APPENDIX D

BIOLOGICAL ASSESSMENT

Biological Assessment

Nacimiento Lake Drive Bridge Replacement Project
(Bridge No. 44C-0009)
Federal Project Number STPLZ 5944(040)

State of California, Department of Transportation

Revised June 2012

Caltrans

Biological Assessment

Nacimiento Lake Drive Bridge Replacement Project
Near Town of Bradley, Monterey County, California
(Bridge No. 44C-0009)

Federal Project Number STPLZ 5944(040)

Caltrans District 05

June 2012

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Summary of Findings, Conclusions and Determinations

The Monterey County Department of Public Works, in cooperation with Caltrans, proposes to replace the existing one-lane bridge numbered 44C-0009, the Nacimiento Lake Drive Bridge, with a new bridge that can accommodate two lanes of traffic with shoulders. Additional project elements include removal of the existing bridge, rerouting the street approaches to the new bridge, and installation of rock slope protection (RSP) at the new bridge abutments. The new bridge will be approximately 267 feet (ft) in length and 32 ft in width and will be constructed adjacent to, and downstream of, the existing bridge. The new bridge will have two spans with a center pier. The bridge type will be a cast-in-place, post-tensioned, concrete box girder structure. RSP, which will likely consist of 500-pound (lb) rocks, will be placed at each bridge abutment to prevent erosion and undermining of the structure. The length of the RSP along the banks of the river at the southerly and northerly abutments will be approximately 120 ft and 80 ft, respectively. The existing bridge removal will include the entire structure down to the piles. Per Caltrans standards, the piles will be removed down to a minimum of 3 ft below the existing ground surface.

The purpose of this Biological Assessment (BA) is to review this proposed bridge replacement Project (hereafter "Project") in sufficient detail to determine the extent to which it may affect federally listed threatened, endangered, proposed threatened, proposed endangered, and candidate species, and designated or proposed critical habitat. This BA details the expected effects of this Project on the South-Central California Coast steelhead (*Oncorhynchus mykiss*), California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), arroyo toad (*Bufo californicus*), least Bell's vireo (*Vireo bellii pusillus*), and San Joaquin kit fox (*Vulpes macrotis mutica*). Formal consultation with the U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS) has not occurred to date. This BA provides documentation for the initiation of formal consultation regarding Project effects on the above species.

The Nacimiento Lake Drive Bridge crosses the San Antonio River, a tributary to the Salinas River draining from the eastern slope of the Santa Lucia Mountains, along Nacimiento Lake Drive just over 5 miles (mi) south of Jolon Road. It is located approximately 5 mi southwest of the town of Bradley and approximately 2 mi northwest of the Camp Roberts Army National Guard training facility, in unincorporated southern Monterey County, California. This rural area is dominated by extensive cattle ranches, with some viticulture and other agriculture occurring in

areas immediately adjacent to the Salinas River and Highway 101. Military lands are also a prominent feature of the region, with Camp Roberts to the southeast and Fort Hunter Liggett to the northwest of the Project site.

To describe the existing biological conditions and potential biological effects of Project activities, a biological study area (BSA) was defined as all areas and features expected to be impacted by the Project. The BSA covers approximately 12.24 acres (ac) and includes the existing bridge, the alignment of the proposed replacement bridge, surrounding habitat that could potentially be affected by project activities, and upstream and downstream reaches adjacent to the existing and proposed bridges that are not expected to be affected by project activities.

A reconnaissance survey of the BSA was conducted on 5 February 2010 to assess existing biotic habitats, assess the area for its potential to support special-status species and their habitats, and identify potential jurisdictional habitats. A California red-legged frog habitat assessment survey was conducted on 1 April 2010; this was followed by a protocol-level survey, including daytime and nighttime surveys, on 17 and 24 May, 8 June, 28 June, and 22 July 2010. Protocol-level surveys failed to detect any California red-legged frog adults, larvae, or egg masses, and thus this species was determined to be absent from the Project area.

Steelhead are considered extant in the Salinas River watershed, and historically the San Antonio River was considered a steelhead spawning stream. Due to the degraded condition of the Salinas River Watershed and the San Antonio River, characterized by siltation, agricultural runoff, and colonization by non-native invasive predatory species, the probability of steelhead occurring in the Project reach during Project activities is low. California tiger salamanders have not been documented in the Project vicinity despite the presence of ostensibly suitable habitat, and we therefore do not expect this species to occur in the BSA. The BSA offers suitable habitat for arroyo toads, but none were observed during multiple focused surveys for California red-legged frogs, and the area has been heavily colonized by predatory bullfrogs (*Lithobates catesbeianus*), making the BSA inhospitable for arroyo toads. Thus, we do not expect arroyo toads to occur in the BSA. Because the amount of potential least Bell's vireo habitat within the BSA is small, and because the BSA is far north of the current core breeding population, there is a low probability of occurrence of the species in the BSA, and we do not expect more than one pair of vireos, at most, to occur within the Project area. San Joaquin kit foxes are sparsely distributed in the

Project vicinity, and the local population is small; thus, we expect kit foxes to occur within the BSA in low numbers if at all.

Avoidance and minimization measures, including adherence to Caltrans water quality BMPs, avoiding work within the active channel, installing temporary structures (such as netting) below the bridges for the duration of Project activities to prevent debris from entering the stream, avoiding work during critical life history periods, conducting pre-construction surveys, conducting construction personnel training, and conducting daily pre-activity site inspections, will substantially reduce the probability of impacts to individuals of these species.

Permanent impacts to riparian, wetland, and aquatic habitats were avoided to the extent practicable in the Project design process. As a result, no permanent impacts to aquatic habitats will occur due to Project activities. To the degree that permanent impacts to wetland and riparian habitats are unavoidable, compensatory mitigation will occur on-site. No additional compensatory mitigation or other Project modification is necessary.

The proposed Project has minimized impacts to wildlife and habitats to the extent practicable through design considerations. Because California tiger salamanders, California red-legged frogs, and arroyo toads are not expected to occur within the BSA, and no critical habitat for these species has been designated within the BSA, the Project will have no effect on these species. The implementation of the avoidance and minimization measures described above will further curtail the impacts of the proposed Project on steelhead, least Bell's vireos, and San Joaquin kit foxes.

The probability of steelhead occurring in the BSA is low, but if they do occur in the BSA during Project activities, a small number of individuals could potentially be affected by the installation of the temporary falsework pads. However, with successful implementation of the conservation measures, the Project will minimize effects on steelhead. Thus, the Project may affect but is not likely to adversely affect steelhead.

The San Antonio River is designated as critical habitat for the South-Central California Coast steelhead. The proposed Project will avoid impacts to aquatic habitat to the extent practicable through design considerations, and no permanent loss of aquatic habitat will occur as a result of Project activities. Furthermore, the Project will implement conservation measures as described below to avoid water quality impacts.

Therefore, this Project will not result in adverse modification of steelhead critical habitat.

Least Bell's vireos are expected to occur in the Project area in extremely low numbers, if at all, and with the conservation measures described in detail in the body of this BA, the proposed Project minimizes impacts to this species. Thus, the Project may affect but is not likely to adversely affect least Bell's vireos. No critical habitat for this species is designated in the BSA.

San Joaquin kit foxes could potentially occur within the BSA in low numbers, but the Project will employ conservation measures as described in detail in the body of this BA to minimize impacts to this species. Therefore, the Project may affect but is not likely to adversely affect the San Joaquin kit fox. Critical habitat has not been designated for this species, and thus no critical habitat for this species is present in the BSA.

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List of Abbreviated Terms

ac	acre(s)
BA	Biological Assessment
BSA	Biological Study Area
CAD	Computer Aided Design
Caltrans	California Department of Transportation
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CIDH	Cast-in-drilled-hole
CNDDB	California Department of Fish and Game Natural Diversity Database
CNPS	California Native Plant Society
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
ft	foot/feet
GIS	Geographic Information System
m	meter(s)
mi	mile(s)
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NMFS	National Marine Fisheries Service
NWI	National Wetland Inventory
PCE	Primary Constituent Elements
PIA	Potential Impact Area
ROW	Right Of Way
RWQCB	Regional Water Quality Control Board
SRA	Shaded Riverine Aquatic
SCS	Soil Conservation Service
USACE	U.S. Army Corps of Engineers
USFWS	Fish and Wildlife Service
USGS	United States Geological Survey

Chapter 1. Introduction

The purpose of this Biological Assessment (BA) is to review the proposed replacement of bridge number 44C-0009 in southern Monterey County in sufficient detail to determine the extent to which the Project may affect threatened, endangered, proposed, and candidate species, as well as designated critical habitat for such species. This BA focuses on six federally listed species with the potential to occur within, or in the vicinity of, the Project area: the federally threatened South-Central California Coast steelhead (*Oncorhynchus mykiss*), California tiger salamander (*Ambystoma californiense*), and California red-legged frog (*Rana draytonii*); and the federally endangered arroyo toad (*Bufo californicus*), least Bell's vireo (*Vireo bellii pusillus*), and San Joaquin kit fox (*Vulpes macrotis mutica*).

This BA has been prepared in accordance with the legal requirements set forth under Section 7 of the Federal Endangered Species Act [16 USC 1536 (c)] (FESA) and follows guidelines established in the Endangered Species Consultation Handbook (United States Fish and Wildlife Service [USFWS] and National Marine Fisheries Service [NMFS] 1998) and the California Department of Transportation (Caltrans) Guidance for Consultants, Template for Completing the Biological Assessment (Caltrans 2011). Caltrans, using the Federal Highway Administration's delegated authority, is the lead federal agency for Section7 of the FESA for this Project and intends this BA, when submitted to the USFWS and NMFS, to initiate consultation in accordance with Section 7 of FESA. Monterey County is the lead agency for CEQA.

1.1. Project History

1.1.1. Project Purpose and Need

Bridge 44C-0009, built in 1921, is a single-lane, 4-span, steel pratt through truss structure approximately 240 feet (ft) in length and 20 ft in width. The existing bridge does not meet current design or seismic safety standards and will be replaced to provide a two-lane crossing over the San Antonio River.

1.2. Project Description

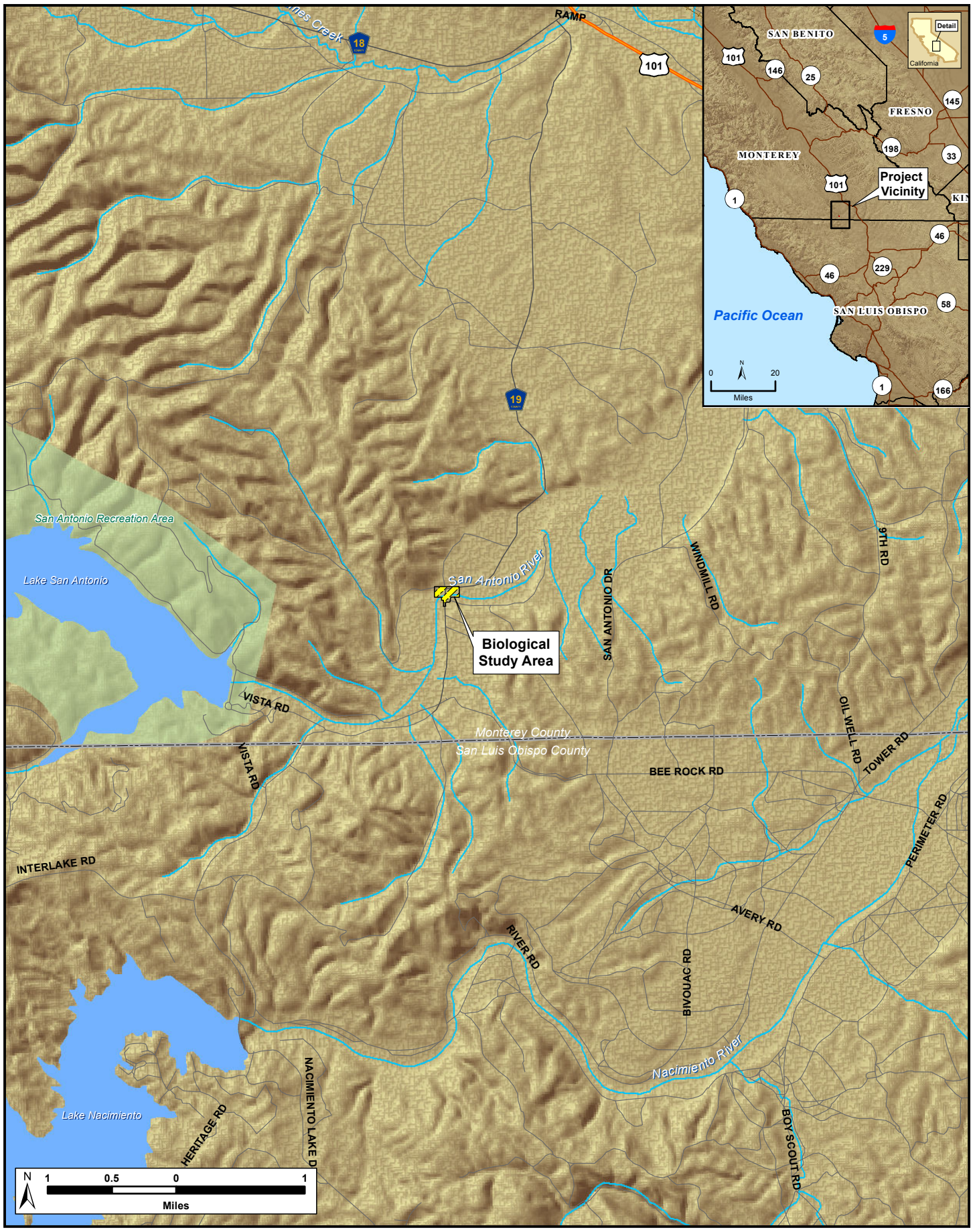
The existing Nacimiento Lake Drive bridge crosses the San Antonio River along Nacimiento Lake Drive, just over 5 miles (mi) south of Jolon Road. It is located

approximately 5 mi southwest of the town of Bradley and approximately 2 mi northwest of the Camp Roberts Army National Guard training Facility, in unincorporated southern Monterey County, California (Figure 1). This rural area is dominated by extensive cattle ranches, with some viticulture and other agriculture occurring in areas immediately adjacent to the Salinas River and Highway 101. Military lands are also a prominent feature of the region, with Camp Roberts to the southeast and Fort Hunter Liggett to the northwest of the Project site. As shown in Figure 2, the biological study area (BSA) covers approximately 12.24 acres (ac) along Nacimiento Lake Drive at the bridge crossing over the San Antonio River, including the existing bridge, the alignment of the proposed replacement bridge, a potential mitigation area, and surrounding habitats that were surveyed on-foot by Project biologists. The Potential Impact Area (PIA) is approximately 4.25 ac and is comprised of a smaller area within the BSA that may be directly affected by the construction of the Project, through structure removal, bridge construction, fill and rock slope protection (RSP) placement, construction access, and staging (Figure 2).

1.2.1. Project Components

The Monterey County Department of Public Works, with funding from the Federal Highway Administration (FHWA) and in cooperation with Caltrans, proposes to replace existing bridge number 44C-0009 with a new bridge that can accommodate two lanes of traffic with shoulders, and will be approximately 267 ft in length and 32 ft in width. The first span will be 150 ft and the second span will be 117 ft in length. The replacement bridge will be constructed adjacent to, and downstream of, the existing bridge. The new bridge will have two spans with a center pier. The bridge type will be a cast-in-place, post-tensioned, concrete box girder structure supported on one single-column bent (the center pier) and two short-seat abutments. A Project plan view is shown on an aerial of the BSA in Figure 2.

The center pier will have a diameter of approximately 6-7 ft and will be supported on a large diameter cast-in-drilled-hole (CIDH) pile foundation. The depth of the pile foundation will be approximately 100 ft. The location of the center pier will be outside and to the north of the low-flow channel of the river, above the ordinary high water (OHW) mark of the channel.



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ECOLOGICAL CONSULTANTS

Figure 1: Vicinity Map

Nacimiento Lake Drive Bridge Replacement Project - BA (1212-10)
June 2012

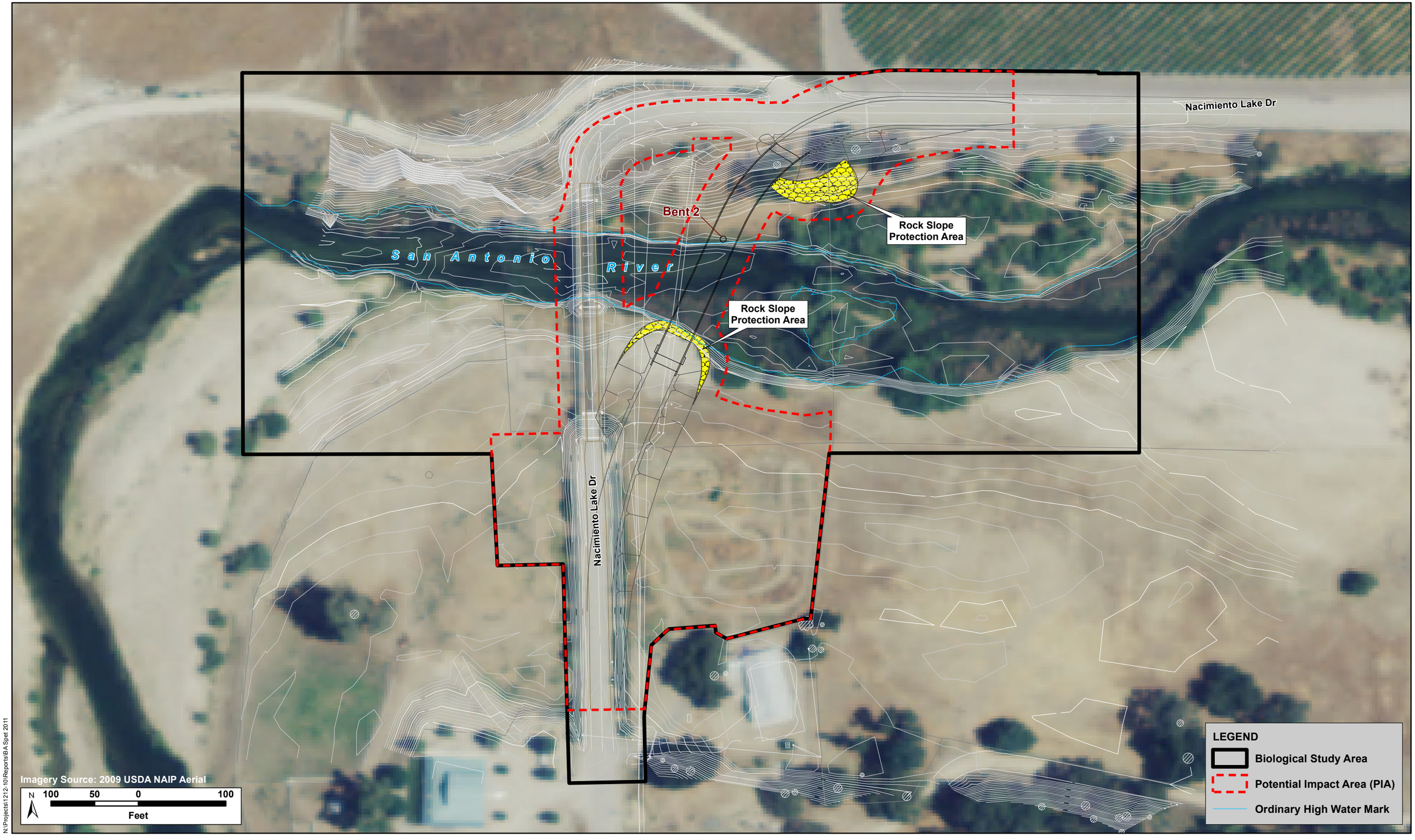

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Figure 2: Project Plan and Biological Study Area

Nacimiento Lake Drive Bridge Replacement - BA (1212-10)

June 2012

The southerly bridge abutment will be supported on two CIDH pile foundations, each with a diameter of approximately 7 ft and a depth of approximately 75 ft. Excavation for this abutment will be to a depth of roughly 5 ft. The northerly bridge abutment will be supported on multiple CIDH pile foundations, each with a diameter of approximately 2 ft and a depth of approximately 35 ft. Excavation for this abutment will be to a depth of roughly 15 ft. The CIDH piles at the southern abutment and the center pier bent will require that permanent steel casings are installed, which may be vibrated or driven into place.

While neither the southern or northern abutments will be placed within the 100-year floodplain, embankment fills associated with both abutments will be placed within this area. Because of this, to prevent erosion of the abutment embankments, which could undermine the structure and lead to possible adverse environmental effects, RSP will be required at both locations (Figure 2). The RSP, which will likely consist of 500-pound (lb) rocks, will be placed from 5 ft below the toe of slope at each bridge abutment and will extend up to an elevation 1 ft above the 100-year water surface elevation. The length of the RSP along the banks of the river at the southerly and northerly abutments will be approximately 120 ft and 80 ft, respectively (Figure 2).

Construction of the bridge will begin with excavation and drilling holes for the CIDH pile foundations. During this drilling process, the permanent steel casings will be installed where required using a vibratory hammer only, no impact pile driving equipment will be used. The holes will then be filled with rebar cages and concrete. No dewatering is proposed or will be required for bridge construction (or later, for demolition of the existing structure). However, the bridge superstructure will be constructed using a falsework platform, which supports the formwork used to shape the superstructure concrete. The falsework platform will require supports in the river bed. At the proposed bridge location, the width of the channel is approximately 100-110 ft (Figure 2). A typical falsework span would be approximately 60 ft, and two temporary gravel pad supports will be required within the channel. On the south bank, a gravel pad would be placed at the edge of the channel, extending out approximately 20-25 ft into the channel. On the north bank, another gravel pad would be placed at the edge of the channel, extending about 35 ft into the channel to provide a support for a 60- to 65-ft falsework span. This would leave a clear channel width of approximately 50-60 ft. The length of the pads along the channel would be similar to the width of the bridge superstructure with an additional 10 ft on either side for a total channel length of 55 ft. These pads would be required for approximately one year.

Once the superstructure concrete has cured, barriers and railings will be installed on the bridge deck. In order to complete this work, site and river access will be needed for heavy construction equipment, such as long flat-bed trucks for delivering materials to the site, pile drilling equipment, cranes, concrete pumps, concrete mixer trucks, compaction equipment, loaders, and haulers. Access to the Project site from existing roadways will be provided. No new or temporary access roads will be necessary for the realigned roadway. Temporary access roads will be required on the river bed for the bridge construction. During construction, all equipment and materials will be stored at temporary staging areas located on or adjacent to the project site. These sites will be fenced and best management practices (BMPs) implemented to control tracking of soil from these sites. Proposed staging areas are located to the east of the existing bridge, outside the 100-year floodplain. Road or lane closures will be conducted in compliance with Monterey County Municipal Code and a traffic management plan will be implemented by the County.

As noted above, once the new Nacimiento Lake Drive Bridge is completed and open to traffic, the existing bridge will be removed. Upon completion of construction of the new bridge, the existing bridge will be removed, although due to seasonal work constraints (Project work within the creek banks will be restricted to the dry season, or 15 June to 15 October) construction and removal may not occur during the same year. The existing bridge is an 87-year-old 4-span steel pratt through truss, approximately 20 ft wide and 240 ft long. The bridge superstructure has two through-trussed bridge main spans with a steel grid deck. The two approach spans have a cast-in-place concrete deck over four railroad car girders. The existing superstructure is supported by three bents, two of which have two octagonal columns supported on timber piles and connected at full height with an integral pier wall, while the remaining bent has two octagonal columns on spread footings connected with a pier cap at top and a concrete link beam below grade. The south abutment is a diaphragm type abutment with small wingwalls supported on four steel rail piles. The north abutment is a seat type abutment that was modified to be a diaphragm type abutment, has no wingwalls and bears directly on the soil.

Removal of the existing bridge will involve the removal of the entire structure down to the piles. Per Caltrans Standards, the piles will be removed down to a minimum of 3-ft below finished grade. This work will require demolition and removal of large amounts of steel and reinforced concrete material, which will require jack hammering. In order to complete this work, again site and river access will be needed for heavy construction equipment such as high reach demolition equipment, cranes, excavators, loaders, and haulers.

1.2.2. Project Funding and Schedule

The Project is funded by the Federal Highway Bridge Program using Highway Bridge Repair and Replacement Program Funds, in cooperation with Caltrans and the Monterey County Department of Public Works.

Construction is expected to take a total of approximately 1.5 years. The proposed project is expected to be constructed in 15 months or less, with an approximate seasonal start date in June. Construction activities would generally occur from Monday through Friday between 7:00 am and 7:00 pm. No night-time construction is proposed.

1.3. Summary of Consultation to Date

H. T. Harvey & Associates biologists received a list of federally protected species potentially occurring in the region (Monterey County) from the Ventura USFWS office on 13 May 2010, which was then updated on 9 September 2011 and again on 10 May 2012 (Appendix A). On 8 March 2012, H. T. Harvey & Associates contacted Joyce Ambrosius at NMFS to request technical assistance on the Project, and on 12 March 2012, a technical memo summarizing the Project's potential impacts on steelhead as a result of pile driving was submitted to NMFS biologist Joel Casagrande. On 30 April 2012, based on a review of the technical memo, Mr. Casagrande provided his recommendations for minimizing impacts on steelhead as a result of pile installation. The Project proponent subsequently refined the Project description to limit the use of pile driving equipment to non-impact methods (i.e., vibratory hammer). On 10 May 2012, H. T. Harvey & Associates contacted Joel Casagrande to inform him of the change in the Project description.

1.4. Document Preparation History

This BA was prepared by the following personnel at H. T. Harvey & Associates:

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Chapter 2. Study Methods

2.1. Listed and Proposed Species Potentially in the Biological Study Area

H. T. Harvey & Associates biologists reviewed potentially occurring FESA listed and proposed species using USFWS resources. A list of federally-protected species potentially occurring in Monterey County was received from the Ventura USFWS office on 10 May 2012 (Appendix A). Table 1 lists all the federally protected species that occur in the region and describes the rationale for our determinations regarding their presence or absence from the BSA.

Table 1: Listed Species, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.

COMMON NAME	SCIENTIFIC NAME	*STATUS	GENERAL HABITAT DESCRIPTION	**PRESENT/ ABSENT	RATIONALE
Santa Lucia purple amole	*Chlorogalum purpureum* var. *purpureum*	FT	Gravelly or clay soils in chaparral, cismontane woodland, and valley and foothill grassland	A	Suitable edaphic conditions not present within BSA. Not observed during protocol-level surveys.
Longhorn fairy shrimp	*Branchinecta longiantenna*	FE	Shallow ephemeral pools in grasslands or wet meadows	A	No suitable habitat within the BSA.
Vernal pool fairy shrimp	*Branchinecta lynchi*	FE	Shallow ephemeral pools in grasslands or wet meadows	A	No suitable habitat within the BSA.
Conservancy fairy Shrimp	*Branchinecta conservatio*	FE	Shallow ephemeral pools in grasslands or wet meadows, often alkaline playa pools	A	No suitable habitat within the BSA.
Smith's blue butterfly	*Euphilotes enoptes smithii*	FE	This species has an obligate association with two species of native buckwheat: coast buckwheat and/or sea cliff buckwheat.	A	BSA is outside the current known distribution of the species, and no suitable host plants occur within the BSA.

COMMON NAME	**SCIENTIFIC NAME**	***STATUS**	**GENERAL HABITAT DESCRIPTION**	****PRESENT/ ABSENT**	**RATIONALE**
Steelhead (South-Central California Coast)	*Oncorhynchus mykiss irideus*	FT	Spawns in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating to the ocean.	HP, CH	The San Antonio River below the dam has been designated as critical habitat for this species. Steelhead were documented in the stream historically, and there are no absolute barriers between the BSA and the Salinas River Mouth, so steelhead could potentially migrate up to the Project area. However the current steelhead run in the Salinas River and its tributaries is estimated to be very low and aquatic habitat quality is poor due to low and irregular flows, warm water temperatures, and presence of exotic predators, so we expect steelhead to occur in extremely low densities at most.
California tiger salamander	*Ambystoma californiense*	FT	Vernal or temporary pools in annual grasslands or open woodlands.	HP/SA	Potentially suitable breeding habitat for this species occurs in the Project vicinity, and the BSA itself contains suitable foraging and aestivation habitat, though no still ephemeral pools suitable for breeding habitat occur on the site. However, regular vernal pool surveys at the Camp Roberts Army National Guard training facility south of the BSA have failed to detect any California tiger salamanders since 2001 (CAARNG 2009), indicating the species' absence from the region. Not expected to occur within the BSA.
Santa Cruz long-toed salamander	*Ambystoma macrodactylum croceum*	FE	Occurs in dense riparian vegetation in 11 locations in southern Santa Cruz County and northern Monterey County.	A	BSA is outside the current known distribution of the species.

COMMON NAME	SCIENTIFIC NAME	*STATUS	GENERAL HABITAT DESCRIPTION	**PRESENT/ ABSENT	RATIONALE
California red-legged frog	*Rana draytonii*	FT	Streams, freshwater pools, and ponds with emergent or overhanging vegetation.	HP/SA	The historical distribution of the red-legged frog includes the BSA, and although there are no records of the species in the San Antonio River, the river provides structurally suitable habitat. Well-established populations of predatory species such as bullfrogs limit the suitability of this habitat for red-legged frogs, and no red-legged frogs, larvae, or egg masses were detected during protocol-level surveys in 2010.
Arroyo Toad	*Bufo californicus*	FE	Sandy streambeds in cottonwood, sycamore, and willow riparian forests with stable, exposed sandy terraces for burrowing and still, shallow pools for breeding.	HP/SA	Arroyo toads have been documented in the San Antonio River upstream of the San Antonio Reservoir as recently as 1996 (USFWS 1999). Populations of sunfish, bullfrogs, and other non-native predators in the San Antonio River downstream of the reservoir preclude the persistence of a population of arroyo toads in the BSA, and no arroyo toads were observed during multiple focused and protocol-level surveys for other special-status amphibians. The species is thus not expected to occur within the BSA.
Blunt-nosed leopard lizard	*Gambelia silus*	FE	Open, sparsely vegetated areas in semi-arid grasslands, alkali flats, and washes.	A	BSA is outside of the current known range of the species.
California condor	*Gymnogyps californianus*	FE	Nests in caves in steep, isolated cliffs or cavities in mature redwood trees. Forages over grasslands, open woodlands, and along coastal cliffs and beaches.	A	California condors forage in flat grasslands and rolling hills in the Salinas Valley, and may fly over the BSA on occasion, but are not expected to forage or roost within the BSA itself. The BSA does not offer suitable nesting habitat for the species.

COMMON NAME	**SCIENTIFIC NAME**	***STATUS**	**GENERAL HABITAT DESCRIPTION**	****PRESENT/ ABSENT**	**RATIONALE**
Yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FC	Breeds in large patches of dense mature riparian vegetation near meandering waterways.	A	BSA is outside of the current known distribution of this species, and the BSA does not provide suitable habitat for the species.
Least Bell's vireo	*Vireo bellii pusillus*	FE	Nests in heterogeneous riparian habitat, often dominated by cottonwoods (*Populus* sp.) and willows (*Salix* sp.).	HP	The BSA falls within the historical distribution for this species, and although the species' range has contracted substantially and no breeding individuals have been documented in the area in recent years (Roberson and Tenney 1993), occasional individuals have been detected nearby along the upper Salinas River (CAARNG 2009, CNDDB 2011). The BSA contains potentially suitable breeding habitat for the species, though there is a low probability of occurrence.
Giant kangaroo rat	*Dipodomys ingens*	FE	Large areas of open, gently sloping, sparsely vegetated grasslands on fine, sandy loam soils.	A	BSA is outside of the current distribution of the species.
Morro Bay kangaroo rat	*Dipodomys heermanni morroensis*	FE	Stabilized dunes, coastal scrub, and maritime chaparral on sandy soils in san Louis Obispo County south of Morro Bay.	A	BSA is outside of the current distribution of the species.
San Joaquin kit fox	*Vulpes macrotis mutica*	FE	Flat or gently sloping grasslands, mostly on the margins of the San Joaquin Valley and adjacent valleys.	HP	Kit foxes have been regularly documented south of the BSA at the Camp Roberts training facility. Populations in the vicinity appear to be declining, but individuals continue to be detected in extremely low densities. The BSA offers ostensibly suitable foraging and potential denning habitat, although no dens were observed on the site during reconnaissance surveys. There is a low probability of occurrence by this species within the BSA.

*Status:	-Federal Endangered (FE); Federal Threatened (FT); Federal Proposed (FP, FPE, FPT); Federal Candidate (FC).
**Present/Absent Codes	
Absent [A]	- No habitat present and no further work needed.
Habitat Present [HP]	- Habitat is, or may be present. The species may be present.
Present [P]	- Species is present.
Habitat Present/Species Absent [HP/SA]	- Habitat is, or may be present, but for reasons other than habitat (*e.g.*, range) the species is considered absent.
Critical Habitat [CH]	- Project footprint is located within a designated critical habitat unit, but does not necessarily mean that appropriate habitat is present.

2.2. Studies Required

Prior to conducting surveys, H. T. Harvey & Associates biologists compiled information on special-status species and sensitive habitats in the Project vicinity using the USFWS species list identified above; the California Natural Diversity Database; species accounts available through state and federal agencies; and regional reports and other technical documents.

For the purposes of this report, the BSA encompasses approximately 12.24 ac along Nacimiento Lake Drive at the bridge crossing over the San Antonio River, and includes the potential impact area PIA, or all areas expected to be permanently or temporarily affected by the Project, as well as areas immediately upstream and downstream of the PIA that are not expected to be impacted by the Project (Figure 3). Permanent effects will be associated with the installation of the new bridge and associated abutments, bents, tree removal, and fill for the structure, and temporary effects will include access and construction-related impacts, such as removal of the existing bridge, areas used for staging, and construction buffers (Figure 2). The footprint of the PIA was determined from most recent Project planset provided by David J. Powers and Biggs Cardosa and Associates (1 April 2010). The BSA footprint was determined based on the area surveyed on foot during reconnaissance-level biological site studies, and included a potential mitigation area upstream of the existing bridge (Figure 3). A graphical illustration of the extent and location of the PIA and BSA is shown on Figure 3. "Project vicinity" will be used to describe the wider area including the BSA and a 5-mi radius surrounding the Project boundaries.

2.2.1. Reconnaissance Surveys

On 2 February 2010, senior plant ecologist K. Hardwicke, Ph.D., conducted a reconnaissance survey of the BSA. Then, on 5 February 2010, wildlife ecologist N. Thorngate, M.S., and plant ecologist/wetland specialist B. Cleary, M.S., conducted a further reconnaissance survey of the BSA. The purpose of these surveys was to: 1)

assess existing biotic habitats, 2) assess the area for its potential to support special-status species and their habitats, 3) identify potential jurisdictional habitats, including Waters of the U.S., and 4) provide information for the initial Project impact assessment.

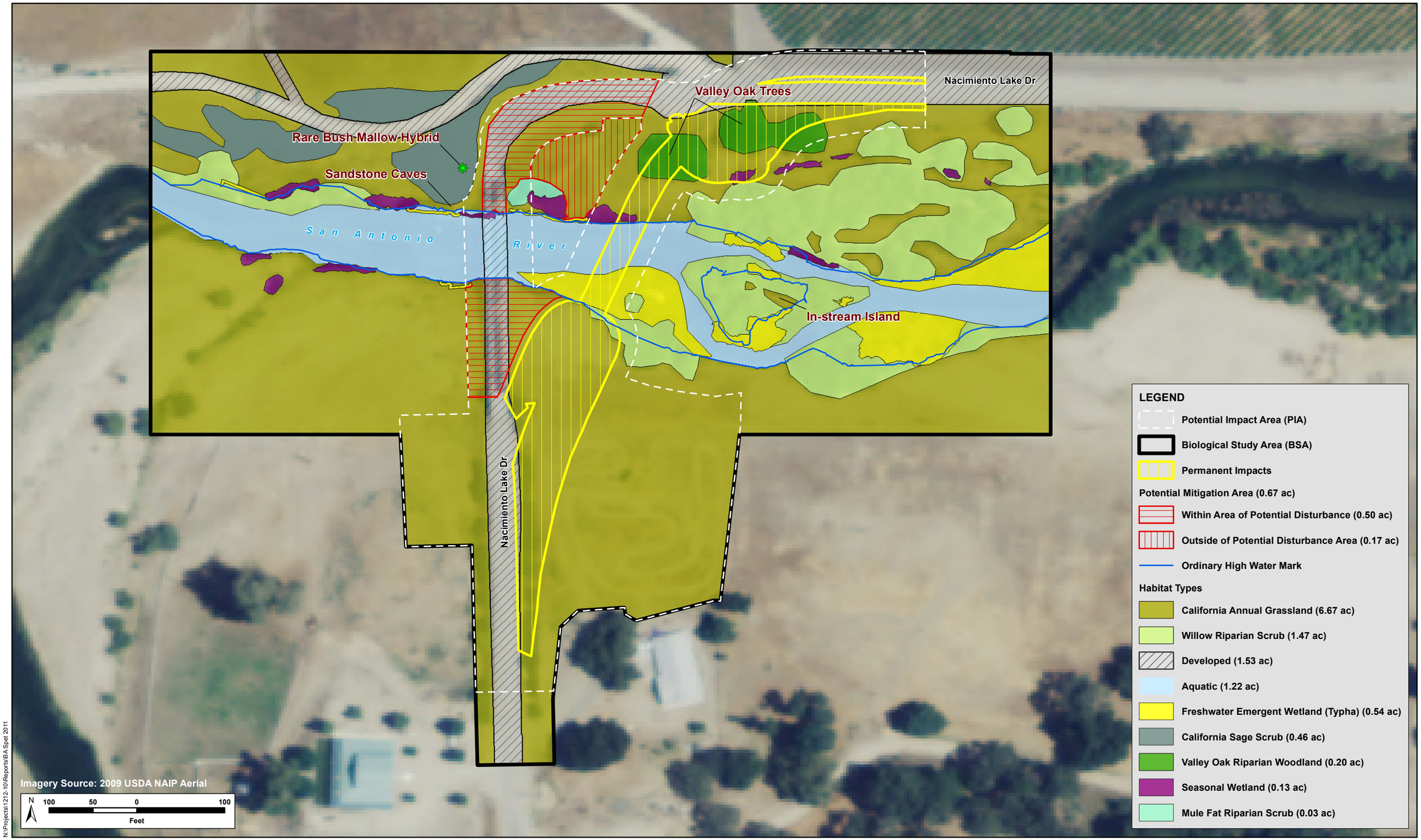
H. T. Harvey & Associates then mapped all observed biotic habitats within the BSA onto a computer-aided design (CAD) drawing showing topographic lines and then, to improve accuracy, compared this field mapping to aerial photography tied to the CAD drawing (Figure 3). Where appropriate, plant communities were named according to Holland's system of classification (1986) and Sawyer and Keeler-Wolfe (1995). Habitat acreages were calculated for all habitat types within the BSA using CAD mapping and geographic information system (GIS) and aerial photograph interpretation.

2.2.2. California Red-legged Frog Site Assessment

A California red-legged frog habitat assessment survey was conducted by H.T. Harvey & Associates herpetologist N. Sisk, M.S., on 1 April 2010 per the requirements of the August 2005 *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* issued by the U. S. Fish and Wildlife Service. The survey was conducted by walking the BSA plus an additional 0.25 mi upstream and downstream along the San Antonio River, looking for California red-legged frogs and assessing habitat suitability for the species. The survey focused on assessing the BSA and the immediately surrounding areas for their potential to support the California red-legged frog through an evaluation of on-site habitat conditions. Biotic habitats within 1 mi of the project area were also assessed for potential suitability as habitat for this species. A review of background resources was conducted prior to and following the fieldwork.

2.2.3. Protocol-level California Red-legged Frog Surveys

Following the most recent guidance issued by the USFWS (2005a), daytime and nighttime protocol-level California red-legged frog surveys were conducted within the BSA on 17 May 2010 by H. T. Harvey & Associates herpetologist Steve Carpenter, B.S.; on 24 May 2010 by S. Carpenter and N. Thorngate; on 8 June 2010 by S. Carpenter and H. T. Harvey & Associates herpetologist J. Wilkinson, Ph.D.; on 28 June 2010 by J. Wilkinson and H. T. Harvey & Associates field biologist Y. Chaver, B.S.; and on 22 July 2010 by S. Carpenter and N. Thorngate. The site assessment and datasheets for the protocol-level survey are provided as Appendix B.



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H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS

Figure 3: Biotic Habitats and Impact Areas

Nacimiento Lake Drive Bridge Replacement - BA (1212-10)

June 2012

2.3. Personnel and Survey Dates

DATE	PERSONNEL	SURVEY TYPE
2 February 2010	K. Hardwicke, Ph.D.	Reconnaissance
5 February 2010	N. Thorngate, M.S. B. Cleary, M.S.	Reconnaissance
10 March 2010	K. Hardwicke, Ph.D.	Protocol-level Rare Plant Survey
1 April 2010	R. Norman Sisk, M.S.	California Red-legged Frog Habitat Assessment
5 April 2010	K. Hardwicke, Ph.D.	Protocol-level Rare Plant Survey
24 April 2010	B. Cleary, M.S.	Wetland Technical Assessment Survey
17 May 2010	S. Carpenter, B.S.	Protocol-level California Red-legged Frog Survey #1 (Daytime)
17 May 2010	S. Carpenter, B.S.	Protocol-level California Red-legged Frog Survey #2 (Nighttime)
24 May 2010	S. Carpenter, B.S.	Protocol-level California Red-legged Frog Survey #3 (Daytime)
24 May 2010	S. Carpenter, B.S. N. Thorngate, M.S.	Protocol-level California Red-legged Frog Survey #4 (Nighttime)
28 May 2010	C. Roy, M.S.	Protocol-level Rare Plant Survey
8 June 2010	S. Carpenter, B.S. J. Wilkinson, Ph.D.	Protocol-level California Red-legged Frog Survey #5 (Nighttime)
23 June 2010	J. Wilkinson, Ph.D. Y. Chaver, B.S.	Protocol-level California Red-legged Frog Survey #6 (Nighttime)
22 July 2010	S. Carpenter, B.S.	Protocol-level California Red-legged Frog Survey #7 (Daytime)
22 July 2010	S. Carpenter, B.S. N. Thorngate, M.S.	Protocol-level California Red-legged Frog Survey #8 (Nighttime)

2.4. Agency Coordination and Professional Contacts

H. T. Harvey & Associates biologists K. Hardwicke and S. Rottenborn, Ph.D., had conversations with Tom Edell of Caltrans District 5 on 9 and 11 March 2010 regarding necessary survey effort for completion of the Project, as well as refining elements of preliminary Project construction methods for avoidance and minimization.

2.5. Limitations That May Influence Results

No focused or presence/absence protocol-level surveys were conducted for any special-status species other than plants and California red-legged frogs. For other species, focused surveys or surveys during particular seasons were not deemed necessary given the particular species involved and project-specific conditions. For some species, such as the South-Central California Coast steelhead, San Joaquin kit fox, and least Bell's vireo, inferring potential presence was reasonable given the species' known or potential occurrence in the site vicinity and potential for dispersal onto the site. For these species, which may occur only infrequently and irregularly, focused surveys were not deemed appropriate because a negative finding would not necessarily guarantee that the species would not be present during Project construction. For other species, such as the California tiger salamander and arroyo toad, assessment of habitat conditions and occurrence records in the region, coupled with observations during the intensive surveys conducted for California red-legged frogs, was adequate to determine that the species were absent. In either case (i.e., whether inferring presence based on available information or determining absence based on the lack of suitable habitat), information obtained during more focused surveys or at a time of year more conducive for detecting the species would not have altered the determinations regarding potential presence or absence of these species.

No access limitations were encountered during surveys of the BSA or the proposed staging area.

Chapter 3. Results: Environmental Setting

3.1. Description of Existing Biological and Physical Conditions

The Project site is located within the Bradley USGS 7.5-minute quadrangle in southern Monterey County (Figure 1). The BSA encompasses the PIA (all areas and features expected to be temporarily or permanently affected by the Project), as well as areas immediately upstream and downstream of the PIA that are not expected to be affected by Project activities. All areas expected to be affected by the Project fall within the PIA (Figure 3). These include staging areas, road widening areas, existing bridge and approach removal areas, and the new bridge crossing over the San Antonio River.

The BSA comprises approximately 12.24 ac. It is situated along the San Antonio River located approximately 4 mi downstream of the San Antonio Reservoir, in unincorporated southern Monterey County. The surrounding land is dominated by extensive annual grasslands and oak savannahs used for grazing. The land to the north supports an active vineyard, and a few ranch houses and associated buildings are located immediately south of the BSA. The San Antonio River riparian corridor continues upstream and downstream of the Project site within the grassland and oak savannah landscape. The San Antonio River flows from the San Antonio Reservoir northeast into the Salinas River, which flows north through the Salinas Valley for approximately 85 mi before emptying into Monterey Bay.

Elevation ranges from approximately 560 to 675 ft National Geodetic Vertical Datum (NGVD). Natural topography and vegetation on the site consists primarily of a broad, riverine riparian floodplain associated with the San Antonio River. This floodplain is surrounded by steep rolling foothill grassland, sage scrub, and oak woodland situated along each side of the river corridor. Average annual precipitation is approximately 10 inches per year in this part of Monterey County, and average annual temperatures are between 55 to 55 degrees Fahrenheit (°F) (SCS 1978). Most of the yearly precipitation occurs from November through March.

The USFWS has classified a number of wetland resources within the BSA under the National Wetland Inventory (NWI) wetland classification system. The reach of the

San Antonio River within the BSA is classified as riverine, intermittent streambed, seasonally flooded. Wetlands associated with the channel include palustrine scrub/shrub, temporarily flooded; palustrine scrub/shrub, seasonally flooded; and palustrine scrub/shrub, emergent, seasonally flooded.

H. T. Harvey & Associates identified nine biotic habitats/land use types (Table 2) on site within the BSA (Figure 3). These include: 1) California annual grassland; 2) willow riparian scrub; 3) developed; 4) aquatic; 5) freshwater emergent wetland; 6) California sage scrub; 7); Valley oak riparian woodland; 8) seasonal wetland and, 9) mule fat riparian scrub.

Table 2: Habitat and Land Use Types Present within the BSA.

Habitat Type	Acreage within the BSA	Percent (%) of the BSA
California Annual Grassland	6.64	54 %
Developed	1.56	13%
Willow Riparian Scrub	1.47	12 %
Aquatic	1.22	10 %
Freshwater Emergent Wetland	0.54	4 %
California Sage Scrub	0.46	4 %
Valley Oak Riparian Woodland	0.20	2 %
Seasonal Wetland	0.13	1 %
Mule Fat Riparian Scrub	0.03	> 1 %
TOTAL	**12.24**	**100 %***

* including rounding error

3.1.1. California Annual Grassland

Vegetation. Approximately 6.64 ac of grasslands occur within the BSA in upland areas on both sides of the river channel. Soils tend to be more sandy on the southern side and near the sandstone outcrops on the western side of the existing bridge, and loamy on the northern side to the east of the existing bridge. In both areas, these grasslands have been disturbed by cattle grazing, occasional scouring floods associated with the river, and increased foot traffic, especially in areas nearest the existing roads and under the bridge. The vegetation is dominated by non-native grasses such as ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), wild oats (*Avena fatua*), and red brome (*Bromus rubens* var. *madritensis*). Other weedy, non-native species are common, such as black mustard (*Brassica nigra*), milk thistle (*Silybum marianum*), redstem filaree (*Erodium cicutarium*), and, closer to the river, yellow sweetclover (*Melilotus indicus*). Some areas, such as the sandy benches in the uplands adjacent to riparian vegetation, support a relatively diverse suite of native grassland species, such as bigleaf lupine (*Lupinus latifolius*), telegraph weed (*Heterotheca grandiflora*), narrow-leaf milkweed (*Asclepias fascicularis*), red

sandspurrey (*Spergularia rubra*), valley lessingia (*Lessingia glandulifera*), and sandysoil suncup (*Camissonia strigulosa*). Areas underlain with sandier soils also have sparser growth, while areas underlain with loamier, more disturbed soils has a high incidence of thatch and very little bare ground. Isolated coyote brush (*Baccharis pilularis*) and French broom (*Genista monspessulana*) occur scattered in more disturbed areas and along the steep northern bank. California sagebrush (*Artemisia californica*) has colonized the disturbed roadside along the southern bridge approach. This habitat type closely resembles Holland's (1986) Non-native Grassland (42200).

Wildlife. Annual grasslands lack the structural diversity necessary to support a high diversity of wildlife species, but these habitats are used as foraging, burrowing, and nesting locations by many taxa. Much of the ruderal grassland within the BSA occurs on the sandy terraces bordering the stream, and these areas offer suitable nesting habitat for western pond turtles (*Actinemys marmorata*), as well as burrowing and foraging habitat for silvery legless lizards (*Anniella pulchra pulchra*) and coast horned lizards (*Phrynosoma blainvillii*). Western toads (*Bufo boreas*), western fence lizards (*Sceloporus occidentalis*), and gopher snakes (*Pituophis catenifer*) are also expected to use the grassland habitats throughout the BSA. While the ruderal grassland patches within the BSA are too limited in extent to support bird species associated with extensive grasslands, many bird species that nest or shelter in the more extensive grasslands nearby or in other adjacent habitats are likely to forage in these grassland patches from time to time. Such species include white-tailed kites (*Elanus leucurus*), red-shouldered hawks (*Buteo lineatus*), red-tailed hawks (*Buteo jamaicensis*), loggerhead shrikes (*Lanius ludovicianus*), and western meadowlarks (*Sturnella neglecta*). House finches (*Carpodacus mexicanus*), golden-crowned sparrows (*Zonotrichia atricapilla*), and white-crowned sparrows (*Zonotrichia leucophrys*) were observed foraging in the grasslands during the site visit. Burrows of Botta's pocket gophers (*Thomomys bottae*) and California ground squirrels (*Spermophilus beecheyi*) were found in the ruderal grasslands within the BSA.

3.1.2. Developed

Vegetation. The existing bridge and road approaches on each bank comprise approximately 1.56 ac of developed habitat within the BSA. These areas support little if any vegetation. Short-statured roadside weeds such as horehound (*Marrubium vulgare*) and non-native grasses adapted to the increased runoff found next to hardscape, such as foxtails (*Hordeum murinum*) occur sporadically in the compacted

gravelly areas next to the roads themselves. The existing bridge is built of metal grating and as such supports no vegetation.

Wildlife. The paved roadway within the BSA serves as wildlife habitat only in a very limited capacity. The road is likely to be used by wildlife during movements back and forth across the road, and reptiles such as western fence lizards and gopher snakes may bask on the road surface in order to raise their body temperature. Acorn woodpeckers (*Melanerpes formicivorus*) are known to forage occasionally on roadways for invertebrate prey species such as ants, likely because of the increased visibility of approaching terrestrial predators. The existing bridge within the BSA offers some structure for nesting birds such as black phoebes (*Sayornis nigricans*) and cliff swallows (*Petrochelidon pyrrhonota*), and evidence of old nests of both species were observed on the bridge during the site visit. The steel surface and open structure of the bridge render it unsuitable for use by roosting bats.

3.1.3. Willow Riparian Scrub

Vegetation. Approximately 1.47 ac of the BSA contains willow riparian scrub habitat. These areas are closely associated with the banks of the river and contain a thick, brushy mix of native willow species such as sandbar willow (*Salix exigua*), Goodding's willow (*Salix gooddingii*), and red willow (*Salix laevigata*). On the outer, upland edges of this habitat, Fremont's cottonwoods (*Populus fremontii*) and blue elderberry (*Sambucus mexicana*) are interspersed among taller, more tree-like red willows. Closer to the lower stream bank, near the OHW mark, Goodding's willows occur as multi-stemmed trees. Thickets of sandbar willow occur in frequently flooded areas, or even as emergents below the OHW mark. Much of the sandy in-stream island and the shallow waters surrounding this sandbar support willow scrub. Patches also occur along the southern bank, where the banks are shallower, and in a large continuous area on a low shelf on the northern bank to the east of the proposed bridge. Due to frequent flooding, extreme shade, and thick carpets of leaf litter, the herbaceous understory in this habitat is sparse and infrequent, supporting facultative wetland species such as bird's-foot trefoil (*Lotus corniculatus*). This habitat type closely resembles Holland's (1986) Central Coast Riparian Scrub (63200).

Wildlife. Riparian habitats in California are exceptionally productive habitats, offering high habitat value for a wide array of wildlife species and contributing disproportionately to landscape-level biodiversity. The presence of water and abundant invertebrate fauna provide foraging opportunities for many taxa, and the

diverse habitat structure provides ample cover and nesting opportunities. The robust willow riparian corridor within the BSA is expected to support a high diversity of wildlife species.

Leaf litter, downed trees, low-growing shrubs and forbs, and fallen logs provide upland refugia for arboreal salamanders (*Aneides lugubris*), slender salamanders (*Batrachoseps* spp.), western toads, and Pacific chorus frogs (*Pseudacris regilla*). Open sandy terraces within the riparian zone provide ideal habitat for silvery legless lizards and coast horned lizards; and western fence lizards, southern alligator lizards (*Elgaria multicarinata*), Skilton's skinks (*Plestiodon skiltonianus*), and gopher snakes likely forage in the riparian zone in and adjacent to the BSA.

Healthy riparian habitats such as that found within the BSA provide critical nesting and foraging habitat for a diversity of bird species during the various stages of their annual cycle. During the site visit in February 2010, over-wintering birds including white-crowned sparrows, golden-crowned sparrows, yellow-rumped warblers (*Setophaga coronata*), and ruby-crowned kinglets (*Regulus calendula*) were observed foraging throughout the riparian forest within the BSA, while year-round residents such as northern flickers (*Colaptes auratus*), black phoebes, song sparrows (*Melospiza melodia*), and Bewick's wrens (*Thryomanes bewickii*) were observed beginning to establish breeding territories. Other breeding birds expected to use the willow riparian habitat within the BSA include tree swallows (*Tachycineta bicolor*), ash-throated flycatchers (*Myiarchus cinerascens*), Pacific-slope flycatchers (*Empidonax difficilis*), warbling vireos (*Vireo gilvus*), common yellowthroats (*Geothlypis trichas*), yellow warblers (*Setophaga petechia*), spotted towhees (*Pipilo maculatus*), and California towhees (*Melozone crissalis*). Many neotropical migratory birds, including western tanagers (*Piranga ludovicianus*), willow flycatchers (*Empidonax traillii*), Swainson's thrushes (*Catharus ustulatus*), MacGillivray's warblers (*Oporornis tolmiei*), and Wilson's warblers (*Wilsonia pusilla*), are expected to use the site during stopover periods.

The riparian corridor offers suitable habitat for a variety of mammalian species: pocket gopher and broad-footed mole (*Scapanus latimanus*) burrows were observed in open areas of the riparian forest, and extensive American beaver (*Castor canadensis*) activity was evident in the willow thickets within the BSA downstream of the existing bridge. Several bat species, including Brazilian free-tailed bats (*Tadarida brasiliensis*), California myotis (*Myotis californicus*), Yuma myotis (*M. yumanensis*), pallid bats (*Antrozous pallidus*), and western mastiff bats (*Eumops perotis*), are

expected to forage aerially over the entire BSA, and medium-sized mammals such as raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), and non-native Virginia opossums (*Didelphis virginianus*) are likely to forage in the riparian zone.

3.1.4. Aquatic

Vegetation. Aquatic, open water habitat covers approximately 1.22 ac of the site within the OHW marks of the San Antonio River. This water is cool (average temperature approximately 65° F) and has moderate to swift flows. River flows in this reach are heavily affected by water control activities associated with San Antonio Reservoir upstream of the site. For example, flows increased and waters were 1-2 ft deeper after the release of water from the reservoir in early June of 2010. Water quality was generally very clear prior to and following recovery from this release, but was very turbid in the 2-3 week time period just after the release. The substrate is a mix of silt and isolated large cobbles, with the channel branch to the north of the in-stream island supporting the only riffle observed on-site. This riffle has an all-cobble substrate and fast flows approximately 1 ft deep. Water depth in the remainder of the channel averages 3-4 ft deep, although a 7-8 ft deep pool was observed at the far western edge of the BSA.

A beaver dam was located bridging both channels on the western end of the in-stream island. The beaver dam on the northernmost channel was removed, possibly by high flows associated with the release, at some point between the June and July 2010 surveys. Along the northern riverbank near a sandstone outcropping (Figure 3), strong hydrogen sulfide plumes were observed. Vegetation within the open water habitat was limited but included aquatic species such as duckweeds (*Lemna* sp.).

Wildlife. Many wildlife species are expected to occur in the aquatic habitat within the BSA. Non-native aquatic predators such as crayfish (*Procambarus clarkii*), bullfrogs (*Lithobates catesbeianus*), and green sunfish (*Lepomis cyanellus*) are expected to occupy the reach of the San Antonio River within the BSA. Historically the San Antonio River supported a steelhead/rainbow trout run, and in recent years, the waterway has been stocked with non-migratory rainbow trout. No absolute barriers between the Salinas River Mouth and the San Antonio Dam have been identified by NMFS or California Department of Fish and Game (CDFG), so occasional steelhead could occasionally occur within the BSA, but the fine sands comprising the substrate of the stream in this reach of the river do not constitute a suitable spawning substrate. Other native fish species likely to occur within the BSA include hitch (*Lavinia*

exilicauda), speckled dace (*Rhinicthys osculus*), and threespine stickleback (*Gasterosteus aculeatus*).

Common amphibians such as western toads and Pacific chorus frogs are characteristic of Monterey County streams and are known to breed in the aquatic areas of the Project's BSA. The deep and relatively slow-moving main stream within the BSA offers suitable aquatic habitat for western pond turtles, particularly adjacent to the existing bridge were partially submerged rocks offer basking sites. Great egrets (*Ardea alba*), American coots (*Fulica americana*), mallards (*Anas platyrhynchos*), and buffleheads (*Bucephala albeola*) were observed foraging in the main stream within the BSA. Several bat species, including California myotis, Yuma myotis, Brazilian free-tailed bats, pallid bats, western red bats (*Lasiurus blossevillii*), and western mastiff bats are expected to forage aerially for insects over the stream.

3.1.5. Freshwater Emergent Wetland

Vegetation. Approximately 0.54 ac of the BSA supports freshwater emergent wetlands. These areas are dominated by a thick, 4-ft tall growth of cattails (*Typha latifolia*) interspersed with California bulrushes (*Schoenoplectus californicus*). In areas with slower flows or where protected on the downstream side of lush growths of cattails and bulrushes, watercress (*Nasturtium officinale*) occurs. This habitat is found on shallow underwater benches within the low flow channel of the San Antonio River and within the BSA often occurs along the outer, wetland edges of the willow riparian scrub on-site. Smaller patches of this habitat occur on the river banks to the west of the existing bridge, and here are associated with stinging nettles (*Urtica dioica*) along their upland edges. Large patches occur mostly on the southern bank and on the southern shore of the in-stream island within the BSA, although the wetlands on-site are not as large or contiguous as the thick marshes associated with the northern bank and bend in the river channel just to the east of the BSA (Figure 3). This habitat type closely resembles Holland's (1986) Coastal and Valley Freshwater Marsh (52410).

Wildlife. The emergent wetlands within the BSA are extensive enough to provide suitable habitat for a number of wildlife species. Breeding amphibians such as Pacific chorus frogs may attach their egg masses to the bases of sedges, rushes, and other vegetation occurring along the moist edge of the stream, and may forage on invertebrates living within the shelter of the hydrophytic vegetation there. The cattail beds dominating these emergent wetland patches comprise nesting habitat for common yellowthroats and red-winged blackbirds (*Agelaius phoeniceus*), both of which were

observed using the BSA during the site visit; these vegetation patches also offer potential nesting sites for colonies of tricolored blackbirds (*Agelaius tricolor*). Beavers may forage on cattails and sedges during the summer months.

3.1.6. California Sage Scrub

Vegetation. California sage scrub occurs in discrete patches, comprising approximately 0.46 ac, along the steep, south-facing riverbank in the northwest corner of the BSA. This area supports an open, patchy canopy about 3-4 ft tall dominated by California sagebrush, mixed with other shrubs such as California buckwheat (*Eriogonum californicum*), sticky monkeyflower (*Mimulus guttatus*), holly-leaved cherry (*Prunus ilicifolia*), coyote brush, and poison oak (*Toxicodendron diversilobum*). The herbaceous layer is sparse but mostly comprised of native forbs in this habitat, and includes golden yarrow (*Eriophyllum confertiflorum*), California poppy (*Eschscholzia californica*), and white nightshade (*Solanum americanum*). This habitat occurs associated with sandstone outcrops and boulders that are located with the steep cutbank in this area, and a group of small sandstone cave openings are located to the west of the existing bridge (Figure 3). This habitat type most closely corresponds to Holland's (1986) description of Central (Lucian) Coastal Scrub (32200).

Wildlife. The sage scrub within the BSA provides only a small amount of wildlife habitat by virtue of its limited extent and isolation from other sage scrub habitat patches, so it is unlikely to support substantial populations of sage scrub specialists. However, several species are expected to use the sage scrub habitat within the BSA for foraging, nesting, and/or shelter. Amphibians such as California newts (*Taricha torosa*), and reptiles such as western fence lizards and coast horned lizards are expected to frequent this patch of habitat for foraging and shelter. Ground- and shrub-nesting birds such as California quail (*Callipepla californica*), Bewick's wrens, and California towhees are likely to be found in the scrub in and near the BSA. It is possible that a pair of loggerhead shrikes could nest here. The mammal community expected to use the scrub within the BSA includes brush rabbits (*Sylvilagus bachmani*) and California pocket mice (*Chaetodipus californicus*).

3.1.7. Valley Oak Riparian Woodland

Vegetation. Three large, mature valley oak (*Quercus lobata*) trees occur on the upper areas of the north bank to the east of the existing bridge. These trees have a combined canopy area of 0.2 ac, and comprise a small patch of valley oak riparian woodland

habitat distinctly different in character than the willow riparian scrub that dominates much of the riparian habitat on site. The open understory in this area is comprised of native and non-native upland species indicative of the surrounding California annual grassland in composition and vegetation structure. The trees themselves have a diameter at breast height (dbh) of approximately 30, 36, and 32 inches, and are up to 50 ft tall. This habitat most closely resembles Holland's (1986) Valley Oak Woodland (71130) in character, although it is within a riparian area. This is likely due to the reduced hydrological inputs received by the steep upper northern bank on which this habitat type is located within the BSA.

Wildlife. The wildlife species expected to use the valley oak riparian habitat within the BSA are similar to those described above for the willow riparian habitat. Additionally, oak-associated birds such as acorn woodpeckers, oak titmice (*Baeolophus inornatus*), and white-breasted nuthatches (*Sitta carolinensis*) were observed utilizing the valley oaks within the BSA.

3.1.8. Seasonal Wetland

Vegetation. Approximately 0.13 ac of the BSA supports seasonal wetlands associated with periodic flooding of the mid-level banks of the San Antonio River. These areas do not receive a sufficiently consistent source of riverine hydrology to support the growth of emergent hydrophytes such as seen in the freshwater emergent wetlands on-site. Instead, they support a mix of native and non-native hydrophytes that are adapted to soil saturation or shorter periods of flooding. Species observed in these areas included curly dock (*Rumex crispus*), clustered dock (*Rumex conglomeratus*), swamp knotweed (*Polygonum punctatum*), sneezeweed (*Helenium puberulum*), heliotrope (*Heliotropium curassavicum*), and wire rush *(Juncus balticus*).

Wildlife. The small patches of seasonal wetlands within the BSA are expected to support amphibian species similar to those described above for Freshwater Emergent Wetland. The vegetation is too low and limited to host nesting birds, although birds nesting elsewhere in the Project area may forage in this habitat on occasion. Small mammals may forage on the seasonal vegetation, as well.

3.1.9. Mule fat Riparian Scrub

Vegetation. A small (0.03 ac) patch of mule fat (*Baccharis salicifolia*) riparian scrub occurs within the BSA on a low-lying bank area to the east of the existing bridge. This area is heavily dominated by a low (4 ft) canopy of mule fat shrubs and supports

few other species beyond sparse non-native grass (foxtail) herbaceous cover. This habitat most closely resembles Holland's (1986) Mule fat Scrub (63310).

Wildlife. The wildlife species expected to use the mule fat riparian habitat within the BSA consist of a subset of those described above for the willow riparian habitat. Shrub-nesting birds such as bushtits (*Psaltriparus minimus*) were observed near the BSA and are likely to utilize the mule fat shrubs for nesting and foraging.

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

4.1. Federally-Listed/Proposed Species

Figure 4 depicts California Natural Diversity Database (CNDDB)-mapped locations of federally listed and proposed species in the Project vicinity. Federally listed species that are known to occur or have some potential to occur within the BSA include the South-Central California Coast steelhead, California tiger salamander, California red-legged frog, arroyo toad, least Bell's vireo, and San Joaquin kit fox. This chapter discusses the occurrence of these listed species in the vicinity of the BSA, the potential effects of the proposed Project on these species, and the measures that will be implemented to avoid or minimize such effects.

4.1.1. Discussion of the South-Central California Coast Steelhead

The steelhead is an anadromous form of rainbow trout that spends portions of its life cycle both in the ocean and in freshwater streams. The South-Central California Coast steelhead ranges from the Pajaro River, Santa Cruz County, in the north down the coast to (but not including) the Santa Maria River in San Luis Obispo County in the south, and usually migrate upstream to spawning areas in late fall or early winter, when flows are sufficient to allow them to reach suitable habitat in far upstream areas (Moyle 2002). Spawning occurs between December and June. Steelhead eggs remain in gravel depressions, known as redds, for 1.5 - 4 months before hatching. After hatching, young steelhead use the deeper reaches of streams as rearing areas, and will remain in fresh water for 1 - 4 years before migrating to the ocean. After migration to the ocean, steelhead typically grow rapidly for 2 - 3 years before returning to freshwater streams to spawn. Unlike other salmonids, steelhead do not necessarily die after spawning. Many adults survive and return to the ocean after spawning, coming back to spawn for one or more additional seasons.

Steelhead usually spawn in clear, cool, perennial sections of relatively undisturbed streams. Preferred streams typically support a dense canopy cover that provides shade, woody debris, and organic matter. Stream reaches in which spawning occurs are usually free of rooted or aquatic vegetation. Gravel substrates are the optimum spawning habitat. Steelhead usually cannot survive long in pools or streams with

water temperatures above 70°F. Despite their general requirement for cool water, steelhead can use warmer habitats if food is available, such as at fast water riffles where fish can feed on drifting insects (Moyle 2002).

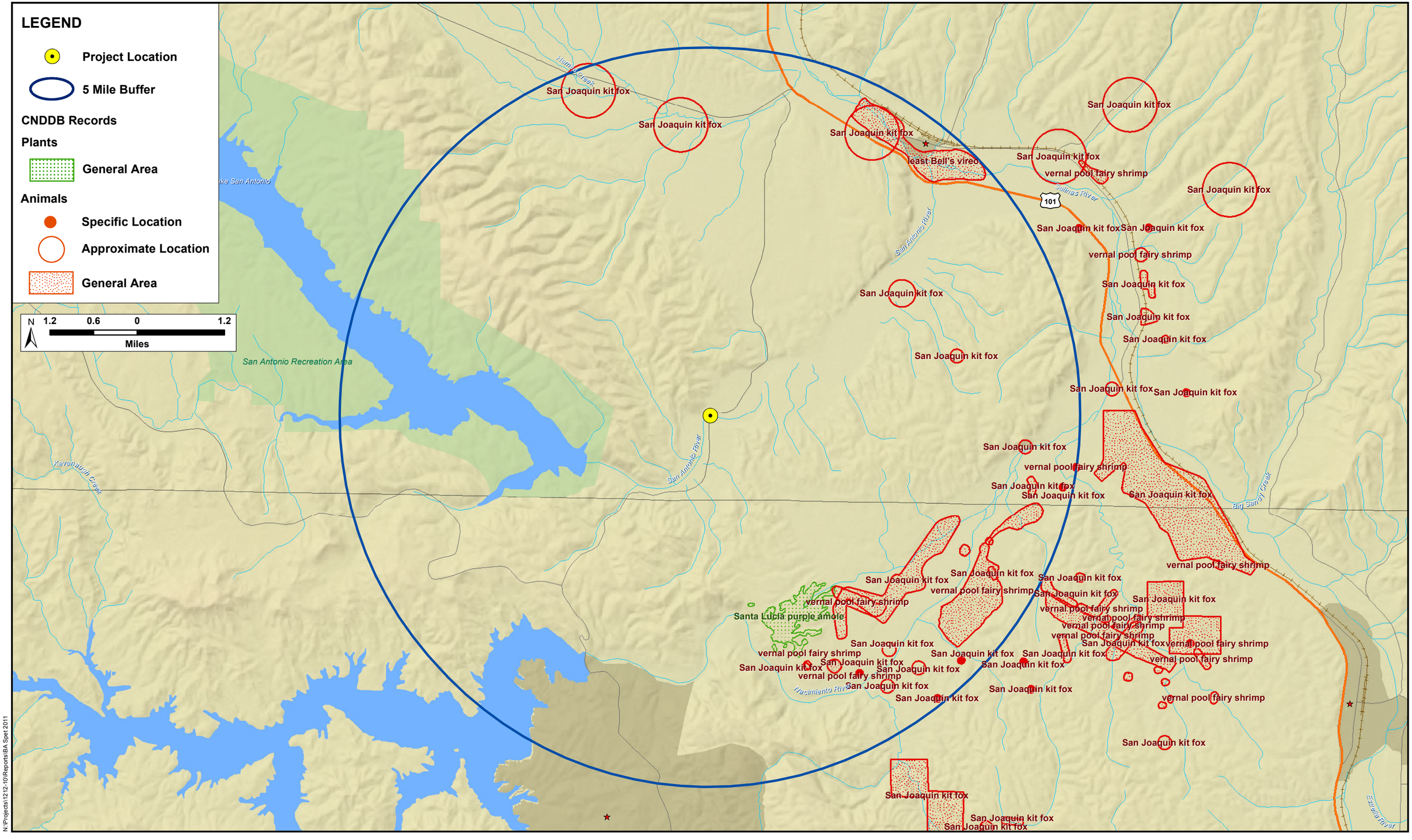
Streambed degradation, alteration, and blockages have significantly reduced steelhead habitat, and this reduction, as well as reduced genetic diversity and climate change, has seriously impacted South-Central California Coast steelhead populations (Busby et al. 1996). In 1998, the NMFS published a final rule to list the South-Central California Coast steelhead as threatened under the FESA.

4.1.1.1. SURVEY RESULTS

No salmonids were observed in the river within the BSA during the reconnaissance survey, and the only fish detected during subsequent special-status amphibian surveys were three-spine sticklebacks. No CNDDB records of steelhead exist in the Project area, but steelhead are still considered extant in low numbers in the Salinas River Watershed, and historically the San Antonio River was a steelhead stream (Becker and Reining 2008). The current conditions of the Salinas and San Antonio rivers below the San Antonio Dam, including siltation, high water temperatures, non-native predators, and agricultural runoff, most likely minimize the occurrence of steelhead in the Project area (Becker and Reining 2008). However, NMFS has designated this reach of the San Antonio River as critical habitat for steelhead (NMFS 2005), indicating that there are no absolute barriers to fish passage between the mouth of the Salinas River and the Project site. The CDFG has also not mapped any complete barriers to fish passage between the Salinas River Mouth and the BSA (CDFG 2010), so salmonid passage is still possible along this reach. Therefore, steelhead are likely to occur in the reach of the river within the Project area, albeit in low numbers and irregularly. Spawning is not expected to occur in the Project reach due to absence of suitable gravel substrate.

4.1.1.2. CRITICAL HABITAT

In 2005, NMFS published an updated critical habitat rule for populations of steelhead, including specific accessible streams (NMFS 2005); the San Antonio River below the San Antonio Dam is considered to be critical habitat under this designation.



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H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS

Figure 4: CNDDB Records of Federally Listed Plant and Animal Species

Nacimiento Lake Drive Bridge Replacement Project - BA (1212-10)
June 2012

The Primary Constituent Elements (PCEs) of critical habitat for the South-Central California Coast steelhead include sites or habitat components that are essential to supporting one or more life stages of the species, such as sites for spawning, rearing, migration, and foraging. The PCEs of critical habitat for the steelhead, quoting from NMFS (2005), include:

- Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development.
- Freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
- Freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.
- Estuarine areas.
- Nearshore marine areas.
- Offshore marine areas.

Of the six PCEs of critical habitat that have been identified for the steelhead, four are absent from the Project site. The three estuarine/marine PCEs are absent since the site contains riverine habitat well inland from estuarine and marine areas. Also, suitable gravel substrate for spawning is absent from the Project site. However, the reach of river on the Project site provides potentially suitable rearing habitat for juvenile steelhead, and it provides a freshwater migration corridor (though spawning is expected to be limited, if it occurs at all, upstream from the site).

4.1.1.3. AVOIDANCE AND MINIMIZATION EFFORTS

Project-related impacts to aquatic habitats have been avoided to the maximum extent feasible through design considerations and implementation of water quality BMPs.

All temporary and permanent effects on aquatic habitat have been limited to the absolute minimum needed to perform the proposed work. No dewatering or culverting is anticipated, although it is expected that a sandbag coffer dam will be installed to encompass the temporary fill for the falsework pads. Only the minimum area of

temporary fill required for bridge falsework will be placed in the active channel. The central bridge footing has been carefully designed to be placed outside the active river channel, above the OHW marks of the north bank. The southern abutment is placed outside the southern OHW mark.

However, indirect effects on water quality of the perennial aquatic habitat could occur through Project implementation, specifically during the construction phase. As such, the construction that could affect water quality will be limited to the dry season (15 June to 15 October). The following measures will be implemented to minimize any potential Project effects on aquatic habitat and water quality:

Minimization of Effects on Water Quality. Monterey County will implement BMPs contained within Caltrans Construction Site BMP Manual (Caltrans 2003). Implementation of the measures described below will reduce potential effects on aquatic species from degradation of water quality.

The following standard recommendations by the CDFG must be followed regardless of whether the watercourse on the site is dewatered or not in order to comply with proper mitigation measures:

- No equipment will be operated in the live stream channel.
- Standard erosion control and slope stabilization measures will be required for work performed in any area where erosion could lead to sedimentation of a waterbody.
- Silt fencing will be installed between any activities conducted within, or just above the edge of, the top-of-bank and the edge of the creek to prevent dirt or other materials from entering the channel.
- No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material will be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the U.S./State or aquatic habitat, and
- Machinery will be refueled at least 60 ft from any aquatic habitat, and a spill prevention and response plan will be implemented.

In addition, measures will be taken to prevent any materials from falling into the San Antonio River during bridge demolition and construction, including the erection of barriers and netting, as needed.

Additionally, the following conservation measures will protect water quality and minimize effects on steelhead and Monterey roach:

1. All work within the banks of the river will occur during the dry season (roughly 15 June to 15 October, although Caltrans may engage in or authorize consultation with NMFS to extend this period, if dry weather permits). During this time, stream flows are expected to be at annual lows to mid flows (though releases from the dam upstream will influence flow levels to some extent), and movement of steelhead through the BSA, if they are present at all, will be minimal.
2. During demolition and construction activities, netting and other structures will be installed under the existing bridge and the proposed bridge to prevent debris from entering the channel, as such debris could degrade water quality and potentially injure fish in the stream.
3. A construction personnel education program will be given by a qualified biologist before the commencement of construction to explain to construction personnel how best to avoid the accidental take of steelhead. The approved biologist will conduct a training session that will be scheduled as a mandatory informational field meeting for contractors and all construction personnel. The field meeting will include topics on species identification, life history, descriptions of habitat requirements during various life stages, review of habitat sensitivity, required practices before the start of construction and a discussion of general measures that are being implemented to conserve the species as they relate to the project, penalties for noncompliance, and boundaries of the construction area. Emphasis will be placed on the importance of the habitat and life stage requirements within the context of Project avoidance and minimization measures. Handouts, illustrations, photographs, and/or Project mapping showing areas where minimization and avoidance measures are being implemented will be included as part of this education program. Upon completion of training, employees will sign a form stating that they attended the training and understand all the conservation and protection measures. Training shall be conducted in languages other than English for workers who do not speak or understand English.
4. A qualified biologist will be present to monitor all activities involving the placement of gravel (for temporary falsework pads) in the river, including the construction of a sandbag coffer dam to encompass the pads. The biologist will inspect the areas where these coffer dams will be constructed prior to construction and will ensure that any fish have vacated the coffer dam area before in-water work begins. The coffer dam will be constructed starting from the upstream end. Just prior to completion of the coffer dam, the biologist will walk a seine net

through the area within the coffer dam so that fish move out of the gap in the downstream end. Once all fish have moved out of the work area, the coffer dam will be completed so that fish cannot re-enter this area. Should there be any problem with this method, Caltrans will contact NMFS and discuss further options. If at any time an individual steelhead appears to be at risk of injury or mortality due to Project-related activities, all work will stop until the qualified biologist has confirmed that steelhead have vacated the work area.

5. While temporary falsework and associated pads are present within the river, a channel of free-flowing water between the pads will remain to allow fish to continue to move through the Project area.

4.1.1.4. PROJECT EFFECTS

All portions of the new bridge structure will be located outside of the low-flow channel, and the existing bridge structure will be removed entirely. Because the piers will all be located outside of the low-flow channel, all construction access and installation activities will occur via existing roads, and standard BMPs for water quality will be followed as described above, there will be no permanent impacts to in-stream habitat for steelhead or other aquatic species resulting from this Project. Temporary impacts to steelhead habitat will include the construction of temporary falsework pads extending approximately 25 ft into the low-flow channel from both banks. Installation of these pads will result in temporary loss of aquatic habitat, potential degradation of water quality in and downstream of the BSA, and potential injury or mortality of fish using the BSA during Project activities (including potential injury or mortality during relocation of fish from areas outside the coffer dams, if this is necessary).

If pile drivers were to be used to install bridge piers, the resulting noise and vibration could impact salmonids. Such impacts could include mortality of, or inner ear injury to, individual fish, disorientation leading to increased predation risk, or avoidance of the disturbance, leading to temporary loss of habitat. However, for this project, no installation of in-water piles is proposed. Further, piles will be installed using only non-impact methods (i.e., vibratory hammer). Vibratory hammers (even for in water installation) typically generate sound levels that are below the thresholds known to adversely impact fish (J. Casagrande pers comm). Thus, installation of piles for this project is not expected to adversely affect salmonids.

Removal of the existing bridge will reduce the total amount of shading on the creek within the BSA; however, shading provided by the new bridge structure will

compensate for the shade lost by removal of the existing bridge, so the removal of the existing bridge will not impact water temperatures in the creek.

Because willow and mule fat riparian scrub habitat impacts will involve only limited amounts of low-statured scrub vegetation set well back from the open water of the channel, no reduction in shading of the creek will occur due to these impacts. However, loss of the three mature valley oaks will contribute to a small decrease in shading along the river channel. These trees are set back by some distance from the channel and only provide substantial shade in the very early morning and afternoon, at approximately 0.02 ac of channel shading for approximately 3 hours per day. Shade provided by the trees is also reduced in winter months, when they drop their leaves and only the upper branch profile provides shading over the creek. Thus, there will only be a very minimal loss of shaded riverine aquatic (SRA) habitat, which will be mitigated by riparian mitigation plantings installed within a currently open bank area of the BSA with no existing riparian canopy.

Because steelhead are expected to occur only in low numbers, if at all, and because the Project incorporates conservation measures to minimize impacts to steelhead should they occur within the BSA, the Project may affect but is not likely to adversely affect South-Central California Coast Steelhead or its critical habitat.

4.1.1.5. MODIFICATIONS TO THE PROJECT TO MITIGATE EFFECTS

Steelhead are unlikely to occur regularly in the Project reach; however, in the event that rare individuals find their way into the BSA, effects will be minimized if the conservation measures described above are successfully implemented, and no permanent loss of aquatic habitat is expected as a result of Project activities. Also, permanent impacts to wetland and riparian habitat will be fully mitigated.

Impacts to valley oak riparian habitat will be mitigated for at a 10:1 ratio; impacts to willow riparian scrub will be mitigated for at a 3:1 ratio for tree removal and at a 2:1 ratio for tree trimming (by canopy area); and impacts to mule fat riparian scrub will be mitigated for at a 2:1 ratio (by canopy area). Impacts to wetland vegetation will be mitigated for at a 2:1 ratio. All compensatory mitigation will occur on-site.

Because riparian habitat effects will involve only limited loss of vegetation, no reduction in shading of the creek will occur, so there will be no loss of SRA habitat. Thus, no additional Project modifications to address effects on steelhead are proposed.

4.1.1.6. CUMULATIVE EFFECTS (FESA)

Cumulative impacts to South-Central California Coast steelhead result from past, current, and reasonably foreseeable future projects in the region, including periodic maintenance and replacement of bridges throughout Monterey County. These projects will all undergo (or have undergone) separate environmental review, and will require separate environmental permitting from regulatory agencies, if needed. It is expected that ecological effects on steelhead identified for these individual projects will be very small, as is the case with the current Project, but that these effects will all be mitigated through the California Environmental Quality Act (CEQA) and/or permitting process. Thus, with implementation of the conservation measures described above, the Project will not contribute to substantial cumulative effects on steelhead.

4.1.2. Discussion of the California Tiger Salamander

The California tiger salamander is a California endemic species ranging from Yolo County in the north to Santa Barbara County in the south (Shaffer and Trenham 2005), including portions of the Central Valley, the central and southern Coast ranges, and the Sierra Nevada foothills where suitable habitat is available (Shaffer and Trenham 2005). Tiger salamanders breed in lowland grassland habitats where ephemeral ponds form suitable aquatic breeding habitat (Jennings and Hayes 1994). While breeding pools are typically ephemeral, they must retain water long enough for metamorphosis to occur (i.e., at least 3 months, Shaffer and Trenham 2005). Permanent ponds are also used for breeding on occasion, but larger ponds often contain predators that consume eggs and larvae, and prevent successful breeding (Jennings and Hayes 1994). Generally, ephemeral breeding ponds dry up during summer months, but over-summering larvae have been observed (Shaffer et al. 1993). Following metamorphosis, juveniles spend a few days at the pond margin, and then migrate to refuge sites (Jennings and Hayes 1994). Overland migration may extend up to 1.2 mi, but most California tiger salamanders remain within 0.4 mi of their breeding ponds (USFWS 2004). Aestivation sites are comprised of open habitat with an abundance of small mammal burrows, particularly those of California ground squirrels, within a reasonable distance of breeding sites (Jennings and Hayes 1994, Shaffer and Trenham 2005). Prime habitat is characterized by shallow ephemeral ponds embedded in a matrix of grassland habitat with plentiful small mammal burrows.

Loss and fragmentation of wet meadow and grassland habitats throughout their range has caused considerable and continuing population declines in the species. The USFWS listed the California tiger salamander as threatened throughout its range in

2004 (USFWS 2004). Critical habitat for the species was designated in 2005 (USFWS 2005b). The Project is not within designated critical habitat for this species.

4.1.2.1. SURVEY RESULTS

Although southern Monterey County is included in the general range of the species (Shaffer and Trenham 2005), there are no CNDDB records for California tiger salamanders in the Project area. Jennings and Hayes (1994) do not list any records of California tiger salamanders in southern Monterey County, along the San Antonio River, or along the Salinas River south of Gonzales. At the Camp Roberts Army National Guard training facility, several years of vernal pool surveys have not detected any evidence of California tiger salamanders, even though species such as the western spadefoot and vernal pool branchiopods, with which California tiger salamanders often occur, were detected in numerous areas (CAARNG 2009). Collectively, the lack of reports from the region, despite the intensity of surveys in at least some areas, indicates that the California tiger salamander is absent from the region.

The annual grasslands and oak savannahs in the Project vicinity offer potential upland habitat for California tiger salamanders, and the terraces and embankments within the BSA provide potential upland habitat where small mammal burrows occur. However, no seasonal pools were observed on or near the site during our fieldwork, and none that appear suitable for breeding are known from surrounding areas. Given the absence of suitable breeding habitat, coupled with the lack records of the species in the Project vicinity (despite surveys that have detected other seasonal wetland species at Camp Roberts), we do not expect California tiger salamanders to occur on the Project site.

4.1.2.2. CRITICAL HABITAT

Critical habitat for the species was designated in 2005 (USFWS 2005b). No portion of the BSA is within designated critical habitat for this species.

4.1.2.3. AVOIDANCE AND MINIMIZATION EFFORTS

Because California tiger salamanders are not expected to occur in the BSA, no avoidance or minimization measures specifically for tiger salamanders are recommended.

4.1.2.4. PROJECT EFFECTS

Because California tiger salamanders are not expected to occur in the BSA, the Project will not affect California tiger salamanders or their habitat.

4.1.2.5. MODIFICATIONS TO THE PROJECT TO MITIGATE EFFECTS

Because California tiger salamanders are not expected to occur on the Project site, no Project modifications to protect tiger salamanders are necessary.

4.1.2.6. CUMULATIVE EFFECTS

California tiger salamanders are not expected to occur on the Project site, or to be affected by Project activities. Therefore, the Project will not contribute to cumulative effects on this species.

4.1.3. Discussion of the California Red-legged Frog

The California red-legged frog is California's largest native frog. The species is generally restricted to riparian and lacustrine habitats in California and northern Baja California. Red-legged frogs prefer deep, calm pools (usually more than 2 ft deep) in creeks, rivers, or lakes below 5000 ft in elevation (Jennings and Hayes 1994). Breeding habitat requirements include freshwater emergent or dense riparian vegetation, such as willows adjacent to shorelines. Red-legged frogs can survive in seasonal bodies of water that are dry for short periods if a permanent water body or dense vegetation stands are nearby.

Adult red-legged frogs are normally active at night and breed in still water during the late winter or early spring after waters recede. Females attach eggs in a single cluster to vegetation just under the surface of the water. The eggs hatch in approximately one week and larvae feed on plant and animal material. It takes a minimum of approximately 4 months for the larvae to metamorphose into juvenile frogs. On rare occasions larvae over winter. Red-legged frogs can move considerable distances overland. Dispersal often occurs within creek drainages, but movements of more than a mile over upland habitats have been reported (Bulger et al. 2003). Red-legged frogs are often found in summer months in habitat that would not be suitable for breeding; these individuals presumably move seasonally between summer foraging habitat and winter breeding habitat.

The USFWS listed the California red-legged frog as threatened in 1996, due to continued habitat degradation throughout the species' range and population declines.

4.1.3.1. SURVEY RESULTS

California Red-legged frogs were historically present in southern Monterey County, but they may be extirpated from much of the area according to Jennings and Hayes (1994). There are no CNDDB records from the Project vicinity. Nevertheless, a

reconnaissance survey of the BSA determined that potentially suitable habitat for red-legged frogs was present in the BSA. As a result, a focused red-legged frog site assessment was conducted for the Project in accordance with USFWS (2005a) guidelines. H. T. Harvey & Associates herpetologist Norman Sisk, M.S., visited the site on 1 April 2010, walking the BSA plus an additional 0.25 mi upstream and downstream along the San Antonio River, looking for California red-legged frogs and assessing habitat suitability for the species. The survey focused on assessing the BSA and the immediately surrounding areas for their potential to support the California red-legged frog through an evaluation of on-site habitat conditions. Biotic habitats within 1 mi of the project area were also assessed for potential suitability as habitat for this species. A review of background resources was conducted prior to and following the fieldwork. The site assessment determined that habitat was suitable enough that protocol-level surveys for red-legged frog were warranted.

H. T. Harvey & Associates herpetologists then conducted surveys according to the USFWS (2005a) protocol. Daytime, breeding-season surveys were conducted on 17 and 24 May, and nighttime, breeding-season surveys were conducted on 17 and 24 May and 8 and 23 June. During the non-breeding season (i.e., after 30 June), single daytime and nighttime surveys were conducted on 22 July 2010.

No red-legged frogs were detected during any of these surveys, whereas other amphibians, including bullfrogs, western toads, and Pacific chorus frogs, were repeatedly observed during surveys (see the survey data sheets included in Appendix C). As a result of these negative survey results, the California red-legged frog is considered absent from the BSA.

4.1.3.2. CRITICAL HABITAT

Critical habitat for the California red-legged frog was most recently designated in 2010 (USFWS 2010); no portion of the BSA is within designated critical habitat.

4.1.3.3. AVOIDANCE AND MINIMIZATION EFFORTS

Because red-legged frogs are not expected to occur within the BSA, no avoidance or minimization measures specific to red-legged frogs are deemed necessary for this Project.

4.1.3.4. PROJECT EFFECTS

Because red-legged frogs are not expected to occur within the BSA, the Project will not affect this species.

4.1.3.5. MODIFICATIONS TO THE PROJECT TO MITIGATE EFFECTS

Because red-legged frogs were determined to be absent from the BSA, the Project will not affect this species and therefore no Project modification is necessary.

4.1.3.6. CUMULATIVE EFFECTS

California red-legged frogs were determined to be absent from the BSA, and thus will not be affected by Project activities. Therefore, the Project will not contribute to cumulative effects on this species.

4.1.4. Discussion of the Arroyo Toad

The arroyo toad is distributed along the coastal slopes of California and Baja California from the San Antonio River in southern Monterey County, through the Transverse and Peninsular ranges of southern California, to the Rio Santo Domingo in Mexico. The distribution of this species is highly fragmented, with isolated populations persisting only in an estimated 35 percent of their historical range. This pattern of extreme fragmentation and the associated population declines are likely due to large-scale habitat loss and conversion including artificial changes in flow regimes, as well as the introduction of non-native predators and nonnative plant species that have altered the character of southwestern riparian habitats (Sweet and Sullivan 2005). Arroyo toads are aquatic breeders with markedly specific breeding habitat requirements. These toads breed in the margins of open 3rd to 6th order streams with gently sloping or flat banks and little or no tree canopy, where the water is shallow and moves slowly, and where invasive predators such as bullfrogs and predatory fish are absent. Arroyo toads avoid riffle areas and pools that have been isolated from stream flow, and typically select sandy or gravelly substrates. Eggs are laid by the females at the male calling sites on bare substrate where water movement is minimal (Griffin and Case 2001, Sweet and Sullivan 2005). Juveniles and adult toads are insectivorous, foraging primarily on ants. Elevated streamside terraces near breeding sites with alluvial soils and patchy vegetation characteristic of flashy flow regimes comprise ideal foraging and aestivation habitat, although arroyo toads have been documented as far as 0.74 mi (1.2 km) from suitable breeding locations in low-elevation regions. Female toads tend to have larger home ranges than males, and exploit a wider variety of terrestrial habitats during the breeding season, but both males and females have been observed to show a strong preference for channel and terrace habitats over upland, agricultural, or campground habitats in all phases of the annual cycle (Griffin and Case 2001).

The arroyo toad was listed as endangered by the USFWS in 1994 (USFWS 1994a).

4.1.4.1. SURVEY RESULTS

The only area in Monterey County where arroyo toads have been documented in recent years is the San Antonio River upstream of the San Antonio Reservoir, where the species was recorded as recently as 1996 (USFWS 1999). However, no arroyo toads have been detected in areas downstream of the reservoir or elsewhere closer to the Project site. Furthermore, none were detected during the reconnaissance survey or during multiple focused surveys for other amphibian species, yet the species should have been detectable if present. The Project area has been heavily colonized by predatory bullfrogs perhaps making the BSA inhospitable to arroyo toads. Due to the lack of observations of this species during multiple amphibian-focused surveys, this species is not expected to occur within the BSA.

4.1.4.2. CRITICAL HABITAT

Critical habitat for the arroyo toad was designated in 2005 (USFWS 2005c). The reach of the San Antonio River within the BSA is not within the current critical habitat boundaries.

4.1.4.3. AVOIDANCE AND MINIMIZATION EFFORTS

Arroyo toads are not expected to occur within the BSA and therefore no avoidance or minimization measures specific to the species are necessary.

4.1.4.4. PROJECT EFFECTS

Arroyo toads are not expected to occur within the BSA, and the nearest known population is located upstream of the BSA and the San Antonio Reservoir. Therefore, the Project will not affect arroyo toads.

4.1.4.5. MODIFICATIONS TO THE PROJECT TO MITIGATE EFFECTS

Arroyo toads are not expected to occur within the BSA or to be affected by Project activities, and therefore no Project modification to protect arroyo toads are necessary.

4.1.4.6. CUMULATIVE EFFECTS

Arroyo toads are not expected to occur within the BSA or to be impacted by Project activities. Therefore, the Project will not contribute to cumulative effects on this species.

4.1.5. Discussion of the Least Bell's Vireo

The least Bell's vireo, one of four recognized subspecies of Bell's vireo (Kus 2002, Kus et al. 2010), is a small neotropical migratory songbird sparsely distributed along waterways in southern California and northern Baja California, Mexico (Kus et al.

2010). In California, the least Bell's vireo was historically distributed throughout much of the state, including the Central Valley, the central and southern Coast Ranges, local areas of the eastern Sierra Nevada, and the southwestern portion of the state (Franzreb et al. 1994, Kus 2002). Once purported to be the most common vireo throughout its range (Grinnell and Miller 1944), extensive habitat destruction, exacerbated by population pressures brought to bear by heavy brown-headed cowbird (*Molothrus ater*) parasitism, has caused precipitous population declines, and the species has been extirpated from all portions of its range except for a few small remnant populations in riparian drainages in the eight counties south of Santa Barbara, with the greatest abundance of the vireos occurring in San Diego County (Franzreb 1994, Kus 2002). In the past several years, populations have begun to rebound due to intensive recovery efforts, and occasional individuals have recently been detected singing or nesting in portions of their historical range, including San Luis Obispo, Merced, Yolo, San Joaquin, Santa Clara, and Sacramento Counties (Kus 2002, USFWS 2006). The least Bell's vireo is a riparian-obligate breeder (Kus 1998), using dense thickets of willows and other low bushes along perennial or ephemeral streams (Franzreb 1994, Kus 2002). Prime least Bell's vireo habitat can be described as a wide (greater than 770 feet (250 m)) riparian corridor (Kus 2002) with dense shrub growth extending vertically from 1.8 to 9.2 ft (0.6 to 3 m) (Kus et al. 2010), few trees greater than 3 inches (8 cm) dbh (diameter at breast height) in the canopy, and an open canopy (Sharp and Kus 2006). Vireos arrive on their breeding grounds in mid-March, and the nesting season runs from early April through July (Kus et al. 2010). Least Bell's vireos exhibit high breeding site fidelity, returning to the same territory, and even nesting in the same shrub, over multiple years (Kus 2002).

The least Bell's vireo was listed as endangered by the state of California in 1980 and by the USFWS in 1986 (USFWS 1986).

4.1.5.1. SURVEY RESULTS

Least Bell's vireos historically nested in the upper Salinas River Valley in the Project vicinity. The last documented nest in the area was located along the Salinas River near Bradley, approximately 5 mi northeast of the BSA, in 1983. Since that time, occasional singing males have been detected along the upper Salinas River (Roberson and Tenney 1993, CAARNG 2009). However, intensive point count surveys along the Salinas and Nacimiento Rivers just south of the Project area between 1992 and 2007 failed to detect any least Bell's vireos (Thorngate 2007), indicating that their presence in the vicinity is extremely sporadic, if the species currently occurs in the region at all. No vireos were observed during the reconnaissance survey; however, least Bell's

vireos are neotropical migrants and as such would not have been present during the winter, when the survey was conducted. The BSA includes willow clusters that offer ostensibly suitable nesting habitat for least Bell's vireos, although these relatively sparse clusters of willows do not represent the thick willow shrub thickets preferred by this species. Due to the absence of high-quality habitat, there is a low probability that least Bell's vireos occur in the BSA. However, we cannot rule out the possibility of up to one pair of least Bell's vireos establishing a breeding territory within the BSA.

4.1.5.2. CRITICAL HABITAT

The USFWS designated 38,000 ac of lands in southern California as critical habitat in 1994 (USFWS 1994b). The BSA is not within critical habitat boundaries.

4.1.5.3. AVOIDANCE AND MINIMIZATION EFFORTS

In order to avoid effects on least Bell's vireos, should they occur within the BSA, the following measures will be incorporated into the project.

1. Project activities will be timed to avoid the least Bell's vireo breeding season (1 April to 31 July) to the greatest extent practicable.
2. Where vegetation is to be removed by the project, potential nesting substrates (*e.g.*, bushes, trees, grass, and suitable artificial surfaces) that will be disturbed by the project will be removed during the non-breeding season, if feasible, to help preclude nesting.
3. If it is not feasible to schedule vegetation removal and commencement of construction activities during the non-breeding season, then pre-construction surveys for nesting birds will be conducted by a qualified ornithologist to detect any least Bell's vireos using the areas and to ensure that no nests will be disturbed during project implementation. This survey will be conducted no more than 7 days prior to the initiation of construction activities. During this survey, the ornithologist will inspect all trees, shrubs, and other potential nesting habitats in and immediately adjacent to the impact areas for nests. In the unlikely event that nesting least Bell's vireos are detected during such a survey, Caltrans will be notified, and will determine an appropriate construction-free buffer (typically approximately 250 ft) in consultation with the USFWS and CDFG.

4.1.5.4. PROJECT EFFECTS

In the unlikely event that least Bell's vireos occupy riparian habitat in or near the BSA prior to the commencement of construction, the Project could potentially result in the removal of nesting and foraging habitat. Up to 0.27 ac of riparian habitat will be

removed by the Project, although this habitat is of marginal quality for use by Bell's vireos. Implementation of the measures described in the previous section would prevent destruction or abandonment of a nest due to Project-related disturbance. With the incorporation of the conservation measures described above, the Project may affect but is not likely to adversely affect this species.

4.1.5.5. MODIFICATIONS TO THE PROJECT TO MITIGATE EFFECTS

Permanent loss of willow riparian habitat will be mitigated at a 3:1 (mitigation:loss) ratio, and heavy trimming will be mitigated at a 2:1 ratio, as described above in Section 4.1.1.5.

4.1.5.6. CUMULATIVE EFFECTS

Cumulative impacts to least Bell's vireos result from past, current, and reasonably foreseeable future projects in the region, including continuing maintenance of bridges in southern Monterey County. It is expected that most current and future projects that impact these habitats will have to mitigate these impacts through the CEQA, Section 1600, or Section 404/401 permitting process, including measures to avoid, minimize, or mitigate impacts to least Bell's vireos where they are present. Regardless, the Project vicinity is far north of the current range of the species. Given the abundance of unoccupied habitat in the region, habitat availability is not currently limiting Bell's vireo populations, and any impacts to potential least Bell's vireo habitat in this area would thus not contribute to cumulative impacts to the species.

4.1.6. Discussion of the San Joaquin Kit Fox

The federally endangered and state threatened San Joaquin kit fox is a California endemic, currently restricted to the San Joaquin Valley and the interior central and southern Coast Ranges (Spiegel et al. 1994). The San Joaquin kit fox was listed as endangered by the U.S. Department of the Interior (USFWS 1967) in 1967 and was listed as threatened by the State of California in 1971. Habitat loss in the Central Valley, and increasingly in the interior Coast Ranges, has been a primary cause of kit fox declines; competition with and predation by larger canids including coyotes (*Canis latrans*) and nonnative red foxes (*Vulpes vulpes*) (Cypher and Spenser 1998, Clark et al. 2005, Nelson et al. 2007), and automobile collisions (Spiegel et al. 1994) also pose significant threats to the persistence of the species. Subpopulations of the San Joaquin kit fox appear to be increasingly isolated from one another. The isolation of subpopulations can lead to increased rates of extinction due to the effects of inbreeding, genetic drift, Allee effects (Dennis 1989, Fowler and Baker 1991) and stochastic events (Gilpin and Soulé 1986, White et al. 2000).

Kit foxes are found primarily in large annual grasslands or other open, grassy habitats where shrub cover is sparse and scattered and where mammalian prey is abundant (Ahlborn 1990 [updated 2000]). Kit foxes dig multiple complex, multi-chambered dens where soils are friable and easily moved; or may exploit small mammal burrows or manmade structures such as culverts where the soil is harder and more difficult to dig. Pups are born and reared in these dens, and both kits and adults use the dens throughout the year to minimize heat stress in summer and cool temperatures in winter, and to avoid predators such as coyotes. Thus, the availability of dens is a critical component of suitable kit fox habitat (Spiegel et al. 1994, Koopman et al. 1998). The pupping season begins in February and continues through April, and pups begin dispersing in late June with peak dispersal occurring in July (Koopman et al. 2000). Adults remain on their territories year-round, maintaining home ranges that range from 420 ac to 3705 ac (Spiegel et al. 1994). Kit foxes are nocturnal predators, primarily preying on small mammals, although they will also eat carrion, insects, reptiles, and birds (Spiegel et al. 1994).

4.1.6.1. SURVEY RESULTS

Several CNDDB records of San Joaquin kit foxes exist just south of the Project area on the Camp Roberts Army National Guard training facility (CNDDB 2011). Surveys for kit foxes at Camp Roberts began in 1986, and an annual live-trapping program intended to estimate the kit fox population on the base ran from 1988 to 2002. Spotlighting surveys conducted on a biannual basis since 2002 have continued to detect kit foxes on the base in very low numbers (CA ARNG 2009). No dens of appropriate size (e.g. 4-inch diameter or greater) or shape (e.g. “keyhole”-shaped) indicating potential use by kit foxes were found within the BSA during the February 2010 reconnaissance survey, or during subsequent focused surveys for wetlands, rare plants, and red-legged frogs. The BSA offers suitable kit fox denning and foraging habitat. Given the extremely low population numbers for the closest known kit fox population and the lack of records elsewhere in the Project area, there is a low probability of occurrence of this species within the BSA. However, we cannot rule out the possibility that kit foxes could occasionally use the site for foraging (though denning is unlikely).

4.1.6.2. CRITICAL HABITAT

No critical habitat has been designated for the San Joaquin kit fox.

4.1.6.3. AVOIDANCE AND MINIMIZATION EFFORTS

We consider the likelihood of any kit foxes occurring in the BSA to be very low. Nevertheless, because the species is known to occur in the region, precautionary measures from the *U.S. Fish And Wildlife Service Standardized Recommendations For Protection Of The San Joaquin Kit Fox Prior To Or During Ground Disturbance* (USFWS 1999) will be undertaken in order to ensure that no kit foxes are impacted by Project activities. The Project meets the definition of a "small project", which according to these recommendations specifically includes stand-alone bridge repair projects. Thus, the avoidance and minimization measures that will be implemented include the following:

- All surveys, den destructions, and monitoring related to the kit fox must be conducted by a qualified biologist.
- A qualified biologist will conduct pre-construction surveys no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities. This survey will identify kit fox habitat features on the project site and evaluate use by kit fox and, if possible, assess the potential impacts to the kit fox by the proposed activity. The status of all dens will be determined and mapped.
- Written results of the pre-construction survey will be submitted to Caltrans immediately; Caltrans will then notify the USFWS within 5 days after survey completion and prior to the start of ground disturbance and/or construction activities. If a natal/pupping den is discovered within the project area or within 200-ft of the project boundary, Caltrans shall be immediately notified, and shall in turn notify the USFWS and CDFG. If the pre-construction survey reveals an active natal or pupping den or new information, Caltrans will contact the USFWS and CDFG immediately to obtain the necessary take authorization/permit. If a den is found, measures to avoid impacts to the den (including buffers and seasonal restrictions on work near the den) will be implemented, and if necessary, the foxes will be evicted after the non-breeding season.

4.1.6.4. PROJECT EFFECTS

There is a very low probability of kit foxes occurring within the BSA. However, if individuals do occur in the Project area during Project activities, individuals could be struck and suffer injury or mortality from construction machinery or from increased construction-related traffic on the road during the construction process. Occupied dens could be collapsed during earth moving, grading, and excavating activities,

potentially causing injury or mortality as well as loss of denning habitat. However, the conservation measures described above are expected to result in avoidance of these effects on the species. The amount of potential kit fox habitat lost as a result of Project activities (0.68 ac of permanent and 2.11 ac of temporary impact to grassland) is minute compared with the amount of suitable habitat available regionally.

4.1.6.5. MODIFICATIONS TO THE PROJECT TO MITIGATE EFFECTS

The potential kit fox habitat available on the site is limited and marginal, and represents only a minute amount of habitat relative to the suitable habitat available in the areas surrounding the BSA. The only known kit fox population in the vicinity has continued to decline despite the availability of ostensibly suitable habitat, indicating that habitat availability is not limiting for kit foxes in the region. Therefore, no project modifications for protection of kit foxes or kit fox habitat are necessary.

4.1.6.6. CUMULATIVE EFFECTS

Cumulative effects on San Joaquin kit foxes result from past, current, and reasonably foreseeable future projects in the region, including periodic maintenance and replacement of bridges throughout Monterey County. These projects will all undergo (or have undergone) separate environmental review, and will require separate environmental permitting from regulatory agencies, if needed. It is expected that any significant ecological impacts to the San Joaquin kit foxes and its habitat identified for these individual projects will be mitigated through the CEQA and/or permitting process. The Project will result in permanent loss of only a minute amount of potential kit fox habitat, and the only known kit fox population in the vicinity has continued to decline despite the availability of large tracts of ostensibly suitable habitat, indicating that habitat availability is not limiting for kit foxes in the region. Thus, provided that this Project successfully incorporates the conservation measures described in this BA to avoid impacts to individual kit foxes, the Project will not contribute to substantial cumulative effects on this species.

Chapter 5. Conclusions and Determination

5.1. Conclusions

This BA details the expected effects of this Project on the South-Central California Coast steelhead, California tiger salamander, California red-legged frog, arroyo toad, least Bell's vireo, and San Joaquin kit fox.

Steelhead are considered extant in the Salinas River watershed, and historically the San Antonio River was considered a steelhead stream. Due to the degraded condition of the Salinas River Watershed and the San Antonio River, characterized by siltation, agricultural runoff, and colonization by non-native invasive predatory species, the probability of steelhead occurring in the Project reach during Project activities is low. California tiger salamanders have not been documented in the Project vicinity despite the presence of ostensibly suitable habitat, and we therefore do not expect this species to occur in the BSA. Protocol-level surveys failed to detect any California red-legged frog adults, larvae, or egg masses, and thus this species was determined to be absent from the Project area. The BSA offers potentially suitable habitat for arroyo toads, but none were observed during multiple focused and protocol-level surveys for California red-legged frogs, and the area has been heavily colonized by predatory bullfrogs, making the BSA inhospitable for arroyo toads. Thus, we do not expect arroyo toads to occur in the BSA. Because the amount of potential least Bell's vireo habitat within the BSA is small, and because the BSA is far north of the current core breeding population, we do not expect more than one pair of vireos, at most, to occur within the Project area. San Joaquin kit foxes are sparsely distributed in the Project vicinity, and the local population is small; thus, we expect kit foxes to occur within the BSA in low numbers if at all, and denning is considered unlikely.

Avoidance and minimization measures, including adherence to Caltrans water quality BMPs, avoiding work within the active channel, installing temporary structures (such as netting) below the bridges for the duration of Project activities to prevent debris from entering the stream, avoiding work during critical life history periods, conducting pre-construction surveys, conducting construction personnel training, and conducting daily pre-activity site inspections, will substantially reduce the probability of effects on individuals of these species.

Permanent impacts to riparian, wetland, and aquatic habitats were avoided to the extent practicable in Project design process. As a result, no permanent impacts to aquatic habitats will occur due to Project activities. To the degree that permanent impacts to wetland and riparian habitats are unavoidable, compensatory mitigation will occur on-site. No additional compensatory mitigation or other Project modification is necessary.

5.2. Determination

The proposed Project has minimized effects on wildlife and habitats to the extent practicable through design considerations. Because California tiger salamanders, California red-legged frogs, and arroyo toads are not expected to occur within the BSA, the Project will have no effect on these species.

The implementation of the avoidance and minimization measures described above will curtail any effects of the proposed Project on steelhead, least Bell's vireos, and San Joaquin kit foxes.

The probability of steelhead occurring in the BSA is low, but if steelhead do occur in the BSA during Project activities, a small number of individuals could potentially be affected by the installation of the temporary falsework pads. However, with successful implementation of the conservation measures discussed above, the Project will minimize effects on steelhead. Thus, the Project may affect but is not likely to adversely affect steelhead.

The San Antonio River is designated as critical habitat for the South-Central California Coast steelhead. The proposed Project will avoid effects on aquatic habitat to the extent practicable through design considerations, and no permanent loss of aquatic habitat will occur as a result of Project activities. Furthermore, the Project will implement conservation measures to minimize water quality effects. Therefore, this Project will not result in adverse modification of steelhead critical habitat.

Least Bell's vireos are expected to occur in the Project area in extremely low numbers, if at all, and with the conservation measures described above, the proposed Project will minimize effects on this species. Thus, the Project may affect but is not likely to adversely affect least Bell's vireos.

San Joaquin kit foxes are expected to occur in the Project area in extremely low numbers, if at all, and with the conservation measures described above, the proposed Project will minimize effects on this species. Therefore, the Project may affect but is not likely to adversely affect the San Joaquin kit fox.

Chapter 6. References

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6.2. Personal Communications

Joel Casagrande, National Oceanic and Atmospheric Administration; pers. comm. to Dr. Patrick Boursier, H. T. Harvey & Associates (10 May 2012).

Appendix A USFWS Special-Status Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

May 10, 2012

Document Number: 120510050844

Ginger Bolen, PhD
H. T. Harvey & Associates
983 University Avenue, Bldg D.
Los Gatos, CA

Subject: Species List for Nacimiento Lake Drive Bridge Replacement

Dear: Dr. Bolen

We are sending this official species list in response to your May 10, 2012 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be August 08, 2012.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found here.

Endangered Species Division

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 120510050844

Database Last Updated: September 18, 2011

County Lists

Monterey County

Listed Species

Invertebrates

- Branchinecta conservatio
  - Conservancy fairy shrimp (E)
- Branchinecta lynchi
  - Critical habitat, vernal pool fairy shrimp (X)
  - vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus
  - valley elderberry longhorn beetle (T)
- Euphydryas editha bayensis
  - bay checkerspot butterfly (T)

Fish

- Eucyclogobius newberryi
  - critical habitat, tidewater goby (X)
- Hypomesus transpacificus
  - delta smelt (T)
- Oncorhynchus kisutch

- coho salmon - central CA coast (E) (NMFS)

- Oncorhynchus mykiss
  - Central Valley steelhead (T) (NMFS)
  - Critical habitat, Central California coastal steelhead (X) (NMFS)
  - South Central California steelhead (T) (NMFS)

Amphibians

- Ambystoma californiense
  - California tiger salamander, central population (T)
  - Critical habitat, CA tiger salamander, central population (X)

- Rana draytonii
  - California red-legged frog (T)
  - Critical habitat, California red-legged frog (X)

Reptiles

- Gambelia (=Crotaphytus) sila
  - blunt-nosed leopard lizard (E)

Birds

- Brachyramphus marmoratus
  - marbled murrelet (T)

- Gymnogyps californianus
  - California condor (E)

- Rallus longirostris obsoletus
  - California clapper rail (E)

- Sternula antillarum (=Sterna, =albifrons) browni
  - California least tern (E)

- Vireo bellii pusillus
  - Least Bell's vireo (E)

Mammals

- Dipodomys ingens
  - giant kangaroo rat (E)

- Vulpes macrotis mutica
  - San Joaquin kit fox (E)

Plants

- Camissonia benitensis
  - San Benito evening-primrose (T)
- Caulanthus californicus
  - California jewelflower (E)
- Chorizanthe robusta var. robusta
  - robust spineflower (E)
- Erysimum menziesii (includes ssp. yadonii)
  - Menzies's wallflower (E)
- Holocarpha macradenia
  - Critical habitat, Santa Cruz tarplant (X)
  - Santa Cruz tarplant (T)
- Lasthenia conjugens
  - Contra Costa goldfields (E)
- Layia carnosa
  - beach layia (E)
- Lupinus tidestromii
  - clover lupine [Tidestrom's lupine] (E)
- Monolopia congdonii (=Lembertia congdonii)
  - San Joaquin woolly-threads (E)
- Potentilla hickmanii
  - Hickman's potentilla (=cinquefoil) (E)

Proposed Species

Amphibians

- Rana draytonii
  - Critical habitat, California red-legged frog (PX)

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Appendix B California Red-legged Frog Site Assessment and Protocol-level Survey Datasheets

H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS

CALIFORNIA RED-LEGGED FROG PROTOCOL SITE ASSESSMENT

NACIMIENTO BRIDGE 449 MONTEREY COUNTY, CALIFORNIA

Prepared by

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INTRODUCTION

The proposed project is the replacement of the existing Nacimiento Lake Drive Bridge over the San Antonio River in Monterey County, California (Figure 1). The existing bridge, which was constructed in 1921, is a single-lane structure that is approximately 240 ft in length and 20 ft in width. The bridge is a 4-span structure and the bridge type is known as a steel pratt through truss. The existing bridge does not meet current design or seismic safety standards.

The replacement bridge will be constructed adjacent to, and downstream of, the existing bridge. The new bridge, which will accommodate two lanes of traffic with shoulders, will be approximately 267 ft in length and 32 ft in width. The new bridge will have two spans with a center pier, all of which will be placed outside the low-flow channel of the river. The bridge type will be a cast-in-place, post-tensioned, concrete box girder structure. The existing bridge will remain open to traffic during the construction of the replacement bridge. Upon completion of construction of the new bridge, the existing bridge will be removed.

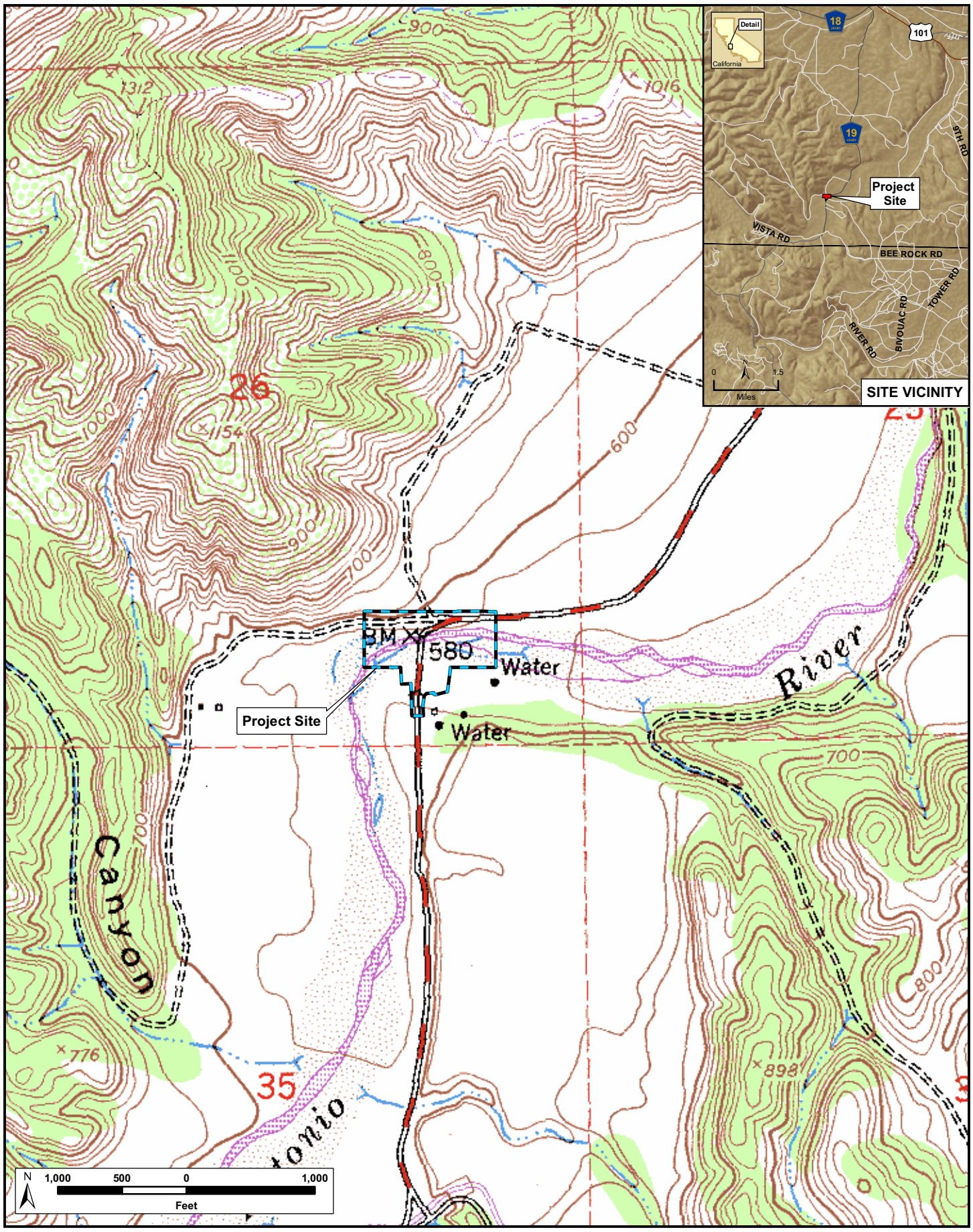

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Figure 1: Site Vicinity Map

Nacimiento Bridge 449 California Red-Legged Frog Site Assessment (1212-10)

April 2010

SITE ASSESSMENT METHODS

A California red-legged frog (CRLF; *Rana draytonii*) habitat assessment survey of the Nacimiento Bridge 449 site was conducted by H.T. Harvey & Associates' herpetologist Norman Sisk, M.S., on 1 April 2010 per the requirements of the August 2005 *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* issued by the U. S. Fish and Wildlife Service (USFWS). The survey was conducted by walking the Biological Study Area (BSA; Figure 2) plus an additional 0.25 mi upstream and downstream along the San Antonio River. The survey focused on assessing the project site's potential to support the CRLF through an evaluation of on-site habitat conditions. Biotic habitats within 1 mi of the project area were also assessed for potential suitability as habitat for this species. A review of background resources was conducted prior to and following the fieldwork. Background resources reviewed included:

- Aerial imagery of the Project Site and adjacent lands,
- U. S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps, and
- California Natural Diversity Data Base (CNDDB) (02/28/2010 update).

SITE ASSESSMENT RESULTS

DESCRIPTION OF THE SITE

Nine biotic habitats occur on-site within the BSA. These include: 1) freshwater emergent wetlands, 2) seasonal wetlands, 3) aquatic, 4) willow riparian, 5) mule fat riparian, 6) valley oak riparian, 7) California sage scrub, 8) non-native/ruderal grassland, and 9) developed area (Figure 2).

The site is located on the Bradley U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map. The elevation within the project site ranges between 565 ft and 640 ft National Geodetic Vertical Datum (NGVD). Mean annual precipitation in nearby Paso Robles is 15.15 inches, and the average temperature is 58.8°F (WRCC 2010).

A large outcrop of limestone rock is located in the western portion the BSA on the north side of the river (Photo 1). Several cavities are present in the limestone that could be utilized as upland refugia for various species of wildlife, including CRLF. Similarly, granite rip-rap placed around a bridge pier on the south side of the bridge could also be used as upland refugia (Photo 2).

ASSESSMENT NOTES AND POTENTIAL FOR CALIFORNIA RED-LEGGED FROG OCCURRENCE ON THE SITE

The Nacimiento Lake Drive Bridge Replacement Project Site is within the range of the CRLF (CWHR 2010). However, no records for California red-legged frogs are known from within 1 mi of the site. The closest CNDDB record to the Project Site for which specific locality data were provided (occurrence no. 802, from 2004) is from Santa Rosa Creek in San Luis Obispo County, approximately 17.5 air miles southwest of the Project Site (Figure 3). CNDDB occurrence nos. 381 [2006], 461 [2007], and 498 [2005] are perhaps closer to the Project Site; however, these occurrences are considered "sensitive" by the California Department of Fish and Game, and consequently, specific locality data are not provided in the CNDDB (Figure 3). Other occurrences are clustered across an area spanning south to southwest of the Project Site, with another series of occurrences clustered east of the Project Site in the vicinity of Cholame (Figure 3).

The aquatic habitat of the San Antonio River (Photos 3 and 4) is consistent with the general type of habitat known to support CRLF. Although the reach of the San Antonio River within the BSA does not contain the classic pool habitat known to be favored by California red-legged frogs, the water is relatively deep and slow-moving. Cattails (*Typha* sp.) are abundant along the margins of the active river channel, and overhanging willows (*Salix* sp.) are present in the BSA, particularly in the eastern portion (Figure 2; Photos 3 and 5). Overall, habitat conditions appear favorable to support foraging, overwintering, estivation, and breeding by CRLF. Maximum depth of the river within the BSA is estimated to be approximately 4.5 ft.

The overall fluvial structure of reaches of the San Antonio River upstream and downstream from the BSA differs little from those within the BSA. Areas with cattails along the river margins and overhanging willows exist at several locations within a 1-mi radius of the BSA. Steady,

controlled releases from San Antonio Dam, located approximately 2.3 mi upstream from the BSA, probably reduces the frequency of scouring flows in reaches of the river downstream from the Dam, which may result in the gradual filling of pools with sediment and inhibit the formation of new pools.

No ponds suitable for CRLF are known to exist within 1 mi of the Project Site. However, 2 small irrigation ponds in vineyards approximately 0.55 mi northeast and 0.95 mi east of the bridge structure are visible in aerial imagery but were not accessible for direct observation during the site assessment. In aerial imagery, these ponds are surrounded by agricultural habitat and appear to be devoid of vegetation. Both appear unsuitable for CRLF.

Several intermittent tributary drainages to the San Antonio River, which could be used by CRLF during wet weather, occur within a 1-mi radius. Woodland and grassland habitats are the dominant upland habitat types in the 1-mi area surrounding the Project Site. These habitats could provide dispersal habitat in wet weather and estivation habitat during dry, hot periods. Agricultural and developed habitats also exist adjacent to the BSA.

The Willow Riparian and Freshwater Emergent habitats in the area of the in-stream island within the BSA provides potentially suitable habitat for the CRLF. The in-stream island may contain undercut banks that could provide particularly appropriate refugia for CRLF (Figure 2, Photo 3), and the remainder of the BSA and surrounding native habitats comprise suitable dispersal and/or foraging habitat for CRLF, if the species is present in the vicinity.

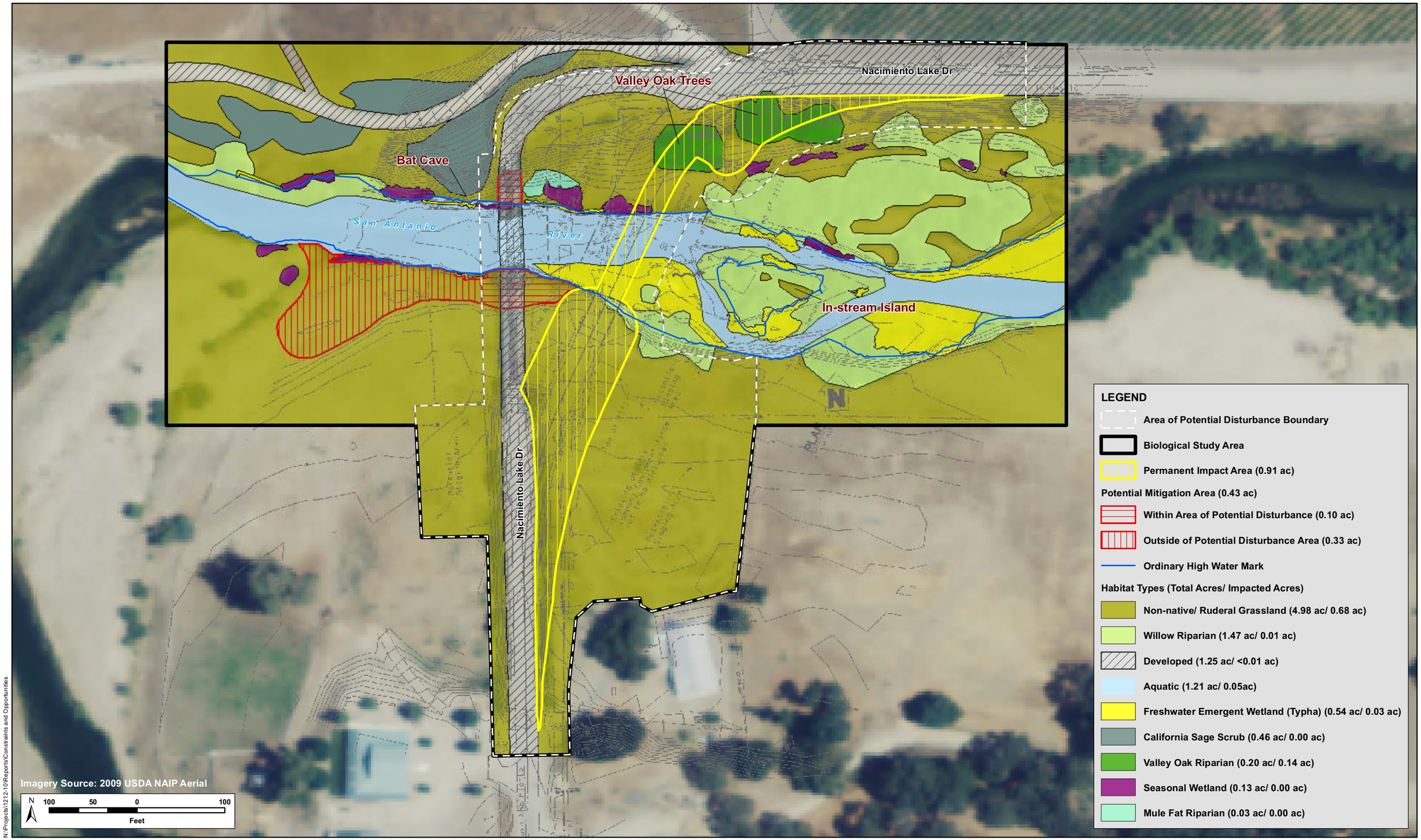

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Figure 2: Site Detail and Habitat Map

Nacimiento Bridge 449 California Red-Legged Frog Site Assessment (1212-10)

April 2010

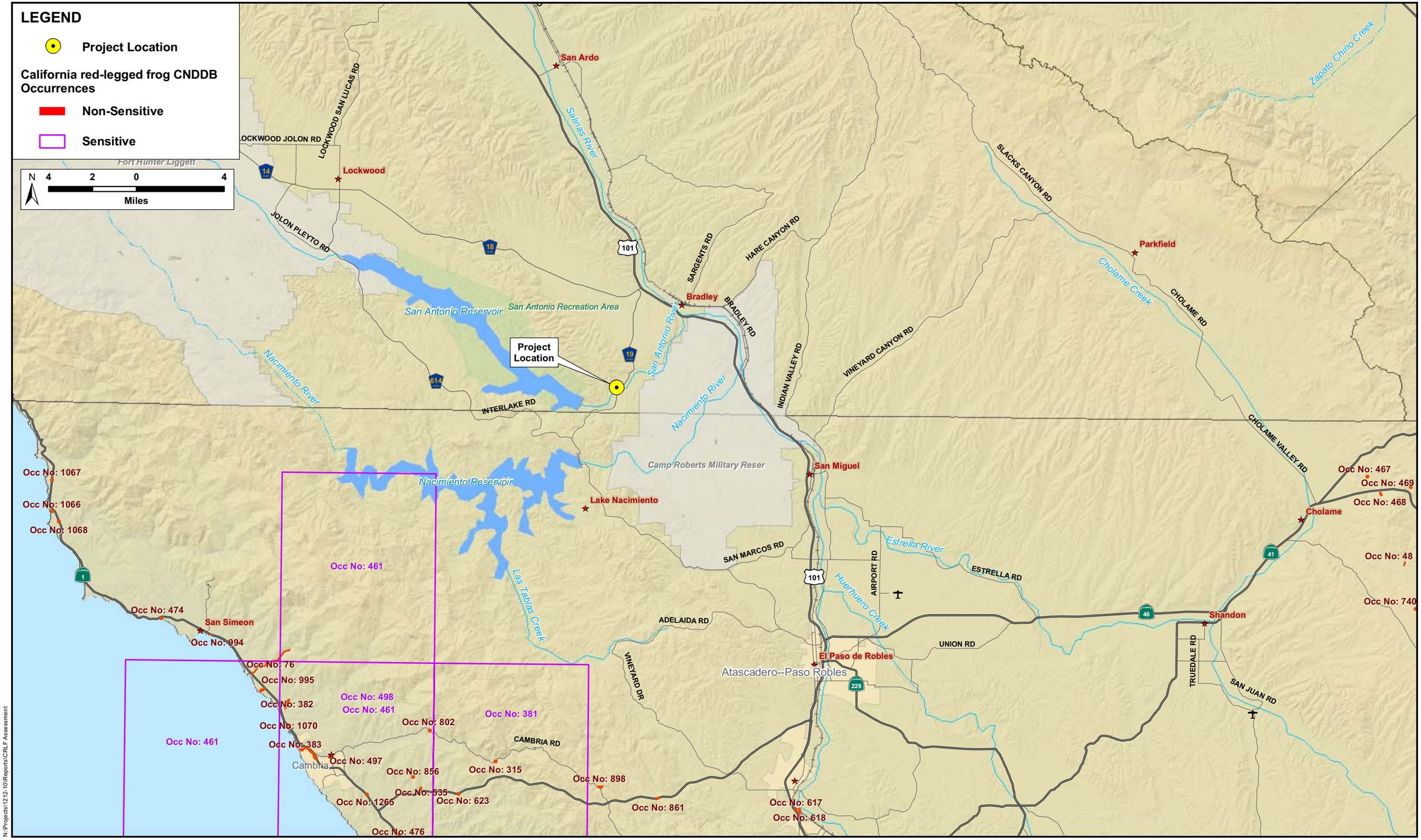

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Figure 3: CNDDB Map

Nacimiento Bridge 449 California Red-Legged Frog Site Assessment (1212-10)

April 2010

SITE ASSESSMENT DATA SHEETS

California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by: _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: **04/01/2010**
(mm/dd/yyyy)

Site Assessment Biologists: **Sisk, Norman** _____
(Last name) (first name) (Last name) (first name)

Site Location: **Monterey Co., Bridge 449 crossing San Antonio R. on Nacimiento Lake Dr. 10S 693762mE 3964860mN (NAD83 datum)**

(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Nacimiento Lake Drive Bridge Replacement Project
Brief description of proposed action: The proposed project is the replacement of the existing Nacimiento Lake Drive Bridge over the San Antonio River in Monterey County, California (Figure 2). The existing bridge, which was constructed in 1921, is a single-lane structure that is approximately 240 ft in length and 20 ft in width. The bridge is a 4-span structure and the bridge type is known as a steel pratt through truss. The existing bridge does not meet current design or seismic safety standards.

The replacement bridge will be constructed adjacent to, and downstream of, the existing bridge. The new bridge, which will accommodate two lanes of traffic with shoulders, will be approximately 267 ft in length and 32 ft in width. The new bridge will have two spans with a center pier. The bridge type will be a cast-in-place, post-tensioned, concrete box girder structure.

The existing bridge will remain open to traffic during construction of the replacement bridge. Upon completion of construction of the new bridge, the existing bridge will be removed.

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: _____ Maximum depth: _____

Vegetation: emergent, overhanging, dominant species:_____

Substrate:_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry:_____

California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM: Antelope Creek (historical channel)

Bank full width: ~20 ft

Depth at bank full: ~ 8 ft

Stream gradient: ~0.66%

Are there pools (circle one)? YES NO

If yes, Size of stream pools: _____

Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: Most of the drainage within the Biological Study Area (BSA) can be characterized as run habitat. Some riffle habitat exists in the eastern portion of the BSA in the vicinity of the in-stream island.

Vegetation: emergent, overhanging, dominant species: Cattails (*Typha* sp.) abundant along margins of drainage. Willows (*Salix* sp.) overhanging and forming a canopy over extensive portions of the eastern half of the BSA. Other dominant species include cheatgrass (*Bromus tectorum*), mulefat (*Baccharis salicifolia*) California sagebrush (*Artemesia californica*), and valley oak (*Quercus lobata*).

Substrate: Sand (~75%), gravel-sized rock (~22%), and exposed limestone bedrock (~3%)

Bank description: Portions of the banks are nearly vertical and scoured, interspersed with more gently sloping sections. The slopes are relatively steep outside of the banks to the top.

Perennial **or Ephemeral** *(circle one).* If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:
The river had a substantial flow volume at the time of the site assessment, and the site has suitable habitat for CRLF and western pond turtle. I conducted an informal CRLF survey within the BSA but observed no CRLF or egg masses. No fish of any kind, bullfrogs, or other exotic predators of CRLF were observed either. It should be noted that the survey was conducted early in the morning (start time 0830 h), and the air temperature was 45°F. Beaver activity (i.e., gnawing of trees) was noted in the eastern portion of the BSA, and in this area, a beaver dam has also been constructed across the river (Photo 5). In-stream island (Figure 2) may contain undercut banks that could provide refugia for CRLF.

SITE PHOTOS

Photo 1. Limestone outcrop on north side of San Antonio River (in upper left quadrant of photo).

Photo 2. Granite rip-rap around bridge pier.

Photo 3. San Antonio River, viewing east from deck of bridge.

Photo 4. San Antonio River, viewing east from deck of bridge.

Photo 5. Cattails, overhanging willows, and beaver dam in Willow Riparian habitat in eastern portion of BSA.

LITERATURE CITED

[CNDDB] California Natural Diversity Data Base. 2010. Rarefind (updated 02/28/2010). California Department of Fish and Game.

[CWHR] California Wildlife Habitat Relationships System. 2008. Red-legged Frog (*Rana aurora*) Range Map. Maintained by the California Department of Fish and Game and supported by the California Interagency Wildlife Task Group. Web page: nrm.dfg.ca.gov/FileHandler.ashx?DocumentVersionID=18298 . Viewed 2 April 2010.

[WRCC] Western Regional Climate Center. 2010. Website: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6730. Viewed 2 April 2010.

APPENDIX A
FIELD NOTES

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 04/01/2010
(mm/dd/yyyy)

Site Assessment Biologists: Sisk (Last name) Norman (first name) _____ (Last name) _____ (first name)

_____ (Last name) _____ (first name) _____ (Last name) _____ (first name)

Site Location: _____
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: _____
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION
(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND: No pond
Size: _____ Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Perennial or Ephemeral *(circle one).* If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 20'
Depth at bank full: 8 ft
Stream gradient: <1%

Are there pools (circle one)? YES (NO)
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: run – 150 ft upstream and downstream of bridge, riffles in area of in-stream island

Vegetation: emergent, overhanging, dominant species: cattails along stream margins. Willows, alder overhanging ca 150 ft downstream, overhanging other spp: mulefat, California sagebrush
Substrate: sand, gravel, limestone bedrock

Bank description: grass, stinging nettles dominant on bank (Bromus tectorum) Mustard

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: probably perennial

Other aquatic habitat characteristics, species observations, drawings, or comments:
Max depth ~ 4.5ft beaver dam and beaver gnawings downstream
Range: 2½ - 4ft

Good WPT habitat - basking rock present
No bullfrogs or fish obs. - however, cool (~45°F) at time of survey

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs
3. Maps with important habitat features and species location