Exhibit C

Development Plan

CONTENTS

Exhibit C-1

Development Plan

SAN LUIS REY MITIGATION BANK

DEVELOPMENT PLAN

Prepared by:

Wildlands
3855 Atherton Road
Rocklin, CA 95765
Contact: Cindy Tambini
ctambini@wildlandsinc.com
Office: (916) 435-3555
Mobile: (916) 588-6177

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Table of Contents

LIST OF TABLES

LIST OF FIGURES

(**Note:** Figures are located at the end of the document.)

LIST OF ACRONYMS AND ABBREVIATIONS

APN	Assessor Parcel Number
Bank	San Luis Rey Mitigation Bank
Bank Sponsor	Wildlands SLR Holdings I, LLC (Wildlands)
BEI	Bank Enabling Instrument
BMP	best management practice
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cfs	cubic feet per second
CLOMR	Conditional Letter of Map Revision
CRAM	California Rapid Assessment Method
CWA	Clean Water Act
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESA PWA	ESA PWA | Environmental Hydrology
FEMA	Federal Emergency Management Agency
GPS	global positioning system
IRT Advisory Agency	Interagency Review Team Advisory Agencies are potential signatories to the BEI
Landowner	Wildlands SLR Holdings I, LLC (Wildlands)
LOMR	Letter of Map Revision
msl	mean sea level
MHCP	Multiple Habitat Conservation Plan
NCCP	Natural Communities Conservation Plan
NFWF	National Fish and Wildlife Foundation
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
OHP	State Office of Historic Preservation
PAR	Property Analysis Record
PCEs	primary constituent elements
PJD	Preliminary Jurisdictional Determination
REC	recognized environmental condition

Regional Board	San Diego Regional Water Quality Control Board
RWQCB	Regional Water Quality Control Board
SDAPCD	San Diego Air Pollution Control District
SUSMP	standard urban storm water mitigation plan
SWPPP	storm water pollution prevention plan
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WHF	Wildlife Heritage Foundation
Wildlands	Wildlands SLR Holdings I, LLC

A. Summary

Wildlands SLR Holdings I, LLC (Wildlands) is proposing to establish the San Luis Rey Mitigation Bank (Bank) through the mitigation bank evaluation process. The Signatory Agencies to the Bank Enabling Instrument (BEI) include the U.S. Army Corps of Engineers (USACE) and the California Department of Fish and Wildlife (CDFW).

Wildlands will rehabilitate, re-establish, and permanently protect 53.84 acres of land (Bank Property) located in the San Luis Rey River floodplain in the city of Oceanside in San Diego County, California.

The Bank will provide compensatory mitigation that may be required by USACE and/or CDFW as compensation for unavoidable impacts to wetlands/waters.

Wildlands purchased 56.54 acres of property (Property) from the Singh Property Management Company (the property is commonly referred to as the "Singh Property") located along San Luis Rey River in northwestern San Diego County. The Property has historically been used for agricultural purposes with the most recent crop type being vine-ripened tomatoes.

The Property is located on the north side of Highway 76/ Mission Avenue, south of North River Road and northeast of Mission Vista High School in the eastern portion of the City of Oceanside, California. The site is situated between Interstate 5 and Interstate 15 and west of the community of Bonsall. Due to its location along the San Luis Rey River and its high potential for successful restoration, the Property has been identified by several state and federal agencies as a high priority restoration site.

The Bank Property is primarily characterized as active cultivated agricultural lands located both north and south of an approximately 1,800-foot reach of the San Luis Rey River. The entire reach of the San Luis Rey River bisecting the site has been channelized. The river bottom is freshwater marsh habitat, which is dominated by bulrush (*Scirpus* sp.) and cattail (*Typha* sp.). Surface water is present in places. The banks of the armored channel are dominated by the invasive giant reed.

Wildlands is the Bank Sponsor and is responsible for Bank design, construction and operations and interim management. Wildlands is a habitat development and land management company dedicated to the restoration and preservation of wetlands and special-status species habitat. Wildlands has been developing mitigation and conservation banks and permittee-responsible mitigation and conservation projects for approximately 20 years and is very well qualified to successfully design, construct and operate the Bank until all of the constructed wetlands meet the Performance Standards, all the Credits are sold and the Endowment Fund is fully funded.

The target habitat is a riparian wetland mosaic that meets the jurisdictional requirements as identified by the USACE and CDFW. Although the site is designated critical habitat for the federally endangered arroyo toad (*Anaxyrus californicus*), federally endangered southwestern willow flycatcher (*Empidonax traillii extimus*), and state and federally endangered least Bell's vireo (*Vireo bellii pusillus*), habitat assessments conducted in 2011 indicates that the active agricultural operation does not allow the establishment of suitable habitat for these species. Restoration of the site would improve the wildlife corridor along the river and likely result in the

restoration of breeding habitat for these species; however, no species credits are being requested for the Bank at this time.

The Bank Property will be permanently protected through a Conservation Easement. A Conservation Easement will be recorded over the Bank Property. This Conservation Easement will restrict land uses to activities compatible with a wetlands mitigation bank. The Conservation Easement will be held by an entity that is approved to hold an interest in mitigation lands as defined by Section 65965 of the California Government Code. The Conservation Easement holder must be approved by the Signatory Agencies. Wildlife Heritage Foundation (WHF) has been identified to hold the conservation easement on the Bank Property.

Perpetual stewardship of the Bank Property will be financed by an Endowment Fund established to ensure that the long-term monitoring and management expenses of the Bank Property will be funded in perpetuity. Deposits to the Endowment Fund will be made concurrent with the transfer of Credits.

This document describes the methods to rehabilitate, re-establish, and monitor the Bank Property through the Interim Management Period. Long-term management and monitoring of the site in perpetuity is described in detail in the Long-term Management Plan (see *Exhibit D-5 of the BEI)*; however, the monitoring methods described in this document are consistent with the monitoring methods described in the Long-term Management Plan.

B. Responsible Parties

B.1 BANK SPONSOR

The Bank Sponsor is:

Wildlands SLR Holdings I, LLC (Wildlands)
3855 Atherton Road
Rocklin, CA 95765
Contact: Cindy Tambini or ctambini@wildlandsinc.com
Telephone: (916) 435-3555

B.2 PROPERTY OWNER

The property is owned by:

Wildlands SLR Holdings I, LLC (Wildlands)
3855 Atherton Road
Rocklin, CA 95765
Contact: General Counsel
Telephone: (916) 435-3555

B.3 CONSERVATION EASEMENT HOLDER

The Conservation Easement will be held by:

Wildlife Heritage Foundation
563 2nd Street, Suite 120
Lincoln, CA 95648
Contact: Executive Director or http://www.wildlifeheritage.org/
Telephone: (916) 434-2759

C. Property Description

C.1 LOCATION

The Bank Property is located on the northern side of State Route 76/Mission Avenue, south of North River Road and northeast of Mission Vista High School in the eastern portion of the City of Oceanside, California (Figure 1; all figures are located at the end of the Development Plan). The Bank Property is situated between Interstate 5 and Interstate 15 and west of the community of Bonsall.

The northern portion of the Bank Property is located in Section 36 of Township 10 South, Range 4 West on the Morro Hill 7.5-minute U.S. Geological Survey quadrangle and the southern portion of the property is located in Section 1, Township 11 South, Range 4 West of the same quadrangle map (Figure 2).

For the purpose of this Development Plan, the "Property" is defined as 56.54 acres designated as all or portions of San Diego County Assessor Parcel Numbers (APNs) 122-130-33; 122-130-35; 122-130-37; 122-130-39; and 122-130-41 (Figure 3). There is no known address associated with the Property.

The "Bank Property" is a subset of the Property and excludes various access, road and/or utility easements. The Bank Property is 53.84 acres.

C.2 OWNERSHIP STATUS

The Property is private property previously owned by the Singh Property Management Company. Wildlands purchased the property in December 2011.

C.3 CURRENT AND HISTORIC LAND USES

The current land use is agriculture (tomato fields) on both the north and south sides of the river. Though fallow in 2011, it is anticipated that the Property will likely be farmed in the interim period prior to Bank construction.

The tomato fields are irrigated by a network of water wells, underground water pipes and powered pumps that are located near the center of the Bank Property. Fill was placed in the floodplain and an informal farm levee was constructed along the river banks. A privately-owned

culverted crossing constructed in 1960s is located immediately downstream of the Bank Property and provides north-south access across the river for farming activities.

Unimproved dirt roads provide access to the Bank Property from State Route 76 and North River Road. An equipment storage yard is located outside the southwestern corner of the Bank Property. Four groundwater wells used for agricultural purposes are located on the Bank Property and will be decommissioned during construction. Power is supplied by overhead San Diego Gas & Electric Company lines.

Several completed restoration projects are located along San Luis Rey River floodplain immediately upstream and downstream of the site and another restoration project is located southeast of the site (Figure 4). The site immediately upstream to the east involved restoration and enhancement of 21± acres of riparian habitat and the removal of 11± acres of giant reed along with other invasive, non-native plant species and revegetation with native riparian species.. A second upstream restoration area is associated with the Caltrans widening of State Route 76.

There are two downstream restoration areas that involved restoration and enhancement; Granite Construction (Corps File No. 2006-1262-SJH) and a second 19±-acre Preserve established by the Vista Unified School District in 2010 to mitigate for impacts to critical habitat for least Bell's vireo and southwestern willow flycatcher.

The Bank Property has not been used as mitigation for a previous project, nor is it designated or dedicated for passive park or open space uses.

The Bank Property is located in a predominantly agricultural and open space/conservation area; however, the site is located within the city limits and residential, institutional and commercial properties are located within a mile of the site.

Nearby land uses include:

- South: Singh Property Management Company agricultural processing plant, parking lots and State Route 76 San Luis Rey Mission Expressway
- North: North River Road and tomato fields
- East: Existing restoration site and San Luis Rey River
- West: Mission Vista High School, existing restoration site, and San Luis Rey River

The Bank is compatible with existing and proposed adjacent land uses. Future land uses are indicated by the City of Oceanside General Plan land uses designations as shown in Figure 5. The General Plan designations for the property are Agriculture (A) on the northern portion of the site and Residential – Estate B (EB-R) on the remainder of the site. Nearby publicly-owned lands and/or restoration/habitat lands are shown in Figure 6.

C.4 CLIMATE

The San Luis Rey River basin is representative of a Mediterranean climate with dry, warm to hot summers and relatively cool, moist winters. Climatic variations within the watershed are the result of coastal influence and elevation. The dry season along the coast, May through October, is usually defined by morning fog and cloudiness. On average, about 266 days out of the year are clear, with the remaining 99 days being either cloudy or partly cloudy. The average winter minimum temperature near the coast is 46°F with cooler inland temperatures that range from 30°F in the Palomar Mountains with an occasional snowfall. The average summer temperature along the coast is about 69°F, with temperatures inland that frequently exceed 90°F. A majority of the precipitation falls during the months of November through April with snow occurring in the higher elevations of the mountains (California Department of Fish and Wildlife 2009). The mean annual rainfall for the watershed is approximate 20 inches (10 inches at Oceanside).

C.5 TOPOGRAPHY

The San Luis Rey River crosses the property from east to west and divides the Property into two unequal portions with most of the Property located south of the river. Topographically, the two divided areas are relatively flat with a slight slope toward the river alignment, which in turn slopes from east to west within the vicinity of the site. Elevations range from a high of approximately 130 feet mean sea level (msl) in the southern portion of the site to approximately 120 feet in the north, with a low elevation of 98 feet msl in the river channel. Surface drainage flows north and south to the river and then east to west to the Pacific Ocean.

C.6 GEOLOGY

The Property is located in the Peninsular Range geomorphic province of Southern California, which is a northwest-southeast trending of igneous and metamorphic rocks that includes the Southern California batholith. This geomorphic province encompasses an area that extends 125 miles from the Transverse Ranges and the Los Angeles Basin south to the Mexican Border and beyond for another 775 miles to the tip of Baja, California. In general, the province consists of rugged mountains underlain by Mesozoic igneous and metamorphic rocks to the east, and a dissected coastal plain underlain by Cenozoic sediments to the west. The province varies in width from approximately 30 to 100 miles.

The Property is underlain by surficial deposits consisting of artificial fill, Quaternary alluvium/ colluvium, and Cretaceous-age granitic rock (*Bonsall Tonalite*). The artificial fill thickness is estimated to be 1 to 10 feet. The alluvium/colluvium consists of an unconsolidated sandy, silty, or clay-bearing unit. Underlying the alluvium/colluvium is the *Bonsall Tonalite,* which consists of mostly massive, coarse-grained, light-gray hornblende-biotite tonalite.

C.7 SOILS

The Soil Survey of San Diego Area, California (Soil Conservation Service and Forest Service) was accessed via http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm to determine the soils on the Property. As shown in Figure 7, there are six soil series and eight soil types found in the Property; however, the site soil is predominantly characterized by three soil units: Bonsall sandy loam, 2 to 9 percent slopes; Riverwash; and Tujunga sand, 0 to 5 percent slopes.

The Bonsall series consists of moderately well drained, shallow to moderately deep sandy loams that have a heavy clay loam subsoil. Slopes are concave and range from 2 to 15 percent. The native vegetation is mainly filaree, mustard, wild oats, and annual grasses and forbs. A few scattered oaks grow along the drainages.

In a representative profile, the surface layer is brown, slightly acid sandy loam about 10 inches thick. The subsoil is brown, yellowish-brown, and light yellowish-brown, slightly acid to moderately alkaline clay loam and sandy loam about 50 inches thick. The substratum is light-brown, mildly alkaline sandy clay loam. At a depth of about 89 inches is deeply weathered granitic rock.

Riverwash occurs in intermittent stream channels. The material is typically sandy, gravelly, or cobbly. It is excessively drained and rapidly permeable. Many areas are barren. Scattered sycamores and coast live oaks grow along the banks. Sparse shrubs and forbs occur in patches.

The Tujunga series consists of very deep, excessively drained sands derived from granitic alluvium. These soils are on alluvial fans and flood plains and have slopes of 0 to 5 percent. The vegetation in uncultivated areas is chiefly annual grasses and forbs and a few scattered oaks.

In a representative profile the surface layer is brown, neutral sand about 14 inches thick. The next layers are pale-brown, neutral sand and coarse sand. This material extends to a depth of more than 60 inches. Tujunga soils are used mainly for range and golf courses. A few small areas are used for avocados, flowers, and truck crops.

C.8 HYDROLOGY

The following information is summarized from the Hydraulic Report and Conceptual Restoration Plan for the Bank (see *Exhibit K-7 in the BEI*).

The Bank Property is located on the San Luis Rey River approximately 10 miles upstream of the Pacific Ocean. The watershed is 515 square miles at the site and has a mean annual rainfall of 20 inches (10 inches at the city of Oceanside). Land use within the watershed is varied – 54% of the watershed is undeveloped (public and tribal lands), 15% is residential, and 14% is agricultural. More than 10% of the watershed draining to the site is urban. The upper watershed (205 square miles) is controlled by Lake Henshaw Dam, which stores and diverts drinking water for the cities of Escondido and Vista.

The U.S. Geological Survey (USGS) has operated a flow gage on the San Luis Rey River in Oceanside (USGS 11042000) since 1916, but there were numerous gaps in the record up to 1965 that make the use of the early period questionable for flood frequency analyses. For the initial hydrologic assessment (ESA PWA 2011), a Bulletin 17B flood frequency analysis was conducted using gage records after 1965, and the results were compared to values predicted by the USGS regional regression models for southern California (Waananen and Crippen 1977) and flood flows estimated in the most recent Flood Insurance Study for San Diego County (Federal Emergency Management Agency 2006). The results suggested that the 100-year flow ranged from 51,000 to 115,000 cubic feet per second (cfs) depending on the method of analysis used.

Since the initial hydrologic assessment, ESA PWA had several discussions with the Los Angeles District of the USACE regarding site hydrology. As a result, the flow frequency analysis has been updated to include the discharge data provided in the "Updated San Luis Rey Discharge-frequency Analysis" (U.S. Army Corps of Engineers 2008). The updated peak flows were officially adopted by the USACE, and were used in conjunction with the FEMA 100-year flow in the hydraulic models. The USACE adjusted flow records from the Oceanside gage to account for zero peak flow years, urbanization, and flow attenuation from Lake Henshaw Dam. The USACE also supplied ESA PWA with flood hydrographs for the 2, 5, 10, and 100-year return interval discharge events. The 100-year floodplain is shown in Figure 8.

Wildlands has monitored water surface elevations at nine groundwater wells and the river channel since December 2009. For the period of record when both groundwater and river stage were collected, it is apparent that the two are closely linked. The relationship is even closer when the river stage is adjusted for river surface slope across the site, with most groundwater wells having water surface elevations within 1-2 feet of the river stage. This is consistent with permeable sandy soil in which hydrostatic differences between the river and floodplain can quickly adjust.

Wildlands groundwater data was reviewed in context of the climate during the time of collection. Rainfall in the 2009-2010 water year (Oct. 1 – Sept. 30) was 10.8 inches at Oceanside compared with a mean of 9.8 inches from 1909 to 2010, which suggests that this water year was slightly wetter than average for the site. Rainfall during the 2010-2011 water year was even greater at 14.0 inches, and should be considered significantly wetter than the average year. Groundwater data from the more typical 2009-2010 water year was used as part of the basis of design for floodplain grading.

C.9 JURISDICTIONAL AREAS

A Preliminary Jurisdictional Determination (PJD)/Wetland Delineation Report was prepared and submitted to the USACE (see *Exhibit I in the BEI*). The PJD was completed prior to determining the Bank boundary and covers an area of approximately 69 acres (Figure 9).

The PJD identifies the presence of approximately 6.314 acres of potential waters of the U.S. which consists of 5.37 acres of freshwater marsh and 0.94 acres of riparian forest. The PJD also identifies 0.247 acres of agricultural drainage ditch; however, the agricultural drainage ditch fails to meet the mandatory technical criteria and field indicators for wetlands.

On November 23, 2011, the USACE sent Wildlands a PJD (File #2011-00694-SAS) confirming that there may be may be waters of the U.S. on the Bank Property (see *Exhibit I in the BEI*).

C.10 WETLAND FUNCTIONS AND VALUES

A typical wetland similar to the San Luis Rey River has various functions, including:

- Energy dissipation (slowing down the flood waters);
- Surface and subsurface water storage and exchange (making water available to animals and underground aquifers);
- Particulate detention (holding sand, silt, and clay in the floodplain);
- Sediment mobilization, storage, transport, and deposition (moving and storing sediments);
- Removal of imported elements and compounds (moving sediment and leaves and such downstream) and transport of organic matter;
- Cycling of elements and compounds (recycling of nutrients from leaves and such);
- Plant and wildlife communities (providing habitat for plants and animals that like or tolerate periodic or permanent flooding and providing a means of connecting different types of habitats including providing wildlife corridors).

Wetland values are properties of a wetland that are considered beneficial to humans such as wildlife habitat, recreation, aesthetics, education and timber and fiber production.

The wetland functions and values on the Bank Property are currently degraded. Although the site does provide some wetland functions, most of the functions are reduced as a result of the ongoing landscape modification and manipulation to maximize the amount of farmland. Review of historic aerial photographs and topographic maps (Figure 10; Figure 11, and Figure 12) document a wider historic floodplain. Previous landowners were actively manipulating the landscape, including channelizing the river, to expand the amount of farmland.

Agricultural activities have reduced the extent of the floodplain and associated riparian habitat thereby reducing shade, large woody debris, insect production, and habitat for state and federally listed species including arroyo toad, southwestern willow flycatcher and least Bell's vireo.

The Bank design would rehabilitate and re-establish wetland functions and drastically increase wetland values (Table 1). The proposed design would re-establish the historic floodplain and increase riparian vegetation, shade, and large woody debris, and the amount of potential breeding habitat for listed species.

Table 1. San Luis Rey Mitigation Bank: Existing and Projected Wetland Functions

Wetland Function	Existing Condition	Restored Condition
Subsurface water storage	**Low**. The straight channel configuration and elevation difference between the channel bottom and adjacent agricultural fields severely limits subsurface water storage.	**High**. A reconfigured, meandering river channel with a broad floodplain and secondary channels will slow water movement across the property allowing for increased storage.
Moderation of groundwater flow or discharge	**Low**. The straight, ditch-like channel configuration is intended to convey water across the site as quickly as possible. Groundwater flow and discharge is relatively rapid.	**High**. The reconfigured channel will significantly modify rate of groundwater flow and discharge.
Dissipation of floodflow energy	**Low**. There is currently very little dissipation of floodflow energy due to the straight channel and lack of a functioning floodplain. Flood flows are largely confined to a 5-acre channel	**High**. A meandering channel and broad floodplain will allow flood flows to dissipate over the floodplain.
Nutrient cycling	**Low**. Nutrient cycling is limited due to high energy, rapid water movement across the site during periods of high river flows.	**High**. The dissipation of flow energy with allow for nutrient retention and cycling within the floodplain.
Sediment retention	**Low**. Current channel configuration is designed to minimize sediment retention.	**High**. Lower velocity flows should allow for sediment retention and moderate sediment transport.
Maintenance of plant and animal communities	**Low**. The site currently provides habitat to relatively low numbers of common wildlife species and has significantly covered by invasive plant species. Woody vegetation is continually removed from the channel to maintain floodflow conveyance capacity. The site also provides a low-quality wildlife corridor along the San Luis Rey River.	**High**. After rehabilitation, the site will provide suitable habitat for several special-status wildlife species and will be dominated by native riparian vegetation. After rehabilitation, the wildlife corridor values will substantially increase with a much wider and more diverse habitat that is protected.

C.11 BIOLOGICAL RESOURCES

The following information is summarized from the Biological Resources Report prepared for the Bank (see *Exhibit H in the BEI*).

Due to the extensive land management activities associated with a large scale commercial agricultural operation, there are very limited biological resources associated with the majority of the site. Most of the Bank Property, with the exception of the channelized San Luis Rey River, has historically been utilized for growing tomatoes or wheat. It is estimated that the Bank Property has been in almost continuous agricultural use for over 40 years. The property was recently operated by the Singh Property Management Company as a commercial agricultural operation producing vine-ripened tomatoes.

The Bank Property supports five habitat types; however, well over half the site is comprised of agricultural fields (Figure 13).

The Bank Property is characterized as active cultivated agricultural lands located both north and south of an approximately 1,800-foot reach of the San Luis Rey River. On the Bank Property, the San Luis Rey River has been channelized and is characterized as freshwater marsh habitat. The banks of the incised channel are dominated by the invasive giant reed. The freshwater marsh habitat is dominated by bulrush and cattail with areas of surface water expression.

A review of the California Natural Diversity Database (CNDDB) indicates there are no known special status plants documented onsite (Figure 14), and no known special status animals documented onsite (Figure 15); however, least Bell's vireo, yellow-breasted chat, and southwestern willow flycatcher are documented upstream and downstream of the project site (Figure 16).

The site is located outside the San Diego County Multiple Species Conservation Program (MSCP) North County Plan Area but inside the Multiple Habitat Conservation Plan (MHCP) Oceanside Subarea Plan (Figure 17).

Based on a review of the CNDDB search, several State and/or federally listed wildlife species have potential to occur within or adjacent to the Bank Property (see Table 2). For each species listed, a determination was made regarding the potential use of the Bank Property based on information gathered during the general biological surveys including known habitat preferences and knowledge of their relative distributions in the area.

Table 2. Special Status Wildlife Species and Critical Habitat Potentially Occurring or Known to Occur at the San Luis Rey

Common Name *Scientific Name*	Legal Status Federal	 State	 Other	Primary Habitat Associations	Comments
Fish					
Tidewater goby *Eucyclogobius newberryi*	FE	CSC	None	Low-salinity waters in coastal wetlands	Considered but rejected. The Bank lacks suitable habitat.
Southern steelhead *Oncorhynchus mykiss*	FE	CSC	None	Juveniles occur in cool, freshwater streams with riffle-pool complexes; moderate-sized gravel with shallow waters. Adults migrate to the ocean after 1–5 years in freshwater.	Low potential to pass through the Bank Property when appropriate flows are present. No suitable spawning gravel within the project site. Pool shelter and pool depth unsuitable in the Bank Property. There are both documented and anecdotal observations of this species in the San Luis Rey River from 2007 and 1997.
Amphibians					
Arroyo toad *Anaxyrus [=Bufo] californicus*	FE	CSC	None	Stream channels for breeding (typically 3rd order); adjacent stream terraces and uplands for foraging and wintering	The Bank Property is identified as Critical Habitat for this species; however, a breeding and upland habitat assessment conducted in June 2011 determined that the Bank does not represent suitable arroyo toad breeding or aestivation habitat.
Western spadefoot *Spea [=Scaphiopus] hammondi*	BLM	CSC	None	Most common in grasslands, coastal sage scrub near rain pools or vernal pools; riparian habitats	Considered but rejected. The Bank lacks suitable habitat.
Reptiles					

Table 2. Special Status Wildlife Species and Critical Habitat Potentially Occurring or Known to Occur at the San Luis Rey

Common Name *Scientific Name*	Legal Status Federal	State	Other	Primary Habitat Associations	Comments
Orangethroated whiptail *Aspidoscelis hyperythra*	None	CSC	None	Coastal sage scrub, chap arral, grassland, juniper and oak woodland	Not expected to occur. The coastal sage scrub onsite is small, isolated and very steep
Coastal western whiptail *Aspidoscelis tigris stejnegeri*	None	None DFG Special Animals List	None	Coastal sage scrub, chaparral; sandy areas, gravelly arroyos, or washes	Not expected to occur. The coastal sage scrub onsite is small, isolated and very steep.
Rosy boa *Charina =Lichanura] trivirgata*	None	None	USFS BLM	Rocky chaparral, coastal sage scrub, oak woodlands, desert and semi-desert scrub	Not expected to occur. The coastal sage scrub onsite is small, isolated and very steep.
Birds					
Cooper's hawk *Accipiter cooperii* (nesting)	None	Watch List	None	Riparian and oak woodlands, montane canyons	Very low potential to occur onsite. Suitable habitat is present in the riparian corridors immediately east and west of the project.
Southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	None	Watch List	None	Grass-covered hillsides, coastal sage scrub, chaparral with boulders and outcrops	Not expected to occur. The coastal sage scrub onsite is small, isolated and very steep.
Golden eagle *Aquila chrysaetos*	BCC	Watch List SP	BLM CDF	Open country, especially hilly and mountainous regions; grassland, coastal sage scrub, chaparral, oak savannas, open coniferous forest	There is no suitable nesting habitat within the project area. Agricutural fields provide low quality foraging habitat.

Table 2. Special Status Wildlife Species and Critical Habitat Potentially Occurring or Known to Occur at the San Luis Rey

Common Name *Scientific Name*	Legal Status			Primary Habitat Associations	Comments
	Federal	State	Other		
Coastal cactus wren *Campylorhynchus brunneicapillus sandiegensis*	BCC	CSC	USFS	Southern cactus scrub, maritime succulent scrub, cactus thickets in coastal sage scrub	Not expected to occur. There are no cactus thickets within the project area. The coastal sage scrub onsite is small, isolated and very steep.
Northern harrier *Circus cyaneus* (nesting)	None	CSC	None	Open wetlands (nesting), pasture, old fields, dry uplands, grasslands, rangelands, coastal sage scrub	No suitable nesting habitat is present in the Study Area due to intensive agricultural maintenance. Site may provide very low quality foraging habitat.
Yellow warbler *Dendroica petechia brewsteri* (nesting)	None	CSC	None	Nests in lowland and foothill riparian woodlands dominated by cottonwoods, alders and willows; winters in a variety of habitats	Not likely to occur onsite due to lack of habitat. Suitable habitat is present in the riparian corridors immediately east and west of the project.
White-tailed kite *Elanus leucurus* (nesting)	None	SP	None	Open grasslands, savanna-like habitats, agriculture, wetlands, oak woodlands, riparian	Not likely to nest onsite due to lack of habitat. Low quality foraging habitat onsite. Suitable habitat is present in the riparian corridors immediately east and west of the project.
Southwestern willow flycatcher *Empidonax traillii extimus* (nesting)	FE	SE	None	Riparian woodlands along streams and rivers with mature, dense stands of willows or alders; may nest in thickets dominated by tamarisk	Not likely to occur onsite due to lack of habitat. Suitable habitat is present in the riparian corridors immediately east and west of the project.
Yellowbreasted chat *Icteria virens* (nesting)	None	CSC	None	Dense, relatively wide riparian woodlands and thickets of willows, vine tangles and dense brush.	Not likely to occur onsite due to lack of habitat. Suitable habitat is present in the riparian corridors immediately east and west of the project.
White-faced ibis *Plegadis chihi* (rookery site)	SMC	Watch List	None	Nests in marsh; winter foraging in shallow lacustrine waters, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields and estuaries	Marginal habitat within the project site (freshwater marsh). However, potential for nesting is low due to the narrow, isolated nature of the habitat , and the abundance of tall statured arundo surrounding the marsh habitat.

Table 2. Special Status Wildlife Species and Critical Habitat Potentially Occurring or Known to Occur at the San Luis Rey

Common Name *Scientific Name*	Legal Status			Primary Habitat Associations	Comments
	Federal	State	Other		
Coastal California gnatcatcher *Polioptila californica californica*	FT	CSC	None	Coastal sage scrub, coastal sage scrub chaparral mix, coastal sage scrub-grassland ecotone, riparian in late summer	Not expected to occur. The coastal sage scrub onsite is small, isolated and very steep.
Light-footed clapper rail *Rallus longirostris levipes*	FE	SE SP	None	Grassy (cordgrass pickleweed), saltwater, and brackish marshes	Not expected to occur. The Bank does not support suitable habitat for this species.
California least tern *Sternula [Sturna] antillarum browni* (nesting colony)	FE	SE SP	None	Coastal waters, estuaries, large bays and harbors, mudflats; nests on sandy beaches	Not expected to occur. The Bank does not support suitable habitat for this species.
Least Bell's vireo *Vireo bellii pusillus* (nesting)	FE BCC	SE		Nests in southern willow scrub with dense cover within 1–2 meters of the ground; habitat includes willows, cottonwoods, mulefat, wild blackberry or mesquite on desert areas	Low potential to nest in Bank due to lack of suitable habitat. The Bank is designated critical habitat for this species. There is a high potential for this species to nest in suitable habitat located immediately east and west of the Bank.

Table 2. Special Status Wildlife Species and Critical Habitat Potentially Occurring or Known to Occur at the San Luis Rey

Common Name *Scientific Name*	Legal Status Federal	 State	 Other	Primary Habitat Associations	Comments
Federal Designations:					
FE = Federally listed Endangered					
FT = Federally listed Threatened					
BCC = USFWS Birds of Conservation Concern					
SMC = Fish and Wildlife Service Region 1 Species of Management Concern					
State Designations:					
CSC = California Special Concern Species					
SP = California Department of Fish and Game Protected and Fully Protected Species					
SE = State-listed Endangered					
ST = State-listed Threatened					
Other:					
BLM = Bureau of Land Management sensitive					
USFS = U.S. Forest Service sensitive					
CDF = California Department of Forestry and Fire sensitive					

Due to timing and the overall lack of suitable on site habitat, no focused surveys for special-status wildlife were conducted; however, habitat assessments for arroyo toad and least Bell's vireo and southwestern willow flycatcher were conducted for the Bank as described below.

Cadre Environmental conducted a breeding and upland habitat assessment for the federally endangered arroyo toad (*Anaxyrus californicus*) on June 27, 2011, to qualitatively assess potential breeding and aestivation habitat for the arroyo toad (see *Exhibit H in the BEI*). The survey included an assessment of all habitats (potential movement routes) present within and adjacent to the Bank Property. Although the Bank Property is located within critical habitat for the arroyo toad, no suitable arroyo toad breeding habitat is present on the Bank Property. The existing freshwater marsh habitat located along the San Luis Rey River does not represent suitable breeding conditions for the species. The extensive emergent vegetation, deep pools (>1ft) and unsuitable substrates are not characteristic of where arroyo toads breed. Suitable arroyo toad breeding habitat was documented immediately up and downstream of the Bank Property where the San Luis Rey River is not channelized.

The Bank Property also does not represent suitable arroyo toad aestivation habitat. Although suitable soils are present within the upland habitats (sand/loam), the complete lack of vegetation and detritus often associated with aestivating arroyo toad sites (willow and mulefat scrub) is not present. However, high quality arroyo toad upland habitat was documented immediately up and downstream of the Bank Property within the San Luis Rey River floodprone area. Although the species is generally not expected to occur within these lower reaches of the San Luis Rey River, isolated populations may persist and occasional movements through the Bank Property within the existing matrix of dirt roads including burrowing (during breeding season – non aestivation behavior) could occur.

The Bank Property is also located within critical habitat for both least Bell's vireo and southwestern willow flycatcher. A habitat assessment for least Bell's vireo and southwestern willow flycatcher was conducted (see *Exhibit H in the BEI*). No primary constituent elements (PCEs) for the least Bell's vireo or the southwestern willow flycatcher occur within the Bank Property (see *Exhibit H in the BEI*). The lack of tree and shrub elements would preclude the use of the use of the site for nesting by either species. The existing freshwater marsh habitat located along the San Luis Rey River does not represent suitable breeding conditions for either species especially in the absence of key structural elements like trees and shrubs adjacent to the river. Potentially suitable breeding habitat was observed immediately up and downstream of the Bank Property where riparian vegetation with the necessary structural and compositional elements occurs.

No suitable habitat for coastal California gnatcatchers is located within Bank Property. However, coastal California gnatcatchers were documented immediately adjacent to the Bank Property on a slope dominated by coastal sage scrub (west of soil placement site 2, south of Bank) in 2003 and 2006 (USFWS GIS Database 2011a).

No suitable spawning habitat for southern California steelhead exists on the Bank Property. However, species may migrate through the Bank Property during high flows. Existing vegetation within channelized reach of San Luis Rey River within the Bank Property would prevent migration during low flows.

While not anticipated to occur on the Bank Property, avoidance and minimization measures have been put in place to avoid the potential for impacts to arroyo toad, least Bell's vireo, southwestern willow flycatcher, coastal California gnatcatcher, and southern California steelhead as well as nesting birds. These avoidance and minimization measures can be found in Section F.4.a. of this document.

C.12 CULTURAL RESOURCES

The following information is summarized from the Cultural Resources Report (see *Exhibit J in the BEI*).

Affinis completed a cultural resources review of the Property in June 2011 including contact with the Native American Heritage Commission, discussions with Native Americans and a pedestrian survey of the Bank Property. The survey was conducted by a professional archaeologist and a Native American monitor from Saving Sacred Sites and the San Luis Rey Band of Luiseño Mission Indians. No archaeological or historic resources of significance were found.

C.13 PHASE I ENVIRONMENTAL SITE ASSESSMENT

The following information is summarized from the Phase 1 Environmental Site Assessment (see *Exhibit G in the BEI*).

A Phase 1 Environmental Site Assessment was prepared in 2011 to provide information regarding the potential for existing hazardous substances or petroleum product issues associated with the site. No evidence of recognized environmental conditions (REC) was revealed.

D. Site Selection and Project Goals

D.1 SITE SELECTION

The Bank Property is an ideal restoration site for the following reasons:

1. Bisected by the San Luis Rey River
2. Identified by multiple agencies as a high value restoration site
3. Removal of historic fill within the floodplain
4. Restoration would remove fill and recreate the channel hydraulics and natural function within the floodplain
5. Minimal potential for conflicts with adjacent land uses
6. Located adjacent to other preserved properties along the river
7. Expansion of the wildlife corridor along the river

Permanent protection and restoration of the Bank Property is consistent with the federal, state and local plans for this vital resource.

D.2 BANK GOALS

The goal of the Bank is the restoration of the historic floodplain and entitlement of the wetlands mitigation bank in order to provide regional compensation for unavoidable impacts to wetlands and waters.

Approval of the Bank would result in the following activities:

- Restoring self-sustaining fluvial processes onsite.
- Improving the existing riparian habitat and restoring a riparian floodplain thereby improving habitat values. Restoration of the floodplain could potentially provide habitat for state and federally listed species including arroyo toad, least Bell's vireo, and southwestern willow flycatcher.
- Improving the channel design to accommodate current and future flood flows.
- Realigning the San Luis Rey River through the site.

- Grading of the site to remove the berms along both sides of the river and remove approximately 730,000 cubic yards of fill from the floodplain.

- Abandoning four agricultural wells located within the floodplain that would not be needed in the future. The associated utility corridors to these wells and any other unnecessary utility corridors also would be abandoned.

- Permanent protection of the Bank Property through recordation of a conservation easement on the Bank Property.

- Permanent management of the Bank as funded by a non-wasting Endowment Fund.

E. Restoration Design

E.1 CONCEPTUAL REHABILITATION AND RE-ESTABLISHMENT DESIGN

The San Luis Rey River within the Bank Property is highly degraded. The river has been channelized and portions of the floodplain have been filled to maximize farmland. Woody vegetation has been continually removed from the channel to maintain its conveyance capacity. The banks of the channel are dominated by the invasive giant reed. In contrast, both upstream and downstream from the project site, the river is characterized by a wide floodplain with established trees and reduced presence of invasive species.

From a biological perspective, the Bank Property is primarily characterized as active cultivated agricultural lands. The agricultural lands are located both north and south of the 1,800 foot channelized reach of the San Luis Rey River. The channelized portion of river functions as degraded freshwater marsh habitat and is dominated by bulrush (*Scirpus* sp.) and cattail (*Typha* sp.)

The Conceptual Restoration Plan, Figure 18 and Figure 19, proposes the rehabilitation[1] of the San Luis Rey River and the re-establishment[2] of the floodplain via the removal of fill material from the agricultural fields. Revegetation of the site will result in a broad riparian corridor and improved wildlife habitat.

A completed restoration project (Singh Restoration Site), located along the San Luis Rey River floodplain immediately upstream of the Bank, was used as a design reference for the wetland riparian habitat. The Singh Restoration Site involved restoration and enhancement of 21± acres of riparian habitat and the removal of 11± acres of giant reed along with other invasive, non-native plant species and revegetation with native riparian species. This restoration effort met the final success criteria in 2007. The Singh Restoration Site is dominated by several species of willow, cottonwood (*Populus fremontii*), and by mule fat (*Baccharis salicifolia).* The rehabilitated/re-established riparian corridor has been designed to include the species found in the Singh Restoration Site at a similar plant density.

[1] Rehabilitation means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

[2] Re-establishment means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

E.1.a River Corridor Rehabilitation Activities

The Bank design will take a river that has been channelized, straightened, confined and disconnected from its historic floodplain and restore it to a wider, shallower, sinuous and braided form that is much more connected to its floodplain. The existing channel has a trapezoidal form with an artificially low width:depth ratio. The channel will be relocated with a width:depth ratio that is appropriate to its setting and location in the watershed.

Engineered large woody debris structures or boulders may be considered for placement in the river if the hydrologic analysis indicates the structures would direct flows to off-channel locations and help prevent re-establishment of the river in its current location.

The channel will be allowed to migrate and avulse within the restored floodplain area, as is typical for sand bed braided channels in this area. This will support a wide range of aquatic and riparian processes that do not occur under existing conditions. For example, channel shifts between the main channel and the side channels will periodically deposit fresh sediment on channel bars and floodplain areas, creating patches for mulefat, willows and other riparian species to colonize. At the same time floods and localized scour will disturb and remove older patches of riparian vegetation. The combined effect of these processes will be a riparian corridor with a more diverse complex of different ages and types of vegetation, with more ecological niches.

Rehabilitation of the river requires the removal of the non-engineered private farm levees found on the north and south sides of the river and the removal of giant reed. Giant reed is a tall perennial grass (family Poaceae) that typically forms dense stands on disturbed sites, sand dunes, riparian areas, and wetlands. It is one of the fastest growing land plants in the world. It can grow up to 4 inches per day and reach a height of up to 30 feet. It has invaded numerous counties including San Diego County. Giant reed is considered an invasive species that is threatening California's riparian ecosystems by outcompeting native species, such as willows, for water. It typically displaces native species by shading immature plants.

Rehabilitation of the river will improve various wetland functions including:

1. Create initial hydrologic conditions to support re-establishment of the river corridor and expansion of the riparian habitat.

2. Improve water quality through the removal of sediments in the river and decreased erosion through the establishment of a healthy herbaceous cover.

3. Improve habitats including foraging, nesting and rearing for mammals, amphibians, reptiles and birds.

4. Increase the quality and diversity of aquatic and riverine habitat and general habitat suitability by providing the hydrology and improving the native plant richness and wildlife habitat.

5. Expand and improve the wildlife corridor connection between protected and restored sites upstream and downstream of the Bank Property through the creation of an unbroken vegetation corridor.

The rehabilitation activities will substantially increase wetland functions and provide for a greater number of services including improved water quality, decreased sedimentation and erosion, improved biological diversity and aesthetics.

E.1.b River Corridor Re-establishment Activities

The restoration design will re-establish the historic floodplain through the removal of artificial fill from the agricultural fields. The removal of this material will allow for the reintroduction of self-sustaining fluvial processes and will result in the re-establishment of the wetland riparian river corridor. The restoration design includes a connection to an existing drainage from the south as shown in Figure 18.

Re-establishment of the river corridor will result in the establishment of a wide riparian corridor in the floodplain. Groundwater data was collected on site beginning in 2009 and is provided in detail in the Hydraulic Report and Conceptual Restoration Plan for the San Luis Rey Mitigation Bank (Exhibit K-7 to the BEI). On average elevations during the 2009-2010 water year, which was determined to be a slightly wetter than average year, ranged from 97.92 to 110.33 (NAVD88). In order to maintain a healthy riparian corridor, the depth of excavation will generally range between 8 – 15 feet in order to achieve inundation or saturation near the ground surface for sufficient duration during the growing season. This will allow the vegetation to tie into the water table and assure successful establishment.

Re-establishment of the river will result in an increase of aquatic resource area and will improve various wetland functions including:

1. Improve water quality through the removal of ongoing agricultural activities that annually result in the discharge of nutrients and sediments into the river.

2. Slow the rising and falling storm water movements through the floodplain, i.e., slow the peak timing and flows and increase the detention time of storm water in the Bank Property. This will reduce flooding and increase infiltration into the groundwater.

3. Improve habitats for special-status species including arroyo toad, least Bell's vireo and southwestern willow flycatcher.

E.2 CONSTRUCTION INFORMATION

E.2.a Implementation Schedule

It is anticipated that construction of the Bank would occur in one phase beginning in either late 2014 or early 2015. Initial activities would begin no later than mid-February and would include grading, planting and seeding. Modification of the river corridor including removal of the levees and removal of the giant reed would occur during the dry season. Planting and seeding would begin at the end of construction and would likely occur between November 15 and March 15 to take advantage of the winter rains.

E.2.b Earthmoving Activities

Fill material will be removed from the agricultural fields to re-establish a functioning floodplain through the Bank Property. The removal of approximately 730,000 yards of fill will allow for the reintroduction of self-sustaining fluvial processes and will result in the re-establishment of wetland riparian habitat within the river corridor. Surface hydrology and groundwater data has been studied (Exhibit K-7 to the BEI) to determine the configuration and elevations of the restored floodplain. In addition to restoration of the San Luis Rey River though the Bank Property, the restoration design may include connections to existing drainages located in the both the southern and northern portions of the Bank Property.

Wetland construction activities will be conducted using heavy equipment which may include tractors, scrapers, bulldozers, skiploaders, backhoes, excavators, and water trucks.

Analysis of historical aerial photos indicates that the portion of the San Luis Rey River that runs through the Bank Property has been converted from a braided river to a single-thread trapezoidal flood control channel. Since the 1940's, the channel has been straightened and the adjacent floodplain has been filled to accommodate agricultural fields. The Bank design will reconfigure the existing straight, incised channel and to restore a braided river with a broad, reconnected floodplain. The morphology of the restored river will be appropriate for its hydrologic setting within the watershed and will support a mosaic of wetland and riparian habitat, similar to the area immediately upstream of the Bank Property.

The design of the restoration area includes a primary channel and a secondary channel. The restored channels will be located south of the existing river alignment. The dimensions of the primary channel are anticipated to be 26 feet wide with a depth of 3 feet and a slope of 0.004 while the dimensions of the secondary channel are anticipated to be 23 feet wide with a depth of 3 feet. A detailed analysis of the design methods used to determine the appropriate channel dimensions is included in Exhibit K-7 to the BEI. The restoration of the river would extend from the east upstream end of the Bank Property to immediately upstream of the culvert crossing located at the west downstream end of the Bank Property.

The construction sequence for work in the river follows:

1. Excavate the new floodplain south of the existing channel while retaining a buffer between the existing channel and the new floodplain.
2. Excavate the new primary channel within the new floodplain.
3. Remove buffer between the downstream end of the existing channel and the new channel.
4. Connect the downstream ends of both channels.
5. Remove buffer between the upstream end of the existing channel and the new channel.
6. Connect the upstream end of both channels.
7. Plug the upstream end of the old channel so that flow is directed into the new channel.
8. Salvage emergent marsh vegetation from the existing channel and place the vegetation adjacent to the new channel.
9. Fill the old channel from upstream to downstream with clean soil so that the river cannot re-occupy the old alignment.
10. Remove the buffer that was left between the old channel and the new channel.
11. Excavate floodplain areas north of the old channel.
12. Finish grade the Bank Property.
13. Plant and seed the Bank Property.

It is estimated that once the floodplain is constructed to final grade, the construction of the new channels would require a maximum of two weeks. Diverting the water to the new channels would require approximately 1 day. The salvage of vegetation and diversion of the river would occur during the dry season (June 1 to October 1).

The Bank may include a structure such as a large woody bank revetment across the existing channelized river course to prevent the river from reoccupying the old alignment during high flows in the first few years after construction; however, the need for such a structure has not yet been confirmed.

Dewatering of the construction area may be required depending on groundwater levels during construction.

In-water work is considered minimal as construction of the new channels will occur while the existing river is in place. Likewise, flow will be diverted to the new channels prior to removal of the vegetation in the existing channel and placing fill in the existing channel.

Excavation of the floodplain would occur both north and south of the river. Most of the larger soil placement sites are located north and northeast of the restoration area; therefore, the project may include construction of a temporary culvert crossing of the river at the upstream end of the Bank Property.

E.2.c Planting Plan

The Bank may be planted with a combination of cuttings, nursery grown plants and seed. Cuttings will be taken from the upstream restoration site and to the extent possible nursery grown plants and seed will be local, preferably from the San Luis Rey watershed. Irrigation may be required during the plant establishment period; however, irrigation is not anticipated to be required beyond the third year following plant installation. However, Bank Sponsor may elect to irrigate longer recognizing that the associated Credit Release schedule would be delayed until irrigation is removed for two years. The following plant species are being evaluated for the various habitat zones at the site:

Rehabilitated / Re-established Wetland Riparian Corridor (350 plants per acre):

- Fremont cottonwood (*Populus fremontii*)
- Black willow (*Salix gooddingii*)
- Arroyo willow (*Salix lasiolepis*)
- Sandbar willow (*Salix hindiana*)
- Mule fat (*Baccharis salicifolia*)

Floodplain Buffer Restoration (350 plants per acre):

- Fremont cottonwood (*Populus fremontii*)
- Mule fat (*Baccharis salicifolia*)
- Live oak (*Quercus agrifolia*)
- Sycamore (*Platanus racemosa*)

Upland Buffer Restoration:

- Native and naturalized grasses
- Coastal sage scrub species (*Eriogonum spp, Salvia spp, Artemisia spp, Isocoma spp*, etc.)
- Live oak (*Quercus agrifolia*)

The planting schedule for the various habitats is shown in Table 3. The seed mixes for the various habitats is shown in Table 4.

Table 3. Planting Schedule			
Emergent Marsh 3.2 acres			
Botanical Name	**Common Name**	**Notes**	
Scirpus americanus	three-square bulrush	Salvage emergent marsh vegetation from locations where the existing channel will be relocated. Replace vegetation adjacent to the relocated channel	
Scirpus californicus	California bulrush		
Scirpus fluviatilis	river bulrush		
Typha latifolia	broadleaf cattail		
Riparian Forest 35.5 acres			
Botanical Name	**Common Name**	**Number per acre**	**Total**
Baccharis salicifolia	mulefat	18	639
Populus fremontii	Fremont cottonwood	105	3,728
Salix exigua	sandbar willow	18	639
Salix gooddingii	black willow	174	6,177
Salix lasiolepis	arroyo willow	35	1,243
Total		**350**	**12,426**
Floodplain Buffer 9.2 acres			
Botanical Name	**Common Name**	**Number per acre**	**Total**
Baccharis salicfolia	mulefat	175	1,610
Platanus racemosa	California sycamore	35	322
Populus fremontii	Fremont cottonwood	105	966
Quercus agrifolia	coast live oak	35	322
Total		**350**	**3,220**
Upland Buffer 3.3 acres			
Artemisia californica	California sagebrush	100	920
Eriogonum fasciculatum	California buckwheat	100	920
Total		**200**	**1,840**

Table 4. Seed Mixes			
Riparian Forest / Marsh	**38.7 acres**		
Botanical Name	**Common Name**	**Pounds per acre**	**Total**
Anemopsis californica	yerba mansa	2	77
Leymus triticoides	creeping wildrye	5	194
Artemisia douglasiana	California mugwort	3	116
Oenothera elata	Great marsh evening primrose	2	77
Total		**12**	**464**
Floodplain Buffer	**9.2 acres**		
Botanical Name	**Common Name**	**Pounds per acre**	**Total**
Artemisia douglasiana	California mugwort	3	28
Leymus triticoides	creeping wildrye	3	28
Oenothera elata	Great marsh evening primrose	2	18
Ambrosia psilostachya	western ragweed	3	28
Total		**11**	**102**
Upland Buffer	**3.3 acres**		
Botanical Name	**Common Name**	**Pounds per acre**	**Total**
Artemisia californica	California sagebrush	2	7
Eriogonum fasciculatum	California buckwheat	2	7
Isocoma menziesii	coast goldenbush	2	7
Vulpia microstachys	annual fescue	2	7
Lupines tricolor	tricolored lupine	2	7
Nassella pulchra	purple needlegrass	2	7
Total		**12**	**42**

E.2.d Giant Reed Removal

Along with the removal of fill from the floodplain and revegetation of the site, another component of the restoration is the removal of giant reed. Giant reed is a tall perennial grass (family Poaceae) that typically forms dense stands on disturbed sites, sand dunes, riparian areas, and wetlands. It is one of the fastest growing land plants in the world. It can grow up to 4 inches per day and reach a height of up to 30 feet. It has invaded numerous counties including San Diego County. Giant reed is considered an invasive species that is threatening California's riparian ecosystems by outcompeting native species, such as willows, for water. It typically displaces native species by shading immature plants.

Various techniques can be used to remove giant reed including but not limited to hand removal, mechanical removal of the plant and rhizomes which can be up to 10 feet below the soil surface, chemical control, and machine gathering and grinding of the plants, etc. The most effective eradication of giant reed begins at the top of the watershed and includes removal of all the plants downstream of the infestations. Giant reed infestations currently on the Bank will be removed using an excavator during grading activities, including the root system. Any small patches outside of grading areas will be mowed and regrowth will be chemically treated.

E.3 ANTICIPATED PERMITS

A list of anticipated permits, agreement and consultations is provided in Table 5. The USACE and CDFW have the authority to approve the Bank.

Table 5. Anticipated Permits, Agreements and Consultations

Agency	Approval, Permit, Agreement or Consultation	Approval or Permit Status
U.S. Army Corps of Engineers (USACE)	Approval of the mitigation bank Clean Water Act (CWA) Section 404 nationwide permit	Preliminary jurisdictional determination made. Section 404 nationwide permit application submitted.
U.S. Environmental Protection Agency (EPA)	Review of the mitigation bank	BEI has been submitted

Table 5. Anticipated Permits, Agreements and Consultations

Agency	Approval, Permit, Agreement or Consultation	Approval or Permit Status
U.S. Fish and Wildlife Service (USFWS)	Review of the mitigation bank Informal Section 7 consultation with the USACE	BEI has been submitted An informal consultation was completed by USFWS for USACE in compliance with section 7
National Marine Fisheries Service (NMFS)	Possible review of the wetlands mitigation bank Possible section 7 consultation with the USACE	BEI has been submitted USACE is responsible for section 7 compliance
California Department of Fish and Wildlife (CDFW)	Approval of the mitigation bank A Section 1602 streambed alteration agreement is required because the project requires construction in the San Luis Rey River which is subject to CDFW jurisdiction	BEI has been submitted Streambed alteration agreement application has been submitted
Federal Emergency Management Agency (FEMA)	Approval of a Conditional Letter of Map Revision (CLOMR) (conditional modification of the 100-year floodplain before construction) Approval of a Letter of Map Revision (LOMR) (modification of the 100-year floodplain after construction)	CLOMR application has been submitted (No effect on approval of Bank)
San Diego Regional Water Quality Control Board (Regional Board)	All Section 404 permits require a Clean Water Act Section 401 water quality certification from the Regional Board	Bank Sponsor responsible for attaining certification. Certification in process.
State Water Resources Control Board	Clean Water Act Section 402 National Pollutant Discharge Elimination System (NPDES) requires enrollment into the Statewide Construction General Permit	Application will be submitted by Bank Sponsor
City of Oceanside	Development Plan review and approval (includes grading plan and landscape/restoration plan) Approval of the CEQA document	In process

E.4 CONSTRUCTION AVOIDANCE AND MINIMIZATION MEASURES

Wildlands has committed to implement conservation measures (Bio-1 through Bio-6) to avoid and minimize potential adverse effects to the gnatcatcher, vireo, flycatcher, and arroyo toad and its designated critical habitat, to an insignificant level. These measures support the USFWS concurrence with the USACE of "not likely to adversely affect" determination for the vireo, flycatcher, gnatcatcher, and arroyo toad and its designated critical habitat with regard to the USACE proposed action to issue a permit under section 404 of the Clean Water Act to facilitate Bank construction.

Wildlands is also working with CDFW, City of Oceanside, and Regional Water Quality Control Board on various entitlements/approvals/permits. Any conservation measures agreed upon pursuant to these additional approvals will be implemented in addition to, or in lieu of the conservation measures identified in Bio 7 – Bio 9 below.

E.4.a Biological Resources

BIO-1 Project Biologist

A project biologist[3] approved by the USACE and USFWS (Agencies) and CDFW, as appropriate, will be on site during Bank implementation to ensure that all avoidance and minimization measures are adhered to and unintended impacts to arroyo toad, vireo, flycatcher, and gnatcatcher and their habitats are avoided. At least two (2) weeks prior to Bank initiation, the name(s), permit numbers, resumes, and at least three (3) references for the project biologist will be submitted to the Agencies and CDFW. The project biologist must be familiar with federally threatened or endangered species and habitats potentially occurring within the region of the Bank Property. Bank related activities will not be initiated prior to receiving Agency approval. The project biologist will be responsible for ensuring compliance with the Bank permits (including all conservation measures) to minimize and avoid impacts (incidental take) to federally threatened and/or endangered species. The project biologist will have authorization to halt/suspend all activities until appropriate corrective measures have been completed and will also be required to report violations immediately to the Agencies and CDFW.

The project biologist's responsibilities will include but not be limited to:

[3] An Agency-approved biologist will have at least 40 hours in the field observing arroyo toads, vireo, flycatchers, and gnatcatchers and documented experience locating and monitoring vireo, flycatchers, and gnatcatcher nests. More than one biologist may be approved as needed.

1. Advise all project-related staff (contractors) on the appropriate implementation of the conservation measures.

2. Be available to supervise and monitor biological resource compliance efforts in areas requiring avoidance or containing suitable habitat for federally endangered species.

3. Be available to monitor installation of all Best Management Practices (BMPs), Environmentally Sensitive Habitat (ESH) fencing (BIO-3.1), and arroyo toad exclusionary fencing (BIO-4.1).

4. Halt any and all activities in any area when a potential unauthorized incidental "take" of an endangered species may or has occurred.

5. Inspect active project site where federally listed species habitat is present or adjacent to work area to ensure compliance with all conservation measures for the duration of Bank construction. Monitor Bank Property as appropriate but not less than once a week for compliance with all conservation measures.

6. Conduct initial Environmental Awareness Program (BIO-2) for all project-related staff.

7. Conduct species specific monitoring (BIO-4, BIO-5).

8. Notify the Agencies and CDFW of any noncompliance with any conservation measure and complete reporting (BIO-6).

BIO-2 Environmental Awareness Program

The designated biological monitor will develop and implement an environmental awareness program for all project-related staff (contractors). All employees, contractors, and subcontractors who will work on constructing the Bank will participate in the program. The environmental awareness program will include but not be limited to a description of all federally endangered species and their habitats potentially occurring within the region of the Bank Property, the general provisions of the federal Endangered Species Act (Act), the need to adhere to the provisions of the Act, the penalties associated with violating the Act, and the general measures that are being implemented to conserve the listed species as they relate to the Bank. A handout will be provided to all staff illustrating all focal species and listing contact information and procedural instructions, if detected. A training acknowledgement form will be signed by all staff participating in Bank construction indicating that they have received training and will abide by the guidelines and conservation measures.

BIO-3 General Measures to Avoid and Minimize Impacts to Listed Species and Arroyo Toad Critical Habitat

1. Wildlands will install temporarily ESH fencing (with silt barriers) around the limits of Bank construction impacts (including construction staging areas and access routes) to prevent additional habitat impacts and prevent the spread of silt from the construction zone into adjacent habitats to be avoided. Fencing will be installed in a manner that does not impact habitats to be avoided. Wildlands will submit to the Agencies for approval, at

least 5 days prior to initiating project impacts, the final plans for initial clearing and grubbing of habitat and Bank construction. A copy of the plans shall also be furnished to CDFW. These final plans will include photographs that show the fenced limits of impact and all areas (including riparian/wetland or coastal sage scrub) to be impacted or avoided. If work occurs beyond the fenced or demarcated limits of impact, all work will cease until the problem has been remedied to the satisfaction of the Agencies and CDFW. Temporary construction fencing will be removed upon completion of Bank construction.

2. At least thirty (30) days prior to initiation of Bank construction-related activities, grading plans will be submitted to the Agencies, USEPA, and CDFW for review. The plans will include preconstruction photographs of the Bank Property.

3. Employees will strictly limit their activities, vehicles, equipment, and materials to the designated temporary impact areas and designated staging areas. No personnel or equipment will be allowed to enter areas designated as ESH areas.

4. To avoid attracting predators, work areas will be kept as clean of debris as possible. All food-related trash items will be enclosed in sealed containers and regularly removed from the Bank Property.

5. No pets will be allowed in the Bank Property.

6. All equipment maintenance, staging, and dispensing of fuel, oil, or coolant, will occur within a predetermined staging area. Fueling and maintenance of trucks and other vehicles will occur within a predetermined staging area. Equipment will be checked for leaks prior to operation and repaired as necessary.

7. The Bank will be planted as early as possible following completion of grading/excavation activities adjacent to ESH areas. Specifically, BMP's to address erosion and excess sedimentation will be incorporated into the Bank plans. Measures that will be implemented during excavation, hauling, spreading and restoration efforts may include (but will not be limited to) the use of silt fencing, gravel bags, hay bales, fiber rolls, and protective velocity dissipaters at drainage outlet points.

8. Herbicides used in exotic species control during long-term maintenance activities will be currently approved by the USEPA for use in wetlands, and no herbicide will be applied to native vegetation. The herbicide should be tinted with a biodegradable dye to facilitate visual control of spray.

BIO-4 Arroyo Toad Impact Avoidance and Minimization Measures

1. Prior to initiation of vegetation clearing or Bank construction, fencing will be installed around each segment of the Bank Property adjacent to suitable arroyo toad upland and/or breeding habitat to exclude arroyo toads from Bank Property. The fence will consist of fabric or plastic at least 2 feet high, staked firmly to the ground with the lower one foot of material stretching outward along the ground and secured with a continuous line of gravel bags. No digging or vegetation removal will be associated with the installation of this

fence and all materials will be removed when the Bank construction is complete. Ingress and egress of equipment and personnel will use a single access point to the site. This access point will be as narrow as possible and will be closed off by exclusionary fencing when personnel are not on the Bank Property. Where they overlap, the arroyo toad exclusionary fence can be combined with the ESH fencing in BIO-3.1.

2. Prior to Bank construction, but after exclusionary fencing has been installed, at least 3 surveys for arroyo toads will be conducted within the fenced area by the Agency-approved project biologist specified in BIO-1. Surveys will be conducted during the appropriate climatic conditions during the appropriate time of day or night to maximize the likelihood of encountering arroyo toads. If arroyo toads are found within the Bank Property during the surveys, all work will cease and the Agencies will be notified to reinitiate section 7 consultation.

BIO-5 Vireo, Flycatcher and Gnatcatcher Impact Avoidance and Minimization Measure

All vegetation clearing will be conducted between September 15 and February 15 to avoid potential direct and/or indirect impacts to breeding vireo, flycatcher or gnatcatcher. In the event vegetation clearing and/or construction activities (excavation and/or restoration efforts) must occur within the vireo, flycatcher or gnatcatcher breeding season, then a pre-construction survey will be conducted no more than three (3) days prior to project initiation to ensure that no impacts to nesting birds occur. Should vireo, flycatcher or gnatcatcher nests or breeding activity be documented within (if vegetation has not been removed) or adjacent to the Bank Property, then appropriate measures will be implemented including, but not be limited to, monitoring during clearing, excavation or planting to ensure that no impacts to the breeding individuals occur, temporary designation of the breeding site as an ESH, and/or delaying/restricting Bank construction-related activities within a buffer zone (determined by the project biologist in coordination with the Agencies and CDFW based on location and topography) until nesting and fledging is complete.

BIO-6 Reporting

1. The project biologist will submit monthly updates and a final report to the Agencies and CDFW within 60 days of completion of Bank construction documenting that authorized temporary impacts were not exceeded and general compliance with all conservation measures.

2. The final report will summarize the results of the monitoring efforts and include recommendations to further reduce potential impacts to sensitive species, if applicable. As previously stated, the Agencies and CDFW will also be notified if any listed species are found within or adjacent to the Bank Property. The date, specific location (Global Positioning System coordinates), approximate size, age, and health of the individual will be recorded and provided in both hard copy and digital format to the Agencies and CDFW within thirty (30) of the observation.

3. The USFWS and CDFW will be notified if any listed species are found injured or dead. A written notification would also be prepared after verbal notification. The report would include the date, time and location of the discovered animal/carcass, cause of injury or death, and any other pertinent information. All dead and preserved specimens will be submitted to educational/research institutions with the appropriate federal permits.

BIO-7 California Steelhead Impact Avoidance and Minimization Measures

1. Water diversion construction (including filtering system) within the Bank Property will be initiated after May 1st and removed by November 30th. This construction season is when the southern California steelhead is not expected to occur within the Bank Property. Following completion of Bank construction-related activities, all water diversion materials will be removed and flows will be restored to natural conditions.

2. A preconstruction survey will be conducted immediately prior to initiation of Bank construction-related activities within the San Luis Rey River to determine presence/absence of the southern California steelhead. Project-related activities conducted within or adjacent to the San Luis Rey River will not be initiated until the species has been documented absent from the Bank Property.

3. Avoid working in actively flowing water, where feasible.

4. Any shallow or deep aquatic habitat including existing pools, riffles and plunge pools will be retained and/or restored within the Bank Property, where feasible.

5. The exclusionary/ESH fencing proposed to traverse the up and downstream segments of the San Luis Rey River would be breached to allow for migration no later than November 30th.

6. The date, time of observation, specific location (GPS coordinates), approximate size, age, and health of all individuals observed will be recorded and provided to the NMFS within thirty days of the documentation in both hard copy and digital format.

BIO-8 Nesting Bird Impact Avoidance and Minimization Measures

Impacts to nesting bird species are prohibited under the MBTA. The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 C.F.R. Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R. Part 21). Suitable nesting bird habitat has been documented within and immediately adjacent to the project site. Therefore, to remain in compliance with the MBTA, nesting bird surveys will be conducted and avoidance and minimization measures consistent with Bio-5 will be implemented.

BIO-9 Water Quality/General Impact Avoidance and Minimization Measures

1. All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities shall occur in designated areas outside of Waters of the U.S. within the Bank Property. These designated areas shall be located in previously compacted and disturbed areas to the maximum extent practicable in such a manner as to prevent any runoff from entering Waters of the U.S. and shall be shown on the grading plans. Fueling of equipment shall take place within existing disturbed areas greater than 100 feet from Waters of the U.S. Contractor equipment shall be checked for leaks prior to operation and repair as necessary.

2. "No fueling zones" shall be established within a minimum of 100 feet from the San Luis Rey River.

3. Any Bank construction-related spills of hazardous materials shall be reported to appropriate entities including but not limited to the City of Oceanside, USACE, USFWS, CDFW, and Regional Water Quality Control Board (RWQCB) and shall be cleaned up immediately and contaminated soils removed to approved disposal areas.

4. Any planting stock to be brought onto the Bank Property for restoration shall be first inspected by a qualified pest inspector to ensure it is free of pest species that could invade natural areas, including, but not limited to, Argentine ants, fire ants, and other insect pests. Any planting stock found to be infested with such pests shall not be allowed on the Bank Property or within 300 feet of natural habitats. The stock shall be quarantined, treated or disposed of according to best management principles by qualified experts in a manner that precludes invasions into natural habitats.

5. Any temporary irrigation installed for the restoration area shall be used for the shortest duration possible.

6. Public access to the project site shall be prohibited. Fencing may be required to keep unauthorized personnel from trespassing.

E.4.b Hydrology and Water Quality

1. Prior to the start of construction, the contractor shall obtain permit coverage from the State Water Resources Control Board (SWRCB) under the National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity.

2. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared to comply with the permit and include site-specific detail on erosion and sediment control measures that will be implemented to minimize erosion during construction and prevent sediment transport from the site. Site-specific measures include best management practices (BMPs) to detain runoff from the project site and prevent sedimentation to the San Luis Rey River.

3. The contractor shall designate a qualified person to inspect and document compliance with the SWPPP. The designated person shall ensure that sedimentation is limited to within the construction area.

E.4.c Cultural Resources

1. Prior to implementation of the monitoring program and prior to beginning any grading, a pre-excavation agreement shall be developed between the appropriate Native American group (assumed to be the San Luis Rey Band of Luiseño Mission Indians) and the Bank Sponsor.

2. The qualified archaeologist and the Native American representative shall attend the pre-grading meeting with the contractors to explain the requirements of the monitoring program.

3. An archaeologist and a Native American monitor shall be on-site during grading and other ground-disturbing activities; given the extremely disturbed nature of the Bank Property, it is not anticipated that full-time monitoring would be necessary; a monitoring schedule will be developed between the archaeological Principal Investigator, Native American representative, and the Bank Sponsor.

4. If cultural resources are encountered, the monitors shall have the authority to temporarily halt or redirect grading while the cultural resources are documented and assessed. If significant resources are encountered, appropriate mitigation measures must be developed and implemented.

5. If any human remains are discovered, the County Coroner shall be contacted by the archaeologist or Native American monitor. In the event that the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission, shall be contacted in order to determine proper treatment and disposition of the remains.

6. If cultural resources are encountered, recovered artifactual materials shall be cataloged and analyzed and a report shall be completed describing the methods and results of the monitoring and data recovery program.

7. Artifacts collected (if any) shall be curated with accompanying catalog to current professional repository standards or the collection will be repatriated to the San Luis Rey Band, as specified in the pre-excavation agreement.

E.4.d Air Quality

1. Prior to grading, the following measures shall be included in the notes on the grading plan and implemented during construction, to the satisfaction of the City Engineer.

a. Adhere to best management practices, which shall include the application of water on disturbed soils and replanting disturbed areas as soon as practical.

b. During construction activities, construction equipment shall be properly maintained to ensure proper timing and tuning of engines.

c. The contractor shall adhere to all San Diego Air Pollution Control District (SDAPCD) Rules and Regulations.

d. If feasible, the contractor shall ensure use of low-sulfur diesel fuel in construction equipment as required by the California Air Resources Board.

2. Construction vehicles shall drive 20 mph or less on unpaved roadways within the Bank Property.

3. Wheels and undercarriages of haul trucks shall be cleaned prior to entering public roadways. If necessary, access to all public streets from which site access is taken shall be swept on a daily basis to prevent dirt from being carried from the Bank Property. The goal is to keep vehicles from pulverizing dirt into fine particles.

4. Dirt trackout control devices shall be installed and maintained where paved and unpaved travel routes intersect at public streets.

5. Signage shall be placed in visible areas on the project site with a name and telephone number to call for complaints related to fugitive dust. The calls shall be responded to in a timely manner.

6. A dust control plan shall be prepared and submitted to the City of Oceanside prior to earthwork activity.

7. Construction equipment shall meet California Air Resources Board—certified off road vehicle requirements.

E.4.e Noise

1. Due to the isolated location of the construction site and lack of nearby noise-sensitive receptors, construction activity will be allowed during the daylight hours, Monday through Saturday.

E.4.f Hazardous Materials

1. The Bank Sponsor is required to comply with all federal, state, and local regulations for the storage and handling of hazardous materials that may be utilized during construction.

2. If unknown contamination or other buried hazards are encountered during construction, all work within 100 feet of the find shall stop and remediation must be carried out to the satisfaction of the City of Oceanside.

F. Monitoring and Performance Standards

The habitat will be monitored regularly in order to document progression of the habitat toward achieving Bank goals. Performance Standards are benchmarks to be used as indicators of the relative progress towards achieving habitat restoration goals. Performance Standards have been developed for the various habitats. A summary of the monitoring activities and the performance standards for each habitat type are listed in Tables 6 and 7 respectively. It is anticipated that the habitat will meet the Performance Standards within five years; therefore, it is anticipated that the performance monitoring will occur for five years. Upon achievement of the Performance Standards, quarterly site inspections described below will continue throughout the remainder of the Interim Management Period, with long-term monitoring occurring after that. Continued success of the restored habitat, without supplemental irrigation, must be demonstrated for two consecutive years. If an extension of monitoring is required because of remediation, only those features not meeting Performance Standards would need to be monitored.

An inherent challenge in setting up Performance Standards for a wetland in the arid southwest to be measured within the first five years is the infrequent and episodic nature of surface flows. For example, in the USACE field guide to OHWM delineation in the arid southwest Lichvar and McColley (2008) refer to the variability in floodplain inundation in arid regions compared with humid regions. Active floodplain in the arid southwest is considered to be floodplain that is inundated by flows with an average recurrence interval of between 2 and 10 years. Within the first two years after construction of the project there is a 50% probability that a 2-year flow will not have occurred, and an 80% probability that a 10-year flow event will not have occurred. It is therefore important to assess Bank performance in the context of the hydrologic events that have occurred within the life of the Bank each time monitoring is performed.

F.1 MONITORING DURING THE INTERIM MANAGEMENT PERIOD

The Interim Management Period is defined in the BEI as the period from the Bank Establishment Date until the third anniversary of the full funding of the Endowment Fund has occurred and all the Performance Standards in the Development Plan have been met. Management, monitoring, adaptive management, reporting and other activities related to the Interim Management Period are presented below. An overall monitoring schedule is presented in Table 6.

Vegetation, hydrology and habitat restoration will be monitored for 5 years after construction to ensure the restored habitats are functioning as designed. It is anticipated that the habitat will meet Performance Standards at the end of five years. Vegetation will be monitored in all of the habitat zones using permanently established plots, and vegetation monitoring will occur at the end of the growing season. “Year 1” will be considered to be the first growing season following construction.

A portion of an upstream restoration area has been selected as the "Reference Site" (Figure 20). Groundwater monitoring wells and permanent plots will be established within the Reference Site from which hydrology and vegetation data will be collected during the Bank establishment period. The Reference Site data will be compared with data from the Bank in order help gage the success of the Bank habitats. Assessments using the California Rapid Assessment Method (CRAM) have also been conducted at two locations or "Assessment Areas" one within the upstream Reference Site and one within the Bank Property (Figure 21).

Photo documentation of the Bank Property will occur in all monitoring years. Photos will be taken at each permanent plot. Photo locations within the plots will be recorded with global positioning system (GPS) equipment and subsequent photos will be taken from the same location each year.

All wildlife incidentally observed or detected will be documented in all monitoring years. Increasing use of the restoration area would be a positive indicator that wildlife functions and services have been restored at the Bank Property.

F.1.a Rehabilitated / Re-established Wetland River Corridor Monitoring

Monitoring of woody vegetation will be performed by systematically surveying the site to gather information about vegetative and hydrologic success. Twenty evenly distributed, permanently marked plots will be used to garner information about the vegetative success of the habitat. The constructed riparian areas will also be sampled to determine the hydrologic development of the habitat including characteristics such as flooding/ponding depth, duration and acreage.

The hydrology of the Bank Property is groundwater driven with influences from direct precipitation and high flows during storm events. Hydrology will be measured through the use of shallow groundwater monitoring wells/staff gauges.

The use of permanently established plots rather than transects will ensure that tree counts and cover estimates are repeatable from year to year. The corners of the plot remain visible within the plot thereby minimizing inconsistencies in tree counts. Transect counts are sometimes more difficult to accurately repeat, particularly as the vegetation matures and obscures the transect path.

HYDROLOGY

- **Shallow Groundwater/Hydric Soils:** Four shallow groundwater monitoring wells will be permanently installed within the reestablished wetland riparian corridor (Figure 22). Water elevations will be electronically recorded during the wet season using water level data loggers. In the event of data logger failure, wells may be manually measured every two weeks during the wet season.

- **Surface Flows – Active floodplain/secondary channels**: Evidence of overbank flows from the San Luis Rey River and surface flows into secondary channels across the active floodplain shall be recorded via the permanent data loggers. If data logger data is unavailable, direct observation of overbank flows or physical evidence of OHWM may be used. Evidence of OHWM must be in accordance with *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (ERDC/CRREL TR-08-12) or in Group B of the primary wetland hydrology indicators as described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ERDC/EL TR-08-28) and would be gathered by conducting transects across the site.

- **Reference Site Data**: Hydrology will be measured through the use of shallow groundwater monitoring wells/staff gauges. Two wells will be permanently installed, within the Reference Site (Figure 22). Water elevations will be electronically recorded during the wet season using water level data loggers. In the event of data logger failure, wells may be manually measured every two weeks during the wet season for groundwater data and OHWM indicators will be used for surface water flows as described above for the Bank Property.

VEGETATION

- **Riparian Plantings - Survival/Cover**: Riparian vegetation monitoring will occur on an annual basis during the establishment period. Surveys will be conducted by surveying twenty permanently marked 40-foot by 40-foot plots within the habitat. Plant density by species, relative species cover, absolute canopy cover, and tree height will be recorded within each plot.

- **Invasive Exotic Species:** An initial survey for invasive exotic species shall be conducted during or after the first growing season. All occurrences of invasive exotics will be mapped using GPS. The map will be used in subsequent quarterly site inspections to check the status of previously mapped occurrences and will be updated with new occurrences.

- **Reference Site Data** –Ten 40-foot by 40-foot reference plots within the Reference Site will be permanently established and marked. Parameters such as plant density by species, relative species cover, absolute canopy cover, and tree height will be recorded within each of these plots.

PRELIMINARY JURISDICTIONAL DETERMINATION

In years 3 & 5, an updated PJD shall be completed to approximate the extent of jurisdictional wetlands. The approximate boundaries of the wetland will be determined in accordance with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ERDC/EL TR-08-28). Recognizing that pursuant to ERDC/EL TR-08-28 "recently developed wetlands may lack hydric soil indicators because insufficient time has passed for

their development". If typical hydric soil indicators such as the soil chroma and value, redox or mottling are not present, the determination of hydric soils shall be made based on performance standard for shallow groundwater/hydric soils.

CALIFORNIA RAPID ASSESSMENT METHOD (CRAM)

CRAM is an assessment methodology designed specifically for wetland types in California. Currently CRAM modules exist for six wetland types including: riverine, depressional, estuarine, playas, slope wetlands, and lacustrine wetlands. According to the California Wetlands Monitoring Workgroup (CWMW), *for the purposes of a CRAM assessment a riverine ecosystem consists of the riverine channel and its active floodplain plus any portions of the adjacent riparian areas that are likely to be strongly linked to the channel or floodplain through bank stabilization and allochthanous inputs* (CWMW, 2009). The Bank habitats include a riverine channel, secondary channels, and active floodplain as well as riparian floodplain buffers. Each of these habitats will be included in the on site Assessment Areas. While the upstream Reference Site does include a depressional wetland, this area was not included as one of the Reference Site Assessment Areas because it is not anticipated that the Bank Property will contain depressional wetlands. The Bank has been designed, and will be graded such that as the river recedes the water on the Bank Property will flow back into the channels.

- **CRAM –** Two Assessment Areas have been selected within the Bank (Figure 22). Both Assessment Areas transect the Bank habitats in a north/south orientation and will include the riverine channel, the active floodplain, and adjacent riparian floodplain buffer areas. CRAM assessments will be conducted during Year 1 immediately following the construction and 120-day plant establishment period (post-construction baseline), and in years 3 and 5 to compare with Reference Site data projections and baseline data.

- **Baseline and Reference Site Data** – CRAM assessments have been conducted at two selected Assessment Areas within the upstream Reference Site (Figure 20). Performance standards have been developed by projecting anticipated CRAM scores for the Bank Property based on the CRAM Reference Site data (Table 7). A baseline assessment using CRAM was also conducted on the Bank Property along the main channel of the San Luis Rey River (Figure 21) for comparison to future CRAM assessment scores. CRAM data will also be collected at the Reference Site in year 5 . This data will be used for informational purposes only.

F.1.b Floodplain Buffer Monitoring (within OHWM)

HYDROLOGY

- **Surface Flows**: Evidence of overbank flows from the San Luis Rey River and surface flows into secondary channels across the active floodplain shall be recorded via the permanent data loggers. If data logger data is unavailable, direct observation of overbank flows or physical evidence of OHWM may be used. Evidence of

OHWM must be in accordance with *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (ERDC/CRREL TR-08-12) or in Group B of the primary wetland hydrology indicators as described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ERDC/EL TR-08-28) and would be gathered by conducting 30m transects across the site.

VEGETATION

- **Riparian Plantings - Survival/Cover** - Floodplain buffer vegetation monitoring will be conducted by surveying six permanently marked 40-foot by 40-foot plots distributed within both the non-jurisdictional floodplain buffer and the floodplain buffer within the OHWM. Plant density by species, relative species cover, absolute canopy cover, and tree height will be recorded within each plot.

F.1.c Floodplain Buffer Monitoring (non-jurisdictional)

VEGETATION

As specified above, vegetation monitoring for the non-jurisdictional floodplain buffer will be done in conjunction with the floodplain buffer within the OHWM.

F.1.d Grassland Buffer Monitoring

VEGETATION

- Vegetative Cover - Six 10-foot by 10-foot sample plots will be permanently established. Absolute vegetative cover and relative species cover will be visually estimated within each plot. Evidence of soil erosion will be noted, including photographs and measurements of rills/gullies, as necessary.

F.1.e Quarterly Site Inspections

At least four site visits will be conducted annually to qualitatively monitor the general condition of the Bank. During each site visit, baseline or the most recent aerial photo, vegetation, and invasive species maps will be used in the field as a reference to note any substantial changes in general topographic conditions, hydrology, vegetation cover and composition, invasive species, erosion, and fire hazard. Incidental wildlife sightings will also be noted.

Table 6. Monitoring Schedule

Description	Monitoring Years/Season																			
	1				2				3				4				5			
	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F
Photo Documentation –Photos will be taken annually at established photo points.		X				X				X				X				X		
Hydrology –Water elevations will be electronically recorded during the wet season using water level loggers located on the Bank Property and on the Reference Site as applicable by habitat. In the event of a data logger failure, wells may be manually measured every two weeks during the wet season for groundwater levels and OHWM indicators may be used to estimate surface flows.	X				X				X				X				X			
Vegetation –Plant density by species, relative species cover, absolute canopy or vegetative cover, & tree height will be recorded for each plot on the Bank Property and at the Reference Site as applicable by habitat.						X				X				X				X		
Invasive/Exotic Vegetation – During or after the Year 1 growing season, a survey will be conducted on the Bank Property for invasive exotic plant establishment and all occurrences		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Table 6. Monitoring Schedule

Description	Monitoring Years/Season																			
	1				2				3				4				5			
	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F
mapped and treated. Occurrences will be treated at the appropriate time of year for the species. These maps will be used and updated as necessary to document any new occurrences or successful removal of previous occurrences during subsequent quarterly inspections.																				
Quarterly Site Inspections – Qualitative monitoring of the Bank will be conducted to note substantial changes in general topographic conditions, hydrology, vegetation cover and composition, invasive species, erosion, and fire hazard. Incidental wildlife sightings will also be noted.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Preliminary Jurisdictional Determination – A wetland delineation will be conducted of the Bank and submitted to the USACE.										X								X		
CRAM – CRAM assessments will be done at two locations on the Bank Property.			X								X								X	
Aerial Photo – An aerial photo will be taken of the Bank.			X								X								X	

Table 6. Monitoring Schedule

Description	Monitoring Years/Season																			
	1				2				3				4				5			
	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F
Topography – A topographic survey will be conducted in Year 5 on the Bank Property.																		X		

F.2 PERFORMANCE STANDARDS

F.2.a Rehabilitated and Re-established River Corridor and Floodplain Performance Standards

HYDROLOGY

- **Performance Standard for Shallow Groundwater/Hydric Soils:** The riparian wetland areas will be flooded or ponded for 14 or more consecutive days during the growing season; **or** saturated as evidenced by groundwater levels recorded as within 12 in. (30 cm) or less from the surface for 14 or more consecutive days during the growing season in 3 out of 5 years to support hydric soil development; **and/or** annual groundwater depths are similar to that of the wetland Reference Site (within 95% confidence).

- **Performance Standard for Surface Flows – Active floodplain/secondary channels**: Evidence of overbank flows from the San Luis Rey River and surface flows into secondary channels across the active floodplain shall be recorded via permanent data loggers at least one time in five years during an average flow event (2 to 10-year). If data logger data is unavailable, direct observation of overbank flows or physical evidence of OHWM may be used. Evidence of OHWM must be in accordance with *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (ERDC/CRREL TR-08-12) or in Group B of the primary wetland hydrology indicators as described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ERDC/EL TR-08-28). If an average flow event does not occur during the first five years of Bank construction and monitoring, the timeframe for attainment of this standard shall be extended.

VEGETATION

- **Performance Standards for Riparian Plantings - Survival/Cover**:

  - Year 2: Survival of at least 230 trees per acre consisting of three or more species of the riparian woody plantings listed in Section F.2.c.

  - Year 3: Survival of at least 200 trees per acre consisting of three or more species of the riparian woody plantings listed in Section F.2.c.

  - Year 4: Riparian woody vegetation canopy cover will show a 10% increase from the canopy cover figures recorded in year 3.

- Year 4: Absolute vegetative cover shall meet or exceed 65% of the reference site baseline absolute cover (year 2013 baseline cover estimated at 80%) as demonstrated by plot or aerial photo. Absolute vegetative cover measurements shall exclude cover provided by invasive exotic species..

- Year 5: Absolute vegetative cover shall meet or exceed 75% of the reference site baseline absolute cover (year 2013 baseline cover estimated at 80%) as demonstrated by plot or aerial photo. Absolute vegetative cover measurements shall exclude cover provided by invasive exotic species..

- Year 5: Site exhibits evidence of natural recruitment of common wetland plant species and native riparian trees or shrubs.

- Year 5: Site exhibits continued survival of planted riparian woody species following removal of irrigation. The site must function without an artificial water source for a minimum of two years.

- **Performance Standards for Invasive Exotic Species**

  - Years 1-5: Absolute cover of woody invasive exotics and large perennial grasses such as pampas grass and giant reed (rated as high on the Cal-IPC list) shall be minimal (less than 2%) with 0% untreated.

  - Years 1-5: Absolute cover of other herbaceous invasive exotics (rated as high on the Cal-IPC list) shall be less than 10%.

PRELIMINARY JURISDICTIONAL DETERMINATION

In years 3 and 5 the wetland Waters of the U.S. acreage, based on the required PJD specified above, shall meet or exceed those anticipated in the Development Plan.

- Year 3 – If the wetland acreage is significantly less than the anticipated rehabilitated/reestablished wetlands, Bank Sponsor and Signatory Agencies shall discuss whether remedial action or an adjustment in Credits is appropriate.

- Year 5 - The number/type of Credits released shall be adjusted either up or down based on the approximate final acreage of wetlands in the PJD.

CAIFORNIA RAPID ASSESSMENT METHOD (CRAM)

- **CRAM Performance Standards**: In Years 3 and 5 CRAM assessments will be conducted at two Assessment Areas within the Bank and compared with projections developed based on the CRAM Reference Site Assessment Area data (Table 7). CRAM scores shall be similar to the projected scores (within 95% confidence). A CRAM assessment will also be conducted at the Reference Site in year 5 for informational purposes. CRAM is still being refined and is a fairly new methodology for assessing the performance of newly established wetlands. Therefore, if the Bank fails to meet the projected CRAM Performance Standards,

but meets all other Performance Standards, failure to meet projected CRAM Performance Standards will not be used by the Signatory Agencies as a basis to withhold a Credit Release. In the event the Bank fails to meet projected CRAM Performance Standards, Bank Sponsor and Signatory Agencies shall meet to try and determine why the Bank did not meet the projections and discuss whether the projected standards need to be revised or whether the habitat is not becoming established as anticipated.

F.2.b Floodplain Buffer Performance Standards (non-wetland)

VEGETATION

- **Performance Standards for Riparian Plantings - Survival/Cover**:
  - Year 2: Survival of at least 230 trees per acre consisting of two or more species of the riparian woody plantings listed in Section F.2.c.
  - Year 3: Survival of at least 200 trees per acre consisting of two or more species of the riparian woody plantings listed in Section F.2.c.
  - Year 4: Riparian woody vegetation canopy cover will show a 10% increase from the canopy cover figures recorded in year 3.
  - Year 4: Absolute vegetative cover shall meet or exceed 65% of the reference site baseline absolute cover (year 2013 baseline cover estimated at 80%) as demonstrated by plot or aerial photo. Absolute vegetative cover measurements shall exclude cover provided by invasive exotic species..
  - Year 5: Absolute vegetative cover shall meet or exceed 75% of the reference site baseline absolute cover (year 2013 baseline cover estimated at 80%) as demonstrated by plot or aerial photo. Absolute vegetative cover measurements shall exclude cover provided by invasive exotic species..
  - Year 5: Site exhibits evidence of natural recruitment of common wetland plant species and native riparian trees or shrubs.
  - Year 5: Site exhibits continued survival of planted riparian woody species following removal of irrigation. The site must function without an artificial water source for a minimum of two years.
- **Performance Standards for Invasive Exotic Species**
  - Years 1-5: Absolute cover of woody invasive exotics and perennial grasses such as pampas grass (rated as high on the Cal-IPC list) shall be minimal (less than 2%) with 0% untreated.

- Years 1-5: Absolute cover of other herbaceous invasive exotics (rated as high on the Cal-IPC list) shall be less than 10%.

F.2.c Re-established Grassland Buffer Performance Standards

The grassland buffer shall be planted with native and naturalized grasses and coastal sage scrub plants. Herbaceous and shrub cover will be assessed to ensure that cover is sufficient in all years to provide appropriate soil stabilization and buffer functions.

VEGETATION

- Year 2 Performance Standards
  - Greater than 10% absolute cover (excluding invasive exotic species)
  - Minimal active soil erosion
- Year 3 Performance Standards
  - Greater than 20% absolute cover (excluding invasive exotic species)
- Year 4 Performance Standards
  - Greater than 40% absolute cover (excluding invasive exotic species)
- Year 5 Performance Standards
  - Greater than 60% absolute cover (excluding invasive exotic species)

Table 7. Summary Table of Performance Standards

Habitat and Habitat Characteristics	Year 2 Following Construction	Year 3 Following Construction	Year 4 Following Construction	Year 5 Following Construction
Wetland River Corridor				
Shallow Groundwater/Hydric Soils	The riparian wetland areas will be flooded or ponded for 14 or more consecutive days during the growing season; or saturated as evidenced by groundwater levels recorded as within 12 in. (30 cm) or less from the surface for 14 or more consecutive days during the growing season in 3 out of 5 years to support hydric soil development; and/or annual groundwater depths are similar to that of the wetland reference site (within 95% confidence).			
Surface Flows	At least once in the first 5 years: Evidence of overbank flows from the San Luis Rey River and surface flows into secondary channels across the active floodplain shall be recorded.			
Survival of Riparian Woody Plantings	230 trees per acre consisting of three or more species	200 trees per acre consisting of three or more species	Continued survival of riparian woody species 10% increase in canopy coverage from year 3	Continued survival of riparian woody species following removal of irrigation for minimum 2 years.
Tree / Shrub Canopy	--	--	10% increase from the canopy cover estimates from year 3	10% increase from the canopy cover estimates from year 4
Absolute Vegetative Cover			Absolute vegetative cover shall meet or exceed 65% of the reference site baseline absolute cover (year 2013 baseline cover estimated at 80%) as demonstrated by plot or aerial photo. Absolute vegetative cover measurements shall exclude cover provided by invasive exotic species.	Absolute vegetative cover shall meet or exceed 75% of the reference site baseline absolute cover (year 2013 baseline cover estimated at 80%) as demonstrated by plot or aerial photo. Absolute vegetative cover measurements shall exclude cover provided by invasive exotic species.

Table 7. Summary Table of Performance Standards

Habitat and Habitat Characteristics	Year 2 Following Construction	Year 3 Following Construction	Year 4 Following Construction	Year 5 Following Construction
Natural Recruitment	--	--	--	Site exhibits evidence of natural recruitment of common wetland plant species and native riparian trees or shrubs.
Absolute Cover of Woody Invasive Exotics, and large perennial grasses such as pampas grass, and giant reed.	Minimal; less than 2%	Minimal; less than 2%	Minimal; less than 2%, 0% untreated	Minimal; less than 2%, 0% untreated
Absolute Cover of Other Herbaceous Invasive Exotics	Less than 10%	Less than 10%	Less than 10%	Less than 10%
PJD	--	wetland acres shall meet or exceed those proposed in development plan.	--	wetland acres shall meet or exceed those proposed in development plan.
CRAM	--	CRAM scores shall meet or exceed projected CRAM scores.	--	CRAM scores shall meet or exceed projected CRAM scores.
Floodplain Buffer (non-wetland)				
Survival of Plantings	230 tree/shrub plantings per acre consisting of two or more species	200 tree/shrub plantings per acre consisting of two or more species	Continued survival	Continued survival following removal of irrigation for minimum 2 years

Table 7. Summary Table of Performance Standards				
Habitat and Habitat Characteristics	**Year 2 Following Construction**	**Year 3 Following Construction**	**Year 4 Following Construction**	**Year 5 Following Construction**
Tree / Shrub Canopy	--	--	10% increase from the canopy cover estimates from year 3	10% increase from the canopy cover estimates from year 4
Absolute Vegetative Cover			Absolute vegetative cover shall meet or exceed 65% of the reference site baseline absolute cover (year 2013 baseline cover estimated at 80%) as demonstrated by plot or aerial photo. Absolute vegetative cover measurements shall exclude cover provided by invasive exotic species.	Absolute vegetative cover shall meet or exceed 75% of the reference site baseline absolute cover (year 2013 baseline cover estimated at 80%) as demonstrated by plot or aerial photo. Absolute vegetative cover measurements shall exclude cover provided by invasive exotic species..
Absolute cover of woody invasive exotics woody and large grass species such as pampas grass	Minimal; less than 2%, 0% untreated	Minimal; less than 2%, 0% untreated	Minimal; less than 2%, 0% untreated	Minimal; less than 2%, 0% untreated
Absolute cover of other herbaceous invasive exotics	Less than 10%	Less than 10%	Less than 10%	Less than 10%
Grassland Buffer				
Soil Erosion	Minimal active soil erosion	--	--	--

Table 7. Summary Table of Performance Standards				
Habitat and Habitat Characteristics	**Year 2 Following Construction**	**Year 3 Following Construction**	**Year 4 Following Construction**	**Year 5 Following Construction**
Absolute Cover	Greater than 10% (excluding invasive exotics)	Greater than 20% (excluding invasive exotics)	Greater than 40% (excluding invasive exotics)	Greater than 60% (excluding invasive exotics) following removal of irrigation for minimum 2 years.

Table 8. Anticipated CRAM Scores for Restoration Site

CRAM Attributes	CRAM Metric and Submetrics	Assessment Area (AA)				
		AA1 Existing Upstream Restoration Area 2011	AA3 Existing Channel to be Restored 2011	Restoration Site Anticipated Score Year 1	Restoration Site Anticipated Score Year 3	Restoration Site Anticipated Score Year 5
Buffer and Landscape Connectivity	Landscape Connectivity	12	12	12	12	12
	Buffer Submetrics: % of AA with Buffer	9	3	12	12	12
	Buffer Submetrics: Average Buffer Width	9	3	3	3	3
	Buffer Submetrics: Buffer Condition	9	3	3	6	9
	Buffer Submetric Score	9	3	4.2	6	7.3
	Raw Score	21	15	16.2	18	19.3
	Attribute Score	**87.5**	**62.5**	**67.5**	**75**	**80.4**
Hydrology	Water Source	6	6	6	6	6
	Hydroperiod	9	6	3	6	9
	Hydrologic Connectivity	12	3	12	12	12
	Raw Score	27	15	21	24	27
	Attribute Score	**75**	**41.7**	**58.3**	**66.7**	**75**
Physical Structure	Structural Patch Richness	9	3	3	3	6
	Topographic Complexity	9	6	3	6	9
	Raw Score	18	9	6	9	15
	Attribute Score	**75**	**37.5**	**25**	**37.5**	**62.5**

Table 8. Anticipated CRAM Scores for Restoration Site

CRAM Attributes	CRAM Metric and Submetrics		Assessment Area (AA)				
			AA1 Existing Upstream Restoration Area 2011	AA3 Existing Channel to be Restored 2011	Restoration Site Anticipated Score Year 1	Restoration Site Anticipated Score Year 3	Restoration Site Anticipated Score Year 5
Biotic Structure	Plant Community Submetrics	No. of plant layers	6	6	3	3	6
		No. of co-dominants	3	3	3	3	3
		Percent Invasion	3	6	6	6	6
	Plant Community Submetric Score		4	5	4	4	5
	Horizontal Interspersion		6	6	3	3	6
	Vertical Biotic Structure		3	3	3	3	3
		Raw Score	13	14	10	10	14
		Attribute Score	**36.1**	**38.9**	**27.8**	**27.8**	**38.9**
Overall Score			**68**	**45**	**45**	**52**	**64**

F.3 INTERIM MANAGEMENT DURING THE INTERIM MANAGEMENT PERIOD

Actions taken during the Interim Management Period (Years 1-5) to ensure the successful achievement of Performance Standards are described as short-term management actions. Generally, all short-term management actions are categorized as either water management, vegetation management, or operations management as described below.

F.3.a Water Management

Hydrologic investigations of the Bank Property have shown that groundwater will be dependably present within 3 feet below the ground surface along the riparian corridor. Therefore, the hydrologic regime for the riparian corridor will be groundwater driven. Irrigation will be provided during the initial years of plant establishment; however, irrigation will be removed once the plants have become established.

F.3.b Vegetation Management

Vegetation establishment within the Bank Property will be monitored to determine if Performance Standards are being met. Upon achievement of the Performance Standards, quarterly site inspections will continue throughout the remainder of the Interim Management Period which will include continued monitoring to determine if invasive exotic vegetation (rated as high on the Cal-IPC list) is colonizing the Bank and requires eradication.

Although not expected, if invasive exotic vegetation should become a problem during the Interim Management Period; hand removal, herbicides, and mowing are all possible management strategies. Hand removal and herbicide use are considered the most feasible management strategies for this interim period.

Hand removal or use of small hand powered or handheld equipment (such as a weed wrench or a chainsaw) should always be the preferred method of removing exotic pest plant species from the Bank. If hand removal methods are tried and found to be ineffective, or the problem is too widespread for hand removal to be practical, then mechanical methods (use of larger equipment such as motors or mowers) or herbicides may be used. Chemicals will be applied by qualified individuals consistent with the label directions.

F.3.c Operations Management

Routine operational maintenance of the Bank will include periodic inspections of access points into the Bank Property and signage to determine if replacement is necessary. Additionally, trash and debris removal will occur on an as-needed basis.

F.4 REMEDIATION/ADAPTIVE MANAGEMENT ACTIVITIES

During the Interim Management Period, if the Bank Sponsor fails to achieve the Performance Standards and determines remediation is required to achieve the Performance Standards, the Bank Sponsor shall determine if adaptive management is required. Minor corrective measures (e.g., prevention of unexpected runoff, prevention of unauthorized access to the Bank Property, etc.) do not require notification or approval of the Signatory Agencies; however, major remediation requires notice to the Signatory Agencies. Minor corrective measures not requiring notification or approval will be carried out within sixty days of identification of the problem, unless site conditions warrant delay (i.e., if soil is saturated and equipment would damage the habitat in the Bank or if construction should be delayed until after completion of the nesting season). All other corrective actions will take place when conditions are best suited for restoration to occur, and after the Signatory Agencies have been notified and the Bank Sponsor has received approval. A list of potential remediation guidelines is described in Table 9. In scenarios where progressive improvement in habitat conditions is evident, an alternative to remediation could include an extension of the Interim Management Period with approval of the Signatory Agencies.

Table 9. Remediation Guidelines

Type of Disturbance	Mitigation Guideline
Wetland areas fail to show hydrology indicators	If wetland areas are not showing hydrology indicators during the growing season, the potential causes of hydrology deficiency will be evaluated. If natural causes, such as low river levels or drought are not the cause of the deficiency, then re-excavation of the failed wetland areas will be considered.
Wetland and/or riparian vegetation fails to establish	If the observable vegetation failure is not due to problems with hydrology, then replanting will occur until performance standards are met. Mortality of the wetland plantings will result in replanting until performance standards are met.

F.5 MONITORING REPORTS

F.5.a As-Builts and Post-Construction Report

The Bank Sponsor shall submit as-built drawings and a post-construction report to the Signatory Agencies no later than 90 calendar days following completion of construction planting. Data points will be collected throughout the Bank Property using sub-meter accurate GPS equipment. As-built drawings will be prepared by overlaying the GPS data points onto the original construction plans. The as-built drawings will identify any deviation from the Development Plan.

The as-built drawings and a post-construction report shall include at a minimum:

- pre- and post-groundbreaking photographs of the site;
- a discussion of compliance with the terms and conditions of the construction permits;
- written documentation of all construction personnel to receive the Worker Environmental Awareness Training Program; and
- any construction observations and any problems that arose during construction.

F.5.b Habitat Monitoring Reports

During the habitat establishment period, the Bank Sponsor shall submit habitat monitoring reports to the Signatory Agencies during years 1, 2, 3, 4 and 5. After the habitat meets all Performance Standards, habitat monitoring reports will be submitted every year thereafter until completion of the Interim Management Period.

The original habitat monitoring period may be extended upon a determination that Performance Standards have not been met. The monitoring requirements may also be revised in cases where adaptive management or remediation is required.

The habitat monitoring reports will provide the Signatory Agencies with sufficient information to assess whether it is meeting performance standards, and to determine whether a compliance visit is warranted.

Habitat monitoring reports may be submitted electronically or in hard copy.

Habitat monitoring reports will include a Monitoring Report Narrative that provides an overview of site conditions and functions. This Monitoring Report Narrative should be concise and generally less than 10 pages.

Habitat monitoring reports will also include appropriate supporting data to assist the Signatory Agencies in determining how the restoration is progressing towards meeting performance

standards. Such supporting data may include plans, maps, and photographs to illustrate site conditions, as well as the results of functional, condition, or other assessments used to provide quantitative or qualitative measures of the functions provided by the restored wetlands.

The habitat monitoring report narrative will include the following:

1. Bank Overview

    a. Mitigation Bank Name

    b. Name of part(ies) responsible for conducting the monitoring and the date(s) the inspection was conducted. All persons who prepared the report, did the monitoring, and/or wrote or edited the text will be listed.

    c. A brief paragraph describing the purpose of the Bank, acreage and type of aquatic resources impacted, and acreage and type of aquatic resources being restored.

    d. Written description of the location, any identifiable landmarks of the Bank Property including information to locate the site perimeter(s), and coordinates of the Bank Property (expressed as latitude, longitudes, UTMs, state plane coordinate system, etc.).

    e. Dates the construction project commenced and/or was completed.

    f. Short statement on whether the Performance Standards are being met.

    g. Dates of any recent corrective or maintenance activities conducted since the previous report submission.

    h. Specific recommendations for any additional corrective or Remedial Actions.

2. Requirements. List the monitoring requirements and Performance Standards, as specified in the BEI and evaluate whether the Bank is successfully achieving the approved Performance Standards. A table is a recommended option for comparing the Performance Standards to the conditions and status of the Bank.

3. Summary Data. Summary data for the Bank and Reference Site should be provided to substantiate the monitoring results. Photo documentation may be provided to support the findings and recommendations referenced in the monitoring report and to assist the Signatory Agencies in assessing whether the Bank is meeting applicable Performance Standards for that monitoring period.

4. Maps and Plans. Maps should be provided to show the location of the Bank Property and Reference Site relative to other landscape features, habitat types, locations of photographic reference points, transects, sampling data points, and/or other features pertinent to the Development Plan. In addition, the submitted maps and plans should clearly delineate the Bank Property perimeter.

5. Conclusion. A general statement should be included that describes the conditions of the Bank. If Performance Standards are not being met, a brief explanation of the difficulties and potential Remedial Actions proposed by the Bank Sponsor, including a timetable, will be provided.

6. Additional Information. The habitat monitoring reports shall provide the following additional information.

    a. Interim Management – The report shall contain an itemized account of the management tasks conducted during the reporting period, including the following:

        - A description of each management task conducted, the dollar amount expended and time required; and

        - The total dollar amount expended for management tasks conducted during the reporting period.

    b. Financial Operation – the report shall include information on financial operations including an itemized account of any and all activity regarding the Construction Security, Performance Security, Interim Management Security, and the Endowment Fund deposits and CPI adjustments.

    c. Transfer of Credits – the annual report shall include an updated Credit Transfer Ledger showing all Credits Transferred since the Bank Establishment Date and an accounting of remaining Credits.

    d. Distribution list – the report shall include the names, titles, and companies/ agencies of all persons receiving a copy of the report.

F.5.c Annual Reports

The Bank Sponsor shall submit an annual report to the Signatory Agencies in hard copy and in editable electronic format, on or before September 1st of each year following the Bank Establishment Date. Each annual report shall cover the period from July 1 of the preceding year (or if earlier, the Bank Establishment Date for the first annual report) through June 30th of the current year (the "Reporting Period"). The Bank Sponsor shall be responsible for the reporting tasks described below until Bank closure. After Bank closure, the Property Owner shall be responsible for such reporting, annually, as per the Long-Term Management Plan (see *Exhibit D-5 of the BEI*).

The annual report, as it pertains to this Development Plan, shall address the following:

1. Bank Development

   The annual report shall document the degree to which the Bank is meeting the Performance Standards. The annual report shall describe any deficiencies in attaining and maintaining Performance Standards and any Remedial Action proposed, approved, or performed. If Remedial Action has been completed, the annual report shall also evaluate the effectiveness of that action.

2. Interim Management

   The annual report shall contain an itemized account of the management tasks conducted during the reporting period in accordance with the Development Plan, including the following:

   a. The time period covered, i.e. the dates "from" and "to"; and

   b. A description of each management task conducted.

3. Transfer of Credits

   The annual report shall include an updated Credit Transfer Ledger (Exhibit F-3) showing all Credits transferred since the Bank Establishment Date and an accounting of remaining Credits.

4. Financial Operation

   The annual report shall provide Endowment Fund data, including but not limited to annual Consumer Price Index (CPI) adjustments and deposits..

G. Maintenance during Interim Management Period

G.1 OVERALL MAINTENANCE ACTIVITIES

The Bank Property will be maintained on a regular basis throughout the year. The site will be kept free of trash and necessary repairs to the facilities will be conducted on an as-needed basis. The annual report will describe maintenance activities conducted during the year.

G.2 FENCING AND SIGNS

Due to its location in the San Luis Rey River floodplain, no fencing of the site is needed or proposed. Fencing, if deemed necessary in the future, will be installed in locations agreed to by the Signatory Agencies.

Within 30 days after construction, a minimum of six locations on the perimeter of the Bank Property will be posted with "No Trespassing" signs indicating private ownership of the site. These signs may also indicate the fact that a conservation easement has been recorded on the property and the easement is being monitored.

G.3 INVASIVE PLANT SPECIES CONTROL

An initial survey for invasive exotic species shall be conducted during or after the first growing season. All occurrences of invasive exotics will be mapped using GPS. The map will be used in subsequent quarterly site inspections to check the status of previously mapped occurrences and will be updated with new occurrences. Control will be conducted on an as-needed basis utilizing appropriate control methods.

G.4 MAINTENANCE SCHEDULE

During the Interim Management Period, site inspections will be conducted quarterly (at a minimum) to assess site maintenance needs. Site inspections will include assessment of general site conditions. Incidental observations of wildlife will be recorded.

H. Potential Contingency Measures

I.1 INITIATING PROCEDURES

If during the Interim Management Period, the Bank Sponsor or any of the Signatory Agencies discover any failure to achieve the Performance Standards or any injury or adverse impact to the Bank Property, the Signatory Agencies may require the Bank Sponsor develop and implement a Remedial Action Plan to correct such condition.

In the event that Remedial Action becomes necessary, the Bank Sponsor will develop a Remedial Action Plan and submit it to the Signatory Agencies within 60 days of the date of written notice from the USACE and/or CDFW. The Remedial Action Plan shall identify and describe proposed actions to achieve Performance Standards or repair adverse impacts to the Bank Property, and set forth a schedule within which the actions shall be implemented. The Bank Sponsor will, at the Bank Sponsor's cost, implement the Remedial Actions in accordance with the Remedial Action Plan approved by the Signatory Agencies.

If Remedial Actions become necessary, the proposed location for these would be within the boundaries of the Bank Property. No alternative locations are proposed.

Should disputes occur between the Bank Sponsor and the Signatory Agencies about application of the Development Plan or proposed Remedial Actions, the dispute resolution process outlined in the BEI shall be followed prior to implementation of the Remedial Actions.

I.2 CONTINGENCY FUNDING MECHANISMS

The Bank Sponsor is responsible for providing financial assurances for the performance and completion of Bank construction, management, monitoring, and Remedial Action in accordance with this BEI. To ensure these measures are fulfilled, the Bank Sponsor will furnish the following securities (see *Exhibit C in the BEI)* to the USACE and shall notify CDFW upon furnishing each of the following financial assurances.

I.2.a Construction Security

Prior to the first Credit Release, the Bank Sponsor shall furnish to the USACE Construction Security in the amount of 100% of a reasonable third party estimate or contract to implement the re-establishment and/or Rehabilitation of Waters of the U.S., Waters of the State, and Buffers on the Bank Property in accordance with the Development Plan (*see Exhibit C-2 in the BEI***)**. The Construction Security shall be in the form of an irrevocable standby letter of credit. The Bank Sponsor shall ensure that the full amount of the Construction Security shall remain in effect throughout the performance of construction and planting for the Re-establishment and/or Rehabilitation of Waters of the U.S., Waters of the State, and Buffers on the Bank Property in accordance with the Development Plan. Provided, however, that if all such construction and planting is completed in accordance with the Development Plan prior to the date on which Bank Sponsor would otherwise be required to furnish the Construction Security then no Construction Security shall be required.

I.2.b Performance Security

Concurrent with the Transfer of the first Credit, Bank Sponsor shall furnish to the USACE Performance Security in the amount of 20% of the Construction Security (see *Exhibit C-3 in the BEI*). The Performance Security shall be in the form of an irrevocable standby letter of credit. The Bank Sponsor shall ensure that the full amount of the Performance Security shall remain in effect until the Signatory Agencies determine that all of the Performance Standards, all Remedial Action(s), and any additional Performance Standards required by such Remedial Action(s) under Section VIII.F are met.

I.2.c Interim Management Security

Concurrent with the Transfer of the first Credit, Bank Sponsor shall furnish to the USACE Interim Management Security in the amount equal to the estimated cost to implement the Interim Management Plan during the three years of the Interim Management Period (see *Exhibit D-1 in the BEI*). The Interim Management Security shall be in the form of an irrevocable standby letter of credit. The Bank Sponsor shall ensure that the full amount of the Interim Management Security shall remain in effect until the end of the Interim Management Period.

J. Completion of Habitat Restoration Responsibilities

J.1 NOTIFICATION

If the restoration activities meet all the Performance Standards, and all irrigation has been discontinued for at least two years, then the restoration will be considered a success; if not, the maintenance and performance monitoring program will be extended 1 year at a time. Performance monitoring extensions will be done only for areas that fail to meet Performance Standards.

When the Bank Sponsor believes that the final Performance Standards have been met, the Bank Sponsor shall notify the Signatory Agencies. The cover letter accompanying the final performance monitoring report documenting achievement of Performance Standards will summarize why the Bank Sponsor believes the Bank has met all required Performance Standards and the final performance monitoring report will detail how each Performance Standard has been met. Upon achievement of the Performance Standards, quarterly site inspections and annual reporting will continue throughout the remainder of the Interim Management Period.

J.2 SIGNATORY AGENCY CONFIRMATION

Following receipt of the performance monitoring report documenting achievement of the final Performance Standards, the Signatory Agencies will either confirm successful completion or require additional performance monitoring. If the Signatory Agencies request a site visit to confirm the completion of the performance monitoring, the Bank Sponsor will arrange a site visit.

K. Site Protection

K.1 CONSERVATION EASEMENT

As a condition of Bank establishment, a Conservation Easement will be recorded on the Bank Property (see *Exhibit E-4 in the BEI*). The conservation easement identifies permitted uses as well as prohibited uses.

K.1.a Permitted Improvements

The following improvements are specifically permitted on the Bank Property with the prior written approval of the Signatory Agencies and the Conservation Easement Monitor, not to be unreasonably withheld, provided these improvements do not conflict with the terms of the Conservation Easement or the Long-term Management Plan.

1. Exterior fencing in locations agreed upon by the parties.

2. Signs describing the property and its protected status, and describing access restrictions.

K.1.b Prohibited Uses

The following uses are specifically prohibited on the Bank Property per the Conservation Easement.

Any activity on or use of the Bank Property that is inconsistent with the purposes of the Conservation Easement is prohibited. Without limiting the generality of the foregoing, the following uses and activities by Grantor, Grantor's agents, and third parties are expressly prohibited:

1. Unseasonable watering; use of fertilizers, pesticides, biocides, herbicides or other agricultural chemicals; weed abatement activities; incompatible fire protection activities; and any and all other activities and uses which may impair or interfere with the purposes of this Conservation Easement, except for watering, use of fertilizers, pesticides, biocides, herbicides, and other chemicals, weed abatement activities, and invasive species management activities as specifically provided in the Development Plan and Long-term Management Plan.

2. Use of off-road vehicles and use of any other motorized vehicles except on existing roadways, except for maintenance, monitoring and management activities as specifically provided in the Development Plan and Long-term Management Plan.

3. Agricultural activity of any kind.

4. Recreational activities, including, but not limited to, horseback riding, biking, hunting or fishing except for personal, non-commercial, recreational activities of the Grantor, so long as such activities are consistent with the purposes of this Conservation Easement and specifically provided for in the Long-term Management Plan.

5. Commercial, industrial, residential, or institutional uses.

6. Any legal or de facto division, subdivision or partitioning of the Bank Property.

7. Construction, reconstruction, erecting or placement of any building, billboard or sign, or any other structure or improvement of any kind, except for boundary signs as specifically provided in the Development Plan and Long-term Management Plan.

8. Depositing or accumulation of soil, trash, ashes, refuse, waste, bio-solids or any other materials.

9. Planting, introduction or dispersal of non-native or exotic plant or animal species.

10. Filling, dumping, excavating, draining, dredging, mining, drilling, removing or exploring for or extracting minerals, loam, soil, sand, gravel, rock or other material on or below the surface of the Bank Property, or granting or authorizing surface entry for any of these purposes.

11. Altering the surface or general topography of the Bank Property, including but not limited to any alterations to habitat, building roads or trails, paving or otherwise covering the Bank Property with concrete, asphalt or any other impervious material except for those habitat management activities specified in the Development Plan or Long-term Management Plan.

12. Removing, destroying, or cutting of trees, shrubs or other vegetation, except as required by law for (i) fire breaks, (ii) maintenance of existing foot trails or roads, or (iii) prevention or treatment of disease; and except for invasive species management and those habitat management activities as specifically provided in the Development Plan and Long-term Management Plan.

13. Manipulating, impounding or altering any natural water course, body of water or water circulation on the Bank Property, and any activities or uses detrimental to water quality, including but not limited to degradation or pollution of any surface or sub-surface waters, except for those habitat management activities as specifically provided in the Development Plan and Long-term Management Plan.

14. Without the prior written consent of Grantee, which Grantee may withhold, transferring, encumbering, selling, leasing, or otherwise separating the mineral, air or water rights for the Bank Property; changing the place or purpose of use of the water rights; abandoning or allowing the abandonment of, by action or inaction, any water or water rights, ditch or ditch rights, spring rights, reservoir or storage rights, wells,

ground water rights, or other rights in and to the use of water historically used on or otherwise appurtenant to the Bank Property, including but not limited to: (i) riparian water rights; (ii) appropriative water rights; (iii) rights to waters which are secured under contract with any irrigation or water district, to the extent such waters are customarily applied to the Bank Property; and (iv) any water from wells that are in existence or may be constructed in the future on the Bank Property.

15. Engaging in any use or activity that may violate, or may fail to comply with, relevant federal, state, or local laws, regulations, or policies applicable to Grantor, the Bank Property, or the use or activity in question.

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L. Contributor Page

The following individuals contributed towards preparation of this report.

L.1 WILDLANDS

- Jeff Novak, Director of Design/Build – Senior Landscape Architect
- Bill Roper, Director of Biological Services – Senior Biologist
- Cindy Tambini, Director of Planning & Compliance
- Paul Sherman, Director of Land Acquisition
- Dan Kominek, Vice President of Land Management
- Becky Amos, Land Acquisition Coordinator
- Steve Russell, Associate Landscape Architect
- Neil Dhawan, GIS Manager
- Galib Ahmad, Associate GIS

L.2 ESA PWA | ENVIRONMENTAL HYDROLOGY

- Andy Collison, Ph. D., Fluvial Team Director
- James Gregory, MS, Engineer in Training, Hydrologist
- Philip Luecking, P.E. Associate Engineer
- Brian Hanes, Engineer in Training, Certified Associate Ecologist

M. Distribution Page

The following people received a copy of this report.

Signatory Agencies	
U.S. Army Corps of Engineers Los Angeles District Shanti Santulli Project Manager, South Coast Branch 5900 La Place Ct., Suite 100 Carlsbad, CA 92008 (760) 602-4834	**U.S. Army Corps of Engineers** Los Angeles District Therese O. Bradford Chief, South Coast Branch 5900 La Place Ct., Suite 100 Carlsbad, CA 92008 (760) 602-4850
California Department of Fish & Wildlife South Coast Region 3883 Ruffin Road San Diego, CA 92123 Attn: Regional Manager (858) 467-4201	**California Department of Fish & Wildlife** Habitat Conservation Planning Branch 1416 Ninth Street, 12th Floor Sacramento, CA 95814 Attn: Branch Chief (916) 653-4875
IRT Agencies	
U.S. Environmental Protection Agency Region IX Elizabeth Goldmann 75 Hawthorne Street, WTR-8 San Francisco, CA 94105 (415) 972-3398	**Regional Water Quality Control Board, San Diego Region** Alan Monji 2375 Northside Dr. Suite 100 San Diego CA 92108 (619) 521-3968
U.S. Fish and Wildlife Service Carlsbad Fish and Wildlife Office Janet Stuckrath Fish and Wildlife Biologist 2177 Salk Avenue, Suite 250 Carlsbad, CA 92008 (760) 431-9440 X 270	

N. References

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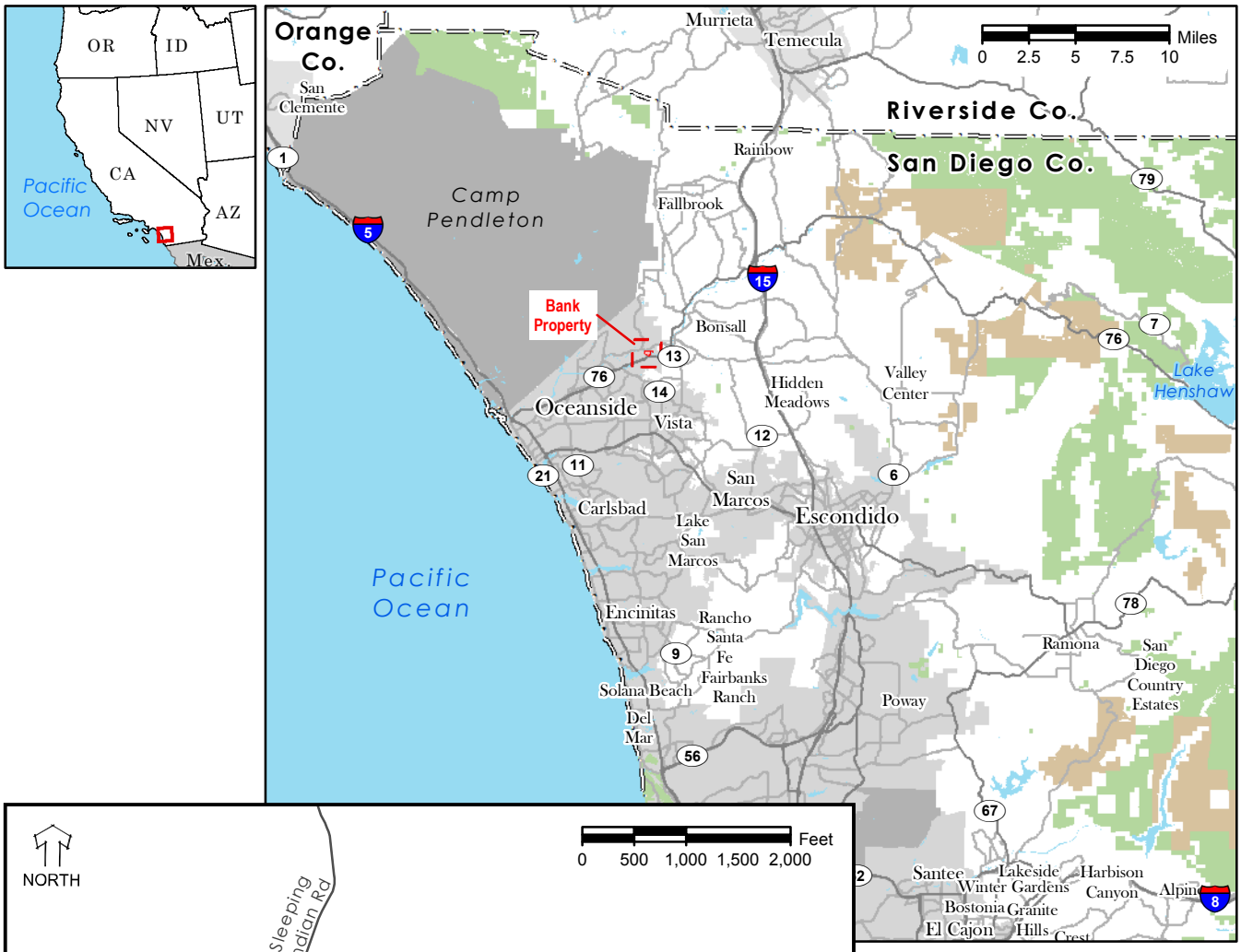
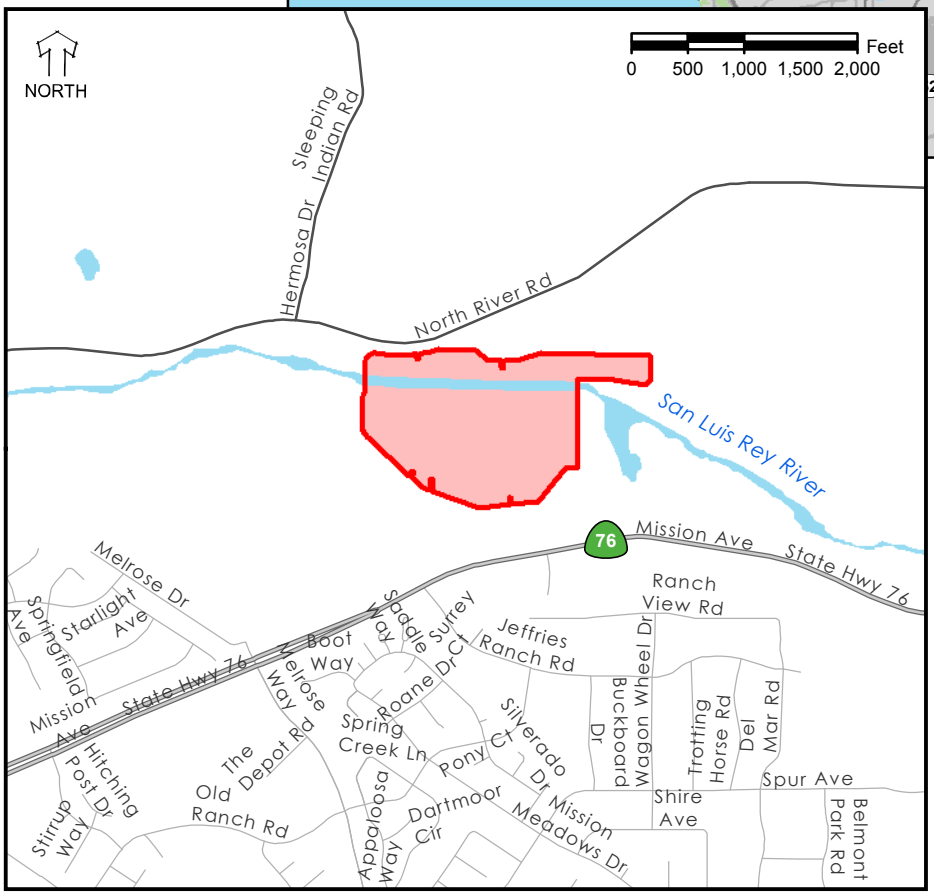
Waananen, A.O., Crippen, J.R., 1977, Magnitude and frequency of floods in California: U.S. Geological Survey Water-Resources Investigations Report 77-21, 96 p.

FIGURES

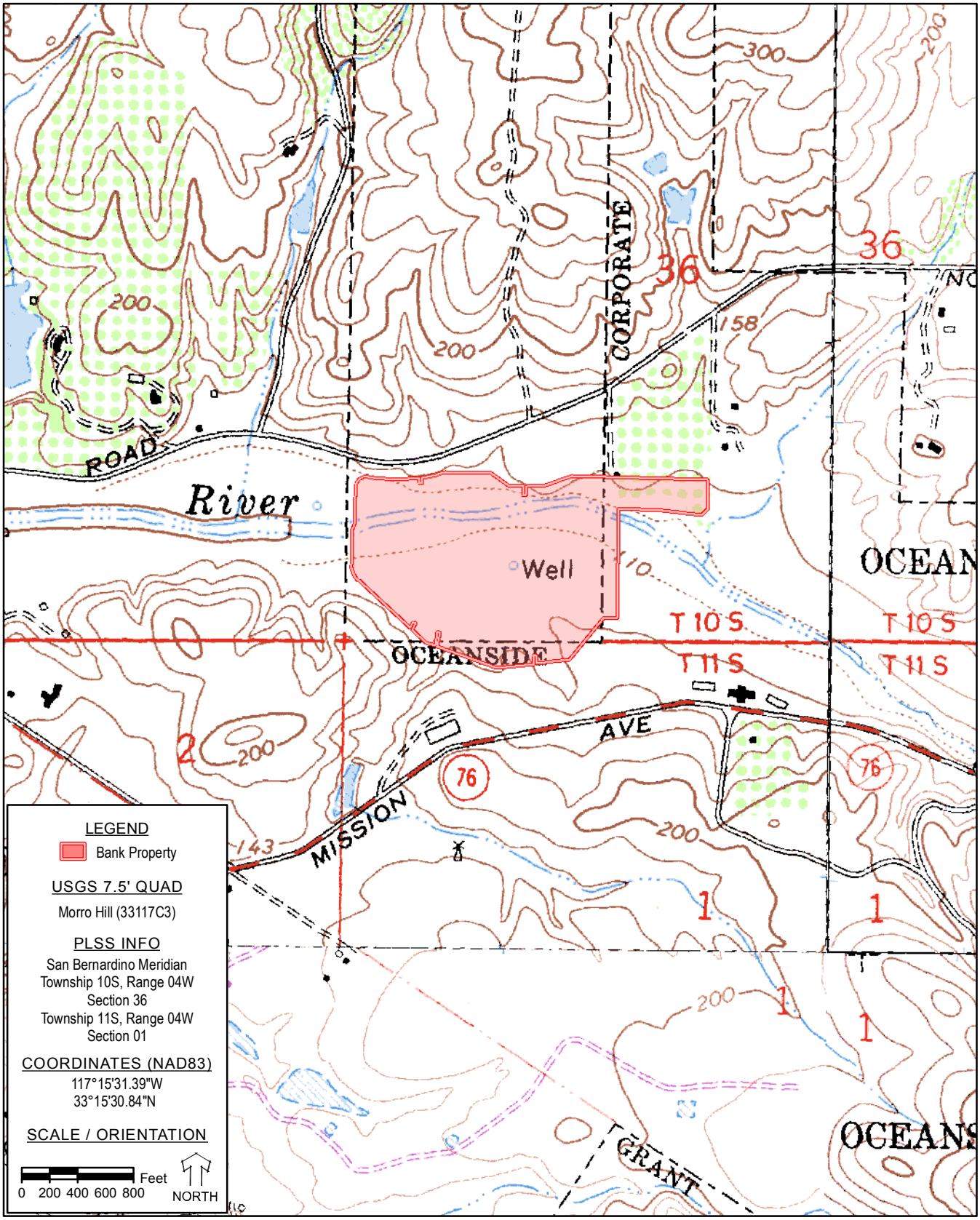


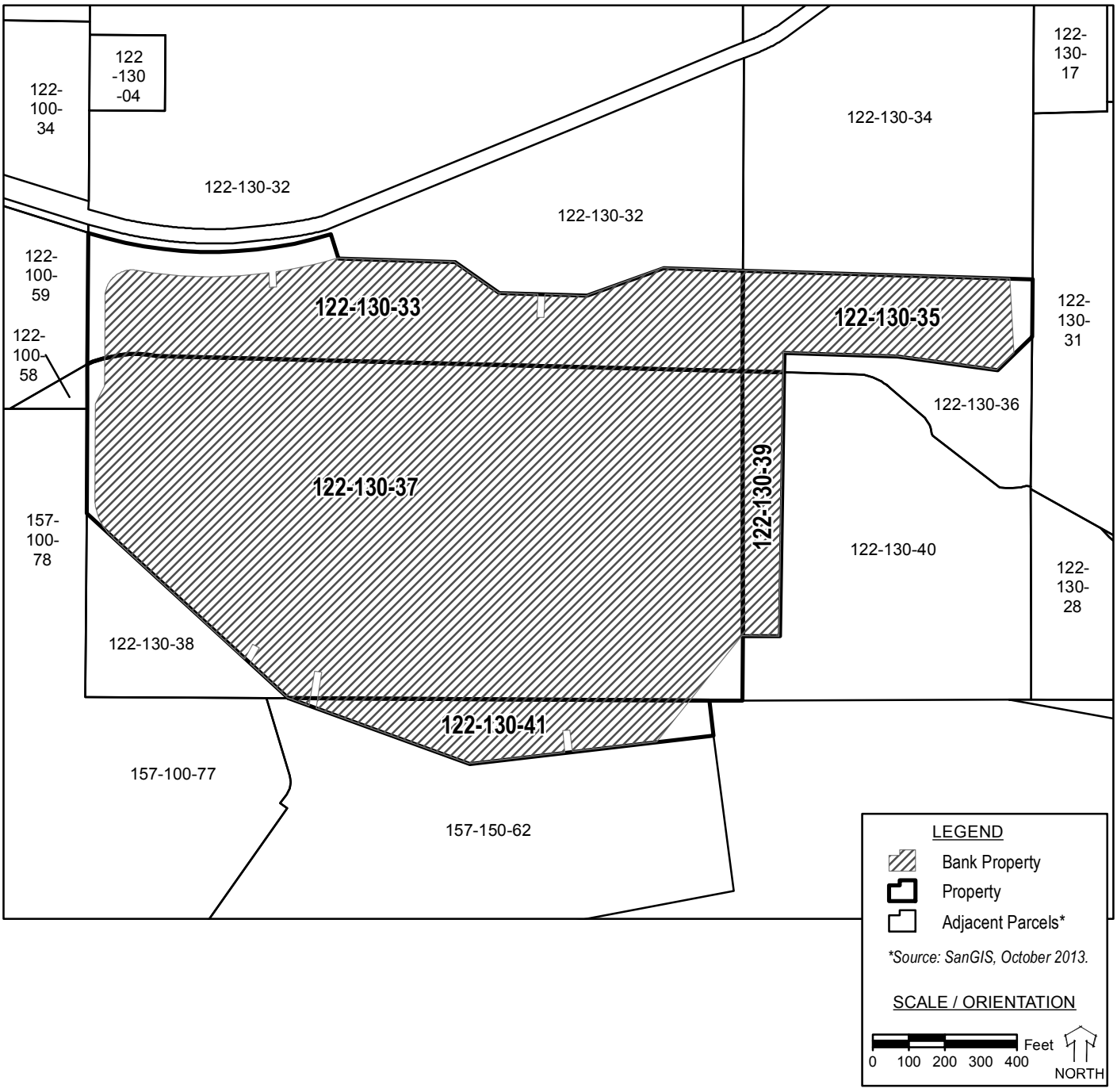


WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

Figure 1
Regional Vicinity Map


LEGEND
Bank Property
USGS 7.5' QUAD
Morro Hill (33117C3)
PLSS INFO
San Bernardino Meridian
Township 10S, Range 04W
Section 36
Township 11S, Range 04W
Section 01
COORDINATES (NAD83)
117°15'31.39"W
33°15'30.84"N
SCALE / ORIENTATION
0 200 400 600 800 Feet
NORTH
Well
River
ROAD
CORPORATE
OCEANSIDE
MISSION
AVE
GRANT
T 10 S
T 11 S
36
1
2
76
158
143
200
300

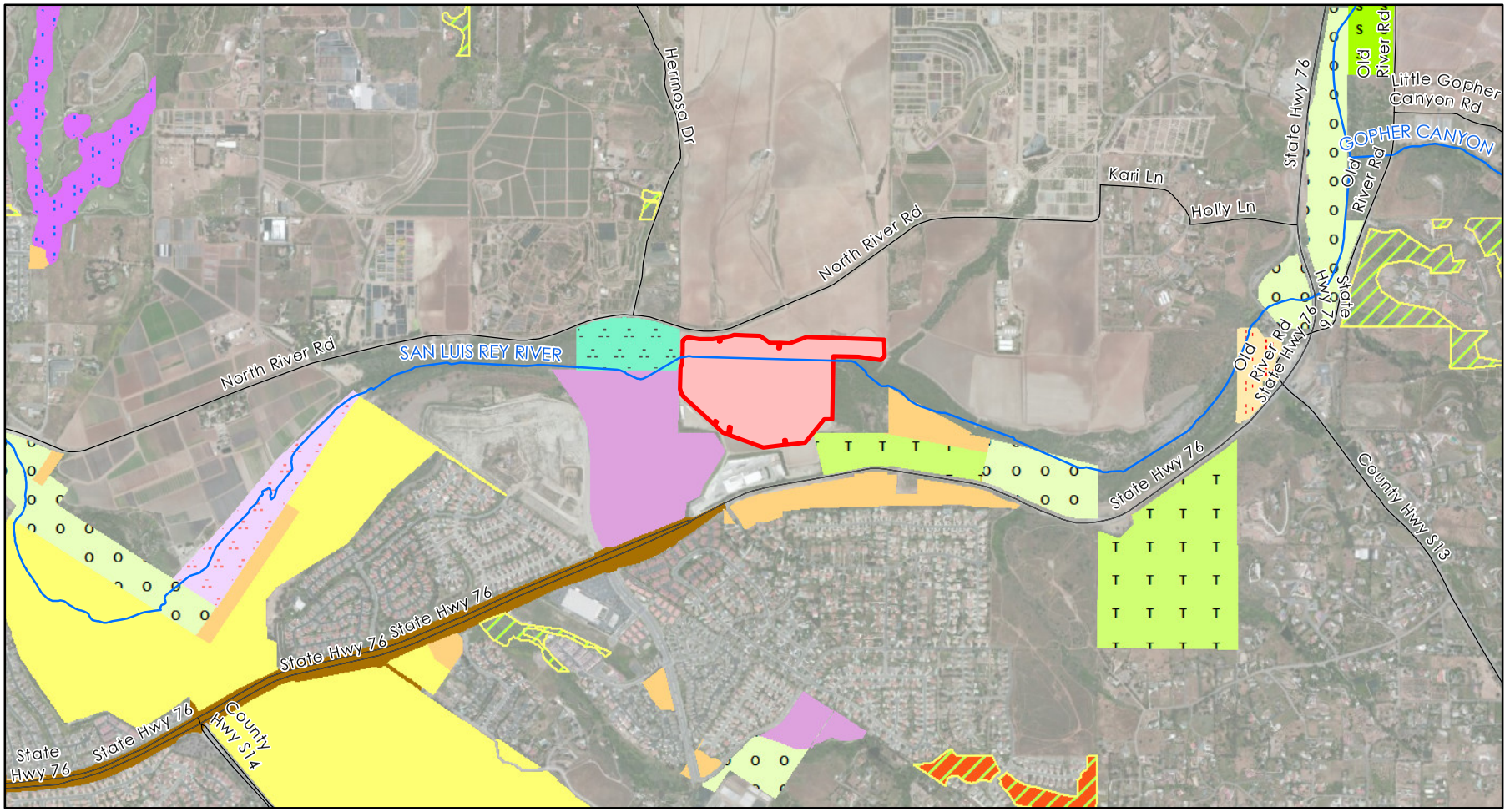

122-130-04
122-100-34
122-130-17
122-130-34
122-130-32
122-130-32
122-100-59
122-130-33
122-130-35
122-130-31
122-100-58
122-130-36
122-130-37
122-130-39
157-100-78
122-130-40
122-130-28
122-130-38
122-130-41
157-100-77
157-150-62
LEGEND
Bank Property
Property
Adjacent Parcels*
*Source: SanGIS, October 2013.
SCALE / ORIENTATION
0 100 200 300 400
Feet
NORTH

WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

Figure 4
Nearby Restoration Projects


A
A
A
A
A
A
EB-R
EB-R
EB-R
EB-R
EB-R
EB-R
N River Rd
N River Rd
San Luis Rey River
Sleeping Inc
Melrose Dr
Lipizzaner Circle
Singh Way
Mission Ave
Mission Ave
76
76
Ranch View Rd
San Luis Rey River
Legend
Bank Property
City of Oceanside General Plan
A - Agricultural
EB-R - Residential - Estate B
Scale / Orientation
0
350
700
Feet
N
Image courtesy of USGS © 2014 Microsoft Corporation © 2014 Nokia © AND



Legend

- Bank Property
- Open Space Easement*

*Other Conserved Lands***

- O City of Oceanside
- S County of San Diego
- T Caltrans
- State of California
- The Center for Natural Lands Management
- Granite Construction
- Lennar Homes HOA
- Private

*Other Public Lands****

- City of Oceanside
- County of San Diego
- School Districts
- State of California

Data Sources

*Taken from SanGIS' *Open Space Easements* GIS dataset. Jan. 2010.

**Taken from SANDAG's *Conserved Lands* GIS dataset July 2010.

***Taken from SANDAG's *2009 Public Land Ownership* GIS dataset. 2009.

Scale

0 0.25 0.5 Miles

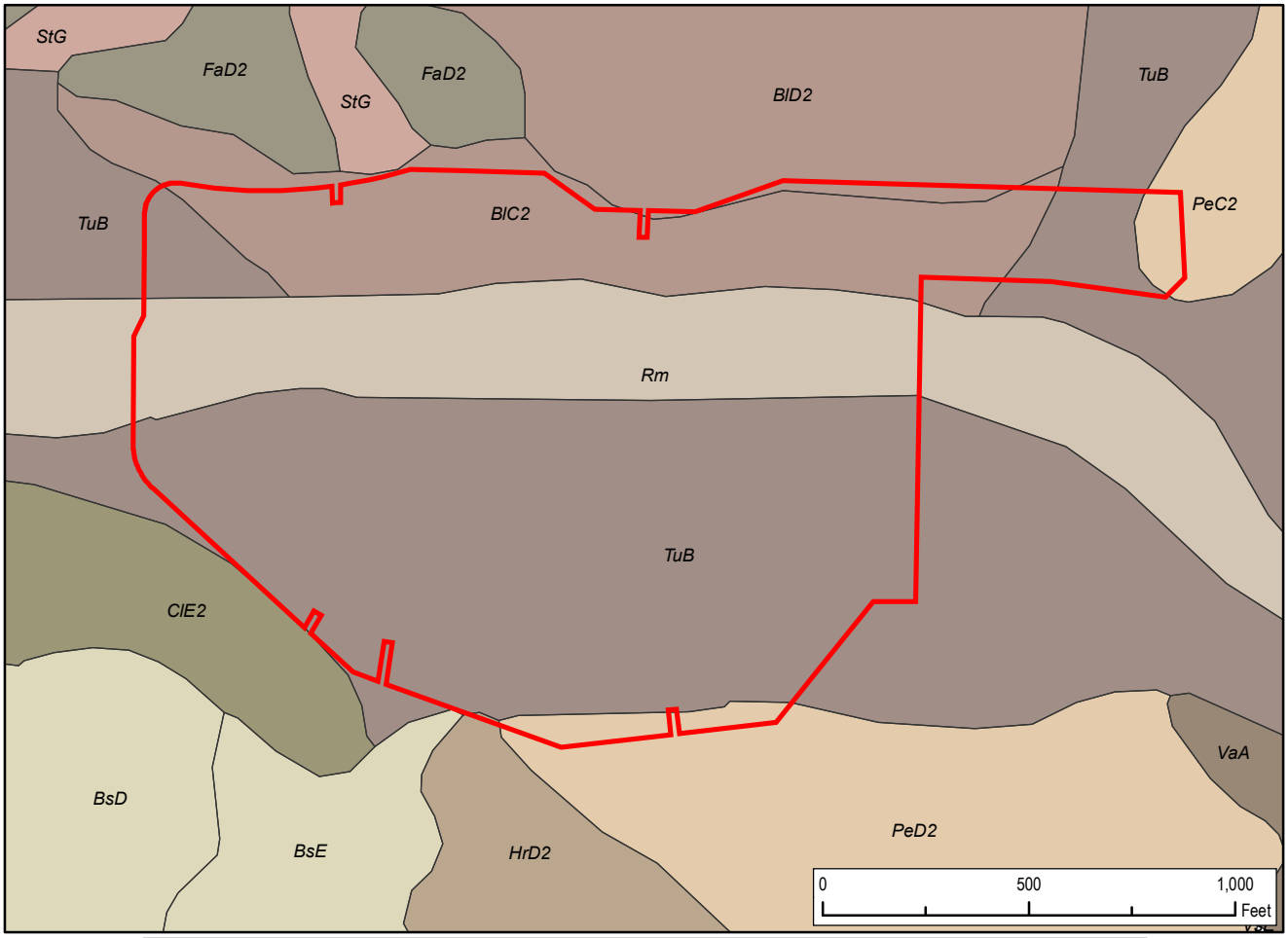
Aerial Image

2009 National Agriculture Imagery Program

WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

Figure 6
Conserved and Public Properties



Legend

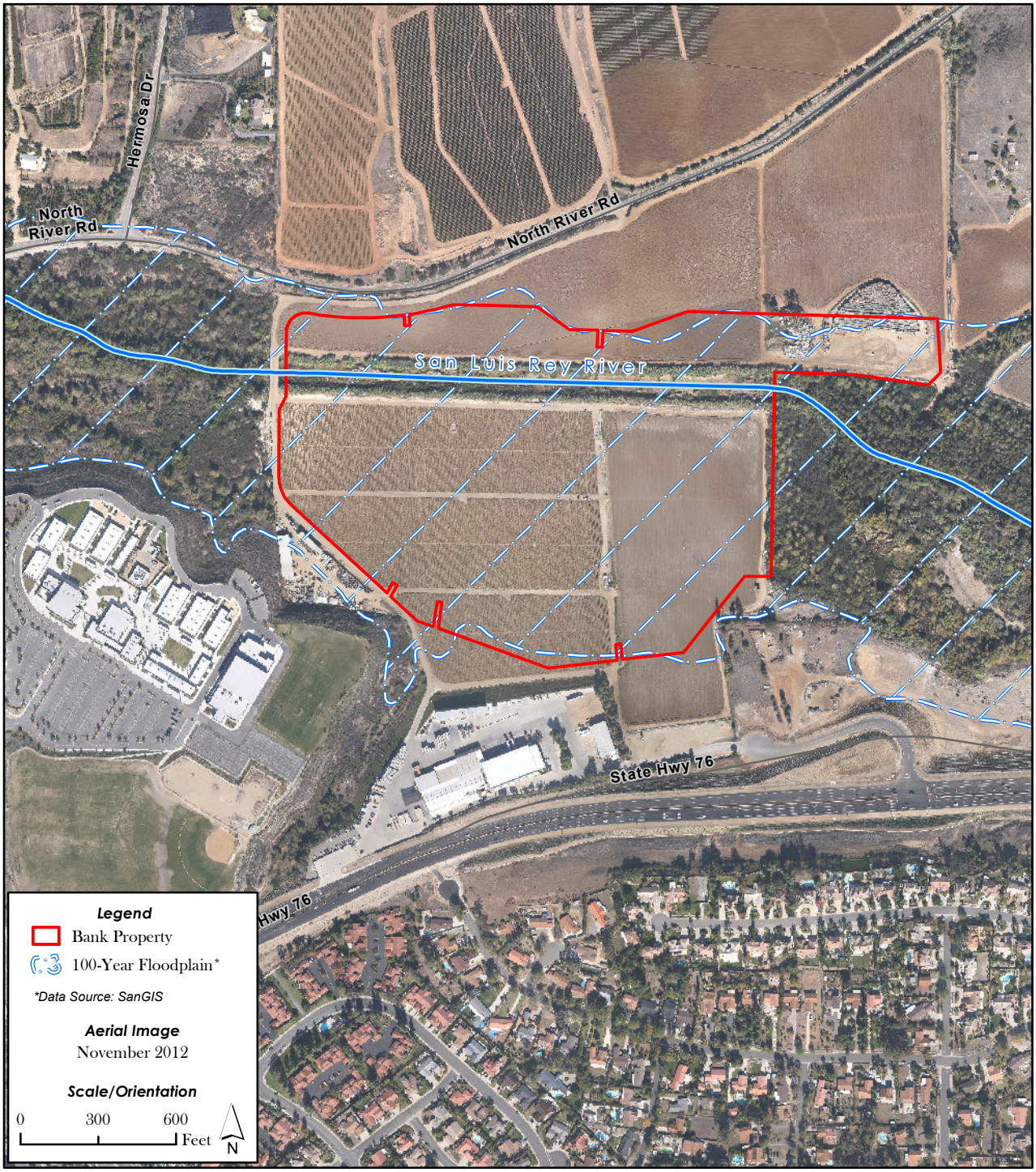
Bank Property

Soils within Bank

- *TuB - Tujunga sand, 0-5% slopes*
- *Rm - Riverwash*
- *HrD2 - Huerhuero loam, 9-15% slopes, eroded*
- *ClE2 - Cieneba coarse sandy loam, 15-30% slopes, eroded*
- *PeC2 - Placentia sandy loam, 5-9% slopes, eroded*
  PeD2 - Placentia sandy loam, 9-15% slopes, eroded
- *BlC2 - Bonsall sandy loam, 2-9% slopes, eroded*
  BlD2 - Bonsall sandy loam, 9-15% slopes, eroded

Other Soils

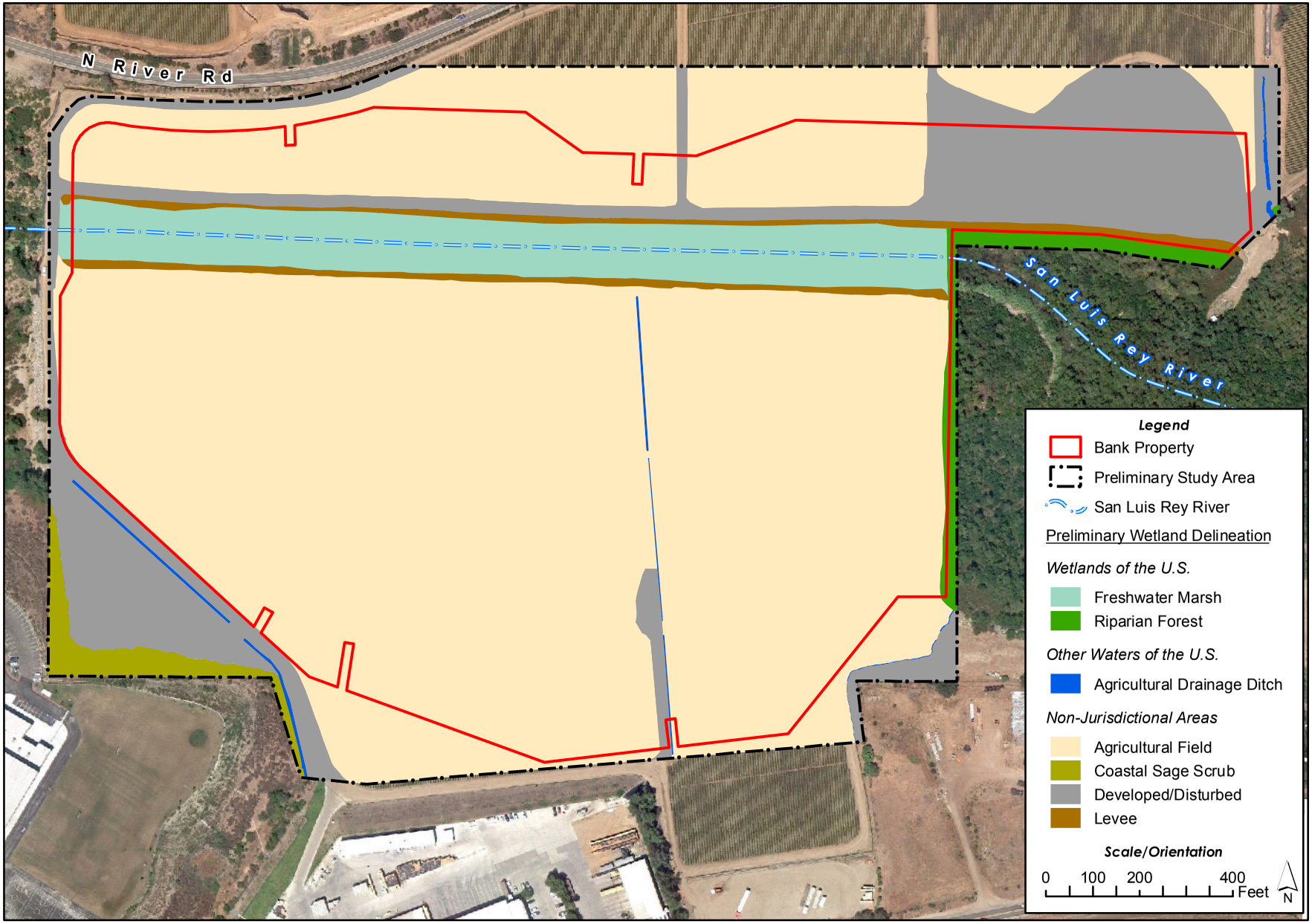
- *VaA - Visalia sandy loam, 0-2% percent slopes*
- *StG - Steep gullied land*
- *FaD2 - Fallbrook sandy loam, 9-15% slopes, eroded*
- *BsD - Bosanko clay, 9-15% slopes*
  BsE - Bosanko clay, 15-30% slopes

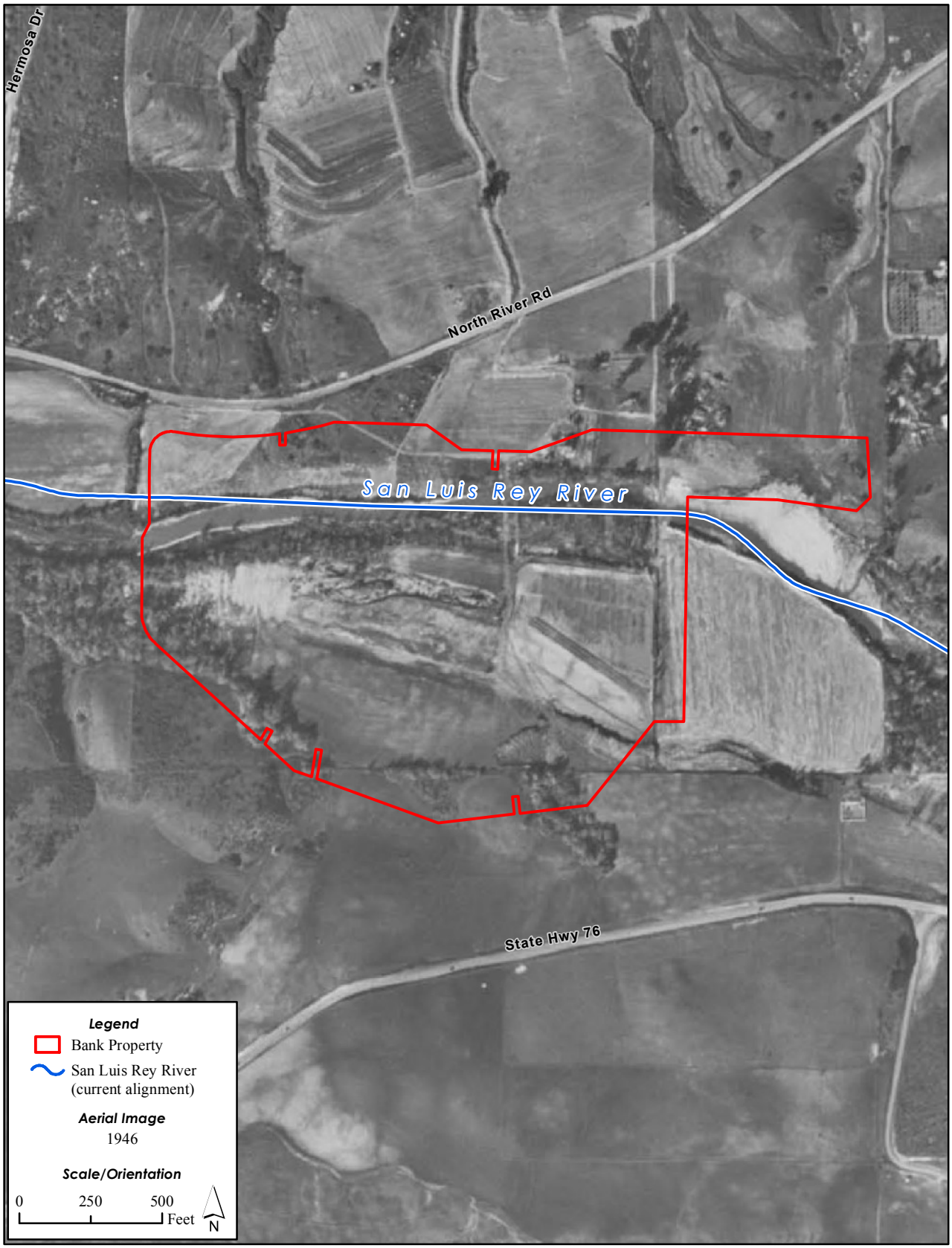


WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

Figure 8
100-year Floodplain

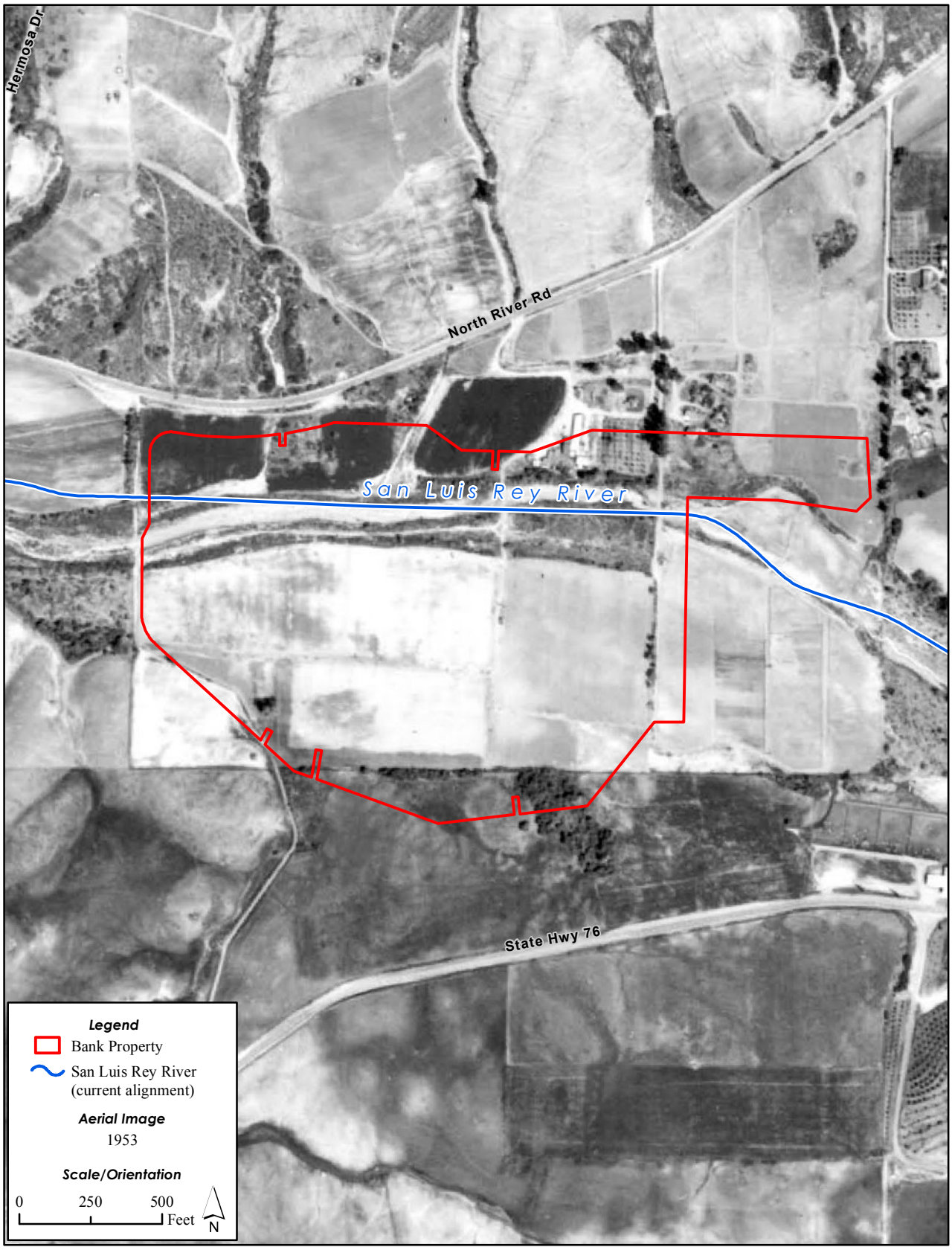

N River Rd
San Luis Rey River
Legend
Bank Property
Preliminary Study Area
San Luis Rey River
Preliminary Wetland Delineation
Wetlands of the U.S.
Freshwater Marsh
Riparian Forest
Other Waters of the U.S.
Agricultural Drainage Ditch
Non-Jurisdictional Areas
Agricultural Field
Coastal Sage Scrub
Developed/Disturbed
Levee
Scale/Orientation
0 100 200 400 Feet
N



WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

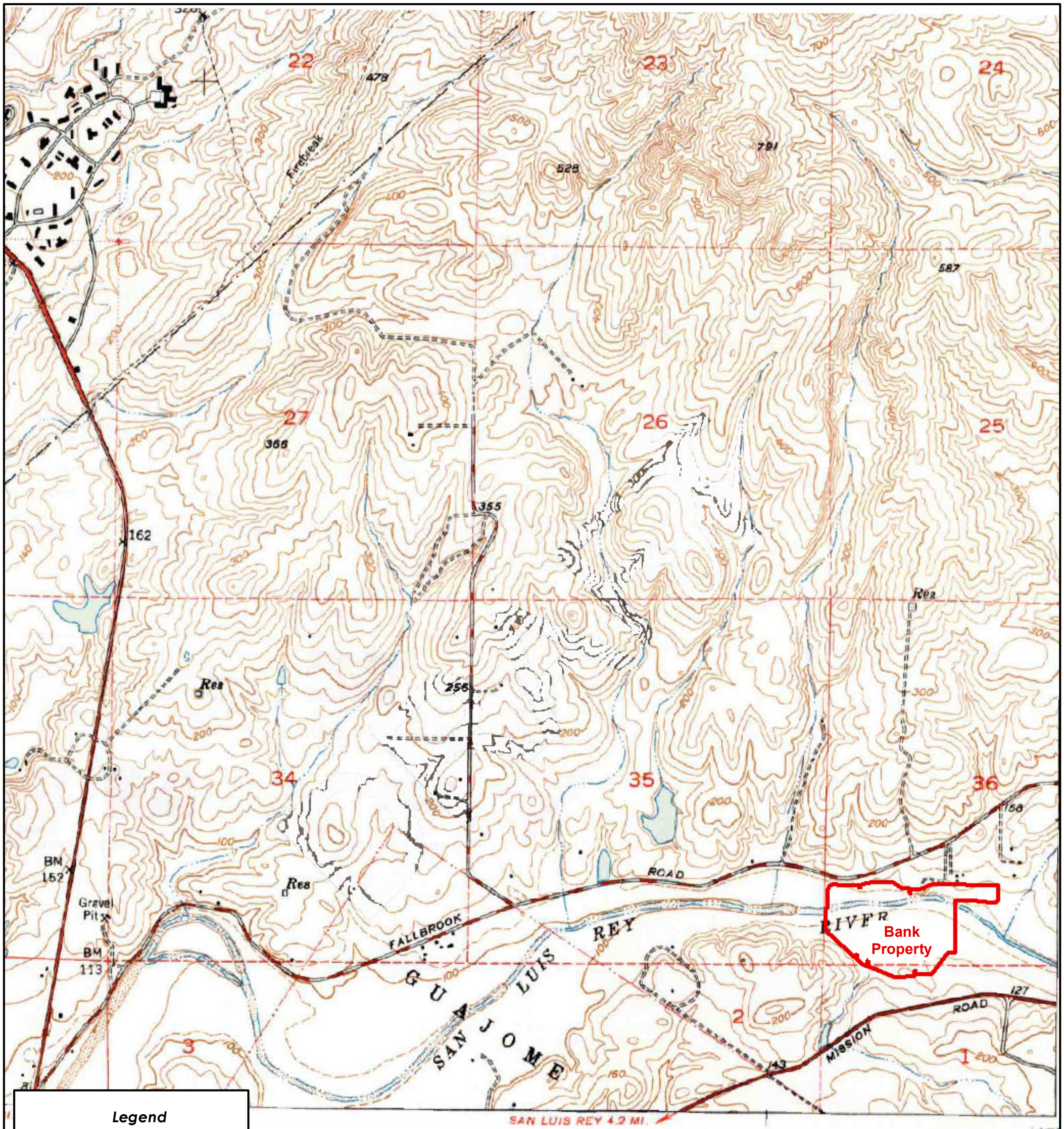
Figure 10
1946 Historic Aerial



WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

Figure 11
1953 Historic Aerial



Legend

Bank Property

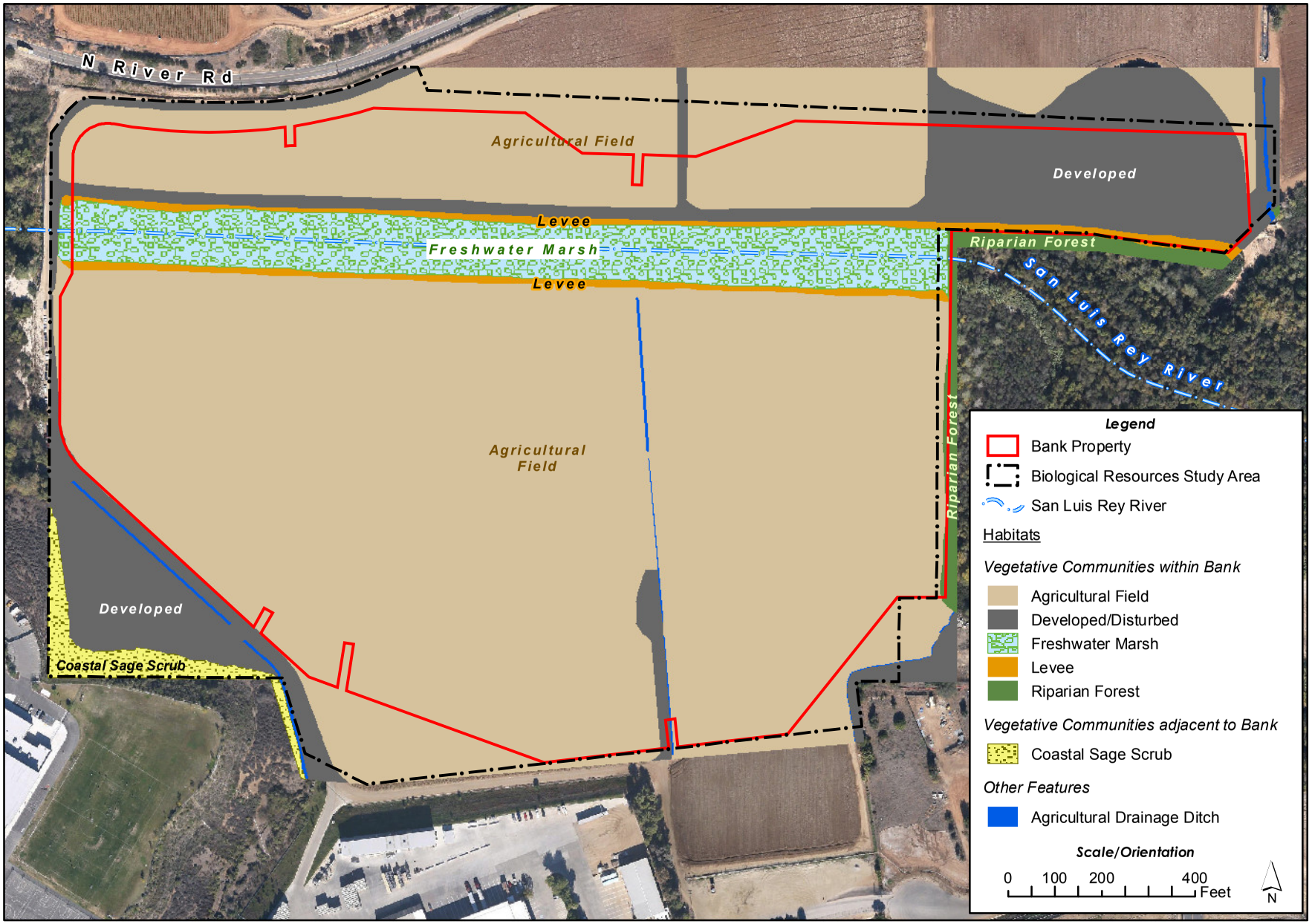
USGS 7.5' Quad:

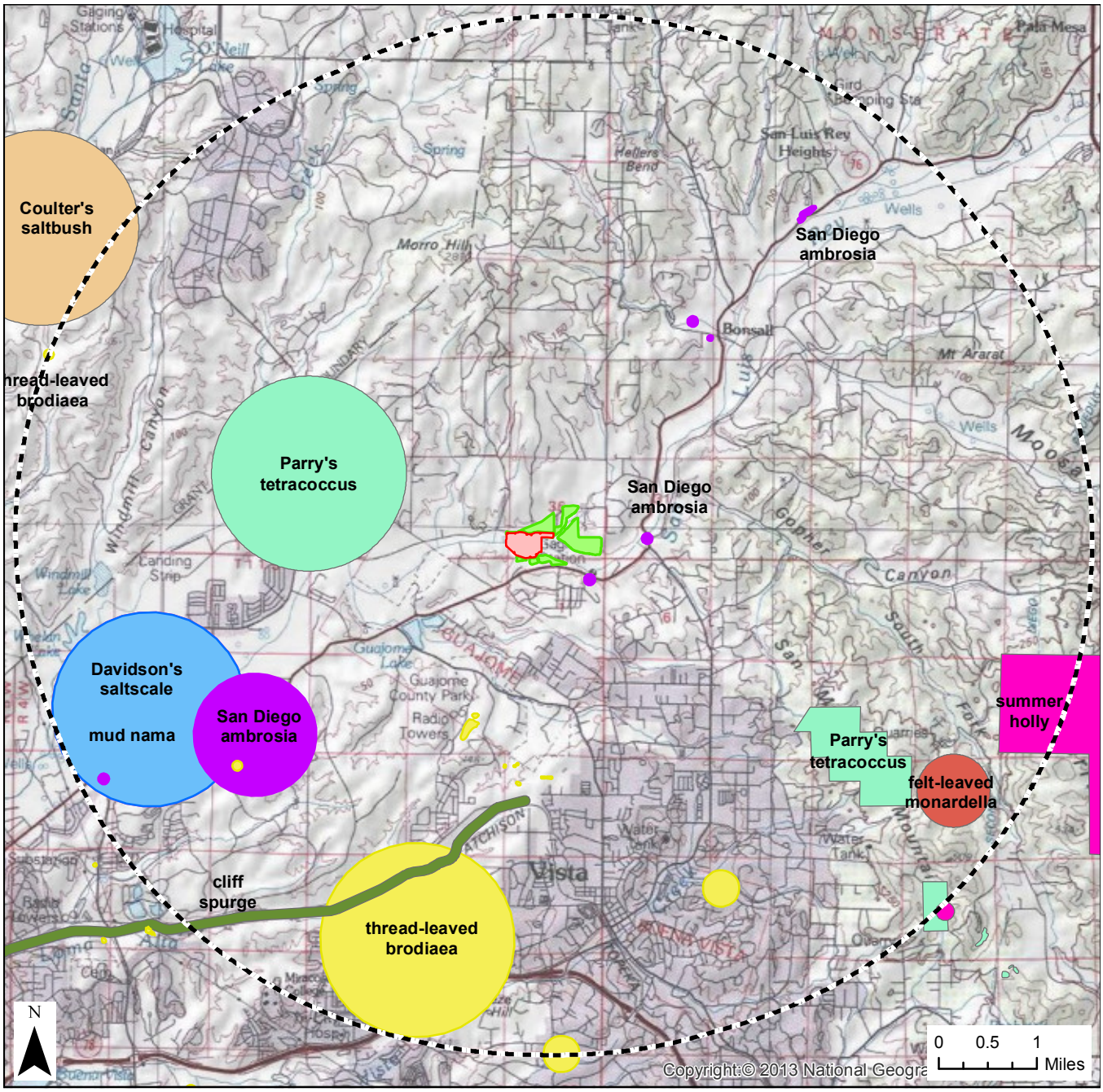
Morro Hill, 1949

Scale/Orientation

0 1,000 2,000 Feet

N


N River Rd
Agricultural Field
Developed
Levee
Freshwater Marsh
Levee
Riparian Forest
San Luis Rey River
Agricultural Field
Riparian Forest
Developed
Coastal Sage Scrub
Legend
Bank Property
Biological Resources Study Area
San Luis Rey River
Habitats
Vegetative Communities within Bank
Agricultural Field
Developed/Disturbed
Freshwater Marsh
Levee
Riparian Forest
Vegetative Communities adjacent to Bank
Coastal Sage Scrub
Other Features
Agricultural Drainage Ditch
Scale/Orientation
0 100 200 400 Feet
N



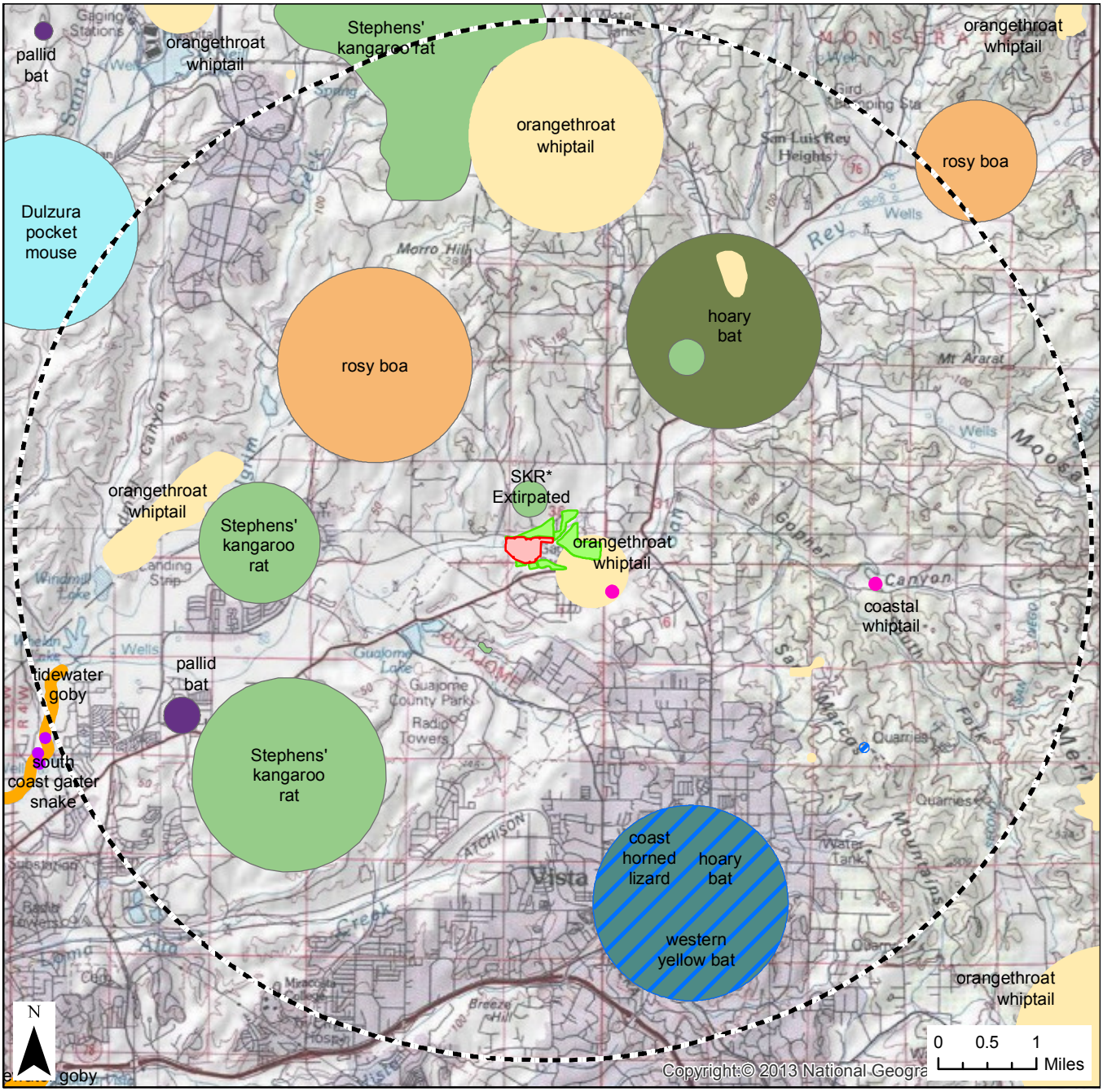
Legend

- Bank Property
- Soil Placement Sites
- 5 Mile Radius

CNDDB - PLANTS*

- Coulter's saltbush
- Davidson's saltscale
- Parry's tetracoccus
- San Diego ambrosia
- cliff spurge
- felt-leaved monardella
- mud nama
- summer holly
- thread-leaved brodiaea

*Data Downloaded: January 2012



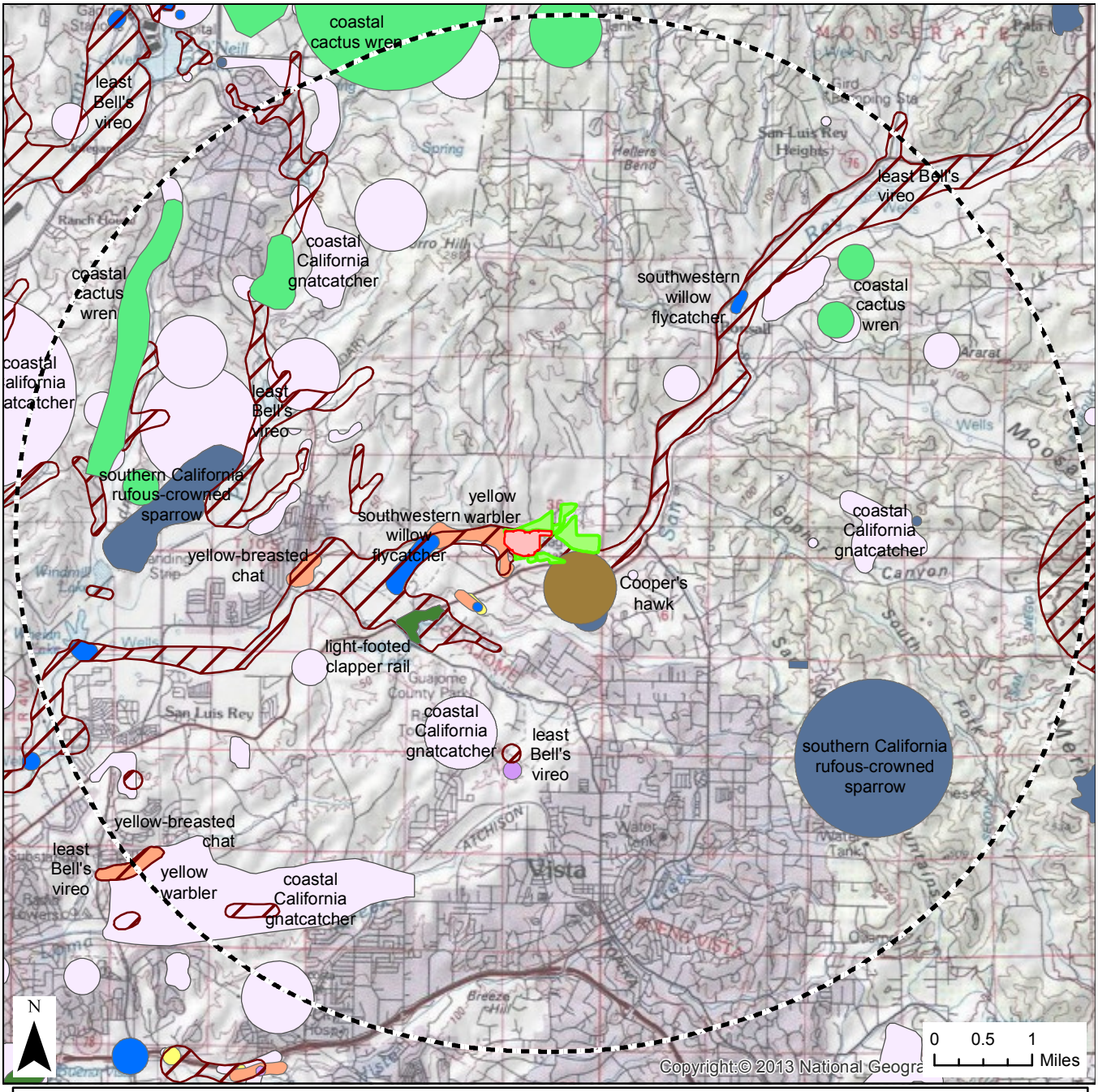
Legend

- Bank Property
- Soil Placement Sites
- 5 Mile Radius

CNDDB-ANIMALS*

- Dulzura pocket mouse
- Stephens' kangaroo rat
- SKR* Extirpated
- coast horned lizard
- coastal whiptail
- hoary bat
- orangethroat whiptail
- pallid bat
- rosy boa
- south coast garter snake
- tidewater goby
- western yellow bat

*Data Downloaded: January 2012



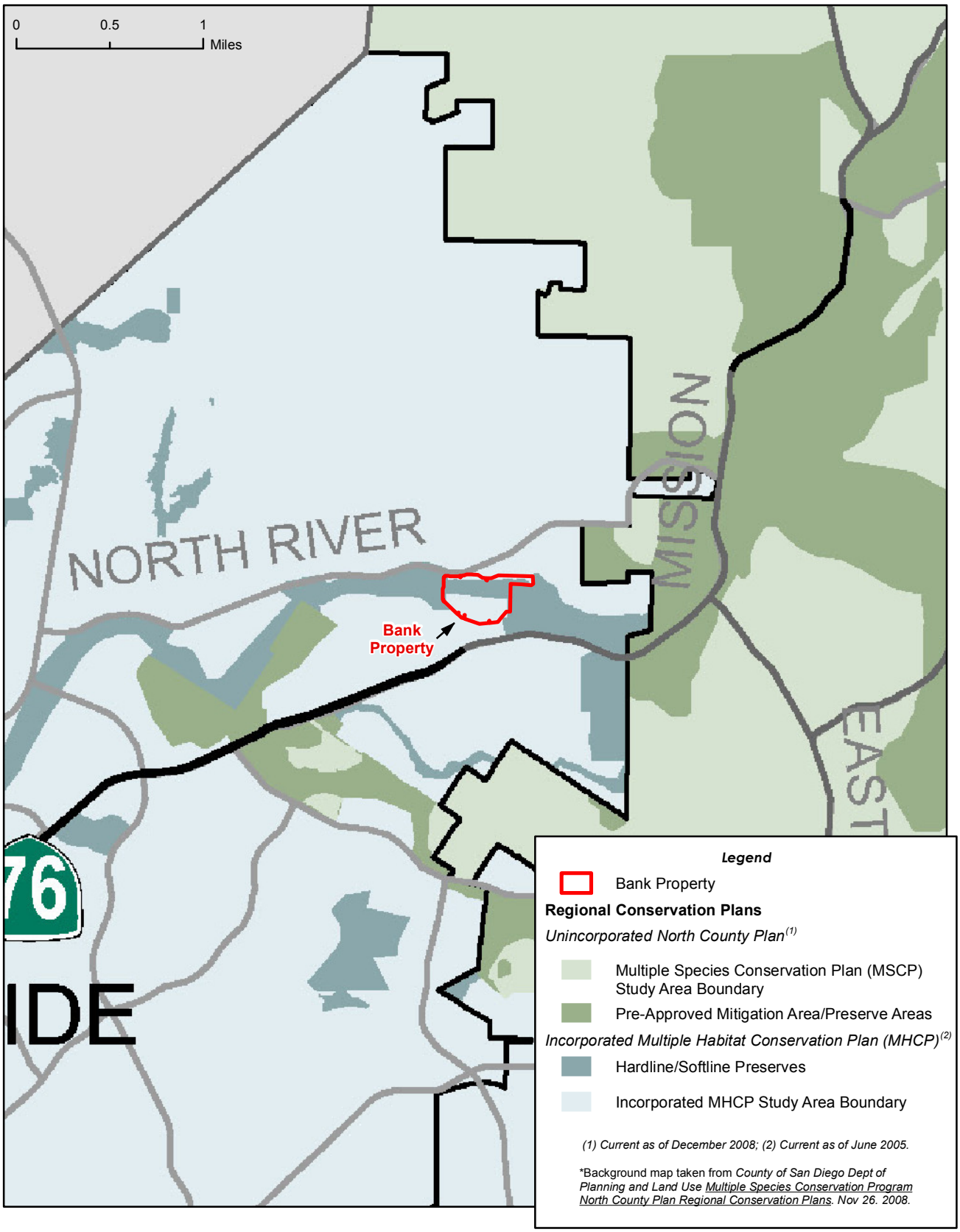
Legend

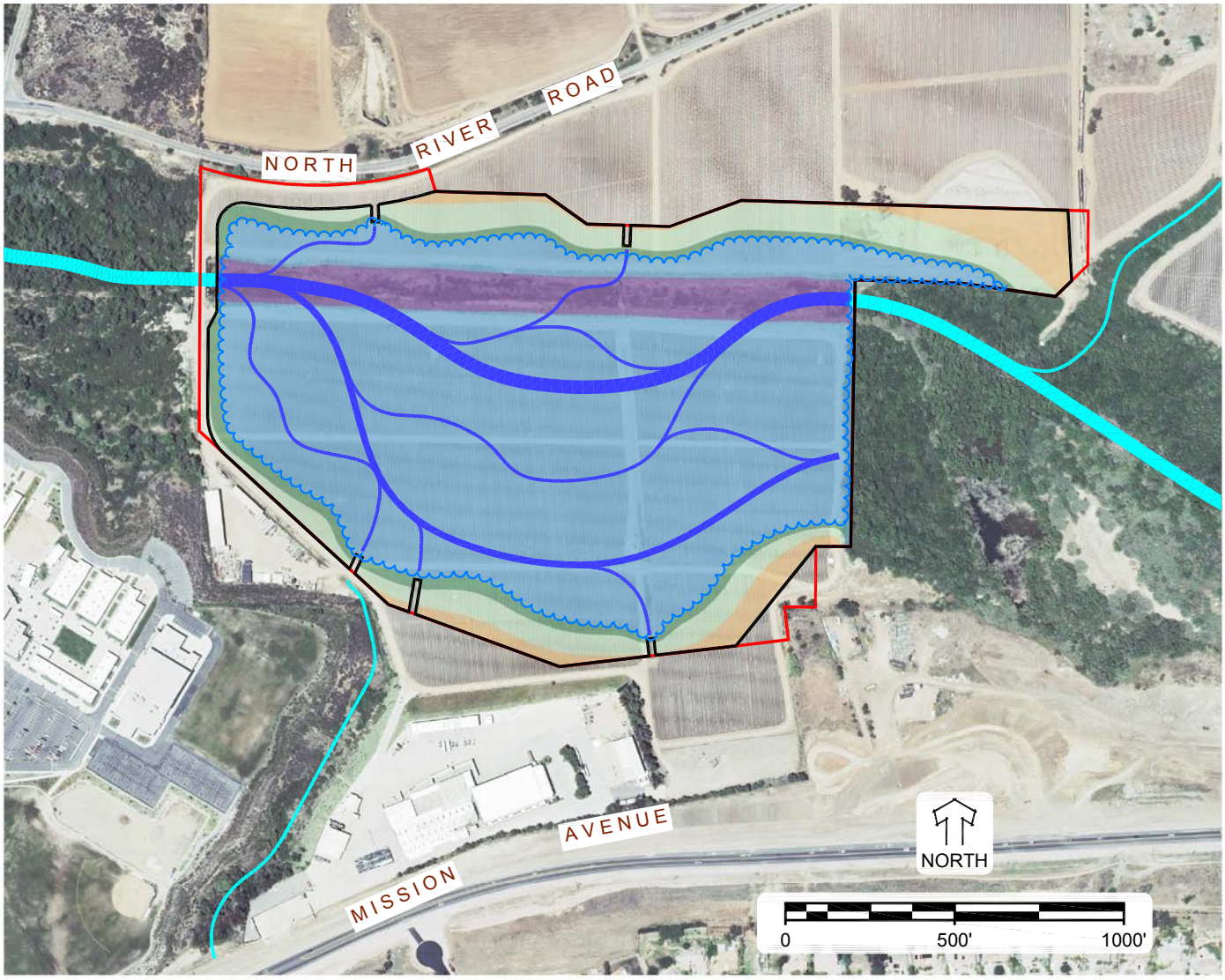
- Bank Property
- Soil Placement Sites
- 5 Mile Radius

CNDDB - BIRDS*

- California least tern
- Cooper's hawk
- coastal cactus wren
- least Bell's vireo
- light-footed clapper rail
- southern California rufous-crowned sparrow
- southwestern willow flycatcher
- white-tailed kite
- coastal California gnatcatcher
- yellow warbler
- yellow-breasted chat

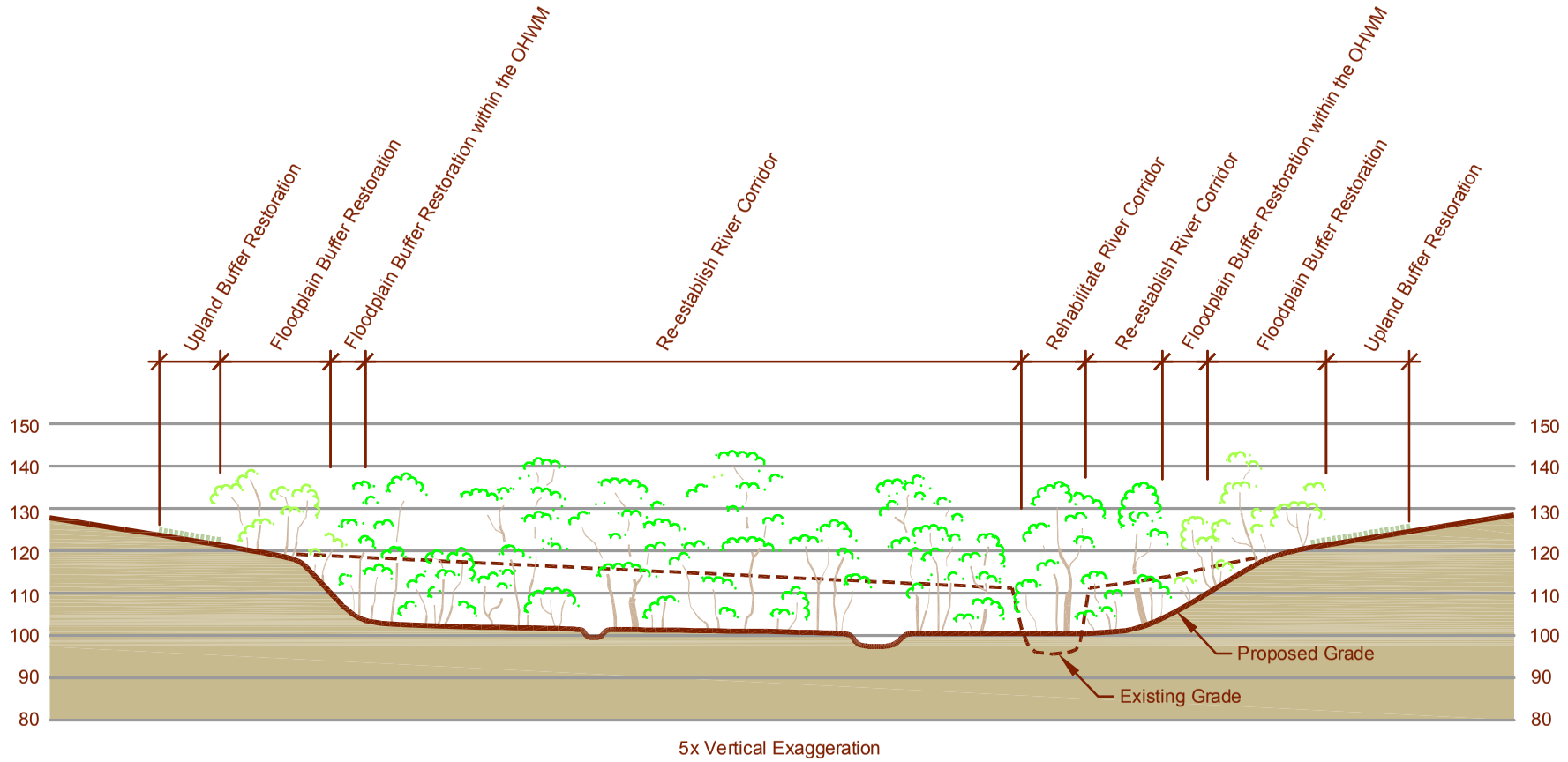
*Data Downloaded: January 2012


0
0.5
1
Miles
NORTH RIVER
MISSION
EAST
Bank Property
76
IDE
Legend
Bank Property
Regional Conservation Plans
Unincorporated North County Plan(1)
Multiple Species Conservation Plan (MSCP) Study Area Boundary
Pre-Approved Mitigation Area/Preserve Areas
Incorporated Multiple Habitat Conservation Plan (MHCP)(2)
Hardline/Softline Preserves
Incorporated MHCP Study Area Boundary
(1) Current as of December 2008; (2) Current as of June 2005.
*Background map taken from County of San Diego Dept of Planning and Land Use Multiple Species Conservation Program North County Plan Regional Conservation Plans. Nov 26. 2008.



LEGEND

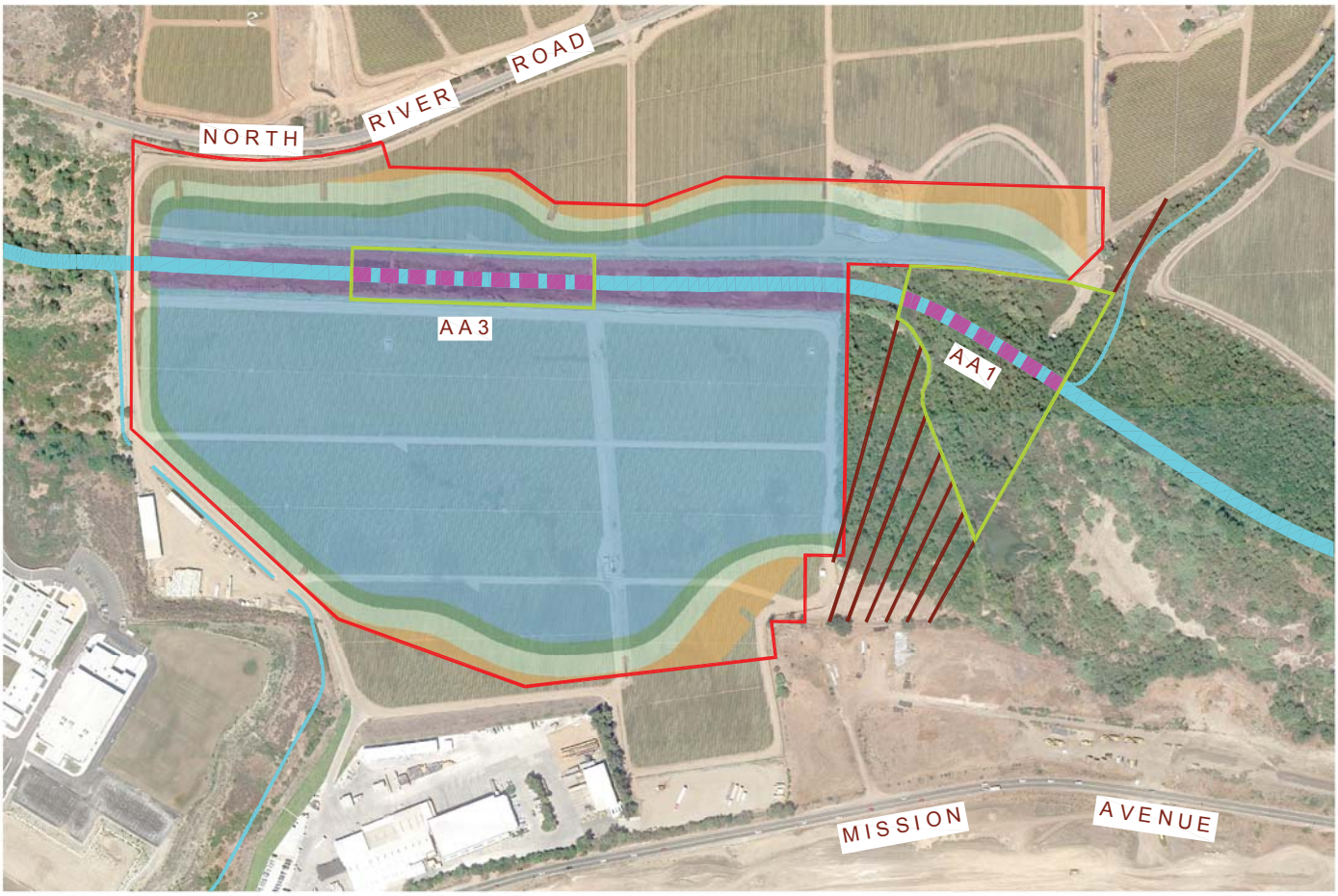
Property Boundary	56.54 acres
Bank Boundary	53.84 acres
Restore / Rehabilitate 404 Wetland River Corridor	5.28 acres
Restore / Re-establish 404 Wetland River Corridor	35.84 acres
Floodplain Buffer Restoration within OHWM	3.89 acres
Floodplain Buffer Restoration	5.34 acres
Upland Buffer Restoration	3.25 acres
Existing Riparian Forest	0.24 acres
Existing River	
Existing Stream / Drainage	
Restored River	
Restored Secondary Channel	


Upland Buffer Restoration
Floodplain Buffer Restoration
Floodplain Buffer Restoration within the OHWM
Re-establish River Corridor
Rehabilitate River Corridor
Re-establish River Corridor
Floodplain Buffer Restoration within the OHWM
Floodplain Buffer Restoration
Upland Buffer Restoration
150
140
130
120
110
100
90
80
Proposed Grade
Existing Grade
5x Vertical Exaggeration

WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

Figure 20
Reference Site



LEGEND

- Property Boundary
- Existing River
- Existing Stream / Drainage
- Proposed CRAM reach
- Proposed CRAM Assessment Area
- CRAM Buffer Line

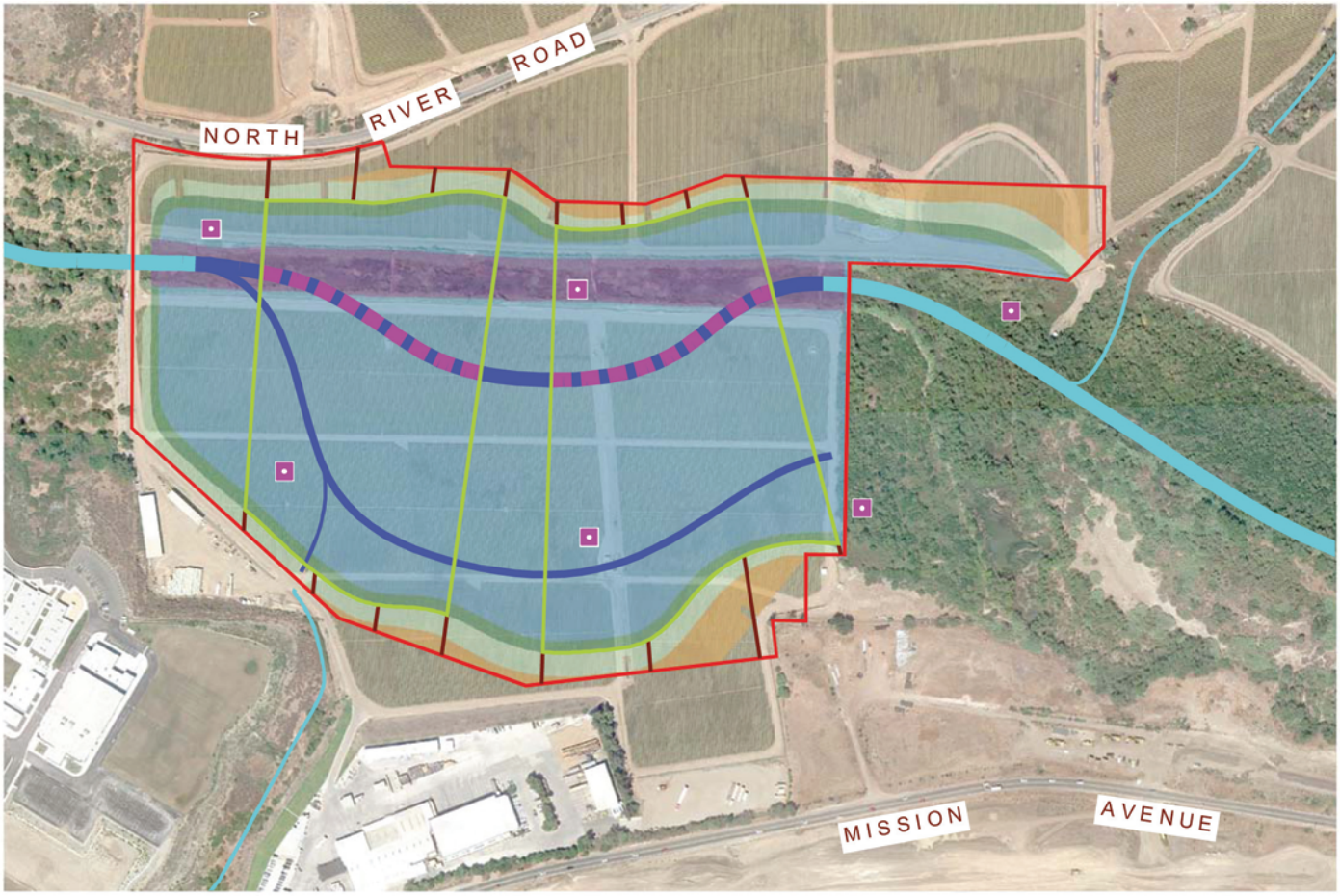
NORTH

0 500' 1000'

WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

Figure 21
Pre-Project CRAM Locations



LEGEND

Property Boundary	Existing River
Rehabilitate Wetland/**Waters** River Corridor	Existing Stream / Drainage
Re-establish Wetland/**Waters** River Corridor	Restored River
Floodplain Buffer Restoration within OHWM	Restored Secondary Channel
Floodplain Buffer Restoration	Proposed CRAM reach (200m)
Upland Buffer Restoration	Proposed CRAM Assessment Area
Existing Riparian Forest	CRAM Buffer Line
	Proposed Water Level Logger

NORTH

0 500' 1000'

WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

Figure 22
Proposed CRAM Locations

Exhibit C-2

Construction Security Analysis and Schedule

CONSTRUCTION SECURITY

Construction Security …….……**$3,577,819.00**

The Bank Sponsor is responsible for providing financial assurances for the performance and completion of Bank construction, management, monitoring and any Remedial Action.

The Construction Security is the financial assurance specified in Section VI.A. of the BEI that guarantees the completion of construction and planting in accordance with the Development Plan.

Prior to the first Credit Release, the Bank Sponsor shall furnish to USACE Construction Security in the amount of 100% of a reasonable third-party estimate or contract to re-establish and/or rehabilitate Waters of the U.S., Waters of the State, and Buffers on the Bank Property, in accordance with the Development Plan. The Construction Security shall be in the form of an irrevocable standby letter of credit. The Bank Sponsor shall ensure that the full amount of the Construction Security shall remain in effect throughout the performance of construction and planting to re-establish and/or rehabilitate Waters of the U.S., Waters of the State, and Buffers on the Bank Property in accordance with the Development Plan. Provided, however, that if all such construction and planting is completed in accordance with the Development Plan prior to the date on which the Bank Sponsor would otherwise be required to furnish the Construction Security then no Construction Security shall be required.

CONSTRUCTION SECURITY SUMMARY TABLE	
Purpose	Ensures that construction & planting will be completed as proposed
Calculation Method	100% of a reasonable third party estimate or contract
Amount*	$3,577,819.00
Financial Instrument	Irrevocable Standby Letter of Credit
When Funded	Prior to the first Credit Release if a Credit Release is requested prior to completion of construction
When Released	The Construction Security shall be cancelled by USACE, in coordination with CDFW, after the Bank Sponsor completes the construction and planting activities in accordance with the Development Plan, as demonstrated by: • Submission of the as-built drawings in accordance with BEI Sections VII.A.2 and VII.B.3; • An on-site inspection by the Signatory Agencies; and • Prior coordination with the IRT.
Held By	USACE
*3rd Party Estimate with 20% contingency added.	

EXHIBIT C-2
COST BREAKDOWN

CG CONSTRUCTION

3416 Morro Bay Ave.
Davis, CA 95616
T 530.979.0575
F 530.750.3228
cgr@dcn.org
CSLB Lic.# 855973

CONSTRUCTION ESTIMATE

Contractor Name: Chris Galloway Construction

Date Prepared: September 10, 2013

Project Name: **San Luis Rey**

ITEM NO.	TOTAL QTY	UNIT	ITEM	Unit Cost	Total Cost
			SITE PREP AND DEMOLITION		
1	4	EA	Remove and decomission wells 1, 2, 3, 4	$ 10,000.00	$ 40,000.00
2	1,050	LF	Cap and remove water line (municiple supply, east side of project 1,050 lf)	$ 8.00	$ 8,400.00
3	2,700	LF	Remove underground power lines to wells 1, 2, 3, 4, 5	$ 5.00	$ 13,500.00
4	8	EA	Remove culvert headwall and culverts along river	$ 2,200.00	$ 17,600.00
5	420	LF	Remove chainlink fence near truck staging area	$ 8.00	$ 3,360.00
6	1	EA	Remove culvert near mixing plant	$ 1,850.00	$ 1,850.00
7	1	EA	Remove culvert north of mixing plant	$ 1,850.00	$ 1,850.00
8	1	LS	Remove trash in rockpile in northeast portion of site	$ 4,500.00	$ 4,500.00
9	25,000	CY	Salvage rock from river revetment, culverts, and other areas for Item No. 23 & 24, crush large pieces as ncessary	$ 4.00	$ 100,000.00
10	1	LS	Remove trees and/or stumps from east side of packing plant pad	$ 18,000.00	$ 18,000.00
11	5	AC	Remove and dispose of Giant Reed in San Luis Rey channel	$ 8,066.00	$ 40,330.00
				SUBTOTAL	**$ 249,390.00**
			GRADING		
12	1	LS	Earthmoving Mobilization	$ 90,000.00	$ 90,000.00
13	1	LS	Install temporary crossing across San Luis Rey	$ 4,500.00	$ 4,500.00
14	295,000	CY	Excavate soil & place in Site 4 w/ topsoil placed in top 2'	$ 3.00	$ 885,000.00
15	313,000	CY	Excavate soil & place in sites 5 & 7 w/ topsoil in top 2'	$ 2.60	$ 813,800.00
16	105,000	CY	Excavate soil & place excavated to geotech specifications in sites 1 & 2	$ 3.30	$ 346,500.00
17	5	EA	Install new culverts with gravel aprons	$ 4,400.00	$ 22,000.00
18	19,000	CY	Install Rock Barb with rock salvaged from site	$ 3.00	$ 57,000.00
19	1	LS	Remove temporary crossing across San Luis Rey	$ 2,600.00	$ 2,600.00
				SUBTOTAL	**$ 2,221,400.00**
			SWPPP AND EROSION CONTROL		
20	1	LS	Misc erosion control	$ 25,000.00	$ 25,000.00
21	1	EA	Portable toilet with secondary containment	$ 5,500.00	$ 5,500.00
22	1	LS	Fuel storage and misc secondary containment	$ 7,500.00	$ 7,500.00
				SUBTOTAL	**$ 38,000.00**
			PLANTING		
23	35.5	AC	Riparian plantings: 10,700 cuttings total, 12' on center, 5' cutting length	$ 8.00	$ 85,600.00
24	1	LS	Marsh planting: salvage 2 acres of tule and cattail clumps, place in 3.2 acre marsh area	$ 62,426.00	$ 62,426.00
25	56	AC	Seeding	$ 500.00	$ 28,000.00
26	12.5	AC	Buffer planting: 6,000 plants total, 9.5' on center, deep pot size	$ 9,600.00	$ 120,000.00
				SUBTOTAL	**$ 296,026.00**
			WATER SUPPLY AND CONTROL		
27	1	EA	Well 5 retrofit	$ 5,000.00	$ 5,000.00
28	5,300	LF	Mainline (buried) with valve connections	$ 14.00	$ 74,200.00
29	12.5	AC	Drip irrigation	$ 1,000.00	$ 12,500.00
30	35.5	AC	Handset or gun irrigation	$ 35,000.00	$ 35,000.00
31	1	LS	Booster pump	$ 50,000.00	$ 50,000.00
				SUBTOTAL	**$ 176,700.00**
				Total	**$ 2,981,516.00**
				CONSTRUCTION BID TOTAL	**$ 2,981,516.00**

ABBREVIATIONS

AC	Acres
CY	Cubic Yards
EA	Each
FA	Force Account
LF	Linear Feet
SF	Square Feet
LS	Lump Sum
SY	Square Yards
TN	Tons

Exhibit C-3

Performance Security Analysis and Schedule

PERFORMANCE SECURITY

Performance Security ……..……...**$715,564.00**

Concurrent with the Transfer of the first Credit, the Bank Sponsor shall furnish to USACE Performance Security in the amount of 20% of the Construction Security (*Exhibit C-2 of the BEI*). The Performance Security shall be in the form of an irrevocable standby letter of credit. The Performance Security is the financial assurance specified in Section VI.B. of the BEI that guarantees that Performance Standards, all Remedial Action(s), and any additional Performance Standards required by such Remedial Action(s) under Section VIII.F are met. The Bank Sponsor shall ensure that the full amount of the Performance Security is available in accordance with Section VIII.E.1.b.2. of the BEI until the Signatory Agencies determine that all of the Performance Standards, all Remedial Action(s), and any additional Performance Standards required by such Remedial Action(s) under Section VIII.F are met.

PERFORMANCE SECURITY SUMMARY TABLE	
Purpose	Ensures that restored habitat will function as planned.
Calculation Method	An amount equivalent to 20% of the Construction Security
Amount	$715,564
Financial Instrument	Irrevocable Standby Letter of Credit
When Funded	Concurrent with the Transfer of the first Credit
When Released	The Performance Security shall be cancelled by USACE after all of the Performance Standards, all Remedial Action(s), and any additional Performance Standards required by such Remedial Action(s) under Section VIII.F are met.
Held By	USACE