State Route 1 and State Route 84 Structures and Scour Mitigation Project

SAN MATEO COUNTY, CALIFORNIA
04-SM-1 – PM 28.9
04-SM-84 – PM 7.55
EA 04-2J790 / Project ID 04-1500-0014

Initial Study with Mitigated Negative Declaration

Prepared by the
State of California, Department of Transportation

April 2021

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General Information about This Document

The California Department of Transportation (Caltrans) has prepared this Initial Study (IS) with a Mitigated Negative Declaration, which examines the potential environmental impacts of the proposed project located in San Mateo County, California. Caltrans is the lead agency under the California Environmental Quality Act (CEQA). This document explains why the project is being proposed, what alternatives have been considered for the project; and how the existing environment could be affected by the project. It also presents the potential impacts of each of the alternatives and describes the proposed avoidance, minimization, and/or mitigation measures for each impact. The Draft IS was circulated to the public for 30 days between July 10, 2020 through August 10, 2020. A public virtual open house was held on July 28, 2020, from 6:00 to 7:30 pm. Comments received during this period are included in Chapter 3. Elsewhere through this document a vertical line indicates a change made since the draft document circulation. Minor editorial changes and clarifications have not been so indicated.

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04-SM-1-28.9, 04-SM-84-7.55
EA No. 04-2J790
Project No. 0415000014

State Route 1 and State Route 84 Structures and Scour Mitigation Project
(Post Miles 04-SM-1-28.9, 04-SM-84-7.55)

Initial Study with Mitigated Negative Declaration

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

THE STATE OF CALIFORNIA
Department of Transportation

Responsible Agencies:

United States Fish and Wildlife Service
National Marine Fisheries Service
United States Army Corps of Engineers, San Francisco District, Regulatory Division
San Francisco Regional Water Quality Control Board
City of Half Moon Bay Local Coastal Program
California Department of Fish and Wildlife, Region 3
California Transportation Commission

04/29/2021
Date

Lindsay Vivian
Office Chief, Environmental Analysis
California Department of Transportation
CEQA Lead Agency

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

Tanvi Gupta
California Department of Transportation, District 4
P.O. Box 23660, MS 8B
Oakland, CA 94623-0660
Tanvi.Gupta@dot.ca.gov
or
510-421-8378 (voice)

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SCH: 2020070177

Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) proposes to protect the Pilarcitos Creek Bridges on State Route 1, post mile 28.9, and the San Gregorio Creek Bridge on State Route 84, post mile 7.55. The bridges will be protected from scour by placing partially grouted rock slope protection (RSP) around the bridge piers and stream banks below bridges. At the Pilarcitos Creek Bridges, partially grouted RSP will be placed around piers of the northbound and southbound bridges and will replace the earth stream bank, and slope. The existing public trail along the north bank of Pilarcitos Creek will be removed during construction and replaced in kind at project completion. At the San Gregorio Creek Bridge, partially grouted RSP will be placed under the west end of the bridge along the slope between Pier 2 and Abutment 1 to restore the slope to a ratio no steeper than 1.5 horizontal to 1.0 vertical; and to construct a key around Pier 2 that will be filled with partially grouted RSP to protect the pier from erosion.

Determination

Caltrans has prepared an Initial Study (IS) for this project and, following public review, has determined from this study that the proposed project would not have a significant effect on the environment for the following reasons:

The project would have no effect on agricultural lands and forest resources, cultural resources, land use and planning, mineral resources, population and housing, tribal cultural resources, and utilities and service systems.

The project would have a less than significant impact on air quality, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, public services, recreation, transportation and traffic, and wildfire.

With standard conservation measures, avoidance and minimization measures, and mitigation measures, the proposed project would have less than significant effects on aesthetics, and biological resources, including the following species:

California red-legged frog (*Rana draytonii*): federally threatened (FT)

Central California Coast Coho Salmon (Oncorhynchus kisutch) evolutionarily significant unit (ESU): federally endangered (FE) and state endangered (SE)

Central California Coast steelhead (*Oncorhynchus mykiss irideus*) distinct population segment (DPS): FT

Marbled murrelet (*Brachyramphus marmoratus*): FT and SE

Foothill yellow-legged frog (*Rana boylii*): SE.

Melanie Brent

04/29/2021

Melanie Brent
Deputy District Director
Environmental Planning and Engineering
California Department of Transportation, District 4

Date of Approval

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Chapter 1 Proposed Project

1.1 Introduction

1.1.1 CEQA Lead Agency Status

The State Route (SR) 1 and State Route 84 Structures and Scour Mitigation Project (proposed project) by the California Department of Transportation (Caltrans) is subject to state environmental review requirements. Project documentation has been prepared in compliance with the California Environmental Quality Act (CEQA). Caltrans is the lead agency under CEQA and sponsor for the proposed project and has prepared this Initial Study with Proposed Mitigated Negative Declaration for the proposed project.

1.2 Project Location

The proposed project occurs at two distinct locations on separate roadways and over different creeks in San Mateo County (Figure 1). The Pilarcitos Creek Bridges are located on SR 1 at post mile (PM) 28.9 in the City of Half Moon Bay (Figure 2). The San Gregorio Creek Bridge is located on SR 84 over San Gregorio Creek at PM 7.55 (Figure 3).

1.3 Purpose and Need

1.3.1 Purpose

The purpose of the proposed project is to restore the Pilarcitos Creek Bridges on SR)1 to their serviceable condition and to protect the structural integrity of the San Gregorio Creek Bridge on SR 84, thereby enhancing highway safety.

1.3.2 Need

The project is needed at the Pilarcitos Creek Bridges because the recent bridge inspection found that the bridges are scour critical. The project is needed at the San Gregorio Creek Bridge because the bank between the left pier and left abutment (as viewed looking downstream at the bridge) has eroded and needs additional protections to prevent roadway settlement.

1.4 Project Information

Caltrans proposes to mitigate scour impacts to the bridges at two locations in San Mateo County: the Pilarcitos Creek Bridges on SR 1 (Bridge No. 35-0139L and Bridge No. 35-0139R) and the San Gregorio Creek Bridge on SR 84 (Bridge No. 35-0166).

At the Pilarcitos Creek Bridges, Caltrans proposes to mitigate bridge scour by placing partially grouted rock slope protection (RSP) around structural elements. Work would include: removing existing material around all bridge piers and replacing it with partially grouted RSP; replacing the soil slope between the north creek bank and the north bridge abutments with partially grouted RSP; and replacing in-kind the portion of the existing Class I shared-used path (the Naomi Partridge Trail) that runs below the bridges on the north side of Pilarcitos Creek. The public trail will be temporarily rerouted during construction.

Figure 1 Project Vicinity

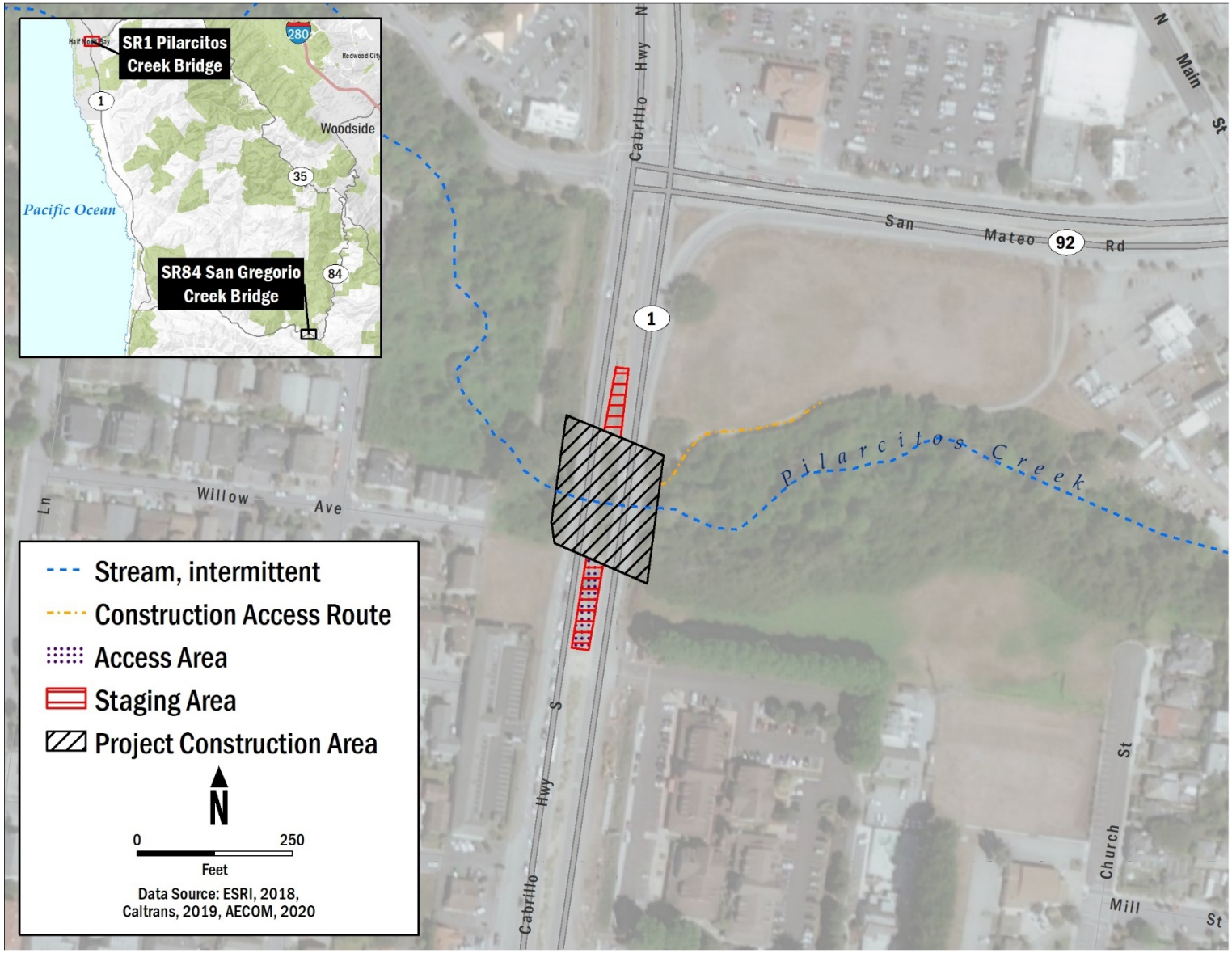

Figure 2 SR1 Pilarcitos Creek Bridges Location and Construction Areas

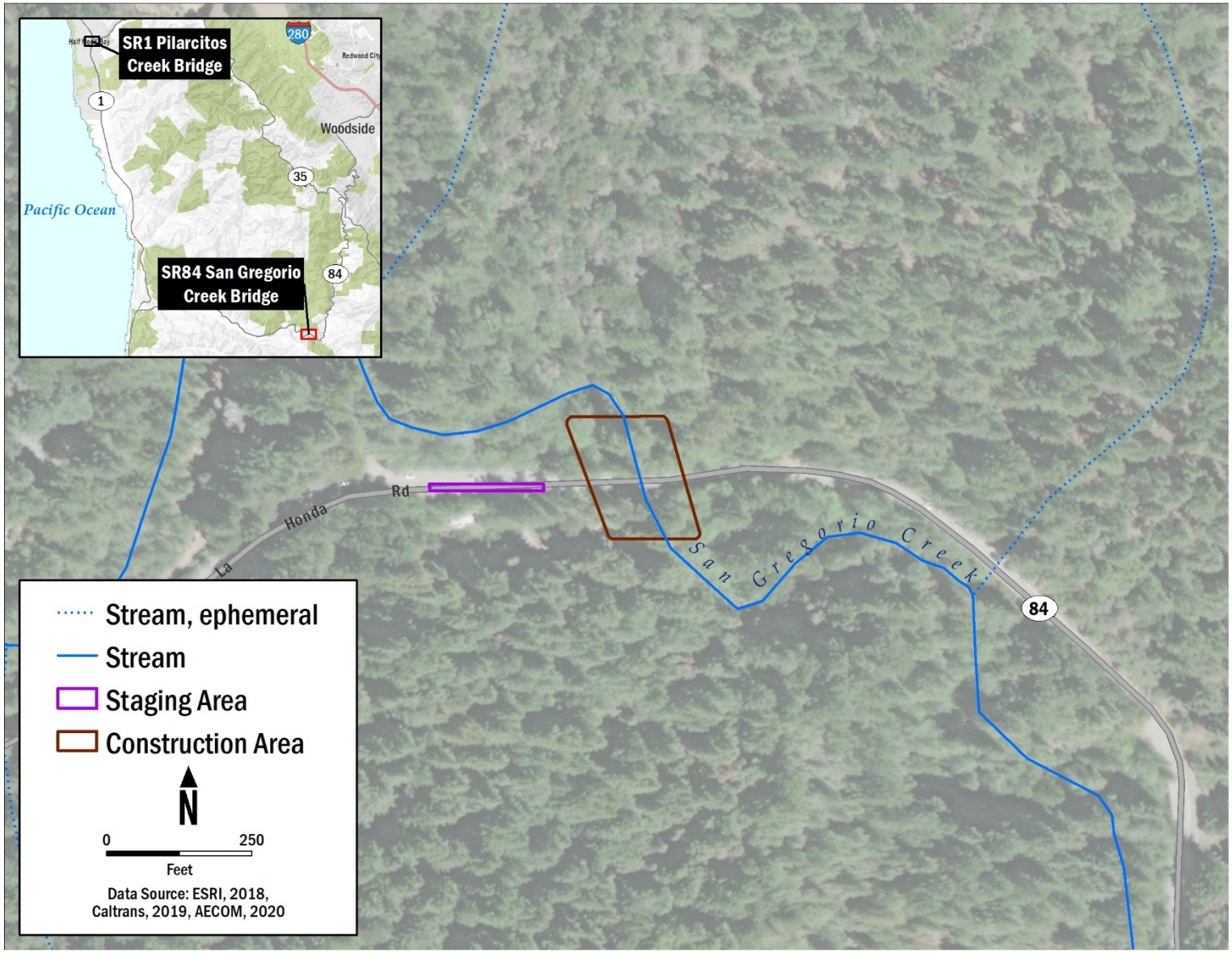

Figure 3 SR 84 San Gregorio Creek Bridge Location

At the San Gregorio Creek Bridge, Caltrans proposes to mitigate bridge scour at the west pier of the bridge by removing existing material and replacing it with partially grouted RSP. To address scour and erosion at the slope between the west pier and the west abutment, Caltrans would place partially grouted RSP to restore the slope to the original as-built grade.

1.4.1 Existing Environmental Setting

1.4.1.1 Climate

The proposed project is in the Santa Cruz Mountains of the Central California Coast. As part of the Santa Cruz Mountains, the Pilarcitos and San Gregorio Creek watersheds generally have a Mediterranean climate, moderated by the Pacific Ocean marine layer, which is responsible for the regular fog conditions along the north-central California coast. Cooler temperatures predominate in winter between November and March, and the warmest temperatures typically occur during late summer.

Westerly precipitation systems deliver rain to the watersheds between November and April. In contrast, little to no rainfall occurs between late spring through early fall. Typically, a few large winter storms generate high flow events and increased sediment input to streams each year.

1.4.1.2 Topography

Pilarcitos Creek Bridge

Topography at the Pilarcitos Creek location is characterized by its presence in the alluvial coastal plain at Half Moon Bay. At the project location, SR 1 is relatively level and Pilarcitos Creek, where it crosses under two bridges, is incised within its alluvial plain.

San Gregorio Creek Bridge

At the San Gregorio Creek location, the topography is characterized by the northwest-trending Santa Cruz Mountains, with rounded ridges, steep sides, and narrow canyons. San Gregorio Creek drains a portion of the western slope of the mountains within a forested, sloped area of this drainage.

1.4.1.3 Land Use

Pilarcitos Creek Bridge

Land cover surrounding SR 1 at the Pilarcitos Creek Bridges consists primarily of commercial and residential development and agriculture, while the Pilarcitos Creek drainage crossed by SR 1 is a riparian corridor.

San Gregorio Bridge

Land cover adjacent to SR 84 at the San Gregorio Creek Bridge consists mainly of undeveloped redwood forest. The San Gregorio Creek riparian area intersects the project site, and there is scattered low-density residential housing near the site.

1.4.1.4 Natural Environment

Hydrology

Pilarcitos Creek Bridge

Pilarcitos Creek originates on the eastern side of Montara Mountain and flows about 12 miles to the Pacific Ocean at Half Moon Bay. It drains a watershed of approximately 17,900 acres (28 square miles) in San Mateo County. The creek is a source of drinking water for residents of the coast and the San Francisco Bay Area; it is diverted at the Pilarcitos Reservoir and Stone Dam complex in the upper watershed.

San Gregorio Creek Bridge

San Gregorio Creek is the second-largest watershed in San Mateo County. The mainstem of San Gregorio Creek is 12 miles long from the confluence of Alpine and La Honda creeks to the Pacific Ocean. Unlike Pilarcitos Creek, San Gregorio Creek has a coastal lagoon at its mouth.

Vegetation and Wildlife

Both project locations are in riparian corridors and provide potential habitat for a diverse array of terrestrial and aquatic species. Although both sites present forested riparian habitat with grass and herbaceous plant species present in the understory, based on botanical surveys of the project sites, special-status plant species with potential to occur at the site were not found. No special-status plants are expected to be impacted by the project.

Pilarcitos Creek Bridge

The vegetated area beneath the Pilarcitos Creek Bridges and the adjacent riparian corridor consists of red alder and willow riparian forest vegetation (Figure 4). The understory of this vegetation community is dominated by invasive vines and a few other invasive shrubs. Pilarcitos Creek and its riparian corridor provide habitat connectivity from the coastal beach habitats of Half Moon Bay at Elmar Beach, approximately two-thirds of a mile downstream of the bridges, to the watershed upstream.

The aquatic habitat at the Pilarcitos Creek Bridges location provides access for anadromous fish and other aquatic species to habitat both upstream and downstream. The existing bridge is not currently understood to be a barrier to fish passage. An existing log jam is found at the east side of the bridge at the upstream toe before the bridge piers. A table listing the special-status species and habitats potentially occurring inside the biological study area (BSA) is provided in Appendix A. The project BSA at Pilarcitos Creek and San Gregorio Creek consists of the project work areas, including areas of access and staging, and a buffer area surrounding work areas that encompassed areas potentially affected by the project.

San Gregorio Creek Bridge

The redwood forest around San Gregorio Creek Bridge (Figure 5) is characterized by second growth or younger redwood trees that are modest in height but provide shade and habitat for a wide variety of wildlife species. San Gregorio Creek is a key feature of the redwood forest habitats of the western slope of the Santa Cruz Mountains surrounding the bridge. The aquatic habitat at the San Gregorio Creek Bridge location provides access for anadromous fish and other aquatic species to available habitat that is both upstream and downstream. The existing

bridge is not a barrier to fish passage. A table listing the special-status species and habitats potentially occurring inside the biological study areas is provided in Appendix A

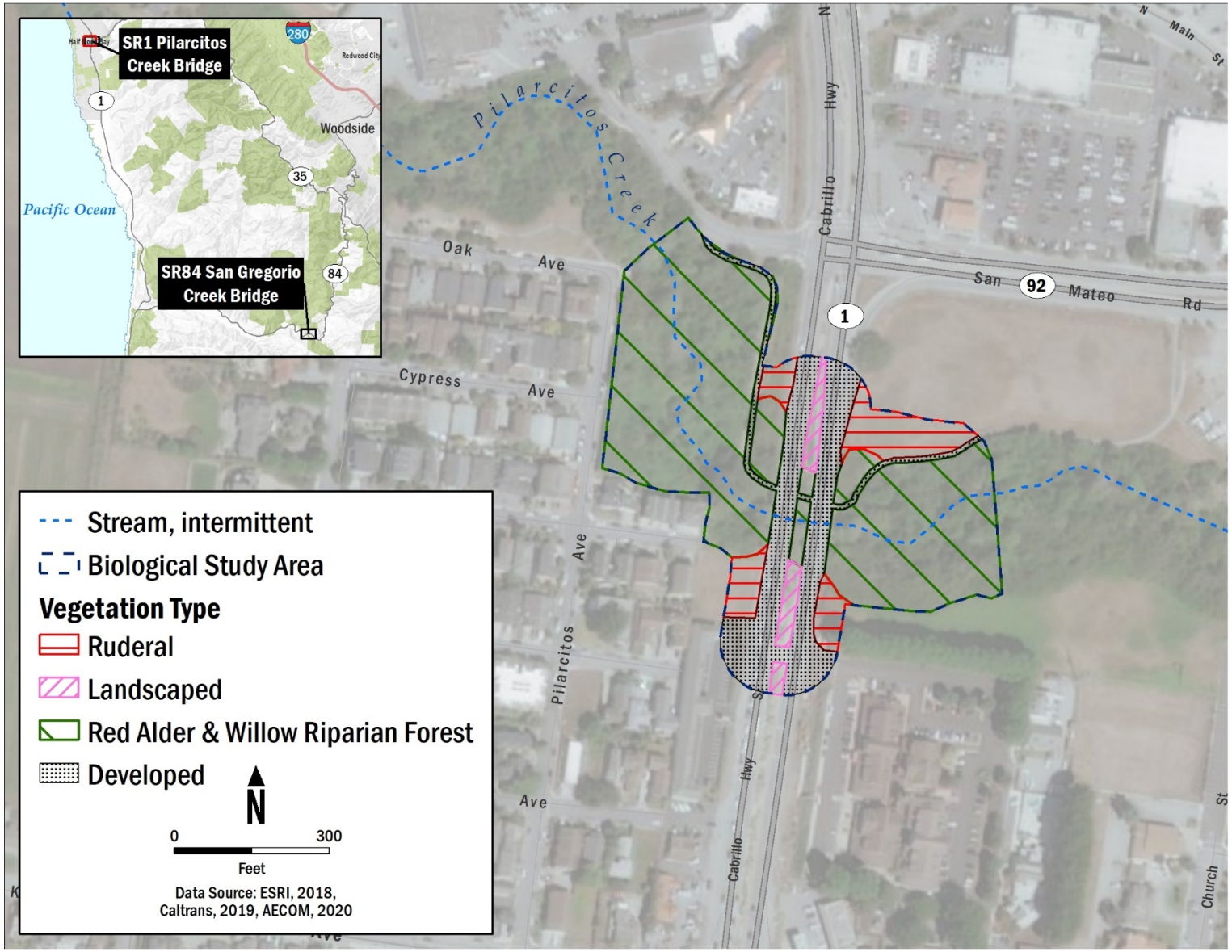

Figure 4 Pilarcitos Creek Bridge Vegetation

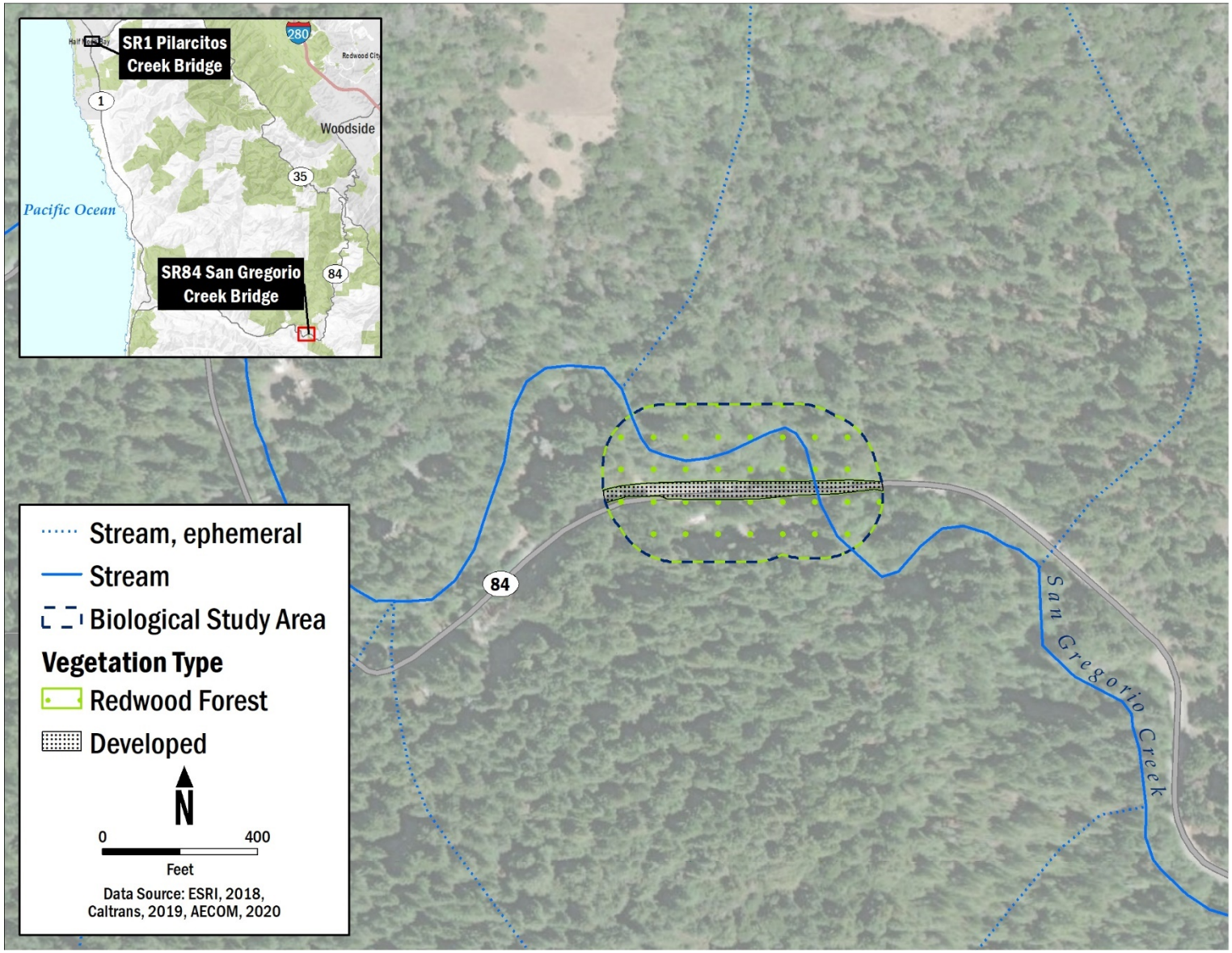

Figure 5 San Gregorio Creek Bridge Vegetation

1.4.2 Existing Facilities

1.4.2.1 Pilarcitos Creek Bridges (Bridge No. 35-0139L/R)

The two bridges (Bridge No. 35-0139 L/R) at Pilarcitos Creek were originally built in 1954. The structures are three-span continuous reinforced-concrete "T" girders (five) on reinforced-concrete pier walls and open-end diaphragm abutments. All are founded on reinforced-concrete piles. Both bridges were widened in 1992. Bridge No. 35-0139 L was widened 8 feet on the left side and Bridge No. 35-0139 R was widened 8 feet on the ride side. Both were widened with three-span continuous reinforced-concrete "T" girders (two) on reinforced-concrete pier walls and reinforced-concrete open-end diaphragm abutments. Each widening is founded on reinforced-concrete piles. The span configurations are 44.25 feet, 58 feet, and 44.25 feet for a total of 146.5 feet. The current bridge widths are 44.75 feet, consisting of 1 feet of bridge rail, 5 feet of sidewalk, 37 feet of roadway, and 1.75 feet of bridge rail.

1.4.2.2 San Gregorio Creek Bridge (Bridge No. 35-0166)

The San Gregorio Creek Bridge No. 35-0166 was built in 1957. The structure is three-span continuous reinforced-concrete "T" girders (five) on reinforced-concrete pier walls and reinforced-concrete diaphragm abutments with monolithic wingwalls. The bents are founded on reinforced-concrete spread footings, and the abutments are founded on steel "H" piles. The span configuration is 30 feet, 40 feet, and 30 feet for a total of 100 feet. The bridge width is 34.5 feet, which consists of 0.25 feet of bridge rail, 34 feet of roadway, and 0.25 feet of bridge rail.

1.4.2.3 Bike and Pedestrian Facilities

At the SR 1 Pilarcitos Creek Bridges location, a portion of the Naomi Partridge Trail crosses below both bridges (left and right) between Abutment 4 and Pier 3. The trail is a Class I shared-use path that runs along the north bank of Pilarcitos Creek (Figure 6) in the project area.

The SR 84 San Gregorio Creek Bridge location has no bike or pedestrian facilities.

Utility relocations are not anticipated at either of the project locations as part of this project and existing utilities are not described.

1.5 Project Funding and Programming

The proposed project is funded through California Senate Bill 1 Program funds for the Highway Bridge Replacement and Rehabilitation Program as a State Highway Operation and Protection Program project.

1.6 Project Description

1.6.1 Work Sequence at Pilarcitos Creek Bridge

- Install construction-area signs.
- Conduct preconstruction biological surveys.
- Install environmentally sensitive area (ESA) fencing.
- Install wildlife exclusion fencing (WEF).

Figure 6 Portion of Naomi Partridge Trail below the Southbound Pilarcitos Creek Bridge between Pier 3 and Abutment 4

- Implement best management practices (BMPs) as appropriate.
- Perform clearing and grubbing.
- Install temporary creek access.
- Install temporary creek diversion system.
- Remove existing logjam at the upstream toe of the proposed partially grouted RSP.
- Excavate around piers and abutments.
- Place RSP.
- Place grout material over RSP.
- Reconstruct the paved public trail.
- Implement permanent erosion control and replacement planting.
- Remove temporary creek diversion system.
- Perform site cleanup.
- Remove construction-area signs.
- Monitor and manage plant establishment (3 years).

1.6.2 Work Sequence at San Gregorio Creek Bridge

- Install construction area signs.

- Conduct preconstruction biological surveys.
- Install ESA fencing.
- Install WEF.
- Implement BMPs as appropriate.
- Perform clearing and grubbing.
- Install temporary creek access.
- Install temporary creek diversion system.
- Excavate around piers and abutments.
- Place RSP.
- Place grout material over RSP.
- Implement permanent erosion control and replacement planting.
- Remove temporary creek diversion system.
- Perform site cleanup.
- Remove construction area signs.
- Monitor and manage plant establishment (3 years).

1.6.3 Mobilization and Temporary Staging

Mobilization and staging areas will be used to store equipment and stockpile materials.

1.6.3.1 Temporary Staging at Pilarcitos Creek Bridges

Staging areas and creek access will be in the median (north and south of the structures) and the public trail running underneath the north end of the structures. There is also a potential stockpiling area southeast of the structures within the existing Caltrans right-of-way (ROW).

1.6.3.2 Temporary Staging at San Gregorio Creek Bridge

Because accessing the creek is difficult, the project proposes that construction will take place under one-way traffic control via flagging. One lane/shoulder will be closed for staging and lowering equipment down to the creek.

1.6.4 Temporary Creek Diversion Systems

A temporary creek diversion system will be required for work at Pilarcitos Creek and San Gregorio Creek. The system will be in place during the proposed in-water work window of June 15 to October 15. The system would be placed within Caltrans' ROW and would include placement of temporary cofferdams upstream and downstream of the construction area, possibly with a temporary diversion pipe running between them. The system would be in place for a single work season and removed after work and before the end of the in-water work window.

1.6.5 Removal of Existing Log Jam at Pilarcitos Creek Bridges

At the Pilarcitos Creek Bridges location only, the existing log jam that is found east of the bridges at the upstream toe of the proposed partially grouted RSP will be removed. This action would occur after site access is established and after the installation of the temporary creek diversion system. This action is not required at the San Gregorio Creek Bridge location.

1.6.6 Excavation and Placement of Partially Grouted RSP and Trail Replacement at Pilarcitos Creek Bridges

Material around Pier 2 and Pier 3 and between Pier 3 and Abutment 4 would be excavated and replaced with partially grouted RSP. Preliminary design areas for placement of partially grouted RSP are shown in Figure 7.

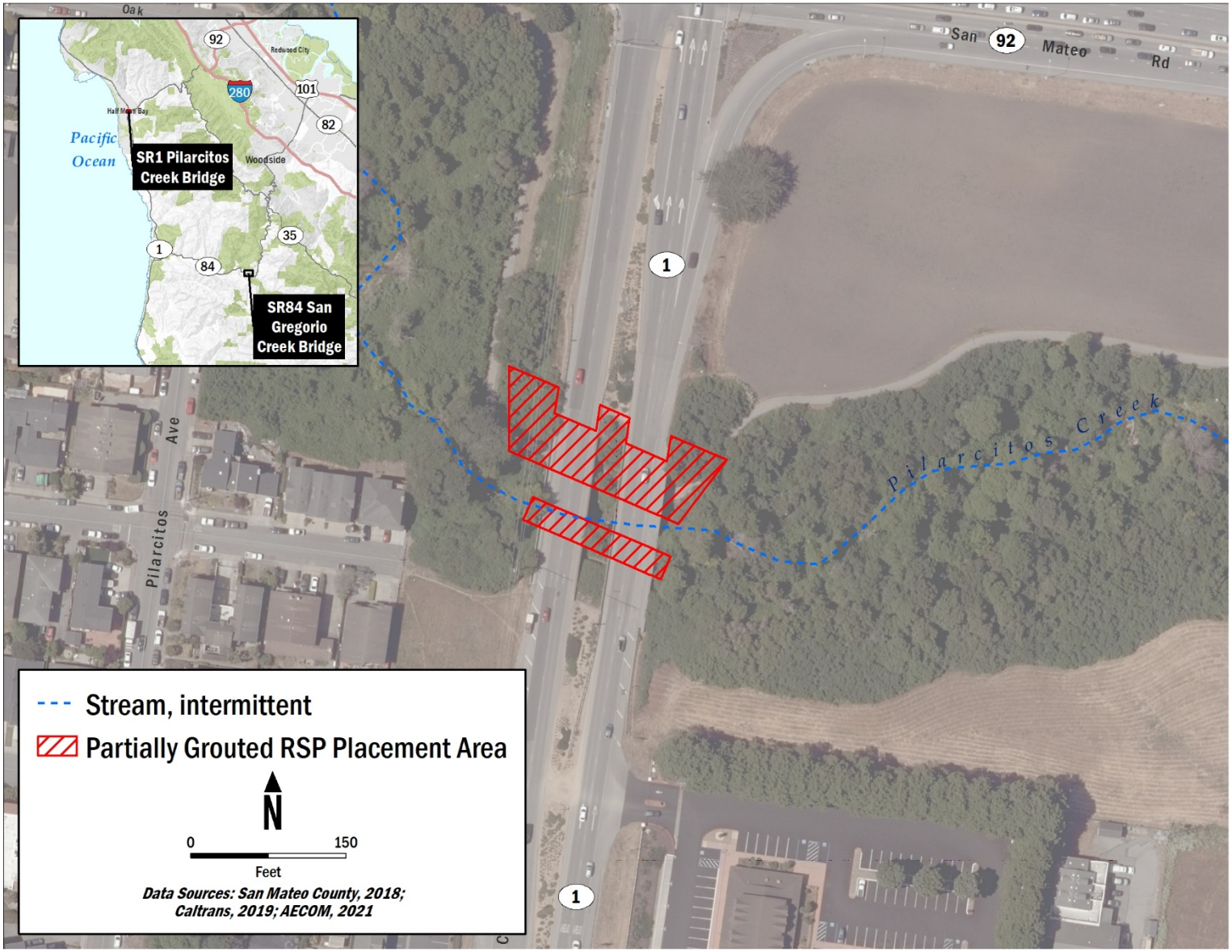

Figure 7 State Route 1 at Pilarcitos Creek Bridges Project Proposed Partially Grouted RSP Placement

1.6.6.1 Partially Grouted RSP Placement

Excavation would be 3 to 5 feet deep, and the partially grouted RSP footprint would be approximately 20,710 square feet (0.48 acre) (Figure 7). A total of 1,430 cubic yards of 15-inch quarry stone would be placed. After placement of the RSP, Portland concrete cement grout would be poured by grout hose, tremie, or automated mechanical means to fill one-third to one-half of the total void space. The partially grouted RSP would remain uncovered.

1.6.6.2 Replacement of Public Trail Below Pilarcitos Creek Bridges

At the Pilarcitos Creek Bridges only, the existing portion of the Naomi Partridge Trail would be replaced in kind after partially grouted RSP placement.

1.6.6.3 Temporary Trail Detour at Pilarcitos Creek Bridge

During construction, the existing Naomi Partridge Trail (Figure 8), which runs below the bridges, would be closed. Pedestrian and bicycle traffic would be rerouted along SR 92 over sidewalks and roads to allow passage across SR 1.

1.6.7 Excavation and Placement of Partially Grouted RSP at San Gregorio Creek Bridges

Material between Abutment 1 and Pier 2 would be excavated and replaced with partially grouted RSP. Preliminary drawings for this location are shown in Figure 9.

1.6.7.1 Partially Grouted RSP Placement

Excavation would be about 2.5 feet deep, and the partially grouted RSP footprint would be around 4,300 square feet (0.10 acre) (Figure 9). Approximately 400 cubic yards of 15-inch quarry stone would be placed. After placement of the RSP, Portland concrete cement grout would be poured by grout hose, tremie, or automated mechanical means to fill one-third to one-half of the total void space. Partially grouted RSP would not be covered.

1.6.8 Site Cleanup and Restoration

Temporarily affected areas would be regraded to preconstruction contours or to match surrounding topography, to the extent practicable and where feasible. Construction-related materials would be removed after construction activities have been completed. The temporarily disturbed areas will be revegetated. Permanent erosion control, including soil stabilization measures such as hydroseeding, coir netting, and non-filament mesh fiber rolls, will be applied to affected areas to minimize erosion after construction has been completed. Creeks would be restored without any grade-control structures.

1.6.9 Equipment

Clearing and grubbing would be completed using hand tools, backhoes, and excavators as needed. A front loader or excavator will be used to load debris into trucks for off-site disposal. Equipment that may be used for excavation and importing materials include backhoes, excavators, trailered trucks, dump trucks, skid steers, drill rigs, concrete trucks and pumps, and watering trucks.

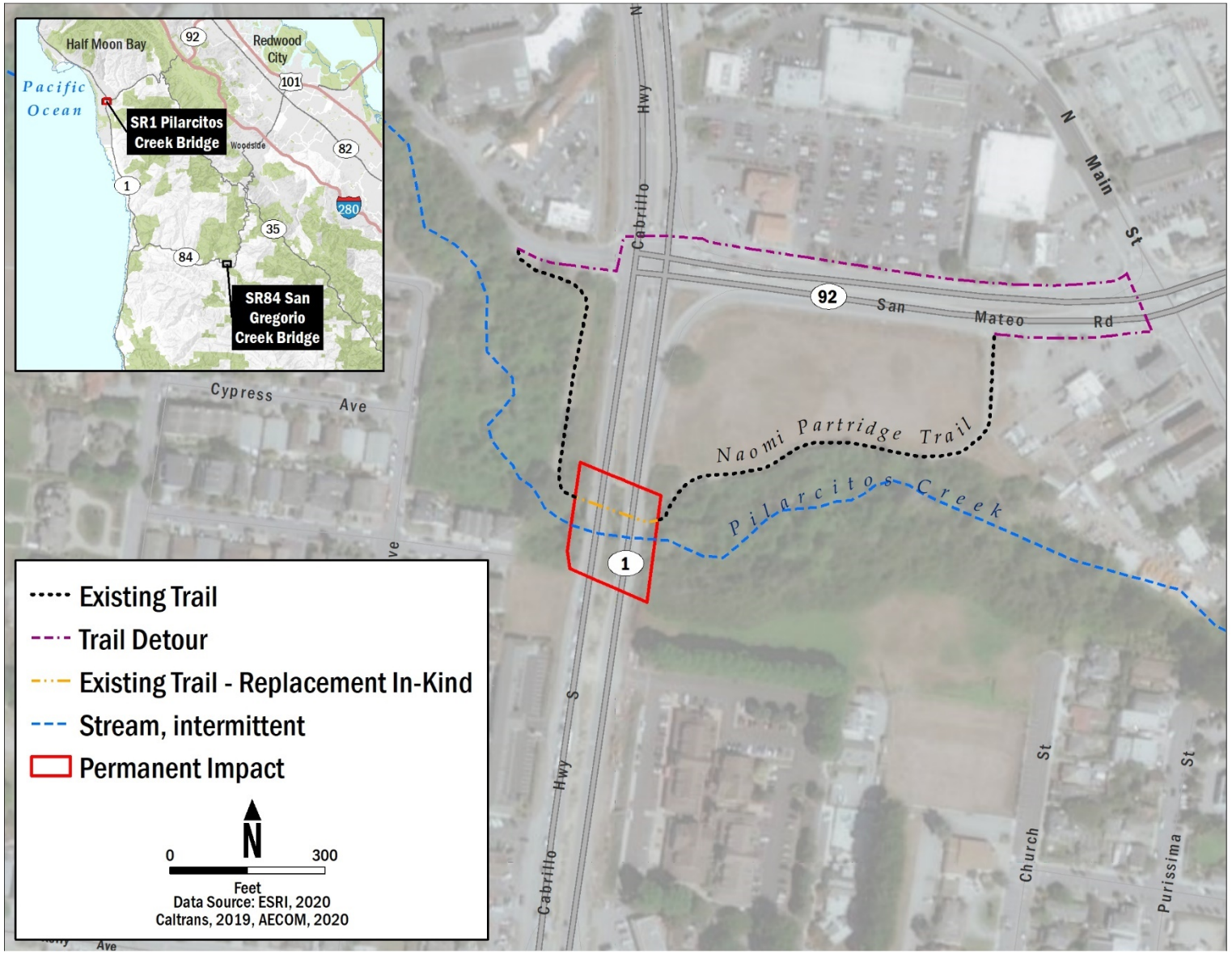

Figure 8 Naomi Partridge Trail Detour

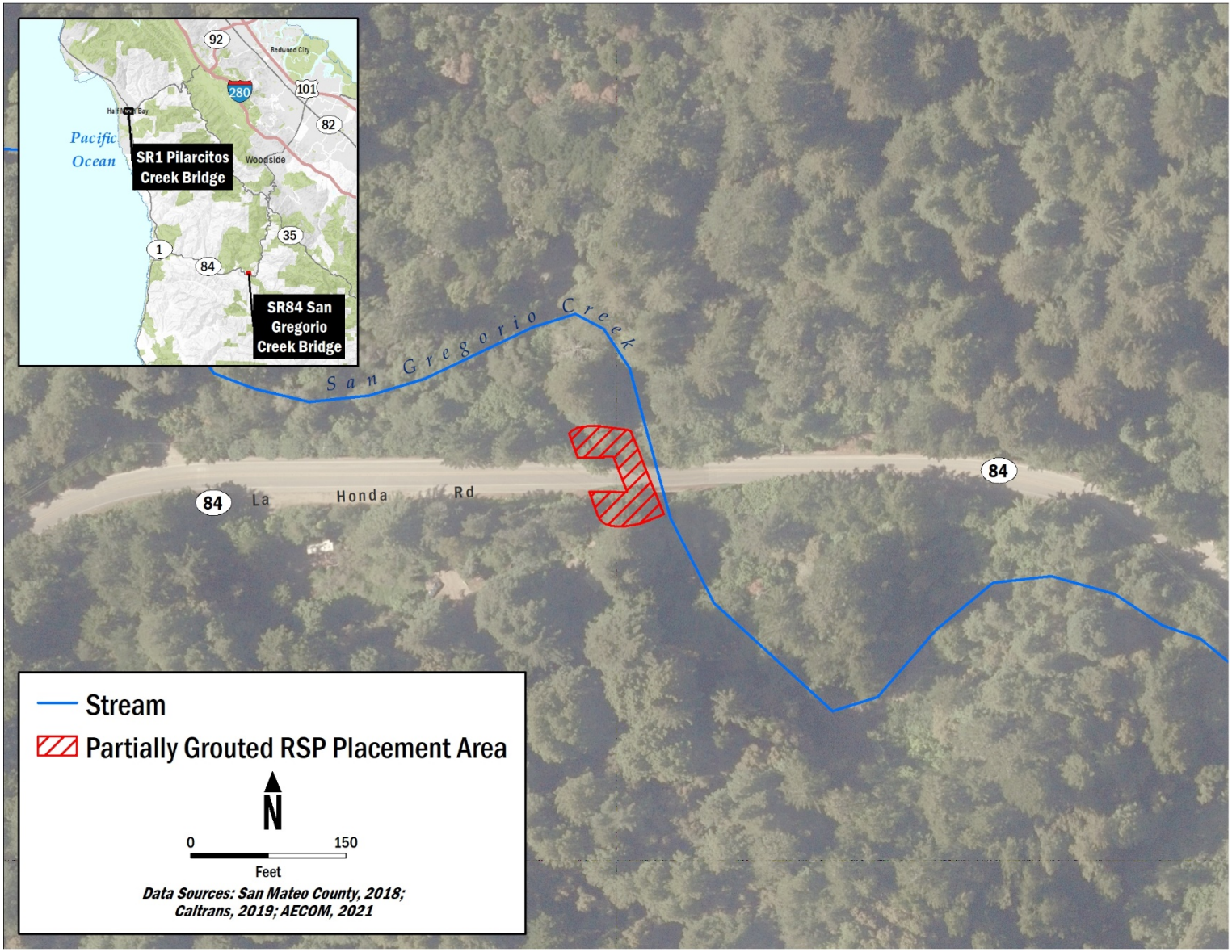

Figure 9 State Route 84 at San Gregorio Creek Bridge Proposed Partially Grouted RSP Placement

1.6.10 Work Durations

Construction would occur from spring 2022 through autumn 2024. Construction would occur during a single work season at each location, but work may not take place concurrently at each location. In-water work would be restricted to a single season of work that would begin June 15 and end October 15. This work window is designed to avoid the wet season when construction activities in the creek would be more likely to impact the stream habitat and when the work area is more likely to be flooded. Construction activities may occur during both daytime and nighttime hours.

1.6.11 Transportation Management Plan for Use During Construction

No long-term roadway closures are proposed. During construction at the San Gregorio Bridge, single-lane and shoulder closures are anticipated because of the difficulty of accessing the creek. Single-lane/median closures and single-lane/shoulder closures are anticipated at the Pilarcitos Creek Bridges during mobilization and demobilization. Closure of the public trail will occur throughout the duration of construction at Pilarcitos Creek.

A traffic management plan (TMP) will be required for this project. A TMP is used to minimize work-related traffic delays by the application of general traffic-handling practices and strategies. A TMP based on a detailed traffic operation analysis will be fully developed in the project's design phase, referred to by Caltrans as the plans, specifications, and estimates (or PS and E) phase of the project to minimize and prevent delays and inconvenience to the traveling public during construction.

The TMP will include press releases that will notify and inform motorists, businesses, community groups, impacted cities, and emergency services of upcoming closures or detours. Various TMP elements such as portable changeable message signs and a construction zone enhanced enforcement program (COZEEP) will be used to alleviate and minimize the impacts of delays on the traveling public.

1.7 Project Features

Project features are design elements and/or standard measures that are incorporated into a project and are intended to reduce environmental effects resulting from proposed project activities. The proposed project contains several standardized project components which are employed on most, if not all, of Caltrans projects and were not developed in response to any specific environmental impact resulting from the proposed Project. These components are referenced as Project Features in this chapter as they pertain to different environmental resources and are separated out from avoidance and minimization measures (AMMs) and Mitigation Measures, which directly relate to the impacts resulting from the proposed project.

Table 1-1 lists the Project Features that would be implemented by Caltrans to reduce or avoid potential impacts to the natural and human environments.

Table 1-1. Project Feature Summary

Resource Area	Project Feature Reference	Project Feature
Biology	Feature BIO-01	**Construction Site Best Management**. The following site restrictions will be implemented to avoid or minimize potential effects on listed species and their habitats, pursuant to Caltrans Standard Specifications and Special Provisions. • Speed Limit. Vehicles will not exceed 15 miles per hour in the project footprint to reduce dust and excessive soil disturbance. • Trash Control. Food and food related trash items will be secured in sealed trash containers and removed from the site at the end of each day. • Pets. Pets will be prohibited from entering the project limits during construction. • Firearms. Firearms will be prohibited within the Project limits, except for those carried by authorized security personnel or local, state, or federal law enforcement officials.
Biology	Feature BIO-02	**Designated Construction Areas, Delineated ESAs, Work Areas, and Equipment and Materials Storage Sites**. Caltrans will delineate construction areas and ESAs (areas containing sensitive habitats adjacent to or within the project limits for which physical disturbance is not allowed) on the final construction plans. The Agency-Approved biologist will be onsite to direct the installation of ESA fencing, flagging, or other approved means of delineation prior to the start of construction, to prevent encroachment of personnel and equipment into sensitive areas during construction. When feasible staging, storage, and parking areas will be in designated areas a minimum of 150 feet from the ordinary high water mark (OHWM) on paved or graveled surfaces within the Caltrans ROW and away from any designated ESAs, to minimize construction impacts to protected resources. Equipment and materials storage sites will also be located as far away from residential uses as practicable. At the discretion of the Approved Biologist, limits will also be defined near other environmentally sensitive locations, such as bird nests, when necessary. The ESA fencing, flagging, or other material will be removed when construction activities are complete in the immediate vicinity. Erosion control materials that use plastic or synthetic monofilament netting will not be used in the project area.
Biology	Feature BIO-03	**Bird Protection Measures**. To avoid take of migratory birds during the bird nesting season (February 1 to September 30), vegetation removal will only occur between October 1 and January 31 to the extent practicable. Vegetation trimming, or removal will not occur outside of the project footprint. Agency approved biologists will conduct preconstruction nesting bird surveys no more than three days prior to construction. If an active nest is discovered during construction, work within 50 feet of the nest of passerine species or 300 feet for raptor species will be avoided and an Approved Biologist will be contacted to investigate, upon inspection the Approved Biologists will identify the bird to species, establish an appropriate exclusion buffer around the nest, and implement protective measures during construction. The area within the buffer will be avoided and monitored until the young are no longer dependent on the adults or the nest is no longer active. If a nesting special-status bird species is discovered, an Approved Biologist will notify the USFWS and/or CDFW for further guidance. Partially constructed and inactive nests will be removed to prevent occupation. Exclusion methods will be used to prevent migratory birds from nesting and roosting within the project area (February 1 to September 30).
Biology	Feature BIO-04	**Biologist Authority to Stop Construction**. The Approved Biologist will stop work, as directed by the RE, in the vicinity of any protected species that are discovered. Work will not begin again until the individual species is either relocated by the monitor or moves out of harm's way by itself.

Resource Area	Project Feature Reference	Project Feature
Biology	Feature BIO-05	**Restoration/Revegetation of Disturbed Areas**. Upon project completion, all temporarily disturbed previously vegetated areas will be contoured to preconstruction grades, where appropriate, and replanted with appropriate native vegetation as described in the revegetation plan.
Biology	Feature BIO-06	**Reduce Spread of Invasive Species**. Noxious weeds will be controlled within the project construction site in accordance with Caltrans' Highway Design Manual Topic 110.5, "Control of Noxious Weeds – Exotic and Invasive Species," and Executive Order 13112 (Invasive Species), and by methods approved by a Caltrans' landscape architect or vegetation control specialist.
Biology	Feature BIO-07	**Avoidance of Entrapment**. To prevent inadvertent entrapment of animals during construction, excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day using plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they must be thoroughly inspected for trapped animals. Pipes, culverts, or similar structures stored in the project limits overnight will be inspected before they are subsequently moved, capped, and/or buried.
Biology	Feature BIO-08	**Temporary Lighting During Construction**. All construction lighting will be limited to within the area of work. Should nighttime work be necessary, all lighting will be directed downwards and towards active construction areas. When nighttime work cannot be avoided, disturbance of listed species will be avoided and minimized by restricting substantial use of temporary lighting to the least sensitive seasonal and meteorological windows. Lights on work areas will be shielded and focused to minimize lighting of listed-species habitat. Construction personnel will turn portable tower lights on no more than 30 minutes before the beginning of civil twilight, and off no more than 30 minutes after the end of civil sunrise. Lighting per portable tower light will not exceed 2,000 lumens.
Cultural	Feature CUL-1	**Discovery of Cultural Resources**. If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a Caltrans qualified archaeologist can assess the nature and significance of the find.
Cultural	Feature CUL-2	**Discovery of Human Remains**. If remains are discovered during excavation, all work within 60 feet of the discovery will halt and Caltrans' Cultural Resource Studies office will be called. Caltrans' Cultural Resources Studies Office Staff will assess the remains and, if determined human, will contact the County Coroner as per Public Resources Code (PRC) Sections 5097.98, 5097.99, and 7050.5 of the California Health and Safety Code. If the Coroner determines the remains to be Native American, the Coroner will contact the Native American Heritage Commission who will then assign and notify a Most Likely Descendant. Caltrans will consult with the Most Likely Descendant on respectful treatment and reburial of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.
Noise	Feature NOI-1	**Maintaining Internal Combustion Engines**. All internal combustion engines will be maintained properly to minimize noise generation.
Noise	Feature NOI-2	**Idling of Internal Combustion Engines**. Unnecessary idling of internal combustion engines will be avoided within 100 feet of sensitive receptors
Transportation and Traffic	Feature TRA-1	**Traffic Management Plan (TMP).** A TMP will be developed by Caltrans. The TMP will include elements such as haul routes, one-way traffic controls to minimize speeds and congestion, flag workers, and phasing, to reduce impacts to residents as feasible and maintain access for police, fire, and medical services in the local area. Temporary pedestrian and bicyclist access will be provided during construction.

Resource Area	Project Feature Reference	Project Feature
Visual Aesthetic	Feature VIS-1	**Visual Integrity**. To maintain the visual integrity of the area the following measures will be implemented on site: • All disturbed ground surfaces shall be restored and treated with erosion control. • Existing Vegetation shall be preserved to the maximum extent feasible. • All other impacted vegetation shall be evaluated for replacement. Depending on the extent of removal, a one-year plant establishment period may be required. • During Construction operations, unsightly material and equipment in staging areas shall be placed where they are less visible and/or covered when possible.
Waters/Water Quality	Feature WQ-1	**Water Quality BMPs**: The contractor will adhere to the instructions, protocols, and specifications, outlined in the most current Caltrans Construction Site Best Management Practices Manual and Caltrans Standard Specifications. At a minimum, protective measures will include the following: • Disallowing discharging of pollutants from vehicle and equipment cleaning into storm drains or watercourses. • Storing or servicing vehicles and construction equipment including fueling, cleaning and maintenance at least 50 feet from aquatic habitat unless separated by a topographic or drainage barrier. • Maintaining equipment to prevent the leakage of vehicle fluids such as gasoline, oils, or solvents and developing a spill response plan. 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 aquatic habitats. • Collecting and disposing of concrete wastes and water from curing operations in appropriate washouts located at least 50 feet from watercourses. • Covering temporary stockpiles. • Installing coir rolls or straw wattles along or at the base of slopes during construction to capture sediment. • Protecting graded areas from erosion using a combination of silt fences, fiber rolls, and erosion control netting (jute or coir) as appropriate.

1.8 Preferred Alternative

The project analyzed in this IS, placing partially grouted RSP around the bridge piers and stream banks below bridges, has been identified as the preferred alternative. At the Pilarcitos Creek Bridges, an existing log jam just upstream of the bridge piers will be removed, partially grouted RSP will be placed around piers of the northbound and southbound bridges and will replace the earth stream bank, and slope. The existing public trail along the north bank of Pilarcitos Creek will be removed during construction and replaced in kind at project completion. At the San Gregorio Creek Bridge, partially grouted RSP will be placed under the west end of the bridge along the slope between Pier 2 and Abutment 1 to restore the slope to a ratio no steeper than 1.5 horizontal to 1.0 vertical; and to construct a key around Pier 2 that will be filled with partially grouted RSP to protect the pier from erosion.

Selection of the preferred alternative will meet the project's purpose and need to restore both bridges to their serviceable condition, protect structural integrity and enhance highway safety at both project locations. The preferred alternative is expected to remediate the existing structural risks incurred by the scoured piers and stream banks at both project locations.

1.9 Alternatives Considered but Eliminated from Discussion Prior to the Draft Initial Study

Caltrans considered use of non-grouted RSP at both locations as a construction method variant to the preferred alternative. When examining this construction method for RSP placement in preliminary designs, it appeared to require a substantial increase to the area and elevation of RSP placement in the creek channel, with no increase in benefits. Permanent environmental impacts associated with placement of non-grouted RSP were determined to be greater than placement of partially grouted RSP, particularly at the Pilarcitos Creek Bridges location, and were not further pursued. Caltrans considered use of temporary access and staging areas at the San Gregorio Creek Bridge location within the ROW where forest cover occurs. Caltrans determined that impacts to natural resources would be too great and could be avoided through accessing the site from the bridge deck by lowering equipment to the work area below. Caltrans has removed the staging areas at San Gregorio Creek location that were within forested areas from the proposed project. A staging area at San Gregorio Creek in the developed road shoulder will be used with no impacts to forest habitat.

The only other alternative considered is the no-build alternative. The no-build alternative would not address the existing scour at both bridge locations and would not remedy the structural risks identified in the bridge reports that make these structures scour critical; scour risks would continue and become worse under the no-build alternative and would risk highway safety. The no-build alternative does not satisfy the purpose and need of this project.

1.10 Permits and Approvals

Prior to construction activities, the proposed project will require the environmental permits, authorizations, or agreements shown in Table 1-2.

Table 1-2 Anticipated Environmental Permits, Authorizations or Agreements

Issuing Agency	Permit, Authorization or Agreement	Impacted Resource
U.S. Army Corps of Engineers	Section 404 Clean Water Act Permit	Waters of the United States
San Francisco Regional Water Quality Control Board	Section 401 Water Quality Certification under the Clean Water Act	Waters of the state
National Marine Fisheries Service	Section 7 consultation and essential fish habitat consultation under the federal Endangered Species Act and Magnuson-Stevens Fishery Conservation and Management Act Consultation, respectively	Coho Salmon-Central California Coast evolutionarily significant unit (ESU); steelhead-Central California Coast distinct population segment (DPS); and essential fish habitat
U.S. Fish and Wildlife Service	Section 7 consultation under the federal Endangered Species Act	California red-legged frog (*Rana draytonii*); and marbled murrelet (*Brachyramphus marmoratus*)
California Department of Fish and Wildlife	Lake and Streambed Alteration Agreement under the Fish and Game Code Section 1602	Pilarcitos Creek and associated riparian habitat; and San Gregorio Creek and associated riparian habitat.
City of Half Moon Bay Local Coastal Plan / California Coastal Commission	Coastal Development Permit (CDP) at the Pilarcitos Location	Local Coastal Plan and California Coastal Commission jurisdictional riparian areas at Pilarcitos Creek. A CDP application is not required at the San Gregorio Creek Bridge (outside of the California Coastal Zone).

Chapter 2 California Environmental Quality Act Evaluation

2.1 Determining Significance under CEQA

The proposed project is subject to state environmental review requirements. Project documentation has been prepared in compliance with CEQA. Caltrans is the lead agency under CEQA. This chapter evaluates potential environmental impacts of the proposed project, as described in Chapter 1 as they relate to the CEQA checklist to comply with State CEQA Guidelines (Title 14 California Code of Regulations, Division 6, Chapter 3, Section 15091).

2.2 CEQA Environmental Checklist

This checklist (presented at the beginning of each resource section below in the form of a table listing the pertinent questions applicable to the resource and four columns where the degree of impact is indicated) identifies physical, biological, social, and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the project will indicate that there are no impacts on a particular resource. A “YES” response to the “No Impact" answer in the last column reflects this determination. The words "significant" and "significance" used throughout the following checklist are related to CEQA impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Project features, which can include both design elements of the project and standardized measures that are applied to all or most Caltrans projects, such as BMPs and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any of the significance determinations documented below (see Section 1.7 for a detailed discussion of these features). All proposed AMMs and/or mitigation measures are provided in Appendix B.

2.2.1 Aesthetics

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

a) No Impact at the Pilarcitos Creek Bridges and No Impact at the San Gregorio Creek Bridge

The Naomi Partridge Trail is a pedestrian trail that passes under the Pilarcitos Creek Bridges and has a view of the project location. The trail would be temporarily closed and rerouted during one construction season. The trail would be replaced in kind and reopened at the completion of construction. Trees and riparian vegetation would be restored upon project completion. The proposed project at Pilarcitos Creek does not exist in an area designated as a scenic corridor, and the project site is not visible from the roadway. During construction the presence of equipment and construction materials in the median will be noticeable to vehicular travelers, but this will be temporary and is therefore considered to have no impact.

The proposed project at the San Gregorio Creek Bridge is within San Mateo County's State Highway 84/Portola State Park Road/Pescadero Creek/Alpine Road/La Honda Road designated scenic corridor. Except for temporary signage and temporary lane closures needed to access the site, work at this location would occur under the existing bridge and would not be visible from the roadway. The project changes will be noticeable in the short term but will not adversely affect visual character and quality in a lasting way. Because the changes are temporary and are not readily visible from the roadway or other publicly accessible location, there is no impact.

b) No Impact at Both Project Locations.

Neither of the locations is within a designated state scenic highway location, and other scenic resources are absent.

c) Less-Than-Significant Impact with Mitigation Incorporated at Pilarcitos Creek Bridges and No Impact at the San Gregorio Creek Bridge

At the SR 1 Pilarcitos Creek Bridges location, the project would temporarily impact the planted median between the bridges, the riparian habitat along the Naomi Partridge Trail that runs below the bridges, and the trail itself. The project location is in the California Coastal Zone and is subject to the City of Half Moon Bay's (City) General Plan and the Local Coastal Plan. The City's General Plan characterizes riparian corridors as positive attributes in recreational areas, and degraded trails and fences as negative attributes and conditions. The existing trail is currently seen as a degraded resource with low usage by the public due to ongoing health and safety concerns at the site associated with homeless camps and the dumping of debris into the riparian area and trail. The existing trail fencing at the project site is currently in poor condition and in need of replacement. The affected portion of the trail and all associated fencing would be replaced in-kind following construction.

The proposed project would impact the riparian corridor through removal of existing riparian trees and vegetation and by placement of partially grouted RSP in riparian areas. The proposed project would temporarily impact the public's usage of the trail during construction. Planting within the median would also be impacted by vegetation removal.

A planting plan and a 3-year plant establishment and monitoring plan would be implemented at construction completion to help restore the vegetated creek setting and the median planting. With the replacement vegetation proposed at the Pilarcitos Creek Bridges location, these impacts are mitigated to a less-than-significant level.

No public views of the project are present at the San Gregorio Creek Bridge location, and therefore visual character and quality would not be impacted.

d) No Impact at Both Project Locations

No project elements are proposed that would create daytime or nighttime glare.

2.2.2 Agriculture and Forestry Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	NO	NO	NO	YES
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	NO	NO	NO	YES
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	NO	NO	NO	YES
d) Result in the loss of forest land or conversion of forest land to non-forest use?	NO	NO	NO	YES
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use or conversion of forest land to non-forest use?	NO	NO	NO	YES

a) through e) No Impact at Both Project Locations

At both locations the project would not convert Farmland of Statewide Importance (Farmland) to nonagricultural use. The project footprint does not contain land under the Williamson Act. No Prime Farmland occurs in the project area. The project does not conflict with existing zoning for agricultural use, forest lands, timberland, or timberland-zoned production. There will be no loss or conversion of forest land to non-forest land or any other changes to the existing environment that would convert Farmland to nonagricultural use or forest land to non-forest use.

2.2.3 Air Quality

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	NO	NO	NO	YES
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard?	NO	NO	YES	NO
c) Expose sensitive receptors to substantial pollutant concentrations?	NO	NO	YES	NO
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	NO	NO	NO	YES

a) No Impact at Both Project Locations

The project sites are in the San Francisco Bay Area Air Basin and are within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD) and the California Air Resources Board (CARB). The proposed project would not interfere with any of the control measures described in the BAAQMD's clean air plan, *Spare the Air, Cool the Climate* (2017*)*. The project is not a capacity-increasing project, and therefore it is not included in the current Regional Transportation Plan (RTP), *Plan Bay Area 2040* (MTC and 2017). Nonetheless, the project would not interfere with the implementation of goals set forth in the RTP. Furthermore, the project is federally exempt from the requirement to determine air quality conformity (40 Code of Federal Regulations [CFR] 93.126) because it is a project that would correct, improve, or eliminate a hazardous feature (i.e., the scoured pier walls at Pilarcitos Creek Bridges and bank erosion at San Gregorio Creek Bridge). During the operation of the project, air emissions would not be changed from existing levels. The project would not conflict with or obstruct implementation of the applicable air quality plan.

b) Less-Than-Significant Impact at Both Project Locations

During construction of the project, there would be temporary air emissions from the use of gas- and diesel-powered construction equipment and vehicles. However, due to the relatively small size and scope of the project, a substantial amount of pollutants would not be generated. The County of San Mateo is in nonattainment in 2020 for 8-Hour Ozone (2008), 8-Hour Ozone (2015), and particulate matter less than 2.5 microns in size (PM2.5) (2006) (U.S. EPA 2020). The project would comply with federal and state ozone standards. It would not increase criteria pollutants or mobile source air toxics over existing conditions or exceed the BAAQMD's recommended thresholds for construction emissions. The project would not result in a cumulatively considerable net increase of ozone or PM2.5. Therefore, the project would not cause or contribute to any state or federal air quality violations for criteria air pollutants. Furthermore, the project would not contribute substantially to an existing or a projected air quality violation.

c) No Impact at Both Project Locations

The proposed project would generate a less-than-significant amount of pollutants during construction. During the operation of the project, air emissions would not be changed from existing levels (no change in long-term traffic volumes). Therefore, the project would not expose sensitive receptors to substantial pollutant concentrations.

d) No Impact at Both Project Locations

The project would not introduce odors that are not already associated with existing traffic.

2.2.4 Biological Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, or U.S. Fish and Wildlife Service, or National Oceanic and Atmospheric Administration/National Marine Fisheries Service?	NO	YES	NO	NO
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	NO	YES	NO	NO
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	NO	YES	NO	NO
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	NO	YES	NO	NO
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	NO	NO	NO	YES
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	NO	NO	NO	YES

a) Less than Significant with Mitigation Incorporated

Caltrans has completed a Natural Environment Study for the proposed project to examine protected species, habitat and natural resources with potential to occur in the project's biological study area (BSA); to determine potential impacts to those resources; to establish appropriate measures to avoid and minimize potential impacts; and to propose compensatory mitigation for unavoidable impacts, as necessary.

The project has potential to impact special-status animal species and their habitats through the removal of riparian habitat, soil disturbance, alteration of existing in-stream habitat, temporary creek diversion, placement of RSP, and movement of heavy equipment through the construction area.

Proposed AMMs to mitigate potential impacts are provided in Appendix B. Lists of species and habitats examined from the USFWS and NMFS databases and the California Natural Diversity Database (CNDDB) and their potential to occur are included as Appendix A. The

following conclusions for these species are summarized below, including their protected status under federal and state laws:

Federal Endangered Species Act, Species and Designated Critical Habitat

Federally Listed Species

The proposed project has the potential to have adverse effects on the following federally listed species and their habitats:

- California red-legged frog (*Rana draytonii*): federally threatened (FT)
- Central California Coast Coho Salmon (*Oncorhynchus kisutch*) evolutionarily significant unit (ESU): federally endangered (FE) and state endangered (SE)
- Central California Coast steelhead (*Oncorhynchus mykiss*) distinct population segment (DPS): FT

The following federally listed species has potential to occur in the project area. However, the proposed project would not have an adverse effect on the:

- Marbled murrelet (*Brachyramphus marmoratus*): FT and SE

No federally listed plant species were observed at either location during the floristic surveys.

Designated Critical Habitat

Federally designated critical habitat is present in the Pilarcitos Creek BSA for the following:

- Central California Coast Coho Salmon ESU
- Central California Coast steelhead DPS

The proposed project is not likely to adversely affect critical habitat for either species in the Pilarcitos Creek BSA.

DCH is present in the San Gregorio Creek BSA for:

- California red-legged frog
- Marbled murrelet
- Central California Coast Coho Salmon ESU
- Central California Coast steelhead DPS

Potential Project Effects on Federally Listed Species and Critical Habitat

California Red Legged Frog. The proposed project has the potential to adversely affect individual California red-legged frogs that occur at the project site during construction, which may result in injury, mortality or harassment. Project effects to California red-legged frog include ground disturbance from tree and vegetation removal. Indirect effects to the species may occur from construction-related dust, increases in noise, and impacts to water quality during construction. Effects may occur wherever permanent or temporary construction impacts occur, including areas where there is vehicle/equipment staging and access. Estimated permanent project impacts to both upland/dispersal habitat and aquatic nonbreeding habitat at the Pilarcitos Creek site are estimated to include 0.18 acre of upland/dispersal habitat and 0.15 acre of aquatic non-breeding habitat; and at San Gregorio Creek site are estimated to be 0.13 acre of upland/dispersal habitat, 0.04 acre of aquatic non-

breeding habitat, and 21 square feet (less than 0.01 acre) of potential aquatic breeding habitat. Additionally, an estimated 29 square feet (less than 0.01 acre) of upland/dispersal habitat would be temporarily impacted during construction. Avoidance and minimization such as seasonal avoidance, pre-construction surveys, and relocation are included in Appendix B.

Critical habitat for California red legged frog includes the loss of 0.07 acre of permanent loss or degradation (0.02 acres of non-breeding habitat, and 0.05 acres of upland habitat) and 0.19 acre of temporary impacts to aquatic non-breeding habitat and 0.42 acre of upland habitat at San Gregorio Creek. No critical habitat for California red legged frog exists at the Pilarcitos Creek location. Effects to the California red-legged frog critical habitat would be insignificant and discountable considering the substantial amount of non-breeding aquatic and upland habitat available for the local population, and the restoration of temporarily impacted areas.

Central California Coast Coho Salmon. Coho habitat occurs only at the San Gregorio location. Direct effects of the project to coho salmon habitat include placement of partially grouted RSP in aquatic habitat, tree removal, vegetation removal, ground disturbance and subsequent changes to hydrology, water quality, substrate, habitat complexity, and tree canopy cover. Indirect effects to the species may occur from construction-related dust, increases in noise, and impacts to water quality during construction. AMMs for fish passage, fish relocation, fish habitat, and seasonal avoidance are summarized in Appendix B.

Effects to critical habitat for coho are anticipated to be insignificant and discountable.

Central California Coast Steelhead. Direct effects of the project to steelhead habitat include placement of partially grouted RSP in aquatic habitat, tree removal, vegetation removal, ground disturbance and subsequent changes to hydrology, water quality, substrate, habitat complexity, and tree canopy cover. Indirect effects to the species may occur from construction-related dust, increases in noise, and impacts to water quality during construction. AMMs for fish passage, fish relocation, fish habitat, and seasonal avoidance are summarized in Appendix B.

Effects to steelhead critical habitat include tree removal and placement of partially grouted RSP near bridge abutments and piers, which could reduce habitat suitability in both the Pilarcitos Creek and San Gregorio Creek BSA. Tree removal impacts shading to the creek and the recruitment of large woody debris or root systems that provide habitat complexity and shelter for rearing juveniles.

Marbled Murrelet. Marbled murrelet are absent from the Pilarcitos Creek Bridge BSA and would experience no effect from project activities. In the San Gregorio Creek Bridge BSA, increased noise generated primarily by excavators, large vehicles, and chainsaw operation could result in effects to individuals at that site. Upon completion of the project, all habitat qualities and functions that existed prior to disturbance would continue to support marbled murrelet. Take by harassment of individuals due to noise disturbance, although possible, is not anticipated. The proposed project would not adversely affect critical habitat for marbled murrelet.

Determination for Federally Listed Species and Habitats

With implementation of the project features and the proposed AMMs in Appendix B,

potential impacts to federally listed species and critical habitat would be less than significant with mitigation incorporated. Implementation of project features in Section 1.7 and the general and specific AMMs in Appendix B would mitigate any potential impacts to federally listed species and DCH to less than significant.

California Endangered Species Act Species and Habitat

California Endangered Species Act Listed Species

State-listed species are not expected to occur at the Pilarcitos Creek Bridges location. No state-protected plant species were observed at either location during the floristic surveys.

State-listed species that have the potential to occur in the project BSA at the San Gregorio Creek location include:

- Marbled murrelet: FT and SE
- Central California Coast Coho Salmon ESU: SE
- Foothill yellow-legged frog (*Rana boylii*): SE

No state-level take of California Endangered Species Act (CESA) species is anticipated. However, if necessary, Caltrans would apply for an Incidental Take Permit pursuant to CESA and CFGC Section 2081.

Potential Effects on State-Listed Species

Potential effects to Marbled Murrelet and Central Coast Coho Salmon are summarized under federal species above.

Foothill Yellow Legged Frog. The proposed project has the potential to capture or kill foothill yellow-legged frog that occur at the project site during construction. Potential project impacts to foothill yellow-legged frog habitat include ground disturbance from tree and vegetation removal. Indirect impacts to the species may occur from construction-related dust, increases in noise, and impacts to water quality during construction. Effects may occur wherever permanent or temporary construction impacts occur, including areas where there is vehicle/equipment staging and access. Pre-construction surveys, biological monitoring and other measures are proposed in Appendix B.

Creek and Riparian Habitat

The project would have permanent impacts to riparian habitat at both locations, including removal of trees and vegetation, hardening of stream banks via the placement of partially grouted RSP, ground disturbance, and pruning. Temporary impacts include disturbance caused by heavy equipment and construction or effects to water quality. The proposed project would potentially impact 0.22 acre of riparian habitat. Impacts to creek habitat are covered in response to Section 2.2.4 Item C below.

Coordination with CDFW will occur during the design phase, for a California Fish and Game Code (CFGC) Section 1602 Lake and Streambed Alteration Agreement.

Determination for State-Listed Species and Habitats

Implementation of the project features in Section 1.7 and the general and specific AMMs in Appendix B would mitigate any potential impacts to state-listed species to less than significant.

State Species of Special Concern

A State Species of Special Concern (SSC) is a species, subspecies, or distinct population of an animal (e.g., fish amphibian, reptile, bird or mammal) native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria:

- is extirpated from the state or, in the case of birds, is extirpated in its primary season or breeding role;
- is listed as federally, but not state, threatened or endangered;
- meets the state definition of threatened or endangered but has not formally been listed;
- is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status;
- has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for state threatened or endangered status (CDFW 2020).

SSC have potential to occur at both project locations.

SSC at Pilarcitos Creek Bridges location

At Pilarcitos Creek Bridges, there is potentially suitable habitat for the following SSC:

- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*): Moderate potential to occur.
- Western pond turtle (*Actinemys marmorata* and *Clemmys marmorata pallida*): Low potential to occur.

SSC at San Gregorio Creek Bridges location

At the San Gregorio Creek Bridge, there is potentially suitable habitat for the following SSC:

- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*): Moderate potential to occur.
- Western pond turtle (*Actinemys marmorata* and *Clemmys marmorata pallida*): Low potential to occur.
- Santa Cruz black salamander (*Aneides niger*): Moderate potential to occur.
- Pallid bat (*Antrozous pallidus):* Low potential to occur.

Determination for SSC

Proposed AMMs and project features would reduce any potential impacts to negligible for SSC. Implementation of the project features in Section 1.7 and the general and specific AMMs in Appendix B would mitigate any potential impacts to SSC to less than significant.

b) Less than Significant with Mitigation Proposed at Both Locations.

Habitats and Natural Communities of Special Concern

Vegetation communities are ranked based on their global and state rarity. Impacts to sensitive natural communities identified in local or regional plans, policies, and regulations, or by the CDFW or USFWS, must be considered and evaluated under CEQA (California Code of Regulations, Title 14, Division 6, Chapter 3). For this Initial Study, sensitive vegetation communities are defined as those that are considered vulnerable, imperiled, or critically imperiled in California. These areas contain native plant communities that are regarded by CDFW as having special significance under CEQA. The vegetation communities identified in the BSA that are considered natural communities of conservation concern by CDFW include the red alder and willow riparian forest (at Pilarcitos Creek BSA) and the redwood forest (at the San Gregorio BSA). Both the red alder and willow riparian forest and the redwood forest are considered sensitive under CEQA.

Redwood Forest

With the exception of the developed roadway (SR 1 and the bridge), the San Gregorio Creek BSA is entirely comprised of redwood forest, dominated in the tree canopy by redwood (*Sequoia sempervirens*), bigleaf maple (*Acer macrophyllum*), California bay (*Umbellularia californica*), Douglas fir (*Pseudotsuga menziesii*), and red and white alder (*Rubus* spp.). Tan oak (*Notholithocarpus densiflorus*) is abundant in the shrub layer, along with other understory shrubs and vines, including California blackberry (*Rubus ursinus*), English ivy (*Hedera helix*), sword fern (*Polystichum munitum*), and French broom (*Genista monspessulana*). The redwood forest in the BSA is characterized by second growth or younger redwood trees that are modest in height but provide great shade and habitat for a wide variety of wildlife species. This vegetation community is considered a sensitive natural community by CDFW.

Red Alder and Riparian Forest

This vegetation type encompasses the entire vegetated area beneath the Pilarcitos Creek Bridges and the entire riparian corridor in the BSA adjacent to Pilarcitos Creek. The riparian vegetation community canopy is dominated by red alder (*Alnus rubra*), Arroyo willow (*Salix lasiolepis*), and red willow (*Salix laevigata*) thickets that encompass the tree/shrub layer. These tree species provide shade and habitat in the creek and riparian zone. The understory of this vegetation community is almost completely covered in vines, particularly invasive Himalayan blackberry (*Rubus armeniacus*) and cape ivy (*Delairea odorata*), with also some native California blackberry. A few other invasive shrubs exist, including the Jubata grass (*Cortaderia jubata*), poison hemlock (*Conium maculatum*), and, closer to the low flow channel of Pilarcitos Creek, nasturtium (*Tropaeolum majus*). This vegetation community is considered a sensitive natural community by CDFW.

The proposed project would have direct impacts to the vegetation communities, including removal of trees and vegetation, ground disturbance, and pruning. Indirect impacts include disturbance caused by heavy equipment and construction. The acreages of the sensitive natural communities that would be impacted by the project include 0.32 acre of red alder and willow riparian forest at the Pilarcitos site, and 0.09 acre of redwood forest impacts at the San Gregorio site. Upon project completion, all temporarily disturbed vegetated areas will be contoured to preconstruction grades, where appropriate, and replanted with appropriate native vegetation.

Determination for Habitats and Communities of Natural Concern

Implementation of project features in Section 1.7 and the general and specific AMMs in Appendix B would mitigate any potential impacts to habitat and natural communities of special concern to less than significant.

Trees

A total of 108 trees were surveyed at the Pilarcitos Creek project site, and 98 trees at the San Gregorio Creek project site. All trees surveyed are native to California. The Pilarcitos Creek project footprint is dominated by red willow and arroyo willow, with scattered red alders immediately adjacent to the creek. The San Gregorio Creek project footprint is dominated by coast redwood and bigleaf maple. Most of the trees in the project sites are in fair to good health.

The proposed project would have permanent impacts on trees in the Caltrans ROW because of the removal of woodland habitat due to ground disturbance during construction or heavy pruning (described as removal of more than 30 percent of the canopy). The exact number of trees removed would depend on field conditions, such as the geology of the area where cut slopes are excavated, the condition of the trees, the location of supporting roots, and other considerations to ensure the post-construction stability of the permanent structures. Temporary impacts would be a result of minor tree trimming or staging of equipment in the critical root zone (CRZ).

Determination for Trees

Implementation of the project features in Section 1.7 and the general and specific AMMs in Appendix B would mitigate any potential impacts to trees to less than significant.

California Coastal Commission Wetlands and Riparian Areas at Pilarcitos Creek Bridges

The Pilarcitos Creek Bridges location is within the California Coastal Zone (San Gregorio Creek Bridge is not in the Coastal Zone). The County of San Mateo Local Coastal Program (LCP) and California Coastal Commission (CCC) regulations establish a wetland definition that requires evidence of only one of three parameters (hydrophytic vegetation, hydric soils, or wetland hydrology) to establish wetland conditions (CCC 1981, 2011; City of Half Moon Bay 1993). No potentially CCC-jurisdictional wetlands (meeting the one-parameter test) were found outside of the areas identified as potential waters of the United States and waters of the state (following the three-parameter rule) identified in the BSA. San Mateo County LCP/CCC jurisdiction also extends to all potential waters of the United States. The City of Half Moon Bay LCP establishes a definition of riparian area as an "area of land bordering a stream or lake, including its banks." The riparian area "includes land at least up to the highest point (in cross section) of an obvious channel or enclosure of a body of water," and extends to "the outer edge of appropriate indicator plant species" (City of Half Moon Bay 1993). The LCP/CCC definition for the extent of riparian areas is consistent with the CDFW's CFGC Section 1602 Lake and Streambed Alteration Agreement definition of "top of bank."

Potential San Mateo County LCP and CCC riparian areas were delineated surrounding the Pilarcitos Creek channel in areas dominated by hydrophytic vegetation in. A total of 0.71

acre of CCC riparian habitat occurs in the proposed project area at Pilarcitos Creek. The project would have permanent impacts on the vegetation communities in the riparian zones, including removal of trees and vegetation, hardening of stream banks by the placement of partially grouted RSP, ground disturbance, and pruning. Temporary impacts include disturbance caused by heavy equipment and construction or effects on water quality. The proposed project would potentially impact 0.22 acre of LCP/CCC and CDFW riparian habitat.

Based on the above considerations, it is determined that there is no practicable alternative to the proposed construction in riparian habitat and that the proposed action includes all practicable measures to minimize harm to riparian habitat that may result from such use. Implementation of the project features in Section 1.7 and the general and specific AMMs in Appendix B would mitigate any potential impacts to CCC wetlands and riparian areas to less than significant.

c) Less Than Significant with Mitigation Incorporated at Both Project Locations

Waters of the United States and waters of the state occur at both the Pilarcitos Creek and San Gregorio Creek project sites in the BSA. The proposed project will require discharge of fill material (partially grouted RSP) into waters of the United States and waters of the state at both creeks, and therefore will require a Section 404 application for submittal to the U.S. Army Corps of Engineers (USACE) and a Clean Water Act (CWA) Section 401 Water Quality Certification from the San Francisco Bay RWQCB

Potential temporary impacts to the waters of the United States and waters of the state include:

- Temporary access and work in the creek bed at both locations below the OHWM.
- Installation and removal of a creek diversion system at each location.
- Turbidity and water quality impacts associated with trenching of existing material around bridge piers in the creek.
- Turbidity and water quality impacts associated with removing existing creek bank material at San Gregorio Creek Bridge between Abutment 1 and Pier 1.
- Turbidity and water quality impacts associated with backfilling of trenched locations with fill material.

Potential Permanent Impacts at Pilarcitos Creek Bridges Locations
Permanent impacts to waters of the United States and waters of the state are anticipated from the following proposed activities:

- Excavate approximately 20,710 square feet (0.48 acre) and 780 cubic yards of native material from the creek bed and banks around Piers 2 and 3 and between Pier 3 and Abutment 4. This includes the total impact area, some portions of which would occur in developed areas, uplands, and riparian habitat.
- Approximately 20,710 square feet (0.48 acre) and 1,430 cubic yards of rock fill in the excavated areas around Piers 2 and 3 and between Pier 3 and Abutment 4. After placement of RSP, Portland concrete cement grout would be poured by grout hose, tremie

(a watertight pipe with a hopper at the upper end used to avoid washout of cement from water contact during pouring), or an automated mechanical means to fill one-third to one-half of the total void space. Quantities here include the total impact area, some portions of which would occur in uplands or riparian habitat.

Potential Permanent Impacts at San Gregorio Creek Bridge Location

Permanent impacts to waters of the United States and waters of the state are anticipated from the following proposed actions:

- Excavating approximately 4,300 square feet (0.10 acre) of native creek bank and bed material between Abutment 1 and Pier 2, and around Pier 2 to create a key at the base of the pier.
- Placing an estimated 4,300 square feet (0.10 acre) and 400 cubic yards of rock fill in the excavated area around Pier 2 and the slope between Abutment 1 and Pier 2. After placement of RSP Portland concrete cement grout would be poured by grout hose, tremie or automated mechanical means to fill one-third to one-half of the total void space. Quantities here include the total impact area, of which some would occur in uplands or riparian habitat.

Permanent impacts to waters of the United States and waters of the state are associated with the replacement of native soils with partially grouted RSP, which in some areas may extend above existing surface elevations. The proposed project would also cause temporary impacts to these waters from soil disturbance and placement of a stream diversion system during in-creek work. To offset these impacts, compensatory mitigation will be required. The amount of compensatory mitigation needed will be determined during permitting.

Compensatory mitigation and implementation of the project features in Section 1.7 and the general and specific AMMs in Appendix B would mitigate any potential impacts to state and federal waters to less than significant.

d) Less Than Significant with Mitigation Incorporated at Both Locations

Potential impacts and proposed mitigation measures for riparian habitat are discussed in response to items a through e above. Proposed placement of partially grouted RSP has the potential to affect fish passage at both project locations. Caltrans prepared a hydraulics and fish passage assessment at both project locations to determine what, if any, effects may be realized by the proposed project. The results of the analysis at Pilarcitos indicate that there would be no difference in fish passage between existing and proposed conditions. At San Gregorio Creek, the results of the hydraulic analysis indicate that fish passage conditions would be equal to or better after implementation of the proposed project. Caltrans is coordinating with NMFS and CDFW to prepare the final design and assessment for their review and evaluation during the permitting phase of the project.

Implementation of the project features in Section 1.7 and the general and specific AMMs in Appendix B would mitigate any potential impacts to state and federally listed fish species to less than significant.

e) No Impact at Both Locations

The proposed project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f) No Impact at Both Locations

There are no adopted Habitat Conservation Plans, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plans in the area. The proposed project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

2.2.5 Cultural Resources

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

a) Through c) No Impacts at Both Project Locations

Caltrans District 4 Office of Cultural Resource Studies (OCRS) and Professionally Qualified Staff (PQS), conducted research using the Caltrans Cultural Resource Database, aerial photographs, maps, and satellite imagery in accordance with the January 2014 First Amended Programmatic Agreement (PA) Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California (FHWA 2014).

Based upon the above-referenced review, OCRS staff determined that the proposed project has no potential to affect cultural resources and is exempt from further review pursuant to the PA, Stipulation VII, "Screened Undertakings." The undertaking has been screened and is exempt under Class 19 (any work on Category 5 bridges, including rehabilitation or reconstruction) of Attachment 2, "Screened Undertakings," in the PA.

2.2.6 Energy

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

a) Less Than Significant Impact at Both Project Locations

Energy in the form of gas and diesel will be consumed during construction and ongoing maintenance activities by construction vehicles and equipment operating on-site, trucks delivering equipment and supplies, and construction workers driving to and from the project site. Energy consumption during project construction would be temporary and minimized to the maximum extent practicable. BMPs such as providing ongoing maintenance of vehicles and equipment and limiting the idling of vehicles and equipment would be incorporated during construction activities. As such, the project would not result in an inefficient, wasteful, and unnecessary consumption of energy. Following construction, there would be no change in the amount of energy consumed. Therefore, no mitigation measures are required.

b) No Impact at Both Project Locations

The project would not have any long-term implications for energy consumption. Following construction activities, energy use would be unchanged by the project. Caltrans work would not conflict with the implementation of local and state plans related to energy and energy efficiency.

2.2.7 Geology and Soils

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	NO	NO	YES	NO
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	NO	NO	YES	NO
ii) Strong seismic ground shaking?	NO	NO	YES	NO
iii) Seismic-related ground failure, including liquefaction?	NO	NO	YES	NO
iv) Landslides?	NO	NO	YES	NO
b) Result in substantial soil erosion or the loss of topsoil?	NO	NO	YES	NO
c) Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	NO	NO	YES	NO
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	NO	NO	NO	YES
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	NO	NO	NO	YES
f) Directly or indirectly destroy a unique paleontological resource or site or a unique geologic feature?	NO	NO	NO	YES

a) and c) Less Than Significant Impact at Both Sites.

The project sites are in a seismically active area but are not within an Alquist-Priolo Earthquake Fault Zone. The proposed project would not exacerbate the potential for seismic shaking. The intensity of the earthquake ground motion at the site would depend on the characteristics of the generating fault, distance to the earthquake epicenter, magnitude, and duration of the earthquake, and specific site geologic conditions. Caltrans design and construction guidelines incorporate engineering standards that address seismic risks, including ground failure related to liquefaction, landslides, and lateral spreading. Project elements will be designed and constructed to meet seismic design requirements for ground shaking and ground motions, as determined for the project vicinity and site conditions. Caltrans also requires additional geotechnical subsurface and design investigations to be

performed during the final project design and engineering phase. These standards and requirements would avoid the potential for adverse impacts related to seismic activity.

b) Less Than Significant Impacts at Both Sites

Project construction would involve excavation, trenching and tree/shrub removal. During soil disturbance and earth-moving activities, exposed soils could be subject to erosional forces from water and wind, especially in areas with steeper slopes. Implementation of standard Caltrans practices and BMPs for erosion control would be incorporated. Following construction activities, erosion control at the sites will be improved, as partially grouted RSP will be used to protect the bridges from scour.

d) No Impacts at Both Sites

The soils at the Pilarcitos Creek Bridges site consists of sandy loams and gullied land (alluvial soil material). Theses soils do not have a high shrink-swell potential. The soils at San Gregorio Creek Bridge consist of Mindego clay loam, which has a high shrink-swell potential (NRCS 2019). However, the project does not involve the construction of a building at either site. The project would protect existing bridges from scour by incorporating partially grouted RSP. Therefore, there would be no impacts related to expansive soil and no mitigation is required.

e) No Impacts at Both Sites

The proposed project would not involve incorporating septic tanks or other wastewater disposal systems. Therefore, there would be no impact and no and mitigation would be required.

f) No Impacts at Both Sites

While ground-disturbing activities will occur at each site, the project will be limited to the Caltrans ROW. Soils that are paleontologically sensitive will not be encountered. Thus, the proposed project would not impact paleontological resources. No mitigation is required.

2.2.8 Greenhouse Gas Emissions

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

a) Less Than Significant Impacts at Both Project Locations

While the project would not result in any increase in operational greenhouse gas (GHG) emissions, the project would result in GHG emissions during construction. Operational GHG emissions are emitted through the regular daily use of the highway, since the project would not increase the capacity of the highway, operational emissions would not increase. During construction activities, GHG emissions would be generated from material processing by on-site construction equipment, workers commuting to the project sites, and traffic delays caused by construction work, as staging areas will be located in the public ROW. The amount of GHG emitted will change based on the construction activities and various phases of project implementation.

Caltrans has calculated construction GHG emissions using the Road Construction Emissions Model (RCEM), version 8.1.0, provided by the Sacramento Metropolitan Air Quality Management District. The analysis was focused on vehicle-emitted GHG and carbon dioxide (CO_2). It was estimated that the total amount of CO_2 produced for a construction duration of 4 months would be 110.89 tons. Caltrans would incorporate BMPs, such as regular maintenance to construction vehicles and equipment and limiting idling of vehicles and equipment on-site. Furthermore, Caltrans would comply with all local, state and federal regulations, ordinances, and statutes that apply to air pollution control.

Operation of the proposed project would not change GHG emissions. Therefore, there would be no long-term change in emissions.

b) Less Than Significant Impacts at Both Project Locations

Caltrans work would comply with all local (climate action plans), state and federal regulations, ordinances and statutes that apply to GHG emissions. Construction impacts would be short-term and temporary. Operation of the project will not change GHG emissions. Thus, the proposed project would not conflict with plans, policies, or regulations aimed at reducing GHG emissions.

2.2.9 Hazards and Hazardous Materials

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	NO	NO	YES	NO
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	NO	NO	YES	NO
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	NO	NO	NO	YES
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	NO	NO	NO	YES
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	NO	NO	NO	YES
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	NO	NO	NO	YES
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	NO	NO	NO	YES

a) and b) Less than Significant Impacts at Both Project Locations

Construction of the proposed project is not expected to involve the routine transport, use, or disposal of hazardous materials. However, the vehicles and equipment used during construction will be powered with fuels such as gasoline and diesel. These fuels are hazardous and could pose a significant threat to human health or the environment if not properly managed. Adherence to federal and state regulations during project construction and maintenance would reduce the risk of exposure to hazardous materials and accidental releases of hazardous materials. Compliance with existing regulations is mandatory. Therefore, construction of the proposed project is not expected to create a hazard to construction workers, the public, or the environment. Operation of the project would not involve the use of hazardous materials. No mitigation is required.

c) No Impacts at Both Project Locations

No schools are located within 0.25 mile of the San Gregorio Creek Bridge. A high school and intermediate school are located within 0.25 mile of the Pilarcitos Creek Bridges location. The project would be limited to construction areas at the two site locations. Emissions from vehicles and equipment would occur during project construction. However, given the relatively small size and the scope of the project, a substantial amount of pollutants would not be generated. Adherence to local, federal and state regulations during project construction would reduce the risk of exposure to hazardous materials and accidental hazardous materials releases, such as fuel. Thus, the project would not result in the spread of hazardous materials or expose sensitive receptors at schools to hazardous materials. Operation of the project would not involve the use of hazardous materials. No mitigation is required.

d) No Impacts at Both Project Locations

Neither site is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962. The proposed bridge scour mitigation will involve soil-disturbing work around the bridge columns in Pilarcitos Creek and San Gregorio Creek. Caltrans has determined that detectable soil contamination accumulation in the creek beds, such as aerially deposited lead, is not expected to be a factor.

e) No Impacts at Both Project Locations

Neither project location is within 2 miles of an airport or airstrip. Therefore, there would be no impacts.

f) No Impacts at Both Project Locations

The proposed project would not impair the implementation of an emergency response or emergency evacuation plan. The purpose of the project is to mitigate bridge scour at the Pilarcitos Creek Bridges and the San Gregorio Creek Bridge. No potential evacuation routes would be impeded or disrupted during project construction and operation. A TMP would be implemented to minimize construction-related delays. Therefore, a substantial reduction in emergency response times is not expected. Following construction, there would be no changes in traffic patterns.

g) No Impacts at Both Project Locations

All project construction would take place in the Caltrans ROW. During construction, measures for minimizing fire risks would be incorporated. Section 2.3 describes wildfire impacts in more detail.

2.2.10 Hydrology and Water Quality

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	NO	NO	NO	YES
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	NO	NO	NO	YES
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	NO	NO	YES	NO
(i) result in substantial erosion or siltation on- or off-site;	NO	NO	NO	YES
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	NO	NO	NO	YES
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	NO	NO	NO	YES
(iv) impede or redirect flood flows?	NO	NO	NO	YES
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	NO	NO	YES	NO
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	NO	NO	NO	YES

The project features described in Section 1.7 would substantially contribute to the avoidance and minimization of potential water quality impacts from the proposed project. The proposed project will require the following water quality permits:

- CWA Section 404 permit from the USACE
- CWA Section 401 Water Quality Certification from the San Francisco Bay RWQCB

a) No Impact at Both Project Locations

The State Water Resources Control Board has issued a statewide Construction General Permit (2009-0009-DWQ, CAS000002, as amended by 2010-0014-DWQ and 2012-0006-DWQ), hereafter referred to as "CGP," that applies to stormwater discharges from land

where clearing, grading, and excavation result in a disturbed soil area (DSA) of 1 acre or greater; the CGP applies to any developer, not solely Caltrans. Construction activity that results in a DSA of less than 1 acre is subject to the CGP if the construction activity is part of a larger common plan of development totaling 1 acre or more of DSA, or if there is the potential for substantial water quality impairment resulting from the activity. Potential for water quality impairment is determined by the RWQCB. Projects subject to the CGP require a SWPPP. Construction that disturbs less than an acre of soil must comply with the Water Pollution Control Program (WPCP) section of Caltrans Standard Specifications. The project's disturbed soil area is estimated at 0.45 acre, and therefore the proposed project is subject to compliance with the WPCP section of Caltrans Standard Specifications. The WPCP addresses potential temporary impacts through implementation of appropriate BMPs to the maximum extent practicable. Furthermore, sampling and monitoring of construction site discharge point(s) may be recommended as part of the WPCP during the subsequent design and permitting phase of the project. RSP work, which creates disturbed soil areas and is a source of sediment, requires a dry work environment. Such work has a limited work window of June 15 to October 15.

b) No Impact at Both Project Locations

Potential construction impacts to receiving water bodies include sediment, turbidity, and pH. Caltrans will implement temporary construction site BMPs for sediment control and materials management. These include temporary cover, drainage inlet protection, fiber roll, and silt fence. Both locations will require dewatering and a creek diversion system for construction. Details of the diversion system will be further developed during the design phase. Since the project does not exceed the threshold of one acre of new impervious surface, post-construction stormwater treatment BMPs will not be required for this project. The proposed project will not substantially deplete groundwater supplies or interfere substantially with groundwater recharge and the project will not impede sustainable groundwater management of the basin.

c) Less-Than-Significant Impact at Both Project Locations

At both locations the streambed would be altered and new partially grouted RSP would be placed in the stream channel. Potential wetlands and other waters of the United States and waters of the state regulated by USACE and the San Francisco Bay RWQCB, and riparian areas and Coastal Zone wetlands regulated by the CCC, were mapped in the June 2019 at both project sites. The proposed project's temporary and permanent impact areas occur within 0.19 acre of jurisdictional waters of the United States and waters of the state at the Pilarcitos Creek Bridges, and within 0.04 acre at the San Gregorio Creek Bridge. Specific areas and volumes of impacts would be estimated during the permit application project for a CWA Section 404 permit. A CWA Section 401 Water Quality Certification from the San Francisco Bay RWQCB will be required for the proposed project's discharge into waters. The proposed project would have temporary and permanent impacts within approximately 0.22 acre of LCP/CCC jurisdictional riparian areas. Specific impacts would be estimated during the application for a Coastal Development Permit from the LCP or CCC. Construction work in the perennial and intermittent creek up to the top of bank and in any contiguous adjacent riparian habitat would also require a CFGC Section 1602 Lake and Streambed Alteration Agreement from CDFW.

i. No Impact at Both Locations

Partially grouted RSP is proposed at both locations to address potential bridge scour. The proposed measures are anticipated to reduce erosion around the structures and are not anticipated to cause substantial erosion or siltation on- or off-site.

ii. No Impact at Both Locations

The proposed project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;

iii. No Impact at Both Locations

The proposed project would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

iv. No Impact at Both Locations

The proposed project would not impede or redirect flood flows.

d) Less-Than-Significant Impact at the San Gregorio Creek Bridge Location and No Impact at the Pilarcitos Creek Bridges Locations

The project is not located in a tsunami or a seiche zone and there is no risk of pollutants being released due to project inundation. The proposed work at San Gregorio Creek Bridge takes place within a regulatory floodway. Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) numbers 06081C0260E cover the Pilarcitos Creek Bridges, and 06081C0391 E covers the San Gregorio Creek Bridge; all are dated October 16, 2012. FIRM 06081C0391E indicates that the San Gregorio Creek Bridge is located within a regulatory flood way. A regulatory floodway refers to the channel of a river or other watercourse and the adjacent land areas that must be reserved to discharge the base flood without cumulatively increasing the water surface elevation more than 1 foot. Development in these floodways must be regulated to ensure that there are no increases in upstream flood elevations. The base flood elevation is 293.2 feet. Partially grouted RSP placed within the channel of San Gregorio Creek is to rebuild the channel bottom and bank to the original grade. As a result, the impact to the regulatory floodway is expected to be minimal.

FIRM 06081 C0260E shows that the Pilarcitos Creek Bridges are not located within a base floodplain and are not within a regulatory floodway.

e) No Impact at Both Locations

The proposed project would not conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan.

2.2.11 Land Use and Planning

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

a) No Impact at Both Sites

The project would not physically divide an established community.

b) No Impact at Both Sites

The project would be generally consistent with all applicable land use plans, policies, and regulations. The project would not change the current land use of the sites. Furthermore, the project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted to avoid or mitigate an environmental effect.

2.2.12 Mineral Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	NO	NO	NO	YES
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	NO	NO	NO	YES

a) and b) No Impact at Both Sites

The San Gregorio Creek Bridge is in MRZ-1, an area that is unlikely to contain mineral resources (Department of Conservation 1987). The Pilarcitos Creek Bridges are in a Mineral Resource Zone (MRZ) that has been designated as MRZ-3, an area containing mineral deposits the significance of which cannot be evaluated from available data. The mineral resources in this area are mainly sand and gravel (Department of Conservation 1987). However, the proposed project would not result in the loss of availability of mineral resources or the loss of locally important mineral resources. The project would not involve mining for these resources or require the acquisition of land where activities mining operations are occurring. Therefore, there would be no impact to mineral resources.

2.2.13 Noise

Would the project result in:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	NO	NO	YES	NO
b) Generation of excessive groundborne vibration or groundborne noise levels?	NO	NO	NO	YES
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	NO	NO	NO	YES

a) Less Than Significant at Both Sites

During construction, ambient noise levels would temporarily increase in the vicinity of the project area. Construction noise would primarily result from the operation of heavy construction equipment for excavation, trenching and tree removal, and from the removal and arrival and departure of heavy-duty trucks. However, construction noise would be short-term and intermittent. Construction work would occur within the Caltrans ROW and is not subject to local noise ordinances. Nonetheless, Caltrans will work with the contractor to meet local requirements where feasible. The Caltrans 2018 Standard Specifications 14-8.02 requires the Maximum Sound Level (L_{max}) not to exceed 86 dBA at 50 feet from the job site from 9:00 p.m. to 6:00 a.m.

The project is not a capacity-increasing project, so no changes to existing traffic will occur. Furthermore, the project would not change the existing vertical/horizontal alignment of the highways. Therefore, there would be no changes to the ambient noise levels following construction.

b) No Impact at Both Sites

No pile driving is proposed at either site. The project would not generate excessive vibration during or after construction or result in ground borne noise levels.

c) No Impact at Both Sites

There are no airports within 2 miles of the project.

2.2.14 Population and Housing

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	NO	NO	NO	YES
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	NO	NO	NO	YES

a) No Impact at Both Sites

The project involves placing partially grouted RSP to protect bridges from scour. It would not involve the building of new homes or businesses that could induce population growth. Furthermore, the project would not expand or extend transportation facilities that could indirectly induce population growth.

b) No Impact at Both Sites

The project would not require residential or business relocation, and therefore would not displace substantial numbers of existing people or housing, which would necessitate the construction of replacement housing elsewhere.

2.2.15 Public Services

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Fire protection?	NO	NO	YES	NO
Police protection?	NO	NO	YES	NO
Schools?	NO	NO	NO	YES
Parks?	NO	NO	NO	YES
Other public facilities?	NO	NO	YES	NO

a) Less-Than-Significant Impact at Both Project Locations

At the San Gregorio Creek Bridge location, temporary lane closures on SR 84 will be required to construct the project, which could affect emergency service providers. At the Pilarcitos Creek Bridges location, construction equipment would access the site through the median areas located on either side of the bridges. Equipment access to and from the median would require flaggers and reduced speed zones during construction. Emergency vehicles would be given priority by the flaggers. During final design, a TMP would be developed for the project to minimize construction-related delays. The TMP would include notification to emergency service providers and the public of lane closures and detours; coordination with the California Highway Patrol (CHP) and local law enforcement on contingency plans; and the use of portable Changeable Message Signs, the CHP's COZEEP, and the Freeway Service Patrol where possible to minimize delays. Therefore, no emergency services would be temporarily affected by construction of the project. Law enforcement, fire, and/or emergency services would be maintained during project construction and operation of the lanes. The project is not expected to result in decreased response times.

At the Pilarcitos Creek Bridges location only, schools are found nearby (within 0.25 mile), but are not found directly in the project area. The Naomi Partridge Trail is a linear recreation asset below the Pilarcitos Creek bridge spans that would be affected through its temporary closure during construction. The affected portion of the trail would be replaced in-kind and reopened when construction is completed. A temporary detour and temporary signage guiding the public through a safe alternate route would be put in place during the temporary trail closure.

No parks, schools or other public facilities are in or near the San Gregorio Creek Bridge location.

2.2.16 Recreation

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	NO	NO	NO	YES
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	NO	NO	YES	NO

a) No Impact at Both Locations

The project would not increase the use of existing parks or other recreational facilities such that physical deterioration of the facility would occur or be accelerated.

b) Less-Than-Significant Impact at the Pilarcitos Creek Bridges Location and No Impact at the San Gregorio Creek Bridge Location.

At Pilarcitos Creek Bridges, the existing Class I trail would be temporarily detoured during construction. The portion of the trail that would be temporarily impacted by construction will be replaced in kind but would not expand existing recreational facilities.

At San Gregorio Creek Bridge, the project would not include recreational facilities or require the construction or expansion of recreational facilities.

2.2.17 Transportation

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	NO	NO	NO	YES
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	NO	NO	YES	NO
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	NO	NO	NO	YES
d) Result in inadequate emergency access?	NO	NO	NO	YES

a) No Impact at Both Sites

The project would not result in any conflicts with a program, plan, ordinance or policy related to the transportation system. During construction activities, a TMP would be incorporated to address roadway impacts.

b) Less-Than-Significant Impact at Both Sites

SB 743 (2013) requires the Governor's Office of Planning and Research (OPR) to identify new metrics for identifying and mitigating transportation impacts within CEQA. Under SB 743, CEQA Guidelines Section 15064.3(b) was revised to identify vehicle miles traveled (VMT) as the most appropriate measure of assessing transportation impacts. The Governor's Office of Planning and Research identified categories of highway projects that would not likely lead to a substantial or measurable increase in VMT and therefore generally should not require an induced travel analysis. These categories include "Rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets… that do not add additional motor vehicle capacity." Bridge repair and replacement are defined categories of projects within this definition. No long-term increase in VMT would occur due to the project. VMT associated with construction would be temporary and would be a less-than-significant impact.

c) No Impact at Both Sites

The proposed project involves installing partially grouted RSP to protect bridges from scour. The project would not increase hazards due to a geometric design feature. In fact, the project would result in safer conditions at both sites by correcting structural deficiencies of the bridges. Therefore, there would be no impact.

d) Less-Than-Significant Impact at Both Sites

No long-term roadway closures are proposed. Single lane and shoulder closures are anticipated at the San Gregorio Bridge during the construction because of the difficult creek

access. Single lane/median closures and single lane/shoulder closures are anticipated at the Pilarcitos Creek Bridges during mobilization and demobilization. The TMP will include notification to emergency service providers and the public of lane closures and detours; coordination with CHP and local law enforcement on contingency plans; and use of portable changeable message signs, the CHP's COZEEP, and the freeway service patrol where possible to minimize delays. Law enforcement, fire, and emergency services would be maintained during project construction and operation of the lanes. The project is not expected to result in inadequate emergency access.

2.2.18 Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	**Significant and Unavoidable Impact**	**Less Than Significant with Mitigation Incorporated**	**Less-Than-Significant Impact**	**No Impact**
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	NO	NO	NO	YES
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	NO	NO	NO	YES

a) and b) No Impact at Both Locations

No California Native American Tribe has identified a Tribal Cultural Resource in the project area.

2.2.19 Utilities and Service Systems

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	NO	NO	NO	YES
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	NO	NO	NO	YES
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	NO	NO	NO	YES
d) Generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	NO	NO	NO	YES
e) Comply with federal, State, and local management and reduction statutes and regulations related to solid waste?	NO	NO	NO	YES

a) No Impact at Both Locations

The Build Alternative would not result in relocation or construction of new utilities.

b) No Impact at Both Locations

The Build Alternative would not require new or expanded water entitlements.

c) No Impact at Both Locations

The Build Alternative would not affect public utilities for wastewater treatment.

d) No Impact at Both Locations

The Build Alternative would not generate or require solid waste disposal in excess of state or local standards, or in excess of the capacity of local infrastructure. Construction waste would be disposed of at a certified facility based on the waste type and would not affect landfill capacity.

e) No Impact at Both Locations

The Build Alternative would comply with statutes and regulations related to solid waste management and reduction.

2.2.20 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	NO	NO	NO	YES
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	NO	NO	YES	NO
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	NO	NO	NO	YES
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	NO	NO	NO	YES

a) No Impact at Both Sites

The project would not impair implementation of an emergency response or emergency evacuation plan. No potential evacuation routes would be impeded or disrupted during project construction and operation. A TMP would be implemented to minimize construction-related delays. Therefore, a substantial reduction in emergency response times is not expected. Following construction, there would be no changes in traffic patterns.

b) Less-Than-Significant Impact at Both Sites

The Pilarcitos Creek Bridges are in the Local Responsibility Area. The project area is not in a moderate or high fire severity zone (CalFire 2008a). The San Gregorio Creek Bridge is in the State Responsibility Area and a moderate fire severity zone (CalFire 2008b). Construction work would be limited to the Caltrans ROW. The project will not change fire risk conditions at either site, and it will not change the alignment of SR 1 and SR 84 or any adjacent land uses. During construction, measures for minimizing fire risks would be incorporated, such as clearing vegetation and trees from the work area or prohibiting the use of highly flammable chemicals. All project construction would follow state and federal fire regulations. Therefore, the project is not expected to exacerbate wildfire risks or expose project personnel to pollutants from a wildfire or the uncontrolled spread of a wildfire.

c) No Impact at Both Sites

The proposed project would not involve the installation or maintenance of electrical equipment, roads, fuel breaks or other utilities that could exacerbate fire risks. Therefore, there would be no impacts and mitigation will not be required.

d) Less-Than-Significant Impact at Both Sites

No recent fires have occurred in the project vicinity that could result in post-fire slope instability or drainage changes. During construction, there will be no creek diversion or changes to the drainage patterns of the site at the Pilarcitos Creek Bridges location. There will be a temporary cofferdam installed to divert areas of San Gregorio Creek where the work will occur. However, no changes will be made to the natural drainage of the area. The implementation of standard Caltrans practices for erosion control and other measures would avoid or minimize the project's potential to result in downslope or downstream flooding or landslides. These measures are incorporated into the project design as a matter of Caltrans practice and are not mitigation.

2.2.21 Mandatory Findings of Significance

Mandatory Findings of Significance	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	NO	NO	YES	NO
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	NO	NO	NO	YES
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	NO	NO	YES	NO

a) a and c) Less-Than-Significant Impact at Both Sites

As noted in the previous CEQA checklist items, the proposed project would have a less-than-significant impact on the environment, including habitat and threatened and endangered species and cultural resources with the proposed mitigation measures for threatened and endangered species.

The proposed project would include construction impacts on human beings from temporary construction impacts, such as noise, dust, and visual changes. However, the proposed project would have a less-than-significant impact on all resource areas evaluated in this CEQA checklist and would, therefore, not have an environmental effect that will cause substantial adverse effects on human beings, either directly or indirectly.

b) No Impact

No other nearby projects were identified that are cumulatively considerable. Both projects in this document are considered together (although they occur at separate locations) to address their combined effects.

2.3 Climate Change

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

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change by the United Nations and World Meteorological Organization in 1988 led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including CO_2, methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), and various hydrofluorocarbons (HFCs). CO_2 is the most abundant GHG; while it is a naturally occurring component of the Earth's atmosphere, fossil-fuel combustion is the main source of additional human-generated CO_2.

Two terms are typically used when discussing how to address the impacts of climate change: "greenhouse gas mitigation" and "adaptation." Greenhouse gas mitigation covers the activities and policies aimed at reducing GHG emissions to limit or "mitigate" the impacts of climate change. Adaptation, on the other hand, is concerned with planning for and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels). This analysis will include a discussion of both.

2.3.1 Regulatory Setting

This section outlines federal and State efforts to comprehensively reduce GHG emissions from transportation sources.

2.3.1.1 State

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

EO S-3-05 (June 1, 2005):

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

AB 32, Chapter 488, 2006, Núñez and Pavley, The Global Warming Solutions Act of 2006:

AB 32 codified the 2020 GHG emissions reduction goals outlined in EO S-3-05, while further mandating that CARB create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code Section 38551(b)). The law requires

CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

EO S-01-07 (January 18, 2007):

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

SB 375, Chapter 728, 2008, Sustainable Communities and Climate Protection:

This bill requires CARB to set regional emissions reduction targets for passenger vehicles. The metropolitan planning organization for each region must then develop a "sustainable communities strategy" that integrates transportation, land-use, and housing policies to plan how each organization will achieve the emissions target for its region.

SB 391, Chapter 585, 2009, California Transportation Plan:

This bill requires the State's long-range transportation plan to identify strategies to address California's climate change goals under AB 32.

EO B-16-12 (March 2012):

This order requires State entities under the direction of the Governor, including CARB, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero-emission vehicles. It directs these entities to achieve various benchmarks related to zero-emission vehicles.

EO B-30-15 (April 2015):

This order establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all State agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMTCO2e). Finally, it requires the Natural Resources Agency to update the State's climate adaptation strategy, Safeguarding California, every 3 years and to ensure that its provisions are fully implemented.

SB 32, Chapter 249, 2016:

This bill codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

SB 1386, Chapter 545, 2016:

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

AB 134, Chapter 254, 2017:

This bill allocates Greenhouse Gas Reduction Funds and other sources to various clean vehicle programs, demonstration/pilot projects, clean vehicle rebates and projects, and other emissions-reduction programs statewide.

SB 743, Chapter 386 (September 2013):

This bill changes the metric of consideration for transportation impacts pursuant to CEQA from a focus on automobile delay to alternative methods focused on VMT, to promote the state's goals of reducing GHG emissions and traffic-related air pollution and promoting multimodal transportation while balancing the needs of congestion management and safety.

SB 150, Chapter 150, 2017, Regional Transportation Plans:

This bill requires CARB to prepare a report that assesses progress made by each metropolitan planning organization in meeting their established regional GHG emission reduction targets.

EO B-55-18 (September 2018):

This order sets a new statewide goal to achieve and maintain carbon neutrality no later than 2045. This goal is in addition to existing statewide targets for reducing GHG emissions.

EO N-19-19 (September 2019):

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

2.3.2 Environmental Setting

2.3.2.1 At Pilarcitos Creek Bridges

The proposed project is in the city of Half Moon Bay and urban area of San Mateo County, an area with a well-developed road and street network. The project area is mainly residential, with some light industrial and commercial buildings. Traffic congestion during peak hours is not uncommon in the project area. Traffic volumes on SR 1 near the SR 92 junction range from 28,000 to 34,000 Annual Average Daily Traffic, and 2,400 to 2,700 vehicles per hour at peak periods.

2.3.2.2 At San Gregorio Creek Bridge

The proposed project is in a rural area, with an economy that is primarily based on natural resources, agriculture, and tourism. State Route 84 is the main transportation route to and through the area between U.S. 101 and SR 1 for both passenger and commercial vehicles. The nearest alternate route is SR 92, 13.4 miles to the north. Traffic counts are low and SR 84 is rarely congested.

Plan Bay Area 2040, the regional planning document of the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) (MTC and ABAG 2017), guides transportation development in San Mateo County. To inform *Plan Bay Area 2050*, MTC and ABAG collaborated in 2018 on Horizon, a new initiative to explore issues and challenges the region may face by 2050. The BAAQMD's 2017 clean air plan, *Spare the Air, Cool the Climate,* addresses GHGs in the project region.

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

2.3.2.3 State GHG Inventory

CARB collects GHG emissions data for the transportation, electricity, commercial/residential, industrial, agricultural, and waste management sectors each year. It then summarizes and highlights major annual changes and trends to demonstrate the state's progress in meeting its GHG reduction goals. The 2019 edition of the GHG emissions inventory (CARB 2019a) found total California emissions of 424.1 MMTCO2e for 2017, with the transportation sector responsible for 41 percent of the total GHGs (Figure 10). It also found that overall statewide GHG emissions declined from 2000 to 2017 (Figure 11) despite the growth in population and the state's economic output (CARB 2019b).

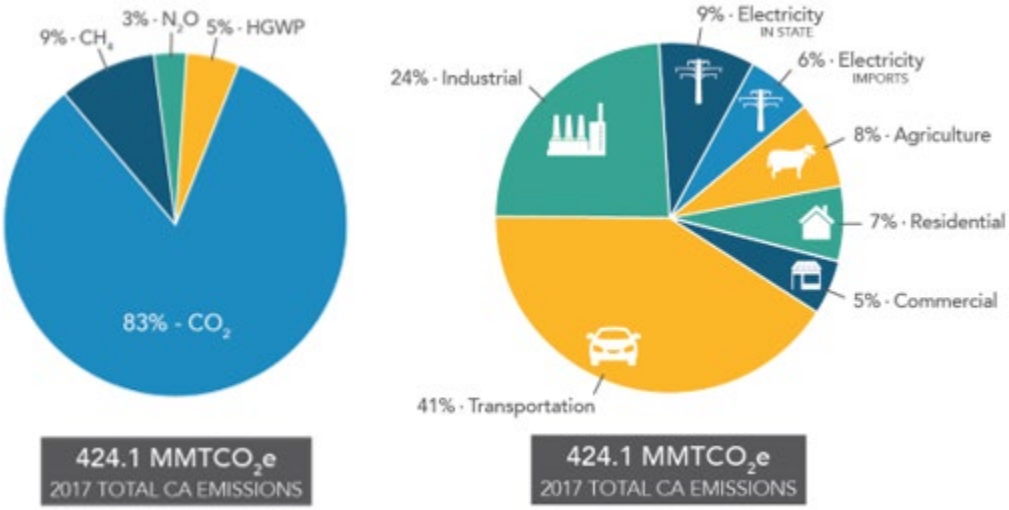

Figure 10 California 2017 Greenhouse Gas Emissions

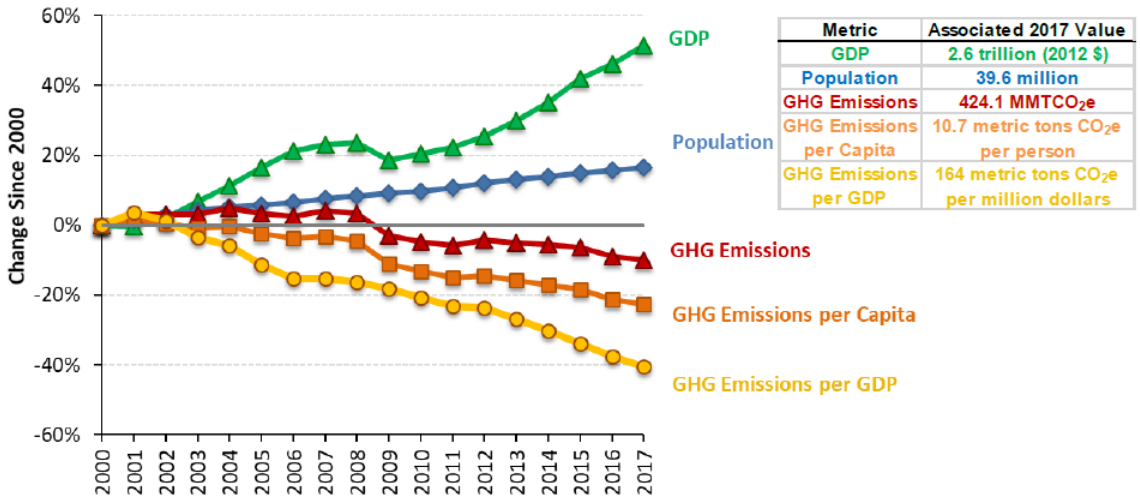

Figure 11 Change in California GDP, Population, and GHG Emissions since 2000

(Source: CARB 2019c)

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

2.3.2.4 Regional Plans

CARB sets regional targets for California's 18 metropolitan planning organizations to use in their Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) to plan future projects that will cumulatively achieve GHG reduction goals. Targets are set at a percent reduction of passenger vehicle GHG emissions per person from 2005 levels. MTC is the MPO and regional transportation planning agency for the project region, with GHG reduction targets of 10 percent by 2020 and 19 percent by 2035. However, the proposed project is not included in the *Plan Bay Area 2040* (MTC and ABAG 2017) because it is not a roadway project and would not result in an increase in vehicle traffic or volumes.

The 2017 clean air plan, *Spare the Air, Cool the Climate* (BAAQMD 2017), defines strategies for climate protection in the Bay Area that support goals laid out in *Plan Bay Area 2040* (MTC and ABAG 2017). Those goals include transforming the transportation sector to reduce motor vehicle travel, promote zero-emissions vehicles and renewable fuels, adopt fixed- and flexible-route transit services, and support infrastructure and planning that enable a large share of trips by bicycling, walking, and transit.

2.3.3 Project Analysis

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

The CEQA Guidelines generally address GHG emissions as a cumulative impact due to the global nature of climate change (Pub. Resources Code, section 21083(b)(2)). As the California Supreme Court explained, "because of the global scale of climate change, any one project's contribution is unlikely to be significant by itself" (Cleveland National Forest Foundation v. San Diego Assn. of Governments (2017) 3 Cal.5th 497, 512). In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130).

To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. Although climate change is ultimately a cumulative impact, not every individual project that emits GHGs must necessarily be found to contribute to a significant cumulative impact on the environment.

2.3.3.1 Operational Emissions

The purpose of the proposed project is to address bridge scour and erosion below the bridge deck; the project will not increase the vehicle capacity of the roadway. As noted in Section 2.2.17(b), this project meets the definition of a rehabilitation category of projects that would not add additional motor vehicle capacity and therefore would not result in an increase in VMT (projects that do not increase VMT do not increase GHG emissions). The proposed project would not increase the number of travel lanes on SR 1 or SR 84, and no long-term or post-construction increase in VMT would occur as result of the project's implementation.

2.3.3.2 Construction Emissions

Construction GHG emissions would result from material processing, on-site construction equipment, workers commuting to and from the project site, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

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

The analysis was focused on vehicle-emitted GHGs. CO_2 is the single most important GHG due to its abundance compared to other vehicle-emitted GHGs, including CH_4, N_20, HFCs, and black carbon (BC). It was estimated that for a construction duration of 4 months, the total amount of CO_2 produced due to construction would be 110.89 tons. Table 2-1 summarizes the construction-related emissions, including the total carbon dioxide equivalent (CO_2e) emission. Gases are converted to CO_2e by multiplying by their global warming potential (GWP). Specifically, GWP

is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of CO_2.

Table 2-1 Construction CO_2e Emissions

	CO_2 (Tons)	CH_4 (Tons)	N_2O (Tons)	CO_2e (Metric Tons)
Construction Emissions	110.89	0.02	0.00	101.53

CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
N_2O = nitrous oxide

Implementation of Caltrans Standard Specifications, such as complying with air-pollution-control rules, regulations, ordinances, and statutes that apply to work performed under the contract and the use of construction BMPs (such as performing regular vehicle and equipment maintenance and limiting the idling of vehicles and equipment on-site), would result in a reduction of GHG emissions from construction activities.

2.3.3.3 CEQA Conclusion

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

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

2.3.4 Greenhouse Gas Reduction Strategies

2.3.4.1 Statewide Efforts

Major sectors of the California economy, including transportation, will need to reduce emissions to meet the 2030 and 2050 GHG emissions targets. Former Governor Edmund G. Brown promoted GHG reduction goals that involved (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing the electricity derived from renewable sources from one-third to one-half (30 percent to 50 percent); (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of CH_4, BC, and other short-lived climate pollutants; (5) managing farms and rangelands, forests, and wetlands so that they can store carbon; and (6) periodically updating the State's climate adaptation strategy, *Safeguarding California.* Figure 12 shows California's climate strategy.

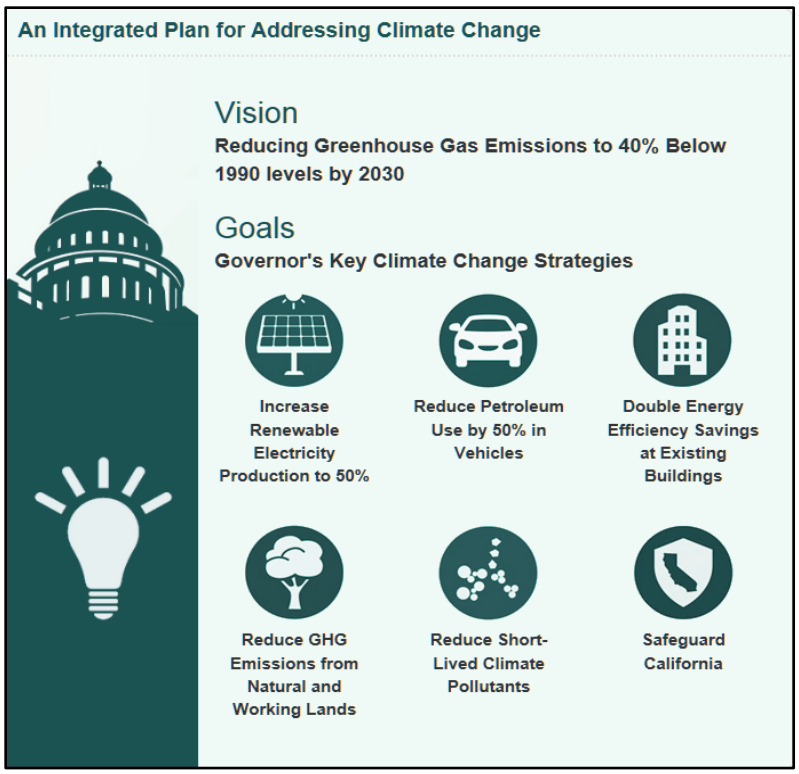

Figure 12 California Climate Strategy

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

In addition, SB 1386 (Wolk 2016) established as state policy the protection and management of natural and working lands and requires state agencies to consider that policy in their own decision making. Trees and vegetation on forests, rangelands, farms, and wetlands remove CO_2 from the atmosphere through biological processes and sequester the carbon in above- and below-ground matter.

2.3.4.2 Caltrans Activities

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

California Transportation Plan

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. In 2016, Caltrans completed the *California Transportation Plan 2040* (CTP 2040) (Caltrans 2016), which establishes a new

model for developing ground transportation systems that is consistent with CO2 reduction goals. It serves as an umbrella document for all the other statewide transportation planning documents. Over the next 25 years, California will be working to improve transit and reduce long-run repair and maintenance costs of roadways, and to develop a comprehensive assessment of climate-related transportation demand management and new technologies rather than continuing to expand capacity on existing roadways.

SB 391 (Liu 2009) requires the CTP to meet California's climate change goals under AB 32. Accordingly, the CTP 2040 identifies the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the state's transportation needs. While metropolitan planning organizations have primary responsibility for identifying land use patterns to help reduce GHG emissions, the CTP 2040 identifies additional strategies in pricing, transportation alternatives, mode shift, and operational efficiency.

Caltrans Strategic Management Plan

Caltrans Strategic Management Plan 2015 – 2020 (Caltrans 2015) creates a performance-based framework to preserve the environment and reduce GHG emissions, among other goals. Specific performance targets in the plan that will help to reduce GHG emissions include:

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

Funding and Technical Assistance Programs

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

Caltrans Policy Directives and Other Initiatives

Caltrans' Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Caltrans decisions and activities.

Caltrans Activities to Address Climate Change (April 2013) provides a comprehensive overview of Caltrans' statewide activities to reduce GHG emissions resulting from agency operations.

Project-Level GHG Reduction Strategies

The proposed project will also implement the following measures to reduce GHG emissions and potential climate change impacts from the project:

1. Caltrans Standard Specifications such as Section 14-9.02, Air Pollution Control, require contractors to comply with all federal, State, and local air pollution control rules,

regulations, and ordinances. Requirements such as idling restrictions and keeping engines properly tuned reduce emissions, including GHG emissions.

2. A TMP will be prepared during the design phase of the project to minimize traffic disruptions from project construction. Minimizing traffic delays during construction will help reduce GHG emissions from idling vehicles.

2.3.5 Adaptation

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

2.3.5.1 State Efforts

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

- *Adaptation* to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.
- *Adaptive capacity* is the "combination of the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to prepare for and undertake actions to reduce adverse impacts, moderate harm, or exploit beneficial opportunities."
- *Exposure* is the presence of people, infrastructure, natural systems, and economic, cultural, and social resources in areas that are subject to harm.
- *Resilience* is the "capacity of any entity – an individual, a community, an organization, or a natural system – to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience". Adaptation actions contribute to increasing resilience, which is a desired outcome or state of being.
- *Sensitivity* is the level to which a species, natural system, or community, government, etc., would be affected by changing climate conditions.

- *Vulnerability* is the "susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt." Vulnerability can increase because of physical (built and environmental), social, political, and/or economic factor(s). These factors include, but are not limited to: ethnicity, class, sexual orientation and identification, national origin, and income inequality.[2] Vulnerability is often defined as the combination of sensitivity and adaptive capacity as affected by the level of exposure to changing climate.

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

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

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

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

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

2.3.5.2 Caltrans Adaptation Efforts

Caltrans Vulnerability Assessments

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

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

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

2.3.5.3 Project Adaptation Analysis

The January 2018 Caltrans Climate Change Vulnerability Assessment for the District 4 region (Caltrans 2018), which covers the nine-county San Francisco Bay Area, was consulted regarding climate stressors in the project area. The report and accompanying Climate Change Vulnerability Assessment map tool (Caltrans 2017) identified the following climate change conditions for the project area for the analysis years 2025, 2055, and 2085.

Sea Level Rise

At the San Gregorio Creek Bridge location, the proposed project is outside the coastal zone and not in an area subject to sea level rise. Accordingly, direct impacts to transportation facilities due to projected sea-level rise are not expected.

At the Pilarcitos Creek Bridges location, the project is in the coastal zone. The National Oceanic and Atmospheric Administration (NOAA) Sea Level Rise viewer (https://coast.noaa.gov/digitalcoast/tools/slr.html) and the Cal-Adapt website (https://cal-adapt.org/tools/slr-calflod-3d/) were used to determine that the proposed project is not in an area subject to sea-level rise at the modeled highest potential sea level increase. Accordingly, direct impacts to transportation facilities due to projected sea-level rise are not expected.

Floodplains

Mapping in the Climate Change Vulnerability Assessment for the District 4 region (Caltrans 2018) shows that 100-year storm precipitation depth in the project area could change by up to 9.9 percent by 2055 and beyond. The proposed work at San Gregorio Creek Bridge takes place

within a regulatory floodway. The Pilarcitos Creek Bridges are not located within a base floodplain and are not within a regulatory floodway. A complete discussion on floodplains at both project locations is provided in Section 2.2.10.

The project purpose is to protect the support structures of the bridges from scour at both locations by placing partially grouted RSP. The project would reduce the bridges' vulnerability to scour from current and future levels of stream flow, and would not impede or redirect flood flows.

Wildfire

The Pilarcitos Creek Bridges are in the Local Responsibility Area. The project area is not in a moderate or high fire hazard severity zone (CalFire 2007). The San Gregorio Creek Bridge is in a State Responsibility Area and moderate fire hazard severity zone (CalFire 2008). The Climate Change Vulnerability Assessment for the District 4 region (Caltrans 2018) shows the project is not in an area expected to experience an increased likelihood of wildfire through 2085. The project would not change fire risk conditions at either site. During construction, measures for minimizing fire risks would be incorporated, such as clearing vegetation and trees from the work area or prohibiting the use of highly flammable chemicals. All project construction would follow state and federal fire regulations. The partially grouted RSP does not burn and would be installed in the creeks and creek beds, which act as natural firebreaks. Thus, the project would be resilient to wildfire. The project is not anticipated to exacerbate the effects of climate change in terms of wildfire. A complete discussion on potential wildfire impacts at both project locations is provided in Section 2.2.20.

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Chapter 3 Comments and Coordination

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required, and to identify potential impacts and avoidance, minimization, and/or mitigation measures and related environmental requirements. Consultation and public participation for this project will be accomplished through a variety of formal and informal methods. This chapter summarizes the results of Caltrans' preliminary efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

3.1 Consultation and Coordination with Public Agencies

3.1.1 National Marine Fisheries Service

Caltrans has conducted extensive coordination with NMFS – including one interagency onsite meeting – on this project. A NMFS species list was created for the project in 2020 and was most recently updated March 2021. This allowed Caltrans to determine which species have a potential to occur in the project areas and be affected by the project. Consultation with NMFS under section 7 of FESA was initiated because the project may affect listed species and federally designated critical habitat that falls within NMFS' jurisdiction. Caltrans and NMFS staff have discussed the potential impacts associated with RSP placement materials and methods (e.g., placement of partially grouted RSP as opposed to non-grouted RSP).

Caltrans initiated section 7 consultation with NMFS with submittal of a biological assessment on August 11, 2020. Caltrans submitted a biological assessment and request for formal consultation pursuant to section 7 of the FESA for the threatened Central California Coast steelhead (*Oncorhynchus mykiss*) and the endangered Central California Coast Coho Salmon (*Oncorhynchus kisutch*) and their respective designated critical habitats. The BA included hydraulic analyses for both project locations as requested by NMFS. NMFS is expected to issue its a biological opinion, thus concluding section 7 consultation, to Caltrans in May 2021. Additionally, NMFS will include consultation results for fisheries covered under the Magnuson-Stevens Fishery Conservation Management Act (MSA).

3.1.2 U.S. Army Corps of Engineers

The proposed project will affect waters of the United States as defined in Section 404 of the CWA. An aquatic resources delineation report with a preliminary jurisdictional wetland delineation has been prepared dated October 2019. It will be submitted to USACE to gain confirmation of the jurisdictional resources at the project locations. A permit application will be submitted to USACE during the project's design phase.

3.1.3 U.S. Fish and Wildlife Service

USFWS species lists were created for the project in 2020 March 2021 and used to identify target species for reconnaissance-level surveys for terrestrial plants and animals. Caltrans completed consultation with the USFWS under Section 7 of FESA. Similar to NMFS, Caltrans has conducted extensive coordination with USFWS to identify how the proposed project may affect

federally listed species. On September 19, 2019, USFWS staff attended a site visit and interagency meeting with Caltrans staff to discuss potential impacts associated with placement of RSP.

A Biological Assessment for the project was prepared for and submitted to the USFWS, to initiate consultation under Section 7 on June 25, 2020, for the California red-legged frog, the marbled murrelet, and designated critical habitat for the California red-legged frog. On October 14, 2020 USFWS issued a letter and Biological Opinion providing their determination on FESA listed species and critical habitat as follows:

- The project is not likely to adversely affect marbled murrelet,
- The project is not likely to adversely affect critical habitat for marbled murrelet,
- The project is not likely to adversely affect designated critical habitat for California red legged frog, and
- The project is likely to adversely affect California red-legged frog.

The USFWS biological opinion details the effects of the proposed project on the California red-legged frog and includes a summary of the proposed action, conservation measures, species status, environmental baseline, their effects determination, a take statement, reasonable and prudent measures, terms and conditions, and conservation recommendations. Caltrans will implement all terms and conditions and reasonable and prudent measures included in the biological opinion.

3.1.4 California Department of Fish and Wildlife

CDFW species lists were created for the project in 2020 and updated in March 2021. A CFGC Section 1602 Lake or Streambed Alteration Agreement with CDFW is necessary when a project would alter the flow, bed, channel, or bank of a stream or lake. A 1602 application will be submitted to CDFW during the detailed design phase.

CDFW staff attended an interagency site visit on July 31, 2019, and CDFW and Caltrans have conducted coordination on this project. This includes discussions the potential impacts associated with RSP placement materials and methods and potential for impacts on fish passage at the Pilarcitos Creek location. Caltrans has also supplied CDFW with an updated hydraulic analysis at the Pilarcitos Creek location.

3.1.5 San Francisco Bay Regional Water Quality Control Board

Project construction could affect waters of the state. Pursuant to Section 401 of the CWA, a Notice of Intent will be submitted to the San Francisco Bay RWQCB. The project would implement any general Waste Discharge Requirements issued by the San Francisco Bay RWQCB. San Francisco Bay RWQCB staff attended a site visit and interagency meeting on July 31, 2019.

3.1.6 City of Half Moon Bay Local Coastal Program, and the California Coastal Commission

The Pilarcitos Creek Bridges are within the California Coastal Zone, within the City of Half Moon Bay (City). The San Gregorio Bridge is not within the Coastal Zone. The City has a Local

Coastal Program (LCP) adopted as part of their General Plan, and the project would require review by the City and potentially a local Coastal Development Permit (CDP). On June 13, 2019, CCC transmitted a letter to Caltrans, which provided initial comments on the proposed project. CCC staff attended a site visit and interagency meeting on July 31, 2019.

April 28, 2020: City of Half Moon Bay staff met with Caltrans staff via web conference to discuss and provide preliminary feedback on the proposed project and clarify potential impacts at the Pilarcitos Creek Bridges location associated with flood risk, disturbance to protected species, impacts to the Naomi Partridge Trail, and processing a CDP through Half Moon Bay's LCP.

3.2 Circulation, Review, and Comment on the Draft Environmental Document

A Notice of Completion (NOC) was filed with the State Clearinghouse on July 9, 2020. The filing of the NOC initiated a public review and comment period that extended from July 10, 2020, through August 10, 2020. During the review period, Caltrans held a public meeting on July 28, 2020, to share information about the project and collect comments on the IS from interested parties.

As a result of the COVID-19 emergency, the California Governor's Executive Orders N-33-20 and N-60-20, and San Mateo County's Order No. c19-5f, Caltrans conducted the July 28, 2020, public meeting from 6:00 PM to 7:30 PM via remote presence by video and teleconference to protect public health and safety. Meeting information, including links to the online meeting and call-in numbers, was made available at https://dot.ca.gov/caltrans-near-me/district-4/d4-popular-links/d4-environmental-docs. A copy of the presentation material was made available for download 24 hours before the meeting at the same website.

At the public meeting, Caltrans presented an overview of the project and provided information on how to provide formal comments on the project. The panelists for the presentation included 16 key staff members from the project development team and Caltrans functional units. The presentation was attended by three individuals. Comments received at the presentation were for informational purposes only and are not included in the response to formal comments. Two informal comments were provided. The first was from an anonymous attendee asking if Caltrans can include active links in their CEQA notification. This was responded to in the meeting with clarification that the digital flyer that was distributed did include an active link to project information and the online meeting platform. The second comment came from the City of Half Moon Bay's City Engineer, Maziar Bozorginia, that stated "Thank you for engaging with the City of Half Moon Bay on this Project." Caltrans responded in appreciation for the ongoing coordination with the City on this project. No other comments were received during the public meeting. No substantial issues, support, or protest were noted in the comments. No controversy was raised in the meeting.

All formal comments submitted on the draft IS and proposed MND are addressed, and responses published in this Final IS/MND (Appendix F).

3.3 Comments Received and Responses

Each comment letter or email that was received was reviewed and substantive comments were identified. The Draft IS/MND received a single comment during the 30-day review and comment period. This comment and response are included as Appendix F.

Chapter 4 List of Preparers

This document was prepared by the following Caltrans staff and consultants

California Department of Transportation

Office of Environmental Analysis

Stefan Galvez-Abadia, District Division Chief

Lindsay Vivian, Office Chief

Zachary Gifford, Branch Chief

Tanvi Gupta, Associate Environmental Planner

Project Management

Mohammad Suleiman, Senior Project Manager

Rommel Pardo, Project Manager

District 4 Design

Tam Ly, Branch Chief, South Counties

Richie Perez, Transportation Engineer, South Counties

Office of Biological Sciences and Permits

Cristin Hallissy, Office Chief

Gregory Pera, Branch Chief, Biology

Elizabeth Leyvas, Associate Environmental Planner, Biology

Office of Cultural Resource Studies

Kathryn Rose, Branch Chief, Archaeology

Britt Schlosshardt, Archaeologist

Architectural History

Helen Blackmore, Senior Environmental Planner

Charles Palmer, Associate Environmental Planner

Douglas Bright, Associate Environmental Planner

Landscape Architecture

Kimberly White, Branch Chief, San Mateo and Santa Clara Counties

Angela Kwan, Landscape Associate

Geotechnical Design

Anna Sojourner, Engineering Geologist

Christopher Risden, Senior Engineering Geologist

Stormwater Design

Kamran Nakhijiri, Branch Chief

Environmental Engineering

Kevin Krewson, Branch Chief, Air Quality and Noise

Christopher Wilson, District Branch Chief, Hazardous Waste

Kenny Tsan, Transportation Engineer, Air Quality and Noise

Karen Mai, Transportation Engineer, Office of Water Quality

Engineering Services, Hydraulics

Khai Leong, District Branch Chief, Office of Hydraulic Engineering San Francisco and San Mateo Counties

Alfredo Gutierrez, Structures Hydraulics Engineer

Environmental Management Office

Brenda Powell-Jones, Senior Environmental Planner, Climate Change Policy Advisor

Barbara Wolf, Environmental Planner

AECOM

Dillon Lennebacker, Environmental Planner

Jeff Zimmerman, Senior Environmental Planner

Stephanie Osby, Environmental Planner

DJ Allison, Senior Biologist

Dave Pecora, Senior Biologist

Kevin Melanaphy, Senior Biologist

Joseph Bandel, Biologist

Ben Pridonhoff, Biologist

Sarah Kassem, Water Engineer

Chapter 5 Distribution List

The following agencies, organizations, and individuals will receive electronic copies of this document.

Federal Agencies

Environmental Protection Agency,
Region 9
Public Affairs Office
Attn: Michael Alpern
75 Hawthorne Street
San Francisco, CA 94105

John Busterud, Regional Administrator
U. S. EPA, Region 9
75 Hawthorne Street
San Francisco, CA 94105

Susan Kelly, Chief
Engineering, Planning & Construction Division
U.S. Army Corps of Engineers
San Francisco District
450 Golden Gate Ave, 4th Floor
San Francisco, CA 94102

Paul Souza, Regional Director
United States Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, CA 95825

Jody Holzworth, Deputy Regional Director
United States Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, CA 95825

Robert J. Fenton, Jr., Regional Administrator
Federal Emergency Management Agency
Region IX
1111 Broadway, Ste. 1200
Oakland, CA 94607

Barry Thom, Regional Administrator
National Marine Fisheries Service
West Coast Regional Office
1201 Northeast Lloyd
Portland, OR 97232

Scott Rumsey, Regional Administrator
National Marine Fisheries Service
West Coast Regional Office
1201 Northeast Lloyd
Portland, OR 97232

State Agencies

Kate Gordon, Executive Director
Office of Planning and Research
State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814

Scott Morgan, Chief Deputy Director
Office of Planning and Research
State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814

Mitch Weiss, Executive Director
California Transportation Commission
1120 N Street, Room 2221, MS-52
Sacramento, CA 95814

Tanisha Taylor, Chief Deputy Director
California Transportation Commission
1120 N Street, Room 2221, MS-52
Sacramento, CA 95814

Michael Benjamin, Division Chief
Air Quality Planning and Science Division
California Air Resources Board
1001 I Street
P.O. Box 2815
Sacramento, CA 95812

David Edwards, Assistant Division Chief
Air Quality Planning and Science Division
California Air Resources Board
1001 I Street
P.O. Box 2815
Sacramento, CA 95812

David Shabazian, Director
California Department of Conservation
801 K Street, MS 24-01
Sacramento, CA 95814

Clayton Haas, Assistant Director
California Department of Conservation
801 K Street, MS 24-01
Sacramento, CA 95814

Charlton H. Bonham, Director
California Department of Fish & Wildlife
Region 3
1416 9th Street, 12th Floor
Sacramento, CA 95814

Valerie Termini, Chief Deputy Director
California Department of Fish & Wildlife
Region 3
1416 9th Street, 12th Floor,
Sacramento, CA 95814

Lisa Mangat, Director
California Department of Parks and Recreation
Natural Resources Division
P.O. Box 942896
Sacramento, CA 94296

Karla Kemeth, Director
California Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-0001

Cindy Messer, Chief Deputy Director
California Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-0001

Julianne Polanco, State Historic Preservation Officer
Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816

San Francisco Regional Water Quality Control Board, Region 2
1515 Clay St
Suite 1400
Oakland, CA 94612

Dan Carl, District Director North Central Coast and Central Cast
California Coastal Commission
45 Fremont Street #2000,
San Francisco, CA 94105

Regional Agencies

Executive Officer, Jack Broadbent
Bay Area Air Quality Management District
375 Beale Street
Suite 600
San Francisco, CA 94105

Alix Bockelman, Deputy Executive Director
Metropolitan Transportation Commission
375 Beale Street, Suite 700
San Francisco, CA 94105

Therese McMillan, Executive Director
Association of Bay Area Government
Bay Area Metro Center
375 Beale Street, Suite 800
San Francisco, CA 94105

Local Agencies

Jill Ekas, Community Development Director
Hal Moon Bay Community Development
501 Main Street
Half Moon Bay, CA 94019

Douglas Garrison, Senior Planner,
City of Half Moon Bay Planning Division
501 Main Street
Half Moon Bay, CA 94019

John Doughty, Public Works Director,
City of Half Moon Bay Public Works
501 Main Street
Half Moon Bay, CA 94019

Todd Seeley, Public Works Superintendent,
City of Half Moon Bay Public Works
501 Main Street
Half Moon Bay, CA 94019

Steve Monowitz, Community Development Director
San Mateo County
Planning and Building Department
455 County Center
Redwood City, CA 94063

Lisa Aozasa, Deputy Community Development Director
San Mateo County
Planning and Building Department
455 County Center
Redwood City, CA 94063

Joe LaClair, Planning Services Manager
San Mateo County
Planning and Building Department
455 County Center
Redwood City, CA 94063

Jim Porter, Public Works Director
San Mateo County
Department of Public Works
555 County Center
5th Floor
Redwood City, CA 94063

Khoa Vo, Deputy Public Works Director
San Mateo County
Department of Public Works
555 County Center
5th Floor
Redwood City, CA 94063

Diana Shu, Road Operations Director
San Mateo County
Department of Public Works
555 County Center
5th Floor
Redwood City, CA 94063

Emily Beach, Chair
San Mateo County Transportation Authority
1250 San Carlos Ave.
P.O. Box 3006
San Carlos, CA 94070-1306

Federal Elected Officials

The Honorable Dianne Feinstein
United States Senate
One Post Street
Suite 2450
San Francisco, CA 94104

The Honorable Alex Padilla
United States Senate
333 Bush Street, Suite 3225
San Francisco, CA 94104

The Honorable Jackie Speier
United States House of Representatives (CA-14)
155 Bovet Road, Suite 780
San Mateo, CA 94402

State Elected Officials

The Honorable Josh Becker,
California State Senate District 13
1528 South El Camino Real, Suite 303
San Mateo, CA 94402

The Honorable Marc Berman
California State Assembly District 24
5050 El Camino Real, Suite 117
Los Altos, CA 94022

Local Elected Officials

The Honorable Don Horsley, San Mateo County
Board of Supervisors, District 3
400 County Center
Redwood City, CA 94063

Adam Eisen, Mayor
City of Half Moon Bay
City Hall
501 Main St.
Half Moon Bay, CA 94019

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Appendix A. Species with a Potential to Occur in the Project Footprints and Supporting Rationale

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Table A-1. Special Status Plant Species: Listed or Proposed Species Potentially Occurring or Known to Occur in the BSA

Common Name	Scientific Name	Status	General Habitat Description/Bloom Period/Elevation Range	Habitat Present/ Absent	Potential to Occur/Rationale
San Mateo thorn-mint	*Acanthomintha duttonii*	FE/SE/CRPR List 1B.1	Serpentinite, chaparral and valley and foothill grassland. Blooms: April-June. Elevation range 50-300 m.	Absent	**None.** Outside the elevation range at Pilarcitos Creek and not suitable habitat at either site. Not observed during botanical surveys.
Blasdale's bent grass	*Agrostis blasdalei*	--/--/CRPR List 1B.2	Coastal bluff scrub, coastal dunes, coastal prairie. Blooms: May-July. Elevation range 0-150 m.	Absent	**None.** Outside the elevation range at San Gregorio Creek and not suitable habitat at either site. Not observed during botanical surveys.
Franciscan onion	*Allium peninsulare* var. *franciscanum*	--/--/CRPR List 1B.2	Clay, volcanic, often serpentinite, cismontane woodland and valley and foothill grassland. Blooms: May-June. Elevation range 52-3000 m.	Present	**Low.** Outside the elevation range at Pilarcitos Creek. Potential woodland habitat at San Gregorio Creek; however, the nearest CNDDB occurrence is 7 miles away and the species was not observed during botanical surveys.
Bent-flowered fiddleneck	*Amsinckia lunaris*	--/--/CRPR List 1B.2	Clay, volcanic, often serpentinite, cismontane woodland and valley and foothill grassland. Blooms: May-June. Elevation range 52-3000 m. Blooms March-June. Elevation range 3-500 m.	Absent	**None.** There is no suitable habitat at either site, there are no CNDDB occurrences within 10 miles and not observed during botanical surveys.
Anderson's manzanita	*Arctostaphylos andersonii*	--/--/CRPR List 1B.2	Broad-leafed upland forest, chaparral, north coast coniferous forest. Blooms November-May. Elevation range 60-760 m.	Present	**Low.** Outside the elevation range at Pilarcitos Creek. Potential habitat at San Gregorio Creek in North Coast coniferous forest and the nearest CNDDB occurrence is 3.8 miles away. Not observed during botanical surveys.
Montara manzanita	*Arctostaphylos montaraensis*	--/--/CRPR List 1B.2	Chaparral (maritime), Coastal scrub. Blooms January-March. Elevation range 80-500 m.	Absent	**None.** Outside the elevation range at Pilarcitos Creek. There is no suitable habitat at the San Gregorio Creek site. Not observed during botanical surveys.

Common Name	Scientific Name	Status	General Habitat Description/Bloom Period/Elevation Range	Habitat Present/ Absent	Potential to Occur/Rationale
Kings Mountain manzanita	*Arctostaphylos regismontana*	--/--/CRPR List 1B.2	Broad-leafed upland forest, chaparral, north coast coniferous forest. Blooms December-April. Elevation range 305-730 m.	Absent	**None.** Outside the elevation range at both Pilarcitos Creek and San Gregorio Creek sites. Not observed during botanical surveys.
Coastal marsh milk-vetch	*Astragalus pycnostachyus* var. *pycnostachyus*	--/--/CRPR List 1B.2	Coastal dunes (mesic), coastal scrub, marshes and swamps (coastal salt, streamsides). Blooms (April) June-October. Elevation range 0-30 m.	Absent	**None.** Outside the elevation range at San Gregorio Creek. No coastal dunes, coastal scrub or marshes, and therefore, no suitable habitat. Not observed during botanical surveys.
Franciscan thistle	*Cirsium andrewsii*	--/--/CRPR List 1B.2	Broad-leafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub. Blooms: March-July. Elevation range 0-150 m.	Present	**Low.** Outside the elevation range at San Gregorio Creek. Broad-leafed upland forest at Pilarcitos Creek has potential habitat. However, the nearest CNDDB occurrence is over 7 miles away and species was not observed during botanical surveys.
Fountain thistle	*Cirsium fontinale var. fontinale*	FE/SE/CRPR List 1B.1	Serpentinite seeps, chaparral (openings), Cismontane woodland and valley and foothill grassland. Blooms: May-October. Elevation range 45-175 m.	Absent	**None.** Outside the elevation range at San Gregorio Creek. The habitat is not suitable at Pilarcitos Creek and the nearest CNDDB occurrence is 5 miles away. Not observed during botanical surveys.
San Francisco collinsia	*Collinsia multicolor*	--/--/CRPR List 1B.2	Sometimes serpentinite, closed-cone coniferous forest, coastal scrub. Blooms: (February) March-May. Elevation range 30-250 m.	Absent	**None.** Outside the elevation range at San Gregorio Creek. No suitable habitat at Pilarcitos Creek and nearest CNDDB occurrence is over 4.8 miles away. Not observed during botanical surveys.
Western leatherwood	*Dirca occidentalis*	--/--/CRPR List 1B.2	Broad-leafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, riparian forest, riparian woodland. Blooms January-March. Elevation ranges 50-396m.	Present	**Low.** Outside the elevation range at Pilarcitos Creek. Potential habitat at San Gregorio Creek in the riparian and coniferous forest; the nearest CNDDB occurrence is less than a mile away. Habitat is present but none were observed during botanical surveys.

Common Name	Scientific Name	Status	General Habitat Description/Bloom Period/Elevation Range	Habitat Present/ Absent	Potential to Occur/Rationale
San Mateo woolly sunflower	*Eriophyllum latilobum*	FE/SE/CRPR List 1B.1	Cismontane woodland (often serpentinite, on roadcuts). Blooms: May-June. Elevation range 45-150 m.	Absent	**None.** Outside the elevation range at San Gregorio Creek. There is no suitable habitat at Pilarcitos Creek and was not observed during botanical surveys. The nearest CNDDB occurrence is 5 miles away..
Hillsborough chocolate lily	*Fritillaria biflora var. ineziana*	--/--/CRPR List 1B.1	Cismontane woodland, valley and foothill grassland. Blooms: March-April. Elevation range 150-150 m	Absent	**None.** Outside the elevation range at both Pilarcitos Creek and San Gregorio Creek sites. Nearest CNDDB occurrence is approximately 3.8 miles away from Pilarcitos Creek.
Fragrant fritillary	*Fritillaria liliacea*	--/--/CRPR List 1B.2	Often serpentinite, Cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland. Blooms: February-April. Elevation range 3-410 m.	Absent	**None.** Nearest CNDDB occurrence is 8 miles away from San Gregorio Creek site location and 4.8 miles away from Pilarcitos Creek location. The habitat is not suitable at either site. Not observed during surveys.
Short-leaved evax	*Hesperevax sparsiflora var. brevifolia*	--/--/CRPR List 1B.2	Coastal bluff scrub (sandy), coastal dunes and coastal prairie. Blooms: March-June. Elevation range 0-215 m.	Absent	**None.** Outside the elevation range at San Gregorio Creek. There is no suitable habitat at Pilarcitos Creek and species was not observed during botanical surveys..
Marin western flax	*Hesperolinon congestum*	FT/ST/CRPR List 1B.1	Serpentinite, chaparral and valley and foothill grassland. Blooms: April-July. Elevation range 5-370 m.	Absent	**None.** No suitable habitat at either site, the nearest CNDDB occurrence is 5.4 miles away from Pilarcitos Creek site and none were observed during botanical surveys.
Kellogg's horkelia	*Horkelia cuneata var. sericea*	--/--/CRPR List 1B.1	Closed-cone coniferous forest, chaparral (maritime), coastal dunes, coastal scrub. Blooms: April-September. Elevation range 10-200 m.	Absent	**None.** No suitable habitat at either site. None were observed during botanical surveys.

Common Name	Scientific Name	Status	General Habitat Description/Bloom Period/Elevation Range	Habitat Present/ Absent	Potential to Occur/Rationale
Point Reyes horkelia	*Horkelia marinensis*	--/--/CRPR List 1B.2	Coastal dunes, coastal prairie, and coastal scrub. Blooms: May-September. Elevation range 5-755 m.	Absent	**None.** No suitable habitat at either site. None were observed during botanical surveys.
Island tube lichen	*Hypogymnia schizidiata*	--/--/CRPR List 1B.3	Closed-cone coniferous forest, chaparral. No blooming period. Elevation range 360-755 m.	Absent	**None.** Outside the elevation range at both Pilarcitos Creek and San Gregorio Creek sites. No suitable habitat at either site. None were observed during botanical surveys.
Perennial goldfields	*Lasthenia californica ssp. macrantha*	--/--/CRPR List 1B.2	Coastal bluff scrub, coastal dunes and coastal scrub. Blooms: January-November. Elevation range 5-520 m.	Absent	**None.** No suitable habitat at either site. None were observed during botanical surveys.
Coast yellow leptosiphon	*Leptosiphon croceus*	--/CC/CRPR List 1B.1	Coastal bluff scrub and coastal prairie. Blooms: April-June. Elevation range 10-150 m.	Absent	**None.** Outside the elevation range at San Gregorio Creek. No suitable habitat at either site. None were observed during botanical surveys.
Crystal Springs lessingia	*Lessingia arachnoidea*	--/--/CRPR List 1B.2	Cismontane woodland, coastal scrub and valley and foothill grassland. Blooms: July through October. Elevation range 60-200 m.	Absent	**None.** Outside the elevation range at Pilarcitos Creek. No CNDDB occurrences within 10 miles of the San Gregorio Creek site. None were observed during botanical surveys.
Ornduff's meadowfoam	*Limnanthes douglasii ssp. ornduffii*	--/--/CRPR List 1B.1	Meadows and seeps. Blooms: November-May. Elevation range 10-20 m.	Absent	**None.** Outside the elevation range at both Pilarcitos Creek and San Gregorio Creek sites. No suitable habitat at either site. None were observed during botanical surveys.
Arcuate bush-mallow	*Malacothamnus arcuatus*	--/--/CRPR List 1B.2	Chaparral and cismontane woodland. Blooms: April-September. Elevation range 15-355 m.	Absent	**None.** No suitable habitat at either site. None were observed during botanical surveys.

Common Name	Scientific Name	Status	General Habitat Description/Bloom Period/Elevation Range	Habitat Present/ Absent	Potential to Occur/Rationale
Woodland woolythreads	*Monolopia gracilens*	--/--/CRPR List 1B.2	Serpentine, broad leafed upland forest (openings), chaparral (openings), cismontane woodland, North Coast coniferous forest (openings), and valley and foothill grassland. Blooms: February-July. Elevation range 100-1200 m.	Present	**Low.** Outside the elevation range at Pilarcitos Creek. Potential habitat consisting of North Coast coniferous forest is present at San Gregorio Creek site and a CNDDB occurrence was recorded in the vicinity of the site. None were observed during botanical surveys.
White-rayed pentachaeta	*Pentachaeta bellidiflora*	FE/SE/CRPR List 1B.1	Cismontane woodland, valley and foothill grassland (often serpentinite). Blooms: March-May. Elevation range 35-620 m.	Absent	**None.** No suitable habitat at either site. The nearest CNDDB occurrence to the Pilarcitos Creek site is 5 miles away and at San Gregorio Creek more than 10 miles away. None were observed during botanical surveys
Choris' popcornflower	*Plagiobothrys chorisianus var. chorisianus*	--/--/CRPR List 1B.2	Chaparral, coastal prairie, coastal scrub. Blooms: March-June. Elevation range 3-160 m.	Present	**Low.** Outside the elevation range at San Gregorio Creek. The nearest CNDDB occurrence to the Pilarcitos Creek site is 0.5 mile away. The habitat at Pilarcitos Creek is marginal for this species; none were observed during botanical surveys.
Oregon polemonium	*Polemonium carneum*	--/--/CRPR List 2B.2	Coastal prairie, coastal scrub and lower montane coniferous forest. Blooms: April-September. Elevation range 0-1830 m.	Absent	**None.** There are no nearby CNDDB occurrences within 10 miles of the project sites.
Hickman's cinquefoil	*Potentilla hickmanii*	FE/SE/CRPR List 1B.1	Coastal bluff scrub, closed-cone coniferous forest, meadows and seeps (vernally mesic), marshes and swamps (freshwater). Blooms: April-August. Elevation range 10-149 m.	Absent	**None.** Outside the elevation range at San Gregorio Creek. The nearest CNDDB occurrence to the Pilarcitos Creek site is 5.5 miles away. The habitat at Pilarcitos Creek seems to be unsuitable for this species. None were observed during botanical surveys.

Common Name	Scientific Name	Status	General Habitat Description/Bloom Period/Elevation Range	Habitat Present/ Absent	Potential to Occur/Rationale
Chaparral ragwort	*Senecio aphanactis*	--/--/CRPR List 2B.2	Chaparral, cismontane woodland and coastal scrub. Blooms: January-April (May). Elevation range 15-800 m.	Absent	**None.** No suitable habitat at either site for this species. The nearest CNDDB occurrence is 5.2 miles away from the San Gregorio Creek site. None were observed during botanical surveys.
Scouler's catchfly	*Silene scouleri* ssp. *scouleri*	--/--/CRPR List 2B.2	Coastal bluff scrub, Coastal prairie and valley and foothill grassland. Blooms: (March-May) June-August (September). Elevation range 0-600 m.	Absent	**None.** No suitable habitat at either site for this species. The nearest CNDDB occurrence is 7.1 miles away from the San Gregorio Creek site. None were observed during botanical surveys.
San Francisco campion	*Silene verecunda* ssp. *verecunda*	--/--/CRPR List 1B.2	Coastal bluff scrub, chaparral, coastal prairie, coastal scrub, valley and foothill grassland. Blooms: (February) March-June (August). Elevation range 30-645 m.	Absent	**None.** The nearest CNDDB occurrence to the Pilarcitos Creek site is 4 miles away and more than 10 miles away for the San Gregorio Creek site. The habitat at either site does not seem suitable for the species. None were observed during botanical surveys.
San Francisco owl's-clover	*Triphysaria floribunda*	--/--/CRPR List 1B.2	Coastal prairie, coastal scrub, valley and foothill grassland. Blooms: April-June. Elevation range 10-160 m.	Present	**None.** Outside the elevation range at San Gregorio Creek. The nearest CNDDB occurrence to the Pilarcitos Creek site is 4.6 miles away. The habitat at Pilarcitos Creek does not seem suitable for the species. None were observed during botanical surveys.
Coastal triquetrella	*Triquetrella californica*	--/--/CRPR List 1B.2	Coastal bluff scrub and coastal scrub. No blooming period. Elevation range 10-100 m.	Absent	**None.** Outside the elevation range at San Gregorio Creek. The nearest CNDDB occurrence to the Pilarcitos Creek site is 9.5 miles away. The habitat does not appear to be suitable for this species and none were observed during botanical surveys.

Notes:

FE = Federal endangered
FC = Federal candidate
FP = fully protected
FT = Federally threatened
SE = State endangered
SC = State candidate
ST = State threatened
SSC = State species of special concern
CRPR = California Rare Plant Rank:
List 1B.1= Rare throughout range; more than 80 percent of occurrences threatened
List 1B.2 = Rare throughout range; 20 to 80 percent of occurrences threatened
2A = Plants presumed extirpated in California, but common elsewhere
2B = Plants rare, threatened, or endangered in California, but more common elsewhere.

Table A-2. Bird Species: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the BSA

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/ Absent	Potential to Occur/Rationale
Long-eared owl	*Asio otus*	--/SSC	They build stick nests in trees or cliffs, in abandoned squirrel nests or on the ground and forage in grasslands, shrublands, coniferous forests or deciduous forests.	Present	**Low.** The nearest CNDDB occurrence is 5.3 miles away from the San Gregorio Creek site and there are no other occurrences within 10 miles. Despite the low numbers of occurrences, the trees and forest habitat in the project footprints could be potentially suitable habitat for them to build their stick nests.
Burrowing owl	*Athene cunicularia*	-- /SSC	Inhabits open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Typically nests in mammal burrows.	Absent	**None.** At both locations the BSA is dominated by forests and trees. There is no suitable habitat for this species at either location.
Marbled murrelet	*Brachyramphus marmoratus*	FT/SE	[Nesting Trees] Nests inland from coast in old-growth redwood dominated forests.	Present	**Low.** No suitable nesting habitat at Pilarcitos Creek. There are six CNDDB occurrences within 5 miles of the San Gregorio Creek BSA, with the nearest being 1.5 miles west. Surveys indicate that suitable old growth redwood trees, or large redwood trees with suitable platforms for nesting were not present in the San Gregorio Creek BSA; although, there is potential for the nesting platforms to occur within redwood forest habitat just south of the BSA.
Marbled murrelet-critical habitat	*Brachyramphus marmoratus*		Revised federally designated critical habitat for the marbled murrelet became final in the Federal Register on November 4, 2011.	Present	The southern part of the San Gregorio Creek BSA overlaps with critical habitat mapped in Sam McDonald County Park
Western snowy plover	*Charadrius nivosus nivosus*	FT/SSC	Nests on sandy beaches, salt pond levees, and shores of large alkali lakes.	Absent	**None.** None of these nesting habitats are present in the BSA at either project site.
Black swift	*Cypseloides niger*	--/SSC	Requires specialized forested areas near rivers where nests are behind waterfalls or damp cliffs.	Absent	**None.** No suitable habitat (i.e., waterfalls or damp cliffs) occur in the BSA at either location.

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/ Absent	Potential to Occur/Rationale
American peregrine falcon	*Falco peregrinus anatum*	FD/SD, FP	[Nesting Habitat] Open country including tundra, coastal, mountainous, and forested regions; nests on rocky cliff ledges, large trees or tall urban structures near water	Absent	**Low.** There are no cliff ledges or tall urban structures in either BSA. There are large alder trees at the Pilarcitos Creek BSA near the coastline and some open habitat areas nearby that are marginally suitable for this species.
Saltmarsh common yellowthroat	*Geothlypis trichas sinuosa*	--/SSC	Resident of San Francisco Bay region in fresh and saltwater marshes and riparian areas.	Absent	**None.** There are no saltmarshes or riparian areas near San Francisco Bay in either BSA.
Bald eagle	*Haliaeetus leucocephalus*	FD/SE, FP	Nests primarily in large trees, usually within 1 mile of water; forages along ocean shore, lake margins, and large rivers.	Present	**Low**. The closest CNDDB occurrence is from 6.2 miles away. Although the San Gregorio Creek BSA is not near a large water source, the Pilarcitos Creek BSA is near the Pacific Ocean. However, due to lack of large trees with stick nests in either BSA, it is unlikely that this species would nest at Pilarcitos Creek or San Gregorio Creek Bridge sites.
California black rail	*Laterallus jamaicensis coturniculus*	--/ST, FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays.	Absent	**None.** There are no freshwater or saltwater marshes, meadows or shallow margins at either BSA.
Alameda song sparrow	*Melospiza melodia pusillula*	--/SSC	Resident of the borders between saltmarsh and upland habitats within the south arm of San Francisco Bay.	Absent	**None.** Neither BSA is near the San Francisco Bay or near saltmarsh habitats. The habitat is not suitable for this species.
California Ridgway's rail	*Rallus obsoletus*	FE/SE, FP	Saltwater and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay.	Absent	**None.** Neither of these project sites are near San Francisco Bay or near saltmarsh habitats. The habitat is not suitable for this species in either BSA.
Bank swallow	*Riparia riparia*	--/ST	[Nesting] Bank Swallows nest in fresh banks or earthen walls, and on occasion buildings, and forage insects over fields, streams, wetlands, farmlands, and still water.	Absent	**None.** There are no fresh banks of earthen walls or buildings for this species to nest on in either BSA. The nearest CNDDB occurrence is over 6.1 miles away.

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/ Absent	Potential to Occur/Rationale
California least tern	*Sterna antillarum browni*	FE/SE, FP	Nests along the coast on open beaches from San Francisco Bay south to northern Baja California. Forages in coastal and estuarine waters.	Absent	**None.** There are no beaches in either BSA for this species to nest.
Short-tailed albatross	*Phoebastria albatrus*	FE/SSC	Nests off islands in Japan and spend most of their lives at sea.	Absent	**None.** The BSA at both locations are not close to areas where this species nests.

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Table A-3. Mammal Species: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the BSA

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/ Absent	Potential to Occur/Rationale
Pallid bat	*Antrozous pallidus*	--/SSC	Found in low elevations in California, foraging in grasslands, scrub, open woodlands, and forests. Roosts in caves, crevices, mines, and hollow trees.	Present	**Low**. The BSA at both locations provides marginal potential foraging and roosting habitat in trees and forests. No bats were observed during site surveys at both locations.
Townsend's big-eared bat	*Corynorhinus townsendii*	--/SSC	Throughout California in a wide variety of habitats, but almost always near caves or abandoned mines, and other roosting areas (sometimes in abandoned buildings or large tree cavities). They can be found in pine forests and arid desert scrub habitats. Most common in mesic sites.	Absent	**None.** No caves or abandoned mines have been found in the BSA at either location and there are no abandoned buildings. Unlikely for them to use any tree cavities at either BSA.
Southern sea otter	*Enhydra lutris nereis*	FT/FP	In marine environments along the California coast from Half Moon Bay to Santa Barbara.	Absent	**None.** There are no marine environments in the BSA.
Hoary bat	*Lasiurus cinereus*	--/--	Prefers open habitats or habitat mosaics, with access to trees for roosting and open areas or habitat edges for feeding	Absent	**Low.** The trees in the BSA are in forested areas lacking open areas that are not preferred by this species.
San Francisco dusky-footed woodrat	*Neotoma fuscipes annectens*	--/SSC	Occupies forested habitats of moderate canopy and moderate to dense understory. May prefer chaparral and redwood habitats.	Present	**Moderate.** The riparian woodland and forested habitats in both BSAs provide potential habitat for this species.
Big free-tailed bat	*Nyctinomops macrotis*	--/SSC	Breeds in Mexico, Texas, New Mexico and southern Arizona. Prefers rugged, rocky terrain. Roosts in buildings, caves and occasionally in holes in trees.	Absent	**None.** There is no suitable habitat for this species in either BSA.
Salt-marsh harvest mouse	*Reithrodontomys raviventris*	FE/SE, FP	Occurs only in saline emergent wetlands and tributaries of San Francisco Bay. Associated with stands of pickleweed (Salicornia).	Absent	**None.** There is no suitable habitat for this species in either BSA.

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/ Absent	Potential to Occur/Rationale
American badger	*Taxidea taxus*	--/SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Absent	**Low.** This species prefers open habitats whereas the habitats in the BSA are dense with vegetation and in moister areas.

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Table A-4. Reptile Species: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the BSA

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/ Absent	Potential to Occur/Rationale
Green sea turtle	*Chelonia mydas*	FT/--	Shallow tropical and subtropical waters and coastlines.	Absent	**None.** There is no suitable marine aquatic habitat or beaches for this species in either project footprint.
Western pond turtle	*Emys marmorata*	--/SSC	Northern California and Oregon. Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation. Nests in nearby uplands.	Present	**Moderate.** The nearest CNDDB occurrence is 2.2 miles away from San Gregorio Creek. Aquatic habitat in Pilarcitos Creek and San Gregorio Creek is potentially suitable for this species.
San Francisco garter snake	*Thamnophis sirtalis tetrataenia*	FE/SE, FP	Heavily vegetated freshwater wetlands and ponds with available basking habitat. Known range limited to San Mateo and Santa Cruz counties. Feeds on amphibians such as California red-legged frog.	Absent	**Low.** There are no suitable freshwater wetlands or ponds in either BSA. The riparian area at San Gregorio Creek is heavily wooded and thus lacks basking areas. The riparian area at Pilarcitos Creek is heavily disturbed and frequented by human activity. The freshwater creeks and riparian zones may provide potential dispersal habitat.

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Table A-5. Amphibian Species: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the BSA

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/ Absent	Potential to Occur/Rationale
California tiger salamander	*Ambystoma californiense*	FT/ST	Occupies underground mammal burrows in grasslands and woodlands and migrates to freshwater ponds and vernal pools to reproduce.	Absent	**None.** There are no grassland or woodland areas with mammal burrows that would provide suitable upland habitat nor are there suitable freshwater ponds or vernal pools for breeding habitat for this species at both location's BSA. The nearest CNDDB occurrence is over 8.1 miles away.
Santa Cruz black salamander	*Aneides niger*	--/SSC	Occurs in mixed deciduous woodland, coniferous forests, coastal grasslands. Found under rocks near streams, in talus, under damp logs, and other objects. (CalHerps)	Present	**Moderate.** Suitable habitat is present in the forested habitat at both BSA locations. There is a CNDDB occurrence within 1.2 miles northeast of the San Gregorio Creek BSA.
California giant salamander	*Dicamptodon ensatus*	--/SSC	Occurs in wet coastal forests in or near clear, cold permanent and semi-permanent streams and seepages.	Present	**Moderate.** Habitat for adults and sub-adults is present in the San Gregorio Creek BSA in the form of cold permanent, semi-permanent stream and coastal forest habitats.
Foothill yellow-legged frog	*Rana boylii*	--/SE, SSC	Partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	Present	**Moderate.** Habitat for adults and sub-adults is present in the San Gregorio Creek BSA in the form of streams with riffles and rocky substrates in a variety of habitats. Several CNDDB occurrences within 2 miles of the San Gregorio Creek BSA. The Pilarcitos Creek BSA lacks rocky substrate to be suitable for this species.
California red-legged frog	*Rana draytonii*	FT/SSC	Dense, emergent, and riparian vegetation associated with deep (0.7 m), still or slow-moving water.	Present	**High.** Habitat for adults and sub-adults are present in the creeks, pools and riparian vegetation and variety of habitats present at each BSA. Multiple CNDDB occurrences within 1 mile of Pilarcitos Creek Bridge.
California red-legged frog-critical habitat	*Rana draytonii*		Revised critical habitat for the California red-legged frog became final in the Federal Register on April 16, 2010.	Present	**High.** The Pilarcitos Creek BSA is not within designated critical habitat for the California red-legged frog. The San Gregorio Creek BSA is within the SNM-2 critical habitat Unit.

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/ Absent	Potential to Occur/Rationale
Red-bellied newt	*Taricha rivularis*	--/SSC	Rapid flowing streams with rocky substrate in proximity to redwood forests. Known range from Humboldt County to Sonoma County along the coast with potential isolated population in Stevens Creek watershed in Santa Clara County.	Present	**Low.** Although habitat is present at San Gregorio Creek, its presence in this location would be outside the known range for this species**.**

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Table A-6. Fish Species: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the BSA

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/ Absent	Potential to Occur/Rationale
Tidewater goby	*Eucyclogobius newberryi*	FE/SSC	Inhabits estuaries of the Pacific Coast in areas of aquatic vegetation.	Absent	**None.** There are no estuaries in the BSA or suitable habitat for this species.
Delta Smelt	*Hypomesus transpacificus*	FT/SE	Sacramento/San Joaquin Delta, seasonally in Suisun Bay, Carquinez Strait, and San Pablo Bay.	Absent	**None.** No suitable habitat in the BSA and outside the known range of this species.
Coho salmon – Central California Coast ESU	*Oncorhynchus kisutch pop. 4*	FE/SE	Unimpeded, anadromous coastal watercourses, from Punta Gorda to San Francisco Bay, including the bay.	Present	**High.** This species is known to occur in portions of the San Gregorio watershed. This species is not expected to occur in the Pilarcitos watershed.
Coho salmon – Central California Coast ESU designated critical habitat			Critical habitat for this species was designated in 1999. Includes may streams in San Mateo County.	Present	**High.** Designated critical habitat is present at both Pilarcitos and San Gregorio creeks.
Steelhead – Central California Coast DPS	*Oncorhynchus mykiss irideus pop. 8*	FT/--	Unimpeded, anadromous coastal watercourses, from Russian River, south to Soquel to, but not including, Pajaro River. Also San Francisco & San Pablo Bay basins.	Present	**High.** This species is known to occur in portions of both the Pilarcitos and San Gregorio watersheds.
Steelhead – Central California Coast DPS designated critical habitat			critical habitat for this species was designated in 2005. Includes many streams in San Mateo County.	Present	**High.** Designated critical habitat is present at both Pilarcitos and San Gregorio creeks.
Longfin smelt	*Spirinchus thaleichthys*	FC/ST	Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	Absent	**None.** No suitable habitat for this species in the BSA and outside its known range.

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Table A-7. Invertebrate Species: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the BSA

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/ Absent	Potential to Occur/Rationale
Obscure bumble bee	*Bombus caliginosus*	--/--/--	Grassy coastal prairies and coast range meadows along the Pacific Coast, from southern California to southern British Columbia.	Absent	**Low.** There is not suitable habitat in the BSA for this species.
Crotch bumble bee	*Bombus crotchii*	--/SC	Inhabits open grassland and scrub habitats and nesting occurs underground. Occurs from northern California to Mexico border.	Absent	**Low.** There is no suitable open habitat in the BSA for this species.
Western bumble bee	*Bombus occidentalis*	--/SC	Inhabits open grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows. Typically nests in underground burrows or other cavities.	Absent	**Low.** There is no suitable open habitat in the BSA for this species.
San Bruno Elfin Butterfly	*Callophrys mossii bayensis*	FE/--	Inhabits rocky outcrops and cliffs in coastal scrub on the San Francisco Peninsula, endemic to this habitat in California.	Absent	**None.** There are no rocky outcrops and cliffs in coastal scrub in the BSAs. The BSAs are outside the known range of this species.
Bay checkerspot butterfly	*Euphydryas editha bayensis*	FT/--	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco bay.	Absent	**None.** There are no serpentine grasslands or any of the host plants for this species in the BSAs. The BSA locations are outside the known range of this species.
Edgewood Park micro-blind harvestman	*Microcina edgewoodensis*	--/--	Serpentine rocks in grassland adjacent to scrub oaks.	Absent	**None.** There are no serpentine grasslands or any of the host plants for this species in the BSA. The BSA locations are outside the known range of this species.
Mission blue butterfly	*Plebejus icarioides missionensis*	FE/--	Coastal chaparral and grasslands where host plants (lupine spp.) and nectar plants occur.	Absent	**None.** There are no chaparral or grassland habitats or any of the host plants for this species in the BSA. The BSA locations are outside the known range of this species.
Myrtle's silverspot butterfly	*Speyeria zerene myrtleae*	FE/--	Coastal sand dunes or prairie habitat within 3 miles of the coast that are sheltered by wind. Range is from San Mateo County to mouth of Russian River.	Absent	**None.** There are no coastal sand dunes or prairie habitat that is suitable for this species in the BSA.

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Appendix B. Avoidance, Minimization, and/or Mitigation Summary

To be sure that all environmental measures identified in this document are executed at the appropriate times, the following mitigation program (as articulated in the proposed Environmental Commitments Record [ECR] that follows) will be implemented. During project design, the following avoidance, minimization, and/or mitigation measures will be incorporated into the project's final plans, specifications, and cost estimates, as appropriate. All permits will be obtained prior to implementation of the project. During construction, environmental and construction/engineering staff will ensure that the commitments contained in this ECR are fulfilled. Following construction and appropriate phases of project delivery, long-term mitigation maintenance and monitoring will take place, as applicable. Some measures may apply to more than one resource area. Duplicative or redundant measures have not been included in this ECR.

Table B-1: Environmental Commitments

Resource Type	Minimization and/or Mitigation Measure	IS Section Reference	Responsible Party	Timing
Biological	**BIO-1 Work Windows**. • Work in the Pilarcitos Creek and San Gregorio Creek riparian areas (above the ordinary high water mark) will be restricted to April 15 to October 15 to avoid or reduce impacts to special-status species and their habitat. • Work within the channels (below the ordinary high water mark) of Pilarcitos and San Gregorio creeks will be limited to the period of June 15 to October 15 to avoid impacts to listed fish species.	2.2.4 2.2.10	Caltrans	Construction
Biological	**BIO-2 •Revegetation Plan**. Caltrans will develop and implement a revegetation plan to enhance and improve areas where riparian vegetation is removed or disturbed. • Native riparian trees with a diameter at breast height greater than 4 inches will be replaced-in-kind and on site at a ratio to be determined in consultation with the appropriate regulatory agencies.	2.2.1 2.2.4 2.2.10 2.2.16	Caltrans	Construction
Biological	**BIO-3 Invasive Plant Removal**. Plant species identified by the California Invasive Plant Council (Cal-IPC) as "high" (poison hemlock, jubata grass, French broom, English ivy, cape ivy, and Himalayan blackberry) will be removed from the project footprint by bagging vegetative parts of the plant; removing the entire root system, if possible; and replacing disturbed areas with native vegetation that will become established before invasive species take hold.	2.2.1 2.2.4 2.2.10	Caltrans	Construction
Biological	**BIO-4 Preconstruction Tree Survey**. Prior to construction, Caltrans will conduct a survey to identify and mark trees for removal, and trees that will remain during construction. Whenever possible, trees will be trimmed rather than removed. For trees that will remain, those trees and their critical root zone (CRZ) will be marked with bright orange polypropylene ESA fencing that can be avoided during construction to the greatest extent feasible in temporary impact areas and along the edge of the project footprint	2.2.1 2.2.4 2.2.10	Caltrans	Construction
Biological	**BIO-5 International Society of Arboriculture (ISA)-Certified Arborist Consultation**. Work will not be performed in the CRZ of any tree to be retained without consultation with an ISA-certified arborist. If trees are damaged during construction and become unhealthy or die, the damaged tree(s) will be removed and replaced.	2.2.1 2.2.4 2.2.10	Caltrans	Construction

Resource Type	Minimization and/or Mitigation Measure	IS Section Reference	Responsible Party	Timing
Biological	**BIO-6 Erosion Control Measure Installation.** To avoid impacts to species that utilize riparian corridors, temporary erosion control and slope stabilization BMPs will be installed before the start of the wet season (generally October 15 through April 15).	2.2.4 2.2.10	Caltrans	Construction
Biological	**BIO-7 Preconstruction Red Legged Frog, Santa Cruz Black Salamander, and California Giant Salamander Survey**. Portions of the project footprint that are suitable refuge habitats for the California red-legged frog (*Rana draytonii*), Santa Cruz black salamander (*Aneides Niger*), and California giant salamander (*icamptodon ensatus*) (e.g., riparian vegetation, logs, fallen wood, rocks, upland vegetation, or burrows) will be surveyed approximately 14 calendar days prior to initiating ground-disturbing activities to identify refuge habitat or other potential sites (under materials that could provide cover, such as boards, scrap metal, or woody debris) that might be occupied by this species. To the extent feasible, potentially occupied refugia burrows in the project footprint will be fenced and avoided for the duration of the activity at that location.	2.2.4	Caltrans	Construction
Biological	**BIO-8 California Red Legged Frog Monitoring**. An approved biologist(s) will be present during initial ground-disturbing activities in suitable refugia habitats for the California red-legged frog to monitor vegetation removal and the removal of the top 12 inches of topsoil at all project locations. The approved biologist will also investigate areas of disturbed soil for signs of California red-legged frog within 30 minutes following initial ground disturbance of a given area. If California red-legged frogs are discovered during the initial ground-disturbing activities, work will be stopped immediately, and the biologist will: • Contact USFWS within 1 working day; • If it is determined by the Approved Biologist that relocation is necessary, the captured California red-legged frog will be released within appropriate habitat outside of the construction area but nearby the capture location. The release habitat will be determined by the approved biologist. • The approved biologist will take precautions to prevent introduction of amphibian diseases in accordance with the USFWS 2005 *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog*	2.2.4	Caltrans	Construction

Resource Type	Minimization and/or Mitigation Measure	IS Section Reference	Responsible Party	Timing
Biological	**BIO-9 Preconstruction Yellow Legged Frog Survey**. Before the start of construction (between March 1 and August 31), an approved biologist(s) will conduct a survey at San Gregorio Creek in the area of disturbance and 50 feet downstream, to determine the presence/absence of foothill yellow-legged frog (*Rana boylii*): egg masses or tadpoles. If egg masses or tadpoles are found, the approved biologist(s) will establish a no-disturbance buffer in coordination with CDFW and ESA fencing or other appropriate measures will be implemented before any construction activities are started.	2.2.4	Caltrans	Construction
Biological	**BIO-10 Preconstruction San Francisco Dusky Footed Wood Rat Survey.** Before the start of construction, an approved biologist(s) 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 middens. Any nests/middens 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 cobwebs covering nest entrances. A 10-foot equipment exclusion buffer will be established around active and inactive nests/middens that can be avoided; within such buffers, all vegetation will be retained and nests will remain undisturbed.	2.2.4	Caltrans	Construction
Biological	**BIO-11 Potential San Francisco Dusky-Footed Wood Rat Trapping and Relocation.** For any woodrat middens/nests that cannot be avoided with a 10-foot buffer due to their presence in a work area, a woodrat trapping and relocation plan will be developed. The plan will outline specific methods for trapping woodrats and relocation of individuals and their middens/nests to a suitable nearby undisturbed location. Existing woodrat middens/nests will be dismantled, collected, and relocated to their new location. The woodrat relocation work would occur prior to any construction activities and outside of the breeding period (September to December), if possible.	2.2.4	Caltrans	Construction

Resource Type	Minimization and/or Mitigation Measure	IS Section Reference	Responsible Party	Timing
Biological	**BIO-12 Preconstruction Western Pond Turtle Surveys.** Before the start of construction, and no more than 48 hours before the onset of work activities, an approved biologist(s) will conduct a survey looking for signs of western pond turtles and/or western pond turtle nesting activity (e.g., recently excavated nests or nest plugs) or nest depredation (partially to fully excavated nest chambers, nest plugs, scattered egg shell remains, or egg shell fragments). Preconstruction surveys to detect western pond turtles should focus on aquatic basking habitat such as logs, branches, rootwads, and boulders, as well as the shoreline and adjacent warm, shallow waters where pond turtles may be present below the water surface, beneath algal mats or other surface vegetation. If western pond turtles or their nesting sites are found, the biologist shall contact CDFW to determine whether relocation and/or exclusion buffers and nest exclosures are appropriate. If CDFW approves of moving the animal, the biologist shall be allowed sufficient time to move the western pond turtle(s) from the work site before work activities begin.	2.2.4	Caltrans	Construction

Resource Type	Minimization and/or Mitigation Measure	IS Section Reference	Responsible Party	Timing
Biological	**BIO-13 Roosting Bats (San Gregorio Creek Bridge only).** Roosting bats are potentially present on the San Gregorio Creek Bridge structure and are assumed to be present in surrounding trees where suitable roost features, such as cavities, crevices, and exfoliating bark, are present. The following measures are proposed to avoid and minimize potential impacts to roosting bats in the San Gregorio Creek Bridge BSA. • Work Windows: Tree removal and activities on or surrounding San Gregorio Creek Bridge should abide by work windows that accommodate bat roosting timing. • Preconstruction Survey: An agency-approved bat biologist will conduct a preconstruction survey of all potential bat habitat that coincides with the impact areas in and around the San Gregorio Creek Bridge, including areas where tree removal may occur. • Bat Exclusion: If bat presence is confirmed or suspected on the San Gregorio Creek Bridge structure, install bat exclusion devices on the bridge at locations as determined and overseen by the approved biologist(s) to minimize points of entry after all bats have emerged. • Worker Environmental Awareness Training: An approved biologist will train the crew and supervise tree removal to ensure that crews remove trees in a way that avoids direct mortality of bats. • Tree Removal Measures. For any unavoidable removal of trees identified as having suitable roost features, conduct tree removal using a two-step eviction process over 2 consecutive days per tree (or per groups of trees), to encourage and allow bats potentially present to abandon the tree(s) prior to removal. o Day 1 - Tree Trimming. non-habitat foliage and branches on suitable roosting trees and snags (e.g., branches without cavities, crevices, or exfoliating bark) will be removed using chainsaws for cutting, and chippers wherever possible. Noise and vibration disturbance is expected to cause bats to vacate the trimmed trees for a few days without causing direct harm to bats that could be occupying the tree(s). The use of excavators, grinders, or other heavy equipment will be avoided to the extent practicable for Day 1 trimming. o Day 2 - Tree Removal. The day immediately following Day 1, trimmed trees will be completely removed to prevent bats from returning. • Stop Work Authority. If bats are observed on-site, any work that could potentially disturb them will stop and coordination with CDFW and Caltrans biologists will commence.	2.2.4	Caltrans	Construction

Resource Type	Minimization and/or Mitigation Measure	IS Section Reference	Responsible Party	Timing
Biological	**BIO-14 Agency Approved Biologist.** At least 30 days prior to the onset of activities, the name(s) and credentials of the biologist(s) who will conduct preconstruction surveys and relocation activities for listed species will be submitted to the appropriate regulatory agency or agencies (National Marine Fisheries Service [NMFS], U.S. Fish and Wildlife Service [USFWS] and/or California Department of Fish and Wildlife [CDFW]) for approval. No project activities will begin until the biologist(s) has received written approval from the agencies to conduct the work. An agency-approved biologist will be present on-site during the construction of any erosion-control fencing or cofferdams, and prior to and during the dewatering activities. Through communication with the Resident Engineer or designee, the Approved Biologist may stop work if that is deemed necessary for any reason to protect listed species and will advise the Resident Engineer or designee on how to proceed accordingly. If the Approved Biologist exercises this authority, the agency with jurisdiction will be notified by telephone and e-mail message within one (1) working day.	2.2.4	Caltrans	Construction
Biological	**BIO-15 Worker Environmental Awareness Training.** The resident engineer will contact the Approved Biologist seven calendar days before the initial preconstruction meeting to request environmental training. All construction personnel will attend a mandatory environmental education program facilitated by an agency approved biologist before construction begins. Training sessions will be repeated for all new personnel before they are allowed access to the job site. All personnel will complete the training and sign a form stating that they completed the training and understand all applicable agency regulations and consequences of noncompliance. Training will be provided in foreign languages as needed. Caltrans will keep the forms on file and make them available to regulatory agencies on request. The training will include: • A description of special-status species that could potentially occur on site. • A discussion of applicable agency permits, authorizations, regulations and consequences of noncompliance. • A review of the project's conservation measures (Project Features and AMMs) and how impacts will be avoided by implementing the measures	2.2.4	Caltrans	Construction

Resource Type	Minimization and/or Mitigation Measure	IS Section Reference	Responsible Party	Timing
Biological	**BIO-16 Species Relocation.** When listed species are present and it is determined that they could be injured or killed by construction activities, the Approved Biologist in coordination with the appropriate state and federal wildlife agencies will identify appropriate methods for capture, handling, exclusion, and relocation of individuals that could be affected. The Approved Biologist, with appropriate handling permits or licenses from state and/or federal wildlife protection agencies as required, will conduct, monitor, and supervise all capture, handling, exclusion, and relocation activities; ensure that sufficient personnel are available for safe and efficient collection of listed species; and ensure that proper training and any required permitting or licensing is current for personnel identifying, handling, and conducting safe capture of listed species. Where listed species cannot be captured, handled, excluded, or relocated, actions that could injure or kill individual organisms will be avoided or delayed until the species leaves the affected area or the organism reaches a stage at which it can be captured, handled, excluded, or relocated.	2.2.4	Caltrans	Construction
Biological	**BIO-17 Pile Driving.** To avoid impacts to listed species, no impact or vibratory driving on piles will occur for the project.	2.2.4	Caltrans	Construction
Biological	**BIO-18 Fish Passage.** Stream width, depth, velocity, and slope that provide upstream and downstream passage of adult and juvenile fish will be preserved according to current NMFS and CDFW guidelines and criteria, or as developed in cooperation with NMFS and CDFW to accommodate site-specific conditions. During the design phase, Caltrans will evaluate alternative RSP layouts and whether flow-routing structures could be used to direct streamflow away from the bridge piers and towards the center of the channel.	2.2.4	Caltrans	Design
Biological	**BIO-19 Fish Habitat, Avoid Instream Wood Structures.** Only one instream wood structure, the structure immediately upstream of the Pilarcitos Creek Bridges, will be removed during construction. Other instream wood noted previously surveyed by Caltrans in April 2021 will be avoided during construction. If construction activities will occur near instream wood features noted during the survey, the features will be located during the topographic survey conducted in support of final design, shown in design drawings, and noted for avoidance.	2.2.4	Caltrans	Design and Construction

Resource Type	Minimization and/or Mitigation Measure	IS Section Reference	Responsible Party	Timing
Biological	**BIO-20 Fish Relocation.** Caltrans shall retain a qualified biologist with expertise in the areas of anadromous salmonid biology, including handling, collecting, and relocating salmonids, salmonid/habitat relationships and biological monitoring of salmonids. Caltrans shall ensure that all biologists working on a site-specific project will be qualified to conduct fish collections in a manner that minimizes all potential risks to listed salmonids. A NMFS-approved fish biologist will be on-site to observe dewatering activities and to capture/rescue any fish that are observed in isolated areas during dewatering activities.	2.2.4	Caltrans	Construction
Biological	**BIO-21 Temporary Cofferdams and Creek Diversion System.** Cofferdams and diversion cofferdams will affect no more of the stream channel than is necessary to support completion of the maintenance or construction activity. Temporary cofferdams and creek diversions systems will only be used for a single construction season and will be removed before the end of the in-water work window (June 15 to October 15). Immediately upon completion of in-channel work, temporary fills, cofferdams, creek diversion systems, and other in-channel structures will be removed in a manner that minimizes disturbance to downstream flows and water quality. All structures and imported materials placed in the stream channel or on the banks during construction that are not designed to withstand high flows will be removed before such flows occur. For diversion from creeks, any water intake structure will be installed, operated, and maintained in accordance with current NMFS, USFWS, and CDFW criteria or as developed in cooperation with NMFS, USFWS, and CDFW to accommodate site-specific conditions.	2.2.4	Caltrans	Construction
Biological	**BIO-22 Rain Events.** No construction activities will occur during rain events or within 24 hours following a rain event exceeding 0.2 inch. Prior to construction activities resuming, a qualified biologist will inspect the work area and all equipment/materials for the presence of special status frogs and salamanders.			
Water Quality	**WQ-01 Water Pollution Control Plan (WPCP).** A WPCP is required for the project. The WPCP will address potential temporary impacts via implementation of appropriate BMPs to the maximum extent practicable. Further, sampling and monitoring of construction site discharge point(s) may be recommended by the San Francisco Bay RWQCB as part of the WPCP.	2.2.10	Caltrans	Construction
Water Quality	**WQ-02 RSP Work.** RSP will be prewashed to remove sediment and/or contaminants before placement.	2.2.10	Caltrans	Construction

Resource Type	Minimization and/or Mitigation Measure	IS Section Reference	Responsible Party	Timing
Water Quality	**WQ-03 Water Diversion Plan.** Caltrans will prepare a water diversion and dewatering plan and avoid any work in wetted creek channels.	2.2.10	Caltrans	Construction
Water Quality	**WQ-04 Stockpiles and Excavated Material Storage.** Excavated material will not be stored or stockpiled in the channel. Excess material will be end-hauled to an approved disposal site. Temporary imported material (e.g., RSP) will not be stockpiled in the 100-year floodplain during the rainy season (October 15 through May 31), unless material can be relocated before 12 hours of the onset of a storm. Storage areas will be sited to avoid sensitive habitats.	2.2.10	Caltrans	Construction
Water Quality	**WQ-05 Uncured Concrete Grout.** Concrete grout will be isolated from surface waters while pouting and curing. Ensure cure water does not flow to inlets or water courses but rather to collection areas for infiltration or other means of removal in accordance with all applicable permits for the project.	2.2.10	Caltrans	Construction

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Appendix C. List of Acronyms

AB	Assembly Bill
AMM	avoidance and minimization measure
BAAQMD	Bay Area Air Quality Management District
BC	black carbon
BMP	best management practice
BSA	biological study area
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CE	Categorical Exclusion (NEPA)
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CGP	Construction General Permit
CFR	Code of Federal Regulations
CH_4	methane
CHP	California Highway Patrol
CNDDB	California Natural Diversity Data Base
CO_2	carbon dioxide
COZEEP	Construction Zone Enhanced Enforcement Program
CRZ	critical root zone
CTP	California Transportation Plan
CTP 2040	California Transportation Plan 2040
CWA	Clean Water Act
DCH	Designated Critical Habitat

DPS	distinct population segment
DSA	disturbed soil area
EO	Executive Order
ESA	environmentally sensitive area
ESU	evolutionarily significant unit
GWP	global warming potential
FE	Federally Endangered
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FT	Federally Threatened
GHG	greenhouse gas
HFC	hydrofluorocarbons
IS	Initial Study
ISA	International Society of Arboriculture
LCP	Local Coastal Program
MMTCO2e	million metric tons of carbon dioxide equivalent
MND	Mitigated Negative Declaration
MOU	Memorandum of Understanding
NBI	National Bridge Inventory
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
N_20	nitrous oxide
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	National Oceanic and Atmospheric Administration Fisheries Service
OCRS	Office of Cultural Resources Studies (Caltrans)
OHWM	ordinary high water mark

PA	Programmatic Agreement
PM	post mile
PM2.5	particulate matter 2.5 micrometers or smaller
PQS	Professionally Qualified Staff (cultural resources)
ROW	right-of-way
RSP	rock slope protection
RTP	Regional Transportation Plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SE	State Endangered
SLR	sea-level rise
SR	State Route
SSC	species of special concern
SPCC	Spill Prevention, Control, and Countermeasures
SWPPP	Storm Water Pollution Prevention Plan
TMP	Transportation Management Plan
USACE	United States Army Corps of Engineers
USC	United States Code
USDOT	United States Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VMT	Vehicle Miles Traveled
WEF	wildlife exclusion fencing
WPCP	Water Pollution Control Program

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Appendix D. List of Technical Studies

California Department of Transportation (Caltrans). 2018 (December). *Climate Change Vulnerability Assessment*. District 4, Oakland, CA.

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Appendix E. Title VI of the Civil Rights Act Non-Discrimination Policy

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STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY Gavin Newsom, Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-6130
FAX (916) 653-5776
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

August 2020

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964, ensures "*No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.*"

Caltrans will make every effort to ensure nondiscrimination in all of its services, programs and activities, whether they are federally funded or not, and that services and benefits are fairly distributed to all people, regardless of race, color, or national origin. In addition, Caltrans will facilitate meaningful participation in the transportation planning process in a nondiscriminatory manner.

Related federal statutes, remedies, and state law further those protections to include sex, disability, religion, sexual orientation, and age.

For information or guidance on how to file a complaint, or obtain more information regarding Title VI, please contact the Title VI Branch Manager at (916) 324-8379 or visit the following web page: https://dot.ca.gov/programs/civil-rights/title-vi.

To obtain this information in an alternate format such as Braille or in a language other than English, please contact the California Department of Transportation, Office of Civil Rights, at 1823 14th Street, MS-79, Sacramento, CA 95811; (916) 324-8379 (TTY 711); or at <Title.VI@dot.ca.gov>.

Original signed by
Toks Omishakin
Director

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

Appendix F. Comment Letters and Responses

From: Roman, Isabella@DTSC <Isabella.Roman@dtsc.ca.gov>
Sent: Monday, August 10, 2020, 8:46 AM
To: Gupta, Tanvi@DOT
Subject: SR 1 & SR 84 Structures and Scour Mitigation Project ISMND Comment

EXTERNAL EMAIL. Links/attachments may not be safe.

Hello,

I represent the Department of Toxic Substances Control reviewing the Initial Study with Proposed Mitigated Negative Declaration for the State Route 1 and State Route 84 Structures and Scour Mitigation Project.

The Pilarcitos Creek Bridges project location appears to be on a Geotracker site. This site can be found at the following link: https://geotracker.waterboards.ca.gov/profile_report?global_id=T0608160477. Please provide a discussion of this site in the document text, and explain whether this is expected to have any effect on the project. Please conduct a search of Envirostor and Geotracker in both project locations, and discuss any overlapping or adjacent cleanup sites, and explain why they are or are not expected to have an impact on the project.

Please feel free to reach out with any questions or concerns.

Sincerely,

Isabella Roman
Environmental Scientist
Site Mitigation and Restoration Program
Department of Toxic Substances Control
700 Heinz Avenue, Suite 200
Berkeley, CA 94710
(510)-540-3879

Response to Comment 1, California Department of Toxic Substances Control

Caltrans appreciates this input from the Department of Toxic Substances Control (DTSC) and has reviewed the site report identified in this comment. The DTSC-referenced site that is georeferenced to the Pilarcitos Creek bridge by the Geotracker website is defined as having been a diesel spill at an unspecified residence. The nearest residence is about 130 feet downgradient from the bridge, and if this site is the source, it has a low risk of contamination moving upgradient towards the proposed project. The only case details given by the Geotracker website is that an unspecified volume of soil was excavated, and the case was closed quickly by the regulatory agency in 2000. A spill of this limited scale that occurred over 20 years ago presents a low risk to the proposed bridge scour remediation work. Soils removed from the proposed project site would require testing prior to reuse or disposal, and the testing results would determine the proper transport, use, and/or disposal methods.