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PG&E Natural Gas Pipeline - Maximum Loading

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

In Reply Refer to:
08ESMF00-2014-F-0342-1

DEC 2 3 2014

Ms. Melanie Brent, Office Chief
Caltrans District 4 Environmental Analysis
California Department of Transportation
P.O. Box 23660
Oakland, California 94623-0660

Subject: Biological Opinion on the Effects of the Proposed Interstate 280 Repair Pipe System and Backfill Sinkhole Project, San Mateo County, California (Caltrans EA 4G590)

Dear Ms. Brent:

This Biological Opinion (BO) is in response to the California Department of Transportation's (Caltrans) letter, dated September 26, 2013, requesting formal consultation for the proposed Interstate 280 (I-280) Repair Pipe System and Backfill Sinkhole Project (Caltrans EA 4G590), San Mateo County, California. Your letter was received by the U.S. Fish and Wildlife Service (Service) on October 1, 2013. At issue are the effects of the project on the threatened California red-legged frog (*Rana draytonii*), its designated critical habitat, and the endangered San Francisco garter snake (*Thamnophis sirtalis tetrataenia*). This document is issued under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act).

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) legislation (23 U.S.C. 327) allows the Secretary of the U.S. Department of Transportation acting through the Federal Highway Administration (FHWA) to establish a Surface Transportation Project Delivery Pilot Program, whereby a State may assume the FHWA responsibilities under the National Environmental Policy Act (NEPA) for environmental review, agency consultation and other action pertaining to the review or approval of a specific project. Caltrans assumed these responsibilities for the FHWA on July 1, 2007 through a Memorandum of Understanding (MOU) within the State of California (http://www.dot.ca.gov/ser/downloads/MOUs/nepa_delegation/sec6005mou.pdf).

The Service has reviewed the project as described in the August 2013 biological assessment, the October 6 and October 8, 2014, revised project description, May 23, 2013, site visit, supporting documentation, and evaluation of project effects, and concurs with the determination that the project as described is likely to adversely affect the California red-legged frog, San Francisco garter snake, and designated critical habitat for the California red-legged frog. This biological opinion is based on: (1) the Interstate 280 Repair Pipe System and Backfill Sinkhole Project, Biological Assessment dated August 2013, as revised; (2) letter from Caltrans to the Service dated October 6, 2014; (3) the May 23, 2013, site visit; (4) miscellaneous correspondence and electronic mail concerning the proposed action between Caltrans and the Service; and (5) other information available to the Service.

Consultation History

May 23, 2013	The Service attended a site visit with Caltrans to discuss potential project effects on listed species and determine what areas posed risks based on on-site habitat suitability.
October 1, 2013	The Service received a letter requesting the initiation of formal consultation dated September 26, 2013, and a Biological Assessment for the I-280 Repair Pipe System and Backfill Sinkhole Project.
April 1, 2014	The Service attended a conference call with Caltrans to discuss the proposed action and notified Caltrans that the project was within designated critical habitat for the California red-legged frog. An analysis of critical habitat was not provided within their biological assessment and their formal consultation package was considered incomplete.
April 17, 2014	The Service notified Caltrans via email that their August 2013 biological assessment made the determination of a Not Likely to Adversely Affect (NLAA) for the California red-legged frog and San Francisco garter snake. The Service informed Caltrans that we did not agree with this determination as the effects were likely to adversely affect both species and designated critical habitat for the California red-legged frog. In order for the Service to complete the formal consultation process and issue a biological opinion and incidental take coverage; we will need a letter from Caltrans stating that the determinations for the effects to the California red-legged frog and San Francisco garter snake are Likely to Adversely Affect. We requested this clarification during April 1, 2014, phone conversation. The Service requested Caltrans submit a corrected formal consultation initiation letter with the appropriate determinations made for these species.
April 21, 2014	The Service received a revised letter dated April 4, 2014, requesting formal consultation and a revised biological opinion with the determinations of likely to adversely affect the California red-legged frog and San Francisco garter snake.
June 12, 2014	The Service notified Caltrans that the project lies within California red-legged frog designated critical habitat, unit SNM-1. The Service requested Caltrans provide an evaluation of adverse effects to designated critical habitat as well as an assessment of the Primary Constituent Elements (PCE's) within the action area. The Service requested Caltrans provide area calculations of the PCEs within the action area as well as area calculations for effects to designated critical habitat.
June 27, 2014	The Service received an evaluation of the project effects to California red-legged frog designated critical habitat from Caltrans.
October 6, 2014	The Service received a revised project description since a portion of the project was completed as an emergency maintenance repair action in early 2014.

October 8, 2014	The Service received another change to the project description with a revision to the area of direct effects.
October 17, 2014	The Service received revised exhibits depicting the emergency work and proposed Phase II work to be covered under this biological opinion.
November 6, 2014	The Service received revised exhibits and area calculations for the emergency phase and proposed Phase II action.
November 14, 2014	The Service reviewed the project description, biological assessment, species determinations, and supplemental material submitted as part of the consultation package and determined your consultation package was complete.
December 11, 2014	The Service requested additional information from Caltrans on the Bay checkerspot butterfly (*Euphydryas editha bayensis*) and mission blue butterfly (*Icaricia icarioides missionensis*).
December 17, 2014	The Service received requested information from Caltrans on the Bay checkerspot butterfly and the mission blue butterfly sufficient to complete the analysis.
April 16, 2013 - December 11, 2014	Electronic and phone correspondence between Caltrans and the Service.

BIOLOGICAL OPINION

Description of the Proposed Action

The following project description, inclusive of the proposed compensation and proposed conservation measures, was provided by Caltrans and is an excerpt from the August 2013 Biological Assessment, as revised, with minor modifications for reasons of clarity and accuracy provided by the Service.

Project Description

As part of the proposed action, Caltrans proposes to replace a pipe system west of I-280 at post mile 9.4 in unincorporated San Mateo County, California. The project is situated along a Caltrans maintenance road, approximately 320 feet south of I-280 and 800 feet north of Canada Road. The existing drainage system consists of a 60-inch corrugated steel pipe (CSP), two lateral 24-inch CSPs, three drainage inlets, a headwall, and a riser. The 60-inch CSP is located at the bottom of an embankment approximately 320 feet from southbound I-280. Two lateral lines carry storm water from I-280 to the 60-inch CSP. The eastern lateral line discharges directly into the 60-inch CSP whereas the western lateral line discharges into an existing drainage inlet, then continues and discharges into the 60-inch CSP. The 60-inch CSP flows west and discharges storm water into an unnamed creek. The 60-inch CSP is situated between a headwall to the west and a riser to the east.

The 60-inch corrugated metal pipe is corroding along a portion of its length and threatens to undermine an existing maintenance access road and the supporting fill slope of I-280. The purpose of the proposed action is to correct the undermining by replacing the corroding drainage system.

The original 60-inch metal pipe will be abandoned in place and 850 feet of new 60-inch reinforced concrete pipe (RCP) will be constructed adjacent to the original pipe location. The new pipe system will use the existing outfall, tying the new pipe to the back of the existing headwall by a bonded mechanical connection, thus limiting construction to upland of the riparian area. Caltrans will also be replacing the exiting gravel maintenance road. A portion of the original 60-inch CSP will be removed: 20 feet including the 10 feet adjacent to the riser and the 10 feet adjacent to the headwall. Also, Caltrans will remove 29 feet and abandon in place 53 feet of the 24-inch CSP. The area of Waters of the U.S. affected includes 0.095-acre for the 60-inch CSP and 0.004-acre for the new pipe will be minimized using trench shields or equivalent, and the work area will be delimited with ESA fencing.

Caltrans will maintain the hydrologic connection between the laterals and the downstream unnamed creek by installing a 60-inch RCP of 850 linear feet beneath the existing maintenance road. Caltrans will tie-in the new 60-inch RCP with an existing 60-inch RCP and tie-in the laterals to the new 60-inch RCP. Six willow trees will be removed from the area near the exiting headwall in order to tie-in the new pipe.

Emergency Work Completed to Date

The existing pipe corroded in one section, opening a hole in the pipe, and causing a sinkhole to form. The corroded pipe was spot-repaired and the sinkhole was backfilled in an emergency maintenance activity in October and November of 2013.

Proposed Conservation Measures

Proposed Compensation

To offset permanent effects to California red-legged frog and San Francisco garter snake, suitable habitat for each species, or suitable multi-species habitat in coordination with the Service, will be created, restored, or set aside in perpetuity at a ratio of 3:1 for permanent effects and 1.1:1 for temporary effects (Table 1). Alternatively, credits will be purchased at a Service-approved conservation bank. Compensation plans will be subject to review and approval by the Service. On-site restoration of temporarily affected areas may qualify as compensation at a 1:1 ratio once conditions are verified by the Service.

Table 1: Proposed Compensation for Temporary and Permanent Effects

Species	Effects						Total Compensation
	Temporary (acres)			Permanent (acres)			
	Impact	Compensation		Impact	Compensation		
		Ratio	Need		Ratio	Need	
California red-legged frog	2.18	1.1:1	2.40	0.02	3:1	0.06	2.46
San Francisco garter snake	2.18	1.1:1	2.40	0.02	3:1	0.06	2.46

General Conservation Measures

To reduce potential effects to sensitive biological resources, Caltrans proposes to incorporate construction BMPs and avoidance and minimization measures into the proposed roadway construction project. These measures will be communicated to the contractor through the use of

special provisions included in the contract bid solicitation package. These measures include the following:

1. **Seasonal Avoidance**. Construction actions will be scheduled to minimize effects on listed species and habitats. Except for limited vegetation clearing necessary to minimize effects to nesting birds, all ground-disturbing activities in species habitat will be conducted between April 15 and October 15.

2. **Environmental Awareness Training**. Prior to the start of construction, a qualified biologist will conduct an educational training program for all construction personnel including contractors and subcontractors. The training will include, at a minimum, a description of the California red-legged frog, San Francisco garter snake, and their habitat within the action area; an explanation of the status of these species and protection under state and federal laws; the avoidance and minimization measures to be implemented to reduce take of these species; communication and work stoppage procedures in case a listed species is observed within the action area; and an explanation of the Environmentally Sensitive Areas (ESAs) and Wildlife Exclusion Fencing (WEF) and the importance of maintaining these structures. An informational brochure conveying this information with images of these species to aid in identification will be prepared and distributed to all construction personnel. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all the avoidance and minimization measures and implications of the Act.

3. **Environmentally Sensitive Areas**. Prior to the start of construction all ESAs – defined as areas containing sensitive habitats adjacent to or within construction work areas for which physical disturbance is not allowed – will be clearly delineated using high visibility orange fencing. Construction work areas include the active construction site and all areas providing support for the proposed action including areas used for vehicle parking, equipment and material storage and staging, access roads, etc. The ESA fencing will remain in place throughout the duration of the proposed action, while construction activities are ongoing, and will be regularly inspected and fully maintained at all times. The final project plans will depict all locations where ESA fencing will be installed and will provide installation specifications. The bid solicitation package special provisions will clearly describe acceptable fencing material and prohibited construction-related activities including vehicle operation, material and equipment storage, access roads and other surface-disturbing activities within ESAs.

4. **Wildlife Exclusion Fencing**. Prior to the start of construction, WEF will be installed at the edge of the project footprint in all areas where California red-legged frogs or San Francisco garter snakes could enter the construction area. The location of the fencing shall be determined by the Resident Engineer and Service-approved biologist in cooperation with the Service prior to the start of staging or surface disturbing activities. A conceptual fencing plan shall be submitted to the Service for review and approval prior to WEF installation. The location, fencing materials, installation specifications, and monitoring and repair criteria shall be approved by the Service prior to start of construction. Caltrans shall include the WEF specifications on the final project plans. Caltrans shall include the WEF specifications including installation and maintenance criteria in the bid solicitation package special provisions. The WEF shall remain in place throughout the duration of the project and shall be regularly inspected and fully maintained. Repairs to the WEF shall be made within 24

hours of discovery. Upon project completion the WEF shall be completely removed, the area cleaned of debris and trash, and returned to natural conditions.

5. **Avoidance of Entrapment**. To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than one foot deep will be covered with plywood or similar materials at the close of each working day or provided with one or more escape ramps constructed of earth fill or wooden planks. The Service-approved biologist shall inspect all holes and trenches at the beginning of each workday and before such holes or trenches are filled. All replacement pipes, culverts, or similar structures stored in the action area overnight will be inspected before they are subsequently moved, capped, and/or buried. If at any time a listed species is discovered, the Resident Engineer and Service-approved biologist will be notified immediately and the Service-approved biologist shall implement the species observation and handling protocol outlined below.

6. **Best Management Practices**. Storm Water Pollution Prevention Plans (SWPPP) and erosion control BMPs will be developed and implemented to minimize any wind or water-related erosion and will be in compliance with the requirements of the Regional Water Quality Control Board. The SWPPP will reference the Caltrans Construction Site BMPs Manual. This manual is comprehensive and includes many other protective measures and guidance to prevent and minimize pollutant discharges and can be found online at: http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm. Protective measures will include, at a minimum:

    a. No discharge of pollutants from vehicle and equipment cleaning is allowed into any storm drains or watercourses.

    b. Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facility.

    c. Concrete wastes are collected in washouts and water from curing operations is collected and disposed. Neither will be allowed into watercourses.

    d. Spill containment kits will be maintained onsite at all times during construction operations and/or staging or fueling of equipment.

    e. Dust control measures will include use of water trucks and dust palliatives to control dust in excavation-and-fill areas, covering temporary access road entrances and exits with rock (rocking), and covering of temporary stockpiles when weather conditions require.

    f. Coir rolls or straw wattles that do not contain plastic or synthetic monofilament netting will be installed along or at the base of slopes during construction to capture sediment.

    g. Protection of graded areas from erosion using a combination of silt fences, fiber rolls, etc. along toes of slopes or along edges of designated staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas. Erosion control materials that use plastic or synthetic monofilament netting will not be used within the action area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine or other similar fibers.

h. Permanent erosion control measures such as bio-filtration strips and swales to receive storm water discharges from the highway, or other impervious surfaces will be incorporated to the maximum extent practicable.

i. All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 50 feet from any aquatic habitat, culvert, or drainage feature.

7. **Construction Site Management Practices**. The following site restrictions will be implemented to avoid or minimize effects on listed species and their habitats:

a. A speed limit of 15 miles per hour (mph) in the project footprint in unpaved areas will be enforced to reduce dust and excessive soil disturbance.

b. Construction access, staging, storage, and parking areas, will be located within the project Caltrans ROW outside of any designated ESA or outside of the Caltrans ROW in areas environmentally cleared by the contractor. Access routes and the number and size of staging and work areas will be limited to the minimum necessary to construct the proposed project. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.

c. To the maximum extent practicable, any borrow material will be certified to be non-toxic and weed free.

d. All food and food-related trash items will be enclosed in sealed trash containers and properly disposed of off-site.

e. No pets from project personnel will be allowed anywhere in the action area during construction.

f. No firearms will be allowed on the project site except for those carried by authorized security personnel, or local, State or Federal law enforcement officials.

g. A Spill Response Plan will be prepared. Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in a designated location that is at least 50 feet from hydrologic features.

h. All equipment will be properly maintained and free of leaks. Servicing of vehicles and construction equipment including fueling, cleaning, and maintenance will occur at least 50 feet from any hydrologic features.

8. **Vegetation Removal**. Any vegetation that is within the cut and fill line or growing in locations where permanent structures will be placed (e.g., road alignment, shoulder widening, soil nail walls, etc.) will be cleared. Vegetation will be cleared only where necessary and will be cut above soil level except in areas that will be excavated for roadway construction. This will allow plants that reproduce vegetatively to resprout after construction. All clearing and grubbing of woody vegetation will occur by hand or using light construction equipment such as backhoes. If clearing and grubbing occurs between February 1 and August 31, a qualified biologist(s) will survey for nesting birds within the area(s) to be disturbed including a perimeter buffer of 100 feet for passerines and 300 feet for raptors before clearing activities begin. All nest avoidance requirements of the Migratory Bird Treaty Act and California Fish and Game Code Sections 3503 and 3503.5 will be observed. All cleared

vegetation will be removed from the project footprint to prevent attracting animals to the project site. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of such materials. A Service-approved biologist will be present during all vegetation clearing and grubbing activities. Prior to vegetation removal, the Service-approved biologist shall thoroughly survey the area for California red-legged frogs and San Francisco garter snakes. Once the Service-approved biologist has thoroughly surveyed the area, clearing and grubbing may continue without further restrictions on equipment; however, the Service-approved biologist shall remain onsite to monitor for California red-legged frogs and San Francisco garter snakes until all clearing and grubbing activities are complete. After project completion, all temporarily affected areas shall be returned to original grade and contours to the maximum extent practicable, protected with proper erosion control materials, and revegetated with native species appropriate for the region and habitat communities on site.

9. **Reduce Spread of Invasive Species**. To reduce the spread of invasive non-native plant species and minimize the potential decrease of palatable vegetation for wildlife species, Caltrans will comply with Executive Order 13112. This order is provided to prevent the introduction of invasive species and provide for their control in order to minimize the economic, ecological, and human health impacts. In the event that high- or medium-priority noxious weeds, as defined by the California Department of Food and Agriculture or the California Invasive Plant Council, are disturbed or removed during construction-related activities, the contractor will contain the plant material associated with these noxious weeds and dispose of it in a manner that will not promote the spread of the species. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of materials. Areas subject to noxious weed removal or disturbance will be replanted with fast-growing native grasses or a native erosion control seed mixture. If seeding is not possible, the area should be covered to the extent practicable with heavy black plastic solarization material until the end of the project.

10. **Replant, Reseed, and Restore Disturbed Areas**. All slopes or unpaved areas affected by the proposed action will be restored to natural conditions. Slopes and bare ground will be reseeded with native grasses and shrubs characteristic of the floristic region and native local habitats to stabilize soils and prevent erosion. Where disturbance includes the removal of trees or plants, native species will be replanted and maintained until they become established. A revegetation plan with success criteria will be submitted to the Service for review and approval. Temporary effects comprise areas denuded, manipulated, or otherwise modified from their existing, pre-project conditions, thereby removing one or more essential components of a listed species' habitat as a result of project activities that include, but are not limited to, construction, staging, storage, lay down, vehicle access, parking, etc. Temporary effects must be restored to baseline habitat values or better within one year following initial disturbance. Areas subject to ongoing operations and maintenance are not considered temporary even if they are restored within one year following initial disturbance. Affected areas not fulfilling these criteria are considered permanent.

Action Area

The action area is defined in 50 CFR § 402.02, as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the purposes of the effects assessment, the action area encompasses 14-acre project footprint and surrounding lands

extending 100 feet beyond the project footprint in unincorporated San Mateo County. The action area encompasses the project footprint, equipment staging areas, access routes, Caltrans Right-of-Way limits, and adjacent lands that will be subjected to noise, light, and vibration disturbance. Habitat within the action area comprises existing dirt and gravel access roads, coast live oak woodland, willow riparian, ruderal grassland, mixed grassland and Baccharis scrub, mixed scrub, seasonal wetland, and open water vegetation communities.

Analytical Framework for the Jeopardy Determinations

Jeopardy Determination

In accordance with policy and regulation, the jeopardy analyses in this biological opinion relies on four components: (1) the *Status of the Species*, which evaluates the California red-legged frog and San Francisco garter snake range-wide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the California red-legged frog and San Francisco garter snake in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the California red-legged frog and San Francisco garter snake; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the California red-legged frog and San Francisco garter snake; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the California red-legged frog and San Francisco garter snake.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the California red-legged frog and San Francisco garter snake current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of these species in the wild.

The jeopardy analyses in this biological opinion places an emphasis on consideration of the range-wide survival and recovery needs of the California red-legged frog and San Francisco garter snake and the role of the action area in the survival and recovery of the California red-legged frog and San Francisco garter snake as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Adverse Modification Determination

This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statutory provisions of the Act to complete the following analysis with respect to critical habitat.

In accordance with policy and regulation, the adverse modification analysis in this biological opinion relies on four components: (1) the *Status of Critical Habitat*, which evaluates the range-wide condition of critical habitat for the SPECIES in terms of primary constituent elements (PCE)s, the factors responsible for that condition, and the intended recovery function of the critical habitat at the provincial and range-wide scale; (2) the *Environmental Baseline*, which evaluates the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent

activities on the PCEs and how that will influence the recovery role of affected critical habitat units and; (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the PCEs and how that will influence the recovery role of affected critical habitat units.

For purposes of the adverse modification determination, the effects of the proposed Federal action on the California red-legged frog critical habitat are evaluated in the context of the range-wide condition of the critical habitat at the provincial and range-wide scales, taking into account any cumulative effects, to determine if the critical habitat range-wide would remain functional (or would retain the current ability for the PCEs to be functionally established in areas of currently unsuitable but capable habitat) to serve its intended recovery role for the California red-legged frog.

The analysis in this biological opinion places an emphasis on using the intended range-wide recovery function of California red-legged frog critical habitat and the role of the action area relative to that intended function as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the adverse modification determination.

Status of the Species and Environmental Baseline

California Red-legged Frog

Listing Status: The California red-legged frog was listed as a threatened species on May 23, 1996 (61 FR 25813) (Service 1996). Critical habitat was designated for this species on April 13, 2006 (71 FR 19244) (Service 2006a) and revisions to the critical habitat designation were published on March 17, 2010 (75 FR 12816) (Service 2010). At this time, the Service recognized the taxonomic change from *Rana aurora draytonii* to *Rana draytonii* (Shaffer *et al.* 2010). A recovery plan was published for the California red-legged frog on September 12, 2002 (Service 2002).

Description: The California red-legged frog is the largest native frog in the western United States (Wright and Wright 1949), ranging from 1.5 to 5.1 inches in length (Stebbins 2003). The abdomen and hind legs of adults are largely red, while the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background color. Dorsal spots usually have light centers (Stebbins 2003), and dorsolateral folds are prominent on the back. Larvae (tadpoles) range from 0.6 to 3.1 inches in length, and the background color of the body is dark brown and yellow with darker spots (Storer 1925).

Distribution: The historic range of the California red-legged frog extended from the vicinity of Elk Creek in Mendocino County, California, along the coast inland to the vicinity of Redding in Shasta County, California, and southward to northwestern Baja California, Mexico (Fellers 2005; Jennings and Hayes 1985; Hayes and Krempels 1986). The species was historically documented in 46 counties but the taxa now remains in 238 streams or drainages within 23 counties, representing a loss of 70 percent of its former range (Service 2002). California red-legged frogs are still locally abundant within portions of the San Francisco Bay area and the central California coast. Isolated populations have been documented in the Sierra Nevada, northern coast, and northern Transverse Ranges. The species is believed to be extirpated from the southern Transverse and Peninsular Ranges, but is still present in Baja California, Mexico (CDFW 2014).

Status and Natural History: California red-legged frogs predominately inhabit permanent water sources such as streams, lakes, marshes, natural and manmade ponds, and ephemeral drainages in valley bottoms and foothills up to 4,921 feet in elevation (Jennings and Hayes 1994, Bulger *et al.*

2003, Stebbins 2003). However, they also inhabit ephemeral creeks, drainages, and ponds with minimal riparian and emergent vegetation. California red-legged frogs breed from November to April, although earlier breeding records have been reported in southern localities. Breeding generally occurs in still or slow-moving water often associated with emergent vegetation, such as cattails, tules, or overhanging willows (Storer 1925, Hayes and Jennings 1988). Female frogs deposit egg masses on emergent vegetation so that the egg mass floats on or near the surface of the water (Hayes and Miyamoto 1984).

Habitat includes nearly any area within 1-2 miles of a breeding site that stays moist and cool through the summer including vegetated areas with coyote brush, California blackberry thickets, and root masses associated with willow and California bay trees (Fellers 2005). Sheltering habitat for California red-legged frogs potentially includes all aquatic, riparian, and upland areas within the range of the species and includes any landscape feature that provides cover, such as animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris. Agricultural features such as drains, watering troughs, spring boxes, abandoned sheds, or haystacks may also be used. Incised stream channels with portions narrower and depths greater than 18 inches also may provide important summer sheltering habitat. Accessibility to sheltering habitat is essential for the survival of California red-legged frogs within a watershed, and can be a factor limiting frog population numbers and survival.

California red-legged frogs do not have a distinct breeding migration (Fellers 2005). Adults are often associated with permanent bodies of water. Some individuals remain at breeding sites year-round, while others disperse to neighboring water features. Dispersal distances are typically less than 0.5 mile, with a few individuals moving up to 1-2 miles (Fellers 2005). Movements are typically along riparian corridors, but some individuals, especially on rainy nights, move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas (Fellers 2005).

In a study of California red-legged frog terrestrial activity in a mesic area of the Santa Cruz Mountains, Bulger *et al.* (2003) categorized terrestrial use as migratory and non-migratory. The latter occurred from one to several days and was associated with precipitation events. Migratory movements were characterized as the movement between aquatic sites and were most often associated with breeding activities. Bulger *et al.* (2003) reported that non-migrating frogs typically stayed within 200 feet of aquatic habitat 90 percent of the time and were most often associated with dense vegetative cover, *i.e.*, California blackberry, poison oak, and coyote brush. Dispersing frogs in northern Santa Cruz County traveled distances from 0.25 mile to more than 2 miles without apparent regard to topography, vegetation type, or riparian corridors (Bulger *et al.* 2003).

In a study of California red-legged frog terrestrial activity in a xeric environment in eastern Contra Costa County, Tatarian (2008) noted that 57 percent of frogs fitted with radio transmitters in the Round Valley study area stayed at their breeding pools, whereas 43 percent moved into adjacent upland habitat or to other aquatic sites. Her study reported a peak seasonal terrestrial movement occurring in the fall months associated with the first 0.2 inch of precipitation and tapering off into spring. Upland movement activities ranged from 3 to 233 feet, averaging 80 feet, and were associated with a variety of refugia including grass thatch, crevices, cow hoof prints, ground squirrel burrows at the base of trees or rocks, logs, and under man-made structures; others were associated with upland sites lacking refugia (Tatarian 2008). The majority of terrestrial movements lasted from 1 to 4 days; however, one adult female was reported to remain in upland habitat for 50 days (Tatarian 2008). Upland refugia closer to aquatic sites were used more often and were more

commonly associated with areas exhibiting higher object cover, *e.g.*, woody debris, rocks, and vegetative cover. Subterranean cover was not significantly different between occupied upland habitat and non-occupied upland habitat.

California red-legged frogs are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). Egg masses containing 2,000 - 5,000 eggs are attached to vegetation below the surface and hatch after 6 - 14 days (Storer 1925, Jennings and Hayes 1994). In coastal lagoons, the most significant mortality factor in the pre-hatching stage is water salinity (Jennings *et al.* 1992). Eggs exposed to salinity levels greater than 4.5 parts per thousand resulted in 100 percent mortality (Jennings and Hayes 1990). Increased siltation during the breeding season can cause asphyxiation of eggs and small larvae. Larvae undergo metamorphosis 3.5 - 7 months following hatching and reach sexual maturity at 2 - 3 years of age (Storer 1925; Wright and Wright 1949; Jennings and Hayes 1985, 1990, 1994). Of the various life stages, larvae probably experience the highest mortality rates, with less than 1 percent of eggs laid reaching metamorphosis (Jennings *et al.* 1992). California red-legged frogs may live 8 to 10 years (Jennings *et al.* 1992). Populations can fluctuate from year to year; favorable conditions allow the species to have extremely high rates of reproduction and thus produce large numbers of dispersing young and a concomitant increase in the number of occupied sites. In contrast, the animal may temporarily disappear from an area when conditions are stressful (*e.g.*, during periods of drought, disease, etc.).

The diet of California red-legged frogs is highly variable and changes with the life history stage. The diet of the larvae is not well studied, but is likely similar to that of other ranid frogs, feeding on algae, diatoms, and detritus by grazing on the surface of rocks and vegetation (Fellers 2005; Kupferberg 1996a, 1996b, 1997). Hayes and Tennant (1985) analyzed the diets of California red-legged frogs from Cañada de la Gaviota in Santa Barbara County during the winter of 1981 and found invertebrates (comprising 42 taxa) to be the most common prey item consumed; however, they speculated that this was opportunistic and varied based on prey availability. They ascertained that larger frogs consumed larger prey and were recorded to have preyed on Pacific chorus frogs, threespine stickleback, and, to a limited extent, California mice, which were abundant at the study site (Hayes and Tennant 1985, Fellers 2005). Although larger vertebrate prey was consumed less frequently, it represented over half of the prey mass eaten by larger frogs suggesting that such prey may play an energetically important role in their diets (Hayes and Tennant 1985). Juvenile and subadult/adult frogs varied in their feeding activity periods; juveniles fed for longer periods throughout the day and night, while subadult/adults fed nocturnally (Hayes and Tennant 1985). Juveniles were significantly less successful at capturing prey and all life history stages exhibited poor prey discrimination, feeding on several inanimate objects that moved through their field of view (Hayes and Tennant 1985).

Threats: Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the California red-legged frog throughout its range. Several researchers in central California have noted the decline and eventual local disappearance of California and northern red-legged frogs in systems supporting bullfrogs (Jennings and Hayes 1990, Twedt 1993), red swamp crayfish, signal crayfish, and several species of warm water fish including sunfish, goldfish, common carp, and mosquitofish (Moyle 1976; Barry 1992; Hunt 1993; Fisher and Schaffer 1996). This has been attributed to predation, competition, and reproduction interference. Twedt (1993) documented bullfrog predation of juvenile northern red-legged frogs, and suggested that bullfrogs could prey on subadult California red-legged frogs as well. Bullfrogs may also have a competitive advantage over California red-legged frogs. For instance, bullfrogs are larger and

possess more generalized food habits (Bury and Whelan 1984). In addition, bullfrogs have an extended breeding season (Storer 1933) during which an individual female can produce as many as 20,000 eggs (Emlen 1977). Furthermore, bullfrog larvae are unpalatable to predatory fish (Kruse and Francis 1977). Bullfrogs also interfere with California red-legged frog reproduction by eating adult male California red-legged frogs. Both California and northern red-legged frogs have been observed in amplexus (mounted on) with both male and female bullfrogs (Jennings and Hayes 1990, Jennings 1993, Twedt 1993). Thus bullfrogs are able to prey upon and out-compete California red-legged frogs, especially in sub-optimal habitat.

The urbanization of land within and adjacent to California red-legged frog habitat has also affected the threatened amphibian. These declines are attributed to channelization of riparian areas, enclosure of the channels by urban development that blocks dispersal, and the introduction of predatory fishes and bullfrogs. Diseases may also pose a significant threat, although the specific effects of disease on the California red-legged frog are not known. Pathogens are suspected of causing global amphibian declines (Davidson *et al.* 2003). Chytridiomycosis and ranaviruses are a potential threat because these diseases have been found to adversely affect other amphibians, including the listed species (Davidson *et al.* 2003; Lips *et al.* 2006). Mao *et al.* (1999 cited in Fellers 2005) reported northern red-legged frogs infected with an iridovirus, which was also presented in sympatric threespine sticklebacks in northwestern California. Non-native species, such as bullfrogs and non-native tiger salamanders that live within the range of the California red-legged frog have been identified as potential carriers of these diseases (Garner *et al.* 2006). Human activities can facilitate the spread of disease by encouraging the further introduction of non-native carriers and by acting as carriers themselves (*i.e.*, contaminated boots, waders, or fishing equipment). Human activities can also introduce stress by other means, such as habitat fragmentation, that results in the listed species being more susceptible to the effects of disease.

Recovery Plan: The recovery plan for the California red-legged frog identifies eight recovery units (Service 2002). The establishment of these recovery units is based on the determination that various regional areas of the species' range are essential to its survival and recovery. The status of the California red-legged frog was considered within the small-scale recovery units as opposed to their overall range. These recovery units are delineated by major watershed boundaries as defined by U.S. Geological Survey hydrologic units and the limits of its range. The goal of the recovery plan is to protect the long-term viability of all extant populations within each recovery unit. Within each recovery unit, core areas have been delineated and represent contiguous areas of moderate to high California red-legged frog densities that are relatively free of exotic species such as bullfrogs. The goal of designating core areas is to protect metapopulations. Thus when combined with suitable dispersal habitat, will allow for the long-term viability within existing populations. The management strategy identified within the Recovery Plan will allow for the recolonization of habitats within and adjacent to core areas that are naturally subjected to periodic localized extinctions, thus assuring the long-term survival and recovery of California red-legged frogs.

California Red-legged Frog Critical Habitat

The Service designated critical habitat for the California red-legged frog on April 13, 2006 (71 FR 19244) (Service 2006a) and a revised designation to the critical habitat was published on March 17, 2010 (75 FR 12816) (Service 2010). At this time, the Service recognized the taxonomic change from *Rana aurora draytonii* to *Rana draytonii* (Shaffer *et al.* 2010). Critical habitat is defined in Section 3 of the Act as: (1) The specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (a) essential to the conservation of the species and (b) that may require special management

considerations or protection; and (2) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. In determining which areas to designate as critical habitat, the Service considers those physical and biological features that are essential to a species' conservation and that may require special management considerations or protection (50 CFR 424.12(b)). The Service is required to list the known PCEs together with the critical habitat description. Such physical and biological features include, but are not limited to, the following:

1. Space for individual and population growth, and for normal behavior;
2. Food, water, air, light, minerals, or other nutritional or physiological requirements;
3. Cover or shelter;
4. Sites for breeding, reproduction, rearing of offspring, or dispersal; and
5. Generally, habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

The PCEs defined for the California red-legged frog were derived from its biological needs. The area designated as revised critical habitat provides aquatic habitat for breeding and non-breeding activities and upland habitat for shelter, foraging, predator avoidance, and dispersal across its range. The PCEs and, therefore, the resulting physical and biological features essential for the conservation of the species were determined from studies of California red-legged frog ecology. Based on the above needs and our current knowledge of the life history, biology, and ecology of the species, and the habitat requirements for sustaining the essential life-history functions of the species, the Service determined that the PCEs essential to the conservation of the California red-legged frog are:

1. *Aquatic Breeding Habitat.* Standing bodies of fresh water (with salinities less than 7.0 parts per thousand), including: natural and manmade (*e.g.*, stock) ponds, slow-moving streams or pools within streams, and other ephemeral or permanent water bodies that typically become inundated during winter rains and hold water for a minimum of 20 weeks in all but the driest of years.

2. *Non-Breeding Aquatic Habitat.* Freshwater and wetted riparian habitats, as described above, that may not hold water long enough for the species to hatch and complete its aquatic life cycle but that do provide for shelter, foraging, predator avoidance, and aquatic dispersal for juvenile and adult California red-legged frogs. Other wetland habitats that would be considered to meet these elements include, but are not limited to: plunge pools within intermittent creeks; seeps; quiet water refugia during high water flows; and springs of sufficient flow to withstand the summer dry period.

3. *Upland Habitat.* Upland areas adjacent to or surrounding breeding and non-breeding aquatic and riparian habitat up to a distance of 1 mile in most cases and comprised of various vegetational series such as grasslands, woodlands, wetland, or riparian plant species that provide the frog shelter, forage, and predator avoidance. Upland features are also essential in that they are needed to maintain the hydrologic, geographic, topographic, ecological, and edaphic features that support and surround the wetland or riparian habitat. These upland features contribute to the filling and drying of the wetland or riparian habitat and are responsible for maintaining suitable periods of pool inundation for larval frogs and their food sources, and provide breeding, non-breeding, feeding, and sheltering habitat for juvenile and adult frogs (e.g., shelter, shade, moisture, cooler temperatures, a prey base, foraging opportunities, and areas for predator avoidance). Upland habitat should include

structural features such as boulders, rocks and organic debris (*e.g.*, downed trees, logs), as well as small mammal burrows and moist leaf litter.

4. *Dispersal Habitat.* Accessible upland or riparian dispersal habitat within designated units and between occupied locations within a minimum of 1 mile of each other that allow for movement between such sites. Dispersal habitat includes various natural habitats and altered habitats such as agricultural fields, which do not contain barriers (*e.g.*, heavily traveled road without bridges or culverts) to dispersal. Dispersal habitat does not include moderate- to high-density urban or industrial developments with large expanses of asphalt or concrete, nor does it include large reservoirs over 50 acres in size, or other areas that do not contain those features identified in PCEs 1, 2, or 3 as essential to the conservation of the species.

With the revised designation of critical habitat, the Service intends to conserve the geographic areas containing the physical and biological features that are essential to the conservation of the species, through the identification of the appropriate quantity and spatial arrangement of the PCEs sufficient to support the life-history functions of the species. Because not all life-history functions require all the PCEs, not all areas designated as critical habitat will contain all the PCEs. Please refer to the final designation of critical habitat for California red-legged frog for additional information (75 FR 12816).

San Francisco Garter Snake

Refer to the five-year review for the species status (Service 2006b).

Environmental Baseline

California Red-legged Frog

The action area is located within the South San Francisco Bay Core Area (San Mateo Bayside Hydrologic Sub-Area) and the South and East Bay Recovery Unit (Service 2002, 2006a). The recovery action guidelines provide recommendations for minimizing the effects of various land and water uses, non-native species/predators, and air and water contamination in addition to outlining recommendations for habitat preservation. These recommendations assist in the conservation and recovery of the species, protect high quality habitat within core areas and priority watersheds, increase opportunities for dispersal, population expansion, and recolonization, and provide connectivity between core areas and occupied watersheds. The conservation needs for the East San Francisco Bay Core Area are: (1) protect existing populations; (2) control non-native predators; (3) study the effects of grazing in riparian corridors, ponds and uplands; (4) reduce impacts associated with livestock grazing; (5) protect habitat connectivity; (6) minimize effects of recreation and off-road vehicle use, e.g. Corral Hollow watershed; (7) avoid and reduce impacts of urbanization; and (8) protect habitat buffers from nearby urbanization.

There is a pond located approximately 1,000 feet northwest of the action area that was reported to support California red-legged frog breeding (CDFW 2014). Egg-masses and metamorphs were observed in 2007 and 2006, respectively (CDFW 2014). Additional breeding occurrences have been reported along the perimeter of Upper Crystal Springs Reservoir supporting all life history stages (CDFW 2014). Upper Crystal Springs Reservoir lies approximately 700 feet west of the action area and is hydrologically connected via the drainage running within the willow riparian corridor. Within the action area, suitable breeding and non-breeding aquatic habitat is present within the open water

and seasonal wetland/ephemeral drainage vegetation communities, respectively. Suitable upland and dispersal habitat is present throughout the entire action area.

Breeding has not been documented from the open water habitat within the action area; however, protocol-level breeding surveys have not been conducted. Breeding is unlikely based on the small size of the pond, but cannot be ruled out. The coast live oak woodland, willow riparian, ruderal grassland, mixed grassland and Baccharis scrub, and mixed scrub vegetation communities provide suitable upland, foraging, refugia, and dispersal habitat for California red-legged frogs. Caltrans determined that California red-legged frogs have the potential to occur throughout all habitats within the action area, but are not expected to breed within the action area.

I-280 represents a major barrier to dispersal of California red-legged frogs eastward from the action area and Upper Crystal Springs Reservoir. Canada Road is a paved county road that runs between the action area and Upper Crystal Springs Reservoir, but does not present a barrier to movement; however, it does pose a risk of injury or mortality to California red-legged frogs due to vehicle and bicycle traffic and depredation by predators.

Aquatic features and upland and dispersal habitat within the action area are important to the conservation and recovery of the species based on the following: 1) they are located within the known range of the species and within the South San Francisco Bay Core Area; 2) they provide suitable habitat for juvenile and adult life history stages of the species; 3) they provide opportunities for dispersal, population expansion and recolonization. For these reasons, the Service has determined there is a reasonable potential for juvenile and adult California red-legged frogs to inhabit, forage, seek refuge or disperse within and through the action area.

Critical Habitat

The entire action area lies within the Cahill Ridge SNM-1 designated critical habitat unit, which is located in north central San Mateo County, west of I-280 and south of Pacifica, California (75 FR 12816). This unit comprises 34,952 acres and contains the features that are essential for the conservation of the species. The unit contains aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2) and upland habitat for foraging and dispersal activities (PCE 3 and PCE 4). The unit contains high-quality permanent and ephemeral aquatic habitats consisting of ponds and streams surrounded by riparian and emergent vegetation that provides for breeding and upland areas for dispersal, shelter, and food. The unit represents the only unit in the San Francisco peninsula, and would assist in maintaining the distribution of the California red-legged frog population within the San Francisco area, and provide connectivity to units farther south into Santa Cruz County. The designation of this unit requires special management considerations to address development and nonnative invasive plants, which may alter aquatic and upland habitats and thereby result in the direct or indirect loss of egg masses or adults.

The action area contains all four PCE's. The open water provides suitable breeding habitat (PCE-1); however, the project is not expected to effect this pond. The ephemeral creek and season wetland provides suitable non-breeding aquatic habitat (PCE-2). The majority of the action area is comprised of coast live oak woodland, willow riparian, ruderal grassland, mixed grassland and Baccharis scrub, mixed scrub habitat which is considered suitable upland (PCE-3) and dispersal (PCE-4) habitat.

San Francisco Garter Snake

The action area is located within the range of the Crystal Springs Reservoir garter snake population and is set within a mosaic of various open water, shallow coves, marshes, creek in-flows, and adjacent upland and dispersal habitat. Hydrologic features within the action area include a small open water pond near the western project boundary, an adjacent seasonal wetland, and ephemeral drainage that parallels the project alignment. Suitable upland foraging, refugia, and dispersal habitat is present within the willow riparian, coast live oak woodland, ruderal grassland, mixed grassland, and mixed scrub vegetation communities throughout the action area. California red-legged frog breeding, a primary prey species for San Francisco garter snakes, has been documented breeding along the edges of Upper Crystal Springs Reservoir and in a pond approximately 1,000 feet to the northwest (CDFW 2014). This suggests that the habitat within and adjacent to the action area are productive amphibian and reptiles habitat; thereby suitable San Francisco garter snake habitat.

Occurrences of juvenile and adult San Francisco garter snakes have been reported along the entire perimeter of the Upper Crystal Springs Reservoir dating from 1946 through 2004 (CDFW 2014). The reservoir is situated approximately 700 feet to the west and is hydrologically connected via an unnamed drainage to the action area. Based on habitat suitability within the action area, connectivity to occupied habitats along Upper Crystal Springs Reservoir, and the presence of breeding, foraging, sheltering and dispersal habitat, the Service has determined there is a reasonable probability for San Francisco garter snakes to inhabit or disperse through the action area.

Effects of the Action

California Red-legged Frog and San Francisco Garter Snake

The proposed project will likely adversely affect the California red-legged frog and San Francisco garter snake by harming or harassing juveniles and adults inhabiting suitable upland, dispersal, and non-breeding aquatic habitat within the action area. The aspects of the proposed action most likely to affect the California red-legged frog and San Francisco garter snake are confined to the construction phase of the project associated with the construction of the trenching, backfill, slope stabilization, and 60-inch corrugated pipe installation and tie-in activities.

Construction noise, vibration, and increased human activity may interfere with normal behaviors – feeding, sheltering, movement between refugia and foraging grounds, and other essential behaviors of the California red-legged frog and San Francisco garter snake – resulting in avoidance of areas that have suitable habitat but intolerable levels of disturbance. Short-term temporal effects will occur when vegetative cover and subterranean upland habitat is removed during project construction. Caltrans proposes to minimize these effects, in part, by locating construction staging, storage and parking areas outside of sensitive habitat; clearly marking construction work boundaries to prevent crews from affecting more habitat than is absolutely necessary, installing one-way wildlife exclusion fencing to allow California red-legged frogs and San Francisco garter snakes to escape the work area and prevent them from (re-)entering the work area, and revegetating all areas disturbed by project activities.

The proposed construction activities could result in the introduction of chemical contaminants to the site. California red-legged frogs and San Francisco garter snakes using these areas could be exposed to any contaminants that are present at the site. Exposure pathways could include inhalation, dermal contact, direct ingestion, or secondary ingestion of contaminated soil, plants, or prey species. Exposure to contaminants could cause short- or long-term morbidity, possibly

resulting in reduced productivity or mortality. Caltrans proposes to minimize these risks by implementing a Storm Water Pollution Prevention Plan, erosion control BMPs, and a Spill Response Plan, which will consist of refueling, oiling or cleaning of vehicles and equipment a minimum of 50 feet from aquatic resources; installing coir rolls, straw wattles and/or silt fencing to capture sediment and prevent runoff or other harmful chemicals from entering the wetland; and locating staging, storage and parking areas away from aquatic habitats.

Preconstruction surveys and the relocation of individual California red-legged frogs by a Service-approved biologist will minimize the likelihood of serious injury or mortality; however, capturing and handling frogs may result in stress during handling, containment, and transport. Death and injury of individuals could occur at the time of relocation or later in time subsequent to their release. Although survivorship for translocated amphibians has not been estimated, survivorship of translocated wildlife, in general, is low because of intraspecific competition, lack of familiarity with the relocation site with regard to breeding, feeding, and sheltering habitats, risk of contracting disease in foreign environment, and increased risk of predation. These effects will be minimized by using qualified Service-approved biologists, limiting the duration of handling, and relocating amphibians to suitable nearby habitat.

Biologists and construction workers traveling to the action area from other project sites may transmit diseases by introducing contaminated equipment. The chance of a disease being introduced into a new area is greater today than in the past due to the increasing occurrences of disease throughout amphibian populations in California and the United States. It is possible that chytridiomycosis, caused by chytrid fungus (*Batrachochytrium dendrobatidis*), may exacerbate the effects of other diseases on amphibians or increase the sensitivity of the amphibian to environmental changes (e.g., water pH) that reduce normal immune response capabilities (Bosch et al. 2001, Weldon et al. 2004). Implementing proper decontamination procedures prior to and following aquatic surveys and handling of frogs and salamanders will minimize the risk of transferring diseases through contaminated equipment or clothing.

Temporary effects to listed species may occur in areas denuded, manipulated, or otherwise modified from their existing, pre-project conditions, thereby removing one or more essential components of a listed species' habitat as a result of project activities that include, but are not limited to, construction, staging, storage, lay down, vehicle access, parking, etc. Temporary effects to habitat must be restored to baseline habitat values or better within one year following initial disturbance. Areas subject to ongoing operations and maintenance are not considered temporary even if they are restored within one year following initial disturbance. Affected areas not fulfilling these criteria are considered permanent. Habitat affected would become unavailable to these species during the construction phase and could result in loss of foraging or movement habitat, altered behavioral displays (e.g., flushing from cover during vegetation clearing or ground disturbing activities, decreased foraging success, increased risk of predation, etc.), and displacement from or avoidance of habitat features within the action area. The proposed action would result in the permanent loss and/or degradation of 0.02-acre of California red-legged frog and San Francisco garter snake upland and dispersal habitat; and the temporary loss and/or degradation of 2.18 acres of California red-legged frog and San Francisco garter snake upland and dispersal habitat. There will be no affects to breeding or nonbreeding aquatic habitat. Caltrans has proposed a compensatory habitat conservation measure at a ratio of 3:1 (acres of compensation to acres of habitat loss) for permanent effects and 1.1:1 for temporary effects.

These effects will be further minimized by installing environmentally sensitive area fencing to keep workers from straying into otherwise undisturbed habitat; erecting wildlife exclusion fencing to deter species from wandering onto the construction site; implementing storm water and erosion BMP's; educating workers about the presence of California red-legged frogs and San Francisco garter snakes, their habitat, identification, regulatory laws, and avoidance and minimization measures; and requiring a Service-approved biologist(s) to be present to monitor project activities within or adjacent to suitable habitat.

California Red-legged Frog Critical Habitat

The proposed action will result in the permanent loss and/or degradation of 0.02-acre of upland (PCE 3) and dispersal (PCE 4) habitat and the temporary loss and/or degradation of 2.18 acres of upland (PCE 3) and dispersal (PCE 3) habitat comprising willow riparian, coast live oak woodland, ruderal grassland, mixed grassland, and mixed scrub vegetation communities. The proposed action will not affect California red-legged frog breeding or non-breeding aquatic habitat since the open water, seasonal wetland, and ephemeral drainage habitats located within the action area will be avoided. Caltrans has minimized effects to California red-legged frog critical habitat by incorporating design modifications that avoid or minimize disturbance or loss of designated critical habitat containing PCEs. The permanent loss and/or degradation of 0.02-acre and temporary loss and/or degradation of 2.18 acres of California red-legged frog critical habitat supporting PCEs 3 and 4 will not compromise the recovery function of SNM-1, based on the location of effected critical habitat along an existing roadway.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. No other State, Tribal, local or private actions are anticipated in the action area within the foreseeable future.

Conclusion

After reviewing the current status of the California red-legged frog and San Francisco garter snake; the environmental baseline for the action area; the effects of the proposed I-280 Repair Pipe System and Backfill Sinkhole Project and the cumulative effects; it is the Service's biological opinion that the project, as proposed, is likely to adversely affect both species, but is not likely to jeopardize their continued existence. This determination is based on our opinion that the magnitude of the effects of this action does not appreciably reduce the likelihood of both the survival and recovery of these species in the wild.

After reviewing the current status of designated critical habitat for the California red-legged frog, the environmental baseline for each critical habitat unit, effects of the proposed action, and cumulative effects, the Service finds that the project, as proposed, is not likely to destroy or adversely modify critical habitat for the California red-legged frog based upon the statutory provisions of the Act. The local effects resulting from the proposed action will not result in the inability of range-wide critical habitat to remain functional or serve its intended recovery role for these species.

INCIDENTAL TAKE STATEMENT

Section 9(a)(1) of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The measures described below are non-discretionary, and must be implemented by Caltrans so that they become binding conditions of any grant or permit issued to Caltrans, as appropriate, in order for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this incidental take statement. If Caltrans (1) fails to require Caltrans to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of Take

California Red-Legged Frog

The Service anticipates that incidental take of the California red-legged frog may be difficult to detect due to their cryptic nature and wariness of humans. Losses of this species may also be difficult to quantify due to a lack of baseline survey data and seasonal/annual fluctuations in their numbers due to environmental or human-caused disturbances. Due to the difficulty in quantifying the number of California red-legged frogs that will be taken as a result of the proposed action, the Service is quantifying take incidental to the proposed action as the harm and harassment of all California red-legged frogs inhabiting or utilizing the 14-acre action area. The Service anticipates that take of juvenile and adult life history stages may be harmed or harassed as a result of habitat loss/degradation, construction-related disturbance, or capture and relocation efforts. Mortality or injury of California red-legged frogs is not anticipated based on the full implementation of the proposed conservation measures. Upon implementation of the following Reasonable and Prudent Measures, take of all juvenile and adult California red-legged frogs within the action area in accordance with the amount and type of take outlined above will become exempt from the prohibitions described under section 9 of the Act. No other forms of take of California red-legged frogs are authorized under this opinion.

San Francisco Garter Snake

The Service expects that incidental take of the San Francisco garter snake may be difficult to detect or quantify because this animal may range over a large territory and the finding of an injured or dead individual is unlikely because they may seek refuge in aquatic habitat, burrows or other underground refugia. Due to the difficulty in quantifying the number of San Francisco garter snakes that will be

taken as a result of the proposed action, the Service is quantifying take incidental to the proposed action as the harm and harassment of all San Francisco garter snakes inhabiting or utilizing the 14-acre action area. The Service anticipates that take of juvenile and adult life history stages may be harmed or harassed as a result of habitat loss/degradation, or construction-related disturbance. Mortality or injury of San Francisco garter snakes is not anticipated based on the full implementation of the proposed conservation measures. Upon implementation of the following Reasonable and Prudent Measures, take of all juvenile and adult San Francisco garter snakes within the action area in accordance with the amount and type of take outlined above will become exempt from the prohibitions described under section 9 of the Act. No other forms of take of San Francisco garter snakes are authorized under this opinion.

Effect of the Take

In the accompanying biological opinion, the Service determined that the level of anticipated take is not likely to jeopardize the California red-legged frog or San Francisco garter snake.

Reasonable and Prudent Measures

The Service has determined that the following reasonable and prudent measure is necessary and appropriate to minimize impacts of incidental take of California red-legged frog or San Francisco garter snake:

1. Minimize the effects to the California red-legged frog and San Francisco garter snake by implementing the proposed action as described, as modified by the following terms and conditions.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Caltrans must comply with the following terms and conditions, which implement the reasonable and prudent measure, described above and outline required reporting/monitoring requirements. These Terms and Conditions are nondiscretionary. The following Terms and Conditions implement the Reasonable and Prudent Measure number 1:

1. **Compliance with Biological Opinion.** Caltrans shall include Special Provisions that include the Conservation Measures and the Terms and Conditions of this biological opinion in the solicitation for bid information for all contracts for the project that are issued by them to all contractors. Caltrans shall require all contractors and subcontractors to comply with the Act in the performance of the proposed action and shall perform the action as outlined in the Project Description of this biological opinion as provided by Caltrans in the Biological Assessment dated August 2013, revised project description dated October 6, 2013, and all other supporting documentation submitted to the Service in support of the action. Changes to the Project Description or performance of work outside the scope of this biological opinion are subject to the requirements of reinitiation of formal consultation.

2. **Implementation of Biological Opinion.** Caltrans shall ensure the Resident Engineer or their designee shall have full authority to implement and enforce all Conservation Measures and Terms and Conditions of this biological opinion. The Resident Engineer or his/her

designee shall maintain a copy of this biological opinion onsite whenever construction is in progress. Their name(s) and telephone number(s) shall be provided to the Service at least 30 calendar days prior to groundbreaking at the project.

3. **Proposed Compensation**. The compensation measures proposed by Caltrans and outlined in Table 1 will minimize the effects of harm on the California red-legged frog and San Francisco garter snake. Habitat considered for compensation shall comprise high quality breeding, foraging, sheltering, migration, and/or dispersal habitat. Caltrans shall comply with all applicable CDFW regulations pertaining to mitigation for species designated as fully protected and/or listed by the State. Compensation shall be implemented in accordance with the Selected Review Criteria for Section 7 Off-Site Compensation provided in Appendix A. If conservation banking credits are to be purchased, Caltrans shall submit a conceptual compensation plan to the Service for review and approval prior to the purchase of credits. If the proposed compensation scheme is not fully implemented, Caltrans shall provide an alternative compensation scheme to be reviewed and approved by the Service. On-site restoration of temporarily affected areas may qualify as compensation at a 1:1 ratio if it is restored within one calendar year following project completion and the conditions are verified by the Service. All compensation will be acquired prior to the beginning of earthmoving for the project.

4. **Biological Monitor Approval and Stop Work Authority**. The qualifications of all proposed Service-approved biological monitors shall be presented to the Service for review and written approval at least 30 calendar days prior to project initiation. The Service-approved biological monitors shall keep a copy of this biological opinion in his/her possession when onsite. Through the Resident Engineer or his/her designee, the Service-approved biological monitors shall be given the authority to communicate verbally, by telephone, email, or hardcopy with Caltrans personnel, construction personnel or any other person(s) at the project site or otherwise associated with the project to ensure that the terms and conditions of this biological opinion are met. The Service-approved biologist(s) through communication with the Resident Engineer or his/her designee shall have oversight over implementation of the Terms and Conditions in this Biological Opinion, and shall have the authority to stop project activities if they determine any of the requirements associated with these Terms and Conditions are not being fulfilled. If the Service-approved biologist(s) exercises this authority, the Service shall be notified by telephone and email within 24 hours. The Service contact is Coast-Bay Division Chief of the Endangered Species Program, Sacramento Fish and Wildlife Office at telephone (916) 414-6600.

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

6. **Agency Access**. If verbally requested through the Resident Engineer or Construction Inspector, before, during, or upon completion of ground breaking and construction

activities, Caltrans shall ensure the Service or their designated agents can immediately and without delay, access and inspect the project site for compliance with the proposed project description, conservation measures, and terms and conditions of this Biological Opinion, and to evaluate project effects to the California red-legged frog and San Francisco garter snake and their habitat.

7. **Proper Use of Erosion Control Devices**. To prevent California red-legged frogs and San Francisco garter snakes from becoming entangled, trapped, or injured, erosion control materials that use plastic or synthetic monofilament netting will not be used within the action area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine or other similar fibers.

8. **Wildlife Exclusion Fencing**. WEF shall be a minimum of 30 inches tall and shall be buried a minimum of 4 inches deep and backfilled with soil, sand bags or other means to prevent California red-legged frogs or San Francisco garter snakes from passing under the fence and entering the project footprint. Vegetation shall be cleared to within two inches of ground level to prevent California red-legged frogs or San Francisco garter snakes from using vegetation to gain access to the project site by climbing over the WEF. Vegetation within 18 inches of the WEF shall remain clear during the entire time the WEF is in operation. The WEF shall consist of a material that does not allow California red-legged frogs or San Francisco garter snakes from climbing into the project site and has a minimum 4-inch lip on the top facing away from the project construction area.

9. **Biological Monitoring**. A Service-approved biologist(s) shall be onsite during all activities that may result in take of California red-legged frogs or San Francisco garter snakes as determined by the Service. A minimum of one Service-approved biologist shall be on-site or available by phone to respond in a timely manner throughout the project duration. Caltrans shall coordinate with the Service to determine which locations will require the presence with Service-approved biological monitors. The Service will consider the implementation of specific project activities without the oversight of an on-site Service-approved biologist on a case-by-case basis.

10. **Preconstruction and Daily Surveys**. Preconstruction surveys shall be conducted by a Service-approved biologist immediately prior to the initiation of any ground disturbing activities and vegetation clearing that may result in take of California red-legged frogs or San Francisco garter snakes as determined by the Service. All suitable aquatic and upland habitat including refugia habitat such as dense vegetation, small woody debris, refuse, burrows, etc., shall be thoroughly inspected. The Service-approved biologist(s) shall conduct clearance surveys at the beginning of each day and regularly throughout the workday when construction activities are occurring that may result in take of California red-legged frogs or San Francisco garter snakes as determined by the Service.

11. **Protocol for Species Observation and Handling**. If an California red-legged frog or San Francisco garter snake is encountered in the action area, work activities within 50 feet of the individual shall cease immediately and the Resident Engineer and Service-approved biologist shall be notified. Based on the professional judgment of the Service-approved biologist, if project activities can be conducted without harming or injuring the California red-legged frog or San Francisco garter snake, it may be left at the location of discovery and monitored

by the Service-approved biologist. All project personnel shall be notified of the finding and at no time shall work occur within 50 feet of the California red-legged frog or San Francisco garter snake without a Service-approved biologist present. San Francisco garter snakes shall not be captured or handled without authorization from the Service and CDFW, and shall be monitored until it leaves the action area on its own accord, unless the situation poses an imminent risk of injury or mortality to the individual(s). If it is determined by the Service-approved biologist that relocating the California red-legged frog is necessary, the following steps shall be followed:

a. Prior to handling and relocation, the Service-approved biologist will take precautions to prevent introduction of amphibian diseases in accordance with the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (Service 2005). Disinfecting equipment and clothing is especially important when biologists are coming to the action area to handle amphibians after working in other aquatic habitats.

b. California red-legged frogs shall be captured by hand, dipnet, or other Service-approved methodology, transported and relocated to nearby suitable habitat outside of the work area and released as soon as practicable the same day of capture. Holding/transporting containers and dipnets shall be thoroughly cleaned, disinfected, and rinsed with freshwater prior to use within the action area. The Service shall be notified within 24 hours of all capture, handling, and relocation efforts.

Reporting Requirements

In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded, Caltrans shall adhere to the following reporting requirements. Should this anticipated amount or extent of incidental take be exceeded, Caltrans must reinitiate formal consultation as per 50 CFR 402.16.

1. The Service must be notified within one (1) working day of the finding of any injured or dead listed species or any unanticipated damage to its habitat associated with the proposed project. Notification will be made to the Coast-Bay Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600, and must include the date, time, and precise location of the individual/incident clearly indicated on a U.S. Geological Survey 7.5 minute quadrangle or other maps at a finer scale, as requested by the Service, and any other pertinent information. When an injured or dead individual of the listed species is found, Caltrans shall follow the steps outlined in the Disposition of Individuals Taken section below.

2. Other pertinent reporting information such as monitoring reports (if not included as a term and condition), notification of project completion/implementation, etc. including when this information is due to the Service.

Disposition of Individuals Taken

Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Dead individuals must be sealed in a resealable plastic bag

containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a freezer located in a secure site, until instruction s are received from the Service regarding the disposition of the dead specimen. The Service contact persons are the Coast-Bay Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600; and the Resident Agent-in-Charge of the Service's Office of Law Enforcement, 5622 Price Way, McClellen, California 95562, at (916) 569-8444.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

1. Caltrans District 4 should work with the Service to develop a conservation strategy that would identify the current safe passage potential along Bay Area highways and the areas where safe passage for wildlife could be enhanced or established.

2. Caltrans should assist the Service in implementing recovery actions identified in the *Recovery Plan for the California Red-legged Frog* (Service 2002) and the *Recovery Plan for the San Francisco Garter Snake*, California (Service 1985).

3. Caltrans should consider participating in the planning for a regional habitat conservation plan for the California red-legged frog, San Francisco garter snake, other listed species, and sensitive species.

4. Caltrans should consider establishing functioning preservation and creation conservation banking systems to further the conservation of the California red-legged frog, San Francisco garter snake, and other appropriate species. Such banking systems also could possibly be utilized for other required mitigation (i.e., seasonal wetlands, riparian habitats, etc.) where appropriate. Efforts should be made to preserve habitat along roadways in association with wildlife crossings.

5. Roadways can constitute a major barrier to critical wildlife movement. Therefore, Caltrans should incorporate culverts, tunnels, or bridges on highways and other roadways that allow safe passage by the California red-legged frog, San Francisco garter snake, other listed animals, and wildlife. Photographs, plans, and other information into the BAs if "wildlife friendly" crossings are incorporated into projects. Efforts should be made to establish upland culverts designed specifically for wildlife movement rather than accommodations for hydrology. Transportation agencies should also acknowledge the value of enhancing human safety by providing safe passage for wildlife in their early project design.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION--CLOSING STATEMENT

This concludes formal consultation on the I-280 Repair Pipe System and Backfill Sinkhole Project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any additional take will not be exempt from the prohibitions of section 9 of the Act, pending reinitiation.

If you have any questions regarding this biological opinion on the proposed I-280 Repair Pipe System and Backfill Sinkhole Project, San Mateo County, California, contact Jerry Roe or Ryan Olah at the letterhead address or at (916) 414-6600.

Sincerely,

Jennifer M. Norris
Field Supervisor

Enclosures

cc:
Melissa Escaron, California Department of Fish and Wildlife, Napa, California

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APPENDIX A
Sacramento Fish and Wildlife Office
Review Criteria for Section 7 Compensation
Revised January 30, 2014

Property Assurances and Conservation Easement

- ☐ Title Report [*preliminary at proposal, and Final Title Insurance at recordation*]; no older than six months;
- ☐ Property Assessment and Warranty;
- ☐ Subordination Agreement [*include if any outstanding debts or liens on the property; may be needed for existing easements*];
- ☐ Legal Description and Parcel Map;
- ☐ Conservation Easement [*use the current SFWO standardized CE template*]; or
- ☐ Non-Template Conservation Easement [*this requires additional review*]

Site Assessment and Development

- ☐ Phase I Environmental Site Assessment;
- ☐ Habitat Development Plan [*include if habitat will be constructed, restored, or enhanced*];
- ☐ Construction Security Analysis *[applicable if habitat is being constructed/ enhanced/ restored]*;
- ☐ Performance Security Analysis [*applicable if there are performance standards*];

Site Management

- ☐ Interim Management Plan;
- ☐ Interim Management Security Analysis and Schedule;
- ☐ Long-Term Management Plan;
- ☐ Endowment Fund Analysis and Schedule;
- ☐ Endowment Funding Agreement or Trust Agreement or Declaration of Trust [*DFW calls this a "mitigation agreement"*]

Guidelines

Real Estate Assurances and Conservation Easement (CE)

Title Report

1. Who holds fee title to property?
2. Exceptions to title. Are there any liens or encumbrances (existing debts, leases, or easements) on the property? Note that any existing exceptions to title will have priority over a conservation easement for the mitigation project.
    a. Review Preliminary Title Report to evaluate liens and encumbrances (see Property Assessment and Warranty, below).
    b. Could any of these exceptions to title potentially interfere with either biological habitat values or ownership? If existing easements can potentially interfere with the conservation values/habitat of the property, those portions of the land should be deducted from the total compensation acreage available on the site.
    c. Split estates. Have the water or mineral rights been severed from title? If so, property owner should be encouraged to re-acquire those rights, or at least to acquire the surface-entry rights to remove or limit access for mineral exploration/development.

Property Assessment and Warranty

1. Property owner should submit a Property Assessment and Warranty, which discusses every exception to title listed on the Preliminary Title Report and Final Title Insurance Policy, evaluating any potential impacts to the conservation values that could result from the exceptions to title (see below).
2. The Property Assessment and Warranty should include a summary and full explanation of all exceptions remaining on the title, with a statement that the owner/Grantor accepts responsibility for all lands being placed under the CE as available for the primary purposes of the easement, as stated in the easement, and assures that these lands have a free and clear title and are available to be placed under the CE.

Subordination Agreement

1. A Subordination Agreement is necessary if there is any outstanding debt on the property; it could also be used to subordinate liens or easements. Review Subordination Agreement language for adequacy—the lending bank or other lien or rights holder must agree to fully subordinate each lien, encumbrance, or easement under the CE.

Legal Description and Parcel Map

1. Ensure accuracy of map, and location and acreage protected under the CE.
2. Both the map and the legal description should explain the boundaries of the individual project compensation site. The site should *not* have 'leftover' areas for later use.
3. Ask for an easement map to be prepared (if applicable), showing all easements on the property.

Conservation Easement from Template

1. Who will hold the easement?
   a. Conservation easements require third-party oversight by a qualified non-profit or government agency (=easement holder or Grantee). Minimum qualifications for an easement holder include:
      i. Maintaining accreditation by the Land Trust Accreditation Commission http://www.landtrustaccreditation.org/home.
      ii. Organized under IRS 501(c)(3);
      iii. Qualified under CA Civil Code § 815;
      iv. Bylaws, Articles of Incorporation, and biographies of Boards of Directors on file at;
         1. Must meet requirements of SFWO, including 51% disinterested parties on the Board of Directors;
      v. Approved by SFWO
2. Project Applicant should submit a redline version showing all of their proposed revisions in track changes or other editable electronic format, along with an explanation of all deviations from the template.

Non-Template Conservation Easement

1. If not using the CE template, the Project Applicant should specify objections they have to the template. This may substantially delay processing as the non-template CE will require review by the Solicitor's Office. Alternate CEs are subject to SFWO approval prior to being granted and recorded.
2. The Project Applicant must either 1) add SFWO as a third-party beneficiary, or 2) add language throughout the document, in all appropriate places, that will assure SFWO the right to enforce, inspect, and approve any and all uses and/or changes under the CE prior to occurrence (including land use, biological management or ownership).
3. Include, at a minimum, language to:
   a. Reserve all mineral, air, and water rights under the CE as necessary to maintain and operate the site in perpetuity;
   b. Ensure all future development rights are forfeited;
   c. Ensure all prohibited uses contained in the CE template are addressed; and
   d. Link the CE, Management Plan, and the Endowment Fund within the document (e.g., note that each exists to support the others, and where each of the documents can be located if a copy is required).
4. Insert necessary language, particularly, but not exclusively, per: (can compare to CE template):
   a. Rights of Grantee
   b. Grantee's Duties
   c. Reserved Rights
   d. Enforcement
   e. Remedies
   f. Access
   g. Costs and Liabilities
   h. Assignment and Transfer
   i. Merger
   j. Notices

5. Include a signature block for USFWS to sign "approved as to form."

Site Assessment and Development

Phase I Environmental Site Assessment

1. The Phase I ESA must show that the compensation site is not subject to any recognized environmental conditions as defined by the American Society for Testing and Materials (ASTM) Standard E1527-05 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, available at http://www.astm.org/Standards/E1527.htm, (i.e., the presence or likely presence of any Hazardous Substances or petroleum products).
2. If the Phase I ESA identifies any recognized environmental conditions, the Project Applicant must represent and warrant to the SFWO that all appropriate assessment, clean up, remediation, or removal action has been completed.
3. If the Phase I ESA identifies any recognized environmental conditions, a Phase II ESA may be needed for sampling and laboratory analysis.

Restoration or Habitat Development Plan [*not required if the site is preservation only*]

1. The overall plan governing construction and habitat establishment activities required to be conducted on the Property, including, without limitation, creation, restoration, and enhancement of habitat.
   a. This plan should include the baseline conditions of the Property including biological resources, geographic location and features, topography, hydrology, vegetation, past, present, and adjacent land uses, species and habitats occurring on the property, a description of the activities and methodologies for creating, restoring, or enhancing habitat types, a map of the approved modifications, overall habitat establishment goals, objectives and Performance Standards, monitoring methodologies required to evaluate and meet the Performance Standards, an approved schedule for reporting monitoring results, a discussion of possible remedial actions, and any other information deemed necessary by the SFWO.
2. Any permits and other authorizations needed to construct and maintain the site shall be included and in place prior to the start of construction of the habitat.
3. Full construction plans for any habitat construction are subject to SFWO approval and must be *SFWO-approved prior* to the start of construction of the habitat.

Construction Security

1. Construction Security in the amount of 100% of a reasonable third party estimate or contract to create, restore, or enhance habitats on the property in accordance with the Restoration or Habitat Development Plan.
2. Construction Security can be drawn on should the project proponent default.
3. The Construction Security should be in the form of an irrevocable standby letter of credit or a cashier's check.
   a. LOC: issued for a period of at least one year, and provide that the expiration date will be automatically extended for at least one year on each successive expiration date unless, until extension is no longer necessary.
   b. Beneficiary: a third party subject to approval by the SFWO.
   c. Language in a draft letter of credit subject to approval by the SFWO.

Performance Security *[only necessary if habitat if performance standards have been identified]*

1. Performance Security in the amount of 20% of the Construction Security.
2. Performance Security can be drawn on should the Performance Standards not be met, if remedial action becomes necessary.
3. The Performance Security in the form of an irrevocable standby letter of credit or a cashier's check.
   a. LOC: issued for a period of at least one year, and provide that the expiration date will be automatically extended for at least one year on each successive expiration date unless, until extension is no longer necessary.
   b. Beneficiary: a third party who is subject to approval by the SFWO.
   c. Language in a draft letter of credit is subject to SFWO approval.

Site Management

Interim Management Plan

1. The Interim Management Plan should identify the short-term management, monitoring, and reporting activities to be conducted from the time construction ends until the Endowment Fund has been fully funded for three years and all the Performance Standards in the Development Plan have been met. This may be the same as the Long-term Management Plan.

Interim Management Security Analysis and Schedule

The purpose of the Interim Management Security is to allow the endowment to grow for at least three years without any disbursements, and is a safeguard to ensure that there will be enough funds in the endowment to pay for future management costs. The period can be longer than three years; a 5 year period is recommended by many land trusts.

1. Interim Management Security (in the form of a standby letter of credit) in the amount equal to the estimated cost to implement the Interim Management Plan during the first three years of the Interim Management Period, as set for in the Interim Management Security Analysis and Schedule.
2. The Interim Management Security Analysis and Schedule should be in the form of a table and/or spreadsheet that shows all of the tasks (management, monitoring, reporting), task descriptions, labor (hours), cost per unit, cost frequency, timing or scheduling of the tasks, the total annual funding necessary for each task, and any associated assumptions for each task required by the Interim Management Plan. The total annual expenses should include administration and contingency costs.
3. The Interim Management Security:
   a. Held by a qualified, non-profit organization or government agency, subject to SFWO approval [see requirements under CE above], and
   b. Held according to minimum standards for assuring maximum success in earning potential, and will include assurances to safeguard against loss of principle.
   c. Instructions for disbursements or releases from the fund must be outlined in the Endowment Management Agreement/Trust Agreement/Declaration of Trust.

Long-Term Management Plan (LTMP)

1. The LTMP template identifies the long-term management, monitoring and reporting activities to be conducted.
2. The LTMP should include at minimum:
   a. Purpose of the Project and purpose of the LTMP;
   b. A baseline description of the setting, location, history, and types of land use activities, geology, soils, climate, hydrology, habitats present (once project meets Performance Standards), and species descriptions;
   c. Overall management, maintenance and monitoring goals; specific tasks and timing of implementation; and discussion of any constraints, which may affect goals;
   d. The Endowment Fund Analysis and Schedule (see below);
   e. Discussion of Adaptive Management actions for reasonably foreseeable events and possible thresholds for evaluating and implementing Adaptive Management;
   f. Rights of access to the Property and prohibited uses of the Property as provided in the CE; and
   g. Procedures for Property transfer, land manager replacement, amendments, and notices.
3. The LTMP must be incorporated by reference in the CE.
4. The LTMP is considered a living document and may be revised as necessary upon agreement of the land manager, easement holder, and SFWO.

Endowment Fund Analysis and Schedule

1. Can use a PAR or PAR-like analysis and must be based upon the final LTMP, subject to SFWO approval.
   - The analysis should be developed with input by the land manager and conservation easement holder.
2. The analysis and schedule should be in the form of a table and/or spreadsheet that shows, at a minimum:
   - all of the tasks (management, monitoring, reporting)
   - task descriptions, with tasks numbers cross-referenced in management plan(s)
   - labor (hours)
   - materials
   - cost per unit (hr., linear feet, each, etc.).
   - cost frequency
   - timing or scheduling of the tasks,
   - the total annual funding necessary for each task, and
   - the assumptions required for each task by the Management Plan.
3. The total annual expenses should include administration and contingency costs (contingency can be included on each line item – identify the percentage). Unless there is a separate endowment for the purpose of monitoring and reporting on the CE conditions, then, the analysis should also include costs of
   - Monitoring and reporting CE conditions;
   - Defending the CE; and
   - Liability insurance.

4. The Endowment Fund::
   - Held by a qualified, SFWO-approved, non-profit organization or government agency [see requirements under CE above],
   - Held according to minimum standards for assuring maximum success in earning potential, and should include assurances for no loss of principle.
   - Disbursements or releases from the fund must be for documented expenditures, as they occur.

Endowment Funding Agreement

1. This is the agreement between the endowment holder and the Project Applicant, as to how the endowment is to be funded, held, and disbursed;
2. USFWS is not signatory to this agreement, but there should be a signature block on the agreement for SFWO to sign "approved as to form";
3. USFWS has approval authority over the language in the document, and it must state that modifications or transfer of the endowment to another holder are subject to USFWS approval;
4. This agreement can also be called: "Trust Agreement" or "Declaration of Trust." When the CDFW is involved, this is called "Mitigation Agreement."

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET STREET, 16TH FLOOR
SAN FRANCISCO, CALIFORNIA 94103-1398

JAN 27 2015

Regulatory Division (1145b)

Subject: File Number 2014-00260S

Ms. Richelle P. Perez
Caltrans, District 4 Project Manager
Attention: Frances Malamud-Roam
111 Grand Avenue, MS-7A
Oakland, California 94612

Dear Ms. Perez:

This correspondence is in reference to your submittal of October 6, 2014, concerning Department of the Army (DA) authorization to conduct drainage pipe improvements to protect an existing maintenance access road and the supporting fill slope of Interstate 280 (I-280) located on a Caltrans maintenance road adjacent to Interstate 280, at post mile 9.4, approximately 0.2 miles from Canada Road, 0.6 miles from Edgewood Road, in unincorporated San Mateo County, California (Latitude: 37.499298° N, Longitude: 122.325271° W).

Work within U.S. Army Corps of Engineers' (Corps) jurisdiction will include replacing a culvert pipe and repairing a sinkhole caused by the leaking pipe. The existing system contains a 60-inch corrugated steel pipe (CSP) running parallel to I-280 and a 24-inch CSP running under and perpendicular to the freeway. The 60-inch CSP has corroded along a portion of its length, allowing leaks and sinkhole formation, and threatens to undermine the access road and the supporting fill slope of I-280. To correct the undermining, 810 feet of the original 60-inch CSP and 53 feet of the 24-ich CSP will be abandoned in place and a new 850-foot long section of reinforced concrete pipe (RCP) will be constructed adjacent to the original pipe location. The removal of existing pipe sections will impact 0.097 acre of culverted other waters of the U.S. which flow into an unnamed creek and wetlands downstream. The excavation area for the new RSP will be minimized by using trench shields and will occur within a fenced area. The new pipe will use the existing outfall by tying into the back of the existing headwall with a bonded mechanical connection, thus limiting connection pipe construction to the upland portion of the riparian area. All work shall be completed in accordance with the plans and drawings titled "Interstate 280 Repair Pipe System EA 4G590, Figure 4: Waters of the U.S. Impacts," provided as Enclosure A.

Section 404 of the Clean Water Act (CWA) generally regulates the discharge of dredged or fill material below the plane of ordinary high water in non-tidal waters of the United States, below the high tide line in tidal waters of the United States, and within the lateral extent of wetlands adjacent to these waters. Section 10 of the Rivers and Harbors Act generally regulates construction of structures and work, including excavation, dredging, and discharges of dredged

or fill material, occurring below the plane of mean high water in tidal waters of the United States; in former diked baylands currently below mean high water; outside the limits of mean high water but affecting the navigable capacity of tidal waters; or below the plane of ordinary high water in non-tidal waters designated as navigable waters of the United States. Navigable waters of the United States generally include all waters subject to the ebb and flow of the tide; and/or all waters presently used, or have been used in the past, or may be susceptible for future use to transport interstate or foreign commerce. A Preliminary Jurisdictional Determination (JD) has been completed for your site. Preliminary JDs are written indications that there may be waters of the U.S. on a parcel or indications of the approximate location(s) of waters of the U.S. on a parcel. Preliminary JDs are advisory in nature and may not be appealed. Please see the enclosed Preliminary JD form and map labeled, "Preliminary Jurisdictional Determination, Project Name: I-280 Repair Pipe System and Backfill Sinkhole, File 2014-00260S," and dated December 30, 2014 (Enclosure A).

Based on a review of the information in your submittal, the project qualifies for authorization under Department of the Army Nationwide Permit (NWP) 14 for *Linear Transportation Projects*, 77 Fed. Reg. 10,184 (Feb. 21, 2012) (Enclosure 1), pursuant to Section 404 of the CWA of 1972, as amended (33 U.S.C. § 1344 *et seq.*). The project must be in compliance with the terms of the NWP, the general conditions of the Nationwide Permit Program, and the San Francisco District regional conditions cited in Enclosure 2. You must also be in compliance with any special conditions specified in this letter for the NWP authorization to remain valid. Non-compliance with any term or condition could result in the revocation of the NWP authorization for your project, thereby requiring you to obtain an Individual Permit from the Corps. This NWP authorization does not obviate the need to obtain other State or local approvals required by law.

This verification will remain valid until March 18, 2017, unless the NWP authorization is modified, suspended, or revoked. Activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon a NWP will remain authorized provided the activity is completed within 12 months of the date of a NWP's expiration, modification, or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend, or revoke the authorization in accordance with 33 C.F.R. § 330.4(e) and 33 C.F.R. § 330.5 (c) or (d). This verification will remain valid if, during the time period between now and March 18, 2017, the activity complies with any subsequent modification of the NWP authorization. The Chief of Engineers will periodically review NWPs and their conditions and will decide to modify, reissue, or revoke the permits. If a NWP is not modified or reissued within five years of its effective date, it automatically expires and becomes null and void. It is incumbent upon you to remain informed of any changes to the NWPs. Changes to the NWPs would be announced by Public Notice posted on our website (http://www.spn.usace.army.mil/Missions/RegulatoryPublicNotices.aspx). Upon completion of the project and all associated mitigation requirements, you shall sign and return the Certification

of Compliance, Enclosure 3, verifying that you have complied with the terms and conditions of the permit.

This authorization will not be effective until you have obtained a Section 401 water quality certification from the San Francisco Bay Regional Water Quality Control Board (RWQCB). If the RWQCB fails to act on a valid request for certification within two months after receipt of a complete application, the Corps will presume a waiver of water quality certification has been obtained. You shall submit a copy of the certification to the Corps prior to the commencement of work.

General Condition 18 stipulates that project authorization under a NWP does not allow for the incidental take of any federally-listed species in the absence of a biological opinion (BO) with incidental take provisions. As the principal federal lead agency for this project, the California Department of Transportation initiated consultation with the United States Fish and Wildlife Service (USFWS) to address project related impacts to listed species, pursuant to Section 7(a) of the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 *et seq.*). By letter of December 23, 2014, USFWS issued a BO (08ESMF00-2014-F0342-1) cited in Enclosure 4, with an incidental take statement for California red-legged frog and San Francisco garter snake (*Thamnophis sirtalis tetrataenia*).

In order to ensure compliance with this NWP authorization, the following special conditions shall be implemented:

1. To remain exempt from the prohibitions of Section 9 of the Endangered Species Act, the non-discretionary Terms and Conditions for incidental take of federally-listed California red-legged frog, their designated critical habitat, and San Francisco garter snake shall be fully implemented as stipulated in the Biological Opinion entitled, "Biological Opinion on the Effects of the Proposed Interstate 280 Repair Pipe System and Backfill Sinkhole Project, San Mateo County, California (Caltrans EA 4G590)," (pp. 21-24) dated December 23, 2014 (Enclosure 4). Project authorization under the NWP is conditional upon compliance with the mandatory terms and conditions associated with incidental take. Failure to comply with the terms and conditions for incidental take, where take of a federally-listed species occurs, would constitute an unauthorized take and non-compliance with the NWP authorization for your project. The USFWS is, however, the authoritative federal agency for determining compliance with the incidental take statement and for initiating appropriate enforcement actions or penalties under the Endangered Species Act.

2. Authorization under this Corps permit is conditional upon your adherence to the project description and plans as submitted. Deviation from this may be interpreted as a violation of the permit. Please contact the Corps if there are any modifications to the project.

3. If any additional federally protected species are found within the project area, work in habitat supporting the species shall not continue until the Corps completes consultation with the U.S. Fish and Wildlife Service, and/or National Marine Fisheries Service, pursuant to Section 7 of the Endangered Species Act, as amended. The Corps shall notify the applicant in writing when work may commence.

4. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, work shall cease in the affected area, and you must notify this office of the findings immediately. We will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

5. All temporary impacts shall be restored at least to preconstruction condition, and only native riparian species may be used for replanting.

6. All work occurring below the plane of ordinary high water (OHW) of the affected creek should be confined to the low-flow period of June 15 to October 15 to minimize downstream sedimentation.

7. Construction fencing or flagging shall be used to keep construction crews and equipment from straying outside the specified project area. No impacts are to occur outside the project footprint to other waters or wetlands. Fencing shall be installed to protect these areas from impacts associated with the project.

8. All material and debris generated as a result of the project construction shall be removed from the site and disposed of in an appropriate location outside of Corps jurisdiction.

9. All standard Best Management Practices shall be implemented to prevent the movement of sediment downstream. No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products, or other organic or earthen material shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into the waterways.

You may refer any questions on this matter to Justin Yee of my Regulatory staff by telephone at (415) 503-6788 or by e-mail at Justin.J.Yee@usace.army.mil. All correspondence should be addressed to the Regulatory Division, South Branch, referencing the file number at the head of this letter.

The San Francisco District is committed to improving service to our customers. My Regulatory staff seeks to achieve the goals of the Regulatory Program in an efficient and cooperative manner, while preserving and protecting our nation's aquatic resources. If you would like to provide comments on our Regulatory Program, please complete the Customer Service Survey Form available on our website: http://www.spn.usace.army.mil/Missions/Regulatory.aspx

Sincerely,

Katerina Galacatos

Jane M. Hicks
for: Chief, Regulatory Division

Enclosures

Copy Furnished (w/ Encl A only):

CA RWQCB, Oakland, CA

Sent via electronic mail--no hard copy to follow

January 22, 2015
CIWQS Place No. 810480
Regulatory Measure No. 398724

California Department of Transportation
Attn.: Richelle P. Perez
richelle.perez.dot.ca.gov
111 Grand Ave.
Oakland, CA 94612-3717

Subject: Water Quality Certification for the Interstate 280 Drainage Pipe System Repair Project near the City of Belmont, San Mateo County

Department Project No.: EA 04-4G590

Dear Ms. Perez:

We have reviewed and hereby issue water quality certification (Certification) to the California Department of Transportation (Department) for the Interstate 280 Drainage Pipe System Repair Project (Project). The Department has applied for Nationwide Permit 12 for Utility Line Activities from the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act (33 U.S.C. § 1344). As such, the Department has applied to the San Francisco Bay Regional Water Quality Control Board (Water Board) for a Clean Water Act Section 401 water quality certification that the Project will not violate State water quality standards.

Project: The following Project description was derived from application materials received by Water Board staff on October 22, 2014, and supplemental information provided by the Department via email on November 3, December 1, 15, and 22, 2014, and January 20, 2015. The application was deemed complete by Water Board staff on January 21, 2015. The Water Board received payment of the full fee for the Project on November 13, 2014.

The Department proposes to replace a storm drain pipe system under a maintenance road located approximately 350 feet south of I-280 at milepost 9.4, near Belmont. An existing 60-inch corrugated metal pipe (CMP) has deteriorated, causing a large sink hole to form above the pipe, which is impacting the maintenance road and supporting fill slope of I-280. A new 850 linear foot storm drain system consisting of 54-inch and 60-inch reinforced concrete pipe (RCP) will be installed on a parallel alignment, adjacent to the existing 60-inch CMP. The new system will connect to existing 24-inch lateral corrugated steel pipes draining from I-280, and will also connect to the existing concrete headwall at the outfall. No impacts to the downstream jurisdictional water are expected, as all work to connect the new storm drain system will occur on the upstream side of the existing headwall. The existing 60-inch CMP will be plugged and

abandoned by filling the pipe with concrete slurry or sand upon completion of the installation of the new storm drain system.

Impacts: Project implementation will permanently impact approximately 0.093 acres (850 linear feet) of culverted jurisdictional waters due to fill and abandonment of an 850-foot, 60-inch diameter corrugated metal pipe.

Avoidance and Minimization: The Department has avoided and minimized impacts to jurisdictional waters by utilizing the existing concrete headwall at the outfall, thus avoiding any impact to downstream waters, wetlands and riparian habitat

Mitigation: Because the Project will only impact culverted jurisdictional waters which will be replaced by a new storm drain system and will connect to the existing headwall at the outfall, mitigation will not be required.

CEQA Compliance: The Project was evaluated pursuant to the requirements of the California Environmental Quality Act (CEQA) in a Negative Declaration issued on January 9, 2015.

Certification: I hereby issue an order certifying that any discharge from the referenced project will comply with the applicable provisions of sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act, and with other applicable requirements of State law. This discharge is also regulated under State Water Resources Control Board Order No. 2003 - 0017 – DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification" which requires compliance with all conditions of this Water Quality Certification. The following conditions are associated with this certification:

1. The Department shall adhere to the Standard conditions imposed by Nationwide Permit No. 12, issued to the Department by the U.S. Army Corps of Engineers, and the Biological Opinion issued by the United States Fish and Wildlife Service;

2. The Project shall be constructed in conformance with the Project Description described in this Certification and Certification application materials. Any change in the Project that could impact State waters may require compensatory mitigation and shall first be reported to and found acceptable by the Water Board Executive Officer;

3. No equipment shall be operated in areas of flowing or standing water; no fueling, cleaning or maintenance of vehicles or equipment shall take place within jurisdictional waters or within any areas where an accidental discharge to jurisdictional waters may occur;

4. Except as expressly allowed in this Certification, the discharge, or creation of the potential for discharge, to waters of the State of any construction wastes and/or soil materials including cement, fresh concrete, or washings thereof, silts, clay, sand, oil or petroleum products and other organic materials to waters of the State is prohibited;

5. The Department shall not use or allow the use of erosion control products that contain synthetic materials within waters of the State at any time. The Department shall request approval from Water Board staff if an exception from this requirement is needed at a specific location. In upland and riparian areas, the Department shall prioritize the use of

wildlife-friendly biodegradable (not photo-degradable) erosion control products. The Department shall not use or allow the use of erosion control products that contain synthetic netting for permanent erosion control (i.e. erosion control materials to be left in place for two years or after the completion date of the Project).

If the Department finds that erosion control netting or products have entrapped or harmed wildlife, personnel shall remove the netting or product and replace it with wildlife-friendly biodegradable products;

6. The discharge of sediment to waters of the State, or to areas where sediment may discharge to waters of the State, is prohibited. The Department shall implement all appropriate sediment and erosion control construction best management practices, including management of excavated materials during the excavation, transport, and stockpiling process;

7. This certification does not allow for the take, or incidental take, of any special status species. The Department shall use the appropriate protocols, as approved by the California Department of Fish and Game and the U.S. Fish and Wildlife Service, to ensure that Project activities do not impact the Beneficial Use of the Preservation of Rare and Endangered Species;

8. The Department shall maintain a copy of this water quality certification at the Project site so as to be available at all times to site operating personnel. It is the responsibility of the Department to assure that all personnel (employees, contractors, and subcontractors) are adequately informed and trained regarding the conditions of this certification;

9. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Section 13330 of the California Water Code (CWC) and Section 3867 of Title 23 of the California Code of Regulations(23 CCR);

10. This certification action does not apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license, unless the pertinent certification application was filed pursuant to California Code of Regulations (CCR) Title 23, Subsection 3855(b) and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought; and,

11. Certification is conditioned upon total payment of the full fee required in State regulations (23 CCR Section 3833). Water Board staff received full payment of $1,710 on November 13, 2014.

We anticipate your cooperation in implementing these conditions. However, please be advised that any violation of water quality certification conditions is a violation of State law and subject to administrative civil liability pursuant to California Water Code (CWC) section 13350. Failure to respond, inadequate response, late response, or failure to meet any condition of this certification may subject you to civil liability imposed by the Water Board to a maximum of $5,000 per day per violation or $10 for each gallon of waste discharged in violation of this certification.

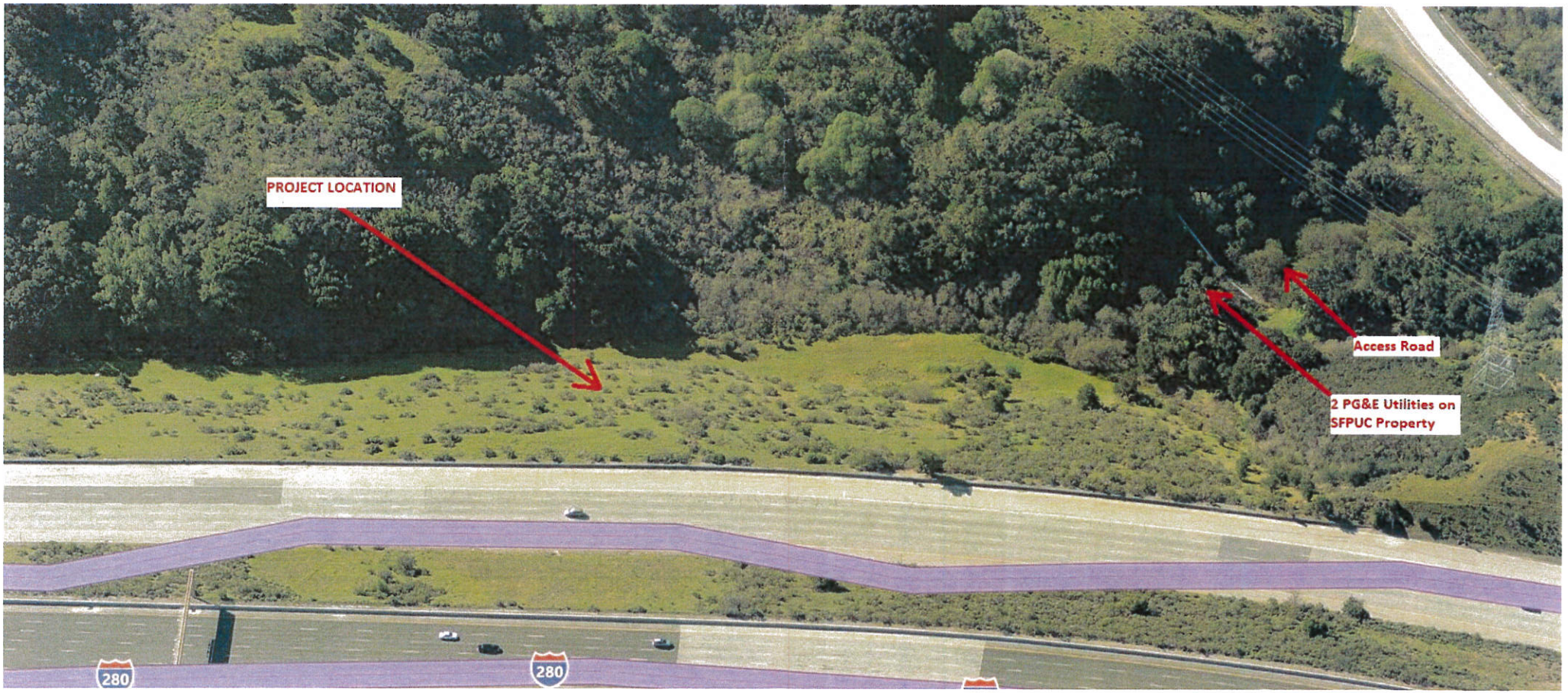
We anticipate no further action on this request. Should new information come to our attention that indicates a water quality problem with this project, the Water Board may issue Waste Discharge Requirements pursuant to 23 CCR Section 3857.

If you have any question, please contact Derek Beauduy at (510) 622-2348 or via e-mail to derek.beauduy@waterboards.ca.gov.

Sincerely,

for Bruce H. Wolfe
Executive Officer

cc (via e-mail): Mr. Bill Orme SWRCB-DWQ
Mr. Jason Brush, USEPA
Ms. Jane Hicks, USACE
Ms. Katerina Galacatos, USACE
Mr. Ryan Olah, USFWS
Mr. Hardeep Takhar, Caltrans
Mr. Cyrus Vafai, Caltrans
Mr. Dale Bowyer, Water Board


PROJECT LOCATION
Access Road
2 PG&E Utilities on SFPUC Property
280
280

From: Fannin, Scott R (Gas Ops) [mailto:SRFa@pge.com]
Sent: Thursday, September 05, 2013 9:27 AM
To: Wood, Brian@DOT; Engle, Elizabeth@DOT; Zlatunich, Thomas
Cc: Zaccardelli, Kristina
Subject: RE: 4G5900: Verification of Load Rating for PG&E Lines under Access Road

Hi Brian,

Good question, we can actually model the specific situation of "Wheel Interaction" in better detail. Dually-type wheels on a semi are typically modeled as a single point load, since the impact footprints of the tires are so close together on the ground surface (12" or less).

For initial calculations of multiple axle vehicles such as a semi-truck, we typically use 10,500 lbs as the **max** half-axle weight, which is consistent with the value given in 3550.(a) of your link below. In your situation, if we divided the total max gross vehicle weight of 80,000 lbs/10 tire impact footprints, we would have 8,000 lbs/wheel.

Attached is a sample snapshot of a quick calculation of "wheel interaction" that I ran using 6-ft of wheel spacing on the semi axles. At the peak you will notice there is an approximately 5% increase due to the interaction of the opposite wheel on the axle, which would put the equivalent weight per wheel at ~8,400 lbs/wheel. Let me know if you have the specifics for your vehicle, and I can perform a more detailed calculation of the forces transmitted to the gas transmission pipeline. We can also discuss options for protection of the pipeline if necessary, as these weights are outside the limits in the Table below.

Thanks
Scott

From: Wood, Brian@DOT [mailto:brian.wood@dot.ca.gov]
Sent: Thursday, September 05, 2013 8:25 AM
To: Fannin, Scott R (Gas Ops); Engle, Elizabeth@DOT; Zlatunich, Thomas
Cc: Zaccardelli, Kristina
Subject: RE: 4G5900: Verification of Load Rating for PG&E Lines under Access Road

Hi Scott,
I would just like to get a confirmation regarding the weight restriction below. The weight restriction is based on pounds per wheel, but is there any restriction based on axel loading (i.e., for wheels in close proximity)? For example, a loaded semi-truck at 80,000 lbs/18 wheels = approx. 4,444 lbs/wheel. Could you please confirm if this meets the loading criteria?

http://www.dot.ca.gov/hq/traffops/trucks/trucksize/weight.htm

Thanks, much.

Brian Wood, P.E.

Transportation Engineer (Civil)
California Dept. of Transportation
Office of Toll Bridge Design
Ph: (510) 622-8752

From: Fannin, Scott R (Gas Ops) [mailto:SRFa@pge.com]
Sent: Wednesday, July 31, 2013 8:56 AM
To: Engle, Elizabeth@DOT; Zlatunich, Thomas
Cc: Wood, Brian@DOT; Zaccardelli, Kristina
Subject: RE: 4G5900: Verification of Load Rating for PG&E Lines under Access Road

My apologies, I had a photo I wanted to attach as well...here it is.

Thanks
Scott

From: Fannin, Scott R (Gas Ops)
Sent: Wednesday, July 31, 2013 8:52 AM
To: 'Engle, Elizabeth@DOT'; Zlatunich, Thomas; Lui, Calvin
Cc: Wood, Brian@DOT; Zaccardelli, Kristina
Subject: RE: 4G5900: Verification of Load Rating for PG&E Lines under Access Road

Hi Tom, Elizabeth,

The PG&E maintenance work in this area (L-109 MP 27.05 Canada Rd s/o Hwy 92) was completed in June, however, our Environmental Monitoring of the site will continue for some time.

As for wheel loading over the pipelines in this area, please adhere to the table below. I am familiar with this area from our recent maintenance work, so I know the L-109 crossing of the access road will be the limiting factor. This pipeline was installed in 1936 (slated for replacement next year), so the allowable weights are fairly low. Equipment greater than 7,500 pounds per wheel will require a temporary bridging structure to be installed over the 22" pipeline (samples attached).

Wheel Weight Restrictions – L-109/132 MP 27.1 Canada Rd so Hwy 92	
COVER	Pounds per wheel
less than 1 ft	**1,500**
2 ft	3,000
3 ft	7,500
4 ft	7,500

Let me know if there are any questions/concerns with this information.

Thanks,
Scott

Scott Fannin, P.E. | Gas Transmission Pipeline Engineer
66 Ranch Dr, Milpitas CA 95035
Desk: 925-244-3316 | Internal: 244-3316

From: Engle, Elizabeth@DOT [mailto:elizabeth.engle@dot.ca.gov]
Sent: Wednesday, July 31, 2013 8:11 AM
To: Zlatunich, Thomas; Lui, Calvin; Fannin, Scott R (Gas Ops)
Cc: Wood, Brian@DOT
Subject: RE: 4G5900: Verification of Load Rating for PG&E Lines under Access Road

Thanks Tom. Let me know if you want to arrange a field meeting, and I'll arrange it with Caltrans' staff.

Elizabeth Engle
510 286-5335
Caltrans R/W Utilities
111 Grand Ave 13th Fl
Oakland, Ca 94612

From: Zlatunich, Thomas [mailto:TLZ2@pge.com]
Sent: Wednesday, July 31, 2013 7:47 AM
To: Lui, Calvin; Fannin, Scott R (Gas Ops)
Cc: Engle, Elizabeth@DOT; Wood, Brian@DOT
Subject: FW: 4G5900: Verification of Load Rating for PG&E Lines under Access Road
Importance: High

Scott,

Looks like you're standing in for Calvin.

CalTrans will be performing some work in the area shown in the attached pictures. They need to know what the maximum loads are allowed over PG&E's Gas Transmission lines in this area.

I believe there is some construction going on in this area. Is PG&E working there already? That would also be SFPUC/SAFWD property as well.

We may need to schedule a site visit with CalTrans to coordinate this work.

Tom
408.315.5732 mobile

From: Engle, Elizabeth@DOT [mailto:elizabeth.engle@dot.ca.gov]
Sent: Monday, July 29, 2013 7:10 AM
To: Zlatunich, Thomas
Cc: Wood, Brian@DOT
Subject: FW: 4G5900: Verification of Load Rating for PG&E Lines under Access Road

Hi Tom,

Can you verify the maximum load that PG&E's facilities can withstand on the underground lines shown in the attached info. The State's construction vehicles will be using the access road, and we need to know the PG&E lines will be safe in place.

Thanks,

Elizabeth Engle
510 286-5335
Caltrans R/W Utilities
111 Grand Ave 13th Fl
Oakland, Ca 94612

From: Wood, Brian@DOT
Sent: Friday, July 26, 2013 3:10 PM
To: Engle, Elizabeth@DOT
Cc: Zandipour, Bob@DOT; Perez, Richelle P@DOT
Subject: 4G5900: Verification of Load Rating for PG&E Lines under Access Road

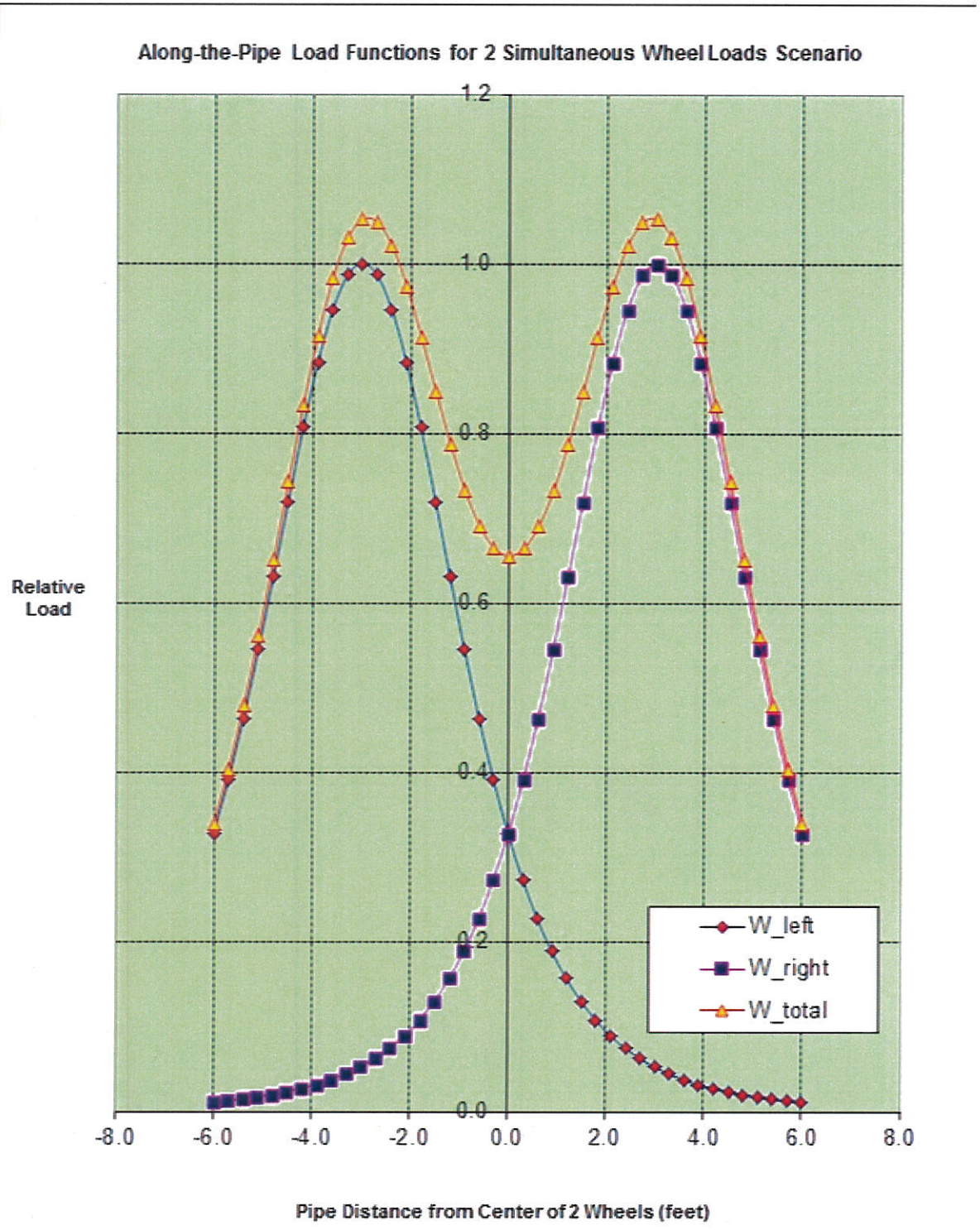
Hi Elizabeth,
There are 2 PG&E lines that are adjacent to the 4g5900 project. These lines are located underneath the maintenance access road that will be utilized to access the project site. We need to verify the load rating for these PG&E lines to ensure that they can withstand the weight of the construction equipment used in the project. Are you the right person to contact to obtain this information from PG&E?

Thanks for your help,

Brian Wood, P.E.
Transportation Engineer (Civil)
California Dept. of Transportation
Office of Toll Bridge Design
Ph: (510) 622-8752
---

x_local	s_left	W_left	s_right	W_right	W_total
-6.000	5.000	0.328	9.849	0.011	0.339
-5.700	4.826	0.391	9.575	0.013	0.404
-5.400	4.665	0.464	9.304	0.015	0.478
-5.100	4.518	0.544	9.034	0.017	0.561
-4.800	4.386	0.631	8.766	0.020	0.650
-4.500	4.272	0.720	8.500	0.023	0.743
-4.200	4.176	0.806	8.237	0.027	0.833
-3.900	4.100	0.884	7.976	0.032	0.916
-3.600	4.045	0.946	7.718	0.037	0.983
-3.300	4.011	0.986	7.463	0.044	1.030
-3.000	4.000	1.000	7.211	0.053	1.053
-2.700	4.011	0.986	6.963	0.063	1.049
-2.400	4.045	0.946	6.720	0.075	1.021
-2.100	4.100	0.884	6.482	0.090	0.973
-1.800	4.176	0.806	6.248	0.108	0.914
-1.500	4.272	0.720	6.021	0.129	0.849
-1.200	4.386	0.631	5.800	0.156	0.787
-0.900	4.518	0.544	5.587	0.188	0.732
-0.600	4.665	0.464	5.381	0.227	0.690
-0.300	4.826	0.391	5.186	0.273	0.664
0.000	5.000	0.328	5.000	0.328	0.655
0.300	5.186	0.273	4.826	0.391	0.664
0.600	5.381	0.227	4.665	0.464	0.690
0.900	5.587	0.188	4.518	0.544	0.732
1.200	5.800	0.156	4.386	0.631	0.787
1.500	6.021	0.129	4.272	0.720	0.849
1.800	6.248	0.108	4.176	0.806	0.914
2.100	6.482	0.090	4.100	0.884	0.973
2.400	6.720	0.075	4.045	0.946	1.021
2.700	6.963	0.063	4.011	0.986	1.049
3.000	7.211	0.053	4.000	1.000	1.053
3.300	7.463	0.044	4.011	0.986	1.030
3.600	7.718	0.037	4.045	0.946	0.983
3.900	7.976	0.032	4.100	0.884	0.916
4.200	8.237	0.027	4.176	0.806	0.833
4.500	8.500	0.023	4.272	0.720	0.743
4.800	8.766	0.020	4.386	0.631	0.650
5.100	9.034	0.017	4.518	0.544	0.561
5.400	9.304	0.015	4.665	0.464	0.478
5.700	9.575	0.013	4.826	0.391	0.404
6.000	9.849	0.011	5.000	0.328	0.339

aximum Relative Load Compared to Single Wheel: 1.053




PROTECTION REQUIRED IF
EQUIPMENT > 7,500 lb/wheel
crossing this area