikely to result in any substantial change in California red-legged frog aquatic habitat.

Caltrans has made a good faith effort to minimize these effects by minimizing the area of disturbance during the project design phase in consultation with the Service. Caltrans proposes to further minimize these effects during the construction phase by delineating the project boundaries with ESA fencing, installing temporary exclusion fencing with escape ramps or funnels to allow individuals frogs and snakes to leave the project site where they encounter the fencing. Vegetation clearing will be minimized to only the extent necessary to complete the proposed action and materials and equipment staging will occur on paved or designated areas clear of sensitive environmental areas. All construction personnel will go through environmental awareness training to ensure they are aware and fully understand the conservation measures, species identification, communication and reporting procedures, and personnel responsible for ensuring environmental compliance.

The presence of full-time biological monitors and daily preconstruction surveys will minimize the potential for harassment, injury and mortality to California red-legged frogs and San Francisco garter snakes within the action area. The relocation of individual California red-legged frogs by a Service-approved biologist will minimize the likelihood of serious injury or mortality; however, capturing and handling frogs may result in stress during handling, containment, and transport. Death and injury of individuals could occur at the time of relocation or later in time subsequent to their release. Although survivorship for translocated amphibians has not been estimated, survivorship of translocated wildlife, in general, is low because of intraspecific competition, lack of familiarity with the relocation site with regard to breeding, feeding, and sheltering habitats, risk of contracting disease in foreign environment, and increased risk of predation. These effects will be minimized by Caltrans submitting the qualifications of potential biological monitors to the Service for review and approval prior to the initiation of project activities. In addition, Service-approved biologists will use their best professional judgment to evaluate the necessity of relocating individuals and expediting capture and relocation of individuals if deemed necessary.

Biologists and construction workers traveling to the action area from other project sites may transmit diseases by introducing contaminated equipment. The chance of a disease being introduced into a new area is greater today than in the past due to the increasing occurrences of disease throughout amphibian populations in California and the United States. It is possible that chytridiomycosis, caused by chytrid fungus (*Batrachochytrium dendrobatidis*), may exacerbate the effects of other diseases on amphibians or increase the sensitivity of the amphibian to environmental changes (e.g., water pH) that reduce normal immune response capabilities (Bosch et al. 2001, Weldon et al. 2004). Implementing proper decontamination procedures prior to and following aquatic surveys and handling of frogs and salamanders will minimize the risk of transferring diseases through contaminated equipment or clothing.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. During this consultation, the Service did not identify any future non-federal actions that are reasonably certain to occur in the action area of the proposed project.

Conclusion

After reviewing the current status of the California red-legged frog and San Francisco garter snake, the environmental baseline for the action area, the effects of the proposed SR-1 Pigeon Point Storm Damage Repair Project, and the cumulative effects, it is the Service's biological opinion that the SR-1 Pigeon Point Storm Damage Repair Project, as proposed, is not likely to jeopardize the continued existence of the California red-legged frog or San Francisco garter snake. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species based on the following: (1) the project has been designed to minimize the effects to listed species and their habitat; (2) the project scope has been reduced to avoid effects to aquatic resources; and (3) appropriate BMPs and conservation measures have been incorporated into the project to further minimize the potential for take.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by FWS regulations at 50 CFR 17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which actually kills or injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by Caltrans so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this incidental take statement. If Caltrans (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental

take, Caltrans must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

Amount or Extent of Take

California Red-Legged Frog

The Service anticipates that incidental take of the California red-legged frog may be difficult to detect due to their cryptic nature and wariness of humans. Losses of this species may also be difficult to quantify due to a lack of baseline survey data and seasonal/annual fluctuations in their numbers due to environmental or human-caused disturbances. There is a risk of harm, harassment, injury and mortality as a result of the proposed construction activities, the permanent and temporary loss / degradation of suitable habitat, and capture and relocation efforts; therefore, the Service anticipates take incidental to the proposed action as; (1) the injury and mortality of one adult or juvenile California red-legged frog; and (2) the capture, harm, and harassment of all California red-legged frogs within the 31-acre action area. No take of eggs or larval California red-legged frogs is anticipated as the site lacks suitable breeding and rearing habitat. Upon implementation of the following Reasonable and Prudent Measures, all juvenile and adult California red-legged frogs within the action area in accordance with the amount and type of take outlined above will become exempt from the prohibitions described under section 9 of the Act. No other forms of take are authorized under this opinion.

San Francisco Garter Snake

The Service expects that incidental take of the San Francisco garter snake may be difficult to detect or quantify because this animal may range over a large territory and the finding of an injured or dead individual is unlikely because they may seek refuge in aquatic habitat, burrows or other underground refugia. The Service anticipates that incidental take of the San Francisco garter snake may be difficult to detect due to their cryptic nature and wariness of humans. Losses of this species may also be difficult to quantify due to a lack of baseline survey data and seasonal/annual fluctuations in their numbers due to environmental or human-caused disturbances. There is a risk of harm, harassment, injury and mortality as a result of the proposed construction activities, the permanent and temporary loss / degradation of suitable habitat; therefore, the Service anticipates take incidental to the proposed action as; (1) the injury and mortality of one adult or juvenile San Francisco garter snake; and (2) the harm and harassment of all San Francisco garter snakes within the 31-acre action area. Upon implementation of the following Reasonable and Prudent Measures, all juvenile and adult San Francisco garter snakes within the action area in accordance with the amount and type of take outlined above will become exempt from the prohibitions described under section 9 of the Act. No other forms of take are authorized under this opinion.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the California red-legged frog or San Francisco garter snake.

Reasonable and Prudent Measures

All necessary and appropriate measures to avoid or minimize effects on the California red-legged frog and San Francisco garter snake resulting from implementation of this project have been incorporated into the project's proposed conservation measures. Therefore, the Service believes the

following Reasonable and Prudent Measure is necessary and appropriate to minimize incidental take of the California red-legged frog and San Francisco garter snake:

1. All conservation measures, as described in the biological assessment and restated here in the Project Description section of this biological opinion, shall be fully implemented and adhered to. Further, this Reasonable and Prudent Measure shall be supplemented by the Terms and Conditions below.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Caltrans must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are nondiscretionary.

1. **Compliance with Biological Opinion.** Caltrans shall include Special Provisions that include the Conservation Measures and the Terms and Conditions of this biological opinion in the solicitation for bid information for all contracts for the project that are issued by them to all contractors. Caltrans shall require all contractors and subcontractors to comply with the Act in the performance of the proposed action and shall perform the action as outlined in the Project Description of this biological opinion as provided by Caltrans in the Biological Assessment dated May 2015, and supporting documentation submitted to the Service in support of the action. Changes to the Project Description or performance of work outside the scope of this biological opinion are subject to the requirements of reinitiation of formal consultation.
2. **Implementation of Biological Opinion.** Caltrans shall ensure the Resident Engineer or their designee shall have full authority to implement and enforce all Conservation Measures and Terms and Conditions of this biological opinion. The Resident Engineer or his/her designee shall maintain a copy of this biological opinion onsite whenever construction is in progress. Their name(s) and telephone number(s) shall be provided to the Service at least 30 calendar days prior to groundbreaking at the project.
3. **Biological Monitor Approval and Stop Work Authority.** The qualifications of all proposed Service-approved biologist(s) shall be presented to the Service for review and written approval at least 30 calendar days prior to project initiation. The Service-approved biologist(s) shall keep a copy of this biological opinion in his/her possession when onsite. Through the Resident Engineer or his/her designee, the Service-approved biologist(s) shall be given the authority to communicate verbally, by telephone, email, or hardcopy with Caltrans personnel, construction personnel or any other person(s) at the project site or otherwise associated with the project to ensure that the terms and conditions of this biological opinion are met. The Service-approved biologist(s) shall have the authority to stop project activities if they determine any of the requirements associated with the Conservation Measures and Terms and Conditions of this biological opinion are not being fulfilled. If the Service-approved biologist(s) exercises this authority, Caltrans shall immediately contact the Service's SFWO at (916) 414-6600 to report the action.
4. **Biological Monitoring.** In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded, Caltrans shall adhere to the following reporting requirements. Should this anticipated amount or

extent of incidental take be exceeded, Caltrans must immediately reinstate formal consultation as per 50 CFR 402.16.

- a. For those components of the action that will result in habitat degradation or modification whereby incidental take in the form of harm is anticipated, Caltrans will provide biweekly updates to the Service with a precise accounting of the total acreage of habitat impacted. Updates shall also include any information about changes in project implementation that result in habitat disturbance not described in the Project Description and not analyzed in this Biological Opinion.
 - b. For those components of the action that may result in direct encounters between listed species and project workers and their equipment whereby incidental take in the form of harassment, harm, injury, or death is anticipated, Caltrans shall immediately contact the Service's Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6600 to report the encounter. If encounter occurs after normal working hours, Caltrans shall contact the SFWO at the earliest possible opportunity the next working day. When injured or killed individuals of the listed species are found, Caltrans shall follow the steps outlined in the Salvage and Disposition of Individuals section below.
 - c. For those components of the action that will require the capture and relocation of any listed species, Caltrans shall immediately contact the Service's SFWO at (916) 414-6600 to report the action. If capture and relocation need to occur after normal working hours, Caltrans shall contact the SFWO at the earliest possible opportunity the next working day.
5. **Biological Monitoring Records.** The Service-approved biologist(s) shall maintain monitoring records that include: (1) the beginning and ending time of each day's monitoring effort; (2) a statement identifying the listed species encountered, including the time and location of the observation; (3) the time the specimen was identified and by whom and its condition; and (4) a description of any actions taken. The Service-approved biological monitor(s) shall maintain complete records in their possession while conducting monitoring activities and shall immediately surrender records to the Service, CDFW, and/or their designated agents upon request. If requested, all monitoring records shall be provided to the Service within 30 calendar days of the completion of monitoring work.
6. **Agency Access.** If verbally requested through the Resident Engineer or Construction Inspector, before, during, or upon completion of ground breaking and construction activities, Caltrans shall ensure the Service or their designated agents can immediately and without delay, access and inspect the project site for compliance with the proposed project description, conservation measures, and terms and conditions of this Biological Opinion, and to evaluate project effects to the California red-legged frog and San Francisco garter snake, and their habitat.
7. **Proper Use of Erosion Control Devices.** To prevent California red-legged frogs and San Francisco garter snakes from becoming entangled, trapped, or injured, erosion control materials that use plastic or synthetic monofilament netting will not be used within the action area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine, burlap, or other similar fibers.

8. **Wildlife Exclusion Fencing.** Prior to the start of construction, WEF shall be installed along the construction site perimeter in all areas where California red-legged frogs or San Francisco garter snakes could enter the construction area. The location of the fencing shall be determined by the Resident Engineer and Service-approved biologist in cooperation with the Service prior to the initiation of project activities including materials or equipment staging and surface disturbing activities. A conceptual fencing plan shall be submitted to the Service for review and approval at least 30 days prior to WEF installation. The location, materials, installation specifications, and monitoring and repair criteria shall be approved by the Service prior to start of construction. Vegetation shall be cleared to within two inches of ground level to prevent species from using vegetation to gain access to the project site by climbing over the WEF. Vegetation within 18 inches of the WEF shall remain clear during the entire time the WEF is in operation. Caltrans shall include the WEF specifications including installation and maintenance criteria in the bid solicitation package special provisions. The WEF shall remain in place throughout the duration of the project and shall be regularly inspected and fully maintained. Repairs to the WEF shall be made within 24 hours of discovery. Upon project completion the WEF shall be completely removed, the area cleaned of debris and trash, and returned to natural conditions. The WEF shall meet the following specifications:
- a. A minimum aboveground height of 36 inches.
 - b. A 4-inch anti-climbing lip at the top to prevent species from climbing over the fence.
 - c. The bottom of the fence shall be keyed in at least 4 inches deep and backfilled with soil, sand bags, gravel, or other means to prevent frogs and snakes from passing under the fence and entering the construction area.
 - d. One-way escape ramps or exit funnels accessible from ground level shall be installed every 100 feet to allow for listed species to exit the construction area on their own.
 - e. Cover boards shall be placed along the base on the outside of the WEF every 100 feet to provide refugia for listed species. The cover boards shall be laid flat on the ground with one end flush with the WEF and propped up 2-4 inches to allow California red-legged frogs or San Francisco garter snakes to readily enter or exit.
9. **Biological Monitoring and Preconstruction Surveys.** A Service-approved biologist(s) shall be onsite during all activities that may result in take of California red-legged frogs or San Francisco garter snakes as determined by the Service. A minimum of one Service-approved biologist shall be on-site when active construction is occurring throughout the project duration. Caltrans shall coordinate with the Service to determine which locations will require the presence with Service-approved biological monitors. The Service will consider the implementation of specific project activities without the oversight of an on-site Service-approved biologist on a case-by-case basis. Preconstruction surveys shall be conducted by a Service-approved biologist immediately prior to the initiation of any ground disturbing activities and vegetation clearing that may result in take of California red-legged frogs or San Francisco garter snakes as determined by the Service. All suitable aquatic and upland habitat including refugia habitat such as dense vegetation, small woody debris, refuse, burrows, etc., shall be thoroughly inspected. The Service-approved biologist(s) shall conduct clearance surveys at the beginning of each day and periodically throughout the workday when construction activities are occurring that may result in take of listed species.

10. **Protocol for Species Observation and Handling.** If a California red-legged frog or San Francisco garter snake is encountered in the action area, work activities within 50 feet of the individual shall cease immediately and the Resident Engineer and Service-approved biologist shall be notified. Based on the professional judgment of the Service-approved biologist, if project activities can be conducted without killing or injuring the California red-legged frog or San Francisco garter snake, it may be left at the location of discovery and monitored by the Service-approved biologist. All project personnel shall be notified of the finding and at no time shall work occur within 50 feet of the frog or snake without a Service-approved biologist present. San Francisco garter snakes shall not be captured or handled without authorization from the Service and CDFW. San Francisco garter snakes shall be monitored until it leaves the action area on its own accord, unless the situation poses an imminent risk of injury or mortality to the individual(s). If it is determined by the Service-approved biologist that relocating a California red-legged frog is necessary, the following steps shall be followed:
- a. Prior to handling and relocation, the Service-approved biologist will take precautions to prevent introduction of amphibian diseases in accordance with the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (Service 2005). Disinfecting equipment and clothing is especially important when biologists are coming to the action area to handle amphibians after working in other aquatic habitats.
 - b. California red-legged frogs shall be captured by hand, dipnet, or other Service-approved methodology, transported and relocated to nearby suitable habitat outside of the work area and released as soon as practicable the same day of capture. The individual(s) shall be released within the Caltrans right-of-way if suitable habitat exists and would not pose a risk to the animal's survival or well-being. Otherwise, California red-legged frogs shall be released at a location subject to the approval of the property owner. If suitable habitat cannot be identified, the Service shall be contacted to determine an acceptable alternative. Holding/transporting containers and dipnets shall be thoroughly cleaned, disinfected, and rinsed with freshwater prior to use within the action area. The Service shall be notified within 24 hours of all capture, handling, and relocation efforts.

Reporting Requirements

In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded, Caltrans shall adhere to the following reporting requirements. Should this anticipated amount or extent of incidental take be exceeded, Caltrans must reinitiate formal consultation as per 50 CFR 402.16.

1. The Service must be notified within one (1) working day of the finding of any injured or dead listed species or any unanticipated damage to its habitat associated with the proposed project. Notification will be made to the Coast Bay Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600, and must include the date, time, and precise location of the individual/incident clearly indicated on a U.S. Geological Survey 7.5 minute quadrangle or other maps at a finer scale, as requested by the Service, and any other pertinent information. When an injured or dead individual of the listed species is found, Caltrans shall follow the steps outlined in the Disposition of Individuals Taken section below.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION—CLOSING STATEMENT

This concludes formal consultation on the SR-1 Pigeon Point Storm Damage Repair Project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required and shall be requested by the Federal agency or by the Service where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and:

- (a) If the amount or extent of taking specified in the incidental take statement is exceeded;
- (b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
- (c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or
- (d) If a new species is listed or critical habitat designated that may be affected by the identified action.

If you have any questions regarding this biological opinion, please contact Jerry Roe (jerry_roe@fws.gov) or Ryan Olah (ryan_olah@fws.gov), at the letterhead address, (916) 414-6623 or by e-mail.

Sincerely,



Jennifer M. Norris
Field Supervisor

cc:

Melissa Escaron, California Department of Fish and Wildlife, Napa, California

2. Other pertinent reporting information such as monitoring reports (if not included as a term and condition), notification of project completion/implementation, etc. including when this information is due to the Service.

Disposition of Individuals Taken

Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Dead individuals must be sealed in a resealable plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a freezer located in a secure site, until instructions are received from the Service regarding the disposition of the dead specimen. The Service contact persons are the Coast Bay Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6623.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

1. Caltrans District 4 should work with the Service to develop a conservation strategy that would identify the current safe passage potential along Bay Area highways and the areas where safe passage for wildlife could be enhanced or established.
2. Caltrans should assist the Service in implementing recovery actions identified in the Recovery Plan for the California Red-legged Frog (Service 2002) and Recovery Plan for the San Francisco Garter Snake (USFWS 1985).
3. Caltrans should consider participating in the planning for a regional habitat conservation plan for the California red-legged frog, San Francisco garter snake, and other listed and sensitive species.
4. Caltrans should consider establishing functioning preservation and creation conservation banking systems to further the conservation of the California red-legged frog, San Francisco garter snake, and other appropriate species. Such banking systems also could possibly be utilized for other required mitigation (i.e., seasonal wetlands, riparian habitats, etc.) where appropriate. Efforts should be made to preserve habitat along roadways in association with wildlife crossings.
5. Roadways can constitute a major barrier to critical wildlife movement. Therefore, Caltrans should incorporate culverts, tunnels, or bridges on highways and other roadways that allow safe passage by the California red-legged frog, San Francisco garter snake, other listed animals, and wildlife. Photographs, plans, and other information into the BAs if “wildlife friendly” crossings are incorporated into projects. Efforts should be made to establish upland culverts designed specifically for wildlife movement rather than accommodations for hydrology. Transportation agencies should also acknowledge the value of enhancing human safety by providing safe passage for wildlife in their early project design.

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ATTACHMENT I

Pigeon Point Storm Damage Repair Project

Attachment 10: Supplemental Photos



Damaged concrete lined ditch, view northwest towards Rossi Road.



Damaged concrete lined ditch, between Rossi Road and Whitehouse Canyon Road.



Damaged concrete lined ditch, view northwest towards Rossi Road.



Damaged concrete lined ditch, view west towards State Route 1.



Damaged concrete lined ditch, view northwest towards Rossi Road.



Damaged concrete lined ditch, view northwest towards Rossi Road.



Damaged concrete lined ditch, view southwest towards State Route1.



Tree line adjacent to the north side of State Route 1, view southeast.