

Ocean Breeze Ranch Project

Conceptual Wetland Restoration Plan

PDS2016-TM-5615
PDS2016-MUP-16-012
PDS2016-MUP-16-013

August 7, 2019 | OBR-01

Prepared for:

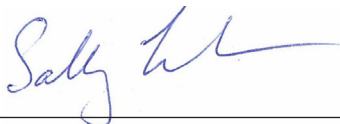
County of San Diego
Planning and Development Services
5510 Overland Avenue, Suite 310
San Diego, CA 92123

Project Proponent:

Ocean Breeze Ranch, LLC
1550 South Coast Highway, Suite 201
Laguna Beach, CA 92561

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942



Sally Trnka
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Planning Consultant

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ACRONYMS AND ABBREVIATIONS

amsl	above mean sea level
APN	Accessor's Parcel Number
BTR	Biological Technical Report
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
County	County of San Diego
CRAM	California Rapid Assessment Method
CWA	Clean Water Act
GPS	global positioning system
ft	feet
HELIX	HELIX Environmental Planning, Inc.
I	Interstate
LLC	limited liability corporation
m	meters
MSCP	Multiple Species Conservation Program
NC	North County
NRCS	Natural Resources Conservation Service
PAMA	Pre-Approved Mitigation Area
POC	Point of Connection
RPO	Resource Protection Ordinance
RWQCB	Regional Water Quality Control Board
SR	State Route
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

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1.0 INTRODUCTION

This report presents a restoration plan for proposed impacts to wetland habitat and jurisdictional waters resulting from the Ocean Breeze Ranch Project (project) located in the unincorporated community of Bonsall, in San Diego County, California. Included in this document is an implementation, maintenance, and monitoring plan for the on-site establishment of approximately 0.48 acre of wetlands and 0.14 acre (1,007 linear feet) of ephemeral stream channel, as well as enhancement of 3.03 acres of existing wetland habitat for a credit of 1.24 acres. The established/enhanced wetland habitat is expected to approach the functions and services of early successional riparian habitat within five years. Mitigation proposed in this report would offset project impacts to wetland and water resources under the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA; 33 USC 1344), Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the CWA, and California Department of Fish and Wildlife (CDFW) pursuant to Sections 1600 et seq. of the California Fish and Game (CFG) Code, and to areas considered County of San Diego (County) Resource Protection Ordinance (RPO) wetlands. This report has been prepared in conformance with the County's Report Format and Content Requirements for Revegetation Plans. Nomenclature used in this report follows Oberbauer (2008) for vegetation communities, Baldwin (2012) and Calflora (2018) for plants, Society for the Study of Amphibians and Reptiles (2017) for reptiles and amphibians, and American Ornithological Society (2018) for birds.

2.0 PROJECT DESCRIPTION

2.1 RESPONSIBLE PARTIES

Ocean Breeze Ranch, LLC (or its successor in interest) will be responsible for financing the installation and five-year maintenance and monitoring of the habitat establishment/enhancement proposed in this plan. Contact information is provided below:

Contact: Jim Conrad, Owner's Representative
Ocean Breeze Ranch, LLC
1550 South Coast Highway, Suite 201
Laguna Beach, CA 92561
949-233-8625

2.2 PROJECT LOCATION

The approximately 1,402.5-acre project site is located west of Interstate (I-)15 and south of State Route (SR) 76, in the unincorporated community of Bonsall in north San Diego County, California (Figure 1). More specifically, the site occurs immediately north of portions of West Lilac Road and south of the San Luis Rey River, at 5820 West Lilac Rd., Bonsall, California (Figure 2). The site is depicted within Sections 13, 14, 15, 20, 21, 22, and 23 of Township 10 South, Range 3 West of the Bonsall, California U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map (Figure 3). Primary access to the site is provided by West Lilac Road. The project site occurs within the following twelve Assessor's Parcel Numbers (APNs) 124-150-3400, 124-150-3500, 124-150-2800, 125-131-4800, 125-131-4900, 125-131-5400, 125-080-2100, 126-060-7800, 127-191-2000, 127-230-5900, 127-271-0100, and 127-271-0200.

The project site occurs within the boundaries of the Draft North County (NC) Multiple Species Conservation Program (MSCP) Plan (herein referred to as NC MSCP Plan), which has not yet been approved or adopted. In May of 2014, the County, U.S. Fish and Wildlife Service (USFWS) and CDFW entered into a Planning Agreement for the Draft NC MSCP Plan (County 2008, amended 2014) which defines the geographic scope of the Planning Area, identifies preliminary conservation objectives, ensures coordination between the USFWS and CDFW, and establishes a process to review interim development within the Planning Area to help achieve the preliminary conservation objectives and preserve options for establishing a viable reserve system or equivalent long-term conservation measures. Within the Draft NC MSCP Plan, portions of the site occur within areas identified as Pre-Approved Mitigation Area (PAMA; HELIX 2019a).

2.3 PROJECT SUMMARY

2.3.1 Current Environmental Setting and Site Conditions

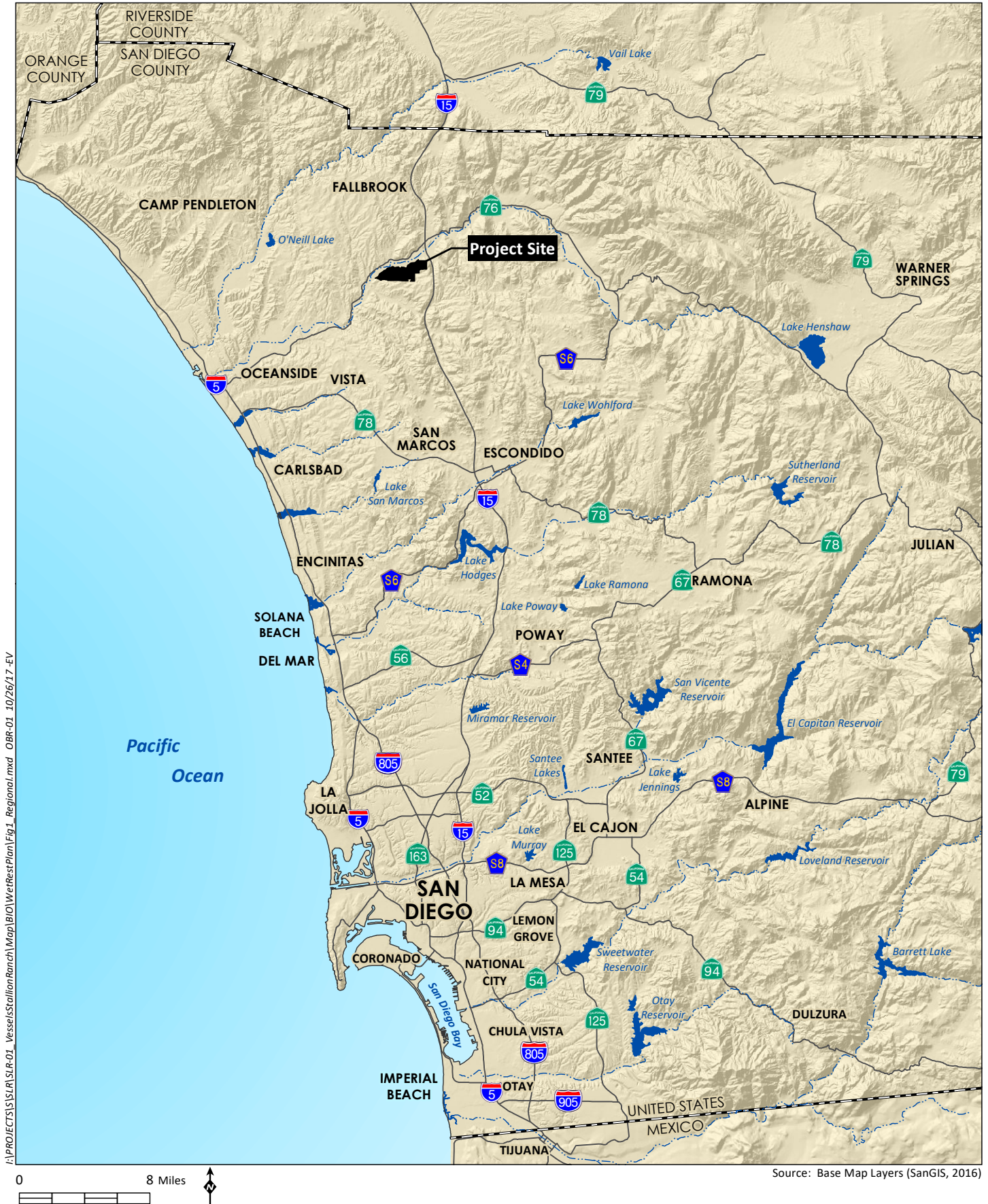
The project site is generally located within the coastal foothills ecoregion of north San Diego County. It occurs within the northeastern portion of the Bonsall Community Planning Area. Generalized climate in the region is regarded as dry, subhumid mesothermal, with warm dry summers and cold moist winters. Mean annual precipitation is between 14 and 18 inches, and the mean annual temperature is between 60 and 62 degrees Fahrenheit. The frost-free season is 260 to 300 days.

Approximately 659.0 acres (47 percent) of the site is in active agricultural or equestrian use, or is otherwise disturbed by past land uses, including 265.9 acres of row crops, 102.8 acres of avocado orchard, 32.1 acres of fallow orchard, 178.3 acres of horse pasture, and 79.9 acres of disturbed habitat and developed lands containing a combination of horse corrals, barns and other outbuildings, farm worker housing, staging areas, roads, and sparsely vegetated areas that retain a soil substrate.

Undeveloped areas are concentrated in the eastern and southwestern portions of the site and consist primarily of hills supporting native scrub communities. The dominant habitat type present on site is Diegan coastal sage scrub, which covers approximately 509.2 acres (36 percent) of the site. In the context of the Draft NC MSCP Plan, the majority of the project site (1,176.9 of 1,402.5 acres, or 84 percent) occurs within areas identified as PAMA within the Lower San Luis Rey River Linkage, as identified in the draft plan.

A large portion of the project site was affected by the December 2017 Lilac Fire, which burned habitat in the eastern hills and traveled westward across the site, affecting native wetland and upland habitats, non-native grassland, and agricultural lands, including orchard. Off-site habitat along the San Luis Rey River also burned in the fire. On-site pastures, which are irrigated, did not burn in the fire. In addition, most of the eastern hills were also burned in the May 2014 Highway Fire (California Department of Forestry and Fire Protection [CAL FIRE] 2016).

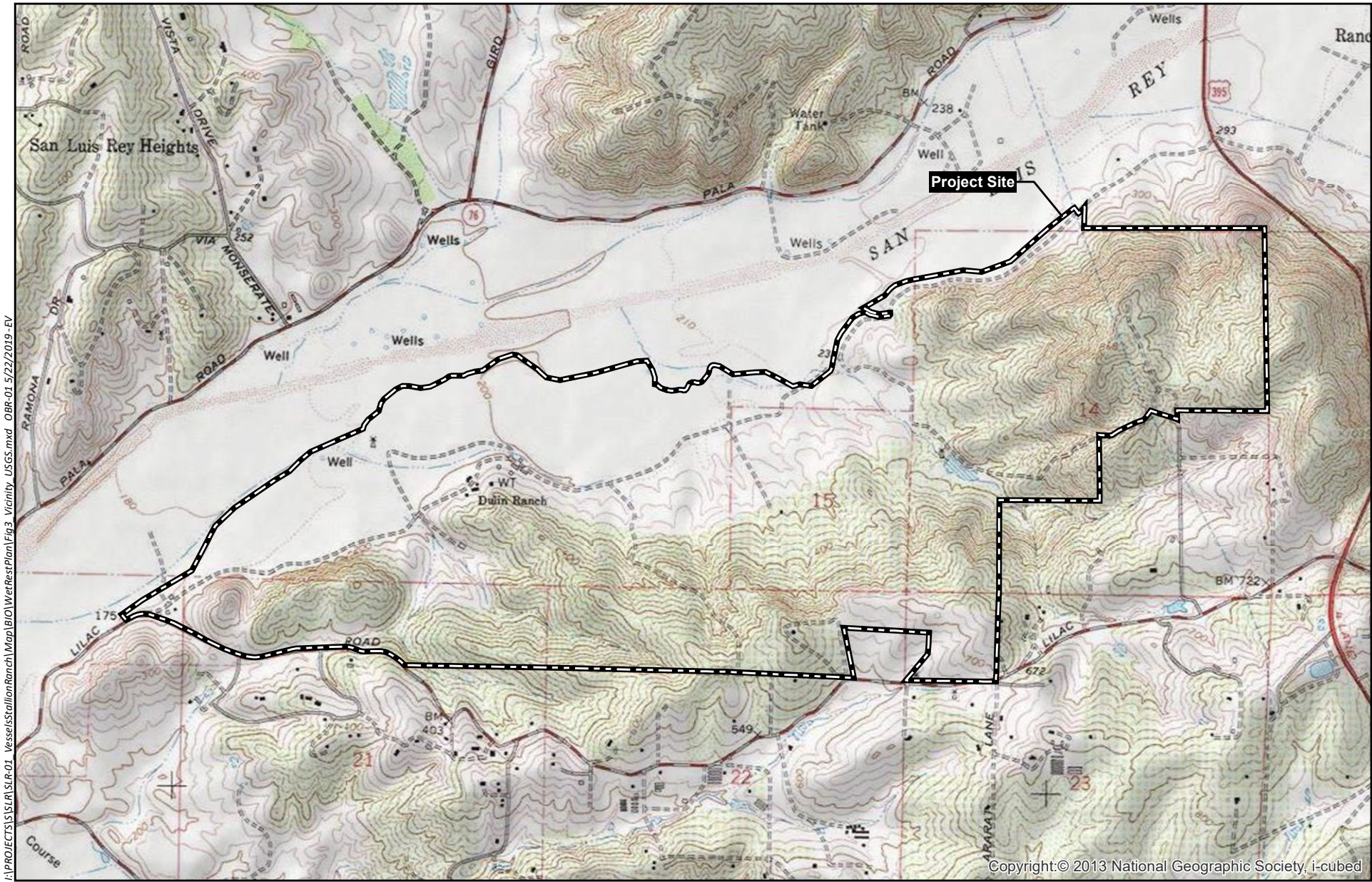
Surrounding land uses generally include the San Luis Rey River to the north, with SR 76 and rural residential development occurring to the north side of the river, I-15 and rural residential development to the east, and rural residential development to the south and west. In addition, a California Department of Transportation (Caltrans) mitigation site is located along the northern project site boundary, extending to the San Luis Rey River.



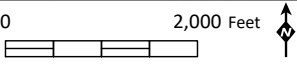


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Source: Base Map Layers (SanGIS, 2017)



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2.3.2 Project Description

The proposed project consists of a 396-lot single-family residential community, related roadway and utility infrastructure improvements, associated park and recreational uses, open space, and a separate, privately-owned and operated equestrian facility. Following County Guidelines, the total on-site disturbance area is approximately 326.4 acres, including 19.4 acres of existing equestrian improved areas (i.e., barns, stables, exercise and veterinary facilities, and a small office). The residential development is divided into three distinct planning areas, with conventional lot sizes in Planning Areas 1 and 2 located in the western portion of the site, and larger lots in Planning Area 3 located in the eastern site area.

Residential areas in Planning Areas 1 and 2 would include 381 lots, with associated lot sizes ranging from approximately 4,500 to 6,000 square feet. Proposed residential development in the western site area (Planning Areas 1 and 2) also includes water/wastewater systems and two sewer pump stations, with associated connections to existing adjacent (off-site) Rainbow Municipal Water District facilities. Additional uses in the western residential areas include seven park sites, as well as trail segments that extend into the project site and connect to the future off-site San Luis Rey River Trail alignment (which will be constructed by the County as a separate project).

Proposed residential development in the eastern portion (Planning Area 3) includes a gated neighborhood consisting of 13 lots with sizes ranging from approximately 5 to 7.5 acres, as well as one 19-acre estate parcel (westernmost lot in Planning Area 3). Planning Area 3 also includes a 28.3-acre Homeowners Association (HOA) Open Space lot (Lot DD) located in the southeastern portion of the site, directly west of Sullivan Middle School.

In addition to residential development in Planning Areas 1, 2, and 3, a 24.2-acre single large estate parcel (Hillside Estate Parcel) is proposed on land northeast of the Sullivan Middle School site, with access from West Lilac Road.

The proposed project design includes a network of internal access roads within the described disturbance area, including public streets in the western residential sites and private/gated roadways in the eastern residential sites. Connections to existing off-site roadways would include two connections to West Lilac Road from the western (public) access roads, one gated (private) connection to Dulin Road from Planning Area 3 at the northeastern site boundary, and one connection to West Lilac Road from the hillside estate parcel adjacent to Sullivan Middle School.

Nearly 60 percent of the project site (832.7 acres) will be preserved in a biological open space easement, which will protect these lands in perpetuity and will restrict future uses to preserve their biological value. In addition, existing equestrian pastures that are outside the residential development footprint will continue in use as pastures as part of the ongoing equestrian operations, and a limited use easement will be recorded over these areas specifying restrictions on future usage to retain the current biological value of the pastures.

2.3.3 Topography and Soils

The project site includes a variety of terrain, from relatively flat alluvial plain near the river along the northern site boundary, to ridges and hillsides near the site's southern boundary. Elevations on the site range from approximately 190 feet (ft) above mean sea level (amsl) to 960 ft amsl (HELIX 2019a).

Elevation generally increases from north to south across the site, with the lowest elevations occurring in the westernmost pastures, and the highest elevations in the easternmost hills. The site is part of the San Luis Rey River valley, which generally trends northeast to southwest across the site, surrounded by hills to the east and south, and extends off-site to the north on the opposite side of SR 76. On-site ephemeral and intermittent tributaries convey runoff in a generally northern direction toward the San Luis Rey River, which is off site, although these tributaries terminate prior to reaching the river. The San Luis Rey River extends from its headwaters above Warner Springs (east of the site) to the Pacific Ocean, approximately 13 miles downstream of the site.

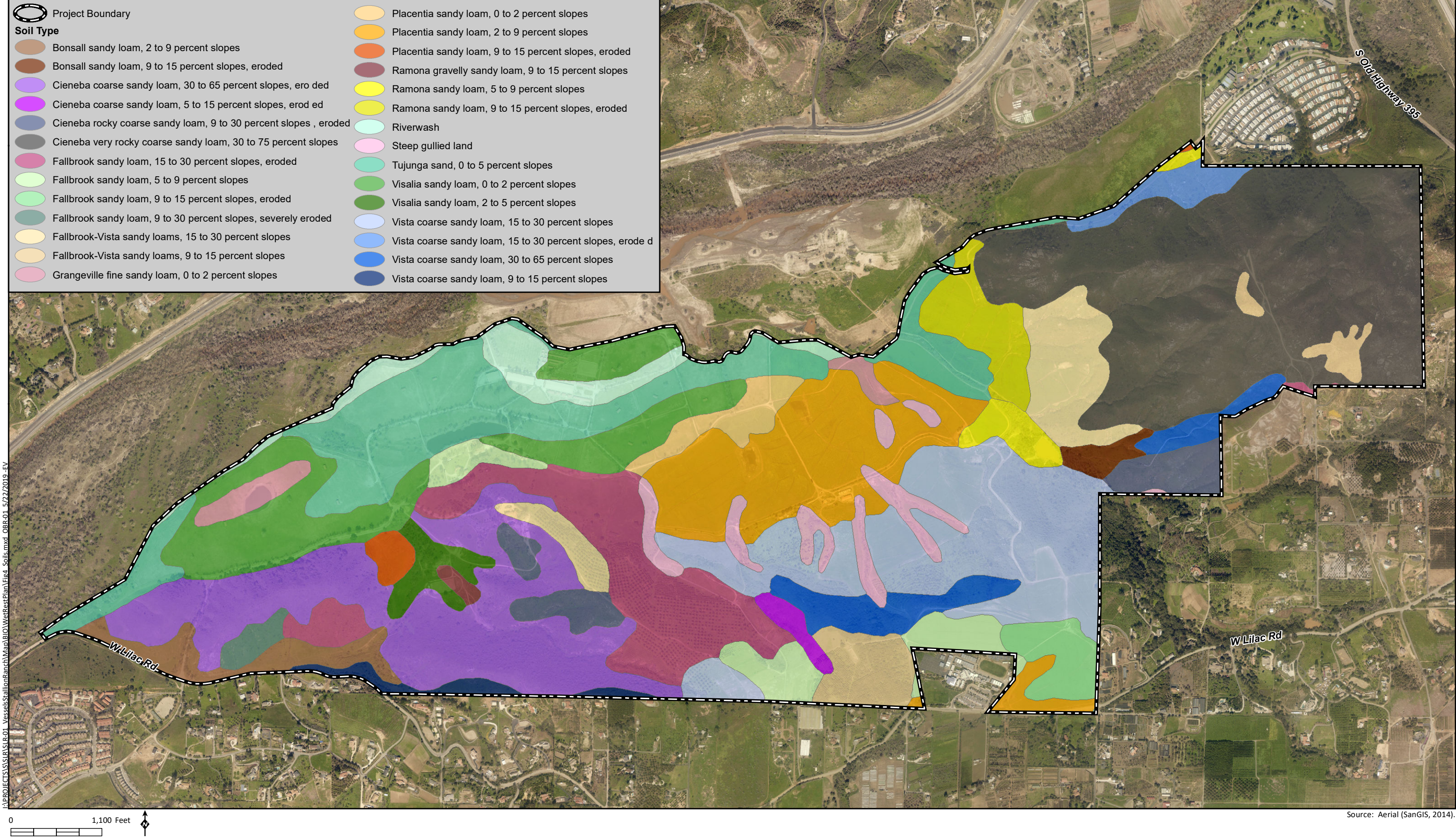
Twelve soil series, which comprise 28 soil types, have been mapped on site (NRCS 2016; Table 1; Figure 4), with the majority classified as sandy loams. Those soils types covering the most area on site include those in the Cieneba series (437.6 acres), Vista series (201.1 acres), and Fallbrook series (229.1 acres).

Table 1
SOIL TYPES MAPPED ON SITE¹

Map Symbol	Map Unit Name	Acreage ²
BIC	Bonsall sandy loam, 2 to 9 percent slopes	24.6
BID2	Bonsall sandy loam, 9 to 15 percent slopes, eroded	7.3
CID2	Cieneba coarse sandy loam, 5 to 15 percent slopes, eroded	6.5
CIG2	Cieneba coarse sandy loam, 30 to 65 percent slopes, eroded	143.0
CmE2	Cieneba rocky coarse sandy loam, 9 to 30 percent slopes, eroded	31.0
CmrG	Cieneba very rocky coarse sandy loam, 30 to 75 percent slopes	257.1
FaC	Fallbrook sandy loam, 5 to 9 percent slopes	34.5
FaD2	Fallbrook sandy loam, 9 to 15 percent slopes, eroded	18.6
FaE2	Fallbrook sandy loam, 15 to 30 percent slopes, eroded	91.3
FaE3	Fallbrook sandy loam, 9 to 30 percent slopes, severely eroded	6.7
FvD	Fallbrook-Vista sandy loams, 9 to 15 percent slopes	30.8
FvE	Fallbrook-Vista sandy loams, 15 to 30 percent slopes	47.2
GoA	Grangeville fine sandy loam, 0 to 2 percent slopes	13.8
PeA	Placentia sandy loam, 0 to 2 percent slopes	17.0
PeC	Placentia sandy loam, 2 to 9 percent slopes	110.4
PeD2	Placentia sandy loam, 9 to 15 percent slopes, eroded	6.6
RaC	Ramona sandy loam, 5 to 9 percent slopes	14.0
RaD2	Ramona sandy loam, 9 to 15 percent slopes, eroded	28.1
RcD	Ramona gravelly sandy loam, 9 to 15 percent slopes	2.8
Rm	Riverwash	33.1
StG	Steep gullied land	31.2
TuB	Tujunga sand, 0 to 5 percent slopes	135.8
VaA	Visalia sandy loam, 0 to 2 percent slopes	96.0
VaB	Visalia sandy loam, 2 to 5 percent slopes	13.9
VsD	Vista coarse sandy loam, 9 to 15 percent slopes	10.7
VsE	Vista coarse sandy loam, 15 to 30 percent slopes	142.0
VsE2	Vista coarse sandy loam, 15 to 30 percent slopes, eroded	13.9
VsG	Vista coarse sandy loam, 30 to 65 percent slopes	34.5
TOTAL		1,402.5

¹ Pursuant to the NRCS Web Soil Survey (2016).

² Rounded to the nearest tenth acre.



2.3.4 Vegetation Communities

Twenty-two vegetation communities/land use types occur on the project site (Table 2). The numeric codes in parentheses following each community/land use type name are from the Holland classification system (Holland 1986) and as added to by Oberbauer (2008) as presented in the County's Biology Guidelines (County 2010).

Table 2
EXISTING VEGETATION COMMUNITIES/LAND USE TYPE OCCURRING ON SITE

Vegetation Community¹	Acre(s)²
Southern Cottonwood-willow Riparian Forest (61330) ³	18.18
Southern Willow Scrub (63320) ³	3.03
Mule Fat Scrub (63310) ³	1.30
Freshwater Marsh (52400)	0.98
Herbaceous Wetland (52510) ³	0.24
Tamarisk Scrub (63810) ³	0.09
Freshwater Pond/Open Water (64140)	1.16
Coast Live Oak Woodland (71160) ³	29.2
Diegan Coastal Sage Scrub – including disturbed (32500) ³	509.2
Flat-topped Buckwheat Scrub (32800) ³	1.4
Coastal Sage-chaparral Scrub (37G00) ³	31.5
Southern Mixed Chaparral (37120) ³	31.8
Non-Native Grassland (42200) ³	104.2
Extensive Agriculture: Pasture (18310)	178.3
Extensive Agriculture: Row Crops (18320) ³	265.9
Agricultural Pond/Open Water (64100)	8.0
Eucalyptus Woodland (79100)	1.8
Orchard (18100) ³	102.8
Fallow Orchard (18100) ³	32.1
Non-native Vegetation (79100) ³	1.3
Disturbed Habitat (11300)	49.6
Developed Land (12000)	30.3
TOTAL	1,402.5

¹ Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).

² Upland habitats are rounded to the nearest 0.1 acre, while wetland habitats are rounded to the nearest 0.01; thus, total reflects rounding.

³ All or most of this vegetation community burned during the December 2017 Lilac Fire.

Sensitive vegetation communities/habitat types mapped on the project site include southern cottonwood-willow riparian forest, southern willow scrub, mule fat scrub, freshwater marsh, herbaceous wetland, tamarisk scrub, open water/freshwater pond, coast live oak woodland, Diegan coastal sage scrub, flat-topped buckwheat scrub, coastal sage-chaparral scrub, southern mixed chaparral, and non-native grassland.

Pasture, row crops, eucalyptus woodland, orchard, fallow orchard, non-native vegetation, disturbed habitat, and developed lands do not meet the definition of sensitive habitat under CEQA.

2.3.5 Wildlife

A total of 163 animal species were observed or otherwise detected on the project site during the biological surveys, including 30 invertebrate, four amphibian, six reptile, 107 bird, and 16 mammal species (HELIX 2019a).

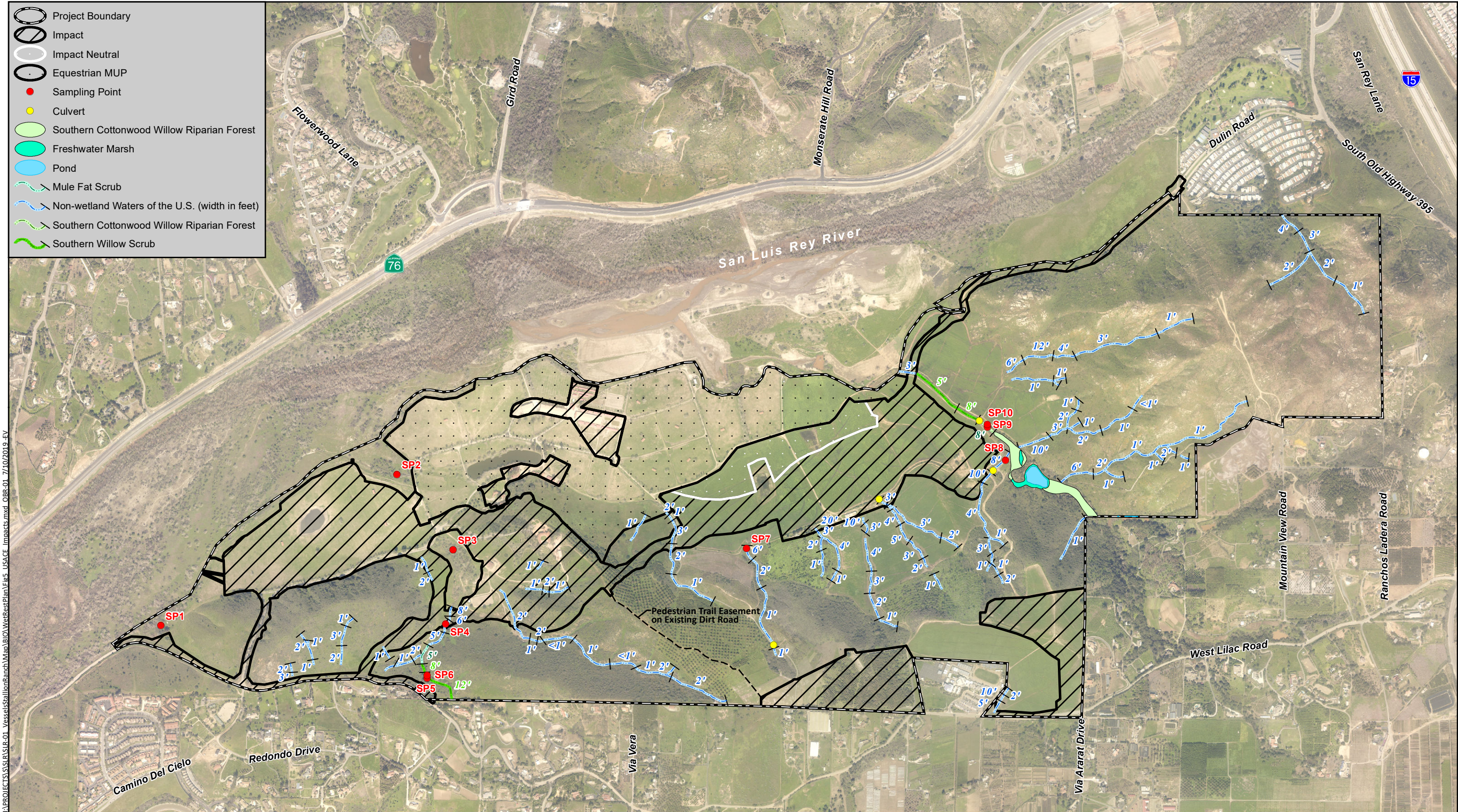
2.3.6 Sensitive Species

Four special status plant species were observed on the project site (HELIX 2019a): Brewer's Calandrinia (*Calandrinia breweri*), delicate clarkia (*Clarkia delicata*), graceful tarplant (*Holocarpha virgata* ssp. *elongata*), and smooth tarplant (*Centromadia pungens* ssp. *laevis*). Twenty-seven special status animal species have been observed or detected on or directly adjacent to the project site during biological surveys conducted for the project: barn owl (*Tyto alba*), California horned lark (*Eremophila alpestris actia*), Canada goose (*Branta canadensis*), coastal California gnatcatcher (*Poliophtila californica californica*), coastal western whiptail (*Aspidoscelis tigris stejnegeri*), Cooper's hawk (*Accipiter cooperii*), golden eagle (*Aquila chrysaetos*), great blue heron (*Ardea herodias*), green heron (*Butorides virescens*), least Bell's vireo, loggerhead shrike (*Lanius ludovicianus*), northern harrier (*Circus cyaneus*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), osprey (*Pandion haliaetus*), red-shouldered hawk (*Buteo lineatus*), snow goose (*Chen caerulescens*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), southern mule deer (*Odocoileus hemionus fuliginata*), turkey vulture (*Cathartes aura*), vermilion flycatcher (*Pyrocephalus rubinus*), western bluebird (*Sialia mexicana*), western spadefoot (*Spea hammondi*), white-faced ibis (*Plegadis chihi*), white-tailed kite (*Elanus leucurus*), willow flycatcher (*Empidonax traillii*), yellow-breasted chat (*Icteria virens*), and yellow warbler (*Setophaga petechia*).

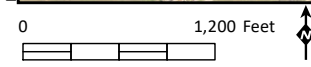
2.3.7 Project Impacts and Required Mitigation

A summary of project impacts to biological resources and required mitigation is provided in the Biological Technical Report (HELIX 2019a). This restoration plan only addresses mitigation for impacts to County RPO wetlands and USACE, RWQCB, CDFW jurisdictional areas. These impacts and mitigation are summarized below. Additionally, and as required by the County's Report Format and Content Requirements for Revegetation Plans, relevant sections of the Biological Technical Report (i.e., mitigation requirements and habitat being impacted) will be included as an appendix to the Final Wetland Restoration Plan.

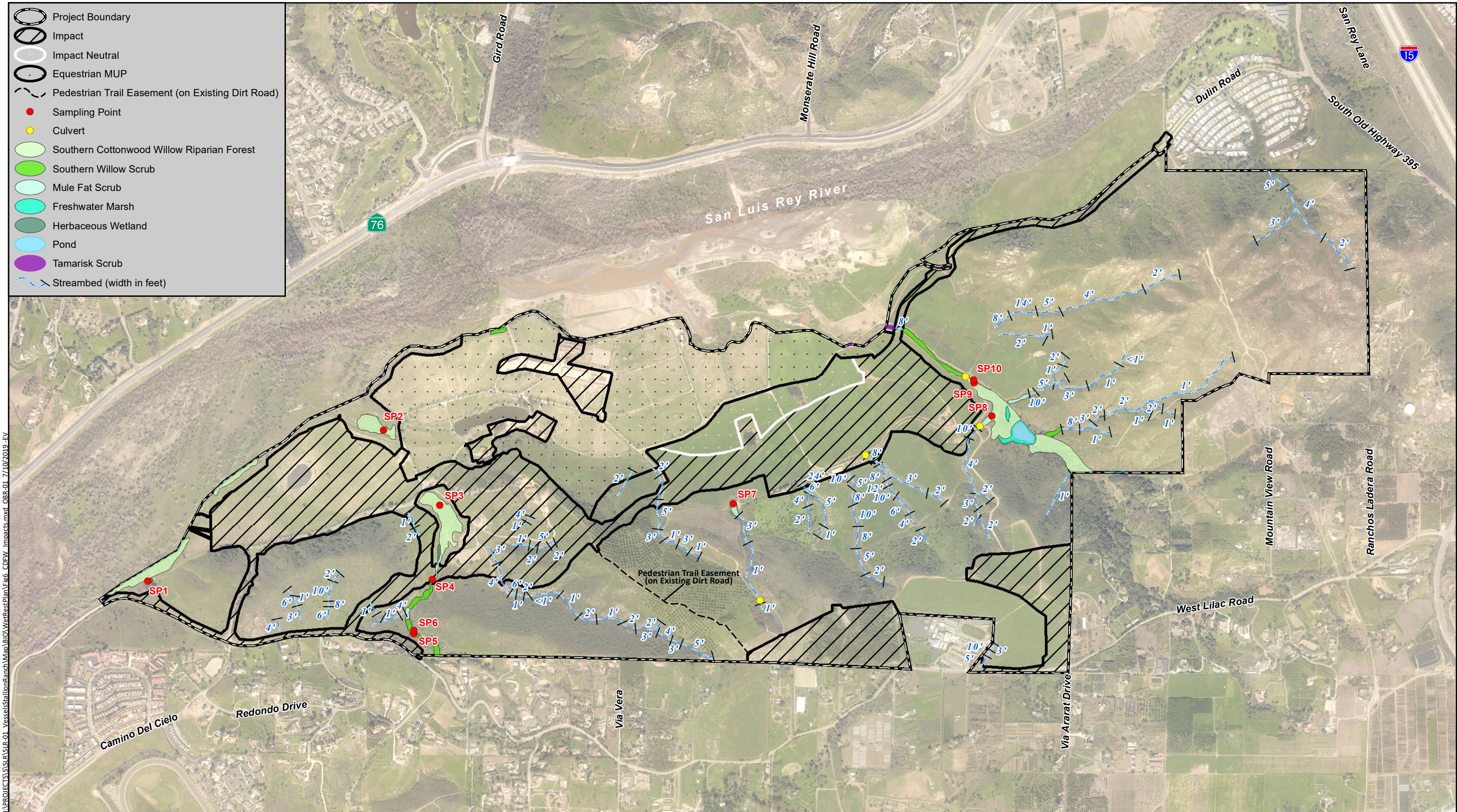
In total, the project would impact 0.20 acre of USACE/RWQCB jurisdictional non-wetland waters of the U.S. (Figure 5), 0.40 acre of wetlands and waters under CDFW jurisdiction (Figure 6), and 0.19 acre of County RPO wetland (Figure 7). Table 3 provides a summary of project impacts to jurisdictional wetlands and waterways.



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Source: Aerial (SanGIS, 2017)



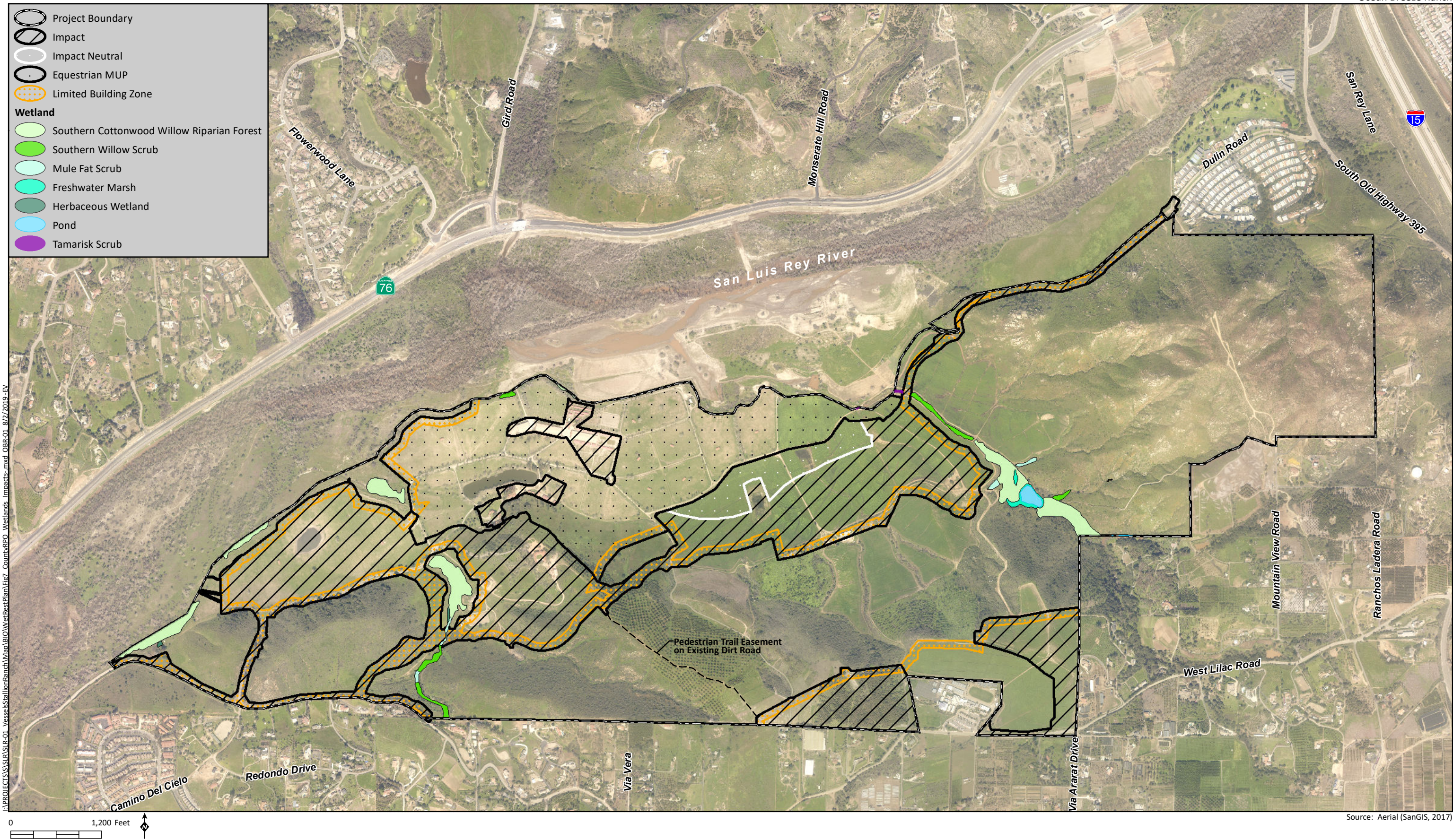


Table 3
IMPACTS TO JURISDICTIONAL WETLANDS AND WATERWAYS (acre[s])¹

Habitat	Waters of U.S./State	CDFW	County RPO
Wetlands/Riparian			
Southern Willow Scrub	0	0.01	0.01
Mule Fat Scrub	0	0.17	0.17
Tamarisk Scrub	0	< 0.01	< 0.01
Subtotal	0	0.19	0.19
Non-wetland Waters			
Non-wetland waters of the U.S./Streambed	0.20	0.21	0
TOTAL	0.20	0.40	0.19

¹Areas are presented in acre(s) rounded to the nearest 0.01.

Mitigation for impacts to wetlands and waterways shall occur as specified in the Biological Technical Report (BTR) for the project (HELIX 2019a), or as otherwise stipulated in the future CWA Section 404 and 401 permit conditions and CDFW Streambed Alteration Agreement for the project. Mitigation measures presented in the BTR for impacts to jurisdictional resources and County RPO wetlands are summarized below.

BTR Mitigation Measure (MM) Bio-7a: Impacts to 0.20 acre of USACE and RWQCB jurisdictional non-wetland waters of the U.S./State shall be mitigated at a minimum 1:1 ratio through one or a combination of the following: on- and/or off-site establishment, re-establishment, rehabilitation, and/or enhancement of 0.20 acre of waters of the U.S.; and/or off-site purchase of waters of the U.S. credits at an approved mitigation bank, such as the San Luis Rey Mitigation Bank, or other location deemed acceptable by the USACE and RWQCB. Any mitigation completed through purchase of mitigation credits shall be provided prior to the issuance of a grading permit. Any applicant-initiated mitigation must be implemented prior to or concurrent with impacts to waters of the U.S. Impacts to waters of the U.S. would require issuance of a Section 404 CWA permit from the USACE prior to impacts.

BTR MM Bio-7b: Impacts to 0.01 acre of CDFW jurisdictional southern willow scrub, 0.17 acre of CDFW jurisdictional mule fat scrub, and less than 0.01 acre of CDFW jurisdictional tamarisk scrub will be mitigated at a 3:1 ratio, totaling 0.57 acre of riparian habitat mitigation. Impacts to 0.21 acre of CDFW streambed will be mitigated at a minimum 1:1 ratio through one or a combination of the following: on- and/or off-site establishment, re-establishment, rehabilitation, and/or enhancement of 0.21 acre of riparian and/or stream habitat; and/or off-site purchase of riparian and/or stream credits at an approved mitigation bank, such as the San Luis Rey Mitigation Bank, or other location deemed acceptable by the CDFW. Combined mitigation for CDFW riparian habitat and streambed totals 0.78 acre. Any mitigation completed through purchase of mitigation credits shall be provided prior to the issuance of a grading permit. Any applicant-initiated mitigation must be implemented prior to or concurrent with impacts to CDFW habitat. Impacts to CDFW jurisdictional habitat would require issuance of a CFG Code Section 1602 Streambed Authorization Agreement from the CDFW prior to impacts.

BTR MM Bio-7c: Impacts to 0.19 acre of RPO wetland (0.01 acre of southern willow scrub, 0.17 acre of mule fat scrub, and less than 0.01 acre of tamarisk scrub) will be mitigated at a 3:1 ratio with at least 1:1 creation, for a total mitigation requirement of 0.57 acre for County RPO wetlands. Impacts to southern willow scrub, mule fat scrub, and tamarisk scrub will be mitigated as described for CDFW mitigation,

above. Any mitigation completed through purchase of mitigation credits shall be provided prior to the issuance of a grading permit. Any applicant-initiated mitigation must be implemented prior to or concurrent with impacts to RPO wetlands.

Table 4 provides a summary of impacts and required mitigation. The applicable conditions of the Resolution of Approval will be attached to the Final Wetland Restoration Plan submitted after discretionary approval and prior to grading permit issuance.

Table 4
IMPACTS AND REQUIRED MITIGATION SUMMARY¹

Habitat	Impacts	Mitigation			
		Ratio	Establishment	Establishment, Re-establishment, Rehabilitation, and/or Enhancement	Total
Southern Willow Scrub (63320) ^{2,3}	0.01	3:1	0.01	0.02	0.03
Mule Fat Scrub (63310) ^{2,3}	0.17	3:1	0.17	0.34	0.51
Tamarisk Scrub (63810) ³	< 0.01	3:1	0.01	0.02	0.03
CDFW Streambed ⁴	0.21	1:1	0.21	0	0.21
TOTAL	0.40	--	0.40	0.38	0.78

¹ Rounded to the nearest 0.01 acre; totals do not reflect rounding.

² All or most of this vegetation community burned during the December 2017 Lilac Fire.

³ Habitat is CDFW jurisdictional and County RPO wetland.

⁴ CDFW streambed impacts include 0.20 acre of overlap with USACE streambed/non-wetland Waters of the U.S. impacts.

3.0 GOALS OF COMPENSATORY MITIGATION

The goal of this restoration plan is to replace functions and services associated with wetland habitat lost as a result of the proposed project.

3.1 RESPONSIBILITIES

3.1.1 Project Proponent

Ocean Breeze Ranch, LLC (or its successor in interest, in the event a sale of the property takes place) will be responsible for financing the installation, maintenance, and monitoring of the proposed on-site wetland mitigation effort. Ultimately, the on-site wetland mitigation area, together with all biological open space designated on site, may be transferred in fee title (subject to County approval) to a public or private entity specializing in long-term management of open space. If such a transfer were to occur prior to County or Resource Agency (i.e., USACE, RWQCB, and CDFW) sign off of the on-site wetland mitigation effort, this entity would become responsible for the maintenance program described herein.

3.1.2 County of San Diego

As part of the monitoring program, annual reports prepared by the restoration specialist will be submitted to the County, CDFW, USACE, and RWQCB. The County and Resource Agencies will review these reports for completeness and will determine the success of the mitigation effort as it pertains to their specific requirements.

3.1.3 Compensatory Mitigation Project Designer

The Final Revegetation Plans (i.e., revegetation construction drawings) will consist of construction drawings, including irrigation and planting plans, prepared by a California registered landscape architect, meeting the requirements in the County's Report Format and Content Requirements for Revegetation Plans section 2.11 (County 2007). The landscape architect will inspect the irrigation system prior to seeding and planting to help assure complete coverage of the wetland establishment area while minimizing runoff into the adjacent habitat.

3.1.4 Installation Contractor

The installation contractor will have at least five years of experience in successful native wetland habitat restoration in Southern California and be under the direction of the restoration specialist who will assist the contractor with the installation of the target vegetation type. Different contractors may be used for the installation and maintenance phases of the wetland mitigation effort, or they may be the same entity. The project proponent may change contractors at its discretion, as long as the contractor has the required level of experience, as stated above. Installation may include, but is not limited to, grading, removing non-native plants, mulching dead trees, and installing irrigation lines, container plants and seed.

3.1.5 Restoration Specialist

Overall supervision of the installation, maintenance, and monitoring of the on-site wetland mitigation effort will be the responsibility of a qualified restoration specialist with at least five years of experience with successful native wetland habitat restoration in Southern California. The restoration specialist will oversee the efforts of the installation and maintenance contractor for the duration of the mitigation effort. Specific tasks of the restoration specialist include educating all participants with regard to wetland establishment/enhancement goals and requirements, as well as directly overseeing initial grading, weeding, planting, and seeding, as well as maintenance activities for the duration of the five-year maintenance period. The restoration specialist will explain to the contractor how to avoid impacts to existing sensitive habitat and sensitive species. When necessary to keep the mitigation effort on track to meeting final success criteria, the restoration specialist will provide the project proponent and contractor with a written monitoring memorandum, including a list of items in need of attention. The restoration specialist also will conduct annual assessments of the mitigation effort and prepare and submit an annual report to the County and Resource Agencies each year during the five-year maintenance and monitoring period.

3.1.6 Maintenance Contractor

The maintenance contractor will have at least five years of experience in successful native wetland habitat restoration in Southern California and be under the direction of the restoration specialist, who will assist the contractor with the maintenance of the target vegetation type. Different contractors may be used for the installation and maintenance phases of the mitigation effort, or they may be the same entity. The project proponent may change contractors at its discretion, as long as the contractor has the required level of experience, as stated above. The contractor will service the entire wetland establishment and enhancement area as required, meet the restoration specialist at the site when requested, and perform all checklist items in a timely manner as directed by the project proponent. The maintenance contractor will be knowledgeable regarding the maintenance of native habitat and the

difference between native and non-native plants. Maintenance would include but not be limited to removal of non-native vegetation and trash, irrigation adjustments and repairs, and potentially re-seeding and/or re-planting. All maintenance activities would be seasonally appropriate and approved by the restoration specialist.

3.2 TYPES AND AREAS OF HABITAT TO BE ESTABLISHED

A total of 0.48 acre of riparian scrub habitat (Holland Code 63000) and 0.14 acre (1,007 linear feet) of ephemeral stream channel (non-wetland waters) will be established as part of the on-site wetland mitigation effort, for a combined total of 0.62 acre of riparian and stream channel establishment. The 0.48-acre riparian scrub establishment area will include a minimum of 0.06 acre of waters of the U.S. establishment, resulting in a minimum 1:1 establishment ratio (0.20 acre) for impacts to waters of the U.S. when combined with the 0.14-acre of stream channel establishment. Proposed waters of the U.S. establishment areas are not required to meet USACE wetland criteria and may be vegetated or unvegetated. The ephemeral stream channel will be located near the proposed riparian scrub establishment, within an area proposed for upland restoration that may serve as future coastal California gnatcatcher breeding habitat, and arroyo toad (*Anaxyrus californicus*) and western spadefoot toad aestivation habitat (HELIX 2019b). The bottom of the stream channel will be 6-feet wide, with 2:1 slopes transitioning into the adjacent topography.

In addition to wetland and stream channel establishment, 3.03 acres of existing riparian habitat will be enhanced through weed control and re-seeding of native species for a total enhancement credit of 1.24 acres. Enhancement credit acreage was determined by estimating the percent cover of non-native species present in the three vegetation communities proposed for enhancement (mule fat scrub, southern cottonwood-willow riparian forest, and southern willow scrub) relative to the size of the enhancement area. Existing mule fat scrub to be enhanced totals 0.28 acre, of which 10 percent is non-native, for an enhancement credit of 0.03 acre. Existing southern cottonwood-willow riparian forest to be enhanced totals 1.69 acres, of which 40 percent is non-native, for an enhancement credit of 0.68 acre. Existing southern willow scrub to be enhanced totals 1.06 acres, of which 50 percent is non-native, for an enhancement credit of 0.53 acre. Together the three enhancement areas total 3.03 acres and provide 1.24 acres of enhancement credit.

3.3 FUNCTIONS AND VALUES

The goal of the proposed mitigation effort is to create wetland habitat with the same or greater functions and values (e.g., habitat for wildlife) as the impacted wetland habitat and jurisdictional waters. Wetland habitat establishment will increase the value of the existing riparian corridor for native flora and fauna, including providing additional cover for wildlife movement, and foraging and nesting habitat for riparian species known from the area, many of which are sensitive, such as least Bell's vireo, yellow warbler, and yellow-breasted chat (HELIX 2019a). The ephemeral stream channel proposed for establishment extends an existing stream channel and is expected to provide functions and services typical of naturally occurring ephemeral stream channels such as stream energy dissipation to reduce erosion and improve water quality, groundwater recharge, sediment transport, water purification, and foraging habitat for wildlife. At the end of five years of maintenance and monitoring, the established wetland and streambed habitat is expected to replace the habitat functions and values lost from project implementation and to continue on the trajectory toward developing functions and values of adjacent native wetland and streambed habitat without further active management.

3.4 TIME LAPSE

Installation of the wetland and streambed establishment and enhancement areas should occur prior to or during the fall of the year in which project grading is initiated. Sign off of the on-site wetland mitigation effort is expected by the end of the five-year maintenance and monitoring period.

3.5 COST

A complete itemized cost estimate will be submitted after discretionary approval and prior to grading permit issuance.

4.0 DESCRIPTION OF THE PROPOSED COMPENSATORY MITIGATION SITE

4.1 SITE SELECTION

The wetland establishment area (Figures 8 and 9) was selected due to its proximity to an existing unnamed creek (herein referred to as the eastern riparian corridor), which contained native riparian habitat prior to the December 2017 Lilac Fire. The soils within the upper reach of the eastern riparian corridor are Tujunga sand, 0-5 percent slope (Figure 4), which is frequently found in alluvial floodplains within and near wetlands. The northern reach of the eastern riparian corridor is very confined and disturbed with several berms at various elevations and sections of incised channel. Habitat quality is high in the southern (upstream) reach of the eastern riparian corridor, which supports a broader swath of native riparian vegetation and is adjacent to native upland habitat within a canyon. These upstream portions of the eastern riparian corridor contribute to the wetland hydrology of the downstream areas, as well as providing a seed source of native riparian species. Wetland establishment is proposed on the east side of the northern reach of the eastern riparian corridor, which is adjacent to higher quality riparian habitat and is located just downstream of the confluence of a larger ephemeral tributary stream channel and the eastern riparian corridor. Site hydrology for the established wetland is expected to be provided along the existing creek and the tributary stream channel. As evidenced by the presence of healthy riparian habitat within the creek, the sandy soils and periodic flooding limit soil salinity levels. The selected wetland establishment area also will be easily accessible for maintenance and monitoring activities but will not be accessible to vehicular traffic or regular pedestrian traffic.

The proposed ephemeral stream channel will join two existing ephemeral stream channels that originate in the eastern hills of the project site and extend them downslope through proposed Diegan coastal sage scrub enhancement and restoration into the eastern riparian corridor (Figure 9). It is likely that these two reaches of stream channel followed a similar flow path prior to the use of this upland slope for row crops. The soils in this area are mapped as Ramona sandy loam, 9 to 15 percent slopes, eroded, which are the same soils in which other nearby ephemeral stream channels occur (HELIX 2019a).

4.2 LOCATION AND SIZE OF COMPENSATORY MITIGATION SITE

The 3.65-acre wetland mitigation area is located on-site, between approximately 33.2985 and 33.3144 north latitude and between -117.2116 and -117.1572 west longitude. The wetland establishment area is

located on the east side of the eastern riparian corridor/wetland enhancement area, and the ephemeral stream channel establishment is located east and upslope of the eastern riparian corridor (Figures 8 and 9).

4.3 FUNCTIONS AND VALUES

The area proposed for wetland establishment currently consists of disturbed uplands that, until recently, were used for row crop agriculture. This area also contains a dirt access road. The existing functions and values of this area include limited use as wildlife habitat due to its proximity to a large area of open space to the east and adjacency to the eastern riparian corridor.

The upland slope through which the proposed ephemeral stream channel would cross is a former row crop field that currently contains nearly 100 percent cover by oats (*Avena* spp.) that were planted for hay as part of ongoing equestrian operations on the property. This area has limited wildlife use due to the dense/tall non-native grasses that dominate the area; however, small rodents and lizards are expected to use this field as both foraging and live-in habitat. This area also may have limited use as raptor foraging habitat; however, this use is likely constrained due to the density of tall grasses which can impede raptor foraging.

The proposed wetland enhancement area contains scattered riparian vegetation, much of which burned to the ground in the December 2017 Lilac Fire. As of April 2018, several resprouting native plants and seedlings were present and native cover is expected to continue to increase as this area recovers from the recent fire. Currently the enhancement area understory is dominated by non-native herbs and scattered invasive plants such as tamarisk (*Tamarix* sp.) and giant reed (*Arundo donax*). The functions and values of this area for wildlife will increase somewhat with natural post-fire recovery; but would be greatly increased with weed control (as proposed in this plan).

4.4 JURISDICTIONAL DELINEATION

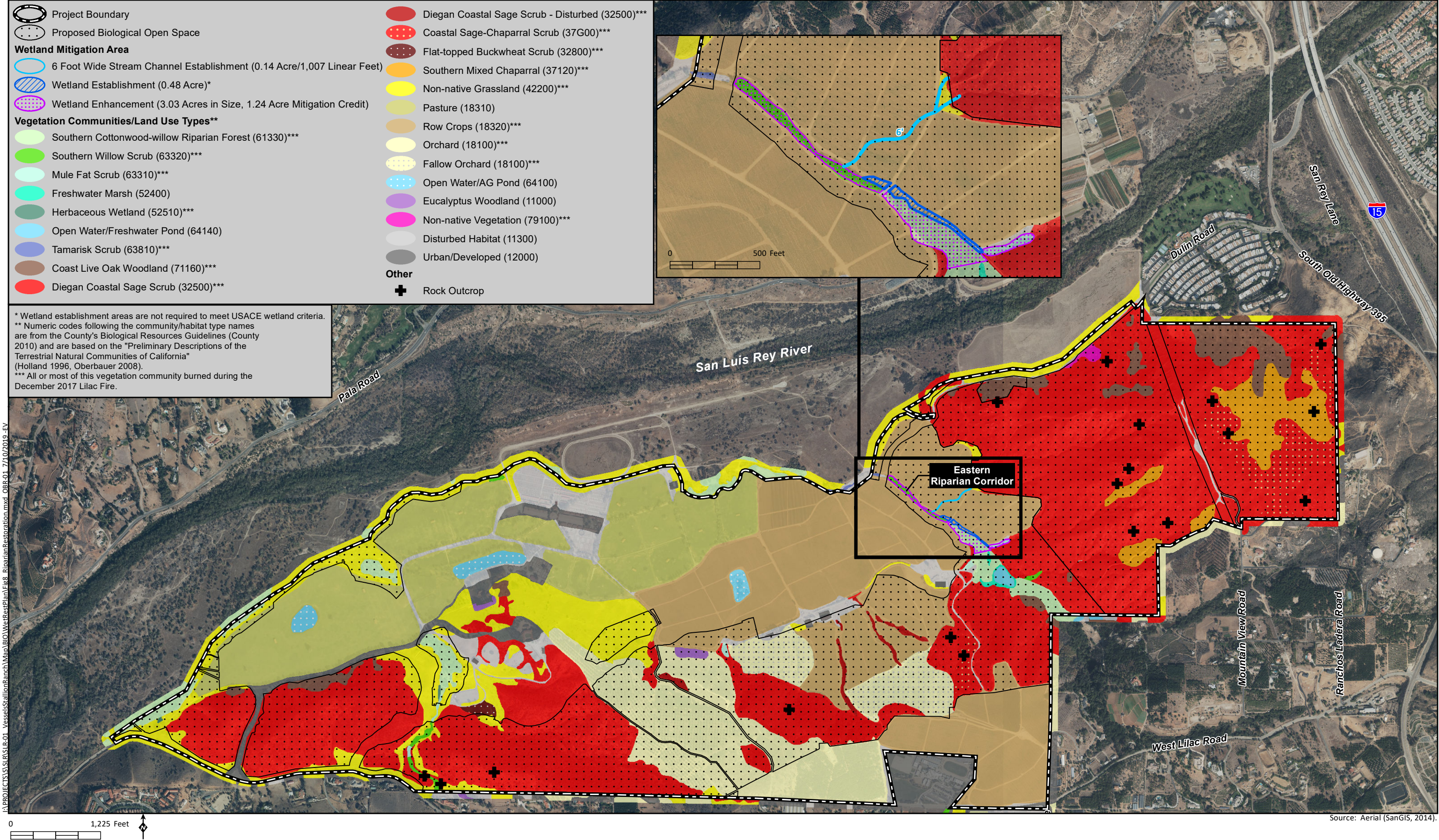
A formal jurisdictional delineation of the project site was conducted by HELIX biologists on March 18, and April 7, 8, and 11, 2014. The results of this delineation are summarized in the project Biological Technical Report (HELIX 2019a), and are shown on Figures 5, 6, and 7 of this restoration plan.

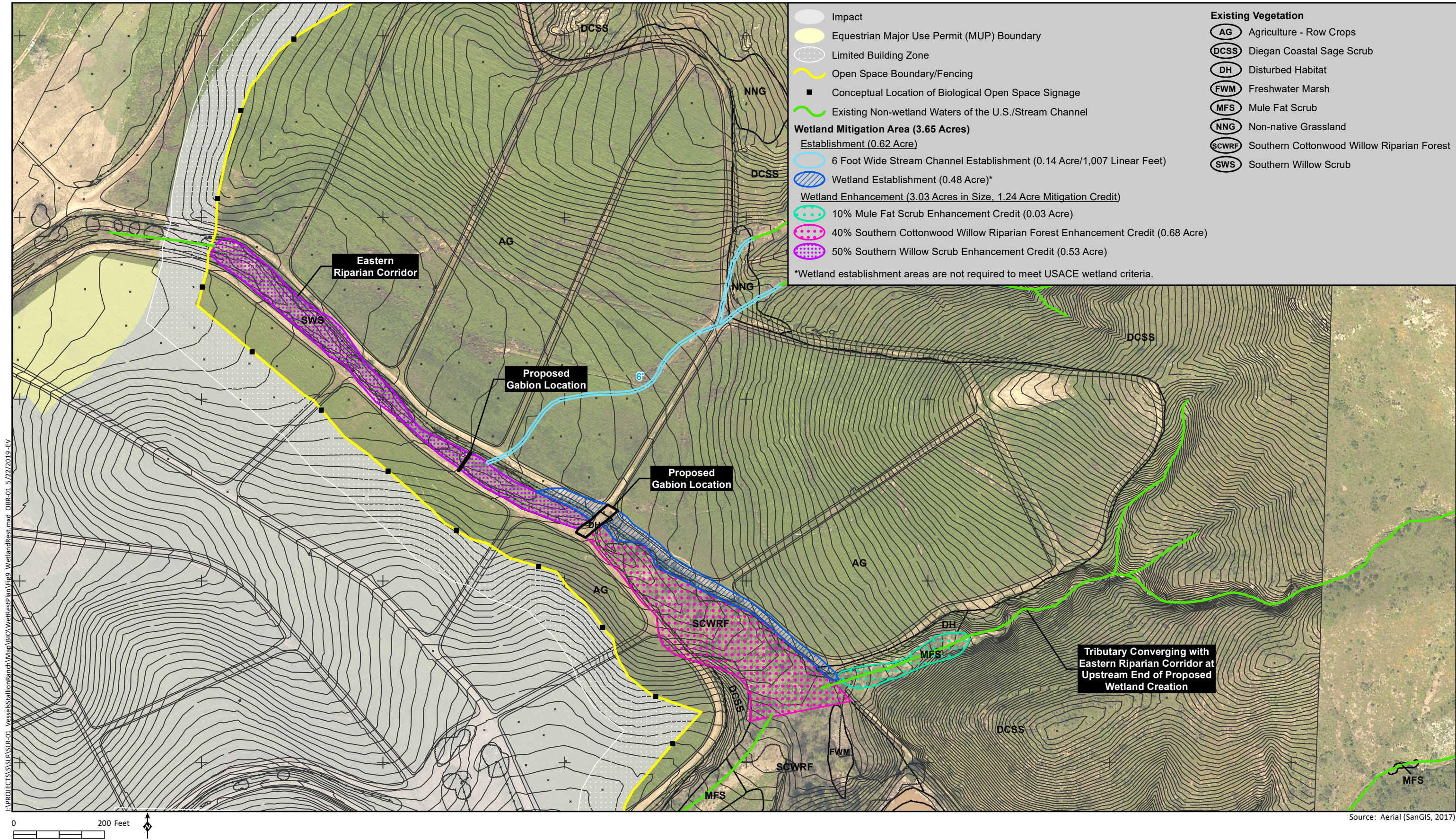
4.5 PRESENT AND PROPOSED USES

The current general land uses on the project site include agriculture and equestrian uses, and undeveloped land. Horse pastures, row crops, and orchards occupy most of the northern half of the site, as well as the central and north-central portions of the site (Figure 8). Some former row crop areas have been planted with oats to provide hay. Native habitat areas are concentrated in the eastern and southwestern portions of the site.

In addition to implementing habitat restoration/enhancement discussed in this plan, the project will ultimately consist of a single-family residential community, a privately owned equestrian facility, and a large area of preserved biological open space that will be managed over the long term by a habitat manager according to the Resource Management Plan (in preparation).

A San Diego Gas & Electric (SDG&E) easement currently crosses over the eastern riparian corridor where wetland enhancement is proposed to occur. The easement consists of overhead utility lines crossing





above the wetland, no power poles or other associated infrastructure occurs within the wetland, thus the presence of these lines is not expected to affect the proposed enhancement area. Further, this easement is proposed to be abandoned as part of project implementation, and utility lines are anticipated to be relocated and buried to follow existing/proposed roads.

4.6 REFERENCE SITE

A reference site is not recommended for the restoration proposed in this plan due to the recent Lilac Fire that burned much of the native habitat on site as well as adjacent open space. Rather, the restoration goal will be based on visual estimates of native cover made during pre-fire surveys conducted for the biological technical report (HELIX 2019a).

5.0 IMPLEMENTATION PLAN

This section provides the details for the execution of the restoration plan.

5.1 RATIONALE FOR EXPECTING IMPLEMENTATION SUCCESS

The proposed wetland establishment effort is anticipated to be successful based on the following: (1) the areas selected for habitat establishment are immediately adjacent to existing riparian habitat; (2) the presence of appropriate soils within the wetland establishment area; (3) existing creek flow and tributary stream channels are expected to provide sufficient hydrology to support riparian vegetation within the wetland establishment area; (4) the use of plantings and seed of native species known to occur on site; (5) the use of temporary irrigation to aid plant establishment; and (6) a financial commitment to ensure the long-term management of the mitigation land.

The created stream channel is expected to be successful because it will function as an extension of two existing tributary stream channels that currently outfall into an agricultural field. Since row crop agriculture was abandoned in this area, these stream channels are naturally flowing and incising a path downhill towards the eastern riparian corridor.

Wetland enhancement is expected to be successful because these areas contained southern cottonwood-willow riparian forest and southern willow scrub habitat prior to the 2017 Lilac fire. Hydrology inputs into this area have not changed and these same habitats could re-establish naturally over time. Some live trees and scattered resprouting trees and shrubs are already evident and, with intense weed control to limit competition from non-native and invasive vegetation, native cover is expected to expand. In addition, native seed will be installed to aid riparian habitat recovery in the enhancement areas.

5.2 FINANCIAL ASSURANCES

A revegetation agreement shall be signed and notarized by the property owner following approval of this restoration plan and be accompanied by the required security as agreed upon by the County.

5.3 SCHEDULE

Mitigation should be implemented at the same time or prior to the initiation of project site grading/impacts to jurisdictional resources. Irrigation, plantings, and seed can be installed in the wetland establishment area following grading of this area. The ephemeral stream channel can be graded at the same time as the wetland establishment area. Wetland enhancement areas should be weeded during site preparation, then grow/kill cycles will be conducted for one year prior to installing seed by hand. Monitoring of the mitigation effort will begin during site preparation and will continue throughout installation and the following five years. Maintenance of the mitigation areas will begin following completion of installation and will continue for five years.

Grading of the wetland establishment area will follow the bird breeding season timing restrictions outlined in more detail in Section 5.4.2 Grading, below.

5.4 SITE PREPARATION

5.4.1 Fencing and Signage

Due to the disturbed nature of the surrounding upland habitat and installation of upland restoration on both sides of the existing creek, no temporary fencing will be installed along the established wetlands or ephemeral stream channel, or along the boundaries of the wetland enhancement areas prior to initiating restoration/enhancement activities. However, as part of project development, fencing will be installed along the edges of the residential development and equestrian facility to keep people and pets out of the biological open space (within which the proposed restoration will be contained). Open space signs will be installed at appropriate intervals along any development boundary to discourage access into biological open space and identify the limits of any adjacent fuel modification zone to ensure that fuel modification does not encroach on the biological open space, including the wetland mitigation areas.

5.4.2 Grading

Grading of the proposed wetland establishment area is necessary to create hydrologic and topographic conditions suitable for the establishment of riparian scrub habitat. To this end, the grading contractor will conduct any grading required for proposed mitigation, based on final restoration grading plans. Graded wetland establishment should be the same elevation as adjacent existing jurisdictional areas, or as directed by the restoration specialist, and shall be left in a rough grade state with micro topographic relief that mimics natural topography. Planting and irrigation should not be installed until the restoration specialist has approved the grading.

To create the ephemeral stream channel, a sinuous 6-foot wide channel will be graded to connect existing stream channels to the east with the downslope eastern riparian corridor. This new stream channel will be graded through a disturbed upland containing sandy loam soils that was formerly used for row crops. The soils in this area are prone to erosion and as such, the final grading design for this channel will be presented in restoration grading plans that will incorporate the input of a surface hydrology specialist.

Two small gabions are proposed as part of the restoration. One gabion is proposed to replace an existing dirt road crossing and associated culvert that currently bisect the eastern riparian corridor, and the

other is proposed within the existing riparian corridor just downstream of where the newly created ephemeral stream channel would converge with the riparian corridor. The purpose of the gabions would be to dissipate stream flow energy and protect downstream areas from erosion. The final design of the gabions would be determined in consultation with the USACE, RWQCB, and CDFW.

Grading of the wetland establishment area and streambed establishment area will either occur outside of the general bird nesting season (February 15 to August 31), coastal California gnatcatcher nesting season (also February 15 to August 31), and least Bell's vireo nesting season (March 15 to September 15) to avoid impacts to nesting birds, or a nesting bird survey will need to be conducted by a qualified biologist within seven days of the start of grading to ensure that (1) no active bird nests are present that would be affected by the grading/clearing; (2) no active coastal California gnatcatcher nests are present within 300 feet of proposed grading; and (3) no active least Bell's vireo nests are present within 500 feet of proposed grading. If active nests are present, grading will be postponed until all nesting activity has ceased or until after August 31 (September 15 for least Bell's vireo).

5.4.3 Removal of Non-native Vegetation

Non-native vegetation will be removed from the designated wetland enhancement areas. Initial vegetation removal will either occur outside of the general bird nesting season (February 15 to August 31) to avoid impacts to nesting birds, or a nesting bird survey will need to be conducted by a qualified biologist within seven days of the start of clearing to ensure that no active nests are present that would be affected by the clearing. Non-native vegetation will be removed by hand or through the use of wetland-approved herbicide. The restoration specialist will provide guidance to the maintenance contractor on how weeding should be accomplished.

5.4.4 Soil Amendments

Based on the proximity of the wetland establishment area to existing habitat and results of soils mapping (Figure 4; NRCS 2016), which show Tujunga sandy soils within this area, no soil amendments are recommended.

5.4.5 Erosion Control

Erosion control measures may be installed in the wetland establishment and/or enhancement areas wherever deemed necessary to prevent sediment movement from these areas into adjacent habitat; however, given the relatively flat topography of these areas, no erosion control is anticipated. Erosion control is also not anticipated for the ephemeral stream channel, however, if it is deemed necessary, erosion control should be conducted in coordination with the restoration specialist. Potential erosion control measures may include, but are not limited to organic matting, fiber rolls (straw wattles), and silt fencing. Any installed erosion control materials will be removed from the site once sufficient native plant cover is established.

5.5 PLANTING PLAN

After site preparation and irrigation installation have been completed, native plantings and seed will be installed within the wetland establishment area (Table 5a) and native seed will be installed in the wetland enhancement areas (Table 5b) after one full year of weed control has been conducted. The species selected for planting and seeding within the wetland establishment and enhancement areas

have been observed within on site riparian habitat. Species proposed for seeding within the established ephemeral stream channel (Table 5c) have been observed within on-site ephemeral stream channels and are mainly a subset of the seed mixture proposed with the proposed adjacent upland restoration (addressed in a separate Upland Restoration Plan) as well as a few wetland species. All plants and seed should be obtained from northern San Diego County, whenever possible. Container stock orders or production from seed may be needed up to 12 months prior to the anticipated installation date. Species substitutions, quantity changes, or use of commercial seed may be allowed, if necessary, at the discretion of the restoration specialist. The restoration specialist must approve all seed and container stock orders, including source locations, prior to ordering. The restoration specialist must inspect all plant material prior to installation; root bound material, any material with argentine ants or other pests, and any other plants deemed damaged will not be accepted. Fast-growing annual species that are quick to germinate will be included in the seed mix to provide initial cover and help protect against soil erosion. Slower-growing perennials will provide long-term cover and further protection against erosion.

Table 5a
WETLAND ESTABLISHMENT PLANT PALETTE
(0.48 acre)

CONTAINER STOCK*					
Scientific Name	Common Name	Spacing on Center (feet)	Grouping Size	Number Per Acre	Quantity Required
<i>Baccharis salicifolia</i>	mule fat	5	3	350	168
<i>Elymus triticoides</i>	beardless wild ryegrass	5	3	150	72
<i>Quercus agrifolia</i> var. <i>agrifolia</i>	coast live oak	15	3	30	15
<i>Platanus racemosa</i>	western sycamore	15	3	30	15
<i>Populus fremontii</i>	western cottonwood	12	3	30	15
<i>Salix exigua</i>	narrow-leaved willow	12	3	75	36
<i>Salix gooddingii</i>	black willow	12	3	75	36
<i>Salix laevigata</i>	red willow	12	3	75	36
<i>Salix lasiolepis</i>	arroyo willow	12	3	125	60
<i>Sambucus nigra</i> ssp. <i>caerulea</i>	blue elderberry	12	3	30	15
<i>Vitis girdiana</i>	Southern California grape	5	3	30	15
TOTAL				1,000	483
SEED MIXTURE*					
Scientific Name	Common Name	% Purity / Germination	Lbs/Acre	Lbs Required	
<i>Ambrosia psilostachya</i>	western ragweed	45/45	4	2	
<i>Artemisia douglasiana</i>	mugwort	15/40	4	2	
<i>Artemisia dracunculus</i>	tarragon	10/50	4	2	
<i>Baccharis salicifolia</i>	mule fat	10/20	2	1	
<i>Euthamia occidentalis</i>	western goldenrod	24/45	2	1	
<i>Juncus bufonius</i>	toad rush	95/60	2	1	
<i>Juncus mexicanus</i>	Mexican rush	--	2	1	
TOTAL			20	10	

*Substitutions require approval of the restoration specialist.

Lbs = pounds

If feasible, cuttings may be collected from within the existing creek or the same watershed by personnel experienced in cutting collection and installation. Most of the creek has been burned, but by the time wetland mitigation will be implemented some vegetation may be sufficiently recovered to collect

cuttings. Any cuttings would be in addition to the container plantings and seed specified in Table 5a and 5b.

Table 5b
WETLAND ENHANCEMENT SEED MIXTURE
(3.03 acres)

SEED MIXTURE*				
Scientific Name	Common Name	% Purity / Germination	Lbs/Acre	Lbs Required
<i>Ambrosia psilostachya</i>	western ragweed	45/45	4	12
<i>Artemisia douglasiana</i>	mugwort	15/40	4	12
<i>Artemisia dracunculus</i>	tarragon	10/50	4	12
<i>Baccharis salicifolia</i>	mule fat	10/20	2	6
<i>Euthamia occidentalis</i>	western goldenrod	24/45	2	6
<i>Juncus bufonius</i>	toad rush	95/60	2	6
<i>Juncus mexicanus</i>	Mexican rush	--	2	6
TOTAL			20	60

*Substitutions require approval of the restoration specialist.

Lbs = pounds

Table 5c
EPHEMERAL STREAM CHANNEL ESTABLISHMENT SEED MIXTURE
(0.14 ac)

SEED MIXTURE*				
Scientific Name	Common Name	% Purity / Germination	Lbs/Acre	Amount to be Ordered
<i>Acmispon glaber</i>	deerweed	95/80	3	0.5
<i>Ambrosia psilostachya</i>	western ragweed	45/45	3	0.5
<i>Artemisia californica</i>	California sagebrush	30/60	3	0.5
<i>Baccharis salicifolia</i>	mule fat	10/20	3	0.5
<i>Deinandra fasciculata</i>	fascicled tarplant	25/65	3	0.5
<i>Encelia californica</i>	California encelia	30/45	3	0.5
<i>Eriogonum fasciculatum</i>	flat top buckwheat	50/20	5	0.75
<i>Eriophyllum confertiflorum</i>	golden-yarrow	N/A	2	0.25
<i>Eschscholzia californica</i>	California poppy	98/80	2	0.25
<i>Lupinus bicolor</i>	miniature lupine	98/85	2	0.25
<i>Plantago erecta</i>	dot-seed plantain	97/89	3	0.5
<i>Muhlenbergia microserma</i>	little-seed muhly	80/60	2	0.25
TOTAL			34	5.25

*Substitutions require approval of the restoration specialist.

Lbs = pounds

5.5.1 Container Plantings

Container stock should be one-gallon size, rooted appropriately (i.e., neither root bound or insufficiently developed), and should be installed in holes that are the same size as the planting container and backfilled afterward. Holes will be dug with mechanical augers where possible and by hand elsewhere. Plants should be installed in a way that mimics natural plant distribution; therefore, container plantings will be installed in groupings proportional to their density per acre.

5.5.2 Cuttings

Prior to taking cuttings it is essential that all equipment being used, typically consisting of a bucket of water and wood cutters, is sterilized so no pathogen cross-contamination occurs. To maintain genetic diversity within the restored areas, no more than 10 cuttings should be taken from any one plant. Ideally, cuttings should be stored in water for approximately one week to encourage root development following planting.

In general, willow (*Salix* spp.) and cottonwood (*Populus fremontii*) cuttings should be at least 24 inches long and 0.75 to 1.25 inches in diameter, with the end that will be inserted into the ground (snipped closest to the tree trunk) cut at a 45-degree angle to facilitate soil penetration and maximize surface area for root growth. Mule fat (*Baccharis salicifolia*) cuttings can be slightly smaller. Any foliage or side branches should be stripped from each cutting to minimize water translocation and allow the cutting to put its energy into root growth.

Cuttings should be installed such that the base of the cutting is at the water table. If the cutting is not in the water table or getting surface water (e.g., from supplemental irrigation), it will quickly dry out and die. Typically, a cutting is installed 12 to 18 inches deep. Cuttings should be installed in groupings according to the spacing recommendations made in Table 5. Smaller species such as mule fat can be interspersed between larger over story plants such as willows and cottonwoods.

5.5.3 Seed

Within the wetland establishment and enhancement areas seed will be dispersed by hand and/or with the use of a rotary seed applicator and raked into the soil. It should be noted that wetland enhancement areas will not be seeded until one full year of weed control has been conducted. This is to facilitate the removal of extensive non-native cover that has become established since the Lilac Fire.

5.6 IRRIGATION PLAN

Temporary, above-ground irrigation will be installed in the wetland establishment area; no irrigation is proposed to be installed within the established ephemeral stream channel or wetland enhancement areas. The project landscape architect, together with the installation contractor, will inspect irrigation coverage prior to plant/seed installation.

Irrigation plans included with the restoration construction documents will show the Point of Connection (POC), available pressure, controller location, valves, piping, and head locations. If the POC is beyond the limits of the wetland establishment area, the off-site irrigation service line to the POC will be identified. Irrigation plans will provide the required backflow protection at the POC and identify the power source for the irrigation controller (if applicable).

6.0 MAINTENANCE DURING MONITORING

6.1 MAINTENANCE ACTIVITIES

A five-year maintenance program is proposed to ensure the successful establishment and persistence of riparian habitat within the wetland establishment and enhancement areas. The maintenance program

will involve removal of non-native species and trash, irrigation maintenance, and any remedial measures deemed necessary for the success of the wetland mitigation program (e.g., re-seeding and re-planting). Maintenance activities will be directed by the restoration specialist and implemented by the maintenance contractor.

The maintenance guidelines specified herein are tailored for native plant establishment. Maintenance personnel will be informed of the goals of the mitigation effort and the maintenance requirements. A professional with experience and knowledge in native habitat restoration maintenance will supervise maintenance. It is the maintenance contractor's responsibility to keep seeded and planted areas free of debris, and to monitor irrigation function and scheduling, plant material condition and health, and removal of non-native species. The maintenance contractor will also be responsible for replacing any dead or terminally stressed plants, at the direction of the restoration specialist. Damage to plants, irrigation systems, and other facilities occurring as a result of unusual weather or vandalism will be repaired as directed by the restoration specialist. The cost of such repairs will be paid for as extra work. The contractor will be responsible for damage caused by the contractor's inadequate maintenance or operation of irrigation systems, as determined by the restoration specialist.

6.1.1 Irrigation

The goal is to obtain germination and growth with the least amount of irrigation. Too much irrigation results in abnormal habitat and encourages invasion by non-native plants, leaches nutrients from the soil, and can increase erosion; therefore, water will be applied infrequently and only as needed to prevent plant mortality.

The irrigation system will be maintained until the restoration specialist determines that supplemental water is no longer required. At that time, irrigation will be permanently disconnected (e.g., the mainline will be cut), but not removed. Above-ground portions of irrigation will be removed when directed by the restoration specialist or following wetland mitigation sign off by the County and Resource Agencies.

6.1.2 Non-native Plant Control

Particular emphasis will be placed on proactive removal of non-native vegetation. As non-native plants become evident, they should be removed by hand or controlled with the proper herbicides (if approved by the restoration specialist). The restoration specialist will oversee non-native plant control by the maintenance contractor; however, maintenance personnel must be knowledgeable in distinguishing non-native species from desirable native vegetation. If maintenance personnel mistakenly remove native species the maintenance contractor will be responsible for rectifying the damage, at the direction of the restoration specialist.

Non-native plant species considered to be moderately or highly invasive by the California Invasive Plant Council (Cal-IPC 2016) shall be totally eradicated within the 3.65-acre mitigation area for all five years of maintenance. Examples of invasive plants observed on site include but are not limited to giant reed, tree tobacco (*Nicotiana glauca*), and Peruvian peppertree (*Schinus molle*). Additional species may be added to this list, at the discretion of the restoration specialist. Non-native grasses listed as moderately or highly invasive will be controlled on site, but due to their abundance in the local area, total eradication is not considered feasible.

6.1.3 Pruning

No post-installation pruning is necessary unless otherwise directed by the restoration specialist. For example, thinning of vegetation within the future potential upland foraging and aestivation habitat area for arroyo toad and western spadefoot, or if it is necessary to remove an obstruction from or for repair of the irrigation system.

6.1.4 Trash

Any trash observed within the wetland establishment or enhancement areas should be removed for the duration of maintenance work in the respective area. All pick up trash will be properly disposed of at a licensed landfill.

6.1.5 Pests

Insects, vertebrate pests, and diseases will be monitored. Generally, pests will be tolerated unless they pose a significant threat to restoration success. If deemed necessary, a licensed pest control adviser will make specific pest control recommendations. All applicable federal and state laws and regulations will be closely followed. The restoration specialist will be consulted on any pest control matters and will specifically monitor the mitigation site for evidence of invasive shot-hole borers (*Euwallacea* sp.; SHBs). The restoration specialist will evaluate any regional methods for control of SHBs to determine if necessary for the wetland mitigation site.

6.1.6 Fertilization

Fertilizer will not be applied in the maintenance phase, except in extraordinary circumstances and only at the written direction of the restoration specialist.

6.1.7 Sensitive Species Issues

Maintenance activities will not include use of heavy equipment or vehicles and as such are not anticipated to have adverse effects on sensitive species. Nonetheless, all maintenance activities will be carried out under the direction of the restoration specialist, as necessary, to avoid impacts to sensitive species.

6.1.8 Remedial Installation

Areas with low seed germination and establishment of native cuttings/plantings will be re-seeded and/or re-planted, at the direction of the restoration specialist.

6.2 SCHEDULE

6.2.1 Maintenance Schedule

Maintenance will be performed as necessary to prevent re-seeding by non-native plants and will likely change with varying site conditions and seasons; the schedule outlined herein (Table 6) serves only as a guideline, and more frequent maintenance may be required to prevent re-seeding by non-native vegetation and/or to meet interim cover limits for non-native vegetation. The maintenance contractor

will complete maintenance requests from the restoration specialist within 14 days of any written request.

The maintenance contractor will be responsible for all maintenance activities during the five-year maintenance period. For the first three years, maintenance is expected to be required every month between January through June (to cover the peak establishment period of spring germinating species) and two additional times during the remainder of the year. Maintenance visits may be reduced to four per year in Years 4 and 5 if approved by the restoration specialist and County, and shall be timed to best control invasive species, based on weather patterns and monitoring results. The installation/maintenance contractor(s) will complete maintenance requests from the restoration specialist within 14 days of any written request or monitoring report.

Table 6
MAINTENANCE SCHEDULE*

Phase	Schedule
Maintenance	
Year 1 through Year 3	Total 8 Visits/Year
January to June	Every Month (6 Visits)
July to December	Two Visits Total
Years 4 and 5	Total 4 Visits/Year
	(3 in Spring and 1 in Summer)

*This schedule is only a guideline; maintenance will be performed as necessary and as directed by the restoration specialist.

6.2.2 Irrigation Schedule

Following the start of the maintenance period, irrigation shall be applied daily (unless directed otherwise by the restoration specialist) to stimulate seed germination and ensure survival of installed plantings. Once container plantings, cuttings, and seed are established, irrigation should become less frequent and deeper (usually accomplished with several consecutive irrigation events in a 24-hour period followed by several days with no irrigation). Native plants that are infrequently irrigated may grow slower initially but will ultimately be better able to withstand natural variations in rainfall and, therefore, be more successful long-term. Irrigation will be minimized to limit runoff and will be turned off during and following natural rainfall events. In the absence of rain events, irrigation will occur at a minimum of three times per week for the first 2 years to ensure plant establishment. By Year 3, irrigation shall be reduced and occur mainly during the natural rainy season (October through April), as needed to mimic an average rainy season. If the restoration specialist determines that there is sufficient native cover and plants are well-established, irrigation may be deactivated prior to the end of Year 3. To demonstrate that vegetation is self-sustaining, the irrigation system must be turned off for at least two years prior to the end of the five-year maintenance/monitoring period.

7.0 MONITORING PLAN

7.1 PERFORMANCE STANDARDS

Success criteria provide specific standards to evaluate the progress of the mitigation effort. Attainment of these standards indicates that the mitigation is progressing toward the habitat functions and services specified by this plan.

Success of the wetland establishment effort will be determined by comparing measures of planting survivorship, vegetative cover, and native plant recruitment within the habitat and stream channel establishment areas relative to specified targets, based on visual observations. The following parameters will determine final success of the mitigation effort: (1) native cover of at least 70 percent; (2) non-native cover (excluding target species) of no more than 10 percent; (3) no cover by target invasive plants (Cal-IPC Moderate and High species; not including annual grasses); and (4) recruitment (the successful, natural reproduction and/or establishment of plants in a given area) of native species (Table 7). These criteria are based on observations of intact native habitat located on site. Interim success criteria, demonstrating that the wetland establishment effort is on track to meet the final criteria, are also provided for Years 1 through 4. Native cover and recruitment success criteria are not specified for Years 1 and 2; however, the visual estimates should indicate that the wetland establishment is progressing towards final goals.

Table 7
SUCCESS CRITERIA MILESTONES FOR THE WETLAND MITIGATION AREAS

Criteria	Target				
	Year 1	Year 2	Year 3	Year 4	Year 5
Wetland Establishment Area (0.48 acre)					
Planting survivorship (percent)	90	80	--	--	--
Minimum native cover (percent)	--	--	50	60	70
Minimum native plant recruitment (number of species)	--	--	2	3	4
Maximum non-native cover (percent)	20	20	15	10	10
Maximum target invasive cover* (percent)	0	0	0	0	0
Irrigation	YES	YES	YES	NO	NO
Wetland Enhancement Areas (3.03 acres)					
Maximum non-native cover (percent)	20	20	15	10	10
Maximum target invasive cover* (percent)	0	0	0	0	0
Ephemeral Stream Channel Establishment Area (0.14 acre)					
Maximum target invasive cover* (percent)	0	0	0	0	0

* Seedlings of invasive species are expected to volunteer each year; however, no target invasive species should be allowed to persist, or drop seed within the establishment or enhancement areas; excludes invasive annual grasses.

Success of the wetland enhancement will be based on the reduction of non-native vegetation to allow the natural expansion of native vegetation. To this end, the same non-native cover and target invasive cover limits that apply to the wetland establishment area (Table 7) will apply to all wetland enhancement. These are the only success criteria that apply to the wetland enhancement area and are further described below in Sections 7.1.4 and 7.1.5.

Success of the ephemeral stream channel establishment area will be based on the target invasive cover limits that apply to the wetland establishment area (Table 7). This criterion is further described below in Section 7.1.5.

7.1.1 Survivorship

Container plant survival within the wetland establishment area should be 90 percent of the initial plantings in Year 1 and 80 percent in Year 2. If this target is not met, dead plants should be replaced unless their function has been replaced by natural recruitment.

7.1.2 Native Cover

Cover by native vegetation within the wetland establishment area should increase over time and ultimately approach that of the native habitat that occurred in undisturbed riparian habitat on site prior to the Lilac Fire. By the end of the five-years, native cover in the wetland establishment area should be at least 70 percent, with at least 50 percent cover by native trees and shrubs. There are no native cover success criteria for the wetland enhancement areas; however, if native cover at the end of Year 2 is less than 20 percent, then the enhancement areas should be re-seeded with a native seed mix at the start of the following rainy season.

7.1.3 Native Plant Recruitment

By Year 5, the natural successful, natural reproduction and/or establishment of plants should begin to replace container stock survivorship as the main driver of habitat growth and longevity. Therefore, at least four native species should establish on their own within the wetland establishment area by Year 5.

7.1.4 Non-Native Cover

Non-native cover is typically a problem with habitat restoration, particularly at the outset of a restoration effort. However, as the restoration takes hold and with diligent maintenance efforts, non-native cover should decrease to an acceptable level. Given the maintenance schedule for the site, non-native cover (including invasive annual grasses) within the wetland establishment and enhancement areas should not exceed 10 percent at the end of Year 5.

7.1.5 Target Invasive Cover

Target invasive non-native plants should be completely eradicated from the mitigation areas each year. The presence of new seedlings of invasive plants is expected since these species occur in surrounding open space; however, no target invasive species shall be allowed to persist, or drop seed, within the establishment/enhancement areas. Annual grasses listed as highly or moderately invasive do not need to be eradicated, rather they are included as part of the overall non-native cover limit.

7.1.6 Irrigation

To provide evidence that vegetation is self-sufficient, irrigation of the wetland establishment area must be shut off at least 2 years prior to the end of the maintenance/monitoring period. No irrigation is proposed for the created ephemeral stream channel or wetland enhancement areas.

7.2 TARGET FUNCTIONS AND VALUES

The proposed wetland mitigation is anticipated to provide at least 0.48 acre of created riparian habitat (does not need to meet wetland waters of the U.S. criteria), 0.14 acre/1,007 linear feet of created streambed habitat/non-wetland waters of the U.S., and 3.03 acres of enhanced riparian habitat (1.24 acres of enhancement credit), within a 3.65-acre area and have a net functional lift in habitat values over the existing condition by providing higher quality foraging and nesting habitat for many wildlife species as well as greater vegetative cover and microhabitat features. Upon meeting success criteria, the 0.48-acre riparian scrub establishment area will include a minimum of 0.06 acre of waters of the U.S. establishment, resulting in a minimum 1:1 establishment ratio (0.20 acre) for impacts to waters of the U.S. when combined with the 0.14-acre of stream channel establishment. Proposed waters of the U.S. establishment areas are not required to meet USACE wetland criteria and may be vegetated or unvegetated.

7.3 TARGET HYDROLOGICAL REGIME

The wetland establishment area and ephemeral stream channel will receive natural runoff from the adjacent uplands. The main hydrological input for the wetland establishment area will be from the upstream portion of the eastern riparian corridor. Due to the location of the wetland establishment area just downstream of the confluence of a tributary stream channel and the eastern riparian corridor, combined with the relatively small size of the wetland expansion, existing creek flows are expected to be sufficient to support riparian scrub vegetation within the wetland establishment area.

The created stream channel will have a hydrologic regime typical of ephemeral stream channels in that it is expected to carry runoff for short periods during and immediately following rain events but be dry most of the year.

7.4 TARGET ACREAGES

The proposed mitigation would result in the establishment of a minimum of 0.62 acre of jurisdictional areas composed of 0.48 acre of riparian habitat and 0.14 acre of ephemeral stream channel. In addition, existing wetland habitat totaling 3.03 acres would be enhanced for an additional credit of 1.24 acres (based on visual estimates of weed cover within the existing habitat). Specific mitigation acreage requirements are presented below. It is noted that the targeted acreages exceed the anticipated mitigation requirements and allow for contingency acreage as well as helping to ensure success by enhancing the entire lower reach of the existing riparian corridor, which is more highly disturbed than upper reaches. Final mitigation requirements will be determined in consultation with the USACE, RWQCB, and CDFW during the wetland permitting process.

Mitigation acreage requirements for impacts to areas of USACE and RWQCB jurisdiction are presented in Table 8a. Mitigation required for impacts to waters of the U.S. totals 0.20 acre of establishment, which can be wetland or non-wetland waters of the U.S. Mitigation may be met through the proposed riparian scrub establishment and/or combined with the proposed ephemeral stream channel establishment at a minimum 1:1 establishment ratio.

Table 8a
WATERS OF THE U.S. IMPACTS AND MITIGATION (acre[s])¹

Habitat	Impacts	Mitigation			
		Ratio	Establishment	Establishment, Restoration, and/or Enhancement	Total Required
Non-wetland Waters					
Stream Channel	0.20	1:1	0.20	-	0.20
TOTAL	0.20	-	0.20	-	0.20 ²

¹ Areas are presented in acre(s) rounded to the nearest 0.01.

² Wetland waters or non-wetland waters are acceptable as mitigation.

Mitigation acreage requirements for impacts to areas of CDFW jurisdiction are presented in Table 8b. Mitigation required for impacts to CDFW habitat totals 0.78 acre of combined wetland and streambed establishment and wetland enhancement. Mitigation for streambed impacts may be met through a combination of the proposed riparian scrub establishment and proposed ephemeral stream channel establishment (i.e., through establishment of vegetation or unvegetated habitat at a minimum 1:1 establishment ratio).

Table 8b
CDFW IMPACTS AND MITIGATION (acre[s])¹

Habitat	Impacts	Mitigation			
		Ratio	Establishment	Establishment, Restoration, and/or Enhancement	Total Required
Southern Willow Scrub	0.01	3:1	0.01	0.02	0.03
Mule Fat Scrub	0.17	3:1	0.17	0.34	0.51
Tamarisk Scrub	< 0.01	3:1	0.01	0.02	0.03
Streambed	0.21	1:1	0.21	0	0.21 ²
TOTAL	0.40	-	0.40	0.38	0.78

¹ Areas are presented in acre(s) rounded to the nearest 0.01.

² Mitigation for impacts to streambed can be through establishment of vegetated or unvegetated streambed or riparian habitat.

Mitigation acreage requirements for impacts to County RPO wetlands are presented in Table 8c. Mitigation required for impacts to County RPO wetlands totals 0.57 acre of combined wetland establishment and wetland enhancement. Proposed stream channel establishment is not part of the mitigation for impacts to County RPO wetlands. Mitigation for County RPO wetland impacts would be met through minimum 1:1 establishment of wetland/riparian habitat and 2:1 establishment or enhancement of wetland habitat or a combination thereof.

Table 8c
COUNTY RPO WETLAND IMPACTS AND MITIGATION (acre[s])¹

Habitat	Impacts	Mitigation			
		Ratio	Establishment	Establishment, Restoration, and/or Enhancement	Total Required
Southern Willow Scrub	0.01	3:1	0.01	0.02	0.03
Mule Fat Scrub	0.17	3:1	0.17	0.34	0.51
Tamarisk Scrub	< 0.01	3:1	0.01	0.02	0.03
TOTAL	0.19	-	0.19	0.38	0.57

¹ Areas are presented in acre(s) rounded to the nearest 0.01.

7.5 MONITORING METHODS

Monitoring will be carried out by the restoration specialist, beginning with site preparation and habitat installation, and continuing through sign off, approximately 5 years after the start of the mitigation effort. Monitoring of the mitigation will include (1) documenting pre-restoration site conditions; (2) installation monitoring; (3) maintenance monitoring; and (4) annual technical monitoring. The methods for the annual technical monitoring are provided further below. During each visit, the restoration specialist will inspect the site to ensure that the mitigation effort is progressing as planned and identify any problems that may affect the effort.

7.6 MONITORING SCHEDULE

7.6.1 Pre-Restoration Site Assessment

The restoration specialist will visit the site prior to the start of installation to document existing site conditions by taking photographs, listing additional plants and animals present, and noting any special conditions within the proposed wetland establishment and enhancement areas.

To document the progress of the mitigation effort, the restoration specialist will identify at least four photographic documentation locations for the wetland establishment area, two locations for the created stream channel, and four locations for the wetland enhancement areas. Photo stations will be mapped with a sub-meter accuracy global positioning system (GPS) and plotted on a map. Photos will be used for future comparison with post-installation and annual assessment photos.

7.6.2 Installation Monitoring

The restoration specialist will be on site daily, or as needed, during installation to ensure that activities are being conducted per this plan. The restoration specialist will monitor all phases of the installation process, including site preparation and installation of irrigation, plantings, and seed. The restoration specialist must inspect and authorize each phase of work before the next phase may begin. The monitoring schedule is outlined in Table 9; additional monitoring may be needed if there are problems with the installation contractor performance or unexpected difficulties with site preparation.

Table 9
MAINTENANCE MONITORING SCHEDULE
FOR ON-SITE WETLAND ESTABLISHMENT AND ENHANCEMENT*

Phase	Schedule
Installation Monitoring	
Site preparation and installation	Daily, or as needed
Maintenance Monitoring	
Year 1 through Year 3	8 visits per year
January to June	Monthly
July to December	2 visits
Years 4 and 5	4 visits per year
Annual Technical Monitoring	
Once per year	September

* This schedule is the minimum monitoring frequency; additional monitoring may be required if there are problems with installation or maintenance contractor performance, unexpected difficulties with site preparation, or issues with habitat establishment.

7.6.3 Maintenance Monitoring

Maintenance monitoring will consist of general site inspections focusing on visual observations of native plant establishment and growth and other site conditions (e.g., presence of non-native plants, erosion, etc.). Following installation, the restoration specialist will direct maintenance activities conducted by the maintenance contractor for the five-year maintenance and monitoring period (Table 9). In Years 1 through 3, maintenance visits will be conducted monthly from January through June (to cover the peak establishment and growth period) and twice during the remainder of the year, for a total of eight visits per year. During Years 4 and 5 monitoring will be conducted approximately quarterly. This monitoring schedule is the minimum; more frequent inspections may be necessary if there are problems with contractor performance or habitat development. Monitoring memos noting any issues with plant establishment, irrigation, sediment control, etc., will be provided as necessary to the installation/maintenance contractor(s) and the project proponent.

7.6.4 Annual Technical Monitoring

7.6.4.1 Quantitative Assessments

The restoration specialist will conduct annual technical monitoring in September of each year during the five-year maintenance and monitoring period. The assessments are scheduled to coincide with the peak of the growing season for riparian vegetation. The exact timing of the visits will depend on site and weather conditions.

Technical monitoring of the wetland enhancement area and ephemeral stream channel will be qualitative each year of monitoring while technical monitoring of the wetland establishment area will include both qualitative and, starting in Year 3, quantitative sampling. Qualitative sampling will include assessments of container plant survivorship (if applicable), visual estimates of native and non-native cover, target invasive species cover, and native plant recruitment, as well as lists of all plant species observed. In addition, all wildlife observed or detected during the annual assessment will be documented. The success of the wetland establishment and enhancement effort will be evaluated by comparing the habitat development with success criteria. Each assessment will include a discussion on

whether the establishment/enhancement areas are on the trajectory towards meeting final success criteria.

Starting in Year 3, one 50-meter transect will be used to collect quantitative data within the wetland establishment area. This transect will be randomly located during the first quantitative sampling event, marked in the field with PVC pipes, and mapped onto Figure 9 using a GPS. Species data will be collected along the transect using the point intercept line transect sampling method (California Native Plant Society's Field Sampling Protocol; Sawyer and Keeler-Wolf 1995). Native, non-native, and invasive plant cover data will be collected by recording all of the species intercepted at each 0.5-meter interval along the length of each transect. Vegetation will be recorded separately for herb (0 to 0.6 meters), shrub (0.6 to 2 meters), and tree (greater than 2 meter) layers.

Observations of wildlife within the restoration and enhancement areas will be documented and included in each annual report. No focused wildlife surveys will be conducted. The photo documentation stations established at the start of the restoration effort will be re-photographed each year during the annual assessment to further document the development of the restoration/active enhancement areas.

7.6.4.2 CRAM

The proposed project includes impacts to waters of the U.S.; therefore, implementation of the California Rapid Assessment Method (CRAM) for the waters of the U.S. mitigation areas may be required by the USACE or RWQCB. If CRAM is not required by the USACE or RWQCB then CRAM analyses will not be conducted.

The purpose of CRAM is to provide a rapid, standardized, and scientifically defensible assessment of the status of a wetland and to help evaluate impacts to aquatic resources. If CRAM is required by the USACE or RWQCB, the specific requirements will be determined in consultation with these agencies during the CWA Section 404 and 401 permitting processes. The requirements typically specify that a CRAM analysis be conducted prior to project impacts in at least one area where waters of the U.S. impacts will occur. If CRAM is required, then a baseline CRAM analysis will be conducted in the existing creek adjacent to the proposed wetland establishment area (baseline). The target CRAM score for the wetland establishment area will be determined based on the results of the impact and baseline CRAM scores. A final CRAM will be conducted in Year 5 of the mitigation effort to determine if the final target score has been met.

If CRAM is required by the USACE or RWQCB, two CRAM practitioners will conduct a CRAM assessment according to the User's Manual: *California Rapid Assessment Method for Wetlands v. 5.0.2* (Collins et al. 2008) and other training materials located on the CRAM web site (www.cramwetlands.org). As part of this assessment, attributes and metrics will be assessed in the following categories: landscape and buffer context, hydrology, physical structure, and biotic structure. Within the landscape and buffer context attribute, the two main metrics are (1) landscape connectivity, or the continuity of wetlands and associated buffer lands within 500m upstream and downstream of the Assessment Area (AA), and (2) several buffer submetrics, or the amount of adjacent, natural lands within 250m of the AA and the quality of these lands. The importance of the former metric is that it is assumed that wetlands located close together have a greater potential to interact biologically and hydrologically, generally increasing their functions and services. A buffer area is important because it provides increased habitat for wetland dependent species or other wildlife movement, reduces inputs of non-point source contaminants, reduces potential for erosion of the wetland corridor, and protects wetlands from human activities. For the hydrology attribute, water inputs as well as diversions to/from the AA, hydroperiod (frequency and

duration of inundation during a typical year), channel stability, and hydrologic connectivity will be examined. The physical structure attribute includes an assessment of the physical conditions that indicate the capacity of a wetland to support characteristic flora and fauna. Lastly, the biotic structure attribute assesses the vegetative makeup of the wetland system, both at the system level (e.g., canopy layers and variety and interspersions of plant zones) as well as the plant level (e.g., number of co-dominant species, the number of native species, and percent of non-native species). Based on scores for each attribute category, CRAM will yield an overall score for an AA. Following completion of this worksheet, a checklist of potential stressors that could be affecting the site will also be filled out. These stressors may help to explain the observed CRAM scores and identify potential issues for a particular area.

To conduct the CRAM assessment, the entire AA will be walked by both practitioners at least twice, and existing site conditions will be discussed before starting to fill out the worksheets. Both practitioners will work together in each AA to determine the attribute and metric scores. A meter tape will be used to measure and calculate bankfull width and floodprone width of the creek to both determine the lateral limits of the AA as well as one of the hydrology metrics (entrenchment ratio).

7.7 MONITORING REPORTS

An annual report including qualitative and quantitative analysis will be prepared each year during the five-year monitoring period and submitted to the County and Resource Agencies. Monitoring and maintenance field data shall be included as an addendum to each report.

Any significant issue or contingency that arises on the job site (e.g., plant survival issues, fire, or flooding) shall be reported in writing to the County and Resource Agencies within two weeks from the date of the incident. Accompanying the report shall be a plan for remediation, with an implementation schedule and a monitoring schedule.

If CRAM is required by the USACE or RWQCB, CRAM scores will be included as attachments to the annual monitoring reports. Analysis of the CRAM data will be based on comparing the score calculated for each AA with the baseline CRAM scores.

8.0 COMPLETION OF COMPENSATORY MITIGATION

The County and Resource Agencies will be notified of completion of the mitigation program through submittal of a final (Year 5) monitoring report. After receipt of the final monitoring report, the County and Resource Agencies may inspect the wetland establishment/enhancement areas to determine the success of the mitigation effort. If the mitigation meets all success standards at the end of the five-year monitoring period or sooner, then the mitigation will be considered a success; if not, the maintenance and monitoring program will be extended until the standards are met. Specific remedial measures (approved by the County and/or Resource Agencies) will be used during any extension. Monitoring extensions will be only for areas that fail to meet final success criteria and that are needed to meet minimum mitigation acreage requirements. This process will continue until all Year 5 standards are attained or until the County and Resource Agencies determine that other mitigation measures are appropriate. Should the mitigation effort meet all goals prior to the end of the five-year monitoring period, the County and Resource Agencies, at their discretion, may terminate the monitoring effort. If

requested, a site visit may be conducted with the County and/or Resource Agencies following Year 3 and/or Year 5 to verify site conditions.

9.0 CONTINGENCY MEASURES

9.1 INITIATING CONTINGENCY MEASURES

If the County or Resource Agencies determine upon receipt of any of the annual monitoring reports that the mitigation effort is not meeting success standards, they shall notify the project proponent in writing that the mitigation effort may require additional measures for successful implementation. The project proponent shall then have 30 days to respond to the notification. During this period, the project proponent may discuss alternatives with the County and/or Resource Agencies.

9.2 ALTERNATIVE LOCATIONS FOR CONTINGENCY COMPENSATORY MITIGATION

Sufficient area for contingency mitigation is present at the project site. If the success criteria are not being met, the County and/or Resource Agencies will work together with the project proponent to reach an alternative mutually acceptable solution.

9.3 FUNDING

The project proponent, Ocean Breeze Ranch, LLC, shall be responsible for all costs associated with any remedial measures.

9.4 NATURAL DISASTER

Should the mitigation area fail during the five-year maintenance and monitoring period due to a natural disaster such as a fire, earthquake, or flood, the project proponent will confer with the regulatory agencies to determine a mutually agreeable course of action.

Any significant issue or contingency that arises on the job site (e.g., plant survival issues, fire, or flooding) shall be reported in writing to the County of San Diego within two weeks from the date of the incident. Accompanying the report shall be a plan for remediation, with an implementation schedule and a monitoring schedule.

10.0 LIST OF PREPARERS

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