

January 31, 2007

Susan Moore
U.S. Fish and Wildlife Service
2800 Cottage Way
Room W-2605
Sacramento, CA 95825

Re: Town of Fairfax, San Anselmo Creek Bridge Embankment Repair, FEMA-1628-DR-CA,
PW #2338

Dear Ms. Moore:

The Town of Fairfax, through the Governor's Office of Emergency Services (OES), has requested Federal Emergency Management Agency's (FEMA) Public Assistance Program funding to complete a bridge embankment repair project in the Town of Fairfax, California. The proposed action is designed to repair a bridge embankment that was damaged by the 2005/2006 winter rainfall and associated high stream flow in order to prevent further erosion of the stream bank and subsequent failure of the bridge.

This letter report represents FEMA's request for informal consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act (ESA) for the proposed action. Accordingly, FEMA is submitting this letter report for your review of the proposed action. This letter report describes the proposed action and environmental setting, and analyzes the potential effects of the proposed action on the California red-legged frog (*Rana aurora draytonii*). As explained in this letter report, the proposed action is not likely to adversely affect California red-legged frog or its designated critical habitat.

1.0 PURPOSE AND NEED OF THE PROPOSED ACTION

Under the authority of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended and Title 44 CFR, the PA Program provides supplemental aid to states and communities to help them recover from major disasters as quickly as possible. Specifically, the program provides assistance for the removal of debris, the implementation of emergency protective measures, and the permanent restoration of public infrastructure. The program also encourages protection from future damage by providing assistance for mitigation measures during the recovery process. Therefore, the purpose of this action is to provide funding to the Town of Fairfax to reduce the long-term risks associated with potential damage to an existing bridge embankment.

Heavy rains in California during the winter of 2005/2006 resulted in a Federal Disaster declaration (FEMA-1628-DR) in 30 California Counties and later severe storms, flooding, and landslides resulted in a Federal Disaster declaration (FEMA-1646-DR) in 17 California Counties, 5 of which were not included in the 1628-DR declaration. During the disaster event of December 17, 2005 through January 3, 2006, the high waters and high flow rates of San Anselmo Creek within the Town of Fairfax eroded a creek embankment for approximately 130 feet. This erosion encompassed a 28-foot wide bridge and exposed 10 feet of an auxiliary bridge column that had been buried in the embankment. The erosion also exposed 25 feet of a 12-inch sewer pipe that parallels the underside of the bridge, which was also supported by the embankment. The embankment erosion has undermined the bridge support foundation and sewer line, both of which may be damaged or may collapse without repair. Further erosion of the embankment on the downstream side of the bridge is also threatening to collapse a private roadway leading to several residential houses.

2.0 ACTION AREA

The action area is located in the Town of Fairfax, California, located in the south east portion of Marin County approximately 4 miles northwest of the City of San Rafael and 16 miles north of the City of San Francisco (Figure 1). The proposed action consists of the construction of a bridge embankment support structure along Creek Road, which spans San Anselmo Creek (Figure 2). The identified action area is a segment of San Anselmo Creek located in a suburban residential area along Creek Road within the Town of Fairfax, California.

3.0 PROPOSED ACTION

The proposed action consists of the reconstruction of a creek bridge embankment for a length of approximately 130 feet that was eroded during high stream flows. This bank erosion encompassed the 28-foot wide bridge on one side of the creek and exposed 10 feet of an auxiliary bridge column that had been buried in the embankment. The erosion also exposed approximately 50 percent of the bridge's spread footing support that had been supported in the embankment. The erosion also exposed 25 feet of a 12-inch sewer pipe that parallels the underside of the bridge, which was also supported by the embankment.

Details of the construction methods have not been worked out to date; however, exact design parameters would be developed in a specific pre-design plan, most of which would be from recommendations from a geomorphic analysis at the site (Fluvial Geomorphology Consulting, 2006). Construction of the embankment would essentially consist of the removal of a 32 cubic yard (cy) temporary rock barrier, which was placed as an emergency measure upstream of the bank erosion area in an effort to prevent further erosion damage, and erection of temporary sand bag barrier and rock riprap. The temporary, sand bag barrier (140 x 4 x 5 feet) would be placed where the temporary upstream rock barrier was placed, around the base of the bridge, and to the downstream extent of the eroded embankment. This sand bag barrier would surround the embankment work area in order to divert stream flow away from the eroded bridge embankment and prevent sediment from entering the stream. The eroded embankment would then be backfilled with approximately 2,987 cy of fill material and compacted. Following backfill application, ¼ to ½ ton rock riprap would be placed at a 1:1 ratio from the creek bed to approximately 14 feet in height. Live willow poles would be placed above the rock riprap in order to provide additional vegetative cover to the action area. A bobcat (loader crawler) would most likely be used within the creek bed

work area and a crane would be utilized from Creek Road and the creek bank to position construction materials in place.

4.0 METHODS

NISTAC, as a consultant to FEMA, conducted a reconnaissance survey of the action area on September 25, 2006. The survey involved identification of the vegetation communities in the action area and habitat suitable to support federally listed species. The vegetation communities identified in the action area are described in Section 5.

The presence of federally listed species in the action area was evaluated based on a review of the existing data and the results of the NISTAC survey of the action area. Sources of existing data included the California Department of Fish and Game (CDFG), California Natural Diversity Database (CNDDDB) records, and a USFWS species list obtained for the San Rafael, San Geronimo, Novato, Petaluma Pt., Bolinas, San Quentin, Point Bonita, and San Francisco North 7.5-minute U.S. Geological Survey (USGS) quadrangles (CDFG 2006a).

The background data review identified 19 wildlife species and 13 plant species that are federally listed as threatened or endangered, proposed, or candidate species, and have recorded occurrences in the vicinity of the action area, and/or have the potential to occur based on historic range and suitable habitat in the vicinity of the action area (Attachment A).

5.0 VEGETATION COMMUNITIES

One vegetation community (Riparian Woodland) was identified in the action area (see photographs in Attachment B). The Riparian Woodland present within the action area is described below.

5.1 Riparian Woodland

The action area consists of a mature, closed canopy riparian woodland with native tree species such as big-leaf maple (*Acer macrophyllum*), California bay (*Umbellularia californica*), and California walnut (*Juglans californica*); the understory is comprised mainly of California blackberry (*Rubus ursinus*). The erosion damage removed lower creek bank shrub vegetation and exposed native tree roots within the bank; however, erosion damage did not remove upper creek bank trees or reduce stream shading. California blackberry has since colonized parts of the eroded stream bank. There is no wetland vegetation present within the riparian vegetation in the action area.

6.0 FEDERALLY LISTED SPECIES

As a result of the field and background review and as explained in the species table in Attachment A, FEMA determined that the action area may provide habitat suitable to support one species under the USFWS' jurisdiction - the federally threatened California red-legged frog. The action area does not contain dense, shrubby riparian vegetation and there are no California red-legged frog occurrences in the CNDDDB within 9 miles of the action area (CDFG 2006a). However, taking a conservative approach, the following items were noted: 1) the action area is within an area containing a permanent water source within the San Anselmo Creek, and 2) surveys for suitable riparian/wetland habitat in the vicinity of the action area and within the dispersal distance of this species were not performed. Therefore, it is possible, but unlikely, that the proposed action has the potential to affect

the California red-legged frog. Furthermore, California red-legged frogs have been found in ephemeral creeks and drainages and ponds without riparian shrub vegetation (USFWS 2006). The action area does not, however, overlap with designated critical habitat for the California red-legged frog or any other federally-listed species. FEMA is consulting separately with the National Marine Fisheries Service for potential adverse effects on federally listed, proposed, and candidate species under their jurisdiction.

6.1 California Red-legged Frog

California red-legged frog (*Rana aurora draytonii*) is listed as threatened under the ESA. The historical range of the red-legged frog extended on the coast from the vicinity of Point Reyes National Seashore, and inland from the vicinity of Redding southward to northwestern Baja California, Mexico (USFWS 2004). This species has sustained a 70 percent reduction in its geographic range in California (USFWS 2004). Currently, California red-legged frogs are primarily limited to small coastal drainages between Santa Barbara and areas just north of San Francisco (Jennings and Hayes 1994). The largest extent of currently occupied habitat is found in Monterey, San Luis Obispo, and Santa Barbara Counties (USFWS 2004).

Continuing loss of fresh water habitat and the introduction of non-native predatory fish species and bullfrogs are attributed to the continuing population decline of this species. Much evidence indicates that the introduced bullfrog may prey upon and displace red-legged frogs through competition for resources. Loss of riparian and emergent vegetation results in increased water temperature, which favors bullfrog reproduction (USFWS 2004).

Red-legged frogs are generally found along marshes, streams, ponds, and other permanent sources of water where dense scrubby vegetation such as willows, cattails, and bullrushes dominate, and water quality is good. Typical habitat for this species is a combination of dense, shrubby or emergent riparian vegetation closely associated with deep water (more than 2.3 feet deep) and the absence of predatory fish and bullfrogs. Upland habitats with dense vegetation may be important sheltering habitat during winter. During the dry season, red-legged frogs occupy small mammal burrows and moist leaf litter. This species has been found up to 100 feet from water in adjacent riparian vegetation. Breeding sites occur along watercourses with pools that remain long enough for breeding and the development of larvae (CDFG 2006b). Breeding time depends on winter rains but is usually between late November and late April (Jennings 1988; Zeiner et al. 1988). Egg masses are laid in permanent bodies of water.

Eggs hatch in 6 to 14 days, and approximately 3.5 to 7 months later, the tadpoles develop into frogs. Red-legged frogs must have 11 to 20 weeks of permanent water for larval development, as well as appropriate refugia for aestivation periods. Appropriate refuge for red-legged frogs include small mammal burrows, downed logs or vegetation, or dense vegetation/litter layer. Tadpoles and young frogs depend mainly on invertebrates as a food source, while the diet of adult frogs consists of Pacific tree frogs (*Hyla regilla*), California mice (*Peromyscus californicus*), and insects. Adult frogs are mainly active at night and may be active year-round in areas with permanent water.

7.0 POTENTIAL IMPACTS

The California red-legged frog is not known to occur in San Anselmo Creek and there are no CNDDDB occurrences in the vicinity of the action area. The closest CNDDDB record of red-legged

frogs is located approximately 9 miles away. Although it is possible that frogs may disperse through the action area, it is unlikely that California red-legged frogs could occur in the action area. In the unlikely event that this species were present, construction activities from the bridge embankment erosion repair measures could result in disturbance to this species. Construction equipment and associated noise and vibration could disturb frogs in the vicinity of the action area, if they were present. Adverse effects to this species could occur within stream bed habitat in the action area where the proposed repair would take place and also directly downstream of the action area.

8.0 AVOIDANCE AND MINIMIZATION MEASURES

In the unlikely event that California red-legged frogs occur in the action area, the following measures are proposed and would be implemented by the City to avoid and minimize any unlikely, but potential, effect on this species:

- All construction and activities in or adjacent to the Alhambra Creek channel will be performed only between June 15 and October 15.
- Disturbance to existing grades and vegetation will be limited to the actual site of the project and necessary access routes. Placement of all roads, staging areas, and other facilities shall avoid and limit disturbance to federally-listed species and their habitats to the maximum extent practicable. When possible, existing ingress or egress points will be used and the contours of the project site will be returned to pre-construction condition or better;
- All standardized Best Management Practices (*e.g.*, per Regional Water Quality Control Boards, the California Stormwater Best Management Practice Handbooks, *etc.*) will be implemented;
- The City will ensure that sediment-control devices are installed and maintained correctly. For example, sediment will be removed from sediment controls once the sediment has reached one-third (1/3) of the exposed height of the control. The devices will be inspected frequently (*e.g.*, daily) to ensure they are functioning properly; controls will be immediately repaired or replaced or additional controls will be installed as necessary. Sediment that is captured in these controls may be disposed of on site in an appropriate, safe, approved area, or off site at an approved disposal site;
- All construction material, wastes, debris, sediment, rubbish, vegetation, trash, fencing, *etc.* will be removed from the site once the project is completed and transported to an authorized disposal area, as appropriate, and per all federal, state, and local laws and regulations;
- All concrete or other similar rubble shall be free of trash and reinforcement steel. No petroleum-based products such as asphalt will be used as a stabilizing material (*i.e.*, riprap);
- The City will exercise every reasonable precaution to protect federally-listed species and their habitats from pollution due to fuels, oils, lubricants, and other harmful materials. Vehicles and equipment that are used during the course of a project will be fueled and serviced in a “safe” area (*i.e.*, outside of sensitive habitats) in a manner that will not affect federally-listed species or their habitats. Spills, leaks, and other problems of a similar nature will be resolved immediately to prevent unnecessary effects to listed species and their habitats. A plan for the emergency clean up of any spills of fuel or other material will be available;
- Cover all construction-related holes to prevent entrapment of individuals; and

9.0 SUMMARY OF DETERMINATION

With implementation of all the avoidance and minimization measures described in Section 8.0, the proposed action is not likely to adversely affect the California red-legged frog and/or its designated/proposed critical habitat.

If you should require any additional information regarding the proposed action or FEMA's request, please feel free to contact me at (510) 627-7284 or Lorena Solórzano-Vincent of NISTAC at (510) 874-3114. Thank you in advance for your assistance.

Sincerely,

Alessandro Amaglio
Environmental Officer

Attachments

Cc: Dennis Castrillo, OES
Doug Lashmett, OES
Debra Sue Johnson, Town of Fairfax

10.0 REFERENCES

- California Department of Fish and Game (CDFG). 2006a. Rarefind 3.1.0, a program created by the California Department of Fish and Game, allowing access to the California Natural Diversity Database (CNDDDB). September 2006 version.
- California Department of Fish and Game (CDFG). 2006b. Habitat Conservation Branch. California's Plants and Animals Species Profiles– California red-legged frog. Online: http://www.dfg.ca.gov/hcpb/cgi-bin/read_one.asp?specy=amphibians&idNum=66
- Jennings, M. 1988. Draft Habitat Suitability Index Model: Red-Legged Frog (*Rana aurora*) Habitat in the Central Valley. U.S. Fish and Wildlife Service, Division of Ecological Services. Sacramento, California.
- Jennings, Mark R., and Mark P. Hayes. 1994. Amphibian and Reptile Species of Concern in California. California Department of Fish and Game. Inland Fisheries Division. Rancho Cordova, California. November 1.
- U.S. Fish and Wildlife Service (USFWS). 2004. Formal Section 7 Consultation on the Santa Fe Partners Concord to Sacramento Pipeline Project Contra Costa, Solano, and Yolo Counties, California, Permit Number 26449S.
- U.S. Fish and Wildlife Service (USFWS). 2006. Ventura Fish and Wildlife Office Species Profiles. Online: <http://www.fws.gov/ventura/sppinfo/profiles/index.cfm>
- Zeiner, C. David, William F. Laudenslayer Jr., and Kenneth E. Mayer. 1988. California's Wildlife Volume I: Amphibians and Reptiles. California Department of Fish and Game. Sacramento, California.

Attachment A
Federally Listed, Proposed, and Candidate Species Under USFWS
Jurisdiction With Potential to Occur in the Vicinity of
the Town of Fairfax

**Table A-1
Federally Listed, Proposed, and Candidate Species Under USFWS Jurisdiction With Potential
To Occur in the Vicinity of the Town of Fairfax**

Scientific Name	Common Name	Federal Status	Preferred Habitat	Likelihood of Occurring in the Action Area
Amphibians				
<i>Rana aurora draytonii</i>	California red-legged frog	T	Lowlands and foothills with dense, shrubby riparian vegetation associated with deep (\geq 0.7 meter), still or slow-moving water. Requires 11-20 weeks of permanent water for larval development.	Not likely to occur, but has a low potential to occur. Appropriate dense, shrubby riparian and still or slow moving water habitat characteristics are not present; however, a permanent water source occurs in the action area, which may be within dispersal distance of suitable wetland habitat. The nearest known occurrence is approximately 9 miles from the action area on the Marin peninsula (CDFG 2006). The action area does not overlap with the proposed critical habitat for this species.
Birds				
<i>Brachyramphus marmoratus</i>	Marbled murrelet	T	Near coastal waters, tide-rips, bays, and mountains. Nesting sites are in higher elevations, exclusively in old growth forests of 175-600 years in age. Nest sites are large, moss covered, horizontal branches with an average height of 45 meters. The sites are often a substantial distance from the coast.	No potential to occur; appropriate old growth habitat characteristics are not present in the action area. No occurrences exist within the vicinity of the proposed action area (CDFG 2006).
<i>Charadrius alexandrinus nivosus</i>	Western snowy plover	T	Habitats used by nesting and non-nesting birds include sandy coastal beaches, salt pans, coastal dredged spoils sites, dry salt ponds, salt pond levees and gravel bars.	No potential to occur; appropriate coastal habitat characteristics are not present in the action area. No occurrences exist within the vicinity of the proposed action area (CDFG 2006).

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Scientific Name	Common Name	Federal Status	Preferred Habitat	Likelihood of Occurring in the Action Area
<i>Diomedea albatrus</i>	Short-tailed albatross	E	Short-tailed albatrosses nest on sloping grassy terraces on two rugged, isolated, windswept islands in Japan. Eggs hatch in late December through early January. Chicks remain near the nest for about 5 months, fledging in June. After breeding, short-tailed albatrosses move to feeding areas in the North Pacific	No potential to occur; appropriate nesting or feeding habitat characteristics are not present in the action area. No occurrences exist within the vicinity of the proposed action area (CDFG 2006).
<i>Haliaeetus leucocephalus</i>	Bald eagle	T	Frequents estuaries, large lakes, reservoirs, major rivers, and some seacoast habitats. Fish are the major component of its diet, but waterfowl, gulls, and carrion are also eaten.	No potential to occur; appropriate aquatic foraging or nesting habitat characteristics are not present in the action area. No occurrences exist within the vicinity of the action area (CDFG 2006).
<i>Pelecanus occidentalis californicus</i>	California brown pelican	E	Brown pelicans nest in colonies on small coastal islands that are free of mammalian predators and human disturbance and are associated with an adequate and consistent food supply. Nesting colonies of the brown pelican on the Pacific coast range from the Channel Islands in the Southern California Bight to the islands off Nayarit, Mexico.	No potential to occur; appropriate nesting or foraging habitat characteristics are not present in the action area. No occurrences exist within the vicinity of the proposed action area (CDFG 2006).
<i>Rallus longirostris obsoletus</i>	California clapper rail	E	Tidal salt marshes near tidal sloughs; perennial inhabitant of tidal salt marshes of the greater San Francisco Bay. Associated with abundant pickleweed growths, but feeds away from cover on invertebrates from mud-bottom sloughs.	No potential to occur; appropriate intertidal habitat characteristics are not present in the action area. No occurrences exist within the vicinity of the proposed action area (CDFG 2006).

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Scientific Name	Common Name	Federal Status	Preferred Habitat	Likelihood of Occurring in the Action Area
<i>Sternula antillarum browni</i>	California least tern	E	Nests on coastal, sandy, open areas usually around bays, estuaries, and creek and river mouths.	No potential to occur; appropriate coastal habitat characteristics are not present in the action area. No occurrences exist within the vicinity of the proposed action area (CDFG 2006).
<i>Strix occidentalis caurina</i>	Northern spotted owl	T	Inhabit old growth forests and younger forests with remnants of larger trees. They prefer these forests because they provide a canopy for protection from predators and the elements, large open spaces for flight, wood debris for nests, and old hollow trees for nesting sites.	No potential to occur; appropriate old growth nesting or foraging habitat characteristics are not present in the action area. No occurrences exist within the vicinity of the proposed action area (CDFG 2006).
Mammals				
<i>Enhydra lutris nereis</i>	Southern sea otter	T	Preferred habitat is kelp beds; live in narrow band along the coast, usually near rocky outcrops with ample invertebrates.	No potential to occur; appropriate marine habitat characteristics are not present in the action area. No occurrences exist within the vicinity of the proposed action area (CDFG 2006).
<i>Reithrodontomys raviventris</i>	Salt-marsh harvest mouse	E	Occurs only within saline emergent wetlands within San Francisco Bay where pickleweed is present.	No potential to occur; appropriate saline wetland habitat characteristics are not present in the action area. No occurrences exist within the vicinity of the proposed action area (CDFG 2006).

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Scientific Name	Common Name	Federal Status	Preferred Habitat	Likelihood of Occurring in the Action Area
Fish				
<i>Eucyclogobius newberryi</i>	Tidewater goby	E (PD)	Brackish shallow lagoons and lower stream reaches where the water is fairly still but not stagnant; found in water with salinity levels from zero to 10 parts per thousand (ppt), temperature levels from 35 to 73 degrees Fahrenheit, and water depths up to 7.5 feet.	No potential to occur; appropriate brackish habitat characteristics are not present in the action area. Closest known occurrence was observed in 1961 in Corte Madera, about 5 miles from the action area (CDFG 2006). The action area is tributary to the known occurrence, but is located in the upper watershed.
<i>Hypomesus transpacificus</i>	Delta smelt	T	Found only in the Sacramento-San Joaquin Estuary	No potential to occur; appropriate estuarine habitat characteristics are not present in the action area. No occurrences exist within the vicinity of the proposed action area (CDFG 2006).
Invertebrates				
<i>Callophrys mossii bayensis</i>	San Bruno elfin butterfly	E	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County. Colonies are located on steep, north-facing slopes within the fog belt. Larval host plant is <i>Sedum spathulifolium</i> .	No potential to occur; appropriate habitat characteristics or larval host plants are not present in the action area. No occurrences exist within the vicinity of the proposed action area (CDFG 2006).
<i>Euphydryas editha bayensis</i>	Bay checkerspot butterfly	T	Restricted to native grassland outcrops of serpentine soils in the vicinity of San Francisco Bay. <i>Plantago erecta</i> is the primary host plant; <i>Orthocarpus densiflorus</i> and <i>O. purpurscens</i> are the secondary host plants.	No potential to occur; appropriate habitat characteristics and host plants are not present in the action area. Nearest occurrence is from Twin Peaks in San Francisco, approximately 15 miles from the action area (CDFG 2006).
<i>Plebejus icarioides missionensis</i>	Mission blue butterfly	E	Grasslands on the San Francisco peninsula in association with host plants <i>Lupinus albifrons</i> (favored), <i>L. variicolor</i> , and <i>L. formosus</i> .	No potential to occur; appropriate habitat characteristics or larval host plants are not present in the action area. No occurrences exist within the vicinity of the proposed action area (CDFG 2006).

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Scientific Name	Common Name	Federal Status	Preferred Habitat	Likelihood of Occurring in the Action Area
<i>Speyeria callippe callippe</i>	Callippe silverspot butterfly	E	Restricted to the northern coastal scrub of the San Francisco peninsula. The host plant is <i>Viola pedunculata</i> . Most adults are found on east-facing slopes and males congregate on hilltops in search of females.	No potential to occur; appropriate scrub habitat characteristics and host plants are not present in the action area. No occurrences exist within the vicinity of the proposed action area (CDFG 2006).
<i>Speyeria zerene myrtilae</i>	Myrtle's Silverspot Butterfly	E	coastal dune or prairie habitat ; lay their eggs in the debris and dried stems of violets (typically <i>Viola adunca</i>), the larval food plants.	No potential to occur; appropriate dune or prairie habitat characteristics and host plants are not present in the action area. No occurrences exist within the vicinity of the proposed action area (CDFG 2006).
<i>Syncaris pacifica</i>	California freshwater shrimp	E	Endemic to Marin, Napa, and Sonoma Counties. Found in low elevation, low gradient streams where riparian vegetation is moderate to heavy in shallow pools away from main streamflow. Winter habitat in undercut banks with exposed roots; summer in leafy branches touching water.	Not likely to occur; appropriate flowing stream hydrology habitat characteristics are not present in the action area.
Plants				
<i>Arctostaphylos hookeri ssp. ravenii</i>	Presidio manzanita	E	Chaparral, coastal prairie, coastal scrub in open, rocky serpentine slopes from 20-215 meters. Blooming period is from February through March.	No potential to occur; appropriate chaparral, coastal prairie, coastal scrub habitat characteristics are not present in the action area.
<i>Alopecurus aequalis var. sonomensis</i>	Sonoma alopecurus	E	Wet areas within freshwater marshes and swamps, riparian scrub; 5 - 360 meters. Blooming period from May through July.	Not likely to occur; appropriate habitat characteristics are not present in the action area. Known from fewer than 10 occurrences. One record exists within the vicinity of the proposed action area at Mesa Road in Bolinas, approximately 8 miles from the action area (CDFG 2006).
<i>Arenaria paludicola</i>	Marsh sandwort	E	Freshwater-marsh habitats; 3 - 170 meters. Blooming period from May through August.	Not likely to occur; appropriate freshwater-marsh habitat characteristics are not present in the action area.

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Scientific Name	Common Name	Federal Status	Preferred Habitat	Likelihood of Occurring in the Action Area
<i>Calochortus tiburonensis</i>	Tiburon mariposa lily	T	Valley and foothill grassland on open, rocky slopes in serpentine grassland from 50 - 150 meters. Blooming period is from March through June.	No potential to occur; appropriate valley and grassland characteristics are not present in the action area. Nearest occurrence is about 10 miles away on Ring Mountain on the Tiburon Peninsula (CDFG 2006).
<i>Castilleja affinis ssp. neglecta</i>	Tiburon Indian paintbrush	E	Valley and foothill grassland in rocky serpentine soils from 75-400 meters elevation. Blooming period from April to June.	No potential to occur; appropriate valley and grassland characteristics are not present in the action area. Nearest occurrence is about 10 miles away on Ring Mountain on the Tiburon Peninsula (CDFG 2006).
<i>Clarkia franciscana</i>	Presidio clarkia	E	Coastal Scrub, valley and foothill grassland in serpentine outcrops in grassland or scrub; 20-335 meters. Blooming period from May through July.	No potential to occur; appropriate habitat characteristics are not present in the action area.
<i>Hesperolinon congestum</i>	Marin western flax	T	Chaparral, valley and foothill grassland in serpentine barrens and serpentine grassland and chaparral; 30-365 meters. Blooming period from April to July.	No potential to occur; although several occurrences exist within 2-3 miles from the action area (CDFG 2006), appropriate Chaparral, valley and foothill grassland habitat characteristics are not present in the action area.
<i>Holocarpha macradenia</i>	Santa Cruz tarplant	T	Coastal prairie, valley, and foothill grassland. Light, sandy soil or sandy clay; often with non-natives; 10-260 meters.	Not likely to occur; appropriate habitat characteristics are not present in the action area. Nearest location occurrences are from Mt. Tamalpais and Ross Valley, about 6 miles from the action area, although the exact locations are uncertain (CDFG 2006).
<i>Layia carnosa</i>	Beach layia	E	Coastal Dunes. Highly reduced range along north coast dunes on sparsely vegetated, semi-stabilized dunes, usually behind foredunes; 0-7.5 meters. Blooms from March through July.	No potential to occur; appropriate coastal dune habitat characteristics are not present in the action area.

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Scientific Name	Common Name	Federal Status	Preferred Habitat	Likelihood of Occurring in the Action Area
<i>Lessingia germanorum</i>	San Francisco lessingia	E	Coastal Scrub and remnant dunes. Open sandy soils relatively free of competing plants; 20-125 meters. Blooms from August through November.	No potential to occur; appropriate sandy habitat characteristics are not present in the action area.
<i>Pentachaeta bellidiflora</i>	White-rayed pentachaeta	E	Valley and foothill grassland. Open, dry rocky slopes and grassy areas, often on soils derived from serpentine bedrock; 35-620 meters. Blooms from March through May.	No potential to occur; appropriate open, dry rocky slope habitat characteristics are not present in the action area. The nearest known location occurs in grasslands approximately 5 miles from the action area (CDFG 2006).
<i>Streptanthus niger</i>	Tiburon jewel-flower	E	Valley and foothill grassland on shallow, rocky serpentine soils; 30-150 meters. Blooms from May through June.	No potential to occur; appropriate valley and foothill grassland and serpentine soil habitat characteristics are not present in the action area. The nearest known location occurs in grasslands approximately 10 miles from the action area.
<i>Trifolium amoenum</i>	Showy indian clover	E	Valley and foothill grassland, coastal bluff scrub. Sometimes on serpentine soils, open sunny sites, and swales. Most recently sited on eroding cliff face; 5-560 meters. Blooms from April through June.	No potential to occur; appropriate valley and foothill grassland and coastal bluff habitat characteristics are not present in the action area. The nearest known location occurs in Stinson Beach approximately 7 miles from the action area (CDFG 2006).

Federal Endangered Species Act

E - Endangered

T- Threatened

C- Candidate for listing status

PD – Proposed for De-listing

Source: CNDDDB database and USFWS Sacramento Field Office species lists search for eight quadrangles surrounding the action area: San Rafael, San Geronimo, Novato, Petaluma Pt., Bolinas, San Quentin, Point Bonita, and San Francisco North.

Attachment B
Photographs of the Town of Fairfax Action Area



Photograph 1. Downstream portion of the action area. The bridge and sewer line can be seen to the left.



Photograph 2. Upstream portion of the action area. The emergency-placed rock riprap and bridge can be seen to the right.

Attachment C
Figures



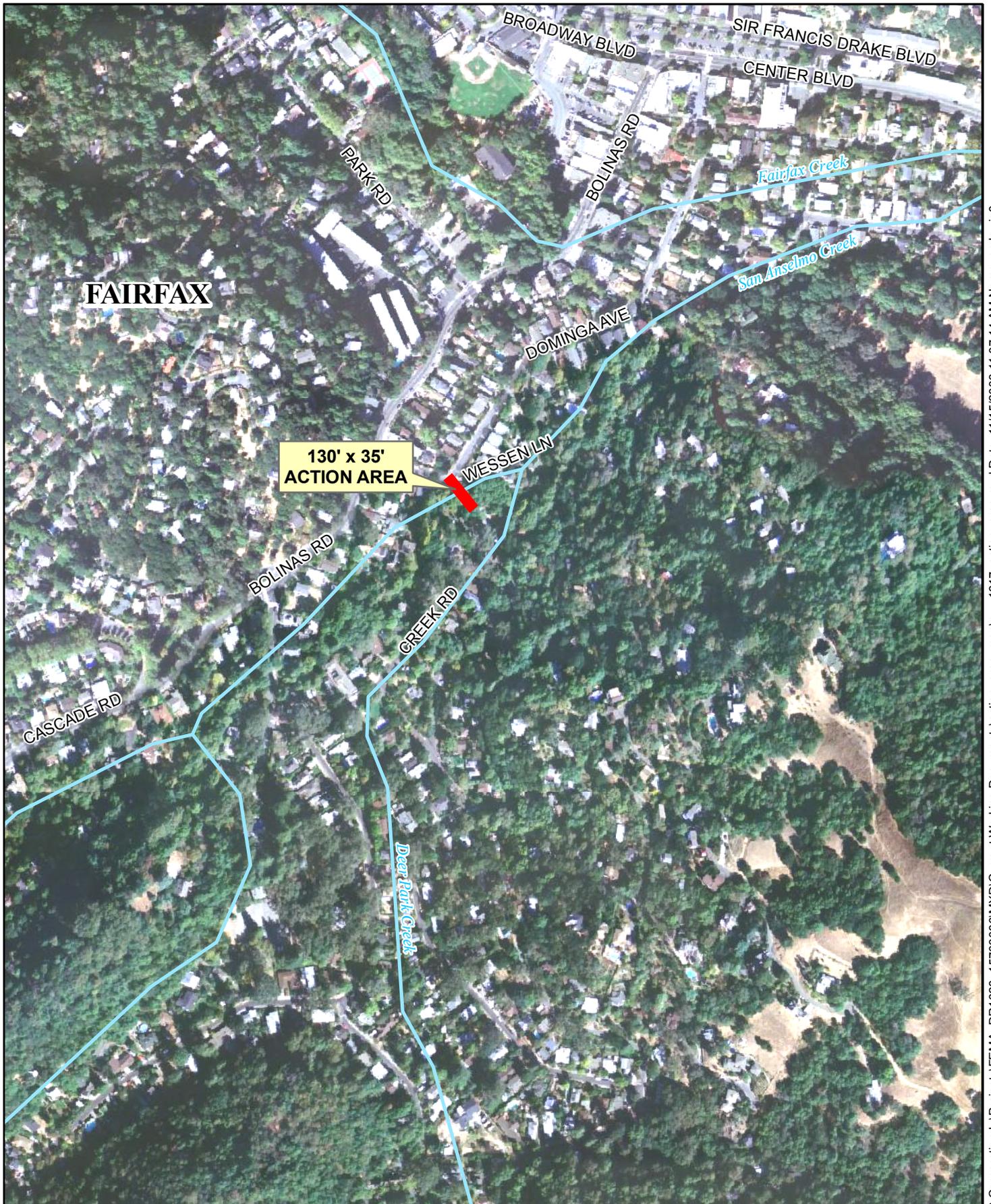
0 0.5 1
1 inch = 1 mile



FEMA DR-1628
PW #2338
Town of Fairfax Cascade Creek Bridge

Vicinity Map

Figure 1



FAIRFAX

**130' x 35'
ACTION AREA**



0 200 400
1 inch = 400 feet

 15708016

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Action Area

Figure 2
