JURISDICTIONAL DELINEATION REPORT

for the

San Diego River Trail

Carlton Oaks Golf Course Segment Project

January 2017

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San Diego River Trail – Carlton Oaks Golf Course Segment Project
Jurisdictional Delineation Report

TABLE OF CONTENTS

Section	Title	Page
I.	INTRODUCTION	1
	A. Project Description and Location	1
	b. Study Area Description	1
II.	METHODS	3
	A. U.S. Army Corps of Engineers Jurisdiction	3
	B. California Department of Fish and Wildlife Jurisdiction	4
III.	RESULTS AND DISCUSSION	5
	A. Presence of Wetland Indicators	5
	1. Hydrophytic Vegetation	5
	2. Wetland Hydrology	6
	3. Hydric Soil	6
	B. Description of Potentially Jurisdictional Resources	6
	1. Southern Riparian Forest (including disturbed and burned)	7
	2. Southern Willow Scrub	7
	3. Mule Fat Scrub	7
	4. Freshwater Marsh	8
	5. Disturbed Wetland	8
	6. Open Water	8
	7. Ephemeral and Perennial Streams	8
	C. Sampling Points	9
	1. Sampling Point 1	9
	2. Sampling Point 2	9
	3. Sampling Point 3	10
	4. Sampling Point 4	10
	5. Sampling Point 5	10
	6. Sampling Point 6	11
	D. Summary of Potentially Jurisdictional Resources	11
	1. Potential U.S. Army Corps of Engineers Jurisdiction – Wetland and Non-wetland Waters of the U.S.	11
	2. Potential California Department of Fish and Wildlife Jurisdiction – Wetland/Riparian Habitat and Streambed	12
IV.	REFERENCES	14

TABLE OF CONTENTS (cont.)

LIST OF APPENDICES

A Federal Jurisdictional Information
B State Jurisdictional Information
C Jurisdictional Delineation Data Forms
D Sampling Point and Site Photos

LIST OF TABLES

No.	Title	Page
1	Soil Types Mapped in the Biological Study Area	2
2	Plant Species Observed at Jurisdictional Delineation Sampling Point Locations	5
3	Potential USACE Jurisdiction within the Biological Study Area	12
4	Potential CDFW Jurisdiction within the Biological Study Area	12

LIST OF FIGURES

No.	Title	Follows Page
1	Regional Location Map	2
2	Project Vicinity Map (Aerial Photograph)	2
3	Project Vicinity Map (USGS Topography)	2
4	Vegetation and Sensitive Biological Resources	2
5	Soils Map	2
6a-6e	Potential USACE Wetland and Non-Wetland Waters of the U.S.	6
7a-7e	Potential CDFW Jurisdictional Riparian and Wetland Habitat and Streambed	6

I. INTRODUCTION

This report presents the results of a jurisdictional delineation performed by HELIX Environmental Planning, Inc. (HELIX) for the San Diego Association of Governments (SANDAG) San Diego River Trail – Carlton Oaks Golf Course Segment project (project) located in San Diego County, California (Figure 1). The delineation was conducted to identify and map existing wetlands, habitats, and other resources potentially subject to 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 Code.

This report presents HELIX's best efforts to quantify the extent of potential USACE, RWQCB, and CDFW jurisdiction over wetlands, habitats, and other resources within the biological study area (BSA) using the current regulations, written policies, and guidance from the regulatory agencies. The USACE, RWQCB, and CDFW make the final determination of wetland and water resources within their jurisdiction.

A. PROJECT DESCRIPTION AND LOCATION

The proposed project is located within the cities of Santee and San Diego, California (Figure 1). The project's study area is situated at the intersection of West Hills Parkway and Carlton Oaks Drive on the west and continues through the Carlton Oaks Golf Course to the existing multi-use trail within the City of Santee's Mast Park, just east of Carlton Hills Boulevard (Figure 2). The southern boundary is bordered by State Routes 52 and 125, and by Mission Trails Regional Park to the west. The project is further located within the El Cajon land grant of the U.S. Geological Survey 7.5-minute La Mesa and El Cajon topographic quadrangles (Figure 3).

The proposed project consists of approximately two miles of a Class I bikeway from Mast Park at Carlton Hills Boulevard in the City of Santee, through Mast Park West, and along the edge of the Carlton Hills Golf Course to West Hills Parkway in the City of San Diego.

B. STUDY AREA DESCRIPTION

The 79.1-acre BSA consists of a linear corridor varying in width from approximately 100 feet (ft) to 400 ft along its approximately two-mile length from West Hills Parkway to Mast Park. The San Diego River flows from east to west through the BSA, and is bordered by the Carlton Oaks Golf Course along the western two-thirds of its length. Sycamore Creek flows through the golf course, and two short reaches of the creek occur within the BSA. Ornamental vegetation is the most prevalent habitat type in the BSA within the golf course, while riparian forest is dominant along the San Diego River (Figure 4).

General land use within the BSA includes the Carlton Oaks Golf Course, paved public roads, a dirt trail, a portion of Mast Park, and undeveloped lands along the San Diego River. General land uses adjacent to the BSA include residential and commercial development and roads.

Physical Conditions

Elevations within the BSA range from approximately 296 to 334 ft above mean sea level (amsl). Six soil types representing six soil series (Grangeville, Redding, Riverwash, Salinas, Tujunga, and Visalia) are mapped in the BSA (Natural Resources Conservation Service [NRCS] 2016; Table 1; Figure 5).

The Grangeville series consists of very deep, somewhat poorly drained fine sandy loams that formed from granitic alluvium; they are found on alluvial fans and floodplains. Soils in the Redding series consist of well-drained, undulating to steep gravelly loams that have a gravelly clay subsoil and a hardpan. They occur in old mixed cobbly and gravelly alluvium. Riverwash soil material is typically sandy, gravelly or cobbly and is excessively drained and permeable. Soils in the Salinas series consist of well-drained clay loams that formed in sediments washed from a variety of other soil series. They occur on flood plains and alluvial fans. Soils in the Tujunga series are deep and well drained, formed in alluvium from granitic sources. They occur on alluvial fans, floodplains, and urban areas. Soils in the Visalia series consist of well drained, very deep sandy loams derived from granitic alluvium. They occur on alluvial fans and flood plains (Bowman 1973).

Table 1
SOIL TYPES MAPPED IN THE BIOLOGICAL STUDY AREA[1]

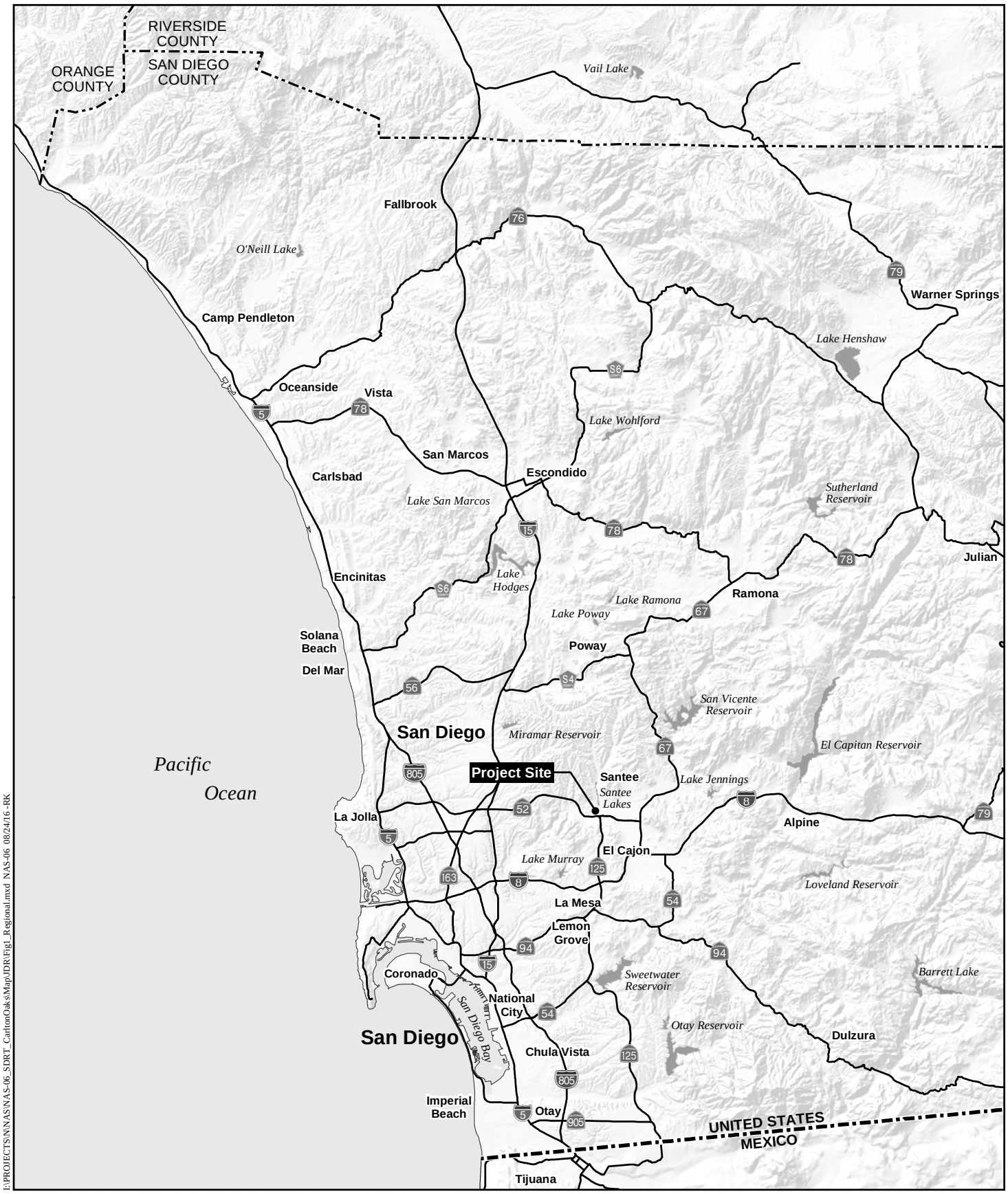
MAP SYMBOL	MAP UNIT NAME	ACREAGE[2]
GoA	Grangeville fine sandy loam, 0-2 percent slopes	0.7
RdC	Redding gravelly loam, 2-9 percent slopes	0.2
Rm	Riverwash	73.1
SbA	Salinas clay loam, 0-2 percent slopes	0.1
TuB	Tujunga sand, 0-5 percent slopes	3.6
VbC	Visalia gravelly sandy loam, 5-9 percent slopes	1.4
	TOTAL	**79.1**

[1]Pursuant to the Natural Resources Conservation Service Web Soil Survey (2016).
[2]Rounded to the nearest tenth acre.

The BSA is located within the 440-square-mile San Diego Hydrologic Unit (HU), one of 12 HUs identified in San Diego County by the RWQCB. It is further located within portions of the Santee Hydrologic Subarea (HSA) in the Lower San Diego Hydrologic Area (HA; [Hydrologic Unit Code 907.12]). The San Diego River conveys flows westward from the BSA to the Pacific Ocean near the community of Ocean Beach.

Biological Conditions

The BSA consists of a mix of ornamental, disturbed, and developed lands associated with the golf course and existing roads, which together make up 46.8 acres (59 percent) of the BSA, and riparian habitats that make up 31.8 acres (40 percent) of the BSA. The remaining 0.5 acre (one percent) consists of small patches of native and naturalized upland habitats.



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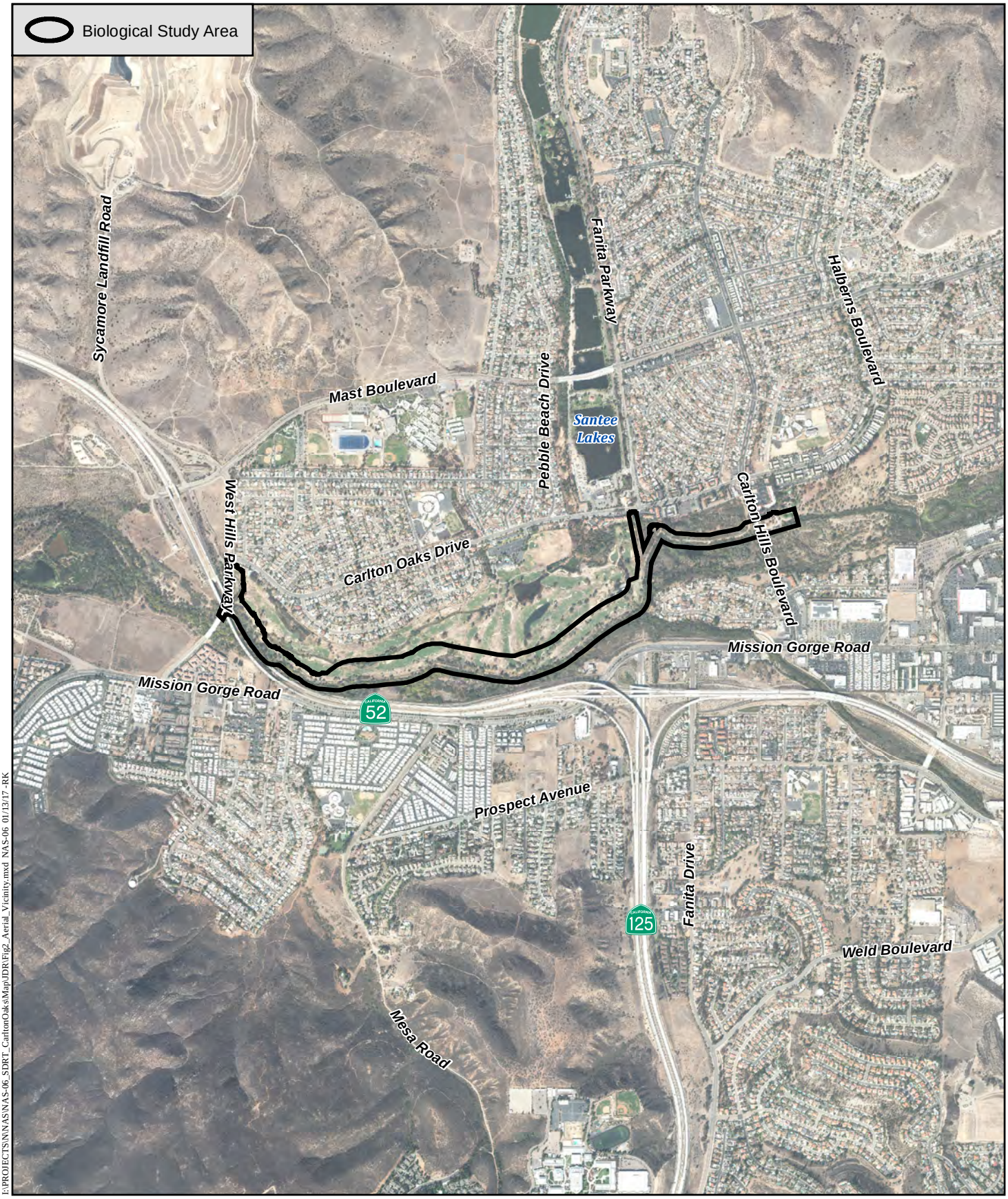
Regional Location Map

SAN DIEGO RIVER TRAIL – CARLTON OAKS GOLF COURSE SEGMENT

N 0 8 Miles

Figure 1



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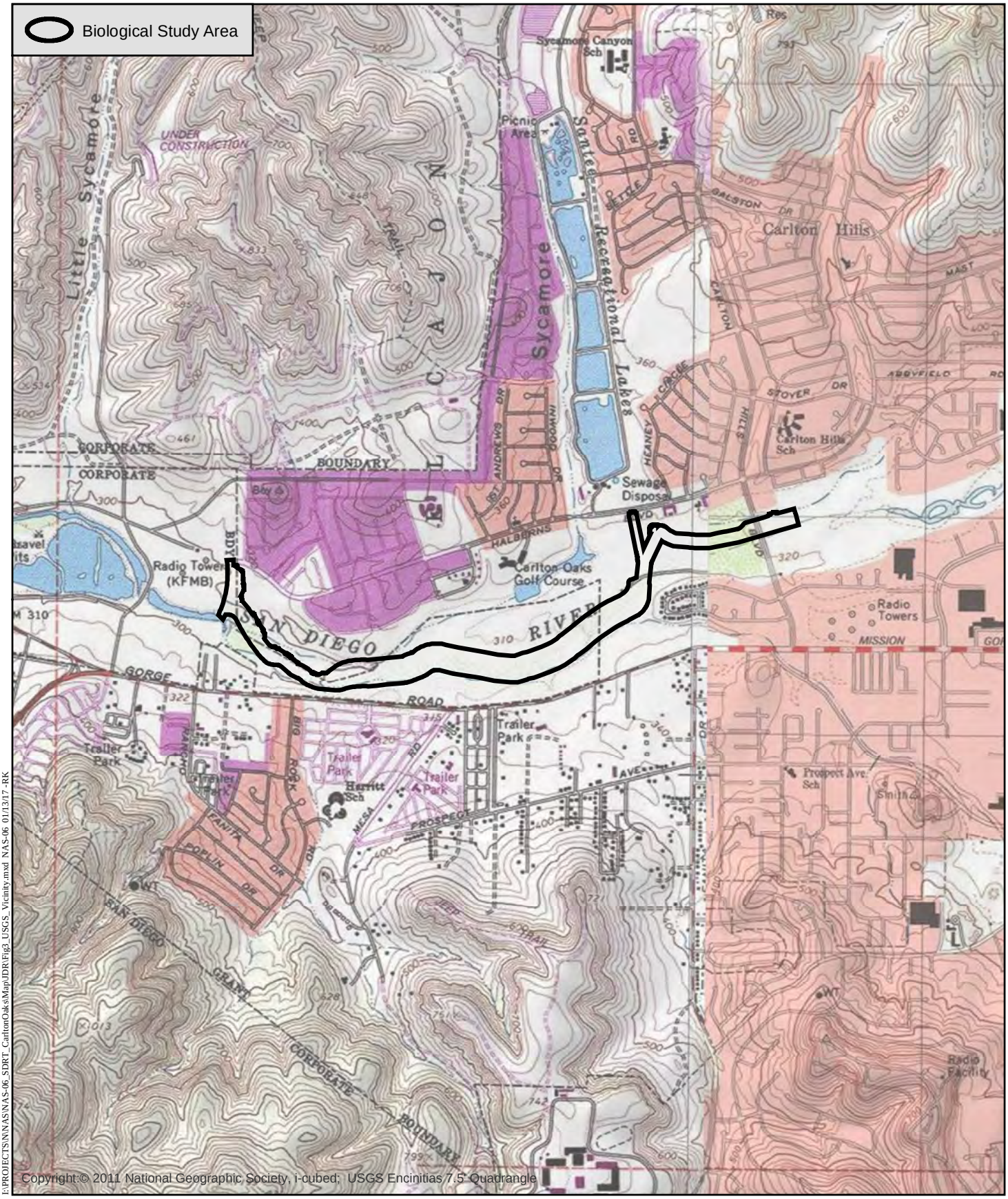
Project Vicinity Map (Aerial Photograph)

SAN DIEGO RIVER TRAIL – CARLTON OAKS GOLF COURSE SEGMENT

N 0 2,000 Feet

Figure 2



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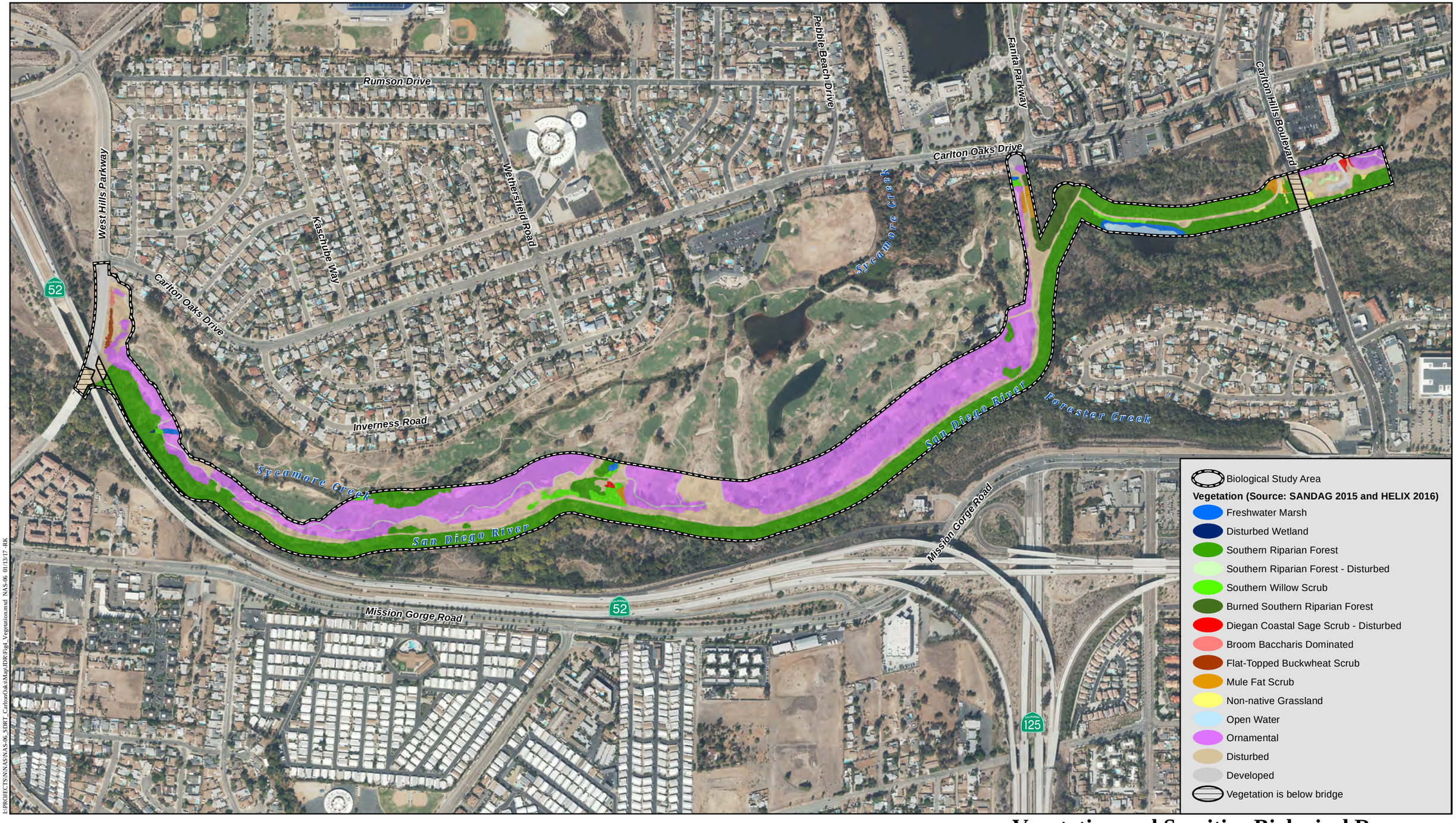
Project Vicinity Map (USGS Topography)

SAN DIEGO RIVER TRAIL – CARLTON OAKS GOLF COURSE SEGMENT

N 0 2,000 Feet

Figure 3



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Vegetation and Sensitive Biological Resources

SAN DIEGO RIVER TRAIL – CARLTON OAKS GOLF COURSE SEGMENT

N 0 600 Feet

Figure 4

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Soils Map

SAN DIEGO RIVER TRAIL – CARLTON OAKS GOLF COURSE SEGMENT

N 0 600 Feet

Figure 5

Native habitats within the BSA are associated primary with the San Diego River, which supports a riparian corridor that is constrained by development on both sides, including the golf course, State Route 52 and other roadways, and single-family residential development. The San Diego River riparian corridor is known to support habitat for the federal and state listed endangered least Bell's vireo (*Vireo bellii pusillus*), which has been observed within the BSA (HELIX 2016).

There is an existing decomposed granite trail through Mast Park and directly east of the golf course, and there is an informal dirt trail along the top of the berm that separates the golf course from the San Diego River along much of the BSA. Hikers, walkers, and bicyclists have been observed using these trails.

II. METHODS

A jurisdictional delineation was conducted on June 22 and 23, 2016 by HELIX biologists Stacy Nigro and Talaya Rachels. Prior to beginning fieldwork, aerial photographs (1"=100' scale), topographic maps (1"=100' scale), the local soil survey, U.S. Geological Survey (USGS) quadrangle maps, and previous vegetation mapping (SANDAG 2015) were reviewed to determine the location of potential jurisdictional areas that may be affected by the proposed project.

A. U.S. ARMY CORPS OF ENGINEERS JURISDICTION

The USACE asserts regulatory jurisdiction over activities affecting wetland and non-wetland waters of the U.S. (WUS) pursuant to Section 404 of the CWA. Areas with depressions or drainage channels were evaluated for the presence of potential wetland and non-wetland WUS. If an area appeared to support wetland conditions, vegetation and hydrology indicators were noted and a soil pit was excavated to examine soil conditions. The area was then determined to support wetland conditions if it satisfied the three wetland criteria (hydrophytic vegetation, wetland hydrology, and hydric soil) described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008).

Areas were determined to be potential non-wetland WUS if there was evidence of regular surface flow (e.g., bed and bank) but either the vegetation or soils criterion was not met. Jurisdictional limits for these areas were measured according to the presence of a discernible ordinary high water mark (OHWM), which is defined in 33 CFR Section 329.11 as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas." An overview of USACE wetlands and jurisdictional WUS definitions is presented in Appendix A.

Plants were identified according to The Jepson Manual: Vascular Plants of California (Baldwin et al. 2012). Wetland affiliations of plant species follow the Arid West 2016 Regional Wetland Plant List (Lichvar et al. 2016). Soils information was taken from the NRCS (2016) and

Bowman (1973). Soil chromas were identified according to Munsell's Soil Color Charts (Kollmorgen 1994).

A total of six wetland delineation sampling points were taken in the BSA in locations representative of potentially jurisdictional areas. Soil pits were excavated at five of the sampling points. Soil pits were excavated to depths of 12 to 18 inches. Soil samples were evaluated for hydric soil indicators (e.g., hydrogen sulfide [A4], sandy redox [S5], depleted matrix [F3], redox dark surface [F6], and redox depressions [F8]). Sampling points also were inspected for primary wetland hydrology indicators (e.g., surface water [A1], saturation [A3], water marks [non-riverine, B1], sediment deposits [non-riverine, B2], drift deposits [non-riverine, B3], surface soil cracks [B6], inundation visible on aerial imagery [B7], salt crust [B11], aquatic invertebrates [B13], hydrogen sulfide odor [C1], and oxidized rhizospheres along living roots [C3]) and secondary (e.g., water marks [riverine, B1], sediment deposits [riverine, B2], drift deposits [riverine, B3], drainage patterns in wetlands [B10], shallow aquitard [D3], and positive FAC neutral test [D5]).

Standard USACE wetland delineation data forms were completed for each sampling point in the field and are included in Appendix C. Photographs taken of the sampling points and BSA are included in Appendix D.

The RWQCB asserts regulatory jurisdiction over activities affecting wetland and non-wetland Waters of the State pursuant to Section 401 of the CWA and the State Porter-Cologne Water Quality Control Act. Potential RWQCB jurisdiction and Waters of the State found within the BSA have the same boundaries as potential WUS under USACE jurisdiction.

B. CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE JURISDICTION

Potential CDFW jurisdictional boundaries within the BSA were determined based on the presence of riparian vegetation or regular surface flow, as demonstrated by the presence of a streambed. Streambeds within potential CDFW jurisdiction were delineated based on the definition of streambed as, "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports riparian vegetation" (Title 14, Section 1.72). Riparian habitat is not defined in Title 14, but the section refers to vegetation and habitat associated with a stream. The CDFW jurisdictional habitat includes all riparian shrub or tree canopy that may extend beyond the banks of a stream. Definitions of CDFW jurisdictional areas are presented in Appendix B (Section II).

III. RESULTS AND DISCUSSION

A. PRESENCE OF WETLAND INDICATORS

1. Hydrophytic Vegetation

Hydrophytic vegetation is present along nearly the entire southern extent of the BSA, as well as in scattered locations in other portions of the BSA. Characteristic hydrophytic species observed include arroyo willow (*Salix lasiolepis*), black willow (*Salix gooddingii*), box-elder (*Acer negundo*), western cottonwood (*Populus fremontii*), evening primrose (*Oenothera elata*), wild grape (*Vitis girdiana*), large-flowered water primrose (*Ludwigia grandiflora*), and cattail (*Typha* sp.). Plant species observed within the sampling points are presented in Table 2, along with their wetland indicator status.

Table 2
PLANT SPECIES OBSERVED AT JURISDICTIONAL DELINEATION SAMPLING POINT LOCATIONS

SCIENTIFIC NAME	COMMON NAME	WETLAND INDICATOR STATUS[1]
Acer negundo	box-elder	FACW
Ambrosia psilostachya	western ragweed	FACU
Anemopsis californica	yerba mansa	OBL
*Apium graveolens**	wild celery	FACW
Artemisia douglasiana	mugwort	FAC
Atriplex prostrata	spearscale	FACW
Baccharis salicifolia	mule fat	FAC
Cortaderia sp.*	pampas grass	FACU
Cyperus eragrostis	flat sedge	FACW
Cyperus sp.	sedge	FACW
Epilobium ciliatum	willow herb	FACW
Erigeron canadensis	horseweed	FACU
Eucalyptus sp.*	eucalyptus	UPL
*Euphorbia peplus**	petty spurge	UPL
*Helminthotheca echioides**	bristly ox-tongue	FAC
Isocoma menziesii	goldenbush	FAC
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	FACW
Juncus mexicanus	Mexican rush	FACW
*Ludwigia grandiflora**	large-flowered water primrose	OBL
*Medicago polymorpha**	bur-clover	FACU
*Melia azedarach**	China berry	UPL

Table 2 (cont.)
PLANT SPECIES OBSERVED AT JURISDICTIONAL DELINEATION SAMPLING POINT LOCATIONS

SCIENTIFIC NAME	COMMON NAME	WETLAND INDICATOR STATUS[1]
Melilotus albus[*]	white sweetclover	UPL
Oenothera elata	evening primrose	FACW
Plantago major[*]	common plantain	FAC
Platanus racemosa	western sycamore	FAC
Polypogon monspeliensis[*]	annual beard grass	FACW
Populus fremontii	western cottonwood	FAC
Quercus agrifolia	coast live oak	UPL
Raphanus sativus[*]	wild radish	UPL
Rosa californica	wild rose	FAC
Salix gooddingii	black willow	FACW
Salix lasiolepis	arroyo willow	FACW
Washingtonia robusta[*]	Mexican fan palm	FACW
Xanthium strumarium	cocklebur	FAC

[1]OBL=obligate wetland species, FACW=facultative wetland species, FAC=facultative species, FACU=facultative upland species, UPL=upland species. Please see Appendix A for further explanation of indicator status.
*=Non-native species

2. Wetland Hydrology

The following wetland hydrology indictors, as defined by the USACE (2008), were observed at the sampling point locations in the BSA: surface water, high water table, saturation, inundation visible on aerial imagery, aquatic invertebrates, hydrogen sulfide odor, sediment deposits, drift deposits, and FAC-neutral test.

3. Hydric Soil

The following hydric soil indicator, as defined by the USACE (2008), was identified in the BSA: hydrogen sulfide.

B. DESCRIPTION OF POTENTIALLY JURISDICTIONAL RESOURCES

Potential jurisdictional wetlands, habitats, and other resources observed in the BSA include southern riparian forest (including disturbed and burned), southern willow scrub, mule fat scrub, freshwater marsh, disturbed wetland, open water, and ephemeral and perennial streams. Depictions of resources within the BSA potentially subject to WUS and CDFW jurisdiction are presented in Figures 6a through 6e and 7a through 7e.

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Potential USACE Wetland and Non-wetland Waters of the U.S.

SAN DIEGO RIVER TRAIL – CARLTON OAKS GOLF COURSE SEGMENT

N

0 600 Feet

Figure 6a

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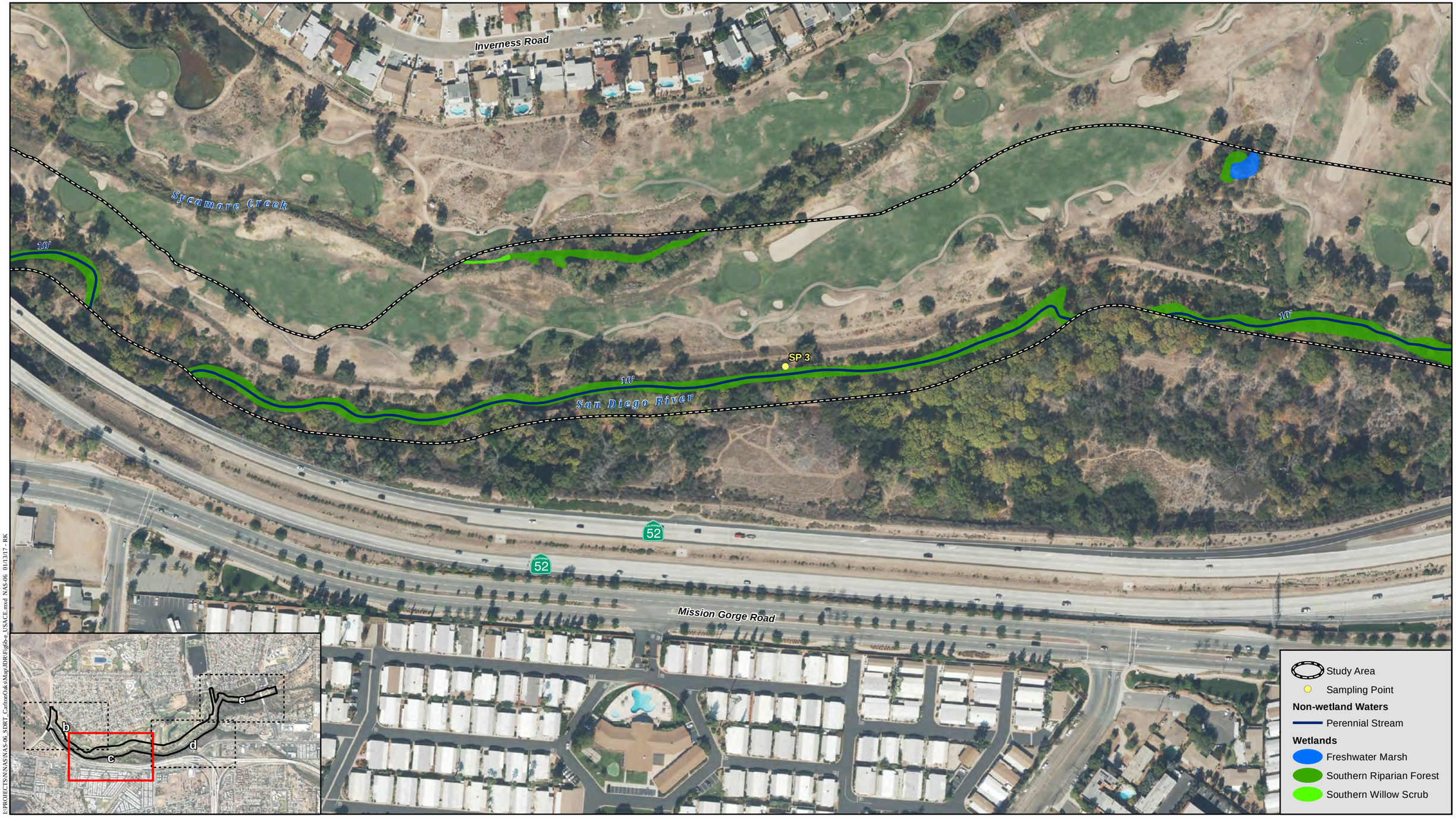
Potential USACE Wetland and Non-wetland Waters of the U.S.

SAN DIEGO RIVER TRAIL – CARLTON OAKS GOLF COURSE SEGMENT

Figure 6b



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Potential USACE Wetland and Non-wetland Waters of the U.S.

SAN DIEGO RIVER TRAIL – CARLTON OAKS GOLF COURSE SEGMENT

N 0 200 Feet

Figure 6c

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Potential USACE Wetland and Non-wetland Waters of the U.S.

SAN DIEGO RIVER TRAIL – CARLTON OAKS GOLF COURSE SEGMENT

N 0 200 Feet

Figure 6d

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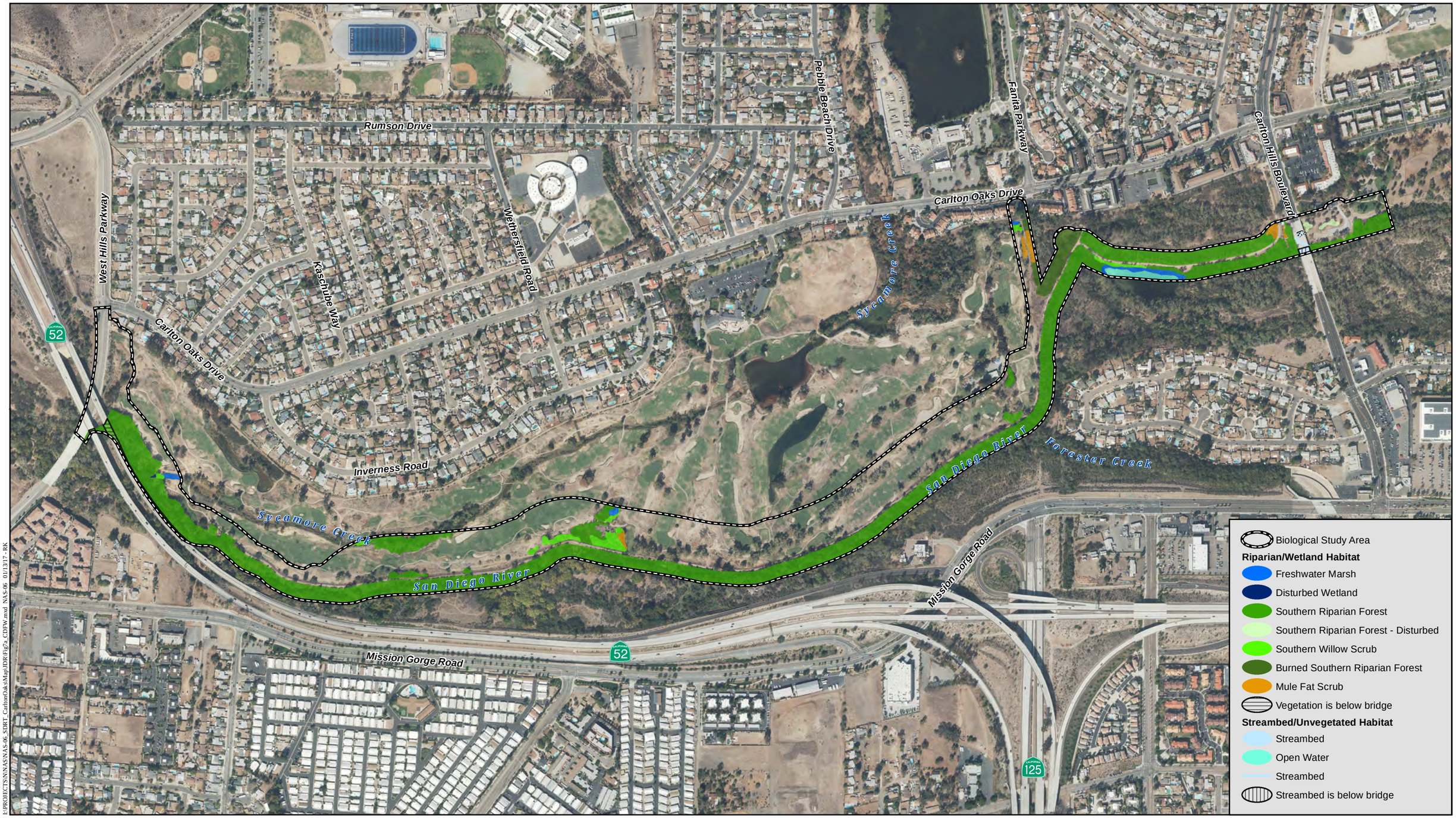
Potential USACE Wetland and Non-wetland Waters of the U.S.

SAN DIEGO RIVER TRAIL – CARLTON OAKS GOLF COURSE SEGMENT

N 0 200 Feet

Figure 6e



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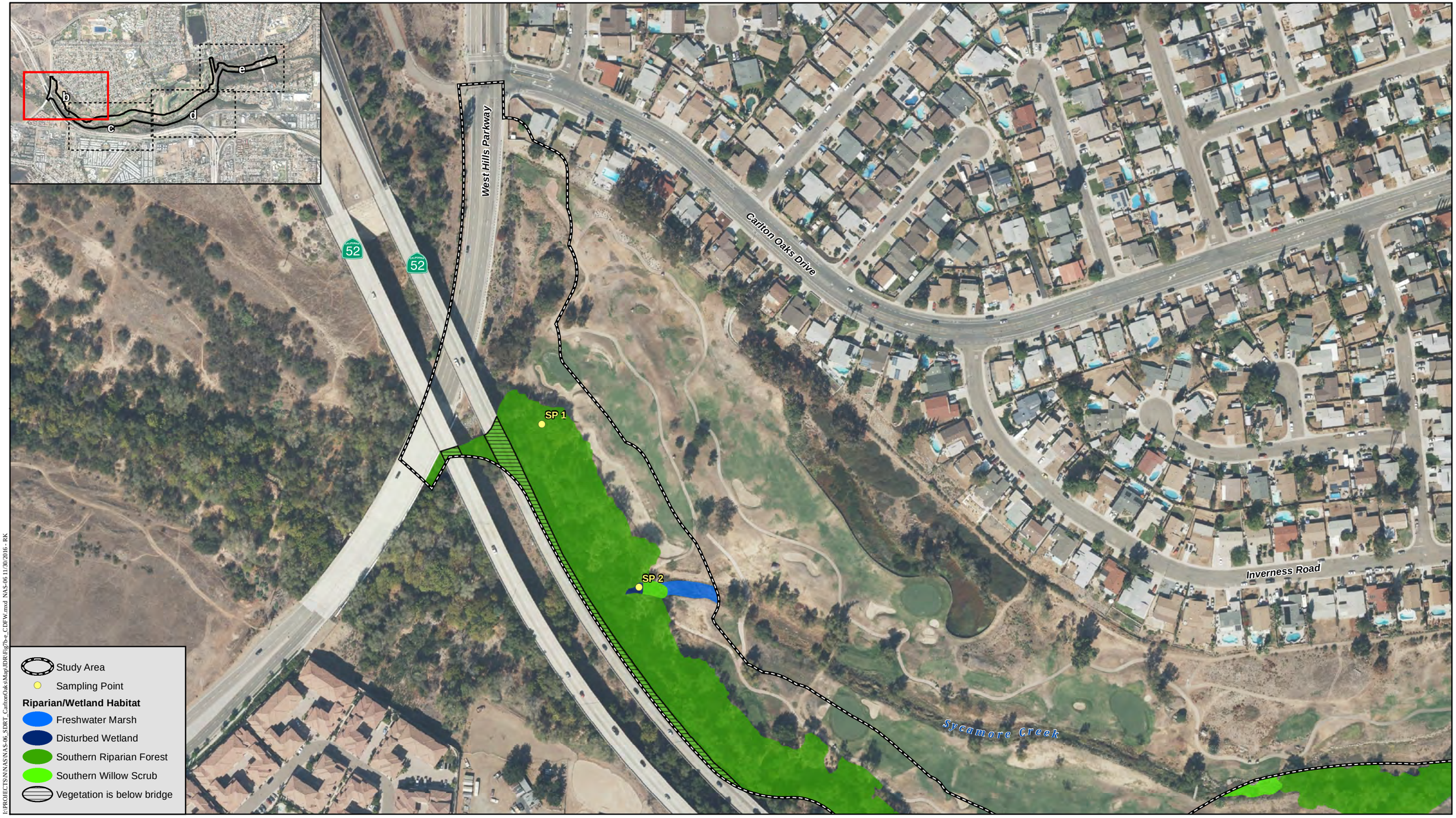
Potential CDFW Jurisdictional Riparian and Wetland Habitat and Streambed

SAN DIEGO RIVER TRAIL – CARLTON OAKS GOLF COURSE SEGMENT

N 0 600 Feet

Figure 7a



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Potential CDFW Jurisdictional Riparian and Wetland Habitat and Streambed

SAN DIEGO RIVER TRAIL – CARLTON OAKS GOLF COURSE SEGMENT

Figure 7b

Inverness Road

Sycamore Creek

SP 3

San Diego River

52

52

Mission Gorge Road

b

c

d

e

Study Area

Sampling Point

Riparian/Wetland Habitat

Freshwater Marsh

Southern Riparian Forest

Southern Willow Scrub

Mule Fat Scrub

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Potential CDFW Jurisdictional Riparian and Wetland Habitat and Streambed

SAN DIEGO RIVER TRAIL – CARLTON OAKS GOLF COURSE SEGMENT

N

0 200 Feet

Figure 7c

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Potential CDFW Jurisdictional Riparian and Wetland Habitat and Streambed

SAN DIEGO RIVER TRAIL – CARLTON OAKS GOLF COURSE SEGMENT

N 0 200 Feet

Figure 7d

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Potential CDFW Jurisdictional Riparian and Wetland Habitat and Streambed

SAN DIEGO RIVER TRAIL – CARLTON OAKS GOLF COURSE SEGMENT

N

0 200 Feet

Figure 7e

1. Southern Riparian Forest (including disturbed and burned)

Southern riparian forest (including southern riparian woodlands) is composed of winter-deciduous trees that require water near the soil surface. Willow (*Salix* spp.), cottonwood (*Populus* sp.), and western sycamore (*Platanus racemosa*) form a dense medium height woodland or forest in moist canyons and drainage bottoms. Associated understory species include mule fat (*Baccharis salicifolia*), stinging nettle (*Urtica dioica* ssp. *holosericea*), and wild grape (*Vitis girdiana*). The differences between woodlands and forests are physiognomic rather than compositional. Woodlands have less canopy cover than forests. In forests, the canopies of individual tree species overlap so that a canopy cover exceeding 100 percent may occur in the upper tree stratum. In woodlands, there may be large canopy gaps within the upper tree stratum.

Dominant species in this habitat in the BSA include black willow (*Salix gooddingii*), arroyo willow (*Salix lasiolepis*), western cottonwood (*Populus fremontii*), box-elder (*Acer negundo*), and wild grape. Burned southern riparian forest was affected by fire in 2014. Disturbed southern riparian forest is composed of two small stands of western cottonwood trees that have been cleared of understory species by maintenance activities conducted within Mast Park. These two stands are immediately east of Carlton Hills Boulevard. Southern riparian forest is the dominant vegetation community along the San Diego River and Sycamore Creek within the BSA. Southern riparian forest habitat within the BSA is potentially subject to CDFW jurisdiction as riparian/wetland habitat, and portions of this habitat are potentially subject to USACE and RWQCB jurisdiction as wetland WUS.

2. Southern Willow Scrub

Southern willow scrub consists of dense, broadleaved, winter-deciduous stands of trees dominated by shrubby willows in association with mule fat, and with scattered emergent cottonwood and western sycamores. This vegetation community occurs on loose, sandy or fine gravelly alluvium deposited near stream channels during flood flows.

Southern willow scrub within the BSA consists of small stands of arroyo willow, black willow, and sandbar willow (*Salix exigua*). These stands are located in the south-central portion of the BSA north of the berm separating the San Diego River from the golf course, as well as in scattered locations east of the golf course as well as along Sycamore Creek in the north-central portion of the BSA. Southern willow scrub within the BSA is potentially subject to CDFW jurisdiction as riparian/wetland habitat, and portions of this habitat are potentially subject to USACE and RWQCB jurisdiction as wetland WUS.

3. Mule Fat Scrub

Mule fat scrub is a depauperate, shrubby riparian scrub community dominated by mule fat and interspersed with small willows. This vegetation community occurs along intermittent stream channels with a fairly coarse substrate and moderate depth to the water table.

Small stands of mule fat scrub occur in the south-central portion of the BSA, where it occurs in association with stands of southern willow scrub, and in the eastern portion of the BSA just west

of Carlton Hills Boulevard and along the eastern edge of the golf course. Mule fat scrub within the BSA is potentially subject to CDFW jurisdiction as riparian/wetland habitat, but it does not meet the criteria for USACE or RWQCB jurisdiction as wetland or non-wetland WUS.

4. Freshwater Marsh

Coastal and valley freshwater marsh is dominated by perennial, emergent monocots, five to 13 ft tall, forming incomplete to completely closed canopies. This vegetation type occurs along the coast and in coastal valleys near river mouths and around the margins of lakes and springs, freshwater or brackish marshes. These areas are semi- or permanently flooded yet lack a significant current (Holland 1986). Dominant species include cattails (*Typha* sp.) and bulrushes (*Scirpus* sp.), along with umbrella sedges (*Cyperus* sp.), rushes (*Juncus* sp.), and spike-sedge.

Small stands of freshwater marsh occur in four locations within the BSA. One stand occurs along Sycamore Creek in the western portion of the BSA, a second stand occurs north of the berm separating the San Diego River from the golf course in the central portion of the BSA, a third stand occurs in the northeastern corner of the golf course, and a fourth stand occurs along the fringes of the open water pond in the eastern portion of the BSA. Cattails are the dominant species in this habitat within the BSA. Freshwater marsh within the BSA is potentially subject to CDFW jurisdiction as riparian/wetland habitat, and potentially subject to USACE and RWQCB jurisdiction as wetland WUS.

5. Disturbed Wetland

Disturbed wetland is dominated by exotic wetland species that invade areas that have been previously altered or undergone periodic disturbances. These non-natives become established more readily following natural or human-induced habitat disturbance than the native wetland flora.

Disturbed wetland occurs as a single stand of habitat in the western portion of the BSA, adjacent to southern riparian forest. Water primrose (*Ludwigia grandiflora*) is the dominant species in this habitat within the BSA. Disturbed wetlands within the BSA are potentially subject to CDFW jurisdiction as riparian/wetland habitat, and potentially subject to USACE and RWQCB jurisdiction as wetland WUS.

6. Open Water

Open water in the BSA consists of a portion of a pond excavated within the San Diego River in the eastern portion of the BSA. Open water within the BSA potentially falls under CDFW jurisdiction, and is potentially subject to USACE and RWQCB jurisdiction as non-wetland WUS.

7. Ephemeral and Perennial Streams

Ephemeral stream consists of unvegetated channels with an ephemeral hydrologic regime. Ephemeral stream within the BSA consists of two narrow channels in the eastern portion of the

BSA, ranging in width from two to eight ft. One channel parallels Carlton Hills Boulevard, conveying ephemeral flows south to the San Diego River, and the other conveys ephemeral flows below the Carlton Hills Boulevard bridge, connecting to the San Diego River. Ephemeral streams within the BSA are potentially subject to USACE and RWQCB jurisdiction as non-wetland WUS, and streambed by the CDFW. Potential USACE and RWQCB jurisdiction extends to the OHWM, while CDFW jurisdiction extends to top of bank.

Perennial stream consists of unvegetated portions of the San Diego River, which has a perennial hydrologic regime. Perennial stream within the BSA is potentially subject to USACE and RWQCB jurisdiction as non-wetland WUS. Potential USACE and RWQCB jurisdiction extends to the OHWM of these channels (or to the outer edge of adjacent wetland habitat where wetland WUS occur adjacent to the channel).

Perennial stream within the BSA that is not otherwise potentially subject to CDFW jurisdiction as riparian/wetland habitat is potentially subject to CDFW jurisdiction as streambed. The San Diego River channel is covered by riparian canopy along its entire length within the BSA, except for below the Carlton Hills Boulevard bridge. Therefore, only the unvegetated perennial stream area below this bridge would potentially be subject to CDFW jurisdiction as streambed; all other San Diego River riparian habitat within the BSA would be subject to CDFW jurisdiction as riparian/wetland habitat. Potential CDFW jurisdiction over perennial stream extends to top of bank.

C. SAMPLING POINTS

Below is a summary of the six wetland delineation sampling points taken in the BSA.

1. Sampling Point 1

This sampling point was located in southern riparian forest in the western portion of the BSA. Vegetation was dominated by four wetland plant species (box-elder [dominant in two strata], evening primrose, and spearscale), thus meeting the USACE wetland vegetation criterion. Two secondary wetland hydrology indicators were present: drift deposits (B3) and FAC-neutral test (D5), thus meeting the USACE wetland hydrology criterion. A soil pit excavated to 16 inches did not reveal the presence of hydric soil indicators. This sampling point met only two of the three USACE wetland criteria and, therefore, is not likely subject to USACE jurisdiction as a wetland WUS. It is, however, potentially subject to CDFW jurisdiction as riparian/wetland habitat.

2. Sampling Point 2

This sampling point was located in disturbed wetland in the western portion of the BSA. Vegetation was dominated by a single wetland plant species: large-flowered water primrose, thus meeting the USACE wetland vegetation criterion. Two primary wetland hydrology indicators were present: surface water (A1) and aquatic invertebrates (B1), as well as two secondary wetland hydrology indicators: drift deposits (B3) and FAC-neutral test (D5), thus meeting the USACE wetland hydrology criterion. Hydric soil was assumed present based on long duration

of inundation resulting in anaerobic conditions, coupled with dominance by obligate vegetation and an abrupt boundary between wetland and upland habitat. This sampling point met all three of the USACE wetland criteria and is potentially subject to USACE jurisdiction as wetland WUS. It is potentially subject to CDFW jurisdiction as riparian/wetland habitat.

3. Sampling Point 3

This sampling point was located in southern riparian forest in the central portion of the BSA. Vegetation was dominated by four wetland plant species: western sycamore, black willow, arroyo willow, and bristly ox-tongue, thus meeting the USACE wetland vegetation criterion. Two secondary wetland hydrology indicators were present: sediment deposits (B2) and drift deposits (B3), thus meeting the USACE wetland hydrology criterion. A soil pit excavated to 16 inches did not reveal the presence of hydric soil indicators. This sampling point met only two of the three USACE wetland criteria and, therefore, is not likely subject to USACE jurisdiction as wetland WUS. It is, however, potentially subject to CDFW jurisdiction as riparian/wetland habitat.

4. Sampling Point 4

This sampling point was located in southern riparian forest in the central portion of the BSA on a low terrace adjacent to the San Diego River channel. Vegetation was dominated by four wetland plant species: box-elder, wild celery, sedge, and common plantain, thus meeting the USACE wetland vegetation criterion. Four primary wetland hydrology indicators were present: surface water (A1), high water table (A2), saturation (A3), and hydrogen sulfide (C1), as well as three secondary wetland hydrology indicators: sediment deposits (B2), drift deposits (B3), and FAC-neutral test (D5), thus meeting the USACE wetland hydrology criterion. A soil pit excavated to 12 inches revealed the presence of hydrogen sulfide odor (A4), thus meeting the USACE hydric soil criterion. This sampling point met all three of the USACE wetland criteria and is therefore potentially subject to USACE jurisdiction as wetland WUS, and potentially subject to CDFW jurisdiction as riparian/wetland habitat.

5. Sampling Point 5

This sampling point was located in southern riparian forest in the central portion of the BSA, upslope of Sampling Point 4. Vegetation was dominated by three wetland plant species: box-elder, evening primrose, and common plantain, thus meeting the USACE wetland vegetation criterion. Three secondary wetland hydrology indicators were present: sediment deposits (B2), drift deposits (B3), and FAC-neutral test (D5), thus meeting the USACE wetland hydrology criterion. A soil pit excavated to 13 inches did not reveal the presence of hydric soil indicators. This sampling point met only two of the three USACE wetland criteria and, therefore, is not likely subject to USACE jurisdiction as wetland WUS. It is, however, potentially subject to CDFW jurisdiction as riparian/wetland habitat.

6. Sampling Point 6

This sampling point was located in southern riparian forest in the eastern portion of the BSA. Vegetation was dominated by six wetland plant species: western cottonwood (dominant in two strata), mule fat, goldenbush, southwestern spiny rush, and yerba mansa, thus meeting the USACE wetland vegetation criterion. No primary and only one secondary wetland hydrology indicators were present: FAC-neutral test (D5); therefore, the USACE wetland hydrology criterion was not met. A soil pit excavated to 18 inches did not reveal the presence of hydric soil indicators. This sampling point met only one of the three USACE wetland criteria and, therefore, is not likely subject to USACE jurisdiction as wetland WUS. It is, however, potentially subject to CDFW jurisdiction as riparian/wetland habitat.

Notes on Sampling Points

Sampling points were not taken in stands of freshwater marsh, which were dominated by obligate wetland vegetation, contained standing water, and are located in landscape positions likely to support hydric soils. Freshwater marsh within the BSA is considered wetland WUS potentially subject to USACE jurisdiction. Sampling points were not taken in the small stands of mule fat scrub, which are dominated by a facultative species and are clearly located above the OHWM in a landscape position that would not support hydric soils and would not meet all three USACE wetland criteria. Sampling points were not taken within southern willow scrub, as similarly situated southern riparian forest was used as a baseline for determining wetland conditions in this habitat type.

D. SUMMARY OF POTENTIALLY JURISDICTIONAL RESOURCES

Potential jurisdictional wetlands, habitats, and other resources within the BSA include southern riparian forest (including disturbed and burned), southern willow scrub, mule fat scrub, freshwater marsh, disturbed wetland, open water, and non-wetland WUS/ephemeral and perennial stream. As shown in Tables 3 and 4, within the BSA there are approximately 10.40 acres of wetland and non-wetland WUS potentially subject to USACE jurisdiction, and approximately 31.91 acres of riparian/wetland habitat and streambed potentially subject to CDFW jurisdiction.

1. Potential U.S. Army Corps of Engineers Jurisdiction – Wetland and Non-Wetland Waters of the U.S.

Potential USACE jurisdiction within the BSA totals approximately 10.40 acres, made up of approximately 8.14 acres of wetland WUS and approximately 2.26 acres of non-wetland WUS (Figures 6a-6e; Table 3).

Table 3 POTENTIAL USACE JURISDICTION WITHIN THE BIOLOGICAL STUDY AREA	
POTENTIAL USACE JURISDICTION	**ACREAGE***
Wetland Waters of the U.S.	
Southern Riparian Forest	7.50
Southern Willow Scrub	0.09
Freshwater Marsh	0.54
Disturbed Wetland	0.01
Wetland Waters of the U.S. Subtotal	***8.14***
Non-wetland Waters of the U.S.	
Open Water	0.52
Ephemeral Stream	0.03
Perennial Stream	1.71
Non-wetland Waters of the U.S. Subtotal	***2.26***
TOTAL	**10.40**

*Acreage is rounded to the nearest 0.01 acre.

Potential RWQCB jurisdiction within the BSA follows the same boundaries of potential USACE jurisdiction for wetland and non-wetland WUS. There are no isolated waters of the State within the BSA subject to exclusive RWQCB jurisdiction pursuant to the State Porter-Cologne Water Quality Control Act.

2. Potential California Department of Fish and Wildlife Jurisdiction – Wetland/Riparian Habitat and Streambed

Potential CDFW jurisdiction within the BSA totals approximately 31.91 acres, made up of approximately 31.30 acres of wetland/riparian habitat and approximately 0.61 acre of unvegetated streambed or open water (Table 4; Figure 7a-7e).

Table 4 POTENTIAL CDFW JURISDICTION WITHIN THE BIOLOGICAL STUDY AREA	
POTENTIAL CDFW JURISDICTION	**ACREAGE***
Riparian/Wetland Habitat	
Southern Riparian Forest (including burned and disturbed)	29.14
Southern Willow Scrub	1.10
Mule Fat Scrub	0.51
Freshwater Marsh	0.54
Disturbed Wetland	0.01
Riparian/Wetland Habitat Subtotal	***31.30***

Table 4 (cont.)
POTENTIAL CDFW JURISDICTION
WITHIN THE BIOLOGICAL STUDY AREA

POTENTIAL CDFW JURISDICTION	ACREAGE*
Stream Channel/Unvegetated Habitat	
Open Water	0.52
Streambed	0.09
Stream Channel/Unvegetated Habitat Subtotal	***0.61***
TOTAL	**31.91**

*Acreage is rounded to the nearest 0.01 acre.

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Appendix A

FEDERAL JURISDICTIONAL INFORMATION

Appendix A
FEDERAL JURISDICTIONAL INFORMATION

Wetlands and "Waters of the U.S." Definitions

Wetlands. The U.S. Army Corps of Engineers (USACE; Federal Register 1982) and the Environmental Protection Agency (Federal Register 1980) jointly define wetlands as "[t]hose areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Environmental Laboratory 1987).

Waters of the U.S. The official definition of "Waters of the U.S." and their limits of jurisdiction (as they may apply) are defined by the USACE' Regulatory Program Regulations (Section 328.3, paragraphs [a] 1-3 and [e], and Section 328.4, paragraphs [c] 1 and 2) as follows:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. all interstate waters including interstate wetlands;
3. all other waters such as intrastate lakes, rivers, streams (including intermittent streams) , mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters,
    i. which are or could be used by interstate or foreign travelers for recreation or other purposes; or
    ii. from which fish or shellfish are or could be taken and sold in interstate commerce; or
    iii. which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States under the definition;
5. Tributaries of waters …;
6. The territorial seas;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands)…

Non-tidal Waters of the U.S. The limits of jurisdiction in non-tidal waters: In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or when adjacent wetlands are present, the jurisdiction extends to the limit of the adjacent wetlands.

The term ordinary high water mark (OHWM) means that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation (scouring), the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Waters of the U.S. must exhibit an OHWM or other evidence of surface flow created by hydrologic physical changes. These physical changes include (Riley 2005):

- Natural line impressed on the bank
- Shelving
- Changes in the character of soil
- Destruction of terrestrial vegetation
- Presence of litter and debris
- Wracking
- Vegetation matted down, bent, or absent
- Sediment sorting
- Leaf litter disturbed or washed away
- Scour
- Deposition
- Multiple observed flow events
- Bed and banks
- Water staining
- Change in plant community

Further guidance on identifying the OHWM in the Arid Southwest (Lichvar and McColley 2008). This publication provided geomorphic and vegetation OHWM indicators specific to the Arid Southwest.

.Jurisdictional areas also must be connected to Waters of the U.S. (Guzy and Anderson 2001; U.S. Supreme Court 2001).

As a consequence of the U.S. Supreme Court decision in Rapanos v. United States, a memorandum was developed regarding Clean Water Act jurisdiction (Grumbles and Woodley 2007). The memorandum states that the EPA and the USACE will assert jurisdiction over traditional navigable waters (TNW), wetlands adjacent to TNW, tributaries to TNWs that are a relatively permanent water body (RPW), and wetlands adjacent to TNW. An RPW has year round flow or continuous seasonal flow (i.e., typically for three months or longer). Jurisdiction over other waters (i.e., non TNW and RPW) will be based on a fact specific analysis to determine if they have a significant nexus to a TNW.

Pursuant to the USACE Instructional Guidebook (USACE and EPA 2007), the significant nexus evaluation will cover the subject reach of the stream (upstream and downstream) as well as its adjacent wetlands (Illustrations 2 through 6, USACE and EPA 2007). The evaluation will include the flow characteristics, annual precipitation, ability to provide habitat for aquatic species, ability to retain floodwaters and filter pollutants, proximity of the subject reach to a TNW, drainage area, and the watershed.

Wetland Criteria

Wetland boundaries are determined using three mandatory criteria (hydrophytic vegetation, wetland hydrology, and hydric soil) established for wetland delineations and described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008). Following is a brief discussion of the three criteria and how they are evaluated.

Vegetation

"Hydrophytic vegetation is defined herein as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present" (Environmental Laboratory 1987).

The wetland indicator status (obligate upland, facultative upland, facultative, facultative wetland, obligate wetland, or no indicator status) of the dominant plant species of all vegetative layers is determined. Species considered to be hydrophytic include the classifications of facultative, facultative wetland, and obligate wetland as defined in the current list of wetland plants of the Arid Southwest (Lichvar, et. al. 2014; Table A-1). The percent of dominant wetland plant species is calculated. The hydrophytic vegetation criterion is considered to be met if it meets the "Dominance Test," "Prevalence Index," or the vegetation has morphological adaptations for prolonged inundation.

Table A-1
DEFINITIONS OF PLANT INDICATOR CATEGORIES

INDICATOR CATEGORIES	ABBREVIATION	QUALITATIVE DESCRIPTION
Obligate	OBL	Almost always occur in wetlands
Facultative Wetland	FACW	Usually occur in wetlands but may occur in non-wetlands
Facultative	FAC	Occur in wetlands and non-wetlands
Facultative Upland	FACU	Usually occur in non-wetlands but may occur in wetlands
Upland	UPL	Almost never occur in wetlands

Hydrology

"The term 'wetland hydrology' encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic reducing conditions, respectively" (Environmental Laboratory 1987).

Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for at least 5 percent of the growing season during a normal rainfall year (approximately 18 days for most of low-lying southern California). Hydrology criteria are evaluated based on the characteristics listed below (USACE 2008). Where positive indicators of wetland hydrology are present, the limit of the OHWM (or the limit of adjacent wetlands) is noted and mapped. Evidence of wetland hydrology is met by the presence of a single primary indicator or two secondary indicators.

Primary

- surface water (A1)
- high water table (A2)
- saturation (A3)
- water marks (B1; non-riverine)
- sediment deposits (B2; non-riverine)
- drift deposits (B3; non-riverine
- surface soil cracks (B6)
- inundation visible on aerial imagery (B7)
- water-stained leaves (B9)
- salt crust (B11)
- biotic crust (B12)
- aquatic invertebrates (B13)
- hydrogen sulfide odor (C1)
- oxidized rhizospheres along living roots (C3)
- presence of reduced iron (C4)
- recent iron reduction in tilled soils (C6)
- thin muck surface (C7)

Secondary

- watermarks (B1; riverine)
- sediment deposits (B2; riverine)
- drift deposits (B3; riverine)
- drainage patterns (B10)
- dry-season water table (C2)
- crayfish burrows (C8)
- saturation visible on aerial imagery (C9)
- shallow aquitard (D3)
- FAC-neutral test (D5)

In the absence of all other hydrologic indicators and in the absence of significant modifications of an area's hydrologic function, positive hydric soil characteristics are assumed to indicate positive wetland hydrology. This assumption applies unless the site visit was done during the wet season of a normal or wetter-than-normal year. Under those circumstances, wetland hydrology would not be present.

Soils

The USACE and Environmental Protection Agency, in their administration of Section 404 of the Clean Water Act, rely on the National Technical Committee for Hydric Soils (NTCHS) for a definition of hydric soils. According to the NTCHS "A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part." (Federal Register 1994)

Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation. Soil matrix and mottle colors are identified at each sampling plot using a Munsell soil color chart (Kollmorgen 1994). Generally, an 18-inch or deeper pit is excavated with a shovel at each sampling plot unless refusal occurs above 18 inches.

Soils in each area are closely examined for hydric soil indicators, including the characteristics listed below. Hydric soil indicators are presented in three groups. Indicators for "All Soils" (A) are used in any soil regardless of texture, indicators for "Sandy Soils" (S) area used in soil layers with USDA textures of loamy fine sand or coarser, and indicators for "Loamy and Clayey Soils" (F) are used with soil layers of loamy very fine sand and finer (USACE 2008).

- histosols (A1)
- histic epipedons (A2)
- black histic (A3)
- hydrogen sulfide (A4)
- stratified layers (A5)
- 1 cm muck (A9)
- depleted below dark surface (A11)
- thick dark surface (A12)
- sandy mucky mineral (S1)
- sandy gleyed matrix (S4)
- sandy redox (S5)
- stripped matrix (S6)
- loamy mucky mineral (F1)
- loamy gleyed matrix (F2)
- depleted matrix (F3)
- redox dark surface (F6)
- depleted dark surface (F7)
- redox depressions (F8)
- vernal pools (F9)
- 2 cm muck (A10)
- reduced vertic (F18)
- red parent material (TF2)

Hydric soils may be assumed to be present in plant communities that have complete dominance of obligate or facultative wetland species. In some cases, there is only inundation during the growing season and determination must be made by direct observation during that season, recorded hydrologic data, testimony of reliable persons, and/or indication on aerial photographs.

Non-wetland Waters of the U.S.

The non-wetland Waters of the U.S. designation is met when an area has periodic surface flows but lacks sufficient indicators to meet the hydrophytic vegetation and/or hydric soils criteria. For purposes of delineation and jurisdictional designation, the non-wetland Waters of the U.S. boundary in non-tidal areas is the OHWM as described in the Section 404 regulations (33 CFR Part 328).

USGS Mapping

The USGS Quad maps are one of the resources used to aid in the identification and mapping of jurisdictional areas. Their primary uses include understanding the subregional landscape position of a site, major topographical features, and a project's position in the watershed.

In our experience the designation of watercourse as a blue-line stream (intermittent or perennial) on USGS maps has been unreliable and typically overstates the hydrology of most streams. This has also been the experience of others, including the late Luna Leopold. Leopold was a hydrologist with USGS from 1952 to 1972, Professor in the Department of Geology and Geophysics, and Department of Landscape Architecture, University of California, Berkeley from 1972 to 1986, and Professor Emeritus from 1987 until his death in 2006. In regard to USGS maps, Dr. Leopold wrote "I tried to devise a way of defining hydrologic criteria for the channels shown on topographic maps and developed some promising procedures. None were acceptable to the topographers, however. I learned that the blue lines on a map are drawn by nonprofessional, low-salaried personnel. In actual fact, they are drawn to fit a rather personalized aesthetic." (1994)

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Appendix B

STATE JURISDICTIONAL INFORMATION

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STATE JURISDICTIONAL INFORMATION

California Department of Fish and Wildlife Regulations

The California Department of Fish and Wildlife (CDFW; Department) regulates alterations or impacts to streambeds or lakes (wetlands) under Fish and Game Code Sections 1600 through 1616 for any private, state, or local government or public utility-initiated projects. The Fish and Game Code Section 1602 requires any entity to notify the Department before beginning any activity that will do one or more of the following: (1) substantially obstruct or divert the natural flow of a river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers and streams as well as lakes in the state.

In order to notify the Department, a person, state, or local governmental agency or public utility must submit a complete notification package and fee to the Department regional office that serves the county where the activity will take place. A fee schedule is included in the notification package materials. Under the Permit Streamlining Act (Government Code Sections 65920 et seq.), the Department has 30 days to determine whether the package is complete. If the requestor is not notified within 30 days, the application is automatically deemed to be complete.

Once the notification package is deemed to be complete, the Department will determine whether the applicant will need a Lake or Streambed Alteration Agreement (SAA) for the activity, which will be required if the activity could substantially adversely affect an existing fish and wildlife resource. If an SAA is required, the Department will conduct an on-site inspection, if necessary, and submit a draft SAA that will include measures to protect fish and wildlife resources while conducting the project. If the applicant is applying for a regular SAA (less than five years), the Department will submit a draft SAA within 60 calendar days after notification is deemed complete. The 60-day time period does not apply to notifications for long-term SAAs (greater than 5 years).

After the applicant receives the SAA, the applicant has 30 calendar days to notify the Department whether the measures in the draft SAA are acceptable. If the applicant agrees with the measures included in the draft SAA, the applicant will need to sign the SAA and submit it to the Department. If the applicant disagrees with any measures in the draft SAA, the applicant must notify the Department in writing and specify the measures that are not acceptable. Upon written request, the Department will meet with the applicant within 14 calendar days of receiving the request to resolve the disagreement. If the applicant fails to respond in writing within 90 calendar days of receiving the draft SAA, the Department may withdraw that SAA. The time periods described above may be extended at any time by mutual agreement.

After the Department receives the signed draft SAA, the Department will make it final by signing the SAA; however, the Department will not sign the SAA until it both receives the notification fee and ensures that the SAA complies with the California Environmental Quality

Act (Public Resources Code Section 21000 et seq.). After the applicant receives the final agreement, the applicant may begin the project the agreement covers, provided that the applicant has obtained any other necessary federal, state and/or local authorizations.

Water Resource Control Board Regulations

Section 401 Water Quality Certification

Whenever a project requires a federal Clean Water Act (CWA) Section 404 permit or a Rivers and Harbors Act Section 10 permit, it must first obtain a CWA Section 401 Water Quality Certification. The Regional Water Quality Control Board (RWQCB) administers the 401 Certification program. Federal CWA Section 401 requires that every applicant for a Section 404 permit must request a Water Quality Certification that the proposed activity will not violate state and federal water quality standards.

Porter-Cologne Water Quality Control Act

The State Water Resource Control Board (SWRCB) and the RWQCB regulate the discharge of waste to waters of the State via the 1969 Porter-Cologne Water Quality Control Act (Porter-Cologne) as described in the California Water Code (SWRCB 2008). The California Water Code is the State's version of the Federal CWA. Waste, according to the California Water Code, includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal. State waters that are not federal waters may be regulated under Porter-Cologne. A Report of Waste Discharge must be filed with the RWQCB for projects that result in discharge of waste into waters of the State. The RWQCB will issue Waste Discharge Requirements (WDRs) or a waiver. The WDRs are the Porter-Cologne version of a CWA 401 Water Quality Certification.

REFERENCES

California Association of Resource Conservation Districts. 2002. Guide to Watershed Project Permitting for the State of California. Available at URL: http://www.carcd.org/permitting/pguide.pdf.

California Department of Fish and Wildlife (CDFW). Fish and Game Code Sections 1600 through 1616.

Date unknown. Streambed/Lake Alteration Notification Guidelines.

Appendix C

JURISDICTIONAL DELINEATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SD River Trail - Carlton Oaks Golf Course Sgmt City/County: Santee&San Diego/San Diego Sampling Date: 6/22/16

Applicant/Owner: SANDAG State: CA Sampling Point: 1

Investigator(s): S. Nigro & T. Rachels Section, Township, Range: unsectioned lands in El Cajon Land Grant

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): _____

Subregion (LRR): C Lat: 32.84007877060 Long: -117.02305036000 Datum: _____

Soil Map Unit Name: Riverwash (Soil Map Symbol Rm) NWI classification: PFOC-frshwtr/frstd scrb

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____ No ✓	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

Sampling point located in southern riparian forest habitat. Area does not meet Corps wetland criteria or non-wetland Waters of the U.S. criteria. Sampling point located in CDFW riparian habitat.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	70	X	FACW
2. Salix lasiolepis	5		FACW
3.			
4.			
	75 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=20')			
1. Acer negundo	10	X	FACW
2. Eucalyptus sp.	< 1		UPL
3. Quercus agrifolia	< 1		UPL
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: r=15')			
1. Oenothera elata	14	X	FACW
2. Atriplex prostrata	10	X	FACW
3. Apium graveolens	4		FACW
4. Plantago major	2		FAC
5. Artemisia douglasiana	2		FAC
6. Medicago polymorpha	2		FACU
7. Epilobium ciliatum	1		FACW
8. Helminthotheca echioides	1		FAC
	39* = Total Cover		
Woody Vine Stratum (Plot size: r=15')			
1. continue Herb Stratum: Euphorbia peplus*	1		UPL
2. continue Herb Stratum: Polypogon monspel.*	2		FACW
	0 = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Hydrophytic vegetation present.

Photo 15.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100	n/a	n/a	n/a	n/a	sand	
4-12	10YR 3/2	100	n/a	n/a	n/a	n/a	silty clay	loam
12-16	10YR 3/2	100	n/a	n/a	n/a	n/a	sandy lm	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Hydric soil absent.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Two secondary indicators present - wetland hydrology criterion met.

FAC-Neutral test = 8:4 / met

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SD River Trail - Carlton Oaks Golf Course Sgmt City/County: Santee&San Diego/San Diego Sampling Date: 6/22/16

Applicant/Owner: SANDAG State: CA Sampling Point: 2

Investigator(s): S. Nigro & T. Rachels Section, Township, Range: unsectioned lands in El Cajon Land Grant

Landform (hillslope, terrace, etc.): creek Local relief (concave, convex, none): concave Slope (%): _____

Subregion (LRR): C Lat: 32.83908831770 Long: -117.02234029900 Datum: _____

Soil Map Unit Name: Riverwash (Soil Map Symbol Rm) NWI classification: PFOC-frshwtr/frstd scrb

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Sampling point located in disturbed wetland habitat within a creek. Area meets Corps wetland criteria (and also is CDFW wetland).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=10')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=10')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: r=10')			
1. Ludwigia grandiflora	50	X	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: r=10')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Hydrophytic vegetation present.

Photo 19.

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
no pit								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Hydric soil assumed present based on aquic moisture regime/long duration of inundation, coupled with dominance by OBL vegetation. Sampling point located in standing water within a creek bed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ✓ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 5"

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Two primary indicators and two secondary indicators present - wetland hydrology criterion is met.
Note: aquatic invertebrates = crayfish
FAC-Neutral test = 1:0 / met

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SD River Trail - Carlton Oaks Golf Course Sgmt City/County: Santee&San Diego/San Diego Sampling Date: 6/22/16

Applicant/Owner: SANDAG State: CA Sampling Point: 3

Investigator(s): S. Nigro & T. Rachels Section, Township, Range: unsectioned lands in El Cajon Land Grant

Landform (hillslope, terrace, etc.): creek terrace Local relief (concave, convex, none): concave Slope (%): _____

Subregion (LRR): C Lat: 32.83725481030 Long: -117.01569162600 Datum: _____

Soil Map Unit Name: Riverwash (Soil Map Symbol Rm) NWI classification: PFOC-frshwtr/frstd scrb

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Sampling point located in southern riparian forest habitat upslope of river channel on south side of berm adjacent to the golf course. Area does not meet Corps wetland criteria or non-wetland Waters of the U.S. criteria. Sampling point located in CDFW riparian habitat.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10'x30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Platanus racemosa	20	X	FAC
2. Salix gooddingii	35	X	FACW
3. Acer negundo	10		FACW
4.			
	65	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10'x30')			
1. Salix lasiolepis	10	X	FACW
2. Melia azedarach	2		UPL
3.			
4.			
5.			
	12	= Total Cover	
Herb Stratum (Plot size: 10'x30')			
1. Helminthotheca echioides	12	X	FAC
2. Oenothera elata	3		FACW
3. Rosa californica	2		FAC
4. Erigeron canadensis	1		FACU
5. Melilotus albus	1		UPL
6. Ambrosia psilostachya	< 1		FACU
7. Xanthium strumarium	< 1		FAC
8. Raphanus sativus	< 1		UPL
	20	= Total Cover	
Woody Vine Stratum (Plot size: 10'x30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 2 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Hydrophytic vegetation present.

Photos 24-25.

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100	n/a	n/a	n/a	n/a	loam	
10-16	10YR 3/2	100	n/a	n/a	n/a	n/a	silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Hydric soil absent.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Two secondary indicators of wetland hydrology observed, criterion met.

FAC-Neutral test = 4:5 / not met

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SD River Trail - Carlton Oaks Golf Course Sgmt City/County: Santee&San Diego/San Diego Sampling Date: 6/23/16

Applicant/Owner: SANDAG State: CA Sampling Point: 4

Investigator(s): S. Nigro & T. Rachels Section, Township, Range: unsectioned lands in El Cajon Land Grant

Landform (hillslope, terrace, etc.): low terrace adjacent to creek Local relief (concave, convex, none): concave Slope (%): _____

Subregion (LRR): C Lat: 32.83774888350 Long: -117.00783184300 Datum: _____

Soil Map Unit Name: Riverwash (Soil Map Symbol Rm) NWI classification: PFOC-frshwtr/frstd scrb

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

Sampling point located in southern riparian forest habitat on a low creek terrace. Area meets Corps wetland criteria (and also is CDFW wetland).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 8'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 8'x20')			
1. Acer negundo	5	X	FACW
2. Washingtonia robusta	1		FACW
3.			
4.			
5.			
	6 = Total Cover		
Herb Stratum (Plot size: 8'x20')			
1. Apium graveolens	10	X	FACW
2. Cyperus sp.	10	X	FACW
3. Plantago major	10	X	FAC
4. Melilotus albus	5		UPL
5.			
6.			
7.			
8.			
	35 = Total Cover		
Woody Vine Stratum (Plot size: 8'x20')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Hydrophytic vegetation present.

Note: Ground surface covered in leaf litter and willow "fluff" from the seed heads.
Photo 32.

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-7	10YR 3/3	100	n/a	n/a	n/a	n/a	loamy	sand
7-12	10YR 3/1	100	n/a	n/a	n/a	n/a	sandy	loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Hydric soil present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ✓ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): > 6"

Water Table Present? Yes ✓ No ___ Depth (inches): 8"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 1"

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Four primary indicators and three secondary indicators present - wetland hydrology criterion is met.

FAC-Neutral test = 4:1 / met

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SD River Trail - Carlton Oaks Golf Course Sgmt City/County: Santee&San Diego/San Diego Sampling Date: 6/23/16

Applicant/Owner: SANDAG State: CA Sampling Point: 5

Investigator(s): S. Nigro & T. Rachels Section, Township, Range: unsectioned lands in El Cajon Land Grant

Landform (hillslope, terrace, etc.): creek bank / slope Local relief (concave, convex, none): concave Slope (%): _____

Subregion (LRR): C Lat: 32.83779488340 Long: -117.00780058600 Datum: _____

Soil Map Unit Name: Riverwash (Soil Map Symbol Rm) NWI classification: PFOC-frshwtr/frstd scrb

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Sampling point located in southern riparian forest habitat upslope of river channel on south side of berm adjacent to the golf course. Area does not meet Corps wetland criteria or non-wetland Waters of the U.S. criteria. Sampling point located in CDFW riparian habitat.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 4'x20')			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 4'x20')			
1. Acer negundo	5	X	FACW
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 4'x20')			
1. Oenothera elata	10	X	FACW
2. Plantago major	7	X	FAC
3. Cyperus eragrostis	5		FACW
4. Apium graveolens	5		FACW
5. Erigeron canadensis	3		FACU
6.			
7.			
8.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 4'x20')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Hydrophytic vegetation present.

Photos 33-35.

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100	n/a	n/a	n/a	n/a	loam	
5-13	10YR 3/2	98	10YR 5/6	2	C	M	loam	does not meet any criterion

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soil indicator met / hydric soil absent.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Three secondary indicators of wetland hydrology present / wetland hydrology criterion met.

FAC-Neutral test = 4:1 / met

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SD River Trail - Carlton Oaks Golf Course Sgmt City/County: Santee&San Diego/San Diego Sampling Date: 6/23/16

Applicant/Owner: SANDAG State: CA Sampling Point: 6

Investigator(s): S. Nigro & T. Rachels Section, Township, Range: unsectioned lands in El Cajon Land Grant

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): _____

Subregion (LRR): C Lat: 32.84320940390 Long: -117.00071905700 Datum: _____

Soil Map Unit Name: Riverwash (Soil Map Symbol Rm) NWI classification: not on NWI map

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____ No ✓	
Wetland Hydrology Present?	Yes _____ No ✓	

Remarks:

Sampling point located in southern riparian forest habitat. Area does not meet Corps wetland criteria or non-wetland Waters of the U.S. criteria. Sampling point located in CDFW riparian habitat.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	10	X	FAC
2.			
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=15')			
1. Populus fremontii	15	X	FAC
2. Baccharis salicifolia	10	X	FAC
3. Salix lasiolepis	5		FACW
4. Isocoma menziesii	10	X	FAC
5.			
	40 = Total Cover		
Herb Stratum (Plot size: r=10')			
1. Juncus acutus ssp leopoldii	30	X	FACW
2. Anemopsis californica	30	X	OBL
3. Juncus mexicanus	10		FACW
4. Melilotus albus	10		UPL
5. Polypogon monspeliensis	5		FACW
6. Cortaderia sp.	5		FACU
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: r=10')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Hydrophytic vegetation present.

Photos 43-44.

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/3	100	n/a	n/a	n/a	n/a	loam	
10-14	10YR 4/3	95	n/a	n/a	n/a	n/a	sandy lm	
10-14	10YR 2/1	5	n/a	n/a	n/a	n/a	sandy lm	sandy organic material/staining
14-18	10YR 3/3	100	n/a	n/a	n/a	n/a	loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soil indicator met / hydric soil absent.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No primary and only one secondary indicator of wetland hydrology present / wetland hydrology criterion not met.

FAC-Neutral test = 5:2 / met

Appendix D

SAMPLING POINT AND SITE PHOTOS

Sampling Point 1. Looking west at southern riparian forest in the western portion of the study area. Sampling point is within CDFW jurisdictional habitat.

Sampling Point 2. Looking south at disturbed wetland in the western portion of the study area. Sampling point is within wetland Waters of the U.S. and CDFW jurisdictional habitat.

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Sampling Point and Site Photos

JURISDICTIONAL DELINEATION REPORT FOR THE
SAN DIEGO RIVER TRAIL – CARLTON OAKS SEGMENT PROJECT
Appendix D

Sampling Point 3. Looking east at southern riparian forest along the San Diego River in the central portion of the study area. Sampling point is within CDFW jurisdictional habitat.

Sampling Point 4. Looking north at southern riparian forest along the San Diego River in the central portion of the study area. Sampling point is within wetland Waters of the U.S. and CDFW jurisdictional habitat.

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Sampling Point and Site Photos

JURISDICTIONAL DELINEATION REPORT FOR THE
SAN DIEGO RIVER TRAIL – CARLTON OAKS SEGMENT PROJECT
Appendix D

Sampling Point 5. Looking north at southern riparian forest in the central portion of the study area, just upslope of Sampling Point 4. Sampling point is within CDFW jurisdictional habitat.

Sampling Point 6. Looking north at southern riparian forest in the eastern portion of the study area. Sampling point is within CDFW jurisdictional habitat.

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Photo 1. Looking south at freshwater marsh and southern willow scrub along Sycamore Creek in the western portion of the study area.

Photo 2. Looking east at the existing dirt trail on top of the berm in the western portion of the study area.

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Sampling Point and Site Photos

JURISDICTIONAL DELINEATION REPORT FOR THE
SAN DIEGO RIVER TRAIL – CARLTON OAKS SEGMENT PROJECT
Appendix D

Photo 3. Looking east at southern willow scrub in the central portion of the study area. This habitat is north of the berm that abuts the San Diego River.

Photo 4. Looking east at the existing dirt trail on top of the berm in the central portion of the study area.

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Photo 5. Looking west at the San Diego River channel and associated riparian forest habitat in the central portion of the study area.

Photo 6. Looking southwest at a stand of southern riparian forest adjacent to the golf course in the eastern portion of the study area.

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Photo 7. Looking north at a small stand of southern riparian forest east of the golf course maintenance building in the eastern portion of the study area.

Photo 8. Looking north at the existing San Diego River Trail just east of the golf course.

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Photo 9. Looking east at the existing San Diego River Trail just east of the golf course.

Photo 10. Looking south at riparian forest along the existing San Diego River Trail in the eastern portion of the study area.

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Photo 11. Looking east at a small bridge crossing of non-wetland Waters of the U.S. and CDFW riparian habitat in the eastern portion of the study area.

Photo 12. Looking east at the undeveloped trail below the Carlton Hills Boulevard bridge in the eastern portion of the study area.

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Photo 13. Looking northwest at disturbed southern riparian forest in Mast Park, just east of Carlton Hills Boulevard.

Photo 14. Looking east at an existing dirt trail in Mast Park in the eastern portion of the study area.

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