# FINAL INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

# LAGUNA NIGUEL WETLANDS OPERATIONS AND MAINTENANCE PROJECT

**PREPARED FOR:**

City of Laguna Niguel
30111 Crown Valley Parkway
Laguna Niguel, CA 92677
Contact: Hal Ghafari
(949) 362-4384

**PREPARED BY:**

ICF
49 Discovery, Suite 250
Irvine, CA 92618
Contact: Tanya Jones
(949) 333-6642

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# Acronyms and Abbreviations

| | |
|---|---|
| AB | Assembly Bill |
| AMSL | above mean sea level |
| AQMP | Air Quality Management Plan |
| Basin | South Coast Air Basin |
| bgs | below ground surface |
| BMPs | best management practices |
| BO | Biological Opinion |
| CAAQS | California Ambient Air Quality Standards |
| CAGN | California gnatcatcher |
| CAL FIRE | California Department of Forestry and Fire Protection |
| Caltrans | California Department of Transportation |
| CARB | California Air Resources Board |
| CCR | California Code of Regulations |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| City | City of Laguna Niguel |
| CMP | Congestion Management Program |
| Construction General Permit | National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Constructions and Land Disturbance Activities |
| CRHR | California Register of Historical Resources |
| CUSD | Capistrano Unified School District |
| dBA | A-weighted decibel |
| DPS | Distinct Population Segment |
| EIR | environmental impact report |
| EPA | U.S. Environmental Protection Agency |
| FEMA | Federal Emergency Management Agency |
| FGC | California Fish and Game Code |
| FMMP | Farmland Mapping and Monitoring Program |
| GHG | greenhouse gas |
| HUC | hydrologic unit code |
| I-5 | Interstate 5 |

| | |
|---|---|
| IS | initial study |
| LBV | least bell's vireo |
| Leq | equivalent sound level |
| LNGP | Laguna Niguel General Plan |
| LUST | Leaking Underground Storage Tank |
| MBTA | Migratory Bird Treaty Act |
| MND | mitigated negative declaration |
| MNWD | Moulton Niguel Water District |
| MRZ | Mineral Resource Zone |
| NAAQS | National Ambient Air Quality Standards |
| NAHC | Native American Heritage Commission |
| NRHP | National Register of Historic Places |
| O&M | operation and maintenance |
| O&M Plan | operation and maintenance plan |
| $O_3$ | ozone |
| OCFA | Orange County Fire Authority |
| OCSD | Orange County Sheriff's Department |
| PM10 | particulate matter 10 microns or less in diameter |
| PM2.5 | particulate matter 2.5 microns or less in diameter |
| PRC | Public Resources Code |
| project | Laguna Niguel Wetlands Operations and Maintenance Project |
| RCEM | Road Construction Emissions Model |
| RTP/SCS | Regional Transportation Plan/Sustainable Communities Strategy |
| RWQCB | Regional Water Quality Control Board |
| SCAG | Southern California Association of Governments |
| SCAQMD | The South Coast Air Quality Management District |
| SOCWA | South Orange County Wastewater Authority |
| SWFL | southwestern willow flycatcher |
| SWPPP | Storm Water Pollution Prevention Plan |
| TMDL | Total Maximum Daily Load |
| USACE | U.S. Army Corps of Engineers |
| USFWS | U.S. Fish and Wildlife Service |
| Williamson Act | California Land Conservation Act of 1975 |

Chapter 1
# Introduction and Overview

## Overview

The City of Laguna Niguel (City), as the lead agency under the California Environmental Quality Act (CEQA), has prepared this initial study (IS) and proposed mitigated negative declaration (MND) to evaluate the potential environmental effects associated with the proposed Laguna Niguel Wetlands Operations and Maintenance Project (project), located at 13 wetlands sites throughout the Aliso Creek watershed in the City of Laguna Niguel, Orange County, California.

This chapter includes a brief overview of the requirements pursuant to CEQA, the scope of the environmental analysis, the document's organizational structure and content, and a list of the required discretionary approvals needed to implement the proposed project.

## Preliminary Review under CEQA

When a proposed project is a discretionary action and meets the definition of a project under CEQA, the lead agency is required to prepare an environmental impact analysis and disclosure document (State CEQA Guidelines Sections 15377 ["Private Project"] and 15378 ["Project"]). The intent of the document is to: (1) inform the decision-maker, responsible and trustee agencies, and the general public of the environmental effects of the project, and (2) mitigate those effects to the extent feasible in an attempt to reduce all potential impacts to a less-than-significant level.

Unless it is already determined that an environmental impact report (EIR) will be prepared or the proposed project falls within one of the CEQA-defined exemption classes (State CEQA Guidelines Sections 15250–15253 ["Statutory Exemptions"] and Sections 15300–15332 ["Categorical Exemptions"]), the lead agency generally starts the documentation process by preparing an IS. Once completed, the IS provides the lead agency with direction on which type of CEQA documentation is appropriate for a specific project. When an IS determines that a project may result in a potentially significant and unavoidable impact, an EIR is appropriate. For projects that would have little to no effect on the environment, a negative declaration is generally appropriate. For projects with a potentially significant impact that can be mitigated to a less-than-significant level and would consequently not result in significant unavoidable impacts, an MND is prepared.

Based on the results of the IS, the City has determined that the proposed project would result in less-than-significant impacts after mitigation is incorporated, and no significant unavoidable impacts would occur. Therefore, the appropriate CEQA compliance document is an MND.

## Preparation of an Initial Study/Mitigated Negative Declaration

The preparation of an IS/MND is governed by two principal sets of documents: CEQA (Public Resources Code [PRC] Section 21000, et seq.) and the State CEQA Guidelines (California Code of

Regulations [CCR] Section 15000, et seq.). Specifically, State CEQA Guidelines Section 15063 ("Initial Study") and Sections 15070–15075 ("Negative Declaration Process") guide the process for the preparation of an IS/MND. Where appropriate and supportive to an understanding of the issues, reference is made either to the statute, the State CEQA Guidelines, or appropriate case law.

This IS/MND, as required by State CEQA Guidelines Section 15071, contains (1) a brief description of the project, (2) the project location, (3) a proposed finding that the project will not have a significant effect on the environment, (4) a copy of the IS documenting support for the findings, and (5) all mitigation measures to be implemented.

# Environmental Issues Addressed

This IS/MND evaluates the proposed project's effects on the following resource topics.

- Aesthetics
- Agriculture and forestry resources
- Air quality
- Biological resources
- Cultural resources
- Geology and soils
- Greenhouse gas emissions
- Hazards and hazardous materials
- Hydrology and water quality
- Land use and planning
- Mineral resources
- Noise
- Population and housing
- Public services
- Recreation
- Transportation and traffic
- Tribal Cultural Resources
- Utilities and service systems
- Mandatory findings of significance

The impact analysis for each of these topics is provided in Chapter 3, "Environmental Analysis."

# Document Organization and Content

The content and format of the IS/MND is designed to meet the requirements of CEQA. This report is organized as follows:

- Chapter 1, "Introduction and Overview," identifies the intent and requirements of the IS/MND and a list of the environmental resources and issue areas to be analyzed.
- Chapter 2, "Project Description and Environmental Setting," describes the location, general environmental setting, project background, project objectives, project components, avoidance and minimization measures that would be incorporated as part of the proposed project, and required discretionary actions.
- Chapter 3, "Environmental Analysis," presents the environmental setting and impact analysis for each resource topic.
- Chapter 4, "References," identifies all sources and individuals cited in this IS/MND.
- Chapter 5, "List of Preparers," identifies the individuals who prepared this report and their areas of technical expertise.

# Preparation of Final IS/MND

The draft IS/MND and Notice of Availability and Intent to Adopt the IS/MND were circulated to public agencies and interested parties on April 25, 2019, for a 30-day public review period that ended on May 25, 2019. During the public review period, comment letters were received from the South Coast Air Quality Management District (SCAQMD) and Orange County Public Works. One comment letter from the California Department of Fish and Wildlife (CDFW) was received on May 31, 2019, and the State Clearinghouse submitted a letter on May 28, 2019, acknowledging the City has complied with the requirements for review of draft environmental documents. All four letters are included in Appendix F, and Table 1-1 presents a list of those agencies who provided comments on the draft IS/MND, the date the comments were received, and the page number where comments are addressed. The City has made revisions in this final IS/MND as necessary to clarify, amplify, or make insignificant modifications. None of the comments raised affect the conclusions or determinations contained within the draft IS/MND that was circulated to the public.

Additions to the text in the draft IS/MND are indicated as underline text, and deletions are indicated as ~~strikeout~~ text in this final IS/MND. These modifications do not alter the conclusions of the environmental analysis and do not constitute "substantial revisions" within the meaning of State CEQA Guidelines Section 15073.5.

**Table 1-1. Public Comments Received on the Draft IS/MND**

| Public Agency | Date | Comment Summary | Page(s) Comments are Addressed |
|---|---|---|---|
| South Coast Air Quality Management District | May 14, 2019 | SCAQMD recommends the City include quantitative estimations of the proposed project's operational emissions. SCAQMD also notes that the operation of portable engines and portable equipment units of 50 horsepower or greater that emit particulate matter require a permit from South Coast AQMD or registration with the Portable Equipment Registration Program (PERP) through the California Air Resources Board (CARB). | Pages 3-11 through 3-13 |
| Orange County Public Works | May 23, 2019 | All work within or adjacent to any Orange County Flood Control District right-of-way for flood control facilities shall be conducted so as not to adversely affect the channel structure integrity, hydraulic flow conditions, access, and maintainability. Furthermore, any proposed work within Orange County Flood Control District right-of-way will require the City to obtain an Encroachment Permit. If an Encroachment Permit is required, Orange County Flood Control District will need more information on best management practices. | Page 2-1 |
| State Clearinghouse | May 28, 2019 | This letter acknowledges that the City has complied with the State Clearinghouse review requirements for draft environmental documents. | -- |
| California Department of Fish and Wildlife | May 31, 2019 | If the proposed project, project construction, or any project-related activity during the life of the proposed project will result in take of a species designated as endangered or threatened or a candidate for listing under the California Endangered Species Act, CDFW recommends that the City seek appropriate take authorization under the California Endangered Species Act prior to implementing the project.<br>The MND should be of sufficient detail and resolution to satisfy the requirements for a CESA ITP. | Pages 3-19 through 3-20 |
| | | CDFW strongly encourages the City to revisit its analysis of steelhead's potential to occur within the project area, and request that the MND include an in-depth discussion of steelhead in the Biological Resources section. | Pages 3-16 through 3-18; page 3-26 |
| | | In order to ensure that impacts on sensitive plant species will be less than significant, the Biological Technical Report should include recent, focused Special-Status Native Plant Populations and Natural Communities surveys conducted at the appropriate time of year, when the species are identifiable. The MND should also include mitigation that includes pre-construction surveys for | Page 3-17 |

| Public Agency | Date | Comment Summary | Page(s) Comments are Addressed |
|---|---|---|---|
| | | sensitive plant species, conducted within the species' blooming period and prior to beginning operations and maintenance activities. | |
| | | The MND should include a discussion of how rehabilitating 2.37 acres of wetland and riparian habitat is appropriate to mitigate 4.26 acres of permanent impacts on riparian vegetation communities. The MND should also provide an analysis concerning the mitigation of 7.02 acres of upland vegetation communities, as described in Table 4-1, to a level below significance. | Page 3-22 and 3-23 |
| | | With regard to operations and maintenance activities, CDFW suggests additional recommendations in order to avoid and minimize impacts on biological resources. | No edits made |
| | | CDFW recommends that the MND identify the methods to be used to control rodents. | Pages 2-9, 2-10; and 3-24 |
| | | CDFW requests clarification on the mitigation history of the 13 wetland sites, which wetland site is a previous mitigation site, and which wetland site will be "affected fully." The MND should also clarify whether the City anticipates using the wetland sites for any advanced mitigation or for mitigation banking purposes. | Pages 2-7, 3-21, and 3-24 |
| | | CDFW encourages the City to analyze the potential for Polyphagous and Kuroshio shot hole borers, and to require monitoring of vegetation that may be infested with them within the project area. | Pages 2-9, 2-10; and 3-24 |

Chapter 2
# Project Description and Environmental Setting

## Overview

The proposed project would involve implementation of the operation and maintenance (O&M) plan (O&M Plan) for the project, which proposes a systematic program for flood control maintenance in 13 wetland sites throughout the Aliso Creek Watershed in the City of Laguna Niguel, Orange County, California. Details of the proposed project, including the existing conditions, location, project components, and O&M activities, are included below.

## Existing Setting

### City of Laguna Niguel

The City of Laguna Niguel is approximately 14.72 square miles and is in the southwestern area of Orange County, California. The City was incorporated in 1989 as one of the first major planned communities in Southern California and is described as having a "Sea Country" atmosphere because of its coastal orientation. The City has been developed as a bedroom community with a series of master planned communities and specific plans among the parks, trails, and landscaped highway medians and slopes. Adjacent areas include Dana Point to the south; San Juan Capistrano to the southeast; the County of Orange (Aliso and Woods Regional Park), Aliso Viejo, and Laguna Beach to the west; and Laguna Hills and Mission Viejo to the north.

### Location and Surrounding Land Uses

The 13 wetland sites are within the City of Laguna Niguel, Orange County, California. Figure 2-1 shows a general vicinity map and Figure 2-2 shows the location of each wetland site. All sites occur within City maintained areas. Wetland sites either occur within City-owned property or the City retains a maintenance easement over them to allow for the proposed O&M activities. Each site is generally in a suburban, mostly developed environment. Land uses in the local vicinity of the project study areas include residential and commercial developments, undeveloped open space, transportation services, roads, and recreational uses such as pedestrian and bicycle trails, schools, and parks.

The project areas occur in flat valleys and along steep slopes with elevations ranging from roughly 150 feet above mean sea level (AMSL) at the northern end near Laguna Niguel Regional Park, to approximately 600 feet AMSL at the southeastern end of Chapparosa Park (Google Earth 2016).

### Existing Site Conditions

The 13 wetland sites are situated in a suburban environment, and they range in size from approximately 1 to 16 acres. Residential development and open space influence the structure and functionality of these systems.

- Three sites are along the east and west sides of Alicia Parkway:
  - Site 1 – West Alicia Wetland
  - Site 2 – East Alicia Wetland
  - Site 3 – North Alicia Wetland
- Four sites are along a continuous stretch of Upper Sulphur Creek along Crown Valley Parkway:
  - Site 5 –Sulphur Creek Park Wetland Enhancement Area
  - Site 7 – Rancho Niguel Master Association Upper Sulphur Creek
  - Site 8 – Crowne Royale Homeowners Association Upper Sulphur Creek
  - Site 9 – Niguel Ridge Homeowners Association Upper Sulphur Creek
- Four sites are situated in and around Crown Valley Park along Sulphur Creek:
  - Site 4 – Crown Valley Park Wetland Creation Area/J03P01
  - Site 6 – Sulphur Creek Wetland Creation Area
  - Site 10 – U.S. Army Corps of Engineers (USACE) Sulphur Creek Restoration Project
  - Site 11 – Sulphur Creek in Crown Valley Community Park
- One site consists of four distinct wetland features surrounding La Paz Park:
  - Site 12 – La Paz Park Wetlands
- Finally, one site is within the Salt Creek Watershed and includes the Salt Creek Mainstem and several unnamed tributaries to Salt Creek:
  - Site 13 – Salt Creek Corridor Habitat Restoration Area

The proposed project O&M Plan included in Appendix A includes detailed descriptions of each of the 13 sites, including unique history and adjacent land uses, hydrology and topography, vegetation, and aquatic resources. Table 2-1 and the following descriptions below summarize the features of each site.

**Table 2-1. Site Characteristics**

| Site Name and Number | Location | Acres | Predominant Features |
|---|---|---|---|
| West Alicia Wetland (Site 1) | West side of Alicia Parkway | 4.76 | Existing restoration site; restored channel and tributary to Aliso Creek |
| East Alicia Wetland (Site 2) | East side of Alicia Parkway | 1.30 | Small tributary to Aliso Creek |
| North Alicia Wetland (Site 3) | East side of Alicia Parkway, north of Kite Hill Drive | 0.60 | Six human-made retention basins linked by small over-flow channels |
| Crown Valley Park Wetland Creation Area/J03P01 (Site 4) | North of Crown Valley Parkway and adjacent to Crown Valley Community Park | 4.16 | Segment of Sulphur Creek supporting narrow low flow channel |




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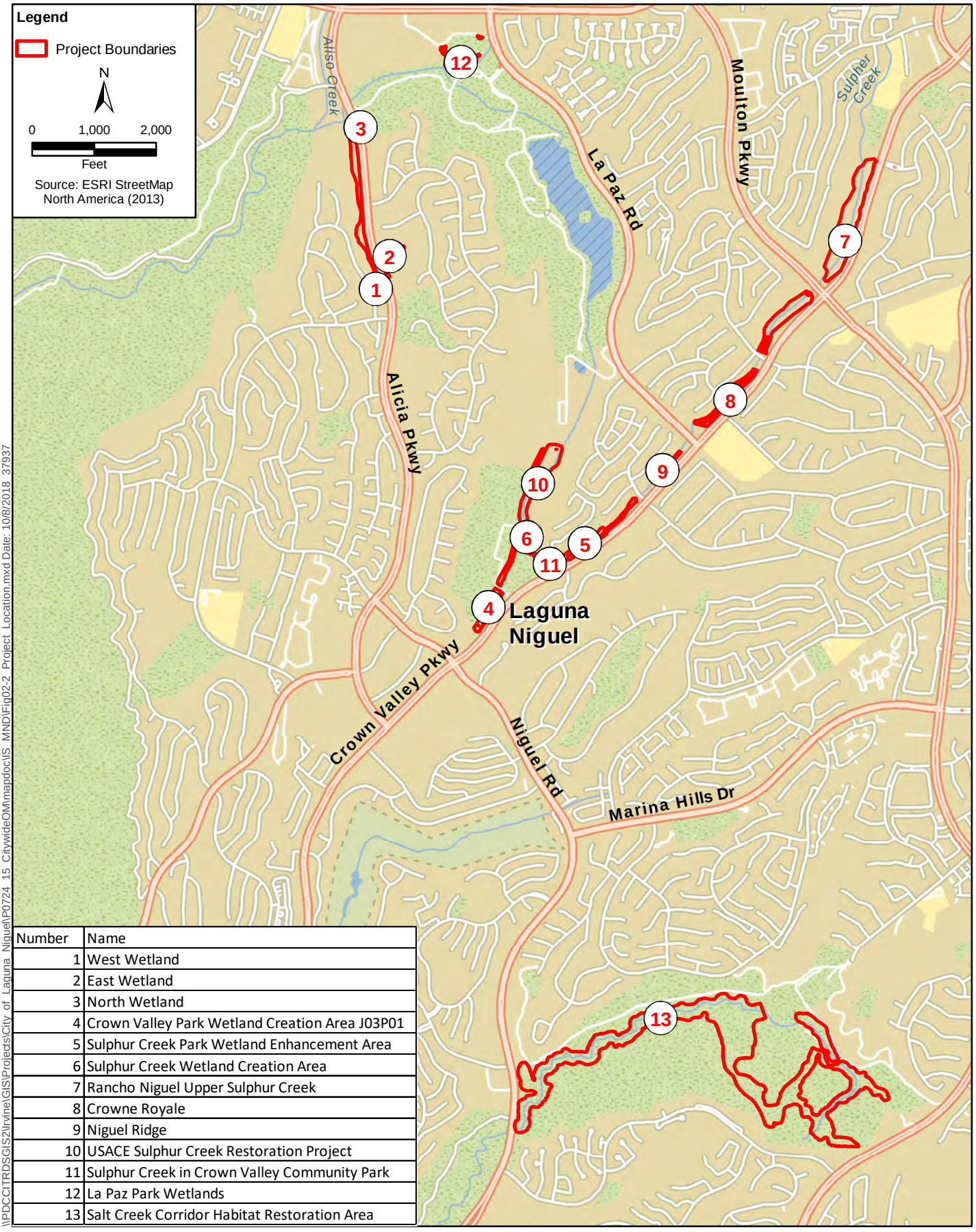
**Figure 2-1**
**Vicinity Map**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**




| Number | Name |
|---|---|
| 1 | West Wetland |
| 2 | East Wetland |
| 3 | North Wetland |
| 4 | Crown Valley Park Wetland Creation Area J03P01 |
| 5 | Sulphur Creek Park Wetland Enhancement Area |
| 6 | Sulphur Creek Wetland Creation Area |
| 7 | Rancho Niguel Upper Sulphur Creek |
| 8 | Crowne Royale |
| 9 | Niguel Ridge |
| 10 | USACE Sulphur Creek Restoration Project |
| 11 | Sulphur Creek in Crown Valley Community Park |
| 12 | La Paz Park Wetlands |
| 13 | Salt Creek Corridor Habitat Restoration Area |

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**Figure 2-2**
**Project Location**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

| Site Name and Number | Location | Acres | Predominant Features |
|---|---|---|---|
| Sulphur Creek Park Wetland Enhancement Area (Site 5) | North side of Crown Valley Parkway, east of Central Park Drive | 2.41 | Restored segment of Sulphur Creek |
| Sulphur Creek Wetland Creation Area (Site 6) | North of Crown Valley Parkway, adjacent to Crown Valley Community Park | 0.71 | Existing restoration site; high flow channel and associated braided channels of Sulphur Creek |
| Rancho Niguel Master Association Upper Sulphur Creek (Site 7) | Between Crown Valley Parkway and adjacent residential development | 16.38 | Restored 4-foot-wide low-flow channel in upper Sulphur Creek |
| Crowne Royale Homeowners Association Upper Sulphur Creek (Site 8) | Between Crown Valley Parkway and adjacent residential development; south of Site 7 | 3.75 | Restored 4-foot-wide low-flow channel segment of Sulphur Creek |
| Niguel Ridge Homeowners Association Upper Sulphur Creek (Site 9) | Between Crown Valley Parkway and adjacent residential development; south of Site 8 | 2.20 | Restored 4-foot-wide low-flow channel segment of Sulphur Creek |
| USACE Sulphur Creek Restoration Project (Site 10) | North of Crown Valley Parkway directly downstream of the Sulphur Creek Wetland Creation Area site in Crown Valley Community Park | 7.16 | Restored 4-foot-wide low-flow channel segment of Sulphur Creek |
| Sulphur Creek in Crown Valley Community Park (Site 11) | Crown Valley Community Park | 0.83 | 5-foot-wide low-flow channel segment of Sulphur Creek |
| La Paz Park Wetlands (Site 12) | La Paz Sports Park | 1.20 | One 6-foot-wide unnamed tributary to Sulphur Creek and two small 3-foot-wide side drainage channels |
| Salt Creek Corridor Habitat Restoration Area (Site 13) | Salt Creek Bike Trail and Niguel Road | 12.31 | Salt Creek Mainstem and six unnamed tributaries to Salt Creek |

## West Alicia Wetland (Site 1)

Site 1 occurs on the west side of Alicia Parkway (Figures 2-3A through 2-3F). Site 1 consists of a 4.76-acre restored channel and contains a tributary to Aliso Creek, a perennial drainage that flows north through the site along Alicia Parkway for approximately 2,734 feet from a small concrete collection channel to a large concrete culvert, eventually flowing outside of the project area to an unnamed tributary to Aliso Creek. There are several small concrete outfalls that collect runoff from the surrounding hillside to the west and directly flow into this drainage as it proceeds northward.

## East Alicia Wetland (Site 2)

Site 2 totals 1.30 acres and occurs on the east side of Alicia Parkway, to the south of Kite Hill Drive (Figures 2-4A through 2-4B). Surface water, when present, appears to settle in a ponded area before flowing into a concrete stormwater collection ditch that transports flow to the north.

## North Alicia Wetland (Site 3)

Site 3 occurs on the east side of Alicia Parkway, to the north of Kite Hill Drive (Figure 2-5). This site consists of a 0.60-acre network of six human-made retention basins linked by small over-flow channels. A small (approximately 4-foot-wide) concrete box culvert contributes water to the most upstream basin in the southeastern corner of the project area. At the downstream (northwestern) corner, a culvert receives water from Site 2 and flows toward an unnamed tributary to Aliso Creek.

## Crown Valley Park Wetland Creation Area/J03P01 (Site 4)

Site 4 occurs north of Crown Valley Parkway and adjacent to Crown Valley Community Park (Figures 2-6A through 2-6C). Site 4 is a 4.16-acre segment of Sulphur Creek, a perennial drainage, which flows northeast for approximately 1,940 feet through the project site within the Crown Valley Community Park grounds to its confluence with Sulphur Creek. The wetland is bound on the southern edge by a large concrete culvert and concrete low flow channel, and on the northern edge by a pedestrian bridge that crosses the drainage. The drainage is also bisected by the Community Park Road dip crossing. The upstream portion of Site 4 consists of braided channels between the dip crossing and the upstream culvert. The channel widens at a shallow scour pool below the culvert. In the downstream portion of Site 4, between the Community Park Bridge and a pedestrian footbridge, the drainage is substantially confined by adjacent land use activities (playing fields and sidewalk).

This site is under construction under current permits issued by the California Department of Fish and Wildlife (CDFW) and the Regional Water Quality Control Board (RWQCB). The existing Crown Valley Park Road dip crossing structure, grouted rock slopes, and grouted rock apron in the stream have been replaced with a 48-foot-wide dual arched culvert crossing, associated non-grouted rock rip-rap blanket, and associated concrete grade control structures at the upstream and downstream ends of the rock rip-rap. The pedestrian boardwalk across the stream has also been moved and replaced. A sediment forebay, incorporating a trash boom, was constructed within the stream at the upstream end of the project and is equipped with a floating trash boom with a 36-inch underwater skirt. A maintenance access ramp will be constructed to facilitate routine trash and sediment removal. A treatment wetland has also been constructed and will be planted with emergent vegetation. The low flow channel will be maintained to enter this treatment wetland and then flow into the constructed meandering bioswales. The proposed project would include the maintenance of these new structures.

## Sulphur Creek Park Wetland Enhancement Area (Site 5)

Site 5 covers 2.41 acres and occurs on the north side of Crown Valley Parkway, just east of Central Park Drive (Figure 2-7). Site 5 has been restored from previous concrete channelization. Within the project area, Sulphur Creek is a small, approximately 4-foot-wide channel that flows southeast toward Crown Valley Community Park.

## Sulphur Creek Wetland Creation Area (Site 6)

Site 6 occurs north of Crown Valley Parkway and adjacent to Crown Valley Community Park, immediately south of the USACE Sulphur Creek Restoration Project (Figure 2-8). Site 6 is a high-flow channel and is associated with braided channels of Sulphur Creek within the project site. This is a restoration site and is a 0.71-acre drainage area that flows in a northern direction toward Aliso Creek.




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**Figure 2-3A Overview**
**West Alicia Wetland (Site 1)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

1A: Inlet
Vegetation clearing/removal
Sediment Removal Removal of noxious weeds
20 foot by 20 foot Area
USACE Impacts: 290 Square Feet
CDFW Impacts: 1038 Square Feet

1B: Low-Flow Channel
Sediment Removal
Cattail/Freshwater Marsh Removal
3 feet wide
USACE Impacts: 7412 Square Feet
CDFW Impacts: 7412 Square Feet

1. West Wetland

Alicia Pkwy

Alicia Pkwy

Aliso & Wood Canyons Park

bing

N

0 25 50
Feet
1 inch = 50 feet

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**Figure 2-3B**
**West Alicia Wetland (Site 1)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

1. West Wetland

Aliso & Wood Canyons Park

1I: Weir- Pool Complex
Sediment Removal
Vegetation clearing/removal

Within serviceable structure plus 10ft x 15ft pool
USACE Impacts: 303 Square Feet
CDFW Impacts: 303 Square Feet

1J: Weir- Pool Complex
Sediment Removal
Vegetation clearing/removal
Within serviceable structure plus 10ft x 15ft pool
USACE Impacts: 300 Square Feet
CDFW Impacts: 300 Square Feet

Alicia Pkwy

Alicia Pkwy

bing

N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-3C**
**West Alicia Wetland (Site 1)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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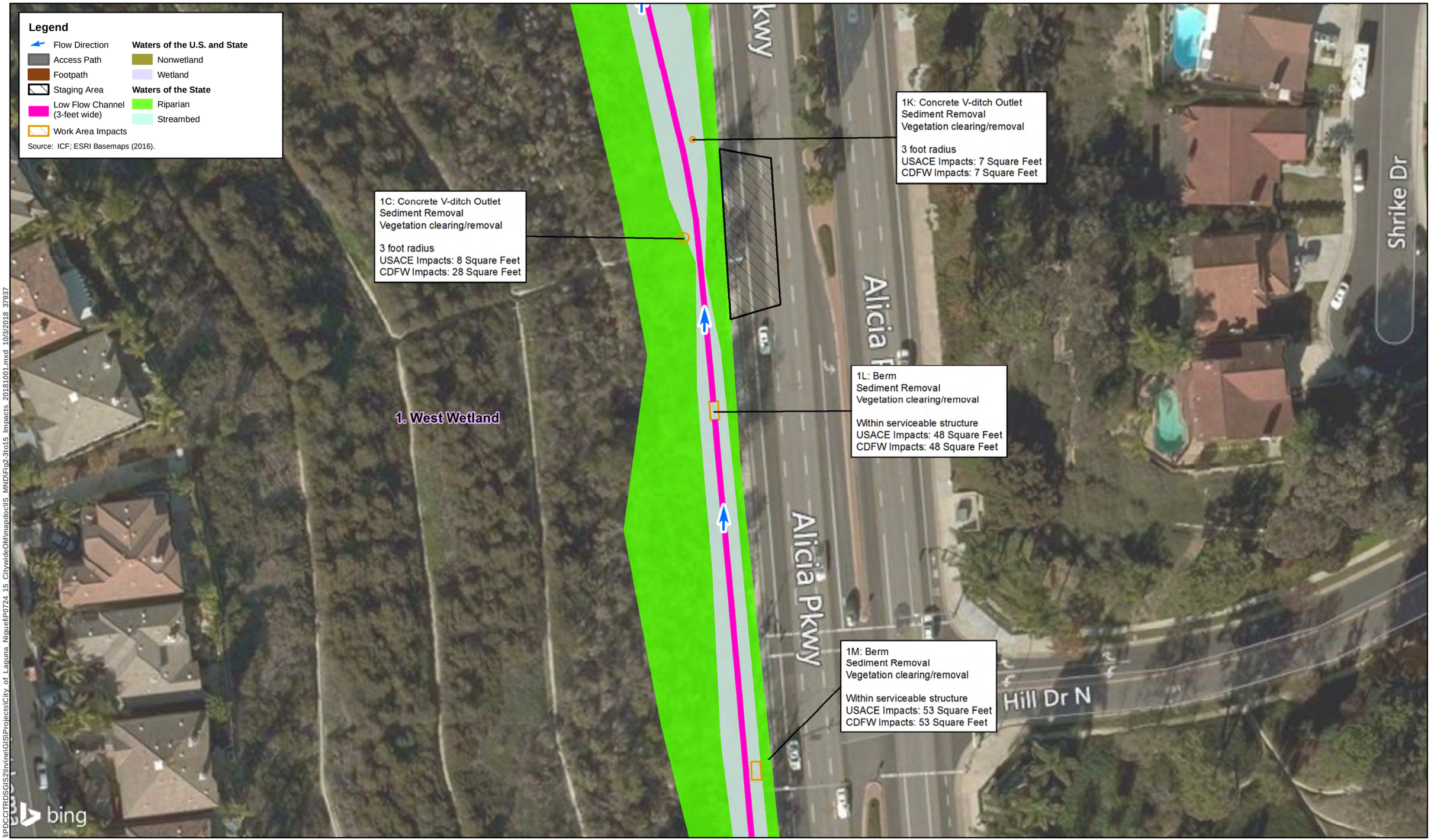


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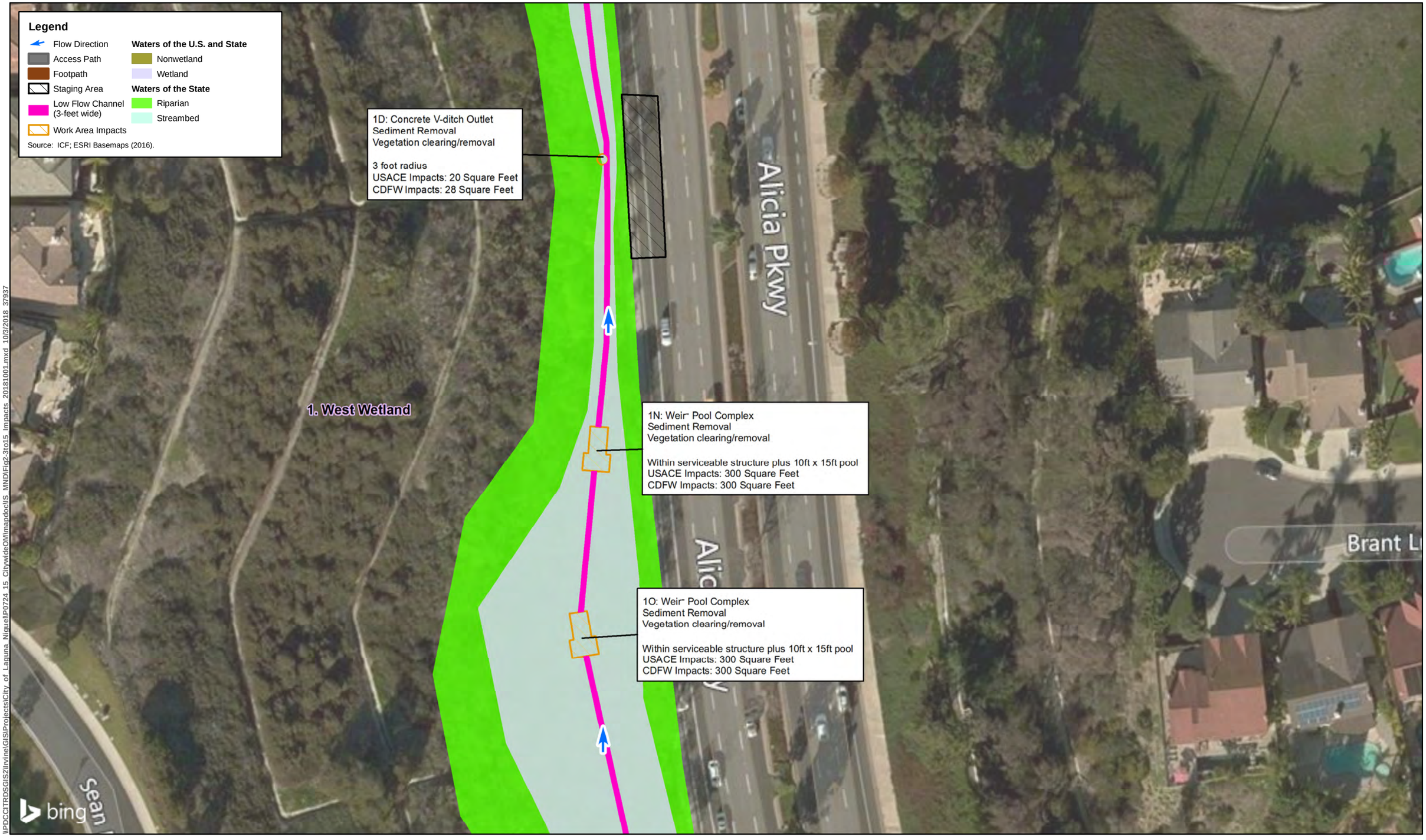
N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-3D**
**West Alicia Wetland (Site 1)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**




N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-3E**
**West Alicia Wetland (Site 1)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-3F**
**West Alicia Wetland (Site 1)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

1F: Concrete V-ditch Outlet
Sediment Removal
Vegetation clearing/removal

3 foot radius
USACE Impacts: 26 Square Feet
CDFW Impacts: 28 Square Feet

1G: Weir Pool Complex
Sediment Removal
Vegetation clearing/removal

Within serviceable structure plus 10ft x 15ft pool
USACE Impacts: 300 Square Feet
CDFW Impacts: 300 Square Feet

1H: Outlet
Sediment Removal
Vegetation clearing/removal

20 foot radius
USACE Impacts: 673 Square Feet
CDFW Impacts: 1254 Square Feet

1. West Wetland

Sean Dr

Alicia Pkwy

bing

N

0 25 50
Feet
1 inch = 50 feet

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**Figure 2-3G**
**West Alicia Wetland (Site 1)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**




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N

0 250 500
Feet
1 inch = 500 feet

**Figure 2-4A Overview**
**East Alicia Wetland (Site 2)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

2A: Outlet
Sediment Removal
Vegetation clearing/removal

3 foot radius above inlet
10 foot radius downstream of inlet
USACE Impacts: 290 Square Feet
CDFW Impacts: 558 Square Feet

2C: Outlet
Sediment Removal
Vegetation clearing/removal

10 foot radius
USACE Impacts: 0 Square Feet
CDFW Impacts: 314 Square Feet

2B: Low-Flow Channel
Sediment Removal
Cattail/Freshwater Marsh Removal
3 feet wide
USACE Impacts: 1828 Square Feet
CDFW Impacts: 1828 Square Feet

2E: Riser
Sediment Removal
Vegetation clearing/removal

10 foot radius
USACE Impacts: 45 Square Feet
CDFW Impacts: 314 Square Feet

2. East Wetland

Alicia P

bing

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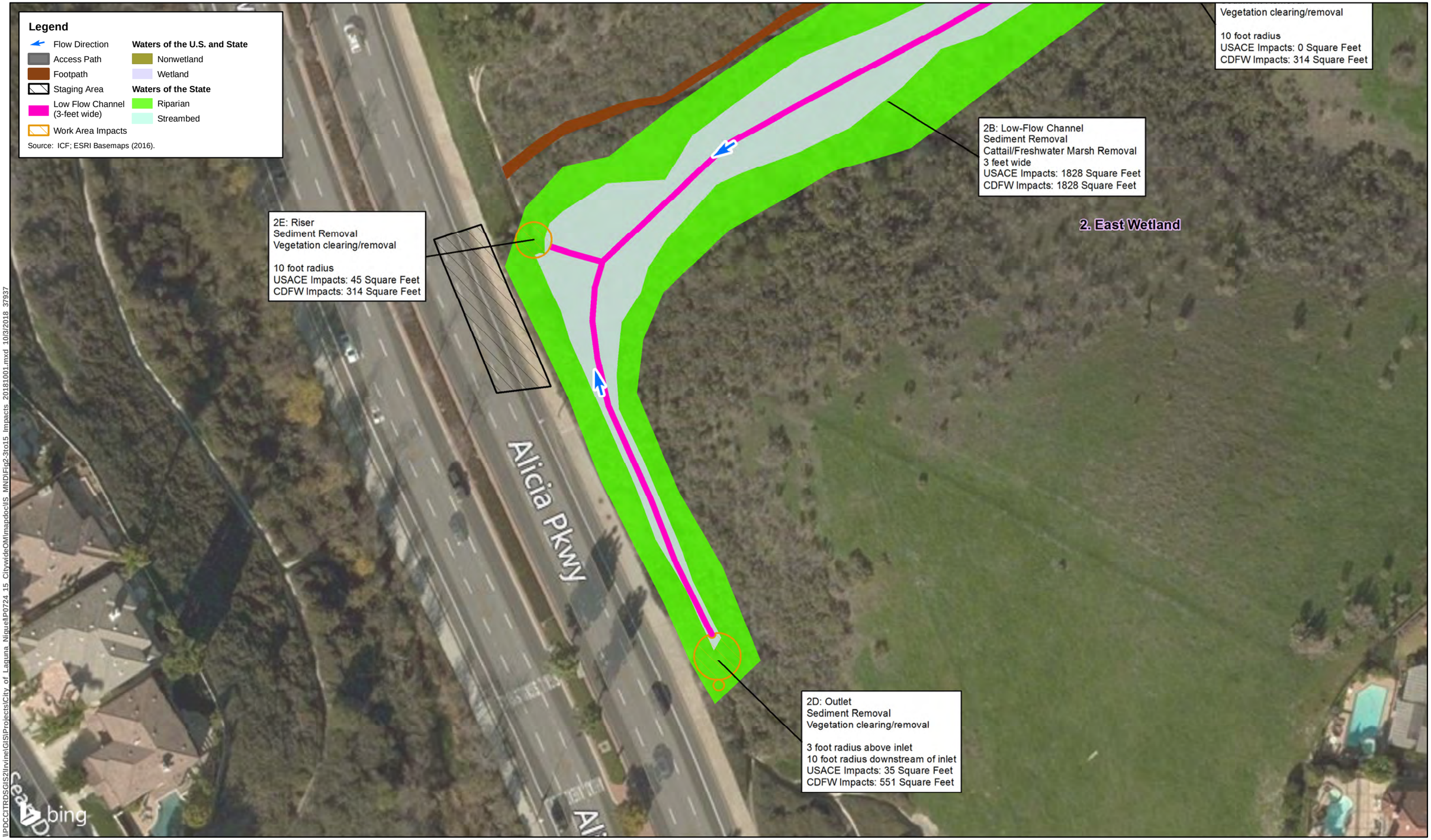
N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-4B**
**East Alicia Wetland (Site 2)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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N

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Feet
1 inch = 50 feet

**Figure 2-4C**
**East Alicia Wetland (Site 2)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**




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ICF

N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-5**
**North Alicia Wetland (Site 3)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**




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**Figure 2-6A Overview**
**Crown Valley Park Wetland Creation Area J03P01 (Site 4)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**




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N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-6B**
**Crown Valley Park Wetland Creation Area J03P01 (Site 4)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

**4. Crown Valley Park Wetland Creation Area J03P01**

4C: Box Culvert
Sediment Removal
Vegetation clearing/removal

30 foot radius downstream of concrete structure
USACE Impacts: 3545 Square Feet
CDFW Impacts: 9007 Square Feet

4F: Treatment Wetlands
Sediment Removal
Cattail/Freshwater Marsh Removal
Entire Constructed Wetland
USACE Impacts: n/a
CDFW Impacts: 1808 Square Feet

4G: Low-Flow Channel
Sediment Removal
Cattail/Freshwater Marsh Removal
3 feet wide
USACE Impacts: 1273 Square Feet
CDFW Impacts: 1485 Square Feet

4B: Outlet
Sediment Removal
Vegetation clearing/removal

3 foot radius above inlet
10 foot radius downstream of inlet
USACE Impacts: n/a
CDFW Impacts: 251 Square Feet

Community Park

Crown Valley Community Park

Crown Valley Pkwy

bing

N

0 25 50
Feet
1 inch = 50 feet

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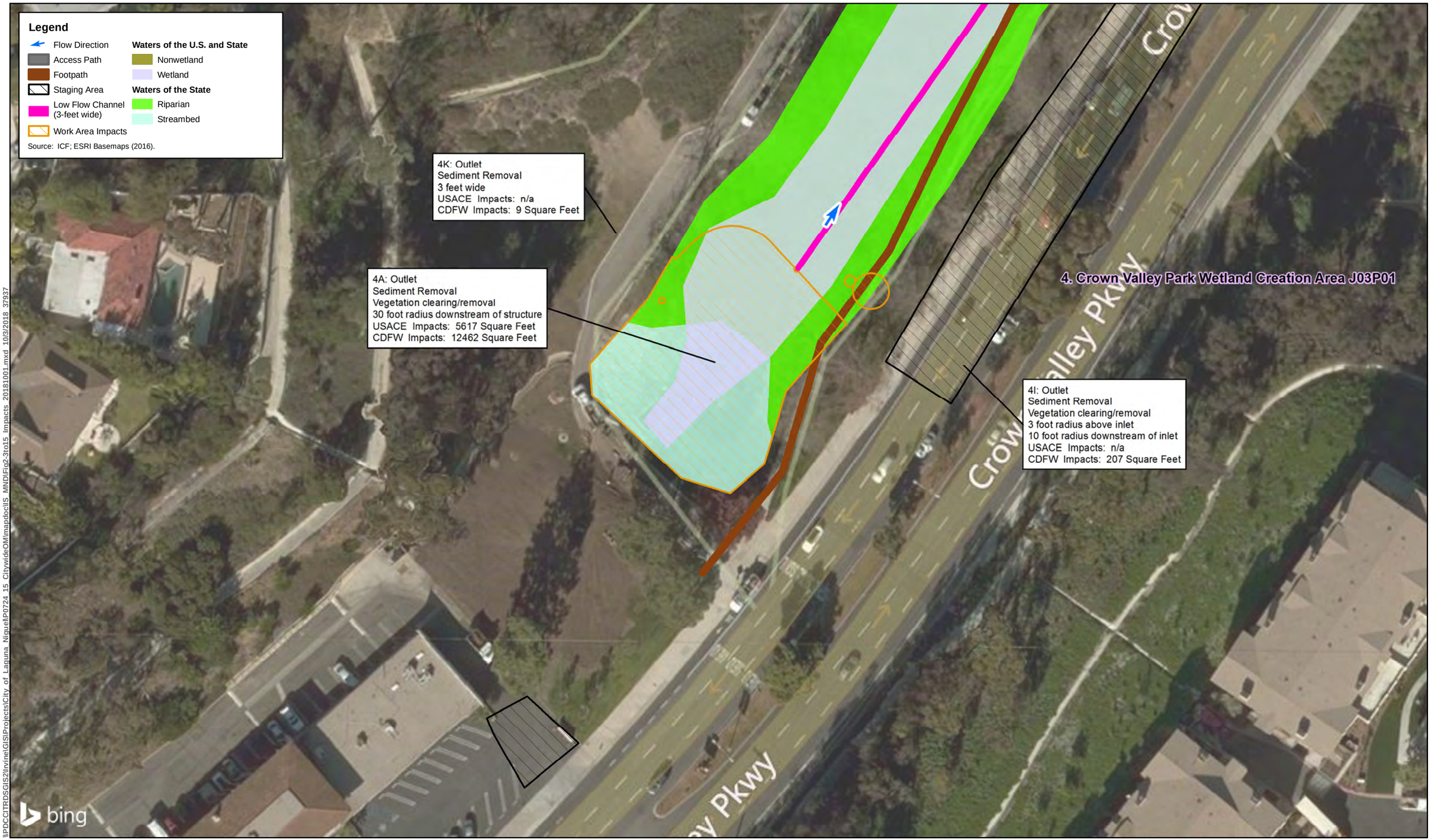
**Figure 2-6C**
**Crown Valley Park Wetland Creation Area J03P01 (Site 4)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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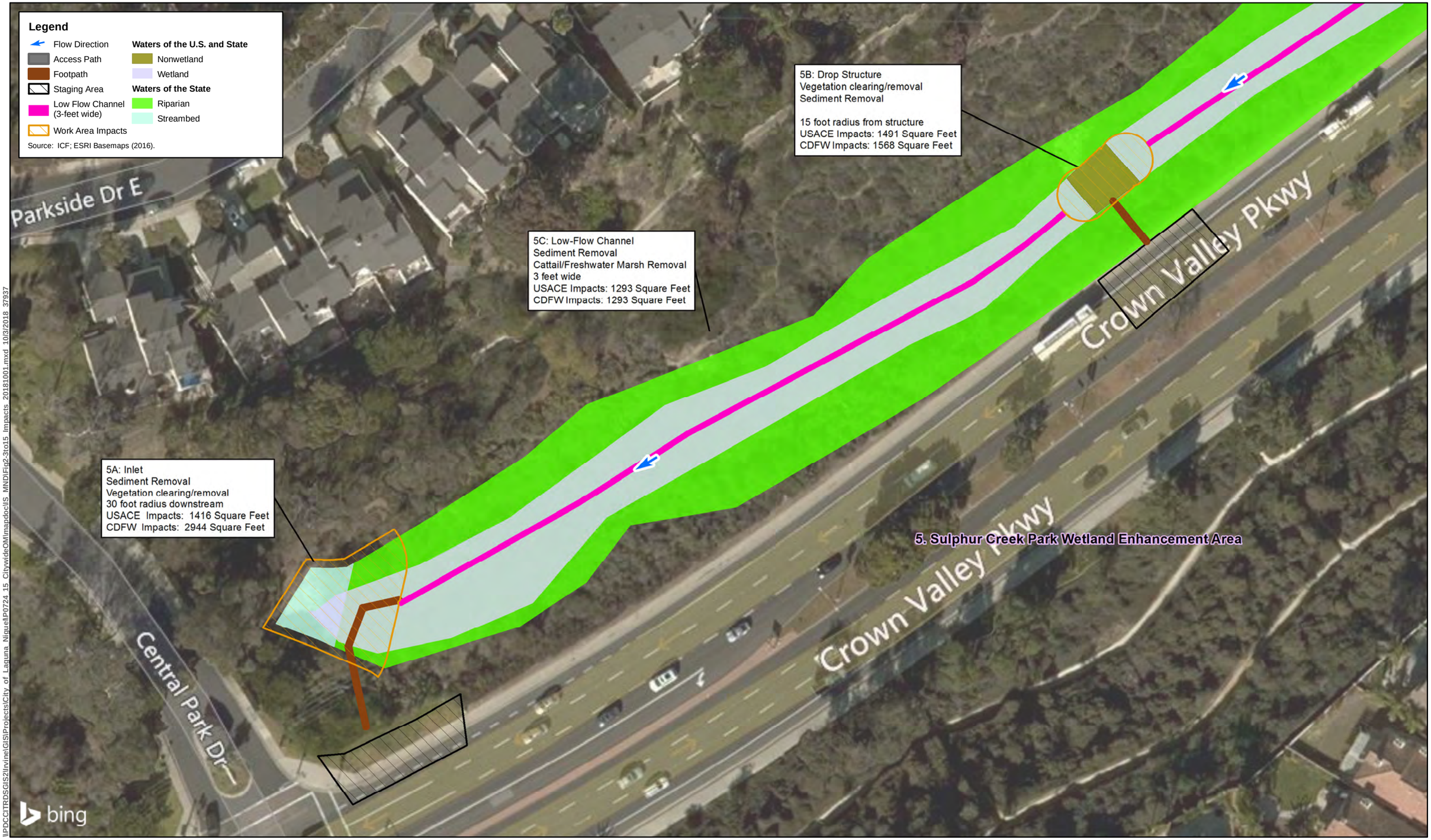
Feet
1 inch = 50 feet

**Figure 2-6D**
**Crown Valley Park Wetland Creation Area J03P01 (Site 4)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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N

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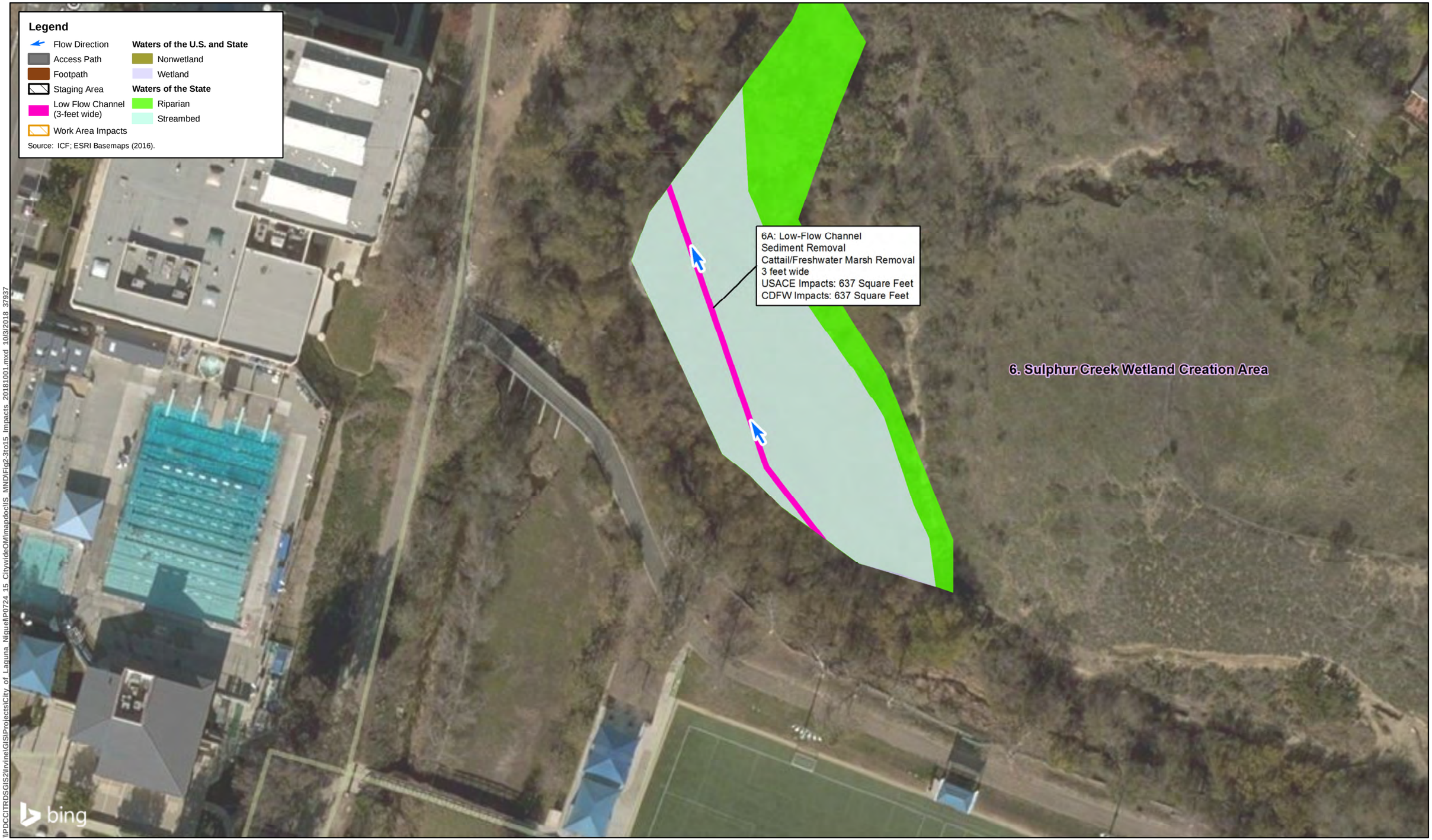
Feet
1 inch = 50 feet

**Figure 2-7**
**Sulphur Creek Park Wetland Enhancement Area (Site 5)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-8**
**Sulphur Creek Wetland Creation Area (Site 6)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

## Rancho Niguel Master Association Upper Sulphur Creek (Site 7)

Site 7 is an approximately 3,390-foot-long section of Sulphur Creek that runs between Crown Valley Parkway and an adjacent residential development within the project area, and is approximately bisected by Golden Lantern Street (Figures 2-9A through 2-9G). This 16.38-acre drainage has been restored from previous concrete channelization. Within the project area, Sulphur Creek is a small, approximately 4-foot-wide channel that flows southeast. There are four large concrete box culverts through which the stream passes: at the northern edge of the project site, at the upstream and downstream ends of Golden Lantern Street crossing, and at the southern edge of the project site.

## Crowne Royale Homeowners Association Upper Sulphur Creek (Site 8)

Site 8 is an approximately 3.75-acre site that includes an approximately 1,500-foot-long section of Sulphur Creek that runs between Crown Valley Parkway and adjacent residential development within the project area (Figures 2-10A and 2-10B). Site 8 has been restored from previous concrete channelization to support wetland and riparian habitat. Within the project site, Sulphur Creek is a small, approximately 4-foot-wide channel that flows southeast. At the northern end of the project area, there is a large concrete box culvert and concrete apron through which the stream passes inside a shallow low-flow channel as it exits under Nueva Vista Road. There is a concrete outfall and velocity dissipating structure within the channel near the intersection of Crown Valley Parkway and Adelanto Road. At the southern edge of the project area, the stream enters another large concrete box culvert as it passes under La Paz Road.

## Niguel Ridge Homeowners Association Upper Sulphur Creek (Site 9)

Site 9 is an approximately 2.20-acre site that is an approximately 1,786-foot-long section of Sulphur Creek that runs between Crown Valley Parkway and adjacent residential development within the project area (Figures 2-11A through 2-11C). This site has been restored from previous concrete channelization to support wetland and riparian habitat. Within the project area, Sulphur Creek is a small, approximately 4-foot-wide channel that flows southeast. At the northern end of the project area, there is a large concrete box culvert and concrete apron through which the stream passes inside a shallow low-flow channel as it exits under La Paz Road. The wetland site is approximately bisected by La Plata Road, which crosses over the drainage, where the stream runs through a large concrete box culvert that is flanked on both sides by a concrete apron with a low-flow concrete channel.

## USACE Sulphur Creek Restoration Project (Site 10)

Site 10 occurs north of Crown Valley Parkway directly downstream of the Sulphur Creek Wetland Creation Area site in Crown Valley Community Park (Figures 2-12A through 2-12D). Site 10 covers 7.16 acres and was restored from previous concrete channelization. The larger floodplain present in this area is approximately 100 feet wide.

## Sulphur Creek in Crown Valley Community Park (Site 11)

Site 11 is an approximately 555-foot-long section of Sulphur Creek totaling 0.83 acre (Figure 2-13). Within the project site, the drainage has been restored from previous concrete channelization.

### La Paz Park Wetlands (Site 12)

Site 12 consists of a 1.20-acre site containing 3 drainage features—an unnamed tributary to Sulphur Creek and two small side drainage channels (Figure 2-14). This site is also in close proximity to an Orange County Flood Control District facility (Norco drainage). Within the project site, the unnamed tributary is a small, approximately 6-foot-wide channel that flows west and is incised within steep banks. The stream exits a large concrete culvert with concrete slope protection as it passes under La Paz Road past the eastern end of the project area. A small drainage channel to the north of the unnamed tributary has an active channel approximately 3 feet wide, is fed from a concrete outfall at the eastern end, and drains to the unnamed tributary through a culvert on its western end. The second side drainage feature, located northwest of the unnamed tributary, is fed by two concrete outfall structures on its northern and western sides; it drains through a concrete culvert on the southern side to the unnamed tributary.

### Salt Creek Corridor Habitat Restoration Area (Site 13)

Site 13 consists of Salt Creek Mainstem and six unnamed tributaries to Salt Creek. The portion of Salt Creek within Site 13 is a southward-flowing perennial stream primarily fed by urban runoff from irrigation. It has a natural channel that runs between two large (greater than 20-foot-wide) concrete culverts that pass the stream under the Salt Creek Bike Trail and Niguel Road (Figures 2-15A through 2-15F). The channel is sharply incised with an approximately 4-foot drop separating the active channel from upland habitat. The six unnamed tributaries to Salt Creek Mainstem support ephemeral flows.

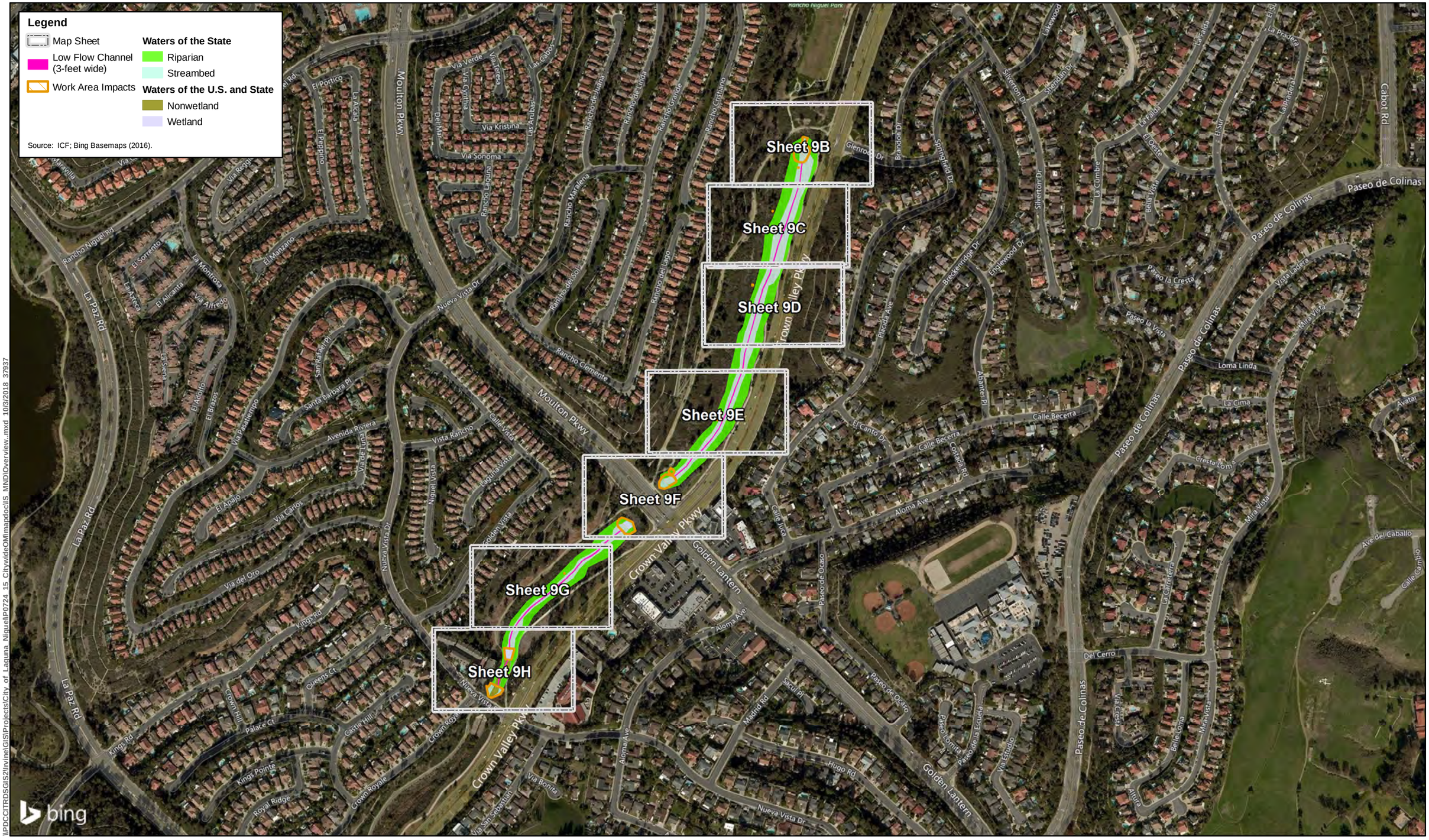
# Project Description

## Project Background

In 2001, the Aliso Creek watershed, including Sulphur Creek, was the subject of a feasibility study that included an assessment of stream functions throughout the watershed. It found that 86%, or 12.2 miles of the total 14.2 creek miles in the Sulphur Creek subbasin, were considered highly degraded as a result of human modifications. Of this total, 10.5 miles (74%) have been affected to the point that they provide no measurable functional output,[1] and none of the remaining stream reaches function at a high level. This dramatic reduction in wetland functional capacity on a watershed scale resulted in a number of significant resource-related concerns, including loss of riparian habitat, erosion and channel incision, poor water quality, flooding, and declines in populations of native fauna.

The Sulphur Creek Ecosystem Restoration Project (includes Sites 1 through 12) was designed with the goals of the 2001 study in mind, in particular to reestablish a stable, healthy, and sustainable watershed environment and to identify feasible management options to improve environmental conditions in the Aliso Creek watershed. The restoration project was not provided as compensatory mitigation for impacts on wetlands or riparian areas, but was voluntarily undertaken to improve water quality and help reestablish some of the historic habitat functions and values associated with

[1] Functional output is defined as a measurement of a wetland's hydrologic, biogeochemical, and biologic health via comparison or reference to a relatively fully functional or healthy wetland ecosystem in the same region.

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ICF

N

0 250 500

Feet

1 inch = 500 feet

**Figure 2-9A Overview**
**Rancho Niguel Upper Sulphur Creek (Site 7)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

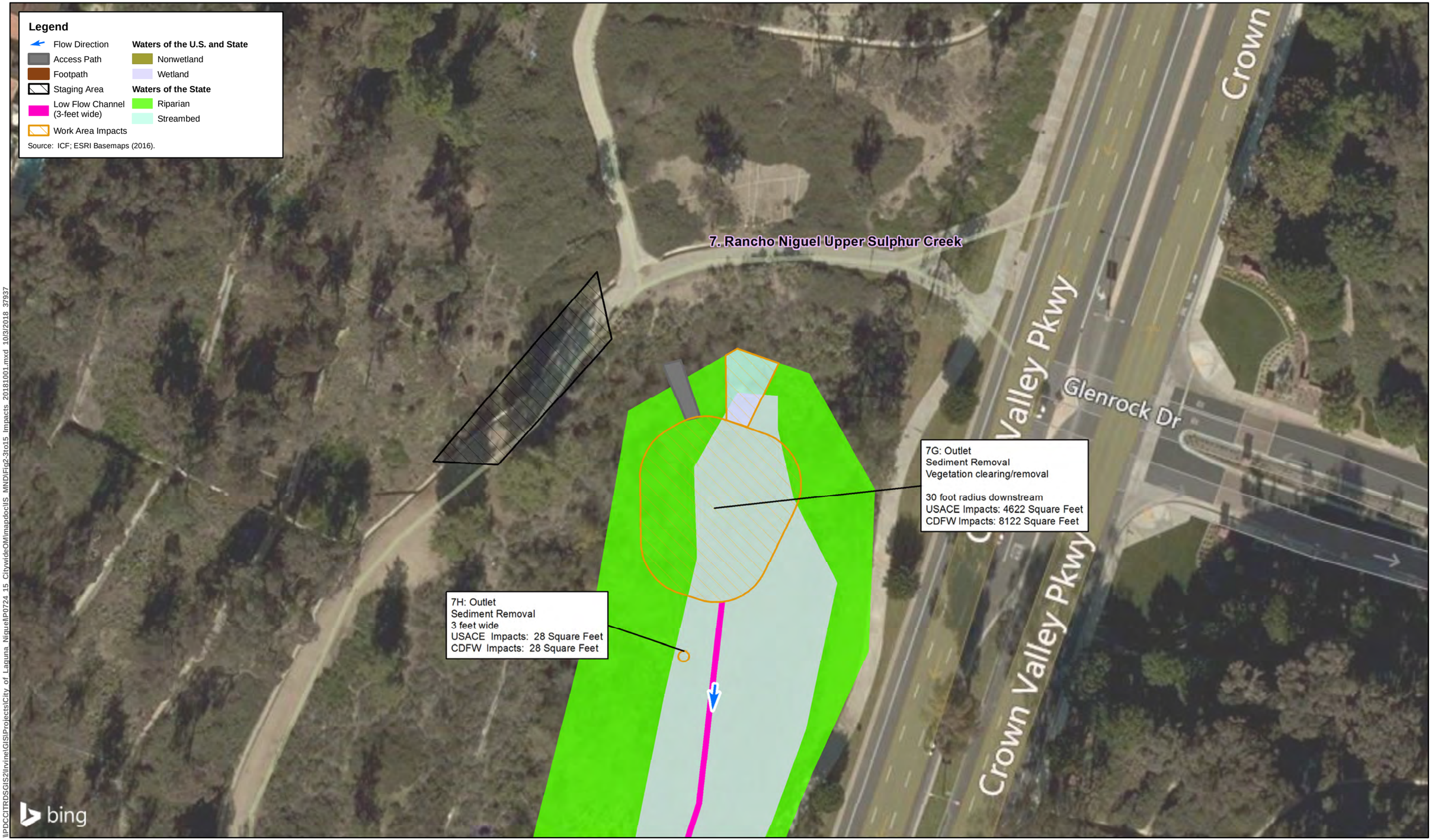


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**Figure 2-9B**
**Rancho Niguel Upper Sulphur Creek (Site 7)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

7L: Concrete V-ditch Outlet
Sediment Removal
3 feet wide
USACE Impacts: n/a
CDFW Impacts: n/a

Crown Valley Pkwy

Crown Valley Pkwy

bing

N

0 25 50
Feet
1 inch = 50 feet

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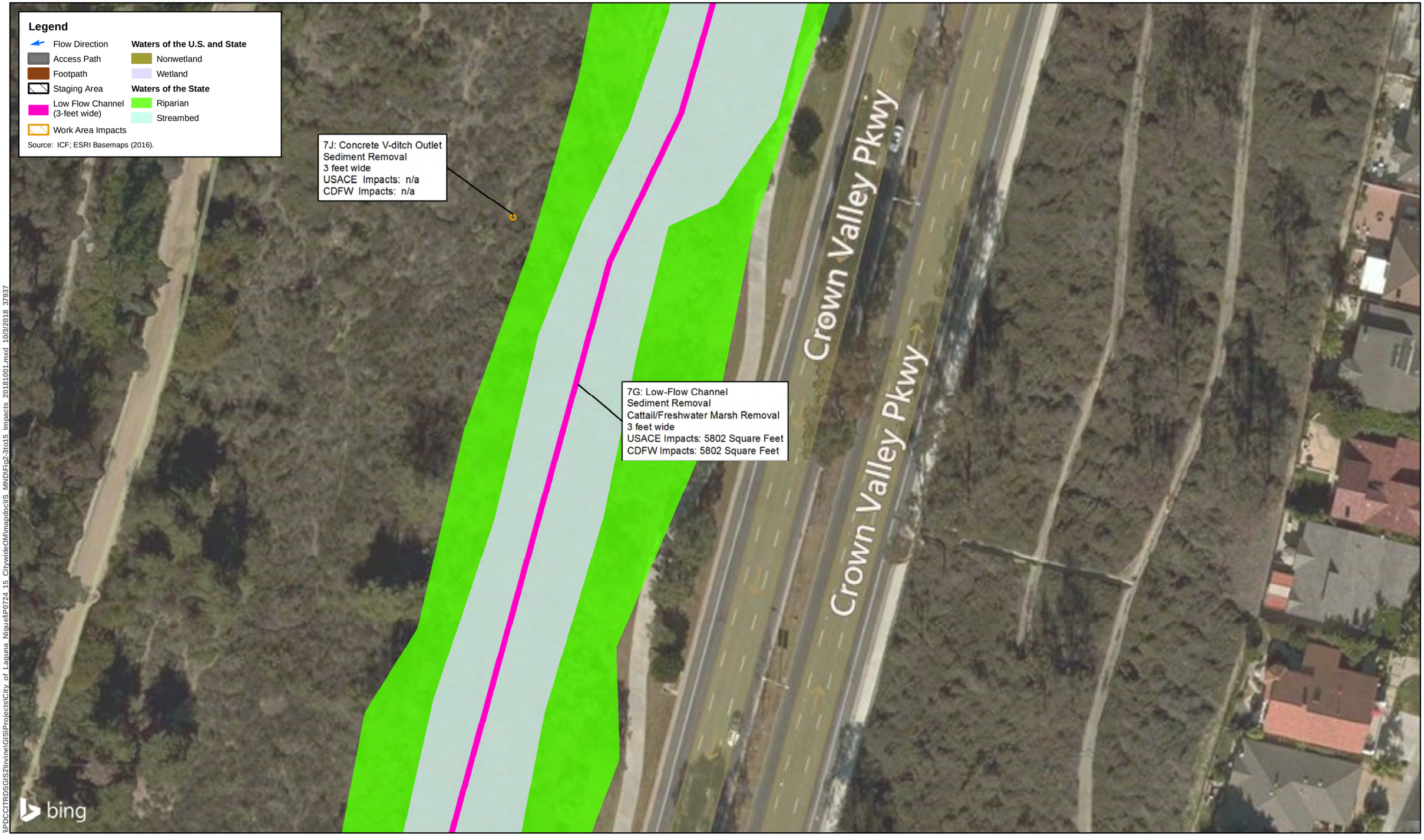
**Figure 2-9C**
**Rancho Niguel Upper Sulphur Creek (Site 7)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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ICF

N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-9D**
**Rancho Niguel Upper Sulphur Creek (Site 7)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**




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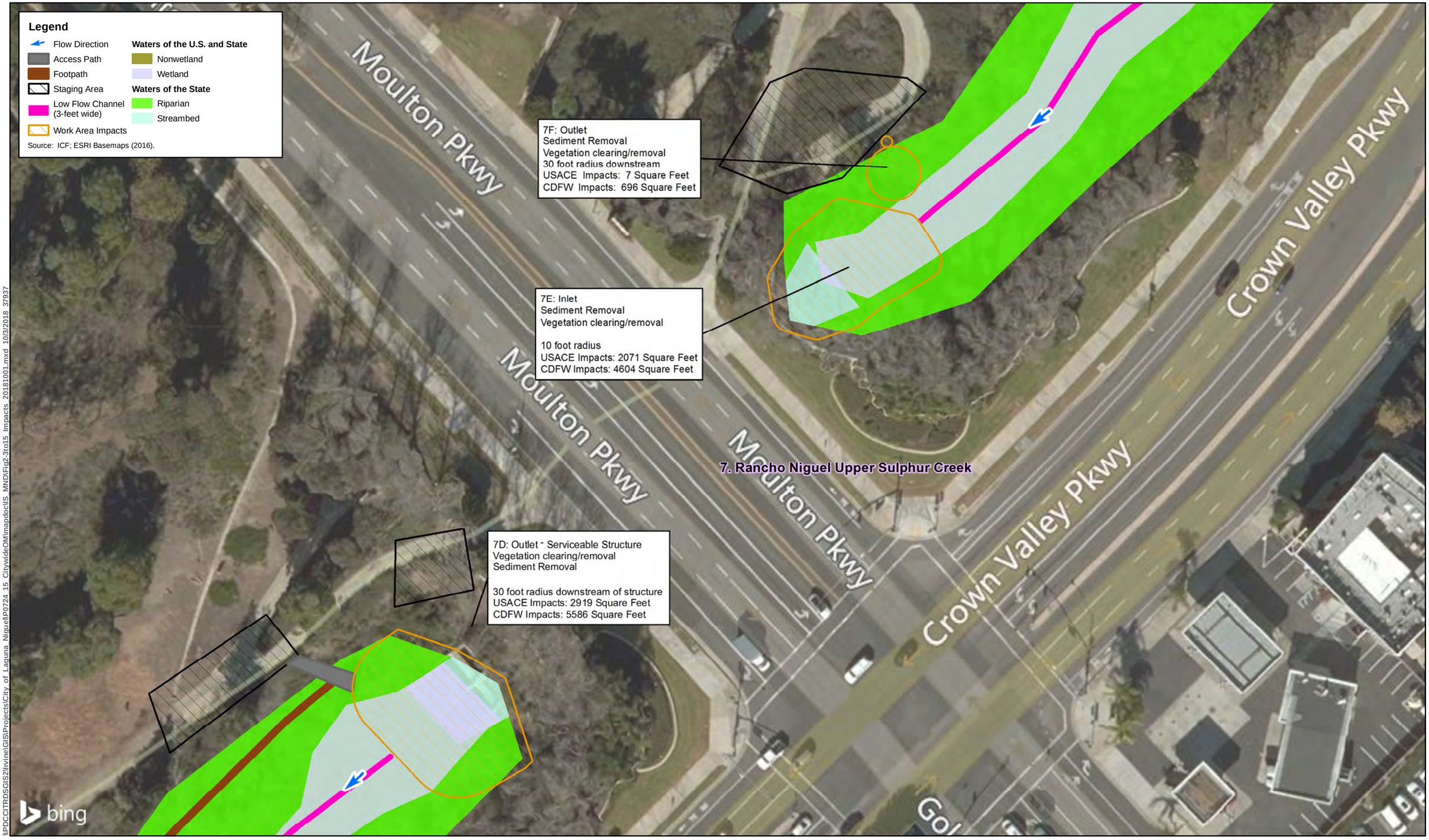
N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-9E**
**Rancho Niguel Upper Sulphur Creek (Site 7)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-9F**
**Rancho Niguel Upper Sulphur Creek (Site 7)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**




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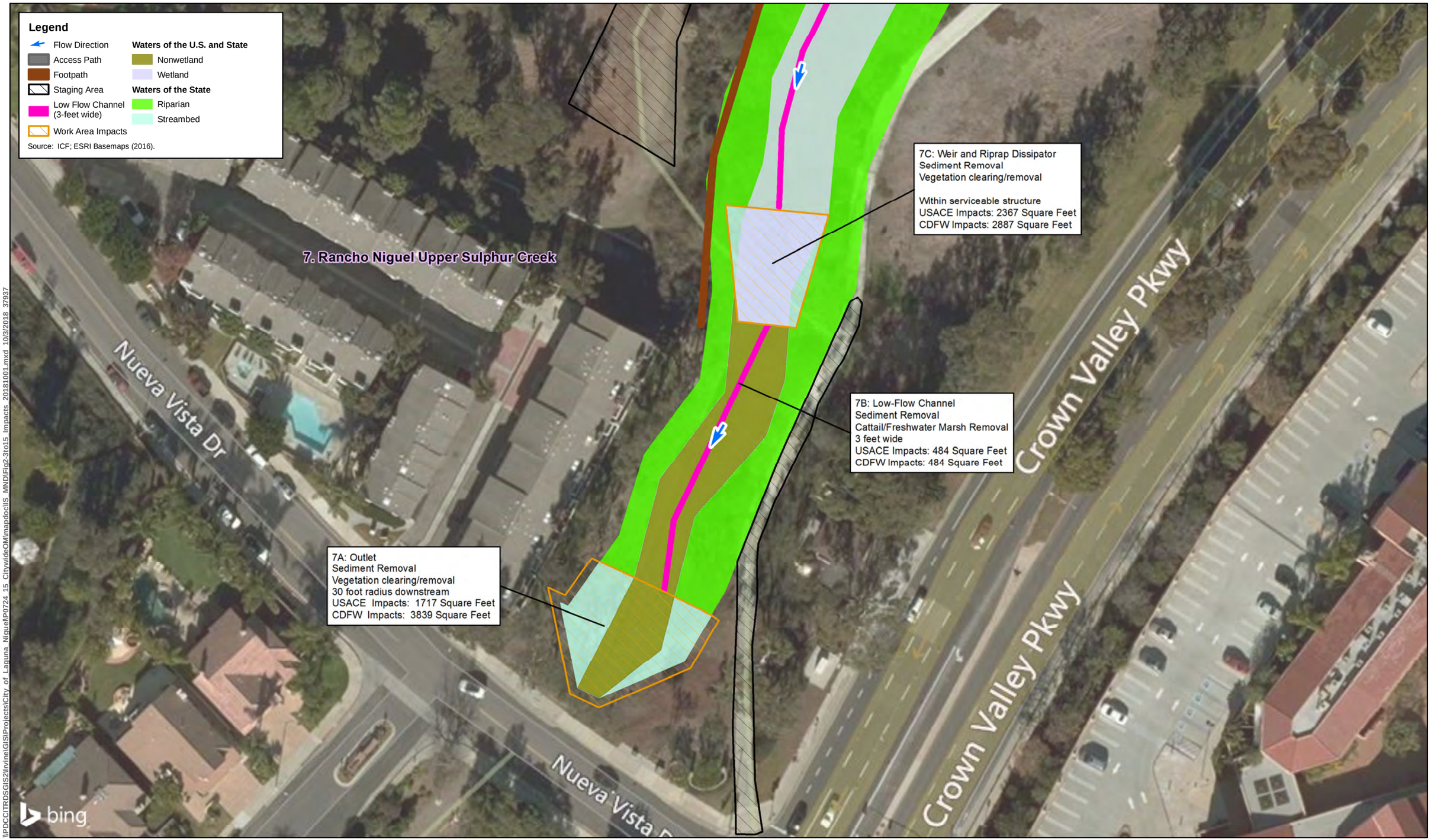
N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-9G**
**Rancho Niguel Upper Sulphur Creek (Site 7)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-9H**
**Rancho Niguel Upper Sulphur Creek (Site 7)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

**Legend**

- Map Sheet
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the State**

- Riparian
- Streambed

**Waters of the U.S. and State**

- Nonwetland
- Wetland

Source: ICF; Bing Basemaps (2016).

Sheet 0B

Sheet 0C

N

0 250 500

Feet

1 inch = 500 feet

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**Figure 2-10A Overview**
**Crowne Royale Homeowners Association Upper Sulphur Creek (Site 8)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

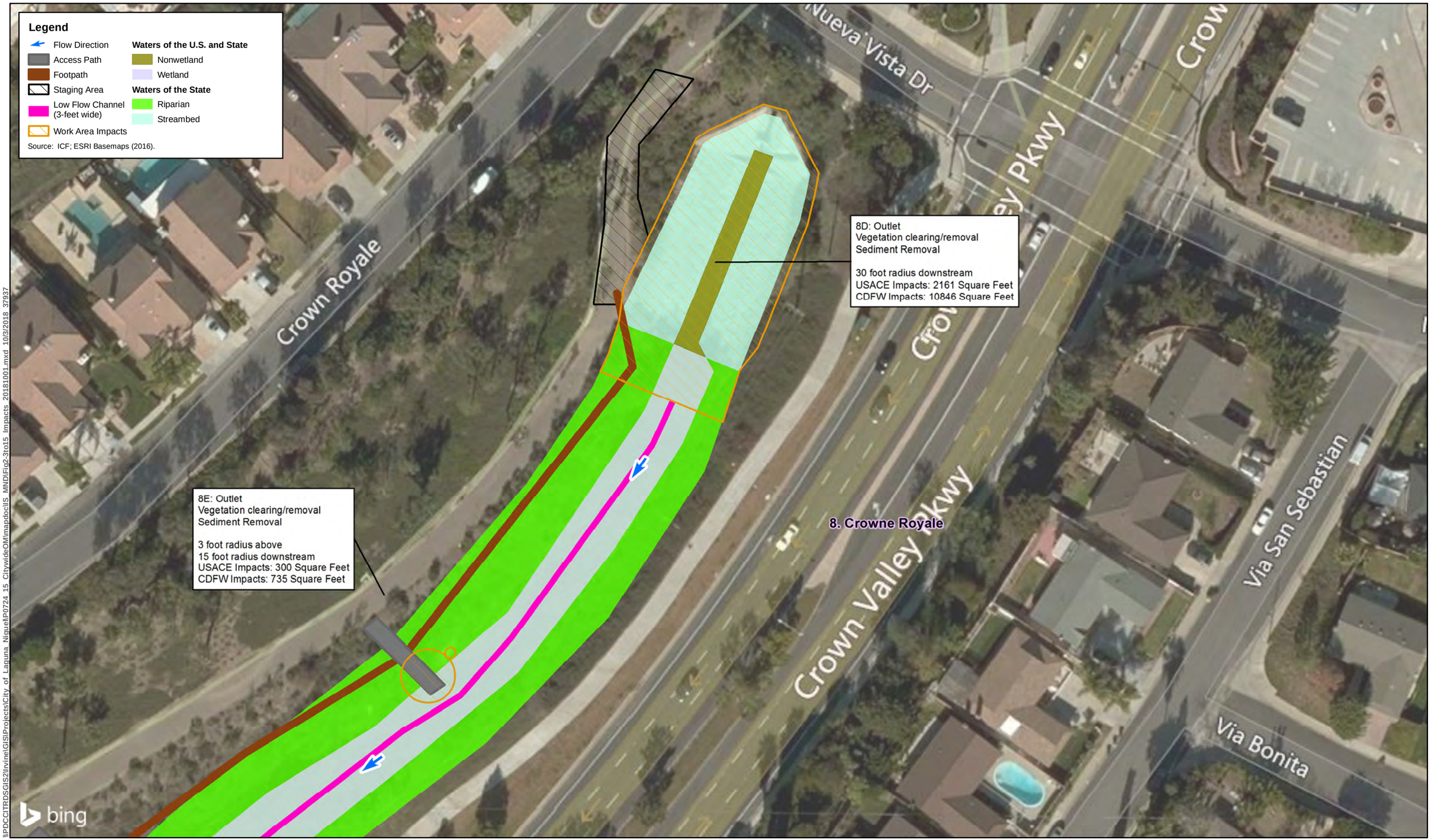


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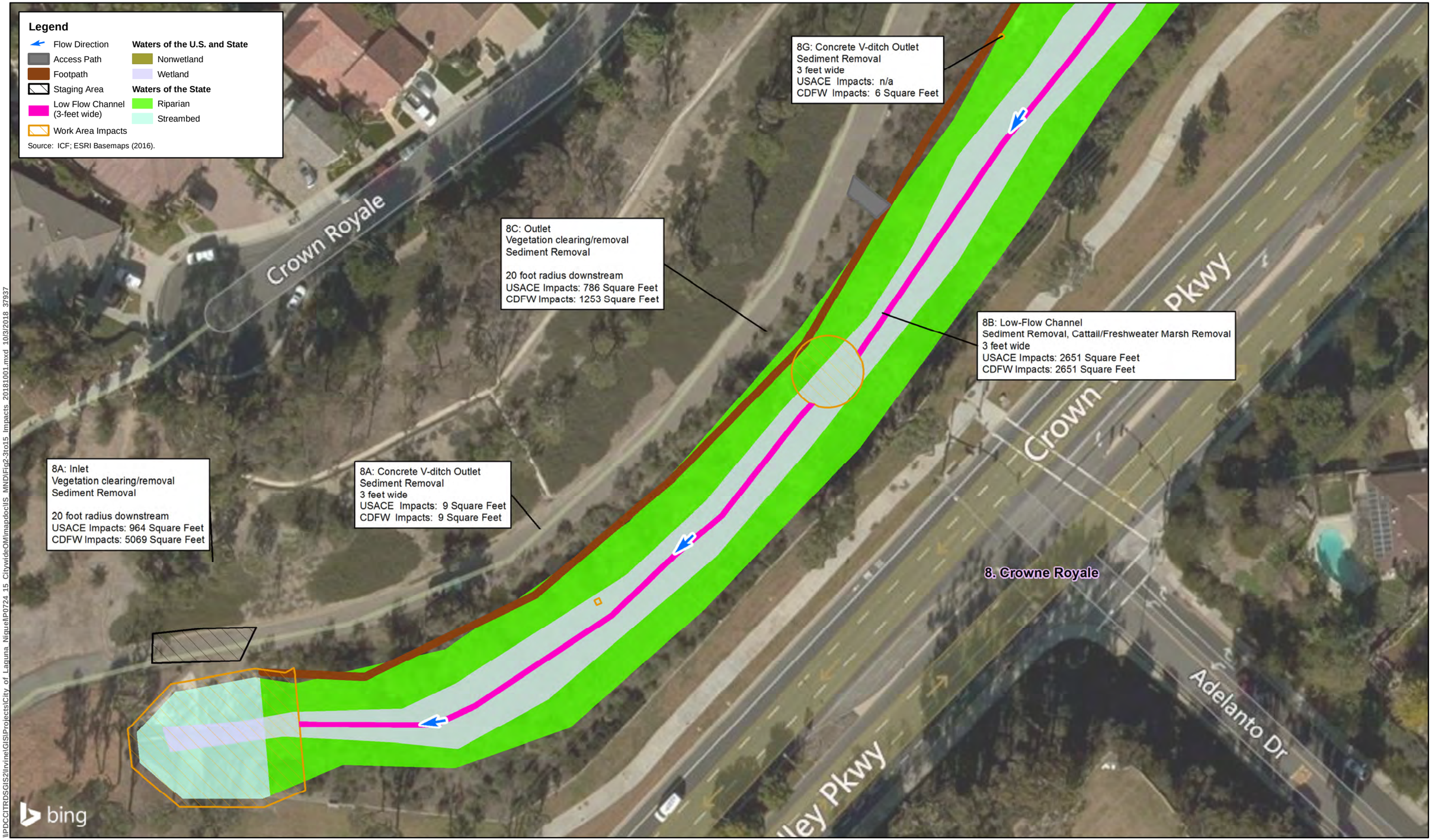
**Figure 2-10B**
**Crowne Royale Homeowners Association Upper Sulphur Creek (Site 8)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-10C**
**Crowne Royale Homeowners Association Upper Sulphur Creek (Site 8)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

**Legend**

- Map Sheet
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the State**

- Riparian
- Streambed

**Waters of the U.S. and State**

- Nonwetland
- Wetland

Source: ICF; Bing Basemaps (2016).

Sheet 1B

Sheet 1C

Sheet 1D

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Feet
1 inch = 500 feet

**Figure 2-11A Overview**
**Niguel Ridge Homeowners Association Upper Sulphur Creek (Site 9)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**




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ICF

N

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Feet
1 inch = 50 feet

**Figure 2-11B**
**Niguel Ridge Homeowners Association Upper Sulphur Creek (Site 9)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

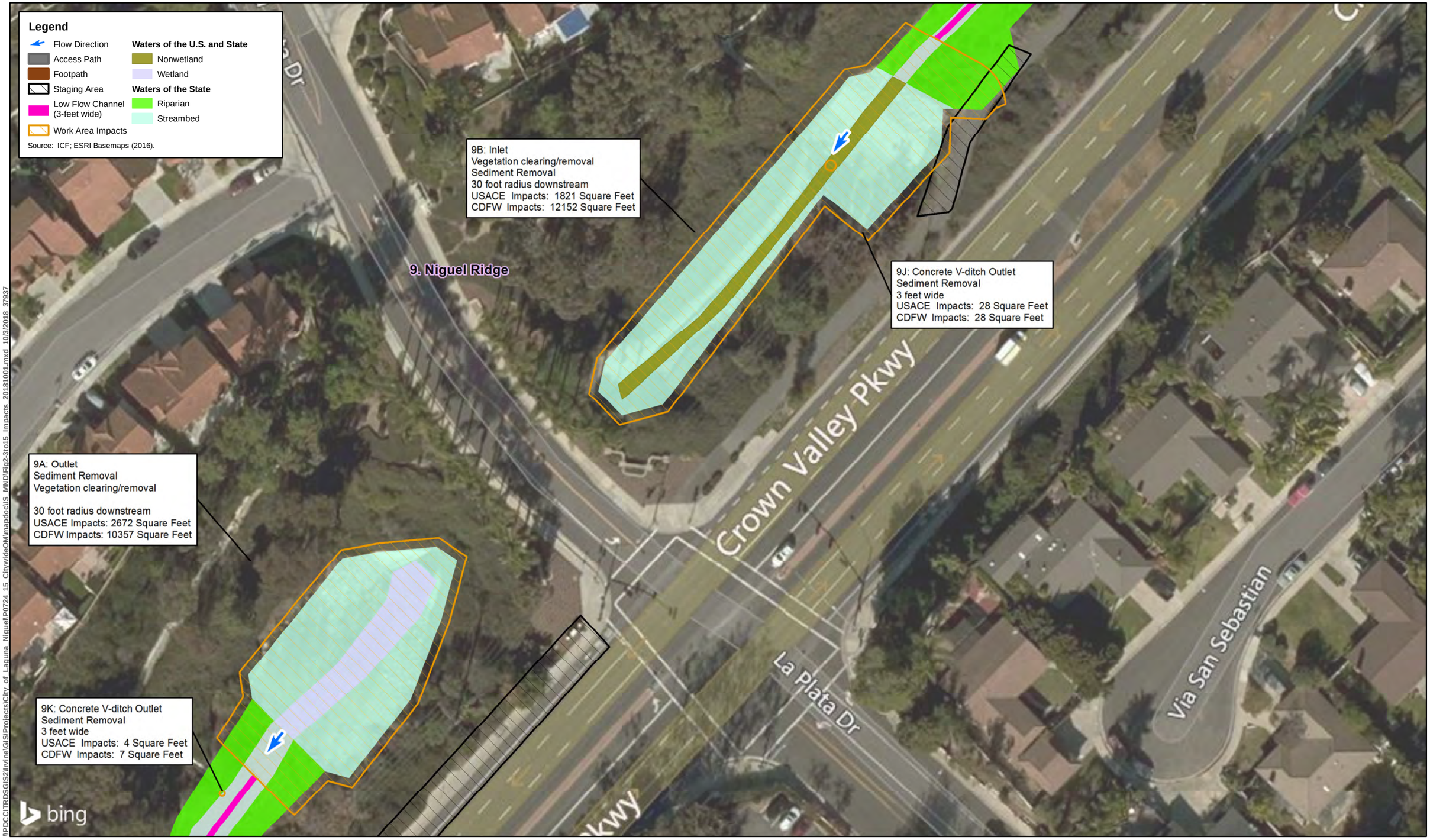


**Figure 2-11C**
**Niguel Ridge Homeowners Association Upper Sulphur Creek (Site 9)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

9G: Concrete V-ditch Outlet
Sediment Removal
Vegetation clearing/removal
3 foot radius
USACE Impacts: n/a
CDFW Impacts: 14 Square Feet

9H: Low-Flow Channel
Sediment Removal
Cattail/Freshwater Marsh Removal
3 feet wide
USACE Impacts: 1670 Square Feet
CDFW Impacts: 1670 Square Feet

9F: Outlet
Sediment Removal
Vegetation clearing/removal

15 foot radius
USACE Impacts: 30 Square Feet
CDFW Impacts: 135 Square Feet

9L: Concrete V-ditch Outlet
Sediment Removal
3 feet wide
USACE Impacts: 9 Square Feet
CDFW Impacts: 9 Square Feet

Crown Valley Pkwy

Crown Valley Pkwy

bing

N

0 25 50
Feet
1 inch = 50 feet

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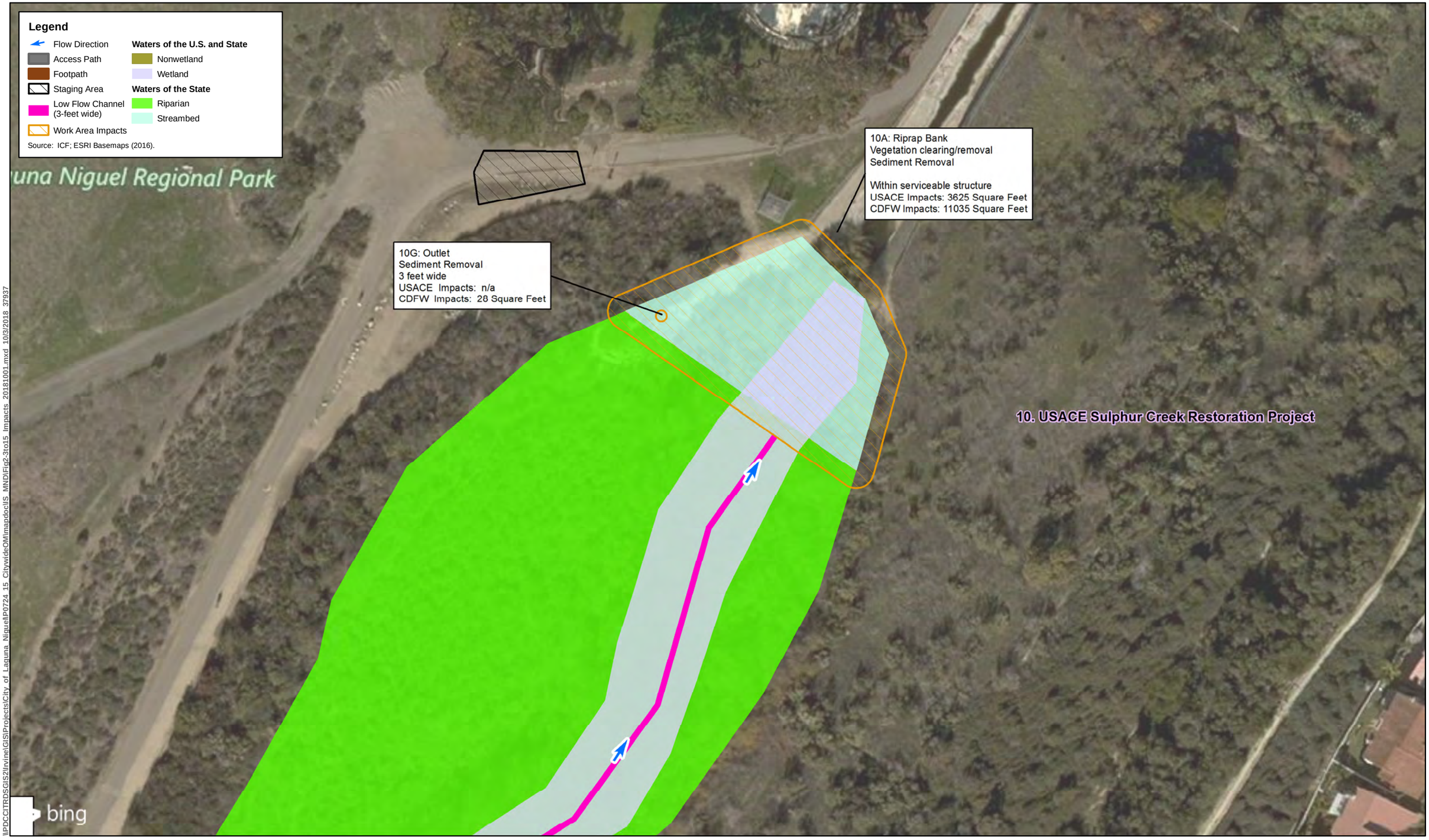
**Figure 2-11D**
**Niguel Ridge Homeowners Association Upper Sulphur Creek (Site 9)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**




N

0 250 500
Feet
1 inch = 500 feet

**Figure 2-12A Overview**
**USACE Sulphur Creek Restoration Project (Site 10)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-12B**
**USACE Sulphur Creek Restoration Project (Site 10)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

10B: Outlet
Vegetation clearing/removal
Sediment Removal

3 foot radius above
10 foot radius downstream
USACE Impacts: n/a
CDFW Impacts: 250 Square Feet

10D: Low-Flow Channel
Sediment Removal
Cattail/Freshwater Marsh Removal
3 feet wide
USACE Impacts: 5490 Square Feet
CDFW Impacts: 5490 Square Feet

**10. USACE Sulphur Creek Restoration Project**

bing

N

0 25 50
Feet
1 inch = 50 feet

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**Figure 2-12C**
**USACE Sulphur Creek Restoration Project (Site 10)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**




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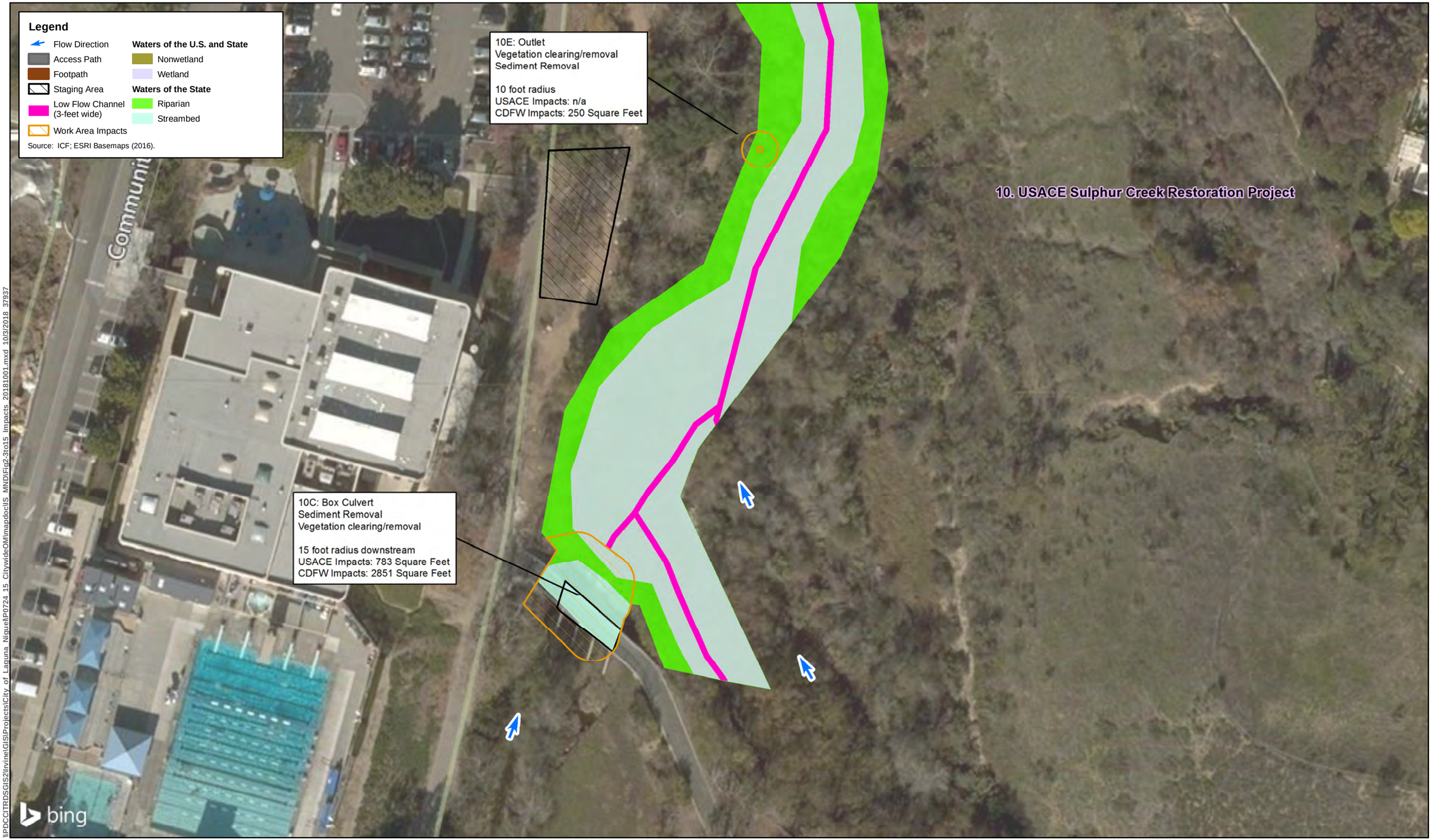
Feet
1 inch = 50 feet

**Figure 2-12D**
**USACE Sulphur Creek Restoration Project (Site 10)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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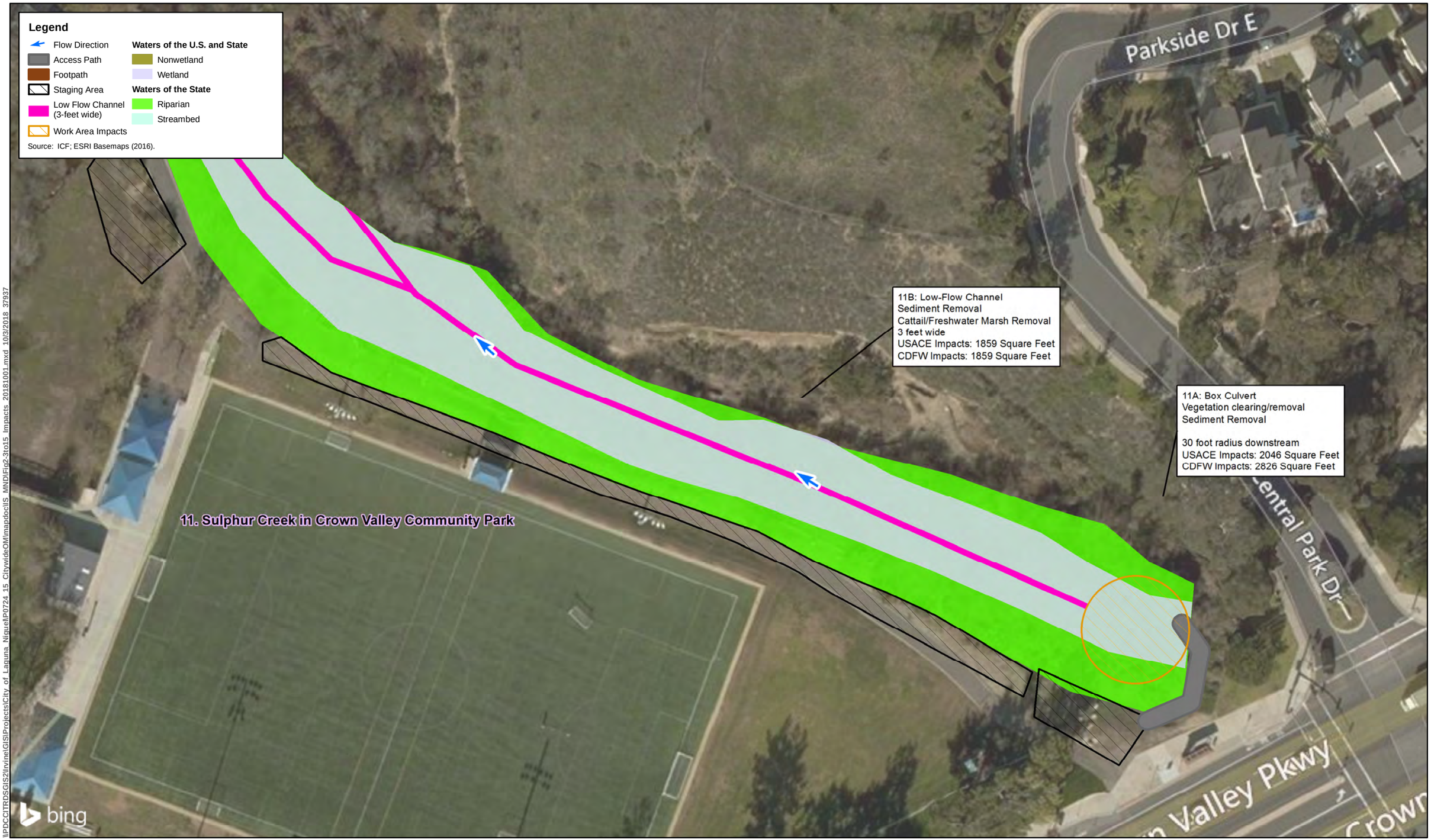
Feet
1 inch = 50 feet

**Figure 2-12E**
**USACE Sulphur Creek Restoration Project (Site 10)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-13**
**Sulphur Creek in Crown Valley Community Park (Site 11)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**




**Figure 2-14**
**La Paz Park Wetlands (Site 12)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

**Legend**

- Map Sheet
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the State**

- Riparian
- Streambed

**Waters of the U.S. and State**

- Nonwetland
- Wetland

Source: ICF; Bing Basemaps (2016).

Sheet 5E

Sheet 5D

Sheet 5C

Sheet 5B

Sheet 5F

Sheet 5G

N

0 250 500

Feet

1 inch = 500 feet

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**Figure 2-15A Overview**
**Salt Creek Corridor Habitat Restoration Area (Site 13)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

13. Salt Creek Restoration Area

13I: Drop Structure
Herbaceous Vegetation removal
Sediment Removal

30 foot radius
USACE Impacts: 1268 Square Feet
CDFW Impacts: 1424 Square Feet

13P: Outlet
Herbaceous Vegetation removal
Sediment Removal

30 foot radius
USACE Impacts: 562 Square Feet
CDFW Impacts: 706 Square Feet

13R: Basin with Riser
Weed Wiping and rack out
Vegetation trimming

20 foot radius
USACE Impacts: 218 Square Feet
CDFW Impacts: 329 Square Feet

13L: Outlet
Herbaceous Vegetation removal
Sediment Removal

30 foot radius
USACE Impacts: 1205 Square Feet
CDFW Impacts: 2437 Square Feet

13O: Riser
Weed Wiping and rack out
Vegetation trimming

20 foot radius
USACE Impacts: 63 Square Feet
CDFW Impacts: 128 Square Feet

13K: Inlet
Sediment Removal
Vegetation clearing/removal

15 foot radius
USACE Impacts: n/a
CDFW Impacts: 133 Square Feet

13J: Inlet
Weed Wiping and rack out
Vegetation trimming

20 foot radius
USACE Impacts: n/a
CDFW Impacts: n/a

13M: Outlet
Herbaceous Vegetation removal
Sediment Removal

10 foot radius
USACE Impacts: n/a
CDFW Impacts: n/a

13N: Inlet
Herbaceous Vegetation removal
Sediment Removal

15 foot radius
USACE Impacts: 230 Square Feet
CDFW Impacts: 291 Square Feet

bing

N

0 25 50
Feet
1 inch = 50 feet

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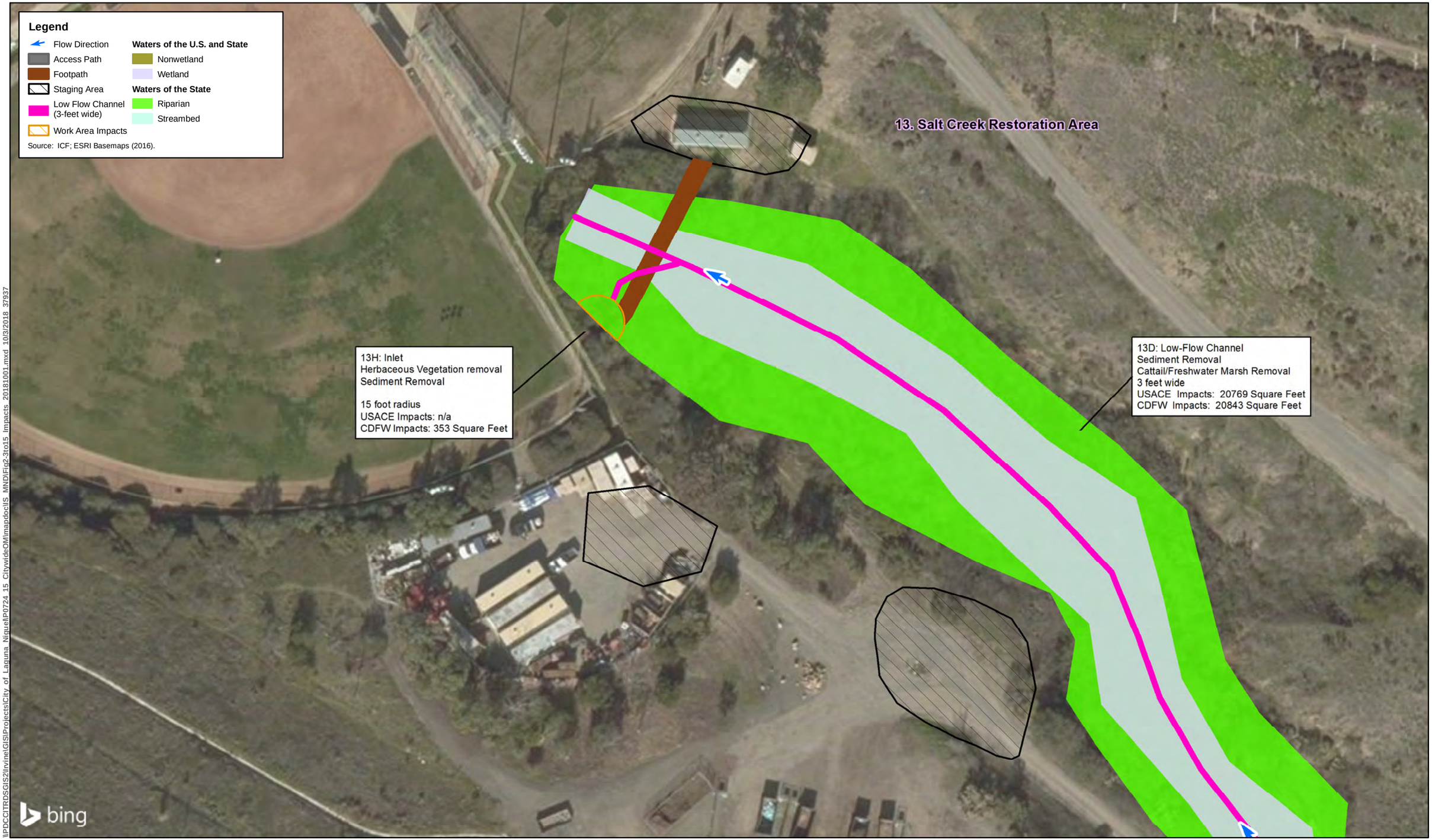
**Figure 2-15B**
**Salt Creek Corridor Habitat Restoration Area (Site 13)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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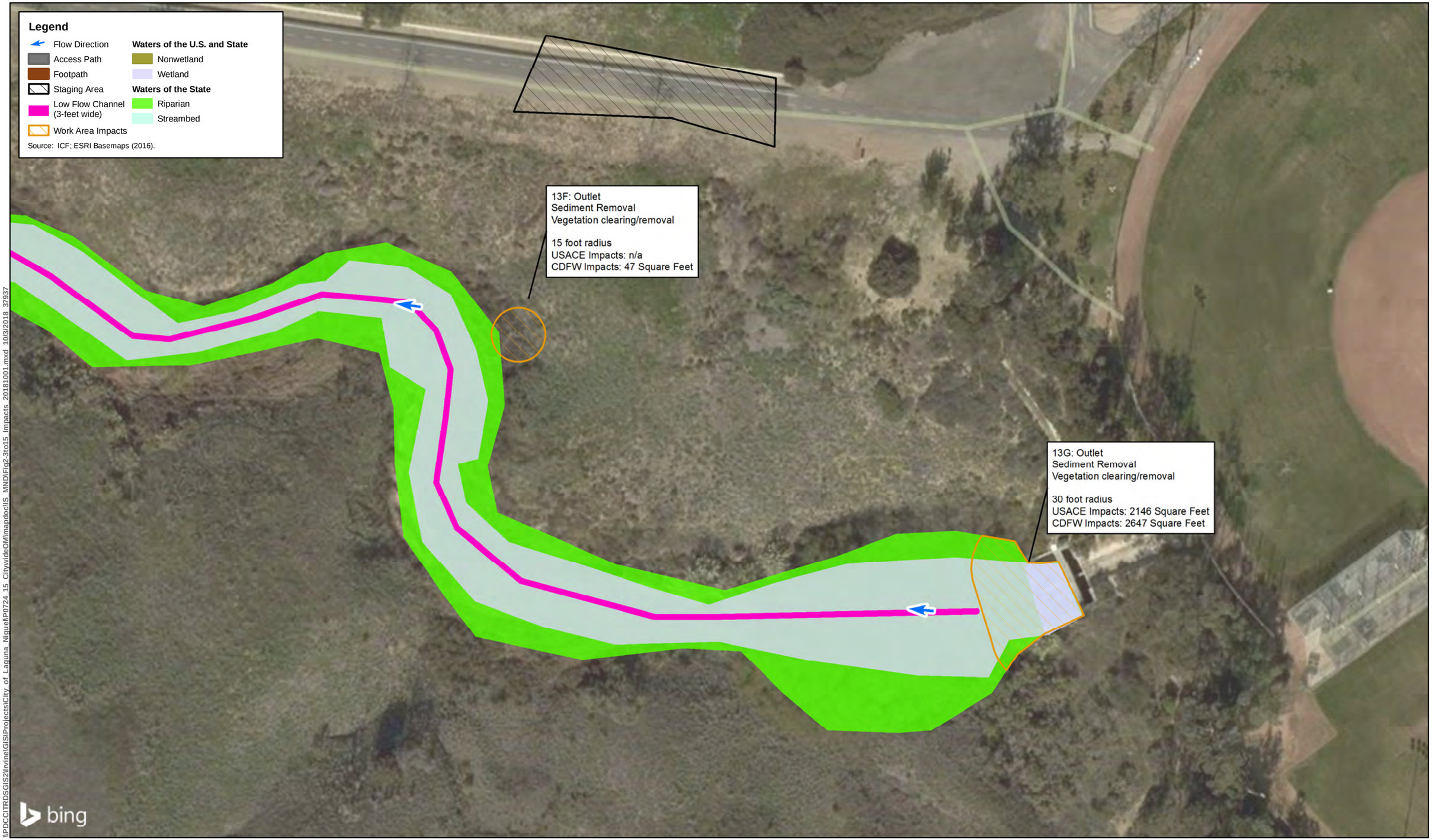
N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-15C**
**Salt Creek Corridor Habitat Restoration Area (Site 13)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-15D**
**Salt Creek Corridor Habitat Restoration Area (Site 13)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

13. Salt Creek Restoration Area

13E: Outlet
Vegetation clearing/removal
Sediment Removal

30 foot radius
USACE Impacts: 717 Square Feet
CDFW Impacts: 2534 Square Feet

bing

N

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Feet
1 inch = 50 feet

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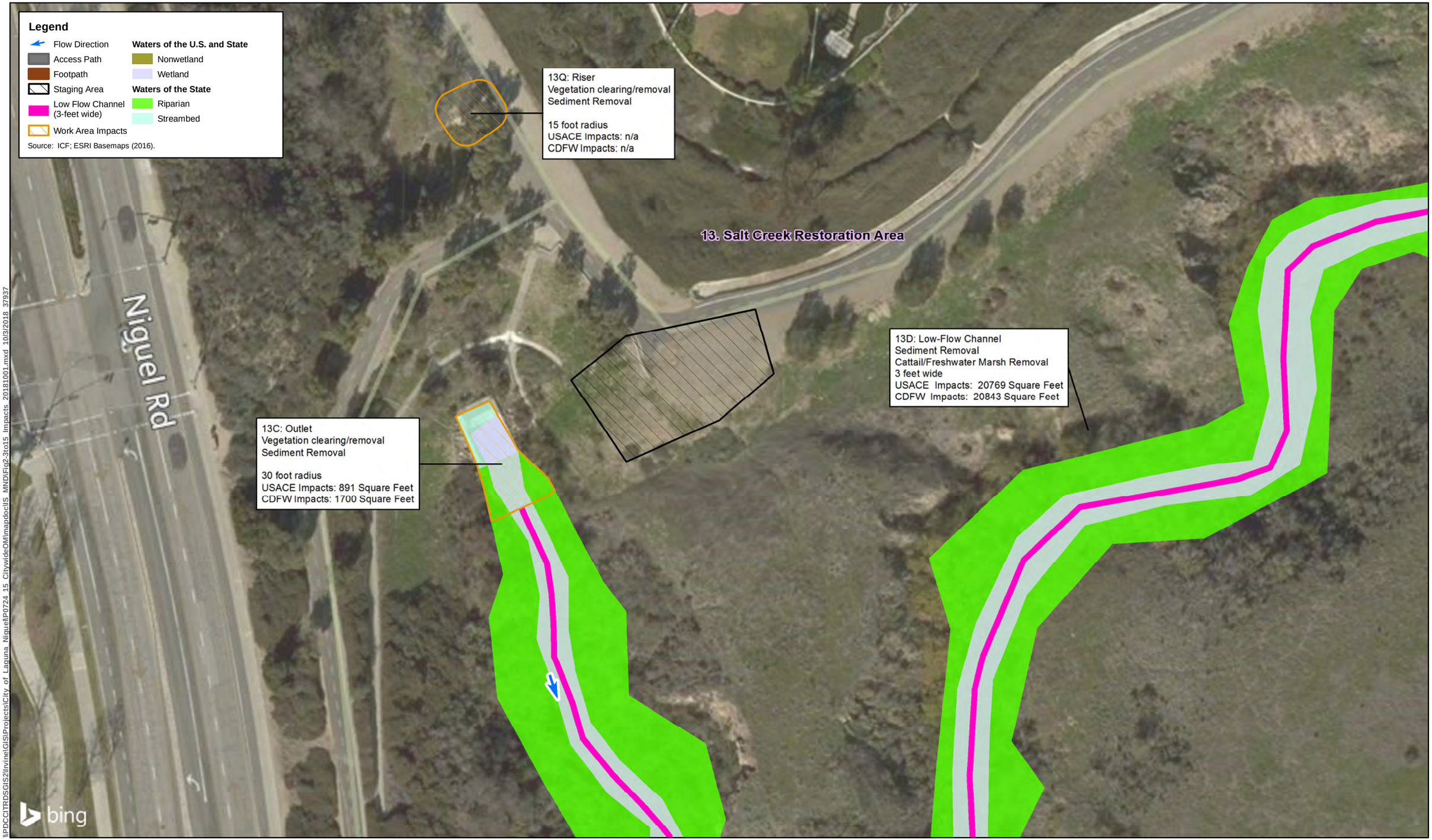
**Figure 2-15E**
**Salt Creek Corridor Habitat Restoration Area (Site 13)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-15F**
**Salt Creek Corridor Habitat Restoration Area (Site 13)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**




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N

0 25 50
Feet
1 inch = 50 feet

**Figure 2-15G**
**Salt Creek Corridor Habitat Restoration Area (Site 13)**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

riparian and wetland systems in Southern California and in the Laguna Niguel area. In addition, this project furthers the goals of the City's General Plan, i.e., "preservation and enhancement of the natural setting of the City" and "to strive and improve the City's existing environmental quality."

Several listed endangered species are endemic to riparian systems in this region. The federally listed as endangered southwestern willow flycatcher (*Empidonax traillii*) has been sighted in the surrounding areas. Other listed endangered species include least Bell's vireo (*Vireo bellii pusillus*) and coastal California gnatcatcher (*Polioptila californica californica*). This restoration project was designed to enhance habitat for these species and others, and was jointly funded by the City, State of California Department of Water Resources, and USACE.

The City applied for and received permits from CDFW (Streambed Alteration Agreement #1600-R5-2003-0156) and RWQCB Section 401 Water Quality Certification (WPN: 401 Certification # 03C-016 – Sulphur Creek Ecosystem Restoration Project and WPN: 401 Certification # 03C-093 – Sulphur Creek Ecosystem Restoration Disposal Site Project) to implement restoration activities at 12 of the 13 wetland restoration sites (did not include Site 13 within Salt Creek). The 5-year monitoring of the 12 sites within Sulphur Creek Watershed was recently completed, and the resource agencies have approved all 12 sites as achieving their success criteria. No additional maintenance or monitoring is currently required by the resource agencies as conditions to these permits; however, the City wishes to continue maintenance to ensure these sites fulfill their intended flood control and ecological purposes.

In 2016, the City obtained permits from CDFW (Streambed Alteration Agreement #1600-2015-0098) and RWQCB (Section 401 Water Quality Certification [401 Certification # R9-2015-0098]) for the construction of the Crown Valley Park Wetland Creation Area J03P01 which occurs within Site 4. Compensatory mitigation required for implementation of this project included establishment of riparian habitat downstream of this project within Site 4. The mitigation for this project is currently underway.

# Project Objectives

The proposed project includes the routine maintenance and habitat management activities to be performed at the 13 ~~City-owned~~ wetland sites. The O&M Plan was prepared as a guide for the City to manage and maintain the 13 wetland sites for long-term sustainability and public safety. It establishes routine maintenance activities that will be performed at the 13 wetland sites, compensatory mitigation requirements, and general reporting requirements.

The goals and objectives of the proposed project and O&M Plan include:

- Implement flood control and vector control for public safety.
- Maintain the integrity of the restored ecosystems.
- Manage the sites for the long-term stability, health, and sustainability of the Aliso Creek Watershed.

# Project Components

The City is proposing to conduct routine O&M activities within the 13 ~~City-owned~~ wetland sites in the Sulphur Creek watershed; in a portion of the Salt Creek Watershed, within Chapparosa Park; and within Crown Valley Regional Park. The project would include minor maintenance activities such as

removing herbaceous vegetation and accumulated sediment around outfalls, risers, culverts, and bridge crossings; establishing pilot channels to facilitate positive flow and maintain flood capacity (i.e., flowline maintenance); and trimming understory of riparian vegetation (i.e., below the tree canopy) to prevent obstruction of flow. The O&M Plan attached in Appendix A contains detailed descriptions of the specific operations and maintenance activities proposed for each wetland site. In general, operations and maintenance activities will include the following.

1. Vegetation Maintenance – Storm drain outfalls, inlets, risers, and concrete or stone weirs will be cleaned of all herbaceous vegetation. Additionally, a 3- to 30-foot radius surrounding the maintenance facility will be cleared, by hand or mechanized equipment, of herbaceous vegetation. Understory vegetation trimming may also be necessary to allow clearance for inspections and maintain hydraulic flow. Native plants and native vegetative detritus[2] within wetland areas will be pruned and trimmed to alleviate encroachment of vegetation over or onto a public area such as a sidewalk or trail. Native vegetation may be removed only if determined to be a public safety hazard and will be limited to dying or unstable trees located near public sidewalks or trails. Damaged limbs occurring at locations where the public would be threatened if the limbs fall will be addressed, as will vegetative or detritus impediments to stream flow that could potentially cause flooding or seepage of water onto public areas. Combustible vegetative fuel buildup near fire-susceptible structures or developments will be managed, as well as vegetative blocking of signage visibility or access for County Vector Control or environmental research activities and encroachment into overhead utility lines or impeding required access to maintenance facilities, cleanouts, manholes, or vaults. Debris from trimming of native vegetation will be cut up and disposed of off site.

2. Sediment Maintenance – Storm drain outfalls, inlets, risers, and concrete or stone weirs will be cleaned of accumulated sediment to maintain hydraulic flow. Where equipment access is available, equipment for sediment removal will include a mini-excavator, a bobcat loader, and a dewatering bin that will be used to stockpile the sediment. In areas where access is limited, hand tools (e.g., shovels and wheelbarrows) will be used to remove accumulated sediment. Additionally, a 3- to 30-foot radius above and/or below the maintenance facilities will be cleared of accumulated sediment. All sediment will be legally disposed of off site.

3. Flowline Maintenance – Pilot low-flow channels will be maintained within 12 of the ~~City-owned~~ wetland sites (excludes Site 3, North Alicia Wetland) in order to maintain positive hydraulic flow. Pilot channels will be limited to 3 feet wide and will run the length of the wetland site. Where equipment access is available, equipment for the establishment of the pilot channels will include a backhoe with extend-a-hoe, a vactor[3] pump truck, and a dewatering bin. In areas where access is limited, hand tools (e.g., shovels and wheelbarrows) will be used. The established pilot channels will be maintained (i.e., removal of herbaceous vegetation, accumulated vegetative detritus, and sediment; tree/shrub understory trimming; trash and debris removal; and maintenance of access paths) on a biannual basis, typically in spring and fall.

4. Access Path Maintenance – All designated dirt paths for maintenance and vector control access will be maintained in a clean and safe condition. Access path maintenance includes pruning and trimming of adjacent and overhanging vegetation for a 6-foot vertical and 3-foot horizontal clearance, removal of any dead or damaged branches or limbs overhanging the access path, and

[2] Waste or debris from the decomposition of organic materials

[3] Type of tank truck with attached vacuum pump to suck up sediment

path erosion repair. General tree pruning will be conducted on an as-needed basis and no more than once per year and with the intent of developing structurally sound trees with adequate vertical and horizontal clearance adjacent to public access ways. Tripping hazards such as rocks and exposed roots will be removed, and holes will be filled with dirt or decomposed granite. No new access paths are proposed, only the maintenance of existing footpaths.

5. Nonnative Vegetation Removal – All nonnative vegetation will be removed and may require chemical application of herbicides in extreme circumstances. Only herbicides approved by the U.S. Environmental Protection Agency (EPA) as suitable near water sources, such as AquaMaster, would be used. All nonnative material will be cut and disposed of off site. Nonnative vegetation removal will occur within the entirety of the wetland sites.
6. Trash and Debris Maintenance – All trash and debris will be removed by hand or by hand-held mechanized equipment from the entirety of the wetland sites and legally disposed of off site. Trash and debris maintenance will occur quarterly in the wetland areas. Trash and debris removal in the wetland sites will be conducted once in spring, once in early fall prior to the first rain, and two times during the winter after significant rainstorms.
7. Rodent and Pest Control – Rodents and pests will be controlled only as necessary to limit excessive damage to native areas or adjacent ornamental landscaping. Rodents include gophers and ground squirrels. Pests include shot hole beetles, snails, sow bugs, aphids, caterpillars, and other insects that could cause erosion or cause damage to any plants, shrubs, groundcover, trees, irrigation systems, or facilities. All methods employed to perform rodent and pest control will conform to all federal, state, and county environmental regulations. Only non-chemical practices are used for rodent control.

# Environmental Commitments

The following resource-specific avoidance and minimization measures would be incorporated as part of the proposed project and were developed in coordination with the City, CDFW, RWQCB, and USACE where necessary.

**EC-BIO-1**. The City will submit a pre-maintenance notification to the resource agencies annually, detailing the current status of the wetland sites and the maintenance in accordance with this O&M Plan to be undertaken during the following maintenance year. The notification will also include the anticipated schedule and dates for work at each wetland site proposed for maintenance, minimization measures to be implemented, and biological monitor information.

**EC-BIO-2**. At the end of the maintenance year (i.e., June 30), a post-maintenance summary will be prepared and submitted to the agencies documenting the activities and actual acreage of impacts that occurred under this O&M Plan for the year. A post-maintenance letter report will be provided 60 days after the conclusion of the maintenance year by the biological monitor. The report will include dates of work, minimization measures implemented, incidental wildlife observations, any issues or concerns that need short- and/or long-term attention (e.g., weed control, sediment removal, vector control), any adaptive management or changes in the maintenance and monitoring program that appear warranted based on monitoring results to date, and before-and-after photographs. The report details and timing may be modified during the permitting process by the USACE, RWQCB, and/or CDFW.

**EC-BIO-3**. Access routes for maintenance activities associated with vegetation clearing, trimming, or sediment removal will be confined to existing footpaths and access paths identified on Figure 9 of the Biological Technical Report (Appendix B) and will be confined to the minimal amount of area necessary for maintenance activities and safe, reliable work. Development of new footpaths and access paths will be limited to the maximum extent possible. All staging areas and footpaths and access paths will be clearly delineated in the final plans.

**EC-BIO-4**. General tree pruning will be conducted not more often than once per year between November and December and with the intent of developing structurally sound trees with adequate vertical and horizontal clearance adjacent to public access ways. Access path maintenance will include pruning and trimming of adjacent and overhanging vegetation for a 6-foot vertical and 3-foot horizontal clearance, removal of any dead or damaged branches or limbs overhanging the access path, and path erosion repair.

**EC-BIO-5**. A Worker Environmental Awareness Plan will be developed and implemented prior to the start of O&M activities.

**EC-BIO-6**. Environmental training will be led annually by the qualified biologist(s) and will cover the sensitive resources found on site, flagging/fencing of exclusion areas, permit requirements, and other environmental issues. All personnel overseeing maintenance activities within the wetland and riparian habitat will receive instruction prior to initiation of maintenance activities, as to the sensitivity of the work environment and the limitation of activities outlined herein. The conditions of the regulatory permits and this supplemental information will be reviewed by all personnel overseeing in these maintenance activities at a minimum of once per year.

**EC-BIO-7**. All personnel will be prohibited from bringing domestic pets and firearms to the site.

**EC-BIO-8**. All maintenance activities associated with vegetation clearing, trimming, or sediment removal will not be conducted during heavy rains to prevent unnecessary erosion, runoff, and sedimentation, and these activities will not resume until conditions are suitable for the movement of equipment and materials.

**EC-BIO-9**. Daytime vehicle speeds will be restricted to posted speed limits on existing paved roads and to 15 miles per hour on dirt access roads during the all phases of the project.

**EC-BIO-10**. Trash and debris removal in the wetland areas will be conducted quarterly. All trash and debris will be removed by hand or by handheld mechanized equipment from the wetland sites and legally disposed of off site.

**EC-BIO-11**. Rodents and pests will be controlled as necessary to limit excessive damage to native areas or adjacent ornamental landscaping. For rodents: Only non-chemical practices will be used for rodent control which incorporate Integrated Pest Management protocols such habitat reduction, exclusion, food reduction, trapping, and similar type methods. ~~Rodents include gophers and ground squirrels; pests include snails, sow bugs, aphids, caterpillars, and other insects that could cause erosion or cause damage to any plants, shrubs, groundcover, trees, irrigation systems, or facilities. All methods employed to perform rodent and pest control will conform to all federal, state, and county environmental regulations.~~ For shot hole beetles: The City proactively removes any infected trees that have the potential to conflict with pedestrians and vehicles, as well as down limbs that are determined to be a problem with clogging streambeds. The goal is to reduce the risk of harm from falling trees and limbs, as well as reduce the spread of shot hole beetles. The City's website provides information to residents and contractors for the control of shot hole beetles. The website has a link

to the University of California, Riverside's Eskalen Lab. City staff and contractors continually examine City-owned trees to assess their viability.

**EC-BIO-12**. Necessary vegetation clearing and trimming will occur primarily within the channel bottom and will be limited to access paths along bank slopes to prevent the potential for erosion problems or trails.

**EC-BIO-13**: All maintenance activities associated with vegetation clearing, trimming, or sediment removal will be conducted during the nonbreeding season (typically September 15 through February 15) for avian species protected under the Migratory Bird Treaty Act. If maintenance activities must occur during the breeding season, then compliance with **EC-BIO-17** would be required.

**EC-BIO-14**: When possible, the City will use hand tools for manual vegetation clearing and sediment removal and will only use heavy equipment when necessary.

**EC-BIO-15**. Vegetation clearing will occur outside of the breeding seasons for habitat occupied by coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, yellow warbler, yellow-breasted chat, and other avian species (e.g., coastal California gnatcatcher, February 15 through August 15; least Bell's vireo, March 15 through September 15). If vegetation clearing must occur during the coastal California gnatcatcher, least Bell's vireo, or southwestern willow flycatcher breeding season, a focused pre-activity nest survey will be conducted in the work area and 300-foot buffer by the qualified biologist(s) during 3 separate visits (on separate days), with the final visit occurring not more than ~~a minimum of~~ 3 days prior to the start of O&M activities in any given area of the project area. If no active nests are discovered, O&M activities may proceed. If active nests are observed that could be disturbed by O&M activities, these nests and a 300-foot buffer will be avoided until the young have fledged and/or the monitor determines that no impacts are anticipated on the nesting birds or their young. The qualified biologist(s) will be responsible for coordinating with the U.S. Fish and Wildlife Service (USFWS) and CDFW to determine if O&M activities could disturb an active nest and when nests are no longer active. If O&M activities cease for 5 or more consecutive days during the nesting season, additional nesting bird surveys will be required to ensure that new nesting locations have not been established.

**EC-BIO-16**. Noise monitoring will be conducted if O&M activities are scheduled during the coastal California gnatcatcher or least Bell's vireo breeding season to determine if the O&M-related noise levels will exceed 60 A-weighted decibels (dBA) hourly equivalent sound level (Leq) within 300 feet of the noise source. If nesting coastal California gnatcatcher or least Bell's vireo are in the vicinity of the project area and O&M activities are occurring during the breeding season, temporary noise attenuation barriers will be built to reduce O&M-related noise to below 60 dBA hourly Leq. The qualified biologist(s) will be responsible for ensuring that noise attenuation barriers are successful at reducing noise levels. Documentation of the noise monitoring results will be provided to USFWS and CDFW within 45 days of completing the final noise monitoring event.

**EC-BIO-17**. Vegetation clearing will occur outside of the breeding season for other avian species protected under the Migratory Bird Treaty Act (e.g., February 15 through September 15). If vegetation clearing must occur during the general avian breeding season, a pre-activity nest survey will be conducted within the O&M activity area and 300-foot buffer by the qualified biologist(s) 3 days prior to the start of O&M activities in any given area of the project area. If no active nests are discovered, maintenance activities may proceed. If active nests are observed that could be disturbed by maintenance activities, these nests and an appropriately sized buffer (typically a 300-foot buffer)

will be avoided until the young have fledged and/or the monitor determines that no impacts are anticipated on the nesting birds or their young. If O&M activities cease for 5 or more consecutive days during the nesting season, additional nesting bird surveys will be required to ensure that new nesting locations have not been established.

**EC-BIO-18**. The established channels within jurisdictional waters will be maintained (i.e., removal of vegetation, accumulated vegetative detritus, and sediment; tree/shrub trimming; trash and debris removal; and maintenance of access paths) on a biannual basis, typically in spring and fall.

**EC-BIO-19**. Discharge of imported sediment into the wetland/riparian area will not be permitted under any circumstances.

**EC-BIO-20**. All maintenance activities associated within in-water project activities (i.e., vegetation clearing or sediment removal) will be conducted outside of the steelhead juvenile migration window (March–May, or when habitat is inaccessible due to ephemeral flows or water temperatures exceed 25 degrees Centigrade).

# Required Approvals

The City of Laguna Niguel is the lead agency under CEQA and is responsible for permitting the project; USACE, RWQCB, CDFW, and USFWS have some approval and/or discretionary authority over the project. The RWQCB and CDFW are also considered responsible agencies under CEQA. The South Coast Air Quality Management District (SCAQMD) has also been identified as a responsible agency in the event that any portable engines and portable equipment units of 50 horsepower or greater are not registered with the Portable Equipment Registration Program and require a permit to operate. The following approvals would be required to implement the project as proposed.

## City of Laguna Niguel

- Adopt the MND and mitigation monitoring and reporting program.

## Other Approvals

- USACE Clean Water Act Section 404 Permit
- RWQCB Clean Water Act Section 401 Water Quality Certification and Porter-Cologne Act Waste Discharge Requirements
- CDFW Section 1602 Streambed Alteration Agreement
- USFWS Biological Opinion (BO) pursuant to Section 7 of the Endangered Species Act
- SCAQMD Permit to Operate, as necessary

# Chapter 3
# Environmental Checklist

| | | |
|---|---|---|
| **1.** | **Project Title:** | Laguna Niguel Wetlands Operations and Maintenance Activities Project |
| **2.** | **Lead Agency Name and Address:** | City of Laguna Niguel<br>30111 Crown Valley Parkway<br>Laguna Niguel, CA 92677 |
| **3.** | **Contact Person and Phone Number:** | Hal Ghafari<br>949-362-4385 |
| **4.** | **Project Location:** | Within the City of Laguna Niguel, Orange County, California; west of Interstate 5 (I-5), east of Aliso Woods Regional Park, south of State Route 73, and north of the Pacific Ocean. |
| **5.** | **Project Sponsor's Name and Address:** | City of Laguna Niguel |
| **6.** | **General Plan Designation:** | Open Space; Parks & Recreation; and Residential |
| **7.** | **Zoning:** | Open Space; Parks & Recreation; and Planned Residential |

**8.** **Description of Project:** Routine operation and maintenance activities within 13 City-owned wetland sites in the Sulphur Creek watershed; in a portion of the Salt Creek Watershed, within Chapparosa Park; and within Crown Valley Regional Park. Minor maintenance activities would include removing herbaceous vegetation and accumulated sediment around outfalls, risers, culverts, and bridge crossings; establishing pilot channels to facilitate positive flow and maintain flood capacity; and trimming understory of riparian vegetation below the tree canopy to prevent obstruction of flow.

**9.** **Surrounding Land Uses and Setting:** Residential and commercial developments; undeveloped open space; schools; regional parks including Laguna Niguel Regional Park, Crown Valley Park, and Salt Corridor Regional Park; and recreational uses including pedestrian and bicycle trails.

**10.** **Other Public Agencies Whose Approval is Required:**

USACE, USFWS, RWQCB, CDFW, SCAQMD

**11.** **Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, has consultation begun?**

Yes. Assembly Bill 52 consultation has been initiated and is ongoing.

# Environmental Factors Potentially Affected

The following checklist was used to evaluate the potential for the proposed project to cause significant environmental impacts. The responses consider the project in its entirety and any associated actions, including on- and off-site impacts, project-level and cumulative impacts, direct and indirect impacts, and construction and operational impacts. The checklist originates from the form provided in Appendix G of the State CEQA Guidelines. Each subject includes an evaluation followed by a brief discussion explaining the evaluation rationale. As appropriate, each subject discussion may address more than one specific issue if the analyses are closely related to reduce repetitive impact analyses. The environmental factors checked below would potentially be affected by this project (i.e., the project would involve at least one impact that is a "Potentially Significant Impact"), as indicated by the checklist on the following pages.

| | | |
|---|---|---|
| ☐ Aesthetics | ☐ Agricultural and Forestry | ☐ Air Quality |
| ☐ Biological Resources | ☐ Cultural Resources | ☐ Geology/Soils/Paleo |
| ☐ Greenhouse Gas Emissions | ☐ Hazards and Hazardous Materials | ☐ Hydrology/Water Quality |
| ☐ Land Use/Planning | ☐ Mineral Resources | ☐ Noise |
| ☐ Population/Housing | ☐ Public Services | ☐ Recreation |
| ☐ Transportation/Traffic | ☐ Tribal Cultural Resources | ☐ Utilities/Service Systems |
| ☐ Mandatory Findings of Significance | | |

# Determination

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have an impact on the environment that is "potentially significant" or "potentially significant unless mitigated" but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards and (2) has been addressed by mitigation measures based on the earlier analysis, as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

Signature Date

Hal Ghafari

Printed Name

# Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained if it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4. "Negative Declaration: Less than Significant with Mitigation Incorporated" applies when the incorporation of mitigation measures has reduced an effect from a "Potentially Significant Impact" to a "Less-than-Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less-than-significant level. (Mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced.)
5. Earlier analyses may be used if, pursuant to tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063(c)(3)(D)). In this case, a brief discussion should identify the following:
    a. Earlier Analysis Used. Identify and state where earlier analyses are available for review.
    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Incorporated," describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, when appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
    a. the significance criteria or threshold, if any, used to evaluate each question; and
    b. the mitigation measure identified, if any, to reduce the impact to a less-than-significant level.

# I. Aesthetics

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|---|
| Would the project: | | | | | |
| a. | Have a substantial adverse effect on a scenic vista? | ☐ | ☐ | ☒ | ☐ |
| b. | Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway? | ☐ | ☐ | ☒ | ☐ |
| c. | Substantially degrade the existing visual character or quality of the site and its surroundings? | ☐ | ☐ | ☒ | ☐ |
| d. | Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area? | ☐ | ☐ | ☐ | ☒ |

## Impact Analysis

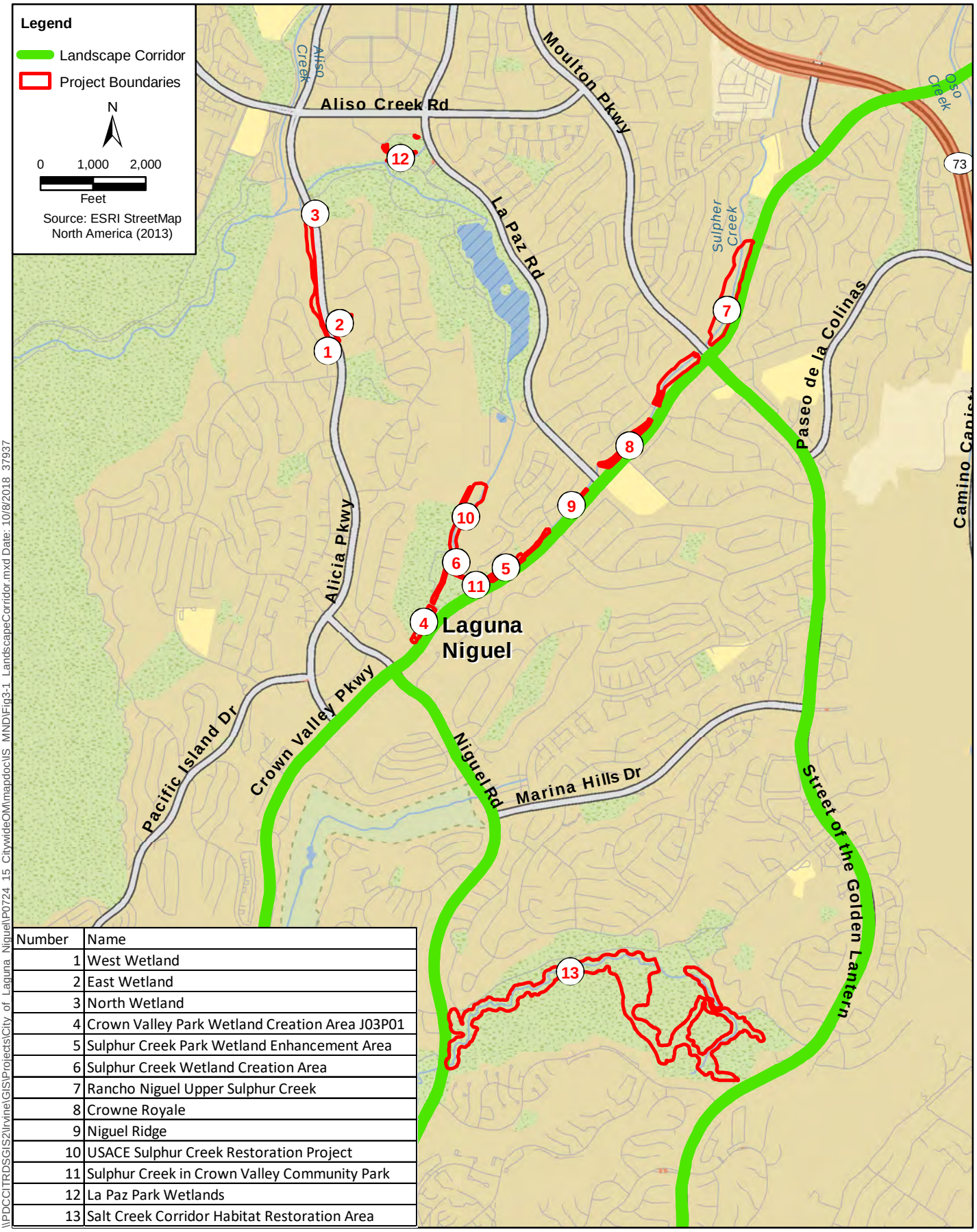
**Would the project:**

***a. Have a substantial adverse effect on a scenic vista?***

**Less-than-Significant Impact.** A scenic vista is a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. The City of Laguna Niguel General Plan identifies citywide scenic routes that are consistent with the County of Orange Master Plan of Scenic Highways. The General Plan defines two types of scenic highways; viewscape corridors and landscape corridors. A *landscape corridor* (Figure 3-1) is defined as: "[a] landscape corridor [that] traverses developed or developing areas and has been designated for special treatment to provide a pleasant driving environment as well as community enhancement. Development within the corridor should serve to complement the scenic highway." A *viewscape corridor* is defined as: "[a] route which traverses a corridor within which unique or unusual scenic resources and aesthetic values are found. This designation is intended to minimize the impact of the highway's and land development upon the significant scenic resources along the route. Safety roadside rests and vista points are encouraged to be developed to enhance the scenic value of the corridor." (City of Laguna Niguel 1992.)

There are no designated viewscape corridors in Laguna Niguel. Crown Valley Parkway (west of I-5), Niguel Road, and Golden Lantern (south of Crown Valley Parkway) are identified as landscape corridors in the Laguna Niguel General Plan Open Space Element (City of Laguna Niguel 1992). As shown on Figure 3-1, the project sites adjacent to these corridors include Sites 4, 5, 7, 8, 9, 11, and 13.

The project involves the implementation of O&M activities within 13 (pre-existing) City-owned wetland sites, which would involve minor maintenance activities as described in Chapter 2. Because




| Number | Name |
|---|---|
| 1 | West Wetland |
| 2 | East Wetland |
| 3 | North Wetland |
| 4 | Crown Valley Park Wetland Creation Area J03P01 |
| 5 | Sulphur Creek Park Wetland Enhancement Area |
| 6 | Sulphur Creek Wetland Creation Area |
| 7 | Rancho Niguel Upper Sulphur Creek |
| 8 | Crowne Royale |
| 9 | Niguel Ridge |
| 10 | USACE Sulphur Creek Restoration Project |
| 11 | Sulphur Creek in Crown Valley Community Park |
| 12 | La Paz Park Wetlands |
| 13 | Salt Creek Corridor Habitat Restoration Area |

\\PDCCITRDSGIS2\Irvine\GIS\Projects\City of Laguna Niguel\P0724 15 CitywideOM\mapdocIS MND\Fig3-1 LandscapeCorridor.mxd Date: 10/8/2018 37937

**Figure 3-1**
**Landscape Corridor**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

the project involves small-scale maintenance activities of extant wetland sites, potential impacts on landscape corridors would be negligible and project implementation would result in conditions similar to existing conditions. Additionally, implementation of the proposed project would maintain the wetland sites' flood control and biological functions (via flood and vector control and maintaining restored ecosystems and management of wetland sites), thus maintaining the wetland sites in their natural state. Views of the sites during maintenance activities would not substantially affect a scenic vista because site disturbance activities would be minimal (occurring bi-annually, in most cases) and conducted on a temporary basis only. Therefore, implementation of the proposed project would have beneficial visual (by maintaining wetlands) and biological effects and would not result in a substantial adverse effect on a scenic vista. Impacts would be less than significant.

***b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?***

**Less-than-Significant Impact.** Implementation of the proposed project would not substantially damage scenic resources. According to the California Department of Transportation (Caltrans) *California Scenic Highway Mapping System*, there are no officially designated state scenic highways in the immediate vicinity of the proposed project (Caltrans 2011). The nearest Designated Scenic Highway is Pacific Coast Highway (Highway 1) approximately 1.7 miles west of wetland Salt Creek Corridor Habitat Restoration Area (Site 13). However, given the topography of the area (Highway 1 is near the Pacific Ocean at just above sea level) and the location of the wetlands, it is expected that project locations would not be visible from this scenic roadway. Furthermore, as the project involves the maintenance of pre-existing wetlands, there are no sensitive historic resources located within any of the project sites. Moreover, the proposed project involves minor maintenance activities to maintain flood control and biological function in the aforementioned wetland sites and would not adversely affect any rock outcroppings within or near the project area. Therefore, the proposed project would not substantially damage scenic resources along a state scenic highway or local roadway. Impacts would be less than significant.

***c. Substantially degrade the existing visual character or quality of the site and its surroundings?***

**Less-than-Significant Impact.** Implementation of the proposed project would not significantly degrade the existing visual character of the site or its surroundings. As mentioned previously, the proposed project would have a beneficial effect on the scenic quality of the area. As O&M activities would involve only minor maintenance activities, the proposed project would not change the character or degrade the visual quality of the site; on the contrary, the proposed project would not only retain the project area's character, but would enhance it by maintaining native habitat and hydrological functions. As a result, the proposed project would not substantially degrade the character or quality of the site or its surroundings and impacts would be less than significant.

***d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?***

**No Impact.** Implementation of the proposed project would not create a new source of substantial light or glare. The proposed project does not feature installation of any lighting, nor would O&M activities require any lighting because all such work would be conducted during daylight hours. Furthermore, no glare would be produced because there would not be any reflective surfaces proposed as part of the proposed project. No impacts would occur.

# II. Agricultural and Forestry Resources

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|
| In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts on forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project, and forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board. Would the project: | | | | |
| a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | ☐ | ☐ | ☐ | ☒ |
| b. Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract? | ☐ | ☐ | ☐ | ☒ |
| c. Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? | ☐ | ☐ | ☐ | ☒ |
| d. Result in the loss of forest land or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ☒ |
| e. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ☒ |

## Affected Environment

Under the California Land Conservation Act of 1975 (Williamson Act) and the Farmland Mapping and Monitoring Program (FMMP), farmlands are mapped by the State of California Department of Conservation in order to provide data for decision-makers to use in planning for current and future uses of the state's agricultural lands. Neither the project sites nor any parcels within the project vicinity are considered Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or Farmland of Local Importance (California Department of Conservation 2016), and the project sites do not contain any land subject to a Williamson Act contract. No farming is present on the sites or on the parcels surrounding the project sites (City of Laguna Niguel 2012a).

## Impact Analysis

**Would the project:**

***a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?***

**No Impact.** All of the project sites are within the City of Laguna Niguel and are mostly designated as Parks and Recreation or Open Space. There is no land within the project sites currently designated or used for agricultural purposes. The FMMP designates the project sites as Urban/Built-up and Other Land on its California Important Farmlands Finder map for Orange County. The map does not identify the project site as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Department of Conservation 2016) and the project is a routine maintenance and habitat management project for flood control, ecosystem integrity, and health of the Aliso Creek Watershed. Therefore, the proposed project would not convert any farmland to non-agricultural use and no impact on farmland would occur.

***b. Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?***

**No Impact.** The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land for use as agricultural or related open space, and applies to parcels within an established agricultural preserve consisting of at least 20 acres of Prime Farmland or at least 40 acres of land not designated as Prime Farmland. The purpose of the Williamson Act is to preserve agriculture and open space lands by discouraging premature and unnecessary conversion to urban uses. Neither the project sites nor any parcels within the project vicinity are zoned for agricultural use or subject to any Williamson Act contracts. The project sites are classified as Urban and Built-Up Land and Other Land (California Department of Conservation 2016). Therefore, the proposed project would not conflict with existing zoning for agricultural use or conflict with a Williamson Act contract, and no impact would occur.

***c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?***

**No Impact.** The proposed project is a routine maintenance and habitat management project for flood control, ecosystem integrity, and health of the Aliso Creek Watershed. No land zoned as forest land or timberland exists within the proposed project boundaries (City of Laguna Niguel 2012a).

The proposed project would not conflict with existing zoning for forest land or timberland; no impact would occur.

***d. Result in the loss of forest land or conversion of forest land to non-forest use?***

**No Impact.** As discussed previously, no land zoned as forest land or timberland exists within the proposed project boundaries. Approval of the proposed project would not result in the loss of forest land or conversion of forest land to other uses; no impact would occur.

***e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?***

**No Impact.** Implementation of the proposed project would have no impact on agriculture and/or forestry resources. The wetland sites are within urbanized areas where there is no farmland or forest resources. The wetland sites are classified as Urban and Built-Up Land and Other Land, which do not contain agricultural uses or areas designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (California Department of Conservation 2016). Furthermore, there are no Williamson Act contracts or forest lands in the project vicinity (California Department of Conservation 2016). There would be no need for land acquisition to implement the proposed project. There would be no other changes in the existing environment, which, due to their location and nature, would result in the conversion of farmland to non-agricultural use or conversion of forest land to non-forest use with implementation of the proposed project. Therefore, there would be no impact.

# III. Air Quality

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|
| When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project: | | | | |
| a. Conflict with or obstruct implementation of the applicable air quality plan? | ☐ | ☐ | ☐ | ☒ |
| b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | ☐ | ☐ | ☒ | ☐ |
| c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)? | ☐ | ☐ | ☒ | ☐ |
| d. Expose sensitive receptors to substantial pollutant concentrations? | ☐ | ☐ | ☒ | ☐ |
| e. Create objectionable odors affecting a substantial number of people? | ☐ | ☐ | ☒ | ☐ |

## Affected Environment

The project site is within the South Coast Air Basin (Basin), an area covering approximately 6,745 square miles and bounded by the Pacific Ocean to the west and south and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties, in addition to the San Gorgonio Pass area in Riverside County. The terrain and geographical location determine the distinctive climate of the Basin, which is a coastal plain with connecting broad valleys and low hills.

Climate in Southern California, including the Basin, is controlled largely by the strength and position of subtropical high-pressure cells over the Pacific Ocean. Most precipitation is limited to a few storms during the winter season. Winds in the vicinity of the project site are usually driven by the dominant land/sea breeze circulation system. Temperature inversions, which can trap air pollutants near the ground, are common during the summer months when daytime winds are light. Wind patterns can also concentrate and carry pollutants from nearby areas, thereby adding to the local pollutant mix.

Local monitoring data regarding criteria pollutants identified under the state and federal Clean Air Acts are used to designate areas as nonattainment, maintenance, attainment, or unclassified areas

for the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The four designations are defined as:

- Nonattainment—assigned to areas where monitored pollutant concentrations consistently violate the standard in question.
- Maintenance—assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard.
- Attainment—assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- Unclassified—assigned to areas where data are inadequate with respect to determining whether a pollutant is violating the standard in question.

Table 3-1 summarizes the attainment status for the Orange County portion of the Basin with respect to the NAAQS and CAAQS.

**Table 3-1. Federal and State Attainment Status for the Orange County Portion of the South Coast Air Basin**

| Criteria Pollutant | Federal Designation | State Designation |
|---|---|---|
| Ozone ($O_3$) (1-hour standard) | — | Nonattainment |
| Ozone ($O_3$) (8-hour standard) | Nonattainment – Extreme (P) | Nonattainment |
| Carbon Monoxide (CO) | Maintenance – Serious (P) | Attainment |
| Particulate Matter (PM10) | Maintenance – Serious (P) | Nonattainment |
| Fine Particulate Matter (PM2.5) | Nonattainment – Serious (P) | Nonattainment |
| Nitrogen Dioxide ($NO_2$) | Maintenance (P) | Attainment |
| Sulfur Dioxide ($SO_2$) | Attainment | Attainment |
| Lead (Pb) | Attainment* | Attainment |

Sources: EPA 2017; CARB 2017.

(P) = designation applies to a portion of the county

* The South Coast Air Basin is a partial nonattainment area for lead due to source-specific monitoring at two locations in Los Angeles County; however, the Orange County portion is designated as an attainment area.

### Sensitive Receptors

Sensitive receptors are defined as locations where pollutant-sensitive members of the population may reside or where the presence of air pollutant emissions could adversely affect use of the land. Sensitive members of the population include those who may be more negatively affected by poor air quality than other members of the population, such as children, the elderly, or the infirm. In general, residential areas, hospitals, daycare facilities, elder-care facilities, elementary schools, and parks typically contain a high concentration of these sensitive population groups (CARB 2005).

Sensitive receptors in the vicinity of the wetland sites include residences and parks. The closest residential receptor is 25 feet from Rancho Niguel Master Association Upper Sulphur Creek (Site 7). Crown Valley Community Park, La Paz Park, and Chapparosa Community Park are all adjacent to wetland Sites 4, 6, 10, 11, 12, and 13.

## Impact Analysis

Implementation of the O&M Plan would involve occasional trips from workers performing maintenance activities at the wetland sites and would involve air pollutant emissions from material hauling and equipment use. Such activities would vary in terms of the scale, duration, frequency, number of workers required, and amount of equipment required. Estimates of air pollutant emissions that would result from maintenance activities were quantified using project-specific equipment assumptions for the most equipment-intensive day and the Road Construction Emissions Model (RCEM) (version 9.0.0) developed by the Sacramento Metropolitan Air Quality Management District. Although RCEM was developed for the Sacramento Metropolitan Air Quality Management District, the model includes emission factors applicable statewide, and is therefore recognized as a tool for analyzing air quality in other air districts, including areas under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The model includes data from the following sources:

- Emission factors from the California Air Resources Board's (CARB's) EMFAC2017 model for on-road emissions
- Emission factors from CARB's OFFROAD model for construction equipment emissions
- Fugitive re-entrained road dust emissions are based on the U.S. Environmental Protection Agency's (EPA's) AP-42 methodology (EPA 2011).
- Fugitive particulate matter 10 microns or less in diameter (PM10) and particulate matter 2.5 microns or less in diameter (PM2.5) dust emissions associated with earthwork are based on daily intensity rates (acres graded per day). The dust-control methods for the project will be specified in the dust-control plan that would be submitted to the SCAQMD per Rule 403.~~Due to the variability of maintenance activities, quantification of emissions would yield little informational value. Consequently, air quality impacts are discussed qualitatively, with a focus on the sources and activity types that would be involved.~~

**Would the project:**

***a. Conflict with or obstruct implementation of the applicable air quality plan?***

**No Impact.** ~~The South Coast Air Quality Management District (~~SCAQMD~~)~~ is required, pursuant to the federal Clean Air Act, to reduce emissions of criteria pollutants for which the Basin is in nonattainment. SCAQMD's most recent plan to achieve air quality standards is the 2016 Air Quality Management Plan (AQMP), adopted by the SCAQMD Governing Board on March 3, 2017. The AQMP relies on emissions forecasts based on the demographic and economic growth projections provided by the Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (SCAQMD 2016:4-42). SCAG is charged by California law to prepare and approve "the portions of each AQMP relating to demographic projections and integrated regional land use, housing, employment, and transportation programs, measures and strategies" (SCAQMD 2016:4-42). Projects whose growth is included in the projections used in the formulation of the AQMP are considered to be consistent with the plan and to not obstruct its implementation. SCAQMD recommends that, when determining whether a project is consistent with the current AQMP, a lead agency must assess: (1) whether the project would directly obstruct implementation of the plan through an increase in the frequency or severity of existing air quality violations, or cause or contribute to, new violations, or delay timely attainment of

air quality standards, and (2) whether it is consistent with the demographic and economic assumptions (typically land use–related, such as resultant employment or residential units) upon which the plan is based (SCAQMD 1993).

The proposed project would not obstruct implementation of the AQMP, as emissions resulting from wetland site maintenance activities would be intermittent and on a smaller scale such that the project's emissions would not increase concentrations of criteria pollutants or their precursors in a manner that could obstruct SCAQMD's efforts to achieve attainment of ambient air quality standards. Given that the project would involve maintenance of wetland sites, the proposed project would not change development patterns that would increase employment or residential units in the project area or elsewhere in the region. Therefore, the proposed project is consistent with the demographic and economic assumptions upon which the AQMP is based and no impact would occur.

***b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?***

**Less-than-Significant Impact.** Maintenance activities would involve emissions of criteria pollutants and ozone ($O_3$) precursor pollutants associated with worker commute trips, hauling trips, and diesel-powered equipment use. Table 3-2 shows the estimates of daily regional mass emissions that would result from peak maintenance activities in the 2019 calendar year. Given that maintenance activities would be performed on an on-going basis after 2019, emissions from maintenance activities subsequent to 2019 would likely be less than identified in Table 3-2 due to the retirement of older vehicles and equipment with higher emissions than newer models. As shown in Table 3-2, emissions would not exceed any of the SCAQMD regional significance thresholds.

**Table 3-2. Daily Regional Mass Emissions (pounds per day)**

| Project Element | ROG [a] | CO | $NO_X$ | PM10 | PM2.5 | $SO_X$ |
|---|---|---|---|---|---|---|
| Peak Maintenance Activities | 3 | 17 | 25 | 3 | 2 | < 1 |
| *Regional Mass Emissions Threshold* | 75 | 550 | 100 | 150 | 55 | 150 |
| *Threshold Exceeded?* | *No* | *No* | *No* | *No* | *No* | *No* |

[a] The terms volatile organic compounds (VOCs) and reactive organic gases (ROG) are used interchangeably. ROG is used in this table based on the RCEM.

Source: Estimates using RCEM (see Appendix G).

~~Due to the variability of maintenance activities, no quantification of emissions has been undertaken; however, such~~In addition, emissions would be controlled through compliance with SCAQMD rules, such as Rule 403 to control fugitive dust emissions, as well as through specific O&M Plan measures that would be implemented because of the biological sensitivity of the area. For example, **Environmental Commitment EC-BIO-9** requires vehicles to travel no faster than 15 miles per hour on unpaved roads, which will limit fugitive dust emissions, and **EC-BIO-14** states that handheld tools will be used for manual vegetation clearing and sediment when possible, and heavy equipment will only be used when necessary. Although activities would vary based on the scale, duration, frequency, number of workers, and amount of equipment required, maintenance activities would be on a smaller scale such that generation of pollutants in excess of regional and localized emissions thresholds is not anticipated. The project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Impacts would be less than significant.

Portable engines and portable equipment units of 50 horsepower or greater that would be used to perform project-related maintenance activities would have the necessary permits to operate, either from SCAQMD or registration with the Portable Equipment Registration Program (PERP) through CARB, which will be included as a requirement in construction contractor procurement documents. SCAQMD has been identified as a Responsible Agency in the event that any equipment not registered through CARB's PERP requires permits from SCAQMD.

***c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?***

**Less-than-Significant Impact**. The Basin, the geographic region where the proposed project is located, is currently in nonattainment for $O_3$ and ~~particulate matter 2.5 microns or less in diameter (~~PM2.5~~)~~ under the NAAQS as well as for $O_3$, ~~particulate matter 10 microns or less in diameter (~~PM10~~)~~, and PM2.5 under the CAAQS. As discussed above in III.b, implementation of the O&M Plan would generate emissions of criteria pollutants and $O_3$ precursor pollutants as a result of maintenance activities. However, due to the scale of typical activities, emissions are not expected to be in excess of SCAQMD regional thresholds developed to ensure attainment of the NAAQS and CAAQS, as shown in Table 3-3. ~~Because the need for maintenance activities varies with conditions, no quantitative estimate of emissions was undertaken. However, e~~Emissions would be limited through compliance with SCAQMD rules and implementation of **Environmental Commitments EC-BIO-9** and **EC-BIO-14** to protect biological resources. Therefore, because the proposed project would not exceed the thresholds for a nonattainment pollutant (in this case, $O_3$ precursors [reactive organic gases and nitrogen oxides], PM10, and PM2.5), the proposed project would not result in a net increase in pollutants (including $O_3$ precursors) that would be cumulatively considerable. Impacts would be less than significant.

***d. Expose sensitive receptors to substantial pollutant concentrations?***

**Less-than-Significant Impact**. As discussed above, the closest sensitive receptors to the wetland sites that would be maintained under the O&M Plan include residences, the closest of which are 25 feet from Rancho Niguel Master Association Upper Sulphur Creek (Site 7), and parks, adjacent to several wetland sites (Sites 4, 6, 10, 11, 12, and 13). Table 3-3 shows the estimate of on-site emissions that would result from peak maintenance activities. As shown therein, on-site emissions would not exceed the applicable SCAQMD localized significance thresholds.

**Table 3-3. Daily Localized Emissions (pounds per day)**

| Project Element | CO | $NO_X$ | PM10 | PM2.5 |
|---|---|---|---|---|
| Peak Maintenance Activities (On-Site Only) | 15 | 21 | 3.3 | 1.4 |
| *Localized Significance Threshold* | 647 | 92 | 4 | 3 |
| *Threshold Exceeded?* | *No* | *No* | *No* | *No* |

Notes: 1-acre site and 25-meter receptor distances in Source Receptor Area 20 Central Orange County Coastal are used; no Localized Significance Thresholds have been established for VOC and $SO_X$.
Estimates using RCEM (see Appendix G).

Emissions from diesel-powered equipment at these locations would expose nearby sensitive receptors to on-site pollutant emissions; however, given the limited scale and duration of

maintenance activities anticipated at these locations, emissions would not be substantial. Emissions would be controlled through compliance with SCAQMD Rule 403 and implementation of **Environmental Commitments EC-BIO-9** and **EC-BIO-14** to protect biological resources. Impacts related to exposing sensitive receptors to substantial pollutant concentrations would be less than significant.

***e. Create objectionable odors affecting a substantial number of people?***

**Less-than-Significant Impact.** Maintenance activities would require light-duty equipment in the vicinity of wetland sites, which can generate odors through equipment exhaust. Some residents may experience an increase in odor, but this would be a temporary condition during the anticipated short duration of maintenance activities. According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with typical odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting areas, refineries, landfills, dairies, and fiberglass molding facilities (SCAQMD 1993). The proposed project does not include any uses identified by SCAQMD as being associated with odors and, therefore, the short-term operational activity associated with the proposed project would not produce significant objectionable odors. This impact would be less than significant. No mitigation is required.

# IV. Biological Resources

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|---|
| Would the project: | | | | | |
| a. | Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | ☐ | ☒ | ☐ | ☐ |
| b. | Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | ☐ | ☒ | ☐ | ☐ |
| c. | Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means? | ☐ | ☒ | ☐ | ☐ |
| d. | Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | ☐ | ☐ | ☒ | ☐ |
| e. | Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | ☐ | ☐ | ☐ | ☒ |
| f. | Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan? | ☐ | ☐ | ☐ | ☒ |

The analysis contained in this section is based on the results of a literature review and field surveys conducted by ICF in May, June, and July 2016, and September 2017 and a Jurisdictional Delineation conducted by ICF in June and July 2016. Additional details of these assessments are provided below and in the *Biological Technical Report for the Laguna Niguel Wetlands O&M Activities Project* (Appendix B) and the *Jurisdictional Delineation Report for the City of Laguna Niguel Wetlands O&M Activities Project* (Appendix C).

## Affected Environment

The proposed project occurs in flat valleys and along steep slopes and contains perennial and intermittent streams and creeks that follow the slopes. Elevations in the project area range from

roughly 150 feet AMSL at the northern end near Laguna Niguel Regional Park to approximately 60 feet AMSL at the southeastern end of Chapparosa Park. The proposed project contains the approximately 5-mile-long Sulphur Creek, an intermittent tributary to Aliso Creek that is fed by runoff from surrounding development. The proposed project also contains Aliso Creek downstream of the Sulphur Creek confluence that flows approximately 5 miles to the Pacific Ocean where it empties at Aliso Beach County Park, and Salt Creek, a perennial stream that flows out to the Pacific Ocean at Salt Creek County Beach.

**Habitat/Land Cover**

The proposed project supports nine riparian and wetland vegetation communities, eight upland vegetation communities, and two non-vegetated land cover types (Figures 3-2A through 3-2K). The nine riparian and wetland vegetation communities include American bulrush marsh, arroyo willow thickets, black willow thickets, California bulrush marsh, California sycamore woodlands, cattail marshes, Fremont cottonwood forest, mulefat thickets, and salt grass flats. The eight upland communities include California annual grassland, California brittle bush scrub, California sagebrush scrub, coyote brush scrub, eucalyptus groves, lemonade berry scrub, Menzies' golden bush scrub, and pampas grass patches. The two non-vegetated land cover types are disturbed habitat and urban/developed land.

A total of 18.47 acres/29,564 linear feet of USACE waters of the U.S. and 45.44 acres of CDFW riparian and/or streambed occur within the wetland sites. These jurisdictional resources occur within the Sulphur Creek and Salt Creek watersheds.

**Special-Status Plant Species**

Sixty-two plant species were documented during biological surveys. No special-status plant species were documented in the wetland sites and none of the plant species observed are candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS. Suitable habitat for California satintail (*Imperata brevifolia;* California Rare Plant Rank 2B.1), mud nama (*Nama stenocarpa;* California Rare Plant Rank 2B.2), and thread-leaved brodiaea (*Brodiaea filifolia;* federally listed as threatened, state-listed as endangered, California Rare Plant Rank 1B.1) are present within the wetland sites, and these species have a moderate potential to occur based on distance from known population and quality of habitat (including surrounding development and disturbances). No USFWS-designated Critical Habitat for any special-status plant occurs within the wetland sites.

**Special-Status Wildlife Species**

Forty wildlife species were detected within the wetland sites, the majority of which consisted of avian species. Of these, five special-status species were observed: least bell's vireo (LBV) (federally and state-listed as endangered), southwestern willow flycatcher (SWFL) (federally and state-listed as endangered), yellow warbler (CDFW Species of Special Concern), yellow-breasted chat (CDFW Species of Special Concern), and coastal California gnatcatcher (CAGN) (federally listed as threatened) (Figures 3-3A–D). CDFW and National Marine Fisheries Service made probable observations of steelhead trout (*Oncorhynchus mykiss;* federally listed as endangered) in Aliso Creek. No special-status invertebrate, mammal, reptile, or amphibian species were observed within the wetland sites. Additionally, USFWS-designated Critical Habitat for coastal CAGN occurs within the Salt Creek Corridor Habitat Restoration Area (Site 13).

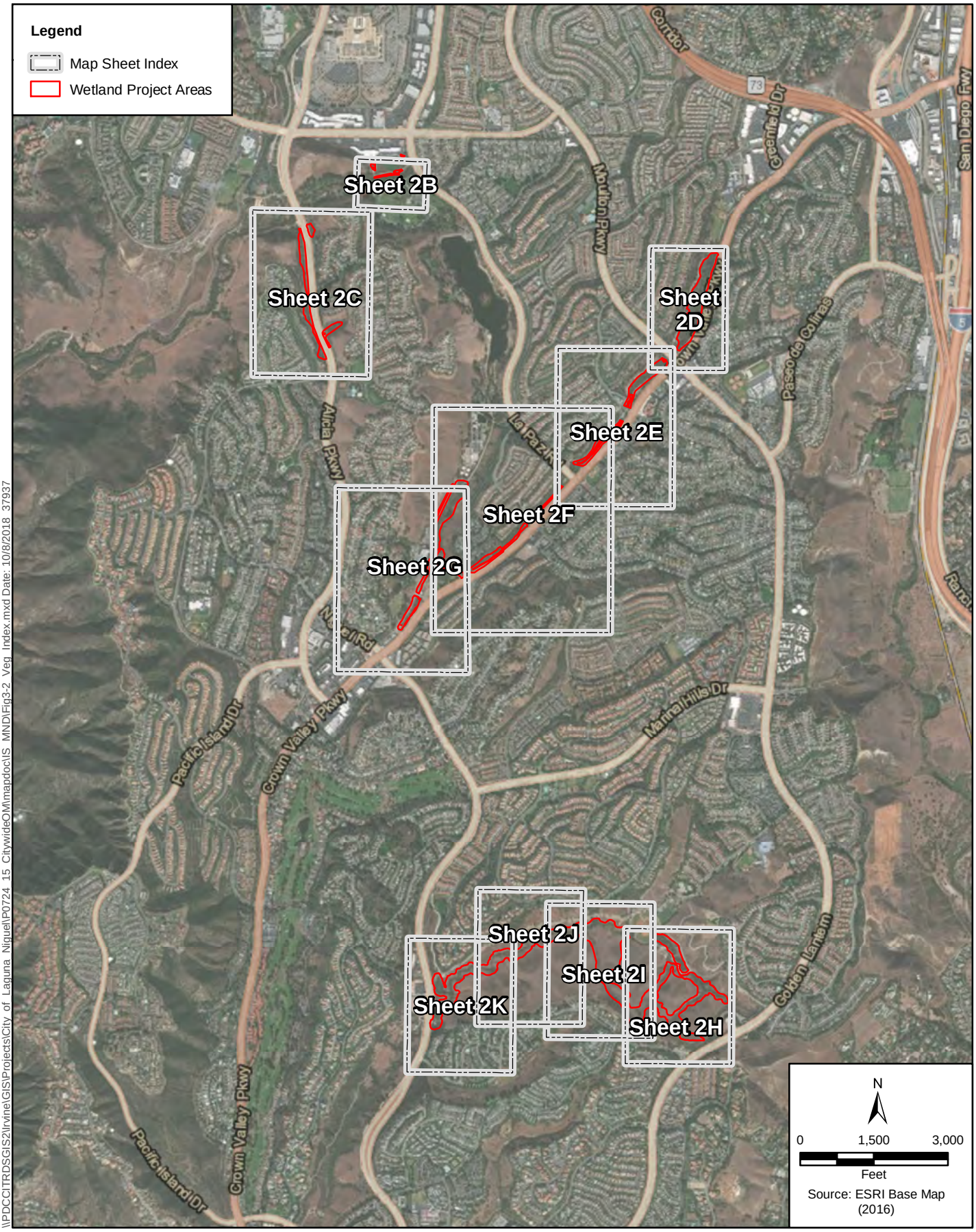



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**Figure 3-2A -Index**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

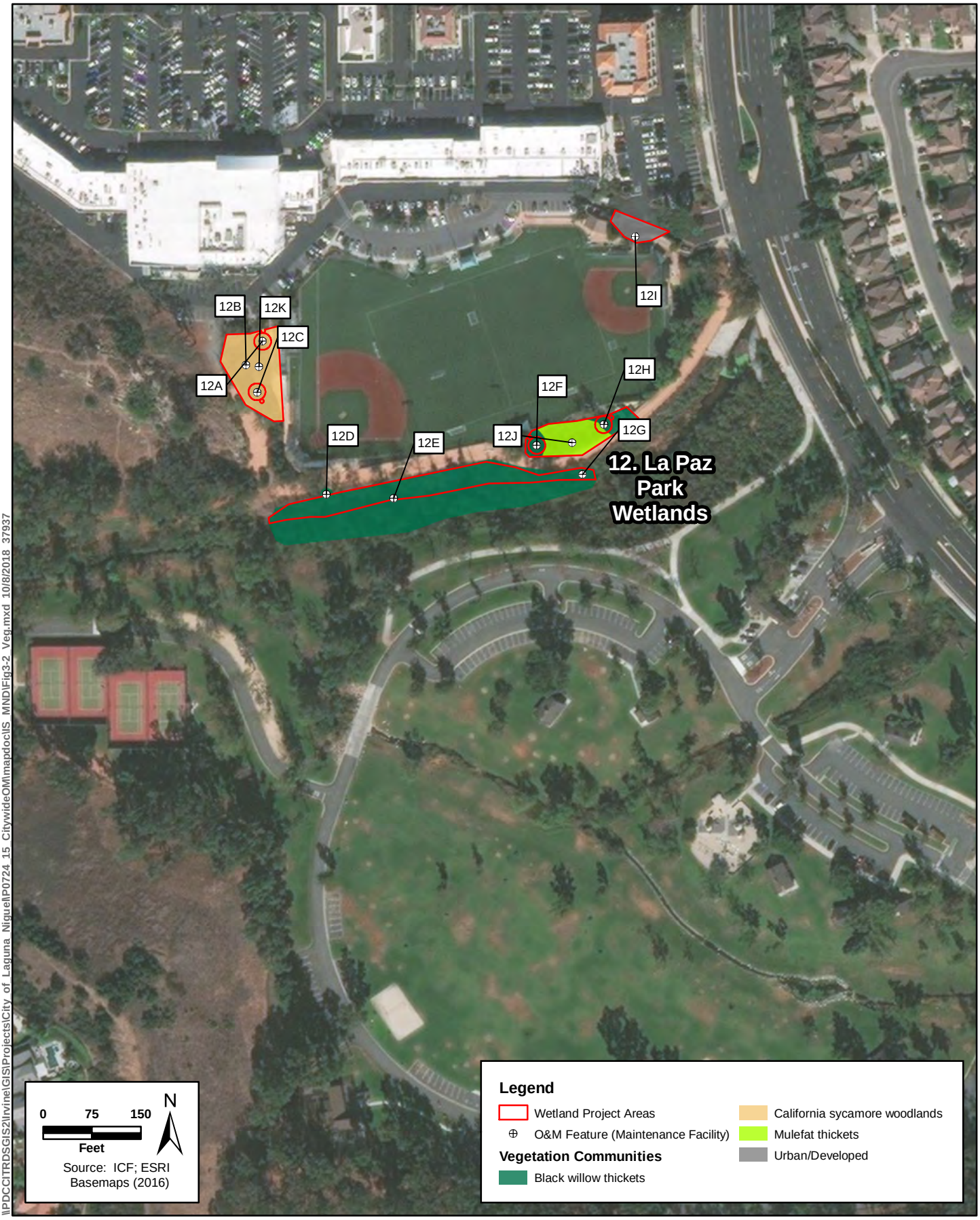


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**Figure 3-2B**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**

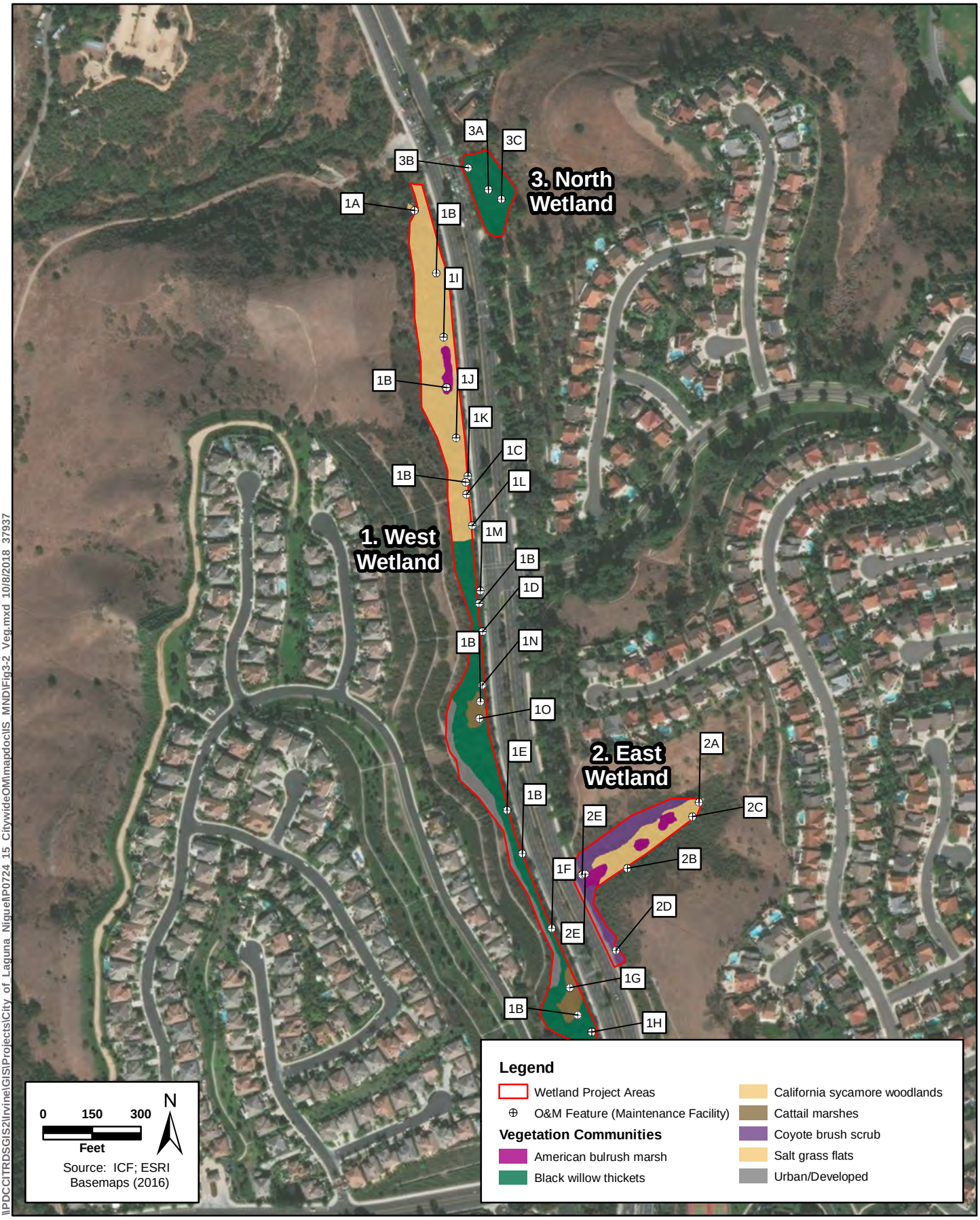


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**Figure 3-2C**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**




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**Figure 3-2D**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**

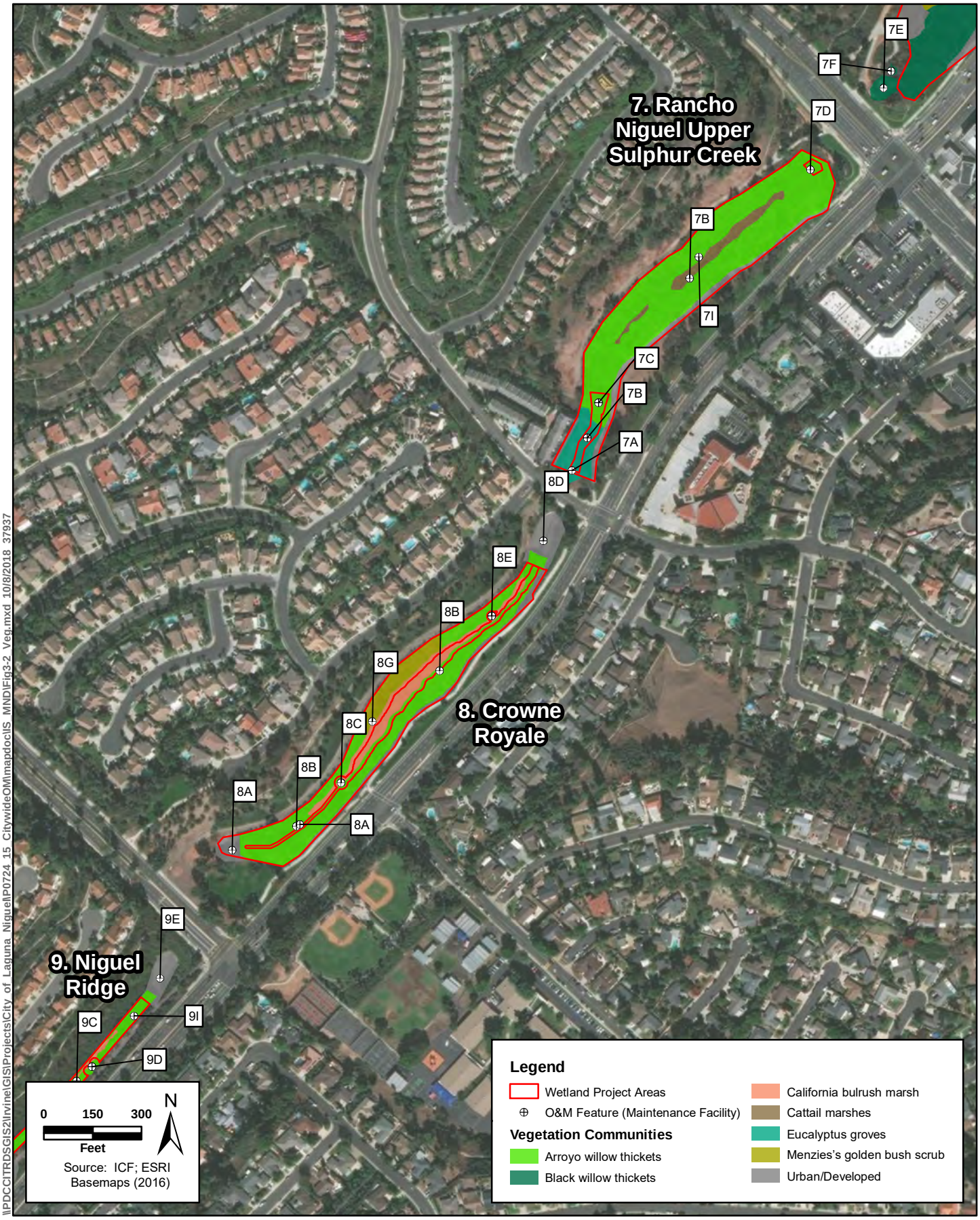


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**Figure 3-2E**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**

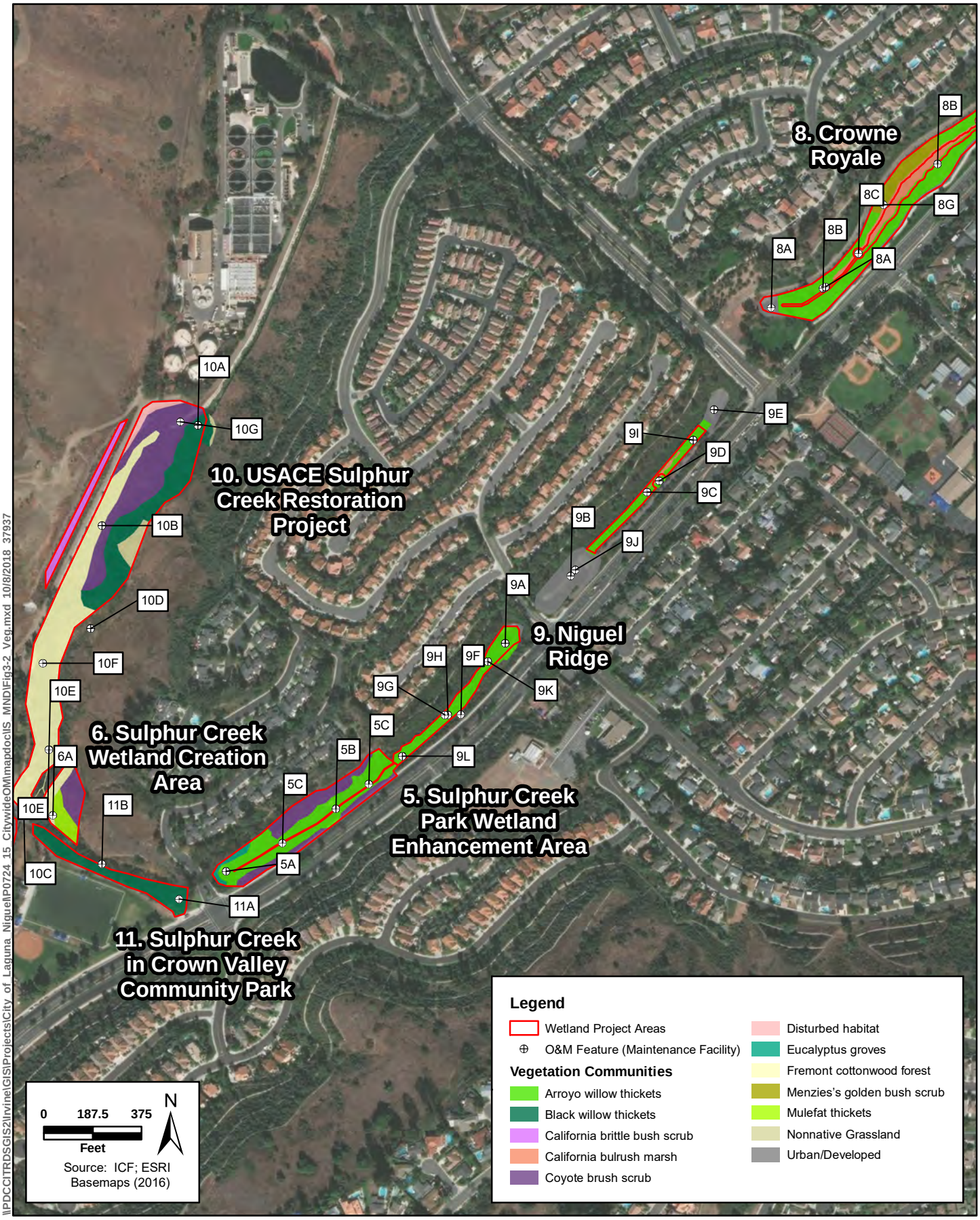


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**Figure 3-2F**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**

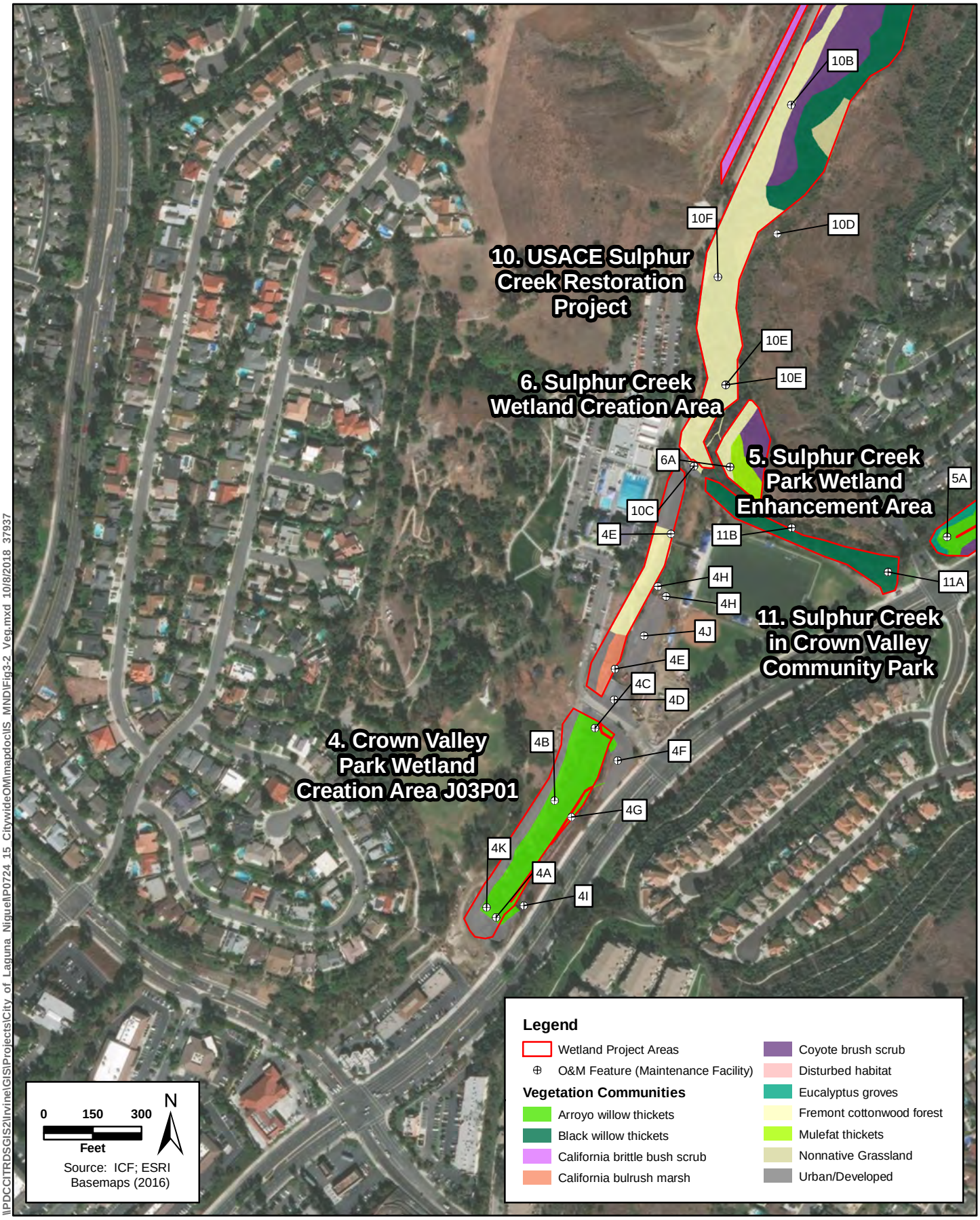


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**Figure 3-2G**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**

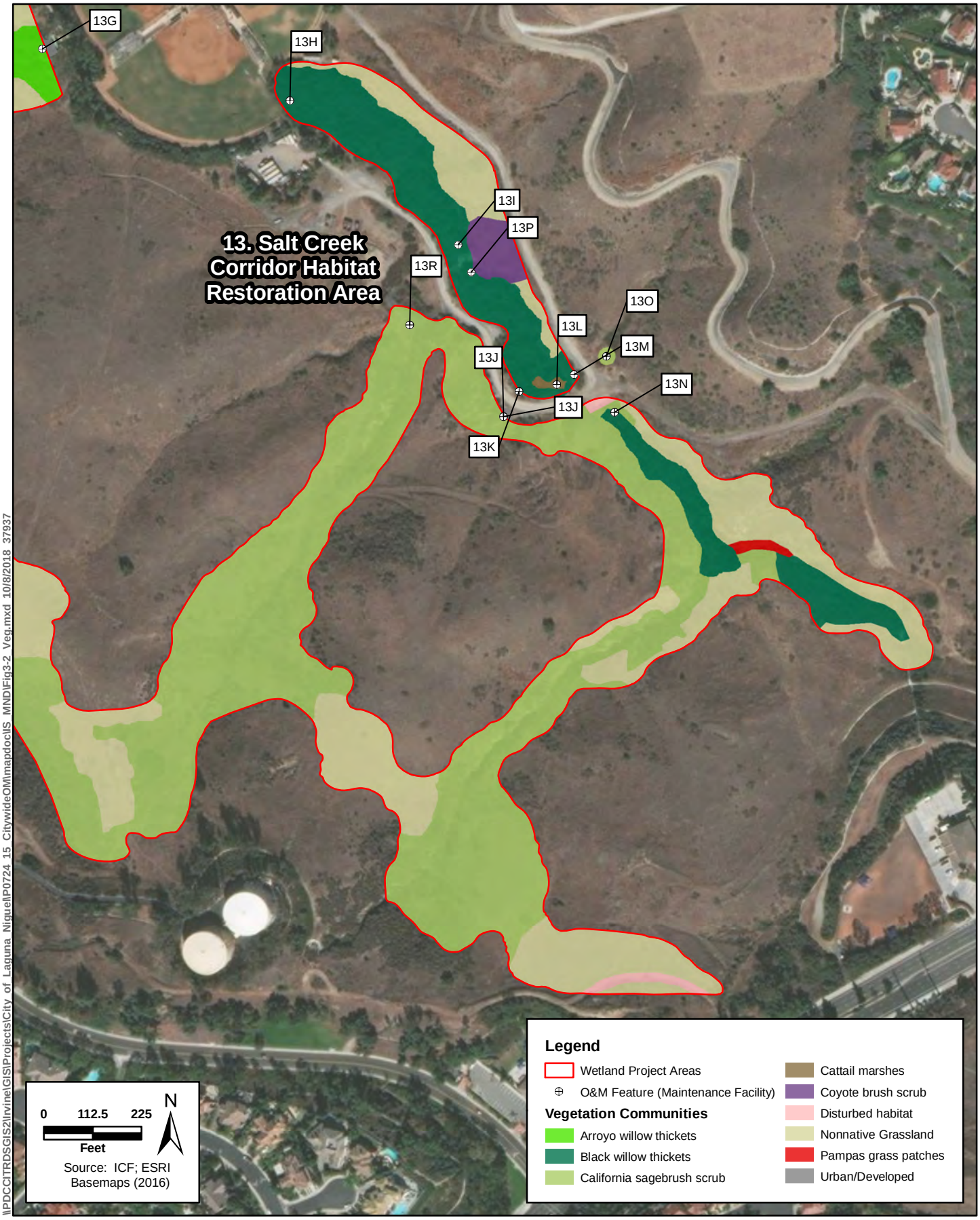


**Figure 3-2H**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**

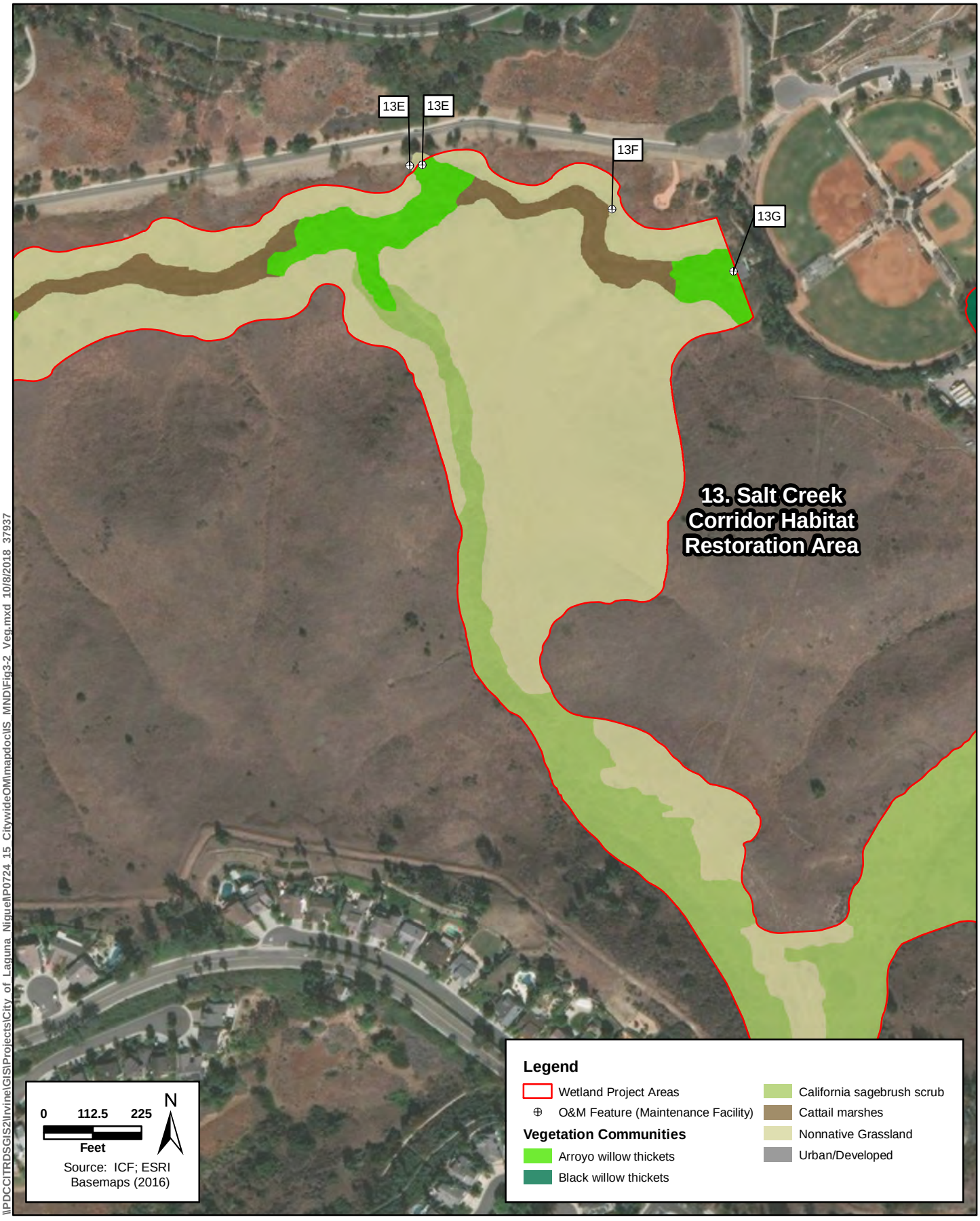


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**Figure 3-2I**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**

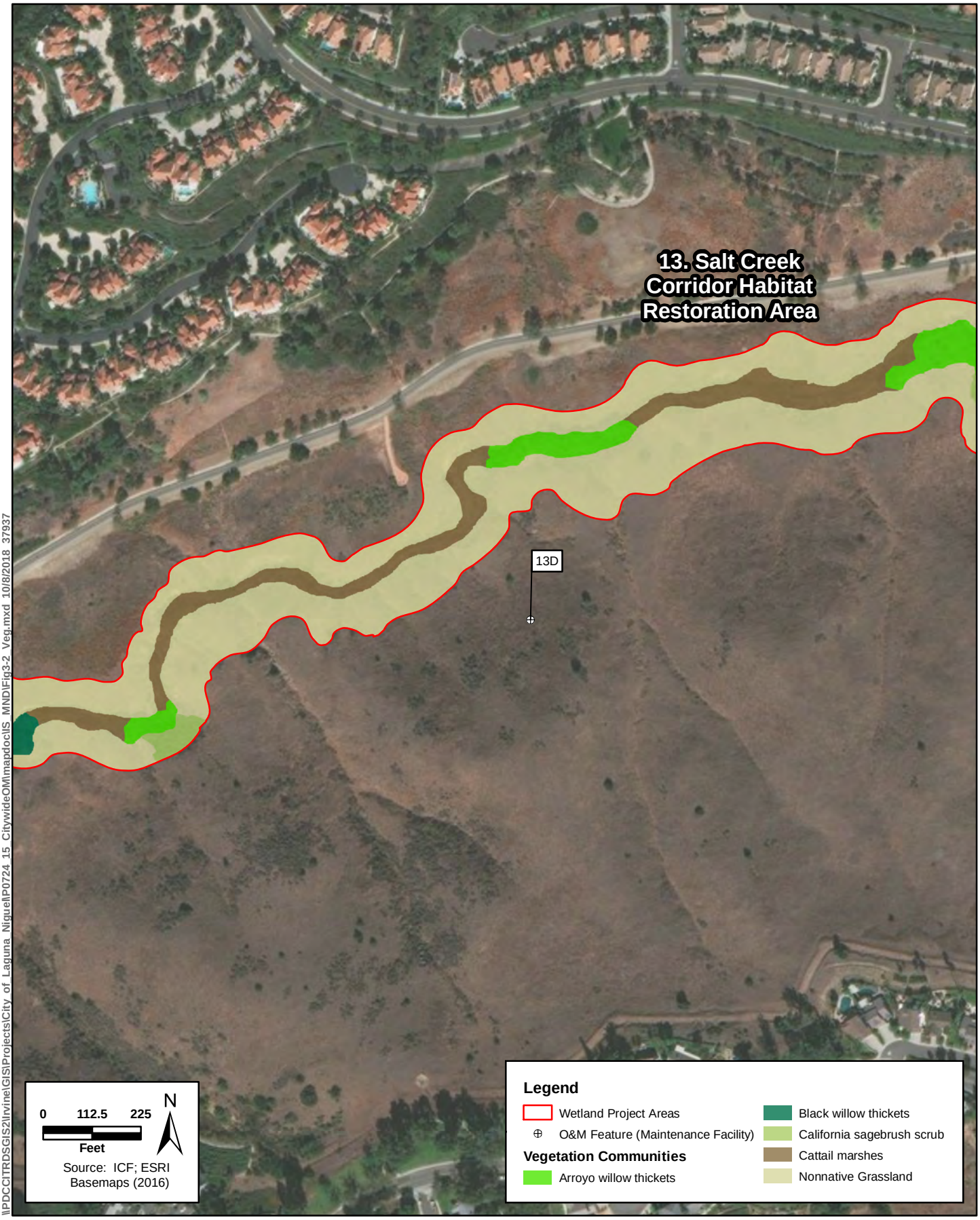


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**Figure 3-2J**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**




**Figure 3-2K**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**

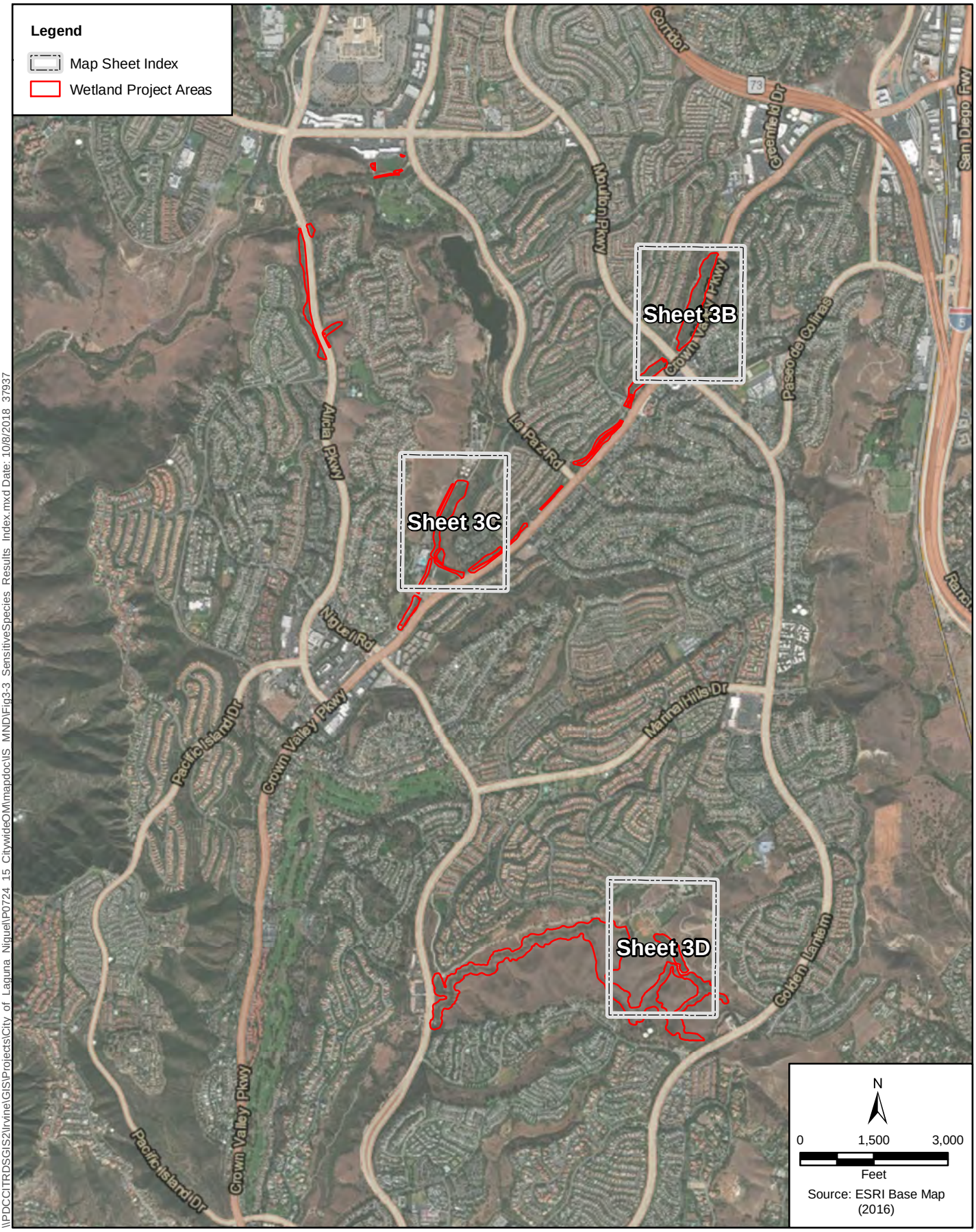


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**Figure 3-3A Index**
**Sensitive Species Survey Results**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**




**Figure 3-3B**
**Sensitive Species Survey Results**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**




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**Figure 3-3C**
**Sensitive Species Survey Results**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

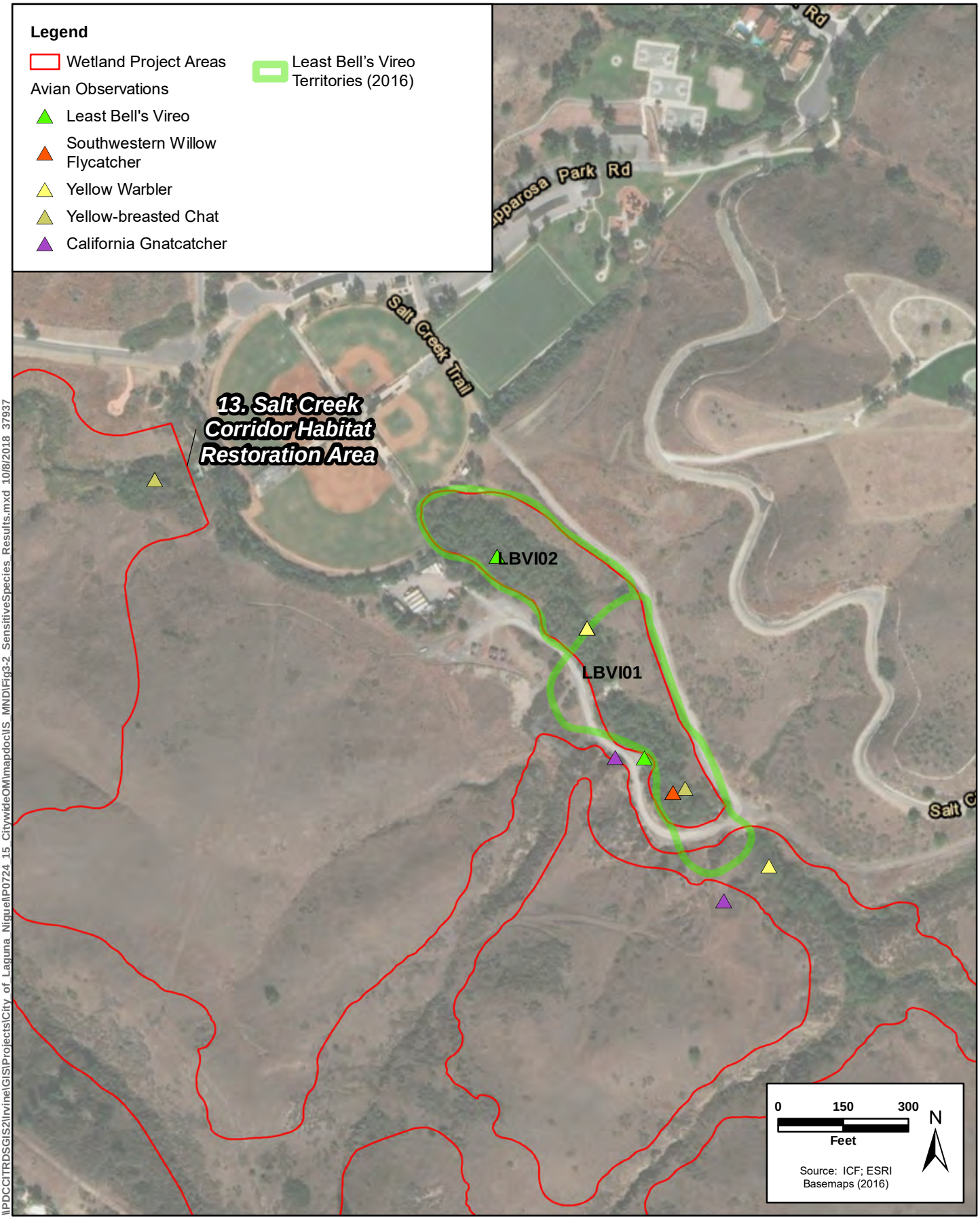


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**Figure 3-3D**
**Sensitive Species Survey Results**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

## Impact Analysis

**Would the project:**

***a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?***

**Less-than-Significant Impact with Mitigation Incorporated.** A discussion of the proposed project's impacts on special-status plant and wildlife species is described below.

*Special-Status Plant Species*

Permanent direct impacts would occur on any special-status plant species discovered within the proposed project impact areas due to removal for maintenance activities. Permanent direct impacts on these special-status plant species would be potentially significant. Maintenance activities have the potential to introduce nonnative plants by carrying seeds from outside sources on vehicles, people, and equipment. Ground disturbance could promote the establishment and spread of opportunistic nonnative plants. Additionally, wildfires caused by maintenance activities are rare but may occur, and nonnative plant species establish quickly in recently burned areas. The potential spread of nonnative species into the surrounding habitat for special-status plant species would be considered a permanent indirect impact. The permanent removal of and indirect impacts on California satintail, mud nama, ~~thread-leaved brodiaea,~~ or any other special-status plant species that occurs would be considered potentially significant. There is 0.14 acre of direct impacts proposed on 50.81 acres of suitable upland habitat for thread-leaved brodiaea, which consists of less than 0.01 percent of suitable habitat present to be affected. Impacts to suitable habitat for thread-leaved brodiaea only occur within two wetland sites: USACE Sulphur Creek Restoration Project (Site 10) and Salt Creek Corridor Habitat Restoration Area (Site 13). A focused thread-leaved brodiaea survey was completed within the impact footprints of these two wetland sites on June 24, 2019 by an ICF biologist. No thread-leaved brodiaea was observed nor were any other sensitive plant species (Further details on the focused survey can be found in Appendix H). Therefore, no impacts to thread-leaved brodiaea would occur and impacts would be considered less than significant. However, potential project-related direct and indirect impacts on special-status plant species would be reduced to less-than-significant levels through implementation of **Environmental Commitments** (**EC-BIO-1** through **EC-BIO-19**) described in Chapter 2 of this document.

*Special Status Wildlife*

Five special-status species were observed: LBV (federally and state-listed as endangered), SWFL (federally and state-listed as endangered), yellow warbler (CDFW Species of Special Concern), yellow-breasted chat (CDFW Species of Special Concern), and coastal CAGN (federally listed as threatened). Additionally, a probable observation of steelhead trout (federally listed as endangered) was made by CDFW and National Marine Fisheries Service in March of 2019 in Aliso Creek, to which the wetland sites are tributary. Below is a description of project-related impacts on each of these special-status species.

**Steelhead trout -** Aliso Creek is 20 kilometers north of the southernmost extremity of the Southern California Distinct Population Segment (DPS) range at San Mateo Creek. The wetland sites are

tributary to Aliso Creek and occur within the range of the Southern California DPS; therefore, there is a potential for Southern California DPS to occur within the wetland sites.

At more northern and temperate latitudes in the Columbia River, juveniles migrate to sea between April and June (Quinn 2005), but in Southern California the tail end of the migration is likely earlier (between March and May) and continued instream presence is determined by water temperature and availability. Similarly, northern DPS tend to return from the ocean between July and September, but at the southern extreme of the range, it is likely that adults may delay returning until flows and temperatures are within tolerance ranges. If maintenance activities are conducted during the steelhead migration window, direct impacts on migrating steelhead can occur. Implementation of **Environmental Commitment EC-BIO-20** would reduce potential impacts to a less-than-significant level.

**Environmental Commitment EC-BIO-20** would avoid the potential for direct impacts on steelhead during its migration by conducting all in-water maintenance activities (i.e., vegetation clearing or sediment removal) outside of the steelhead juvenile migration window (March–May, or when habitat is inaccessible due to ephemeral flows or water temperatures exceed 25 degrees Centigrade). No indirect impacts are anticipated; maintenance activities proposed are unlikely to degrade steelhead habitat and may improve habitat by facilitating access and reducing the potential for stagnation (i.e., low dissolved oxygen and high water temperatures).

**Least Bell's Vireo –** LBV suitable habitat occurs in riparian habitat throughout the wetland sites. Maintenance and operation activities, including removing vegetation and accumulated sediment and trimming vegetation, would result in permanent impacts on LBV suitable habitat used for nesting and foraging. Both LBV territories identified during the 2016 surveys occur within the permanent impact area within the Salt Creek Corridor Habitat Restoration Area (Site 13; Figure 3-3D). Habitat within the LBV territory identified within Site 13 would sustain permanent impact during proposed project activities. Permanent impacts may also occur because of vehicular collisions, which happen most frequently during vegetation clearing and involve eggs, nestlings, and recently fledged young that cannot safely avoid equipment. Permanent impacts may also occur because of nest loss due to removal of the nesting substrate.

**Southwestern Willow Flycatcher –** SWFL suitable habitat occurs in riparian habitat throughout the wetland sites. Maintenance and operation activities, including removing vegetation and accumulated sediment and trimming vegetation, would result in permanent impacts on SWFL suitable habitat used for nesting and foraging. The SWFLs observed during the 2016 surveys occur within the permanent impact area within the Salt Creek Corridor Habitat Restoration Area (Site 13; Figure 3-3D) and Rancho Niguel Master Association Upper Sulphur Creek (Site 7; Figure 3-3B). Permanent impacts on SWFLs may also occur because of vehicular collisions, which occur most frequently during the vegetation clearing and involve eggs, nestlings, and recently fledged young that cannot safely avoid equipment. Permanent impacts may also occur because of nest loss due to removal of the nesting substrate.

**Coastal California Gnatcatcher –** Coastal CAGN suitable nesting and foraging habitat occurs in California sagebrush scrub habitat throughout the wetland sites. Maintenance and operation activities, including removing vegetation and accumulated sediment and trimming vegetation, would result in permanent impacts on coastal CAGN suitable habitat used for nesting and foraging. The coastal CAGNs observed during the 2016 surveys occur within the permanent impact area within the Salt Creek Corridor Habitat Restoration Area (Site 13; Figure 3-3D). Permanent impacts

on coastal CAGNs may also occur because of vehicular collisions, which occur most frequently during the vegetation clearing and involve eggs, nestlings, and recently fledged young that cannot safely avoid equipment. Permanent impacts may also occur because of nest loss due to removal of the nesting substrate. USFWS-designated Critical Habitat for coastal CAGN occurs within the Salt Creek Corridor Habitat Restoration Area (Site 13). Maintenance and operation activities, including removing vegetation and accumulated sediment and trimming vegetation, would result in permanent impacts on USFWS coastal CAGN Critical Habitat. Most of the impacts would occur on cattail marshes, black willow thickets, and arroyo willow thickets. Impacts occurring on the primary nesting substrate of California sagebrush scrub would occur within approximately 0.07 acre.

**Yellow Warbler –** Yellow warbler suitable nesting and foraging habitat occurs in riparian habitat throughout the project area. The yellow warblers observed during the 2016 surveys occur within the permanent impact area within Rancho Niguel Master Association Upper Sulphur Creek (Site 7), Crowne Royale Homeowners Association Upper Sulphur Creek (Site 8), USACE Sulphur Creek Restoration Project (Site 10), and Salt Creek Corridor Habitat Restoration Area (Site 13). Permanent impacts on yellow warbler would be the same as those mentioned previously for LBV, SWFL, and coastal CAGN.

**Yellow-Breasted Chat –** Yellow-breasted chat suitable nesting and foraging habitat occurs in riparian habitat throughout the project area. The yellow-breasted chat observed during the 2016 surveys occur within the permanent impact area within Rancho Niguel Master Association Upper Sulphur Creek (Site 7; Figure 3-3B), Crowne Royale Homeowners Association Upper Sulphur Creek (Site 8; Figure 3-3C), USACE Sulphur Creek Restoration Project (Site 10), and Salt Creek Corridor Habitat Restoration Area (Site 13; Figure 3-3D). Permanent impacts on yellow-breasted chat would be the same as those mentioned previously for LBV, SWFL, and coastal CAGN.

Additional special-status wildlife species that have high potential to occur in the proposed project area include Cooper's hawk (CDFW watch list), Southern California rufous-crowned sparrow (CDFW watch list), white-tailed kite (CDFW fully protected species), orange-throated whiptail (CDFW watch list), coast horned lizard (CDFW Species of Special Concern), coastal whiptail (CDFW Species of Special Concern), and red diamond rattlesnake (CDFW Species of Special Concern).

To reduce direct and indirect project-related impacts on special-status wildlife species, the Environmental Commitments described in Chapter 2 of this document would be implemented as described further below.

Because birds have the potential to nest in and around the proposed project area, any impact on nesting birds could be significant under CEQA and a potential violation of the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (FGC). Implementation of **Environmental Commitments EC-BIO-15, EC-BIO-16, and EC-BIO-17** would ensure compliance with the MBTA and FGC and thus reduce potential impacts to a less-than-significant level.

~~**Environmental Commitment EC-BIO-17** states that all maintenance activities associated with vegetation clearing or trimming, or sediment removal will be conducted during the nonbreeding season (typically September 15 through February 15). If vegetation clearing must occur during the coastal CAGN, LBV or SWFL breeding season, a pre-activity nest survey is required in the work area and 300-foot buffer by a qualified biologist(s) a minimum of 3 days prior to the start of O&M activities in any given portion of the project area.~~

**Environmental Commitment EC-BIO-15** specifically discusses special-status species that have the potential to occur within a work area; impacts on these species could be significant under CEQA and a potential violation of the MBTA and FGC and state laws. **Environmental Commitment EC-BIO-15** would reduce impacts associated with potential vehicle collisions and nest loss to less-than-significant levels and requires that vegetation clearing occur outside of the breeding seasons for habitat occupied by coastal CAGN, LBV, SWFL, yellow warbler, and yellow-breasted chat and other avian species (e.g., coastal CAGN, February 15 through August 15; LBV, March 15 through September 15). If vegetation clearing must occur during the coastal CAGN, LBV, or SWFL breeding season, a focused pre-activity nest survey is required in the work area and 300-foot buffer by a qualified biologist(s) during 3 separate visits (on separate days), with the final visit occurring not more than ~~a minimum of~~ 3 days prior to the start of O&M activities in any given portion of the project area. If active nests are observed that could be disturbed by O&M activities, these nests and a 300-foot buffer will be avoided until the young have fledged and/or the monitor determines that no impacts are anticipated on the nesting birds or their young. The qualified biologist(s) will be responsible for coordinating with USFWS and CDFW to determine if O&M activities could disturb an active nest and when nests are no longer active. If O&M activities cease for 5 or more consecutive days during the nesting season, additional nesting bird surveys will be required to ensure that new nesting locations have not been established.

Potential impacts on nesting avian species that could be significant under CEQA and a potential violation of the MBTA and FGC and state laws include impacts caused by noise. **Environmental Commitment EC-BIO-16** would reduce such impacts to less-than-significant levels. This measure requires noise monitoring if O&M activities are scheduled during the coastal CAGN or LBV breeding season to ensure O&M-related noise levels do not exceed 60 dBA Leq within 300 feet of the noise source.

**Environmental Commitment EC-BIO-17** states that all maintenance activities associated with vegetation clearing or trimming, or sediment removal will be conducted during the nonbreeding season (typically September 15 through February 15). If vegetation clearing must occur during the general avian breeding season, a pre-activity nest survey is required in the work area and 300-foot buffer by will be established a qualified biologist(s) a minimum of 3 days prior to the start of O&M activities in any given portion of the project area. If active nests are observed that could be disturbed by O&M activities, these nests and a 300-foot buffer will be avoided until the young have fledged and/or the monitor determines that no impacts are anticipated on the nesting birds or their young. The qualified biologist(s) will be responsible for coordinating with USFWS and CDFW to determine if O&M activities could disturb an active nest and when nests are no longer active. If O&M activities cease for 5 or more consecutive days during the nesting season, additional nesting bird surveys will be required to ensure that new nesting locations have not been established.

Through implementation of the **Environmental Commitments EC-BIO-15, EC-BIO-16, and EC-BIO-17**, no take of a listed species is proposed and therefore an Incidental Take permit from CDFW is not anticipated to be required.

Permanent impacts on suitable habitat used for nesting and foraging by special-status wildlife species and corresponding USFWS-designated Critical Habitat would be considered potentially significant. However, mitigation would be implemented as detailed in **Mitigation Measure MM-BIO-1**, in consultation with USFWS and CDFW. This measure would protect 11 of the wetland sites from development as well as preserve the current condition of habitat and its functions and values. The 11 wetland sites would be managed in perpetuity and adaptive management would be

incorporated into long-term management and funding to protect the wetland sites from habitat degradation in the long term. Through implementation of **MM-BIO-1**, these impacts would be reduced to less-than-significant levels.

*Mitigation Measure*

**MM-BIO-1**. For impacts on special-status species and any corresponding USFWS-designated Critical Habitat and sensitive vegetation communities, mitigation will be provided by the following measures, in consultation with USFWS and CDFW:

- The preservation in perpetuity of all natural habitat areas within 11 of the wetland sites (excludes Sites 3 and 4, as ~~they are either~~Site 4 is a new ~~a previous~~ mitigation site for Crown Valley Park Wetland Creation Area J03P01 [401 Certification: R9-2015-0098; 1602 Permit: 1600-2015-0098]) and ~~are~~ therefore is already protected and Site 3 is a series of wetland treatment ponds that will be entirely maintained~~or will be affected fully [as is the case for Site 3]~~). A permanent protection mechanism (e.g., restrictive covenant) will be placed upon the land and the City will manage the land in perpetuity or transfer the land to an approved land manager. The City or subsequent land manager will implement the O&M Plan, managing and monitoring the 13 sites described herein to preserve the habitat, functions, and values in accordance with the goals identified in the O&M Plan. The land manager will be responsible for receiving any necessary permits to conduct long-term O&M activities identified in the plan. Activities to preserve the natural vegetation communities may include enhancement activities.

***b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?***

**Less-than-Significant Impact with Mitigation Incorporated.** The wetland sites support nine riparian and wetland vegetation communities, eight upland vegetation communities, and two non-vegetated land cover types. The nine riparian and wetland vegetation communities include American bulrush marsh, arroyo willow thickets, black willow thickets, California bulrush marsh, California sycamore woodlands, cattail marshes, Fremont cottonwood forest, mulefat thickets, and salt grass flats. The eight upland communities include California annual grassland, California brittle bush scrub, California sagebrush scrub, coyote brush scrub, eucalyptus groves, lemonade berry scrub, Menzies' golden bush scrub, and pampas grass patches. The two non-vegetated land cover types are disturbed habitat and urban/developed land (Figures 3-2A through 3-2K). Implementation of the proposed project would result in ~~temporary and~~ permanent direct and indirect impacts on sensitive upland and wetland natural communities within the 13 wetland sites. Implementation of routine flood control maintenance activities would result in recurring effects on vegetation communities from sediment, debris, and vegetation removal. These effects would be short-lived and minor, but would occur routinely. For the purposes of this impact analysis, all areas subject to routine maintenance are considered to sustain permanent impacts.

Upland and riparian vegetation communities are considered sensitive because they provide valuable nesting, breeding, and/or foraging habitat for many special-status species. Additionally, some sensitive vegetation communities, such as coastal sage scrub, are considered sensitive due to their declining abundance because of development and because of their role as the primary vegetation community that provides breeding or nesting habitat for a special-status species. Also considered sensitive are riparian and wetland vegetation communities that contain potential jurisdictional

waters (i.e., regulated under Section 404 of the Clean Water Act and Porter-Cologne Water Quality Control Act) such as tamarisk scrub and southern willow scrub. The permanent removal and indirect impacts on these sensitive vegetation communities would be considered potentially significant. However, potential project-related direct and indirect impacts on sensitive communities would be reduced to less-than-significant levels through implementation of **Environmental Commitments** (**EC-BIO-1** through **EC-BIO-19**) described in Chapter 2 of this document.

Permanent direct impacts would result from the implementation of flood control maintenance. These impacts would include recurring transitory impacts on vegetation communities from sediment, debris, and vegetation removal, and access path maintenance. These impacts would be short-lived and minor, but would occur routinely; therefore, they are being assessed as permanent impacts. Permanent direct impacts would occur on 4.26 acres of riparian and wetland communities and 0.60 acre of upland vegetation communities. Permanent direct impacts would also occur on 2.15 acres of urban developed land (including drop structures and concrete aprons). Permanent direct impacts on sensitive native riparian and wetland vegetation communities would be potentially significant. Permanent direct impacts on sensitive native California sagebrush scrub, coyote brush scrub, lemonade berry scrub, and nonnative grassland would also be potentially significant. However, these direct impacts on vegetation communities would be minimized through implementation of **Environmental Commitments EC-BIO-1** through **EC-BIO-4**. **Environmental Commitment EC-BIO-1** requires the submission of a pre-maintenance notification to the resource agencies annually, detailing the current status of the wetland sites and the maintenance in accordance with the O&M Plan to be undertaken during the following maintenance year. **Environmental Commitment EC-BIO-2** requires that a post-maintenance summary be prepared and submitted to the agencies documenting the activities and acreage of impacts that occurred under the O&M Plan for the year. Direct impacts on vegetation communities would be minimized to a less-than-significant level by the implementation of **Environmental Commitment EC-BIO-3**, confining access routes for maintenance activities associated with vegetation clearing or trimming, or sediment removal on existing footpaths and access paths. Direct impacts on vegetation communities would be further minimized by the implementation of **Environmental Commitment EC-BIO-4,** restricting general tree pruning to not more often than once per year between November and December with the intent of developing structurally sound trees with adequate vertical and horizontal clearance adjacent to public access ways.

Additionally, through implementation of **Mitigation Measure MM-BIO-2**, direct impacts on riparian and other sensitive natural communities would be reduced to less-than-significant levels. **Mitigation Measure MM-BIO-2** would mitigate for the functions and services lost through the routine maintenance activities by preserving habitat within 11 of the wetland sites and protecting these wetland sites from further degradation and development. Approximately 38 acres of riparian and wetland habitat will be protected and managed in perpetuity. In addition, mitigation would include the enhancement and rehabilitation of up to 2.37 acres of wetland and riparian habitat within Salt Creek Corridor Habitat Restoration Area (Site 13~~restoration of riparian habitat within one of the wetland sites~~). The proposed mitigation is to remove nonnative species (pampas grass) and increase the functions and services of the wetland and riparian habitat in Salt Creek by converting cattail marsh to willow thickets (similar to upstream conditions). The functional loss of wetland and riparian habitat from the proposed O&M activities is anticipated to be low, as the focus would be the removal of herbaceous vegetation and minimal disturbance (trimming) to native scrub and trees. Therefore, only minor loss of function is anticipated within the impact areas. The 4.86 acres of riparian and upland habitat will be fully mitigated through the combination of the functional

lift from the rehabilitation and enhancement activities and the preservation of approximately 38 acres of riparian and wetland habitat. Additionally, enhancement activities (removal of pampas grass) will also occur within the upland slopes of Salt Creek outside of the channel. This enhancement activity is expected to compensate for the 0.60 acre of upland vegetation (including native and nonnative habitat) that will be affected through implementation of O&M activities.

O&M activities have the potential to introduce nonnative plants by carrying seeds from outside sources on vehicles, people, and equipment, and ground disturbance could promote the establishment and spread of opportunistic nonnative plants. Additionally, wildfires caused by O&M are rare but may occur, and nonnative plant species often frequent recently burned areas. The potential spread of nonnative species into the surrounding vegetation communities would be considered a permanent indirect impact. Therefore, environmental commitment measures include worker awareness trainings to reduce unintentional harm to the environment. **Environmental Commitment EC-BIO-5** mandates that a Worker Environmental Awareness Plan will be developed and implemented prior to the start of O&M activities, while **Environmental Commitment EC-BIO-6** includes an environmental training to be led annually by the qualified biologist(s) that will cover the sensitive resources found on site, flagging/fencing of exclusion areas, permit requirements, and other environmental issues. The training will include a review of **Environmental Commitment EC-BIO-7**, which states that all personnel will be prohibited from bringing domestic pets and firearms to the site. Activities associated with flood control maintenance have the potential to create airborne dust, sedimentation, and erosion, and airborne dust may result from O&M vehicle travel on dirt access roads and other ground-disturbing activities; therefore, **Environmental Commitment EC-BIO-8** would be implemented to ensure that all maintenance activities associated with vegetation clearing, trimming, or sediment removal will not be conducted during heavy rains to prevent unnecessary erosion, runoff, and sedimentation, and will not resume until conditions are suitable for the movement of equipment and materials, and **Environmental Commitment EC-BIO-9** would be implemented to restrict daytime vehicle speeds to posted speed limits on existing paved roads and to 15 miles per hour on dirt access roads during the all phases of the proposed project. Flood control maintenance activities, including vegetation clearing, may result in increased erosion and sedimentation. Therefore, **Environmental Commitment EC-BIO-12** will be implemented, which states that necessary vegetation clearing and trimming will occur primarily within the channel bottom and will be limited to access paths along bank slopes to prevent the potential for erosion problems or trails, and **Environmental Commitment EC-BIO-14** will be implemented, which states that when possible, the City will use hand tools for manual vegetation clearing and sediment removal, and will only use heavy equipment when necessary.

Unauthorized access outside of the work areas by O&M workers may cause damage through trampling of plant species within adjacent vegetation communities. Impacts from dust, sedimentation, erosion, and unauthorized access have the potential to degrade the quality of surrounding vegetation communities. These would be considered a temporary indirect impact, which could be potentially significant. Worker education programs in the previously discussed **Environmental Commitment EC-BIO-5** and **EC-BIO-6** would reduce these impacts to less-than-significant levels by informing workers of potential harm to resources because of their actions and educating them on avoidance measures. Eucalyptus woodland, disturbed habitat, and developed land are not considered sensitive, and those habitat types are not regulated by any resource agency; therefore, mitigation is not required for impacts on those habitat types. **Environmental Commitment EC-BIO-10** would further minimize impacts on natural resources by removing trash and debris removal in the wetland areas quarterly. All trash and debris will be removed by hand or

by handheld mechanized equipment from the wetland sites and legally disposed of off site. Additional impact reduction would occur through **Environmental Commitment EC-BIO-11**, which would implement rodent and pest control as necessary to limit excessive damage to native areas or adjacent ornamental landscaping as well as provides protocols the City implements to reduce the spread of shot hole beetles. Preventative measures for shot hole beetles are not within the scope of the proposed project. Additionally, as described in **EC-BIO-11**, only non-chemical practices will be used for rodent control which incorporate Integrated Pest Management protocols such habitat reduction, exclusion, food reduction, trapping, and similar type methods.

*Mitigation Measure*

**MM-BIO-2**. Maintenance would not permanently remove habitat and would not change the designation of the area as a water of the U.S. or state. Mitigation for impacts on the functions and services performed by the aquatic water resources jurisdictional to USACE, CDFW, or RWQCB will be provided by the following measures, in consultation with USACE, CDFW, and/or RWQCB:

- The preservation in perpetuity of all natural habitat areas and streambeds within 11 of the wetland sites (excludes Sites 3 and 4, as Site 4 is a new mitigation site for Crown Valley Park Wetland Creation Area J03P01 [401 Certification: R9-2015-0098; 1602 Permit: 1600-2015-0098]) and therefore is already protected and Site 3 is a series of wetland treatment ponds that will be entirely maintained~~, as they either are previous mitigation sites or will be affected fully~~). A permanent protection mechanism (e.g., restrictive covenant) will be placed upon the land and the City will manage the land in perpetuity or transfer the land to an approved land manager. The City or subsequent land manager will implement the O&M Plan, managing and monitoring the wetland sites described herein to preserve the habitat, functions, and values in accordance with the goals identified above. Activities to preserve the natural vegetation communities may include enhancement activities.

  The rehabilitation and enhancement of up to 2.37 acres of wetland and riparian habitat within Salt Creek Corridor Habitat Restoration Area (Site 13). The City will prepare a Habitat Mitigation and Monitoring Plan to be submitted to USACE, CDFW, and RWQCB for final approval. The Habitat Mitigation and Monitoring Plan will include the location and type of mitigation proposed as well as outline the maintenance and monitoring program proposed for the 5-year maintenance and monitoring period. Maintenance areas would continue to provide most wetland functions at the current level; the maintenance work would restore the wetland sites' hydrology; habitat connectivity in the channel would be retained. Only a few functions, such as energy dissipation, nutrient cycling, particulate retention, and plant communities, would be slightly degraded; other functions, including surface water storage and organic carbon export, would be improved. Minimization of maintenance needs would preserve vegetation to the extent feasible, maintain habitat connectivity, and improve habitat quality for sensitive species. After maintenance is performed, natural substrate and tree canopy cover would remain, and shrubby and herbaceous vegetation would recover and return; this would result in successional growth, which is advantageous for many species, including LBV (for the case of Site 13).

***c. Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?***

**Less-than-Significant Impact with Mitigation Incorporated.** The permanent removal and adverse indirect impacts on federally protected wetlands or on any state-protected jurisdictional wetlands

through direct removal, filling, hydrological interruption, or other means would be considered potentially significant. However, potential direct and indirect impacts on jurisdictional waters and wetlands would be reduced to less-than-significant levels through implementation of the **Environmental Commitments** (**EC-BIO-1** through **EC-BIO-19**) described in Chapter 2 of this document.

Implementation of flood control maintenance would result in recurring transitory effects on vegetation communities from sediment, debris, and vegetation removal. These effects would be short-lived and minor, but would occur routinely. Impacts on jurisdictional resources would occur on a quarterly basis when all sediment and vegetation will be removed from the constructed limits of all structures and from specified radii up and downstream of inlets; on a biannual basis, all sediment and vegetation will be removed from pilot channels. Impacts would occur when vegetation is removed by hand or handheld mechanized equipment, and sediment is removed via a mini-excavator and a bobcat loader. These recurring transitory effect areas would be within USACE, RWQCB, and CDFW jurisdiction. Impacts on delineated aquatic resources would total 3.14 acres of waters of the U.S. and state (including 2.79 acres of wetland waters of the U.S.) subject to regulation by the USACE and RWQCB and 3.77 acres of riparian and 2.70 acres of streambed subject to regulation by CDFW. For the purposes of this impact analysis, all areas subject to routine maintenance are considered to sustain permanent impact. However, impacts on jurisdictional resources would be minimized through implementation of several environmental commitment measures, including **EC-BIO-8**, which would ensure that all maintenance activities associated with vegetation clearing, trimming, or sediment removal would not be conducted during heavy rains to prevent unnecessary erosion, runoff, and sedimentation, and would not resume until conditions are suitable for the movement of equipment and materials; and **EC-BIO-12**, which would limit necessary vegetation clearing and trimming to primarily within the channel bottom access paths along bank slopes to prevent the potential for erosion problems or trails.

Off-site erosion and sedimentation resulting from maintenance activities have the potential to result in temporary indirect impacts on jurisdictional waters and wetlands. Jurisdictional resources would have resource impacts minimized through implementation of **Environmental Commitment EC-BIO-14**, which states that when possible, the City will use hand tools for manual vegetation clearing and sediment removal, and will only use heavy equipment when necessary. Airborne dust may result from vehicle travel on dirt access roads and other ground-disturbing activities and has the potential to result in temporary indirect impacts on jurisdictional waters and wetlands; implementation of **Environmental Commitment EC-BIO-9**, restricting daytime vehicle speeds to posted speed limits on existing paved roads and to 15 miles per hour on dirt access roads during all phases of the proposed project, is expected to minimize such impacts on jurisdictional resources. Other indirect impacts and environmental commitment measures are addressed above under Impact IVb. These impacts have the potential to degrade the quality of adjacent jurisdictional waters and wetlands and would be considered a temporary indirect impact, but would be reduced to less-than-significant levels through implementation of the environmental commitments. Implementation of **Mitigation Measure MM-BIO-2** would reduce the impacts on federally protected wetlands or any state-protected jurisdictional wetlands to less-than-significant levels. Mitigation for impacts on the functions and services performed by the aquatic water resources jurisdictional to USACE, CDFW, or RWQCB will be provided in consultation with USACE, CDFW, and/or RWQCB as detailed in **Mitigation Measure MM-BIO-2**.

***d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites?***

**Less-than-Significant Impact.** Implementation of the maintenance activities associated with vegetation clearing, trimming, or sediment removal would temporarily affect the movement of native resident or migratory fish or wildlife species and would temporarily affect established native resident or migratory wildlife corridors or linkages, and potentially the use of native wildlife nursery sites. These impacts would be potentially significant, and would be reduced to less-than-significant through implementation of the **Environmental Commitments** (**EC-BIO-1** through **EC-BIO-20~~19~~**) described in Chapter 2 of this document.

Each of the 13 project sites is used by a variety of wildlife species for local movement, breeding, and foraging. Some project work areas are within small corridors constrained by development and roadways while others are within regional parks. All are critical components for sustaining wildlife populations, maintaining wildlife diversity, and providing dispersal opportunities for resident animals in urban settings, and each of the 13 project sites also provides stopover habitat for migrating avian species within the Pacific flyway. Removal of vegetation would have direct, temporary, and permanent impacts on the wildlife corridors. However, maintenance activities associated with the proposed project would not result in the permanent installation of structures that would prevent wildlife (including terrestrial and avian) movement through the proposed project sites. Furthermore, the narrow, linear work area and temporary nature of the work would not permanently deter or impair the ability of terrestrial and avian wildlife species to use or to cross the project sites. Work occurring during the breeding or nursing season could affect the ability of special-status or common species to successfully complete their breeding cycles and raise their young. Direct impacts on these wildlife corridors and nursery sites would be significant if they occurred during the breeding and nesting season. Additionally, in-water work could have a direct impact on the migration of steelhead that would be significant if it occurred during the steelhead juvenile migration window. Indirect impacts on wildlife movement (including terrestrial and avian) may result during O&M from increased human presence and work-related noise and dust. These indirect impacts are expected to be minimal because of the short duration (days) of the work. Additionally, maintenance activities may improve the ability of migration by steelhead by facilitating access and reducing the potential for stagnation (i.e., low dissolved oxygen and high water temperatures). Therefore, no permanent indirect impacts on wildlife corridors resulting from project activities are expected. Temporary indirect impacts on wildlife corridors resulting from project activities would not be significant.

***e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?***

**No Impact.** The proposed project would operate in compliance with the City of Laguna Niguel Municipal Code (City of Laguna Niguel 2018). In addition, the proposed project would be designed to comply with all approved local, regional, state, and federal regulations, policies, and ordinances. Therefore, no conflicts are expected with any approved regional, state, or federal regulations, policy, ordinance, or plan.

***f. Conflict with the provisions of an adopted habitat conservation plan, natural conservation community plan, or other approved local, regional, or state habitat conservation plan?***

**No Impact.** The proposed project would be designed to comply with the Aliso Creek Watershed Management Plan and all approved local, regional, state, and federal regulations, policies, and ordinances. The City is not a participant in a habitat conservation plan or natural community conservation plan and is therefore not subject to the provisions of such a plan. Therefore, no conflicts would occur with any approved habitat conservation plan, natural conservation community plan, or other approved local, regional, or state habitat conservation plan.

# V. Cultural Resources

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5? | ☐ | ☐ | ☐ | ☒ |
| b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? | ☐ | ☒ | ☐ | ☐ |
| c. Disturb any human remains, including those interred outside of dedicated cemeteries? | ☐ | ☐ | ☒ | ☐ |

## Affected Environment

### Archaeological and Historical Resources

Archaeological investigations along coastal Southern California have produced a diverse range of human occupation, extending from approximately 10,000 years ago beginning with the early Holocene into the ethnohistoric and historic periods. The wetland sites are less than a quarter-mile east of Aliso Creek, traditionally noted as an ethnographic transition zone between the Gabrielino and Juaneño Native American groups. Traditional definitions of Gabrielino territory include the watersheds of the San Gabriel, Santa Ana, and Los Angeles rivers; portions of the Santa Monica and the Santa Ana mountains; the Los Angeles Basin; the coast from Aliso Creek to Topanga Creek; and San Clemente, San Nicolas, and Santa Catalina islands. The term Juaneño derives from Mission San Juan Capistrano and has been used to refer to the Takic speakers associated with that mission (Bean and Shipek 1978).

Due to the absence of development within the wetland sites during the historic period, there is no potential to encounter historic resources and little potential to encounter historic archaeological resources at the sites. The majority of the wetland sites have been heavily modified between the 1960s and the late 1980s during the area's urban development. Natural creeks were channelized and concrete lined, or rerouted during road development.

## Methods

### Records Search

ICF archaeologists conducted a cultural record search on June 26, 2017 at the South Central Coastal Information Center to identify previously documented archaeological and historic built resources within a 0.25-mile radius of the wetland sites. Also included in the search were the cultural resources studies that have been conducted inside or within 0.25 mile of the wetland sites.

The review of this information showed that 12 cultural resources are located within a quarter-mile of the wetland sites and two prehistoric cultural resources were recorded within the wetland sites. CA-ORA-18 was recorded as a prehistoric campsite with midden soils and was tested in 1960 and 1961 (Lytton 1963). In 1986, CA-ORA-18 was reported as destroyed by urban development of the area (Bissell 1986). CA-ORA-1113 was recorded as a prehistoric lithic scatter and was tested in 1987 (Brown and Bissell 1988). The site was destroyed during CEQA mitigated archaeological testing and monitoring for a housing development construction project. The record search also indicated that 51 studies have been conducted within a quarter-mile of the wetland sites. Appendix D includes the Cultural Resources Survey Letter Report.

#### Pedestrian Survey

ICF archaeologists conducted a pedestrian survey of the wetland sites on September 19, 2018. No cultural resources were identified in the wetland sites; however, ground visibility was extremely low due to standing water or dense vegetation.

#### Contact with Interested Parties

A Sacred Lands File Search and list of local Native American contacts were requested from the Native American Heritage Commission (NAHC) on September 17, 2018. The NAHC responded on September 20, 2018 indicating resources are present. Due diligence letters were mailed on October 3, 2018 to tribes identified by the NAHC. Joyce Perry of the Juaneño Band of Mission Indians, Acjachemen Nation responded via a phone call on October 3, 2018 and requested notification about any project changes and the presence of a tribal and archaeological monitor during ground disturbance deeper than 2 feet below surface level. No other responses have been received to date.

## Regulatory Setting

#### Federal

No federal regulations apply to the proposed project.

#### State

##### *California Environmental Quality Act*

CEQA requires the assessment of a proposed project's effects on cultural resources. Pursuant to CEQA, a historical resource is a resource listed or eligible for listing in the California Register of Historical Resources (CRHR). Resources included in a local register of historic resources or identified as significant in a local survey conducted in accordance with state guidelines are also considered historical resources under CEQA unless a preponderance of the facts demonstrates otherwise. According to CEQA, the fact that a resource is not listed or determined eligible for listing in the CRHR, or is not included in a local register or survey, shall not preclude a lead agency, as defined by CEQA, from determining that the resource may be a historic resource, as defined in California PRC Section 5024.1. CEQA applies to archaeological resources when (1) the archaeological resource satisfies the definition of a historic resource, or (2) the archaeological resource satisfies the definition of a unique archaeological resource. A unique archaeological resource is an archaeological artifact, object, or site that has a high probability of meeting any of the following criteria: it contains information needed to answer important scientific research questions, and there is a demonstrable

public interest in that information; it has a special and particular quality, such as being the oldest of its type or the best available example of its type; and/or it is directly associated with a scientifically recognized important prehistoric or historic event or person.

***California Register of Historical Resources***

Created in 1992 and implemented in 1998, the CRHR is "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC 5024.1(a)). Certain properties, including those listed or formally determined eligible for listing in the National Register of Historic Places (NRHP) or designated as a California Historical Landmark (#770 and higher), are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historic resource surveys, or designated by local landmark program may be nominated for inclusion in the CRHR. A resource, either individually or as a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria.

- **Criterion 1.** It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- **Criterion 2.** It is associated with the lives of persons important in our past.
- **Criterion 3.** It embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of an important creative individual or possesses high artistic values.
- **Criterion 4.** It has yielded, or may be likely to yield, information important in history or prehistory.

Furthermore, under California PRC Section 4852(c), a cultural resource must retain integrity to be considered eligible for listing in the CRHR. Specifically, it must retain sufficient character to be recognizable as a historical resource and convey reasons for a determination of significance. Integrity is evaluated with regard to the retention of factors such as location, design, setting, materials, workmanship, feeling, and association. Cultural sites that have been affected by ground-disturbing activities, such as grazing and off-road vehicle use (both of which occur within the wetland sites), often lack integrity because they have been directly damaged or removed from their original location, among other changes.

Typically, a prehistoric archaeological site in California is recommended eligible for listing in the CRHR based on its potential to yield information important in prehistory or history (Criterion 4). Important information includes chronological markers such as projectile point styles or obsidian artifacts that can be subjected to dating methods, or undisturbed deposits that retain their stratigraphic integrity. Sites such as these have the ability to address research questions.

***Native American Heritage Commission***

California PRC Section 5097.91 established the NAHC, the duties of which include inventorying places of religious or social significance to Native Americans and identifying known graves and cemeteries of Native Americans on private lands. California PRC Section 5097.98 specifies a protocol

to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner.

***California Public Records Act***

Sections 6254(r) and 6254.10 of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public related to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports maintained by, or in the possession of, the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the Native American Heritage Commission, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a state or local agency."

***California Health and Safety Code Sections 7050.5 and 7052***

California Health and Safety Code Section 7050.5 declares that in the event of the discovery of human remains outside a dedicated cemetery, all ground disturbance must cease and the county coroner must be notified. California Health and Safety Code Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

***California Penal Code Section 622.5***

California Penal Code Section 622.5 provides misdemeanor penalties for injuring or destroying objects of historic or archaeological interest located on public or private lands, but specifically excludes the landowner.

***California Public Resources Code Section 5097.5***

California PRC Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

***Government Code Section 65352.3 Consultation***

Senate Bill 18 requires local governments to consult with tribes prior to making certain planning decisions and to provide notice to tribes at certain key points in the planning process. These consultation and notice requirements apply to approvals and amendments of both general plans (defined in Government Code §65300 et seq.) and specific plans (defined in Government Code §65450 et seq.).

Prior to the approval or any amendment of a general plan or specific plan, a local government must notify the appropriate tribes (on the contact list maintained by the NAHC) of the opportunity to conduct consultations for the purpose of preserving, or mitigating impacts on, cultural places on land within the local government's jurisdiction that is affected by the proposed plan adoption or amendment. Tribes have 90 days from the date on which they receive notification to request consultation, unless a shorter timeframe has been agreed to by the tribe (Government Code §65352.3).

### Local

The City of Laguna Niguel General Plan (LNGP) contains goals, policies, and plans that are intended to guide land use and development decisions. The Open Space, Parks and Recreation Element was designed to ensure the conservation of important historical, archaeological, and paleontological resources. Relevant policies are listed below.

- **Goal 7.0:** Recognize significant cultural sites or features within the community.
- **Policy 7.1:** Review the technical data on sensitive cultural resources for all new development proposals.
- **Policy 7.2:** Require mitigation of impacts to significant areas of archaeological and paleontological resources.
- **Policy 7.3:** Preserve uncovered resources in their natural state, as much as feasible to assure their preservation and availability for later study. Require that uncovered resources are documented and retained in an appropriate museum or institution.
- **Action 7.3.1:** Require effective mitigation measures where development may affect archaeological or paleontological resources.
- **Action 7.3.2:** Require the preparation of archaeological or paleontological reports in area where there is potential to impact cultural resources.
- **Action 7.3.3:** Require that an archaeologist or paleontologist be retained to observe grading activities in areas where the probably presence of archaeological or paleontological resources is indicated.

Development proposals will be assessed for potential impacts on archaeological resources according to CEQA requirements. The City will require that significant impacts either be avoided or mitigated, which may involve further investigation and resource recovery.

## Impact Analysis

### Would the project:

***a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?***

**No Impact**. Although two archaeological resources were identified during the record search, both resources have been documented as destroyed and therefore do not meet the criteria for a historical resource. No built environment resources older than 50 years old have been identified within the project sites. A pedestrian survey conducted by ICF archaeologists on September 19, 2018 did not result in identification of historical resources within the wetland sites. Based on the record search results, archival research, and pedestrian survey results, the proposed project would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5, and no impacts would occur.

***b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?***

**Less-than-Significant Impact with Mitigation Incorporated**. The record search revealed the presence of 12 previously recorded archaeological resources with 0.25 mile of the wetland sites. Two archaeological resources were previously recorded within the wetland sites itself. Both have been documented as destroyed by urban development. A pedestrian survey was conducted on September 19, 2018 and no cultural resources were identified; however, ground visibility was extremely low due to the presence of dense vegetation or standing water. Due diligence outreach letters to tribes or individuals identified by the NAHC were sent out on October 3, 2018. On October 3, 2018, via a phone call, Joyce Perry of the Juaneño Band of Mission Indians, Acjachemen Nation indicated that the Aliso Creek area is regarded as highly sensitive by her tribe. Given the number of resources previously recorded in the vicinity of the wetland sites, the low ground visibility during survey, and the information from the Juaneño Band of Mission Indians, Acjachemen Nation, the possibility exists of encountering previously undiscovered archaeological resources in undisturbed soils during some project activities. With implementation of mitigation measures **MM-CUL-1** and **MM-CUL-2**, impacts on potential archaeological resources would be less than significant.

*Mitigation Measures*

**MM-CUL-1: Provide a Native American monitor and an archaeological monitoring during ground-disturbing activities that occur 2 feet below surface level**. To ensure impacts on potential archaeological resources are minimized during O&M activities, the City will retain a qualified archaeological monitor who meets the Secretary of the Interior's Professional Qualifications Standards, as promulgated in Code of Federal Regulations, Title 36, Section 61, and a Native American monitor to be present for the following activities:

- Grading or excavation that occurs deeper than 2 feet below surface level and has the potential to encounter previously undisturbed soil
- Creation of any new access paths in previously undisturbed soils

Cultural resources or Native American monitoring will not be needed during:

- Removal of accumulated sediment in stone or concrete-lined channels or culverts
- Tree or vegetation pruning
- Existing access path maintenance
- Chemical spraying for nonnative vegetation removal
- Trash and debris maintenance
- Rodent or pest control
- Areas that have been cleared by tribal and cultural monitors during prior years' monitoring

If a feature or artifact is identified, the monitors will halt activities in the vicinity of the find, notify the applicant and the City, and prepare a proposal for the treatment of the find(s). This treatment may range from additional study to avoidance, depending on the nature of the find(s). A comprehensive archaeological technical report documenting the results of the monitoring program will be prepared and will include an inventory of all recovered artifacts, features, and other

archaeological resources. The archaeological monitor in consultation with the tribal monitor will have the discretion to increase or decrease the level of monitoring.

**MM-CUL-2: Provide annual memorandum and map with monitoring areas**. The City-retained archaeologist will provide to the City an annual memorandum summarizing any monitoring activities that occurred that year only in the event that O&M activities triggered the need for cultural resources monitoring. The memorandum will include any archaeological finds and a map showing which areas have been monitored.

***c. Disturb any human remains, including those interred outside of formal cemeteries?***

**Less-than-Significant Impact.** No human remains are known to exist in the wetland sites, and the location does not encompass any formal cemeteries. Because the wetland sites have been heavily disturbed in the past, and human remains were not detected during previous ground-disturbing activities or investigations, the potential for human remains to be present at the wetland sites is low. However, in the unlikely event that more recent human remains are discovered, the project O&M manager is required to comply with Health and Safety Code Section 7050.5, which states that if human remains are discovered during O&M activities, no further disturbance shall occur in the area of the discovery and the area must be protected until the county coroner inspects the discovery. Because existing laws and regulations would ensure that impacts on any buried human remains would be reduced to a level below significance, the proposed project's impact related to the potential of encountering human remains would be less than significant.

# VI. Geology, Soils, and Paleontological Resources

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: | | | | |
| 1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. | ☐ | ☐ | ☐ | ☒ |
| 2. Strong seismic ground shaking? | ☐ | ☐ | ☒ | ☐ |
| 3. Seismic-related ground failure, including liquefaction? | ☐ | ☐ | ☒ | ☐ |
| 4. Landslides? | ☐ | ☐ | ☒ | ☐ |
| b. Result in substantial soil erosion or the loss of topsoil? | ☐ | ☐ | ☒ | ☐ |
| c. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse? | ☐ | ☐ | ☒ | ☐ |
| d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? | ☐ | ☐ | ☒ | ☐ |
| e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater? | ☐ | ☐ | ☐ | ☒ |
| f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | ☐ | ☒ | ☐ | ☐ |

## Affected Environment

Portions of the geology and soils information contained herein is based on the August 31, 2018 Paleontological Records Search – City of Laguna Niguel Project conducted by the San Diego Natural History Museum. The proposed project site is located within the San Juan Capistrano Quadrangle. The San Juan Capistrano Quadrangle covers an area of about 62 square miles in southeastern Orange County. It lies at the northwestern edge of the Peninsular Ranges geomorphic province. It

includes the hilly, locally rugged San Joaquin Hills to the west and southwestern foothills of the Santa Ana Mountains to the east. The hills are cut by numerous canyons, most of which drain to the south toward the Pacific Ocean.

The proposed project is not within a State of California Alquist-Priolo Earthquake Fault Hazard Zone and there are no known active faults within any of the project sites. The Elsinore Fault Zone is the closest fault zone and is approximately 17 miles to the northeast of Rancho Niguel Master Association Upper Sulphur Creek (Site 7). According to the California Department of Conservation's *Earthquake Zones of Required Investigation* (California Department of Conservation 2018), the La Paz Park Wetlands (Site 12) is within a liquefaction zone. In addition, areas immediately adjacent to Crown Valley Parkway, Alicia Parkway, and the Salt Creek Corridor Habitat Restoration Area (Site 13) lie within investigation zones for earthquake-induced landslides.

According to information obtained via Soil Web Survey (Natural Resources Conservation Service 2017), soil composition varied throughout the wetland sites. The soil constituents found most commonly were classified as the following;

- Alo clay, 30 to 50% slopes. Typical profile includes clay from surface to approximately 22 inches below ground. Bedrock would underlie the clay from 22 to 79 inches below ground surface (bgs).
- Calleguas clay loam, 50 to 75% slopes, eroded. Typical profile includes clay loam from surface to approximately 15 inches bgs. Bedrock underlies the clay loam from 15 to 42 inches bgs.
- Sorrento loam, 2 to 9 % slopes. Typical profile includes silty clay loam from surface to 62 inches bgs and sandy loam from 62 to 72 inches bgs.

**Paleontological Resources**

Five geologic units are mapped within the wetland sites and include young landslide deposits, young axial-channel deposits, old and very old axial-channel deposits, Capistrano Formation, and Monterey Formation. Young landslide deposits are mapped in several segments of the wetland sites and appear to have been derived from the Capistrano Formation. They are mapped as Qyls; will be likely composed of sandstone, siltstone, mudstone, and shale; and can range from shallow chaotic slides to deep-seated slides of coherent bedrock (McComas 2018). No fossil localities have been recorded within landslide deposits within a quarter-mile of the wetland sites. Landslide deposits are assigned an undetermined paleontological potential due to the unknown composition of these deposits in the wetland sites (McComas 2018). In general, landslides containing intact masses of the parent bedrock are assumed to have a high paleontological potential, while those composed of disassociated landslide debris would have low paleontological potential. Young axial-channel deposits, mapped as Qya, date to late Pleistocene and Holocene and are located along modern drainages and hillslopes. These deposits are generally less than 10,000 years old and range in composition from unconsolidated to moderately consolidated silt, sand, pebbly sand, and boulders. Young axial-channel deposits are assigned a low paleontological sensitivity for depths of 0 to 5 feet below grade, and an undetermined paleontological potential at depths greater than 5 feet (McComas 2018). Old and very old axial-channel deposits are mapped as Qoa and Qvoa and date to approximately 2.5 million to 10,000 years old. Old and very old axial-channel deposits underlie the majority of the wetland sites in San Juan Canyon and are generally found along the upper margins of existing stream drainages. No fossil localities have been recorded within the wetland sites or quarter-mile radius; however, fossils have been collected from Pleistocene-age alluvial deposits at several

location elsewhere in Orange County (McComas 2018). These include skeletal remains of reptiles and birds, small mammals, and large-bodied mammals (e.g., ground sloth, wolves, bears, tapirs, horses, camels, giant bison, mammoths). Old and very old axial-channel deposits are assigned a high paleontological sensitivity. Capistrano Formation dates from late Miocene to early Pliocene-age (7 to 5 million years old) and is exposed along Alicia Parkway and in short segments along Sulphur Creek and San Juan Canyon. The sediments exposed in this area belong to the informal siltsone member (facies) (McComas 2018). No fossil localities have been recorded from the Capistrano Formation within a quarter-mile radius of the wetland sites; however, Capistrano Formation is assigned a high paleontological sensitivity based on the diverse assemblages of marine vertebrates recovered from these deposits. Monterey Formation dates to middle to late Miocene-age (approximately 16 to 8 million years old) and is exposed in small areas along the northwestern portion of the wetland sites. Monterey Formation was deposited in a series of subsiding, low-oxygen marine basins. No fossil localities have been recorded from this formation within or a quarter-mile of the wetland sites; however, Monterey Formation produces extremely diverse assemblages of marine organisms ranging from microscopic diatoms to enormous whales. The Monterey Formation is assigned a high paleontological sensitivity.

## Impact Analysis

**Would the project:**

***a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:***

*1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.*

**No Impact.** The wetland sites are not within a State of California Alquist-Priolo Earthquake Fault Hazard Zone and no known active faults transect the project area. The closest fault zone (Elsinore Fault Zone) is approximately 17 miles to the northeast (of Rancho Niguel Master Association Upper Sulphur Creek [Site 7]). The Newport-Inglewood-Rose Canyon Fault Zone is approximately 19 miles to the northwest (of La Paz Park Wetlands [Site 12]). Therefore, no impacts would occur.

*2. Strong seismic ground shaking?*

**Less-than-Significant Impact.** As with most Southern California regions, the proposed project would be subject to strong ground shaking in the event of a major earthquake. Secondary effects of strong seismic shaking (resulting from large earthquakes originating from nearby faults) can include such effects as landslides, liquefaction, ground cracking, subsidence, and settlement. These effects are a possibility throughout the Southern California region and are dependent on on-site geology and on the distance between the proposed project area and the causal fault. The closest major active faults to the proposed project area are the Newport-Inglewood Fault and the Elsinore Fault.

The proposed project involves the implementation of O&M activities within City-owned wetland sites. Because these activities do not involve significant earth-moving activities (that could be affected by or exacerbate geologic phenomena), would be conducted on a temporary basis (bi-annually, in most cases), and would not involve the exposure of people or structures to geologic phenomena, potential project impacts related to strong seismic shaking would be less than significant.

*3. Seismic-related ground failure, including liquefaction?*

**Less-than-Significant Impact.** Implementation of the proposed project would not expose people or structures to substantial adverse effects from seismic-related ground failure, including liquefaction. Liquefaction occurs when saturated, low-density, loose materials (e.g., sand or silty sand) are weakened and transformed from a solid to a near-liquid state as a result of increased pore water pressure, which is caused by strong ground motion from an earthquake. Liquefaction generally occurs in areas underlain by silts and fine sands and where shallow groundwater exists.

La Paz Park Wetlands (Site 12) is the only wetland site located within a Liquefaction Zone. However, as mentioned under Threshold 2 above, O&M activities would not involve significant earth-moving activities that could be affected by or exacerbate geologic phenomena, would be conducted on a temporary basis, and would not involve the exposure of people or structures to potential geologic impacts, including those involving liquefaction. Impacts would be less than significant.

*4. Landslides?*

**Less-than-Significant Impact.** Portions of the proposed project lie within investigation zones for earthquake-induced landslides (areas immediately adjacent to Crown Valley Parkway and Alicia Parkway, and the Salt Creek Corridor Habitat Restoration Area [Site 13] are within areas susceptible to earthquake-induced landslides). However, O&M activities would not involve significant earth-moving activities that could be affected by or exacerbate geologic phenomena, would be conducted on a temporary basis, and would not involve the exposure of people or structures to potential geologic impacts. Impacts would be less than significant.

***b. Result in substantial soil erosion or the loss of topsoil?***

**Less-than-Significant Impact.** Erosion is a condition that could adversely affect any of the wetland sites. However, routine maintenance and habitat management activities to be conducted as part of the project include erosion prevention as a project objective. Project features include pathway erosion repair and rodent and pest control (rodent and pest activities can cause erosion). Additionally, **Environmental Commitment EC-BIO-8** requires that maintenance activities associated with vegetation clearing, trimming, or sediment removal not be conducted during heavy rains to prevent unnecessary erosion, runoff, and sedimentation. Furthermore, **Environmental Commitment EC-BIO-12** requires that vegetation clearing and trimming occur primarily within the channel bottom and be limited to access paths along bank slopes to further prevent the potential for erosion. Impacts would be less than significant.

***c. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?***

**Less-than-Significant Impact.** As mentioned under Threshold a., the proposed project is located within areas that are susceptible to landslides and liquefaction. However, O&M activities would not involve significant earth-moving activities that could be affected by or exacerbate geologic phenomena, would be conducted on a temporary basis, and would not involve the exposure of people or structures to potential geologic impacts, including those involving unstable geologic/soils conditions. Impacts would be less than significant

***d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?***

**Less-than-Significant Impact.** Expansive soils are fine-grained soils (generally high-plasticity clays) that can undergo a significant increase in volume with an increase in water content as well as a significant decrease in volume with a decrease in water content. Changes in the water content of highly expansive soils can result in severe distress for structures constructed on or against the soils.

As soils found commonly throughout the project sites contain varying degrees of clays (discussed under *Affected Environment* above), it is possible that soils may experience some degree of expansion when exposed to water. However, O&M activities would be conducted on a temporary basis and would not involve the exposure of people or structures to potential impacts as a result of expansive soils. Impacts would be less than significant.

***e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?***

**No Impact.** No septic tanks or alternative wastewater disposal systems are proposed; therefore, no impact would occur.

***f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?***

**Less-than-Significant Impact with Mitigation Incorporated.** The San Diego Natural History Museum conducted a paleontological search of the wetland sites and a quarter-mile buffer on August 31, 2018. As discussed above, no fossil localities have been previously recorded within the wetland sites and five geologic units are mapped within the wetland sites. The geologic units consist of young landslide deposits (undetermined paleontological sensitivity), young axial-channel deposits (low paleontological sensitivity), old and very old axial channel deposits (high paleontological sensitivity), Capistrano Formation (high paleontological sensitivity), and Monterey Formation (high paleontological sensitivity). According to the San Diego Natural History Museum, any proposed excavation activities that extend deep enough to encounter previously undisturbed deposits of the geologic units with high paleontological sensitivity have the potential to affect paleontological resources. Substantial damage to or destruction of fossils associated with the geologic units found at the wetland sites would result in a potentially significant impact. Although O&M activities are not expected to extend deeper than below natural ground, the proposed project would be subject to **Mitigation Measure MM-GEO-1,** which includes retaining a professional paleontologist to review the San Diego Natural History Museum record search and identifying areas that require a survey, and as necessary, on-site monitoring, recovery, and reporting. Implementation of these mitigation measures would result in a less-than-significant impact on unique paleontological resources

*Mitigation Measures*

**MM GEO-1:** Orange County–certified professional paleontologist will be retained by the City to provide professional paleontological services, which will include survey, education of O&M workers, and as necessary, on-site O&M monitoring, appropriate recovery, and reporting.

- The paleontologist will review the San Diego Natural History Museum record search and the proposed project's activities and will identify areas of potential survey.

- Based on professional experience and review of the paleontological record search, a paleontological survey may occur prior to the start of O&M activities if potential areas of sensitivity are identified.
- Based on survey results and professional judgement, paleontological monitoring may be conducted until the paleontologist determines there is no more need for further monitoring for a specific area based on site findings.
- If fossil remains are discovered during project-related activities, activities in the vicinity of the find will stop immediately until the paleontologist can assess the nature and importance of the find and recommend appropriate treatment. Treatment may include preparation and recovery of fossil materials to be housed in an appropriate museum or university collection and may also include preparation of a report for publication. The work will be conducted in conformance with the Orange County paleontological sensitivity guidelines (Eisentraut and Cooper 2002) and meet the requirements for recovery, salvage, laboratory preparation, preparation to the point of taxonomic identification, transferal, and preparation and submittal.
- Fossils recovered will be prepared, identified, and catalogued before donation to the accredited repository designated by the City of Laguna Niguel.
- The retained qualified paleontologist will prepare a final report to be filed with the City in the event that O&M activities trigger the need for paleontological monitoring. If applicable, the report will include a list of specimens recovered, documentation of each locality, interpretation of fossils recovered, and all specialists' reports as appendices. The report will be required despite the presence or absence of fossils.

# VII. Greenhouse Gas Emissions

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|---|
| Would the project: | | | | | |
| a. | Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | ☐ | ☐ | ☒ | ☐ |
| b. | Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | ☐ | ☐ | ☒ | ☐ |

## Affected Environment

A greenhouse gas (GHG) is any gas that absorbs infrared radiation in the atmosphere. This absorption traps heat within the atmosphere, maintaining the Earth's surface temperature at a level higher than would be the case in the absence of GHGs. GHGs include water vapor, carbon dioxide, methane, nitrous oxide, ozone, perfluorocarbons, hydrofluorocarbons, and halogenated chlorofluorocarbons. Naturally occurring GHGs include water vapor, carbon dioxide, methane, nitrous oxide, and ozone. Human activities add to the levels of most of these naturally occurring gases.

Increasing levels of GHGs in the atmosphere result in an increase in the average temperature of the Earth's lower atmosphere. Warming of the Earth's lower atmosphere induces a suite of additional changes, including changes in global precipitation patterns; ocean circulation, temperature, and acidity; global mean sea level; species distribution and diversity; and the timing of biological processes. These large-scale changes are collectively referred to as "global climate change."

There are no established federal, state, or local quantitative thresholds applicable to the proposed project to determine the quantity of GHG emissions that may have a significant effect on the environment. The California Air Resources Board, SCAQMD, and various cities and agencies have proposed, or adopted on an interim basis, thresholds of significance that require the implementation of GHG emission reduction measures.

## Impact Analysis

Implementation of the proposed project would involve occasional trips from workers performing maintenance activities at the wetland sites and would involve GHG emissions from material hauling and equipment use. Such activities would vary in terms of the scale, duration, frequency, number of workers required, and the amount of equipment required. Due to the variability of maintenance activities, quantification of emissions would yield little informational value. Consequently, GHG impacts are discussed qualitatively, with a focus on the sources and activity types that would be involved.

**Would the project:**

***a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?***

**Less-than-Significant Impact.** Maintenance activities would involve emissions of GHGs associated with worker commute trips, hauling trips, and diesel-powered equipment use. Due to the variability of maintenance activities, no quantification of emissions has been undertaken; however, such emissions would be limited through implementation of **Environmental Commitment EC-BIO-14**, which states that handheld tools will be used for manual vegetation clearing and sediment when possible, and heavy equipment will only be used when necessary. Although activities would vary based on the scale, duration, frequency, number of workers, and amount of equipment required, maintenance activities would be on a smaller scale such that generation of substantial GHG emissions is not anticipated. Impacts would be less than significant.

***b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?***

**Less-than-Significant Impact.** The proposed project would result in the short-term generation of GHG emissions when maintenance activities are performed. Although maintenance activities would represent an increase over existing conditions, the proposed O&M Plan would maintain the integrity of restored ecosystems and the long-term stability of the ecosystem would minimize the need for more intensive restoration efforts. Plan implementation would therefore not conflict with implementation of GHG reduction efforts required under Assembly Bill (AB) 32, Senate Bill 32, and local/regional plans. Impacts would be less than significant.

# VIII. Hazards and Hazardous Materials

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|---|
| Would the project: | | | | | |
| a. | Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | ☐ | ☐ | ☒ | ☐ |
| b. | Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | ☐ | ☐ | ☒ | ☐ |
| c. | Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | ☐ | ☐ | ☒ | ☐ |
| d. | Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | ☐ | ☐ | ☐ | ☒ |
| e. | Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area? | ☐ | ☐ | ☐ | ☒ |
| f. | Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area? | ☐ | ☐ | ☐ | ☒ |
| g. | Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | ☐ | ☐ | ☒ | ☐ |
| h. | Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | ☐ | ☐ | ☒ | ☐ |

## Impact Analysis

**Would the project:**

***a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?***

**Less-than-Significant Impact.** Implementation of the proposed project would include minor maintenance activities such as removing herbaceous vegetation and accumulated sediment around outfalls, risers, culverts and bridge crossings; establishing pilot channels to facilitate positive flow and maintain flood capacity; and trimming vegetation to prevent obstruction of flow. During these activities, handling of hazardous materials such as fuel and oils would occur (fuels and oils would be used while operating equipment required to conduct the aforementioned maintenance activities). Such handling and disposal (of waste oils) must be compliant with applicable regulations and although small amounts of these materials would be transported, used, and disposed of during O&M activities, these materials are typically used in O&M activities/equipment and would not represent the transport, use, and disposal of acutely hazardous materials. Furthermore, no hazardous materials would be handled or stored during project operations. Impacts would be less than significant.

***b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?***

**Less-than-Significant Impact.** Research conducted on the State Water Resources Control Board's Geotracker (State Water Resources Control Board 2015) and Department of Toxic Substances Control's Envirostor (Department of Toxic Substances Control 2018) websites during an online records review identified several hazardous materials sites located near portions of the proposed project. The sites identified included facilities with history of releases to soil and groundwater under the Leaking Underground Storage Tank (LUST) database. However, all LUST sites identified have received closure by the applicable oversight agency. Table 3-3~~2~~ lists the sites identified in the LUST database located within 0.5 mile of a wetland site:

**Table 3-~~32~~. LUST Sites**

| LUST Site | Nearest Wetland Site |
|---|---|
| Chevron #9-3783 – 30072 Crown Valley Parkway | Approximately 0.17 mile southwest of Crown Valley Park Wetland Creation Area (Site 4) |
| Laguna Niguel Post Office – 29911 Niguel Road | Approximately 0.25 mile west of Crown Valley Park Wetland Creation Area (Site 4) |
| Shell Oil – 30011 Crown Valley Parkway | Approximately 0.10 mile southwest of Crown Valley Park Wetland Creation Area (Site 4) |
| Laguna Niguel Touchless Carwash – 30081 Crown Valley Parkway | Approximately 0.15 mile southwest of Crown Valley Park Wetland Creation Area (Site 4) |
| Orange County Fire Station #5 – 30141 Alicia Parkway | Approximately 0.39 mile west of Crown Valley Park Wetland Creation Area (Site 4) |
| Allen Oldsmobile Cadillac – 29951 Morongo Place | Approximately 0.25 mile southeast of Sulphur Creek Park Wetland Enhancement Area (Site 5) |
| Texaco – 28922 Golden Lantern | Approximately 0.07 mile east of Rancho Niguel Master Association Upper Sulphur Creek (Site 7) |
| Cafe Auto Spa – 28041 Greenfield Drive | Approximately 0.42 mile north of Rancho Niguel Master Association Upper Sulphur Creek (Site 7) |
| Laguna Niguel Regional Park – 28241 La Paz Road | Approximately 0.06 mile southeast of La Paz Park Wetlands (Site 12) |
| OC Fire Station #49 – 31461 Golden Lantern | Approximately 0.24 mile southeast of Salt Creek Corridor Habitat Restoration Area (Site 13) |

Other nearby sites of note included underground storage tank permitted sites. However, there were no violations associated with any of the underground storage tank listings. As sites with a potential to affect the project have all been granted closure, historic releases associated with these nearby sites are considered a low risk to project implementation. Furthermore, as project O&M activities are considered minor, significant amounts of soil disturbance would not occur, further minimizing the potential for exposure to affected media. Impacts would be less than significant.

***c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?***

**Less-than-Significant Impact.** Land uses in the vicinity of the project areas include residential and commercial developments, undeveloped open space, pedestrian and bicycle trails, and parks and schools. Schools identified within 0.25 mile of the proposed project are listed in Table 3-~~43~~ below.

**Table 3-~~43~~. Schools within 0.25 mile of the Proposed Project**

| School | Nearest Wetland Site |
|---|---|
| Orange County Academy of Sciences and Arts – 29292 Crown Valley Parkway | Approximately 0.15 mile southeast of Crowne Royale Homeowners Association Upper Sulphur Creek (Site 8) |
| Marian Bergeson Elementary School – 25302 Rancho Niguel Road | Approximately 0.13 mile north of Rancho Niguel Master Association Upper Sulphur Creek (Site 7) |
| Niguel Hills Middle School – 29070 Paseo Escuela | Approximately 0.21 mile southeast of Rancho Niguel Master Association Upper Sulphur Creek (Site 7) |
| Grace Classical Academy – 24600 La Plata Drive | Approximately 0.08 mile southeast of Niguel Ridge Homeowners Association Upper Sulphur Creek (Site 9) |

Handling of hazardous materials (such as fuel and oils) would occur within one-quarter mile of an existing school. However, handling of these materials would adhere to applicable regulations and would not represent the transport, use, and disposal of acutely hazardous materials. In addition, nearby sites with a potential to affect the project have all been granted closure and thus are considered a low risk to the project implementation. Therefore, O&M activities are not expected to disturb contaminated media as a result of historic releases associated with the aforementioned sites. Impacts would be less than significant.

***d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?***

**No Impact.** Implementation of the proposed project would not create any significant impacts associated with being included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The wetland sites were not identified during research conducted via the California Environmental Protection Agency *Cortese List Data Resources* (CalEPA 2018), which include data from the State Water Resources Control Board's Geotracker and Department of Toxic Substances Control's Envirostor. No impact would occur.

***e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?***

**No Impact.** Implementation of the proposed project would not result in a safety hazard for people residing or working in the project area because the proposed project area is not within an airport land use plan area or within 2 miles of a public airport or public use airport. The closest airport to the project area is the John Wayne Airport, approximately 12 miles to the northwest. No impact would occur.

***f. Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?***

**No Impact.** Implementation of the proposed project would not result in a safety hazard for people residing or working in the project area because the proposed project area is not within the vicinity of a private airstrip. No impact would occur.

***g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?***

**Less-than-Significant Impact.** Implementation of the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. As the project involves only minor maintenance activities, it would not result in any substantial traffic queuing along any major arterials surrounding the project and would not require O&M vehicles or equipment to park or remain stationary within any surrounding roadway for significant amounts of time. Moreover, the proposed project would not include any characteristics (e.g., permanent road closures, long-term blocking of road access) that would physically impair or otherwise interfere with emergency response or evacuation in the project vicinity. Impacts would be less than significant.

***h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?***

**Less-than-Significant Impact.** According to information obtained from the California Department of Forestry and Fire Protection (CAL FIRE), portions of the proposed project exist within a CAL FIRE Very High Fire Hazard Severity Zone (CAL FIRE 2011), specifically the West, East, and North Alicia Wetland sites (Sites 1, 2, and 3). Fire Hazard Severity Zones are identified as moderate, high, and very high hazard severity zones using a science-based and field-tested computer model that assigns a hazard score based on the factors that influence fire likelihood and fire behavior. Factors considered include fire history, existing and potential fuel (natural vegetation), flame length, blowing embers, terrain, and typical weather for the area.

Although fire can be a threat in in portions of the proposed project area, project activities would be conducted on a temporary basis and are not expected to draw a substantial amount of people (more than existing conditions), either during project O&M activities or during project operations. Furthermore, combustible vegetative buildup near fire-susceptible structures or developments would be managed as part of the vegetation maintenance component of the project, thereby decreasing the risk of fire impacts in the project area. Impacts would be less than significant.

# IX. Hydrology and Water Quality

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|---|
| Would the project: | | | | | |
| a. | Violate any water quality standards or waste discharge requirements? | ☐ | ☒ | ☐ | ☐ |
| b. | Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)? | ☐ | ☐ | ☐ | ☒ |
| c. | Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite? | ☐ | ☐ | ☒ | ☐ |
| d. | Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite? | ☐ | ☐ | ☐ | ☒ |
| e. | Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? | ☐ | ☐ | ☐ | ☒ |
| f. | Otherwise substantially degrade water quality? | ☐ | ☐ | ☐ | ☒ |
| g. | Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? | ☐ | ☐ | ☐ | ☒ |
| h. | Place within a 100-year flood hazard area structures that would impede or redirect floodflows? | ☐ | ☐ | ☐ | ☒ |
| i. | Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam? | ☐ | ☐ | ☐ | ☒ |
| j. | Contribute to inundation by seiche, tsunami, or mudflow? | ☐ | ☐ | ☐ | ☒ |

## Affected Environment

### Surface Hydrology

The project is within the Aliso Creek sub-watershed (hydrologic unit code [HUC] 180703010301) and the Salt Creek – Frontal Gulf of Santa Catalina sub-watersheds (HUC 180703010302), both within the larger Aliso Creek-Frontal Gulf of Santa Catalina Watershed.

The Aliso Creek sub-watershed includes approximately 35 square miles with its headwaters in the Cleveland National Forest and ultimately drains into the Pacific Ocean. The dominant land uses in the watershed are urban (residential and commercial development), open space, and undeveloped. The most important watershed issues for the Aliso Creek Watershed are related to the protection of water quality, addressing creek instability, the protection and restoration of sensitive wildlife and their habitats, and damage from flooding (ICF 2017a).

South of the Aliso Creek Watershed is the Salt Creek – Frontal Gulf of Santa Catalina sub-watershed, which encompasses approximately 73 square miles (ArcGIS n.d.). All streams and their tributaries in the watershed eventually drain into the Pacific Ocean. Similar to the Aliso Creek sub-watershed, dominant land uses in the watershed include urban, open space, and undeveloped, as well as agriculture. The priority concern associated with the Salt Creek drainage is poor water quality at Salt Creek Beach related to inland runoff.

The project area contains one perennial drainage, the Salt Creek Mainstem and several unnamed tributaries to Salt Creek, and one intermittent drainage, Sulphur Creek (ICF 2017b). Sulphur Creek is a perennial tributary to Aliso Creek, fed by runoff from surrounding development. Downstream of the Sulphur Creek confluence, Aliso Creek flows approximately 5 miles to the Pacific Ocean, where Salt Creek also drains. This project includes a total of 13 wetland sites: 12 occur within the Sulphur Creek Watershed and one within the Salt Creek Watershed (ICF 2017a).

### Groundwater

The project vicinity is either in flat valleys or along steep slopes with an elevation ranging from roughly 150 feet AMSL at the northern end near Laguna Niguel Regional Park to approximately 600 feet AMSL at the southeastern end of Chapparosa Park (ICF 2017a). Consequently, the project area is not within a recognized groundwater basin (California Department of Water Resources 2017). The primary sources of hydrologic input are incident precipitation and sheet flow from the surrounding areas. Recharge in the area occurs through infiltration of precipitation. Average precipitation in Laguna Niguel is approximately 7.06 inches per year, with most precipitation occurring in December through March (ICF 2017a).

### Water Quality

Salt Creek is 303(d) listed as impaired for benthic community effects, malathion, and toxicity. Although Sulphur Creek is not 303(d) listed as impaired, receiving waters downstream of Sulphur Creek, including Aliso Creek (which is listed as impaired for benthic community effects, indicator bacteria, malathion, nitrogen, phosphorus, selenium, and toxicity) and Aliso Creek Mouth (impaired for indicator bacteria and toxicity) are 303(d) listed. The Pacific Ocean Shoreline at the Aliso Creek mouth is also listed as impaired for indicator bacteria and toxicity, while the Pacific Ocean Shoreline where Salt Creek outflows at Monarch Beach/Salt Creek Beach is impaired for indicator bacteria. A

Total Maximum Daily Load (TMDL) for indicator bacteria was approved by the San Diego RWQCB for Aliso Creek in June 2011 (State Water Resources Control Board 2018).

### Flooding

The majority of the project area, including portions of the 3-foot-wide low-flow channel, are outside of the 100-year floodplain, as shown on Figure 3-4. However, portions of the project are within Federal Emergency Management Agency (FEMA) Zone A and Zone AE, which is within the 100-year floodplain and a FEMA Special Flood Hazard Area. This includes areas south of Aliso Creek Road and west of La Paz Road, areas west of Crown Valley Parkway between Nueva Vista Drive and Niguel Road, Niguel Road north of Beacon Hill Way, and south of Salt Creek Trail. Some project areas are between the limits of the 100- to 500-year floodplain and areas of moderate flood hazard, and not within the FEMA Special Flood Hazard Area (FEMA 2008).

## Impact Analysis

**Would the project:**

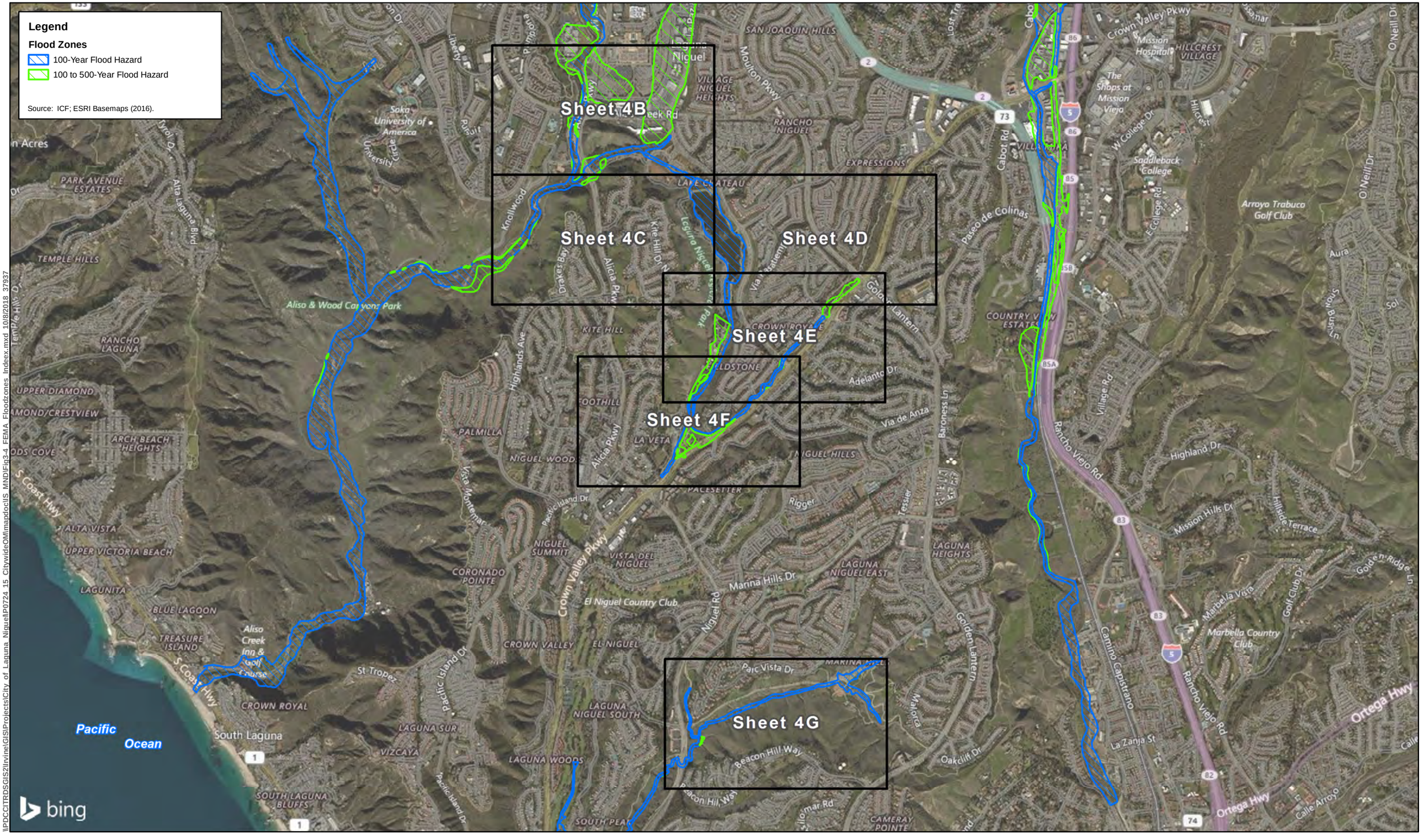
***a. Violate any water quality standards or waste discharge requirements?***

**Less-than-Significant Impact with Mitigation Incorporated**. Minor maintenance activities associated with the project (including removal of herbaceous vegetation and accumulated sediment around outfalls, culverts, and bridge crossings; and establishment of pilot channels to facilitate positive flow and maintain flood capacity) could result in short-term impacts that could temporarily affect water quality. Runoff could contain nonpoint pollution. Sediments, turbidity, and pollutants associated with sediments and potential accidental discharge of pollutants associated with O&M equipment and materials may be introduced into drainages structures or other water bodies.

The potential impacts on water quality are primarily related to sediment and sediment-bound pollutants that may be mobilized during operation and maintenance activities. Ground-disturbing activities such as vegetation and sediment removal, stockpiling of spoil materials, and runoff from work areas could cause soil erosion and sedimentation, and reduce water quality in Salt or Sulphur Creeks. Additionally, hazardous materials (e.g., gasoline, oils, grease, lubricants) from equipment could be accidently released during O&M activities. Accidental discharge of these materials to surface waters could adversely affect water quality, endanger aquatic life, and/or result in a violation of water quality standards.

Because the proposed project involves O&M activities and would not disturb over 1 acre of land, the project is not subject to the California State Water Resources Control Board's National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Constructions and Land Disturbance Activities (Construction General Permit). However, standard sediment and erosion control practices such as fiber rolls, stream bank and soil stabilization, straw mulch, and installation of fencing of exclusion areas would be implemented, as needed, to reduce degradation of water quality.

With the implementation of avoidance and minimization measures, ground disturbance would be limited to the minimum amount necessary to complete the work and standard sediment and erosion control practices would be in place. With implementation of **Environmental Commitment EC-BIO-8**, all maintenance activities associated with vegetation clearing, trimming, or sediment removal would not be conducted during heavy rains to prevent unnecessary erosion, runoff, and




N

0 1,250 2,500
Feet
1 inch = 2,500 feet

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**Figure 3-4A, Index**
**FEMA Flood Zones within the Project Area**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**




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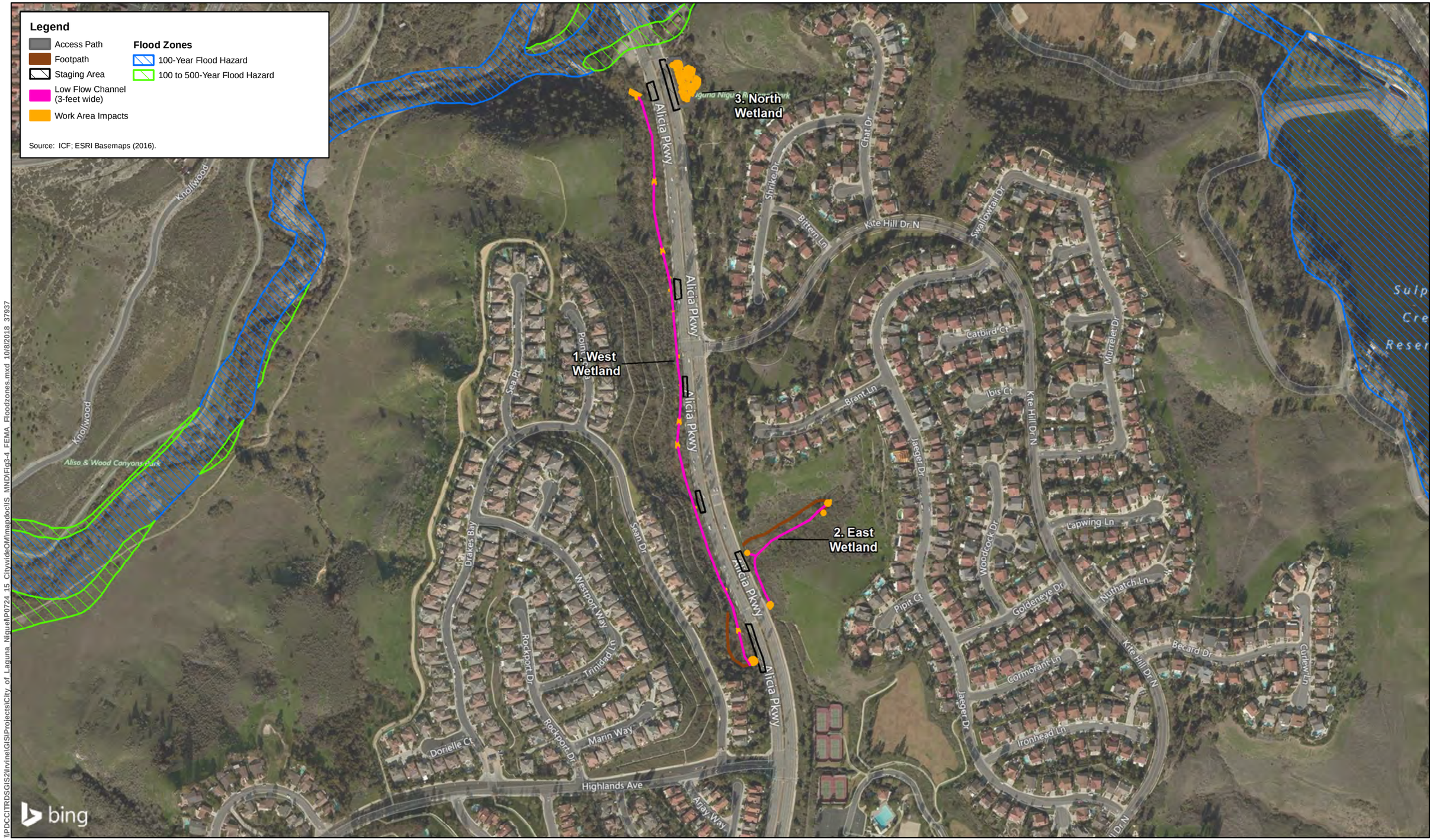
0 200 400

Feet

1 inch = 400 feet

**Figure 3-4B**
**FEMA Flood Zones within the Project Area**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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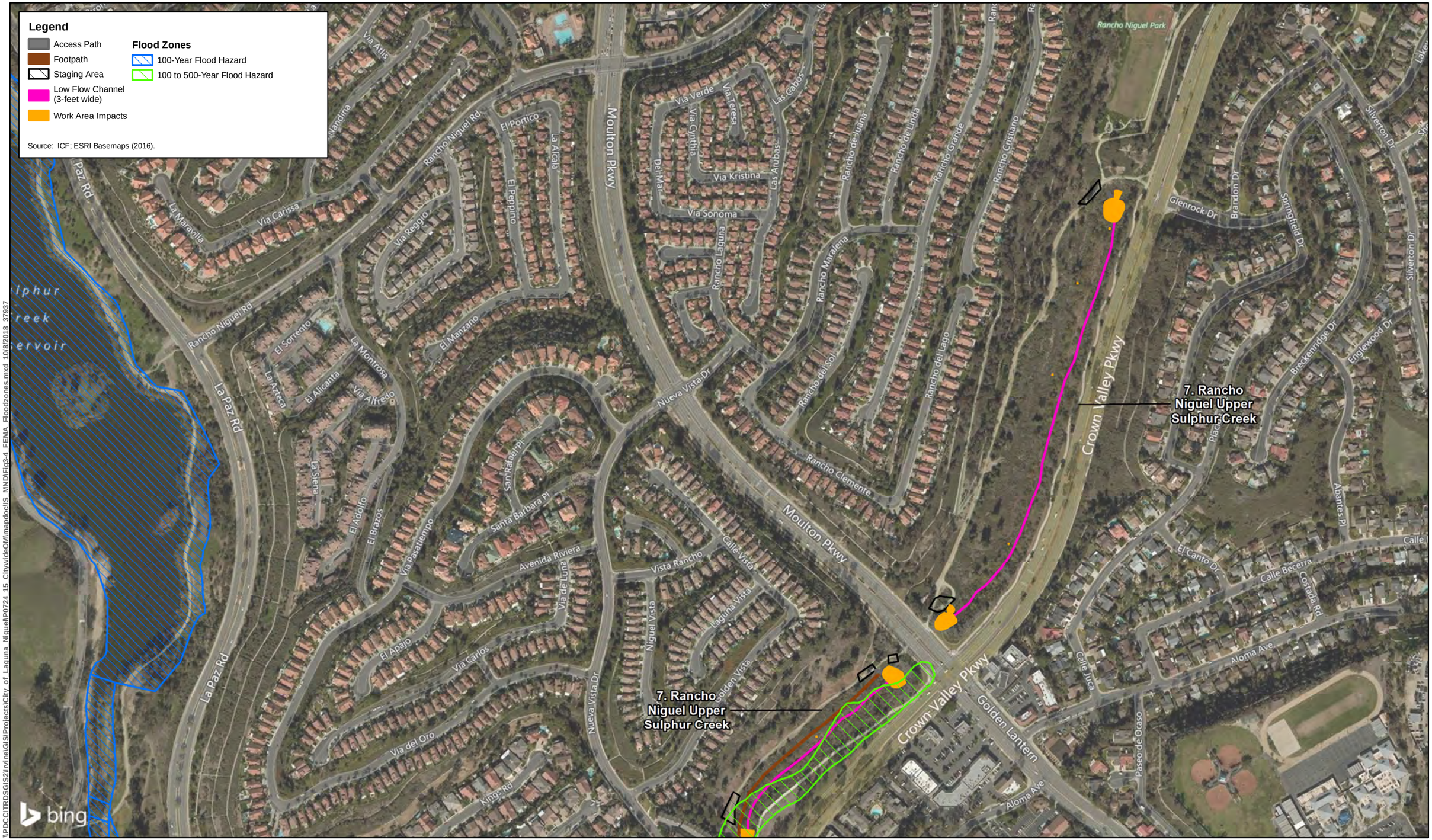
Feet
1 inch = 400 feet

**Figure 3-4C**
**FEMA Flood Zones within the Project Area**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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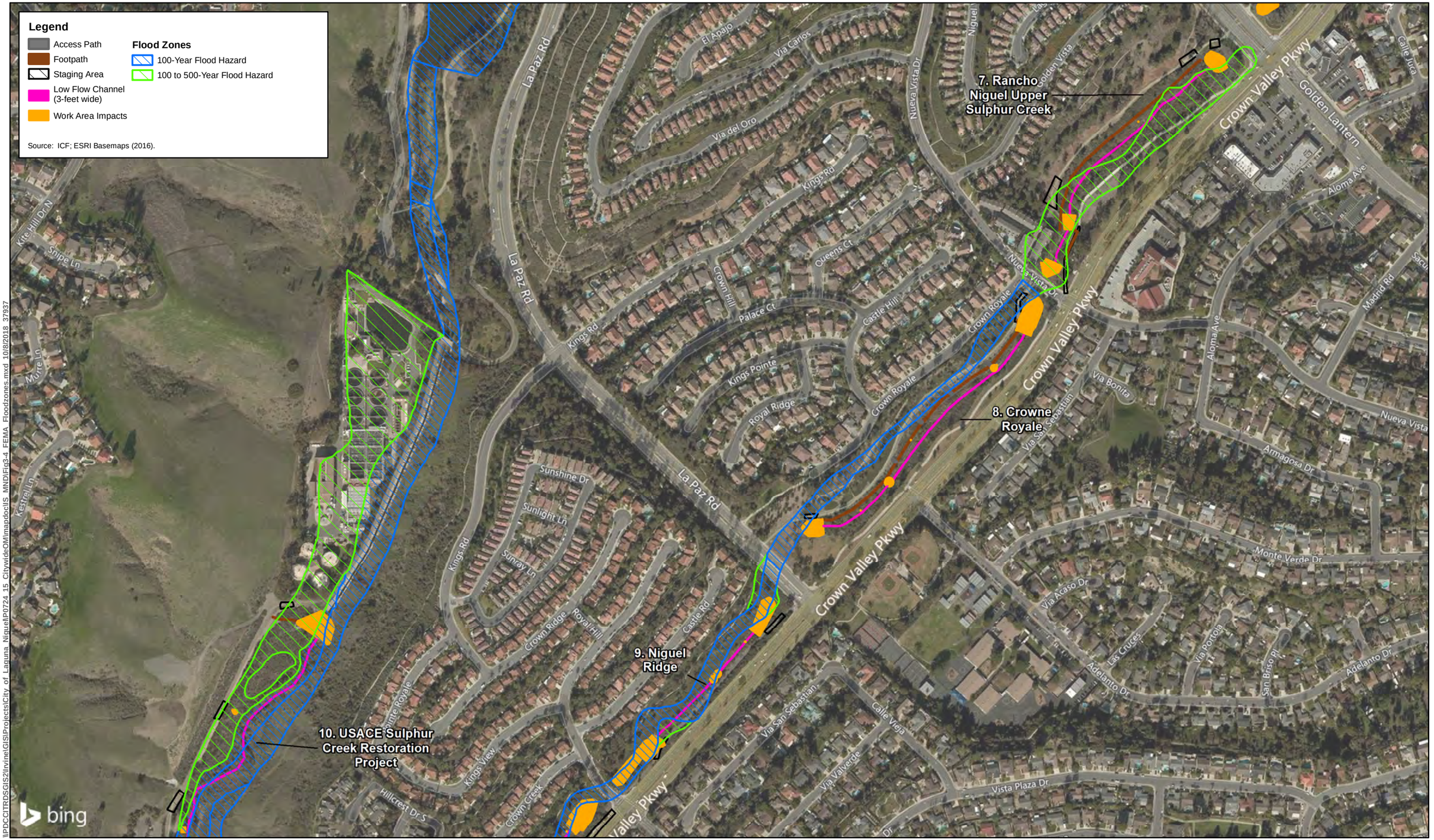
Feet
1 inch = 400 feet

**Figure 3-4D**
**FEMA Flood Zones within the Project Area**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

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Feet
1 inch = 400 feet

**Figure 3-4E**
**FEMA Flood Zones within the Project Area**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**




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**Figure 3-4F**
**FEMA Flood Zones within the Project Area**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

**Legend**

- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Flood Zones**

- 100-Year Flood Hazard
- 100 to 500-Year Flood Hazard

Source: ICF; ESRI Basemaps (2016).

13. Salt Creek Corridor Habitat Restoration Area

Agia
Cortu
Via Martini
Via Vetti
Minori
Parc Vista Dr
Parc Vista Dr
Parc Vista Dr
Chapparosa Park Rd
Chapparosa Community Park
Pienza
Niguel Rd
Siena
Beacon Hill Way
Russel Ln
Russel Ln
Russel Ln
Goodwin Pl
Ponders End
Taylor Pl
Taywood Ct
Rollins Pl
Rollins Pl
Parkman Rd E
Ticknor Pl
Sentry Hill
Richmond Hill
Ridgeway Ave
Beacon Hill Way
Beacon Hill Way
Lantern
bing

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0 200 400
Feet
1 inch = 400 feet

**Figure 3-4G**
**FEMA Flood Zones within the Project Area**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

sedimentation, and will not resume until conditions are suitable for the movement of equipment and materials. With implementation of **Environmental Commitment EC-BIO-12**, necessary vegetation clearing and trimming would occur primarily within the channel bottom and would be limited to access paths along bank slopes to prevent the potential for erosion. When possible, hand tools would be utilized for manual vegetation clearing and sediment removal, and heavy equipment will only be used when necessary (**Environmental Commitment EC-BIO-14**). The discharge of imported sediment into the wetland or riparian area will not be permitted under any circumstances (**Environmental Commitment EC-BIO-19**).

In addition, the proposed project would implement **Mitigation Measure MM-BIO-1** to plan, manage, and monitor the 13 sites and preserve the habitat, functions, and values in accordance with the goals identified in the O&M Plan. Any necessary agency permits would be obtained prior to initiating O&M activities and impacts on hydrology and water quality would be minimized per the conditions set forth in the permits. These permits include a USACE Clean Water Act Section 404 permit for placement of dredged or fill material within waters of the U.S.; RWQCB Clean Water Act Section 401 State Water Quality Certification/Waiver for an action that may result in degradation of waters of the state; and CDFW Section 1602 Streambed Alteration Agreement. As a result, after implementation of **Environmental Commitments EC-BIO-8**, **EC-BIO-12**, **EC-BIO-14**, and **EC-BIO-19** and **Mitigation Measure MM-BIO-1**, the proposed project would result in less-than-significant impacts related to water quality standards during O&M activities.

Ongoing maintenance of the proposed project would include nonnative weed control. All nonnative vegetation would be removed and nonnative materials would be cut and disposed of off site. In extreme circumstances, application of herbicides may be required. However, only herbicides approved by the EPA as suitable for use near water sources would be used. Herbicides used during maintenance could be accidently released during application, resulting in adverse impacts on water quality or in a violation of water quality standards. However, any herbicide treatment would be applied by a licensed or certified Pest Control Applicator and would be applied to manufacturers' specifications. As a result, O&M-related impacts on water quality and water quality standards are expected to be less than significant.

The proposed project would implement flood control and vector control for public safety, maintain the integrity of the restored ecosystems, and manage the sites for the long-term stability, health, and sustainability of the Aliso Creek Watershed. Long-term operation of the proposed project would stabilize banks and channels, which would result in a reduction in sediment load from the restoration site, improving water quality. All project O&M activities would be subject to existing regulatory requirements. The proposed project would be required to meet all applicable water quality objectives for surface waters and groundwater contained in the Basin Plan and would act in accordance with related regulatory agencies' guidelines, and meet the goals and objectives of the County's 2003 Drainage Area Management Plan and the City of Laguna Niguel Local Implementation Plan/Jurisdictional Runoff Management Program. Therefore, the project would not violate water quality standards or waste discharge requirements. Impacts on water quality would be less than significant.

***b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?***

**No Impact**. The project area is not within a recognized groundwater basin. Recharge in the area would continue to occur through infiltration into streambeds and through infiltration of precipitation. Furthermore, no excavation is proposed as part of O&M activities. There is no intention to use surface or groundwater for O&M activities and no groundwater pumping is required. The project's minimal use of water would not deplete or interfere with groundwater supply or recharge. Therefore, there would be no impact on groundwater supplies or recharge.

***c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site?***

**Less-than-Significant Impact**. O&M activities would not alter the amount of impervious surface of the project sites and the sites would remain similar to its existing configurations. Table 3-54 summarizes each wetland site's drainage patterns. The proposed project would not substantially alter the existing drainage pattern on the project sites.

**Table 3-54. Drainage Description of Project Wetland Sites**

| Site # | Drainage Description |
|---|---|
| Site 1 | The West Alicia Wetland is a restored channel and contains a portion of Sulphur Creek that flows north through the site along Alicia Parkway from a small concrete collection channel to a large concrete culvert. Flows drain outside of the project area to an unnamed tributary to Aliso Creek. Several small concrete outfalls collect runoff from the surrounding hillside to the west and direct flow into this drainage as it proceeds northward. |
| Site 2 | The East Alicia Wetland occurs in a lower area, approximately 400 feet of a short, intermittent drainage that collects runoff from surrounding development. |
| Site 3 | Site 3 is a network of six built retention basins linked by small overflow channels, located on the eastern side of Alicia Parkway within the project area. A small (approximately 4-foot-wide) concrete box culvert contributes water to the most upstream basin in the southeastern corner of the project area. At the downstream (northwestern) corner, a culvert receives water from East Alicia Wetland (Site 2) and flows toward an unnamed tributary to Aliso Creek. |
| Site 4 | Site 4 flows northeast through the project site within the Crown Valley Community Park grounds to its confluence with Sulphur Creek. The wetland is bound on the southern edge by a large concrete culvert and concrete low-flow channel, and on the northern edge by a pedestrian bridge that crosses the drainage. The stream is routed through three large culverts within the bridge structure. The upstream (southern) portion of Site 4 consists of braided channels between the bridge crossing and the upstream culvert. |
| Site 5 | Site 5 is composed of a section of Sulphur Creek and was restored from previous concrete channelization. Within the project area, Sulphur Creek is a small channel that flows southeast. There is a large concrete box culvert at the southern edge of the project area, and a concrete and riprap velocity control structure approximately halfway upstream in the reach of Site 5. |
| Site 6 | Site 6 is a high-flow channel and associated braided channels of Sulphur Creek within the project site. The site flows in a northern direction toward Aliso Creek. |

| Site # | Drainage Description |
|---|---|
| Site 7 | Site 7 is a section of Sulphur Creek and has been restored from previous concrete channelization. Within the project area, Sulphur Creek is a small channel that flows southeast. There are four large concrete box culverts through which the stream passes. |
| Site 8 | Site 8 is a section of Sulphur Creek and has been restored from previous concrete channelization. Within the project site, Sulphur Creek is a small channel that flows southeast. At the northern end of the project area, there is a large concrete box culvert and concrete apron through which the stream passes inside a shallow low-flow channel as it exits under Nueva Vista Road. A concrete outfall and velocity dissipating structure is within the channel near the intersection of Crown Valley Parkway and Adelanto Road. At the southern edge of the project area, the stream enters another large concrete box culvert as it passes under La Paz Road. |
| Site 9 | Site 9 is a section of Sulphur Creek and has been restored from previous concrete channelization. Within the project area, Sulphur Creek is a small channel that flows southeast. At the northern end of the project area, there is a large concrete box culvert and concrete apron through which the stream passes inside a shallow low-flow channel as it exits under La Paz Road. Where the drainage is bisected by La Plata Road, the stream runs through a large concrete box culvert that is flanked on both sides by a concrete apron with a low-flow concrete channel. |
| Site 10 | Site 10 was restored by USACE to widen the active floodplain of Sulphur Creek to improve flood capacity. The larger floodplain present in this area is approximately 100 feet wide. |
| Site 11 | Site 11 is a section of Sulphur Creek and has been restored from previous concrete channelization. Within the project area, Sulphur Creek is a small channel that flows west. |
| Site 12 | Site 12 consists of a section of an unnamed tributary to Sulphur Creek (Site 12b), two small side drainage channels (Site 12a and Site 12c), and one additional isolated inlet (Site 12d) within the project site, where Site 12b, the unnamed tributary, is a small channel that flows west and is incised within steep banks. The stream exits a large concrete culvert with concrete slope protection as it passes under La Paz Road past the eastern end of the project area. Site 12a, a small drainage channel to the north of the unnamed tributary, has an active channel, is fed from a concrete outfall at the eastern end, and drains to the unnamed tributary through a culvert on its western end. The second side drainage feature, Site 12c, northwest of the stream features, is fed by two concrete outfall structures on its northern and western sides, and drains through a concrete culvert on the southern side to the unnamed tributary (Site 12b). The isolated inlet feature (Site 12d) directs urban runoff from the parking lot into the inlet structure. |
| Site 13 | Site 13 includes Salt Creek Mainstem and six unnamed tributaries to Salt Creek. The portion of Salt Creek within Site 13 is a southward-flowing perennial stream primarily fed by urban runoff from irrigation. It has a natural channel that runs between two large concrete culverts that pass the stream under the Salt Creek Bike Trail and Niguel Road. |

Project O&M activities could temporarily alter existing drainage patterns and may result in local (on-site) and temporary erosion and siltation. However, standard BMPs would be implemented to manage runoff and potential erosion. BMPs and good housing keeping practices will be implemented to prevent runoff or deposition of O&M-related materials, and to contain associated sediment during O&M activities.

As required by **Environmental Commitment EC-BIO-8**, all maintenance activities associated with vegetation clearing, trimming, or sediment removal will not be conducted during heavy rains to prevent unnecessary erosion, runoff, and sedimentation, and would not resume until conditions are suitable for the movement of equipment and materials. Necessary vegetation clearing and trimming would occur primarily within the channel bottom and would be limited to access paths along bank

slopes to prevent the potential for erosion problems or trails, as required by **Environmental Commitment EC-BIO-12**. In addition, hand tools would be used for manual vegetation clearing and sediment removal, and heavy equipment would only be used when necessary (**Environmental Commitment EC-BIO-14**). As required by **Environmental Commitment EC-BIO-19**, the discharge of imported sediment into the wetland/riparian area will not be permitted under any circumstances.

In most of these wetland sites there will be surface water flows. As a result, O&M would also include diversion structures to manage surface water flow for removal of soil in the drainage. The course of an existing stream would be temporarily altered and returned to existing conditions following O&M activities. Temporary dams will be set up to allow work to occur in dry conditions. Only accumulated sediment and herbaceous vegetation that are prohibiting flow will be removed from each structure.

Standard BMPs and implementation of all necessary agency permits and local requirements would minimize impacts related to erosion and sedimentation on or off site during O&M activities. As a result of the proposed project, an improvement to drainage patterns over existing conditions would occur because the specific maintenance activities are necessary to maintain flood control for each of the 13 wetland sites. The sites would be restored to the desired functions to maintain the integrity of the restored ecosystems and to manage the sites for the long-term stability, health, and sustainability of the watershed, which would prevent substantial erosion or siltation on or off site. Therefore, with implementation of **Environmental Commitments EC-BIO-8**, **EC-BIO-12**, **EC-BIO-14**, and **EC-BIO-19**, the proposed project would not substantially alter the existing drainage pattern of the restoration site or area in a manner that would result in substantial erosion or siltation on or off site, and impacts would be less than significant.

***d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on site or off site?***

**No Impact**. The proposed project would not alter the amount of impervious surface of the project sites. As a result, there would be no increase in runoff rates and volumes, and the potential for ponding and other drainage issues would be similar to existing conditions. During O&M activities, alterations of a stream or river would occur, but impacts would be temporary and drainage patterns would be returned to existing conditions following O&M activities.

The project's O&M Plan is a systematic plan for continued flood channel maintenance within the 13 wetland sites with a purpose to achieve successful flood control protection. The project would include minor maintenance activities such as establishing pilot channels to facilitate positive flow and maintain flood capacity (i.e., flowline maintenance), and trimming understory of riparian vegetation (i.e., below the tree canopy) to prevent obstruction of flow. This would be an improvement to drainage patterns over existing conditions, and would ultimately reduce flooding off site. The proposed O&M activities would reduce the potential for moderate localized flooding and ponding throughout the project sites and would therefore not be expected to substantially alter the rate or amount of surface runoff on the project sites such that on- or off-site flooding would occur. Therefore, the proposed project would not alter the existing drainage pattern or increase the rate or amount of surface runoff in a manner that would result in flooding on or off site. There would be no impact.

***e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?***

**No Impact**. Currently, most of the project sites are pervious. Proposed O&M activities include vegetation and sediment maintenance from storm drain outfalls, inlets, risers, and concrete or stone weirs to remove herbaceous vegetation and accumulated sediment to maintain hydraulic flow within the project sites. Flowline maintenance where pilot low-flow channels will be managed through removal of herbaceous vegetation, accumulated vegetative detritus, and sediment; tree/shrub understory trimming; trash and debris removal; and maintenance of access paths will also maintain positive hydraulic flow. Vegetation that is not removed as part of O&M activities would provide water quality treatment for stormwater runoff through biological uptake; plant materials filter pollutants through their sandy loam substrate and allow for soil infiltration. The implementation of erosion control measures and BMPs would further reduce additional sources of polluted runoff from entering waterways. Recently constructed treatment wetland and bioswales, such as at Crown Valley Park Wetland Creation Area/J03P01 (Site 4), would be maintained to construction design specifications to ensure proper function and reduce impacts on water quality associated with runoff. O&M activities would not create or contribute runoff water that will exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Therefore, there would be no impact.

***f. Otherwise substantially degrade water quality?***

**No Impact**. Sediment maintenance would remove accumulated sediment from storm drain outfalls, inlets, risers, and concrete or stone weirs. However, dredge and fill activities will not be necessary. All maintenance activities associated with sediment removal would occur in dry conditions to prevent unnecessary erosion, runoff, and sedimentation (**Environmental Commitment BIO-8**). The removal of sediment would maintain the integrity of the restored ecosystems and habitat value. Trash and debris would also be regularly removed from the project site, as part of the O&M Plan. Recently constructed treatment wetland and bioswales would be maintained to construction design specifications to ensure proper function. A majority of these wetland sites are previous restoration sites designed to improve water quality. The improvement in wetland functional capacity on a watershed scale would result in improved water quality. Therefore, the project would not substantially degrade water quality and there would be no impact.

*Effects Discussion Provided for Informational Purposes Only*

The California Supreme Court concluded in its California building Industry Association v. Bay Area Air Quality Management District decision that "CEQA generally does not require an analysis of how existing environmental conditions will impact a project's future users or residents." With this ruling, CEQA no longer considers the impact of the environment on a project (such as the impact of existing flooding hazards on new project receptors) to be an impact requiring consideration under CEQA, unless the project could exacerbate an existing environmental hazard. The proposed project would not change flood risk. Therefore, discussions of flooding are provided for informational purposes only.

***g. Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?***

The project site is partially within a 100-year floodplain (Flood Zones A and AE), Special Flood Hazard Areas, as mapped by FEMA (FEMA 2008). However, no housing is proposed as part of the project; therefore, no housing would be placed within a 100-year flood hazard area. The project would not cause flooding in areas with housing that otherwise would not be subject to flooding without the project.

***h. Place within a 100-year flood hazard area structures that would impede or redirect floodflows?***

The project site is partially within a 100-year floodplain (Flood Zones A and AE). However, no structures are proposed as part of the project; therefore, no structures would be placed within a 100-year flood hazard area that would impede or redirect floodflows. Existing structures such as storm drain outfalls, inlets, risers, and concrete or stone weirs would have sediment and vegetation removed to maintain hydraulic flow. The project would not exacerbate flooding or cause flooding to occur in areas that would not be subject to flooding without the project. Furthermore, the project would not impede or redirect floodflows within a 100-year flood hazard area.

***i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?***

There are numerous dams and flood control facilities in the City of Laguna Niguel, including the Oso Creek Flood Control Channel and the Galivan Basin. Additionally, the major watercourses within the City are controlled by dams, such as the Sulphur Creek Dam and Upper Oso Dam. The Sulphur Creek Dam creates Laguna Niguel Lake (also known as the Sulphur Creek Reservoir), which is used for water reclamation storage and recreation. Water is conveyed to Laguna Niguel Lake from two sources, Sulphur Creek and a storm drain, and dam inundation is unlikely to occur. The State Division of Dam Safety performs routine inspections for dam safety, and failure of one of the dams is highly unlikely. The project area is not within a dam inundation area for the Prado Dam and Santiago Reservoir and there are no levees within the project area (Orange County 2005). The project would not exacerbate dam hazards in the project area, or increase the frequency or severity of flooding or cause flooding to occur in an area that would not be subject to flooding without the project in the event of dam failure.

***j. Contribute to inundation by seiche, tsunami, or mudflow?***

The project sites are approximately 2 miles east of the Pacific Ocean, and, therefore, are not subject to flooding from tsunami (CalEMA et al. 2009a, 2009b). There is no history of seiche (i.e., sloshing of a confined water body due to seismic shaking) occurring at Laguna Niguel Lake. Because of sloping terrain, and as stated in Section VI. *Geology, Soils, and Paleontological Resources*, the project is located within areas that are subject to the risk of mudflows and landslides. However, O&M activities would not involve significant earth-moving activities, and would be conducted on a short-term and temporary basis. The project would not contribute to inundation by seiche, tsunami, or mudflow.

# X. Land Use and Planning

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|---|
| Would the project: | | | | | |
| a. | Physically divide an established community? | ☐ | ☐ | ☐ | ☒ |
| b. | Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | ☐ | ☐ | ☒ | ☐ |
| c. | Conflict with any applicable habitat conservation plan or natural community conservation plan? | ☐ | ☐ | ☐ | ☒ |

## Impact Analysis

**Would the project:**

***a. Physically divide an established community?***

**No Impact.** Implementation of the proposed project would not physically divide an established community. The proposed project intends to maintain flood control and biological function in 13 pre-existing wetland sites located throughout the Aliso Creek Watershed. As such, no physical structures that could divide an established community are proposed. Therefore, the proposed project would not physically divide an established community and no impacts would occur.

***b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?***

**Less-than-Significant Impact.** Implementation of the proposed project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the proposed project. The majority of the wetland sites are in areas designated as Open Space by the LNGP. A portion of the Sulphur Creek Park Wetland Enhancement Area (Site 5) is also located in areas designated as Residential Attached and portions of the Crown Valley Park Wetland Creation Area (Site 4), Sulphur Creek Wetland Creation Area (Site 6), and Sulphur Creek in Crown Valley Community Park (Site 11) are located in areas designated as Parks and Recreation.

The proposed project would be designed to comply with the Aliso Creek Watershed Management Plan and all other approved plans, policies, or regulations. The City is not a participant in a habitat conservation plan or natural community conservation plan and is therefore not subject to the provisions of such a plan. Policy 8.1 of the LNGP Open Space and Parks Element states to "conserve, and expand where possible riparian areas in the Aliso Creek area as sources of shelter and water for wildlife." Riparian areas within the project sites would be conserved and enhanced where feasible as

described in Section IV, item b. Policy 9.3 of the LNGP Open Space and Parks Element states to "retain appropriate portions, including wetland areas, of Salt Creek as a sustainable natural habitat." The proposed project would not remove any wetland areas. Policy 1.2 of the LNGP Safety Element states to "protect the community from flood hazards." The proposed project would not increase the risk from flood hazards, as described in Section IX, item h. Thus, the proposed project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project. Impacts would be less than significant.

***c. Conflict with any applicable habitat conservation plan or natural community conservation plan?***

**No Impact.** As discussed under Threshold b., the City is not a participant in a habitat conservation plan or natural community conservation plan. Therefore, the proposed project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. No impact would occur.

# XI. Mineral Resources

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|---|
| Would the project: | | | | | |
| a. | Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | ☐ | ☐ | ☐ | ☒ |
| b. | Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? | ☐ | ☐ | ☐ | ☒ |

## Affected Environment

The combined wetland sites encompass approximately 63.91 acres of flat valleys and steep slopes that are within a suburban, mostly developed environment.

The entire City of Laguna Niguel is mapped within either Mineral Resource Zone 1 (MRZ-1) or MRZ-3 as mapped by the California Department of Conservation (California Department of Conservation 1995), and there are no areas in the City designated by the LNGP or Zoning Code for mineral resources or mineral resource activities. The wetland sites are all within MRZ-1, which identifies areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence. The sites currently have an LNGP designation of Open Space and Parks and Recreation and are zoned as Open Space and Parks and Recreation.

## Impact Analysis

**Would the project:**

***a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?***

**No Impact.** The wetland sites are not within an area that contains known valuable mineral resources or where mineral resource extraction is currently occurring. Therefore, the proposed project would not result in the loss of availability of a known mineral resource, and no impacts would occur.

***b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?***

**No Impact.** Wetland sites 1, 2, 3, 7, 8, 9, 10, 12, and 13 are zoned as Open Space and have an LNGP designation of Open Space. Wetland sites 4, 6, and 11 are zoned as Park and Recreation and have an LNGP designation of Parks and Recreation. Wetland site 5 is zoned as Planned Residential and has an LNGP designation of Residential Attached. The sites have not been identified as containing locally

important mineral resources. As such, the proposed project would not result in the loss of availability of a locally important mineral resource recovery site, and no impacts would occur.

# XII. Noise

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|---|
| Would the project: | | | | | |
| a. | Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies? | ☐ | ☐ | ☒ | ☐ |
| b. | Expose persons to or generate excessive groundborne vibration or groundborne noise levels? | ☐ | ☐ | ☒ | ☐ |
| c. | Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | ☐ | ☐ | ☐ | ☒ |
| d. | Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | ☐ | ☐ | ☒ | ☐ |
| e. | Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels? | ☐ | ☐ | ☐ | ☒ |
| f. | Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels? | ☐ | ☐ | ☐ | ☒ |

## Affected Environment

The 13 wetland sites are generally within a suburban environment with surrounding land uses that include residential and commercial developments, undeveloped open space, schools, and recreational uses including pedestrian and bicycle trails, and parks. The primary background noise source in the project vicinity is traffic on local streets. Many of the sites run adjacent to well-traveled roadways such as Alicia Parkway, Crown Valley Parkway, and Niguel Road, and are exposed to notable traffic noise as a result. Other sites are separated from major roadways by intervening land uses and are therefore not exposed to substantial traffic noise. Other ambient noise sources that affect the entire project area include activities at existing land uses (e.g., businesses, schools, and parks), general neighborhood sources (e.g., air conditioners and landscaping activities) and natural background noise (e.g., bird song and rustling leaves). None of the project sites are close to freeways, railroads, or airports; consequently, noise from those sources is not a major contributor to ambient noise levels.

The primary noise-sensitive receptors in close proximity to the project sites are homes. Other nearby sensitive receptors include schools and parks.

## Impact Analysis

**Would the project:**

***a. Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?***

**Less-than-Significant Impact.** The City of Laguna Niguel municipal code (City of Laguna Niguel 2018) provides noise standards for activities conducted on properties within the City.[1] However, O&M activities such as those proposed by the project are exempt from the standards provided they occur only between the hours of 7:00 a.m. and 8:00 p.m. Monday through Saturday and at no time on Sunday or federal holidays. Project activities would occur only during the permitted days and times. Therefore, while short-term O&M activities may temporarily increase ambient noise levels (see item d., below, for additional discussion of temporary noise increases), they would be in compliance with the applicable City noise standards and the impact would be less than significant.

***b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?***

**Less-than-Significant Impact.** The project does not propose any high-impact construction techniques such as pile driving, blasting, or crack-and-seat operations. It also would not involve other highly dynamic construction activities such as jackhammering, grading, or impact/vibratory compaction. Per **Environmental Commitment EC-BIO-14**, the City will use hand tools for manual vegetation clearing and sediment removal where possible, and will only use heavy equipment when necessary. The heaviest pieces of equipment proposed for use in the project are small construction vehicles such as mini-excavators and bobcat loaders. Based on vibration data and analysis methodology provided by Caltrans (Caltrans 2013), vibration from such vehicles is estimated to be barely perceptible at distances of 10 feet or more. There are no occupied structures within 10 feet of the proposed work locations. As a result, the project would not generate substantial groundborne noise or vibration and the impact would be less than significant.

***c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?***

**No Impact.** Project noise would be temporary and periodic; as such, it is discussed under item d., below. The project does not propose any operational noise sources that would generate ongoing noise or permanently increase ambient noise levels in the project vicinity. Therefore, there would be no impact.

***d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?***

**Less-than-Significant Impact.** As mentioned previously, per **Environmental Commitment EC-BIO-14**, the City will use hand tools for manual vegetation clearing and sediment removal where possible, and will only use heavy equipment when necessary. Negligible noise will be generated by the use of hand tools. When mechanized equipment is used near noise-sensitive receptors, it will

[1] The basic exterior noise limits are 55 dBA during the daytime hours of 7:00 a.m. to 10:00 p.m. and 50 dBA during the nighttime hours of 10:00 p.m. to 7:00 a.m. These limits are adjusted depending on the character of the noise and its duration within any given hour (refer to Section 6-6-5 of the municipal code, *Exterior noise standards*, for more details).

likely be audible and will temporarily increase the ambient noise levels. However, this will be infrequent (activities are proposed twice per year at each site) and noise levels will be comparable to those generated by existing periodic landscaping and maintenance activities that commonly occur at existing schools, parks, and homes in the project vicinity. As a result, the impact would be less than significant.

***e. Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?***

**No Impact.** The closest airport to the project sites is John Wayne Airport, Orange County, which is approximately 12 miles to the northwest. At this distance, the project is well outside the airport land use plan area and the reported airport noise contours (John Wayne Airport 2017). In addition, the project does not propose any new habitable structures or noise-sensitive uses that would be affected by aircraft noise. Therefore, there would be no impact.

***f. Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?***

**No Impact.** The project is not located in the vicinity of a private airstrip and does not propose any new habitable structures or noise-sensitive uses that would be affected by aircraft noise. Therefore, there would be no impact.

# XIII. Population and Housing

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|---|
| Would the project: | | | | | |
| a. | Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)? | ☐ | ☐ | ☐ | ☒ |
| b. | Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | ☒ |
| c. | Displace a substantial number of people, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | ☒ |

## Impact Analysis

**Would the project:**

***a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure?***

**No Impact.** The proposed project would not construct any homes or businesses, extend roads, or involve the addition of any growth-inducing infrastructure. As such, impacts would not be considered substantially growth-inducing either directly or indirectly, and no impacts would occur.

***b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?***

**No Impact.** The proposed would not displace any existing housing because there is currently no housing within the wetland sites. There are residences within 200 feet of the wetland sites; however, the proposed project involves routine maintenance such as removing herbaceous vegetation and accumulated sediment around outfalls, risers, culverts, and bridge crossings; establishing pilot channels; and maintaining flood capacity and trimming vegetation, which would not displace any housing. No impacts would occur.

***c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?***

**No Impact**. The proposed project would not displace any people because there are currently no residents on any of the wetland sites. Therefore, the construction of replacement housing is not required elsewhere. No impact would occur.

# XIV. Public Services

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services: | | | | |
| Fire protection? | ☐ | ☐ | ☐ | ☒ |
| Police protection? | ☐ | ☐ | ☐ | ☒ |
| Schools? | ☐ | ☐ | ☐ | ☒ |
| Parks? | ☐ | ☐ | ☐ | ☒ |
| Other public facilities? | ☐ | ☐ | ☐ | ☒ |

## Affected Environment

### Fire

Within the City of Laguna Niguel, the Orange County Fire Authority (OCFA) provides fire prevention and suppression services and emergency medical services. The OCFA operates three fire stations within the City of Laguna Niguel, all of which could respond to a fire or emergency within the project sites. The names and locations of the three fire stations are as follows:

- Station 5 at 23600 Pacific Island Drive
- Station 39 at 24241 Avila Road
- Station 49 at 31461 Street of Golden Lantern

The topography, vegetation, and development patterns in Laguna Niguel make the City susceptible to fire hazards. According to information obtained from CAL FIRE, project sites 1 through 12 are within a CAL FIRE Very High Fire Hazard Severity Zone (CAL FIRE 2011). Fire Hazard Severity Zones are identified as moderate, high, and very high hazard severity zones using a science-based and field-tested computer model that assigns a hazard score based on the factors that influence fire likelihood and fire behavior. Factors considered include fire history, existing and potential fuel (natural vegetation), flame length, blowing embers, terrain, and typical weather for the area. The 2010 OCFA emergency response time in the City of Laguna Niguel was 6 minutes 40 seconds, with an average of 6 minutes 32 seconds since 2001 (City of Laguna Niguel 2012b).

### Police

The City of Laguna Niguel, including the project sites, is contracted with the Orange County Sheriff's Department (OCSD). The OCSD assigns 46 community services officers, crime prevention specialists, deputies, investigators, and sergeants to the City of Laguna Niguel (OCSD 2016). The 2010 OCSD emergency response time in the City of Laguna Niguel was 4 minutes 55 seconds, with an average since 2000 of 5 minutes 1 second (City of Laguna Niguel 2012b).

### Schools

The Capistrano Unified School District (CUSD) serves the City of Laguna Niguel. Crown Valley Elementary School is approximately 200 feet southeast of wetland Site 8. Other schools serving the project area are Moulton Elementary School, at 29851 Highlands in the City of Laguna Niguel; Bergeson Elementary School, at 25301 Rancho Niguel Road in the City of Laguna Niguel; White Elementary School, at 25422 Chapparosa Park Road in the City of Laguna Niguel; Aliso Niguel High School, at 28000 Wolverine Way in the City of Aliso Viejo; Aliso Viejo Middle School, at 111 Park Avenue in the City of Aliso Viejo; Niguel Hills Middle School, at 29070 Paseo Escuela in the City of Laguna Niguel; and Dana Hills Middle School, at 3333 Golden Lantern in the City of Dana Point (CUSD 2018).

### Parks

The City of Laguna Niguel Parks and Recreation Department and OC Parks manage recreational opportunities in the City. The city of Laguna Niguel has 31 public parks covering approximately 433 acres. Crown Valley Park is approximately 300 feet northwest and southwest of wetland Site 4 and approximately 500 feet west of wetland Site 6. The Laguna Niguel Botanical Preserve, an 18.2-acre botanic garden, is part of Crown Valley Park and abuts wetland Site 4 to the northeast. Crown Valley Park also includes the Crown Valley Community Center, a portion of which is leased by the South Coast YMCA. Recreational facilities at the park include a swimming pool, a gymnasium, two soccer fields (one with lights), one baseball field with lights, 30 picnic tables, a bikeway, a playground, 280 parking spaces, and small recreational buildings (OC Parks 2016). Wetland Site 3 is within Aliso and Wood Canyons Wilderness Park. Aliso and Wood Canyons Wilderness Park includes approximately 4,500 acres of wilderness and natural open space land with more than 30 miles of official trails. This park is also a designated wildlife sanctuary. La Paz Sports Park is immediately adjacent to the north of wetland Site 12. La Paz Sports Park is 5 acres with one soccer field with lights, two baseball fields with lights, bleachers, and 120 parking spaces (five handicap). Laguna Niguel Regional Park is approximately 200 feet south of wetland Site 12 and approximately 200 feet east of wetland Site 3. Laguna Niguel Regional Park is a 227-acre park that contains a 44-acre lake used for fishing, a 2-mile jogging trail, an amphitheater, two sand volleyball courts, two playgrounds, four lighted tennis courts, and bicycle trails that meander through the park. Parc Vista Park and Chapparosa Park are immediately adjacent to the north and northeast, respectively, of wetland Site 13. Parc Vista Park is 2.5 acres and includes one playground, three swings, one trail through the park, one picnic table, and four benches. Chapparosa Park is 16.5 acres and includes the start of the Salt Creek paved trail, one playground, one soccer field with lights, two softball fields with lights, two baseball fields with lights, three basketball courts, two sand volleyball courts, six picnic tables, six barbecues, and 227 parking spaces (five handicap).

## Impact Analysis

**Would the project:**

***a. Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:***

*Fire protection?*

**No Impact**. The proposed project would include routine maintenance of vegetation, sedimentation, flowlines, and access paths, thus achieving flood control protection and sustainability of aquatic resources and downstream water quality. No buildings or habitable structures that may require fire protection services are proposed. Staging of the proposed project would take place along Alicia Parkway and Crown Valley Parkway; however, because the project involves only minor maintenance activities, it would not result in any substantial traffic queuing along any major arterials surrounding the project and would not require vehicles or equipment to park or remain stationary within any surrounding roadway for significant amounts of time. Once operational, the proposed project would be similar to the existing condition in terms of the need for fire protection services. Combustible vegetative buildup near fire-susceptible structures or developments will be managed as part of the Vegetation Maintenance component of the project, thereby decreasing the risk of fire impacts in the project area. Per **Environmental Commitment EC-BIO-14**, the City will use hand tools for manual vegetation clearing and sediment removal where possible, and will only use heavy equipment when necessary, thereby reducing the risk of fire from use of power tools. Therefore, the proposed project would not result in an increased demand requiring the need for new or physically altered fire protection facilities, and no impacts would occur.

*Police protection?*

**No Impact**. The proposed project would include routine maintenance of vegetation, sedimentation, flowlines, and access paths, thus achieving flood control protection and sustainability of aquatic resources and downstream water quality. No buildings or habitable structures that may require police protection services are proposed. Moreover, no people would reside on the project sites. Staging of the proposed project would take place along and adjacent to Alicia Parkway and Crown Valley Parkway; however, because the project involves only minor maintenance activities, it would not result in any substantial traffic queuing along any major arterials surrounding the project and would not require vehicles or equipment to park or remain stationary within any surrounding roadway for significant amounts of time. Once operational, the proposed project would be similar to the existing condition in terms of the need for police protection services. Therefore, the proposed project would not result in an increased demand requiring the need for new or physically altered police protection facilities, and no impacts would occur.

*Schools?*

**No Impact**. The proposed project would not result in adverse impacts on schools. Physical impacts on school facilities and services are usually associated with population in-migration and growth, which increase the demand for schools. The proposed project would have no effect on population growth and school demand. Therefore, the proposed project would not result in an increased

demand requiring the need for new or physically altered school facilities, and no impacts would occur.

*Parks?*

**Less than Significant Impact**. As described above in *Affected Environment*, many of the wetland sites are within or near parks. Implementation of the proposed project may result in short-term impacts on portions of parks during O&M activities. These short-term, limited activities could temporarily affect passive recreational uses within the parks. Based on O&M schedules of the proposed project, Crown Valley Park could be affected for up to 12 days, Aliso and Woods Canyon Wilderness Park could be affected for up to 3 days, La Paz Sports Park could be affected for up to 11 days, and Parc Vista Park and Chapparosa Park could be affected for up to 18 days. Access to wetland Sites 7 through 12 would be from improved trails and access to wetland Site 13 would be from the Salt Creek Bike Path. The improved trails adjacent to wetland Sites 7 through 12 would be temporarily affected during O&M activities, which would not last longer than 14 days for each site. Salt Creek Bike Path would be temporarily affected during O&M activities at wetland Site 13, which would take no more than 18 days. These short-term impacts would not be considered significant because completion of the project is expected to provide long-term maintenance of vegetation, sediment, and hydraulic flow. It would also result in visual enhancement to immediately adjacent recreational facilities serving the area. However, physical impacts on parks are usually associated with population in-migration and growth, which increase the demand for and use of parks. The proposed project would have no effect on population growth; therefore, the proposed project would not result in an increased demand requiring the need for new or physically altered park facilities. Consequently, impacts would be less than significant.

*Other public facilities?*

**No Impact**. The proposed project would not result in adverse impacts on other public facilities. As discussed above, physical impacts on public services are usually associated with population in-migration and growth, which increase the demand for public services and facilities. The proposed project would not increase the local population. Therefore, the proposed project would not result in an increased demand requiring the need for new or physically altered public facilities, and no impacts would occur.

# XV. Recreation

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|---|
| Would the project: | | | | | |
| a. | Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | ☐ | ☐ | ☐ | ☒ |
| b. | Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment? | ☐ | ☐ | ☐ | ☒ |

## Affected Environment

The City of Laguna Niguel Parks and Recreation Department and OC Parks manage recreational opportunities in the City. The city of Laguna Niguel has 31 public parks covering approximately 433 acres. Crown Valley Park is approximately 300 feet northwest and southwest of wetland Site 4 and approximately 500 feet west of wetland Site 6. The Laguna Niguel Botanical Preserve, an 18.2-acre botanic garden, is part of Crown Valley Park and abuts wetland Site 4 to the northeast. Crown Valley Park also includes the Crown Valley Community Center, a portion of which is leased by the South Coast YMCA. Recreational facilities at the park include a swimming pool, a gymnasium, two soccer fields (one with lights), one baseball field with lights, 30 picnic tables, a bikeway, a playground, 280 parking spaces, and small recreational buildings (OC Parks 2016). Wetland Site 3 is within Aliso and Wood Canyons Wilderness Park. Aliso and Wood Canyons Wilderness Park includes approximately 4,500 acres of wilderness and natural open space land with more than 30 miles of official trails. This park is also a designated wildlife sanctuary. La Paz Sports Park is immediately adjacent to the north of wetland Site 12. La Paz Sports Park is 5 acres with one soccer field with lights, two baseball fields with lights, bleachers, and 120 parking spaces (five handicap). Laguna Niguel Regional Park is approximately 200 feet south of wetland Site 12 and approximately 200 feet east of wetland Site 3. Laguna Niguel Regional Park is a 227-acre park that contains a 44-acre lake used for fishing, a 2-mile jogging trail, an amphitheater, two sand volleyball courts, two playgrounds, four lighted tennis courts, and bicycle trails that meander through the park. Parc Vista Park and Chapparosa Park are immediately adjacent to the north and northeast, respectively, of wetland Site 13. Parc Vista Park is 2.5 acres and includes one playground, three swings, one trail through the park, one picnic table, and four benches. Chapparosa Park is 16.5 acres and includes the start of the Salt Creek paved trail, one playground, one soccer field with lights, two softball fields with lights, two baseball fields with lights, three basketball courts, two sand volleyball courts, six picnic tables, six barbecues, and 227 parking spaces (five handicap).

## Impact Analysis

**Would the project:**

***a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?***

**No Impact**. The proposed project would not increase the use of existing neighborhood and regional parks. An increase in the use of existing parks and recreational facilities typically results from an increase in housing or population in an area. Given that the proposed project does not introduce any new residential development, the proposed project is not anticipated to increase the regional population (see Section XIII, *Population and Housing*, for analysis of the proposed project's impacts on area population). Therefore, usage of neighborhood and regional parks or other recreational facilities would not increase as a result of the proposed project. As a result, the proposed project would not cause substantial physical deterioration of regional recreational facilities. Consequently, there would be no impacts on recreation.

***b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?***

**No Impact.** The proposed project does not include recreational facilities or require the construction or expansion of such facilities. The proposed project would include minor maintenance activities such as removing herbaceous vegetation and accumulated sediment around outfalls, risers, culverts, and bridge crossings; establishing pilot channels to facilitate positive flow and maintain flood capacity; and trimming vegetation to prevent obstruction of flow. This would result in visual enhancement to immediately adjacent recreational facilities serving the area. Because the project would result in an improvement to recreational facilities without increasing the population of the area, the project would not require the construction or expansion of existing recreational facilities. No impacts from construction of recreational facilities would occur.

# XVI. Transportation/Traffic

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|---|
| Would the project: | | | | | |
| a. | Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | ☐ | ☐ | ☒ | ☐ |
| b. | Conflict with an applicable congestion management program, including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways? | ☐ | ☐ | ☒ | ☐ |
| c. | Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? | ☐ | ☐ | ☐ | ☒ |
| d. | Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | ☐ | ☐ | ☒ | ☐ |
| e. | Result in inadequate emergency access? | ☐ | ☐ | ☒ | ☐ |
| f. | Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? | ☐ | ☐ | ☒ | ☐ |

## Affected Environment

All of the roads in the immediate vicinity of the project sites are maintained by the City of Laguna Niguel. Traffic count data for 2017 are available for Alicia Parkway and Crown Valley Parkway. Crown Valley Parkway had a traffic count of 25,800 vehicles per day and Alicia Parkway had a traffic count of 32,700 vehicles per day (City of Laguna Niguel 2017). For major arterials, such as Alicia Parkway and Crown Valley Parkway, the LNGP set the maximum volume of average daily trips for major arterials, such as Alicia Parkway and Crown Valley Parkway, at 50,600.

## Impact Analysis

**Would the project:**

***a. Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?***

**Less-than-Significant Impact.** For site access, wetland Sites 1, 2, and 3 would use Alicia Parkway; wetland Site 4 would use Community Park Road Bridge; wetland Site 5 would use Crown Valley Parkway and Central Park Drive; wetland Site 6 would use an adjacent footpath and bridge; wetland Sites 7, 8, 9, 10, 11, and 12 would use improved trails; and wetland Site 13 would use the Salt Creek Bike Path. During O&M activities, maintenance workers would drive to and from the sites each workday. Where equipment access is available, equipment for sediment removal will include a mini-excavator, a bobcat loader, and a dewatering bin that will be used to stockpile the sediment. Staging areas along Alicia Parkway and Crown Valley Parkway have been identified along wetland Sites 1, 2, 3, 4, 5, and 7. During O&M activities, these wetland sites may require the use of the adjacent sidewalk and one lane of Alicia Parkway and Crown Valley Parkway for equipment staging areas. These staging areas would only be utilized as O&M activities occur at each site and would only take place at one wetland site at a time. At the end of each work day, lanes or sidewalks used for staging would be re-opened. O&M activities would not last for more than 14 days at each wetland site that could result in impacts on Alicia Parkway and Crown Valley Parkway. All other equipment staging areas would take place away from major arterials. Because the project involves only minor maintenance activities, it would not result in any substantial traffic queuing along any major arterials surrounding the project and would not require vehicles or equipment to park or remain stationary within any surrounding roadway for significant amounts of time. Upon completion of O&M activities, access to the project sites would be limited to periodic inspection and maintenance, and would not result in a significant increase in traffic volume. Therefore, O&M activities associated with the proposed project would result in less-than-significant impacts on traffic.

***b. Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?***

**Less-than-Significant Impact.** The Orange County Congestion Management Program (CMP) indicates that a project may have a significant impact and that a traffic study would be required if the project would contribute 2,400 or more daily trips for projects adjacent to the CMP Highway System, and 1,600 or more daily trips for projects that directly access the CMP Highway System (OCTA 2017). The proposed project would not result in daily trips that would exceed CMP thresholds during the peak traffic hour. In addition, the CMP addresses ongoing traffic conditions, not temporary conditions, such as those caused by short-term construction projects. Long-term operations at the proposed project sites would not cause a noticeable increase in traffic. Therefore, a detailed CMP analysis is not required, as the project would not have a significant impact on the CMP roadway network. Additionally, the project would not exceed a level of service standard established by the congestion management agency and is exempt from the requirements of the CMP program. Any impacts would be less than significant.

***c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?***

**No Impact.** The proposed project would not have any components that would affect air traffic patterns or safety. No impacts would occur.

***d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?***

**Less-than-Significant Impact.** As described above in Section XVI, item a., there may be temporary, short-term impacts on Alicia Parkway and Crown Valley Parkway. The impacts would not be significant, however, because there are no inherently dangerous design features in the area. As the project involves only minor maintenance activities, it would not result in any substantial traffic queuing along any major arterials surrounding the project and would not require vehicles or equipment to park or remain stationary within any surrounding roadway for significant amounts of time. Therefore, impacts related to hazards due to design features are considered less than significant.

***e. Result in inadequate emergency access?***

**Less-than-Significant Impact.** As described above in Section XVI, item a., there would be temporary, short-term impacts on Alicia Parkway and Crown Valley Parkway. However, these temporary impacts are not expected to substantially alter the current emergency access features at or adjacent to the wetland sites. Therefore, impacts would be less than significant.

***f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance of safety of such facilities?***

**Less-than-Significant Impact.** The proposed project would not include any components that would affect policies, plans, or programs supporting alternative transportation. Access to wetland Sites 7 through 12 would occur from improved trails and Site 13 access would occur from the Salt Creek Bike Path. The proposed project may temporarily decrease the performance of these trails and bike path during O&M activities; however, maintenance activities would not last longer than 14 days at any site and would include vegetation and debris maintenance that will have long-term beneficial effects on these facilities. Any impacts would be less than significant.

# XVII. Tribal Cultural Resources

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: | | | | |
| a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or | ☐ | ☐ | ☐ | ☒ |
| b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. | ☐ | ☒ | ☐ | ☐ |

## Affected Environment

The wetland sites are less than a quarter-mile east of Aliso Creek, traditionally noted as an ethnographic transition zone between the Gabrielino and Juaneño Native American groups. Traditional definitions of Gabrielino territory include the watersheds of the San Gabriel, Santa Ana, and Los Angeles rivers; portions of the Santa Monica and the Santa Ana mountains; the Los Angeles Basin; the coast from Aliso Creek to Topanga Creek; and San Clemente, San Nicolas, and Santa Catalina islands. The term Juaneño derives from Mission San Juan Capistrano and has been used to refer to the Takic speakers associated with that mission (Bean and Shipek 1978). Although the Luiseño and Juaneño are associated with two different coastal missions, at San Luis Rey and San Juan Capistrano, respectively, prior to their associations with the missions, few linguistic and cultural distinctions are documented between these two groups. At one time, the Luiseño/Juaneño territory encompassed at least 1,500 square miles, extending from Agua Hedionda Creek in the south to Aliso Creek in the northwest, inland to Santiago Peak, to the eastern side of the Elsinore Fault Valley, south to just east of Palomar Mountain, along the southern slope above San Jose Valley, and back westward to Agua Hedionda Creek (Bean and Shipek 1978). This territory contained a large range of biological communities and elevations, from sea level to 6,000 feet AMSL, leading to a wide array of available resources (Bean and Shipek 1978). The subsistence economy of both groups was one of hunting and gathering. A wide variety of tools and implements were employed by the Gabrielino and Juaneño to gather, collect, and process food resources. Settlement patterns were similar, with permanent villages established along rivers and streams, at the mouths of canyons, or

at the intersection of two or more environmental zones. Large, permanent villages were connected to smaller satellite villages through economic, religious, and social ties (Bean and Smith 1978:540).

## Regulatory Setting

### State

#### *California Environmental Quality Act*

CEQA requires the assessment of a proposed project's effects on cultural resources. Pursuant to CEQA, a historical resource is a resource listed or eligible for listing in the CRHR. In addition, resources included in a local register of historic resources or identified as significant in a local survey conducted in accordance with state guidelines are also considered historical resources under CEQA unless a preponderance of the facts demonstrates otherwise. According to CEQA, the fact that a resource is not listed or determined eligible for listing in the CRHR, or is not included in a local register or survey, shall not preclude a lead agency, as defined by CEQA, from determining that the resource may be a historic resource, as defined in California PRC Section 5024.1. CEQA applies to archaeological resources when (1) the archaeological resource satisfies the definition of a historic resource, or (2) the archaeological resource satisfies the definition of a unique archaeological resource. A unique archaeological resource is an archaeological artifact, object, or site that has a high probability of meeting any of the following criteria: it contains information needed to answer important scientific research questions, and there is a demonstrable public interest in that information; it has a special and particular quality, such as being the oldest of its type or the best available example of its type; and/or it is directly associated with a scientifically recognized important prehistoric or historic event or person.

#### *Assembly Bill 52 (Chapter 532, Statute of 2014)*

AB 52 (Chapter 532, Statute of 2014) establishes a formal consultation process for California Native American Tribes as part of CEQA and equates significant impacts on tribal cultural resources with significant environmental impacts (PRC Section 21084.2). PRC Section 21074 defines tribal cultural resources as follows.

- Sites, features, places, sacred places, and objects with cultural value to descendant communities or cultural landscapes defined in size and scope that are:
    - Included in or eligible for listing in the CRHR; or
    - Included in a local register of historical resources.
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1.

Sacred places can include Native American sanctified cemeteries, places of worship, religious or ceremonial sites, and sacred shrines. In addition, both unique and non-unique archaeological resources, as defined in PRC Section 21083.2, can be tribal cultural resources if they meet the criteria detailed above. The lead agency relies upon substantial evidence to make the determination that a resource qualifies as a tribal cultural resource when it is not already listed in the CRHR or a local register.

AB 52 defines a California Native American Tribe as a Native American Tribe located in California that is on the contact list maintained by NAHC (PRC Section 21073). Under AB 52, formal consultation with Tribes is required prior to determining the level of environmental document if a Tribe has requested to be informed by the lead agency of proposed projects and if the Tribe, upon receiving notice of the project, accepts the opportunity to consult within 30 days of receipt of the notice. AB 52 also requires that consultation, if initiated, address project alternatives and mitigation measures for significant effects, if specifically requested by the Tribe. AB 52 states that consultation is considered concluded when either the parties agree to measures to mitigate or avoid a significant effect on tribal cultural resources, or when either the Tribe or the agency concludes that mutual agreement cannot be reached after making a reasonable, good-faith effort. Under AB 52, any mitigation measures recommended by the agency or agreed upon with the Tribe may be included in the final environmental document and in the adopted mitigation monitoring program if they were determined to avoid or lessen a significant impact on a tribal cultural resource. If the recommended measures are not included in the final environmental document, then the lead agency must consider the four mitigation methods described in PRC Section 21084.3(e). Any information submitted by a Tribe during the consultation process is considered confidential and is not subject to public review or disclosure. It will be published in a confidential appendix to the environmental document unless the Tribe consents to disclosure of all or some of the information to the public.

*Assembly Bill 52 Consultation*

AB 52 requires lead agencies to consult with California Native American tribes that request such consultation in writing prior to the agency's release of a notice of an MND or a Negative Declaration. Pursuant to the provisions of AB 52, the City extended an invitation to consult on the CEQA review of the proposed project in order to assist with identifying, preserving, and mitigating project impacts on Native American cultural places.

Appendix E includes all correspondence to the NAHC and letters sent to tribal representatives pursuant to due diligence and AB 52.

***Health and Safety Code 7050.5/Public Resources Code 5097.9***

Health and Safety Code 7050.5 addresses the protection of human remains discovered in any location other than a dedicated cemetery and makes it a misdemeanor for any person to knowingly mutilate or disinter, wantonly disturb, or willfully remove any human remains in or from any location other than a dedicated cemetery without authority of law, except as provided in PRC Section 5097.99. It further states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined that the remains are not subject to the provisions concerning investigation of the circumstances, manner, and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in PRC Section 5097.98. If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, NAHC. Whenever NAHC receives notification of a discovery of Native American human remains from the county coroner, it shall immediately notify those people if it believes to be the Most Likely Descendants of the deceased Native American. The

descendants may inspect the site of the discovery and make recommendations on the removal or reburial of the remains.

***California Government Code Section 6254 (r) and 6254.10***

California Government Code Sections 6254(r) and Section 6254.10 of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the Native American Heritage Commission, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a state or local agency."

## Impact Analysis

**Would the project cause a substantial adverse change in the significance of a tribal cultural resource that is:**

***a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k),***

**No Impact.** A records search at the South Central Coastal Information Center was conducted for the proposed project to determine if tribal cultural resources are present within the wetland sites. No tribal cultural resources that are listed in or eligible for listing in the CRHR were identified during the records search. Additionally, a Sacred Lands File Search of the wetland sites was obtained from NAHC on September 20, 2018. The Sacred Lands File Search results indicated that resources are present and recommended contacting Raymond Belardes of the Juaneño Band of Mission Indians for information about tribal cultural resources in the wetland sites. A phone call was made to Mr. Belardes on October 3, 2018 but Ms. Joyce Perry of the Juaneño Band of Mission Indians, Acjachemen Nation indicated Mr. Belardes had passed away some time ago. Ms. Perry stated that the Juaneño Band of Mission Indians, Acjachemen Nation considers the Aliso Creek area to be highly sensitive; however, she did not provide specific information on resources that would meet the definition of a "tribal cultural resource." Therefore, the proposed project would not cause a substantial adverse change in the significance of a listed tribal cultural resource or known resource eligible for listing, and no impacts would occur.

***b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.***

**Less-than-Significant Impact with Mitigation Incorporated**. Pursuant to PRC Section 21080.3.1 (AB 52), California Native American tribes traditionally and culturally affiliated with the project area can request notification of projects in their traditional cultural territory. The City initiated AB 52 consultation with six tribes or representatives on October 3, 2018 by sending invitation to consult letters (Appendix E). Based on NAHC recommendation, a phone call was made on October 3, 2018,

to the Juaneño Band of Mission Indians, Acjachemen Nation in regard to tribal cultural resources. Ms. Joyce Perry of the Juaneño Band of Mission Indians, Acjachemen Nation indicated that the Aliso Creek area is highly sensitive to her tribe and requested the presence of a tribal and archaeological monitor for ground disturbance occurring below 2 feet below surface level. Although no substantial evidence of tribal cultural resources present on the project sites has been provided by the Juaneño Band of Mission Indians, Acjachemen Nation to date, AB 52 consultation is still ongoing and the City has agreed to Ms. Perry's request. No further responses from tribes have been received to date. With implementation of **Mitigation Measure MM-TCR-1**, impacts on potential tribal resources would be less than significant.

*Mitigation Measure*

**MM-TCR-1:** Provide a Native American monitor during ground-disturbing activities that occur 2 feet below surface level. To ensure impacts on potential tribal resources are minimized during O&M activities, the City will retain a Native American monitor to be present for the following activities:

- Grading or excavation that occurs deeper than 2 feet below surface level
- Creation of any new access paths in previously undisturbed soils

Native American monitoring will not be needed during:

- Removal of accumulated sediment in stone or concrete lined channels or culverts
- Tree or vegetation pruning
- Existing access path maintenance
- Chemical spraying for nonnative vegetation removal
- Trash and debris maintenance
- Rodent or pest control
- Areas that have been cleared by tribal and cultural monitors during prior years' monitoring

# XVIII. Utilities and Service Systems

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|---|
| Would the project: | | | | | |
| a. | Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | ☐ | ☐ | ☐ | ☒ |
| b. | Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | ☐ | ☐ | ☐ | ☒ |
| c. | Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | ☐ | ☐ | ☐ | ☒ |
| d. | Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed? | ☐ | ☐ | ☐ | ☒ |
| e. | Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | ☐ | ☐ | ☐ | ☒ |
| f. | Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | ☐ | ☐ | ☒ | ☐ |
| g. | Comply with federal, state, and local statutes and regulations related to solid waste? | ☐ | ☐ | ☐ | ☒ |

## Affected Environment

**Water Supply**. The Moulton Niguel Water District (MNWD) provides water service to City residents as well as to Aliso Viejo, Laguna Hills, Mission Viejo, Dana Point, and San Juan Capistrano (MNWD 2018). The water system in the City consists of primary, secondary, and tertiary feeder lines, utilizing reservoirs and pump stations to store water to accommodate peak water demands and ensure adequate fire flows.

**Wastewater Infrastructure**. South Orange County Wastewater Authority (SOCWA) operates the sewer system in the metropolitan Laguna Niguel area; however, the MNWD provides sewer service to the City. The Regional Treatment Plant treats wastewater for the City of Laguna Niguel and has an average capacity used of 7.8 million gallons per day with a total capacity of 12 million gallons per day of liquid capacity and 20 million gallons per day of solid waste (SOCWA 2018).

**Solid Waste Facilities**. CR&R, Inc. provides residential and commercial refuse collection for City residents and businesses and residential collection of recyclable materials. Waste is transported to the Prima Deshecha Landfill located in San Juan Capistrano. The landfill occupies 1,530 acres and has a projected capacity to serve residents and businesses until approximately 2067 (OC Waste & Recycling 2018).

## Impact Analysis

**Would the project:**

***a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?***

**No Impact**. The proposed project would not generate any wastewater. Thus, existing wastewater generation from the project site would remain the same and the project would not result in any additional wastewater from routine maintenance. Therefore, the proposed project would be within the requirements of the MNWD and would result in no impacts on wastewater treatment providers.

***b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?***

**No Impact**. The proposed project would not result in the construction of new water or wastewater treatment facilities. The proposed project would use minimal water for periodic landscaping and maintenance purposes. However, no new permanent water or wastewater facilities, or the expansion of existing facilities, are proposed. No impacts would occur.

***c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?***

**No Impact**. An objective of the proposed project is to remove accumulated sediment from storm drain outfalls to maintain hydraulic flows. No change or expansion of catch basins, as part of the City's storm drain system, would be required by the proposed project. Therefore, there would be no impacts on stormwater drainage facilities.

***d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?***

**No Impact**. As stated above in Section XVIII, items a. and b., the existing water and wastewater treatment facilities serving the project sites are anticipated to be adequate to provide wastewater, reclaimed water, domestic potable water service, and fire flows for the site. The proposed project would not result in an increase in water demand; therefore, no impacts are anticipated.

***e. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?***

**No Impact**. The proposed project would not result in a determination that the wastewater treatment provider does not have adequate capacity to serve the proposed project. The proposed project would not generate wastewater, and no impacts would occur.

***f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?***

**Less-than-Significant Impact**. The proposed project would not significantly affect a landfill by accommodating the proposed project's solid waste disposal needs. During site preparation, vegetation maintenance, and removal of invasive species, green waste would be generated and completely removed from the project sites and disposed of at the closest acceptable landfill or composting facility. A dewatering bin will be used to stockpile sediment. In Orange County, there are three landfills, two of which have composting facilities on site, and ten additional composting facilities. Except for routine maintenance associated with ensuring the health of the vegetation, the proposed project would not generate waste of any kind once operational. Therefore, the proposed project would have a less-than-significant impact related to solid waste.

***g. Comply with federal, state, and local statutes and regulations related to solid waste?***

**No Impact**. The proposed project would comply with federal, state, and local statutes and regulations related to solid waste. Green waste would be disposed of in accordance with applicable statutes and regulations. Only small amounts of green waste would be generated once the project is operational and would only be related to ensuring the health of the vegetation. Therefore, no impact would occur.

# XIX. Mandatory Findings of Significance

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|---|---|---|---|---|---|
| a. | Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory? | ☐ | ☒ | ☐ | ☐ |
| b. | Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.) | ☐ | ☒ | ☐ | ☐ |
| c. | Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly? | ☐ | ☐ | ☒ | ☐ |

## Impact Analysis

***a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?***

**Less-than-Significant Impact with Mitigation Incorporated.** Implementation of the proposed project together with the environmental commitments and mitigation measures listed in Sections IV, *Biological Resources*, V, *Cultural Resources*, VI, *Geology, Soils, and Paleontological Resources*, and XVII, *Tribal Cultural Resources*, would reduce any impacts on fish, wildlife species and habitat, and cultural resources to a less-than-significant level.

***b. Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)***

**Less-than-Significant Impact with Mitigation Incorporated.** A cumulative impact could occur if the proposed project would result in an incrementally considerable contribution to a significant

cumulative impact identified from past, present, and reasonably foreseeable future projects for each resource area. Past projects have occurred and represent the existing condition. Present projects are currently under construction. Future projects have development applications in process or approved, but no physical construction has yet occurred.

In all, 22 present and future projects were identified in the project vicinity. Table 3-6~~5~~ provides a summary of related projects in the vicinity of the wetland sites, which is used in the cumulative impact analysis. Figure 3-5 shows the location of the related projects.

**Table 3-6~~5~~. Related Projects**

| No. | Project | Description | Location | Status |
|---|---|---|---|---|
| **Laguna Niguel** | | | | |
| 1 | Forbes Road Apartments | Apartments and Retail | 26033 Getty Drive | In operation |
| 2 | Skye Apartments | Apartments (40% occupied) | 28100 Cabot Road | In operation |
| 3 | Apex Apartments | Apartments (65% occupied) | 27960 Cabot Road | In operation |
| 4 | Broadstone Apartments | Apartments and retail | 27650 Forbes Road | In operation |
| 5 | Picerne Apartments | Apartments | 27930 Cabot Road | Under construction |
| 6 | Crestavilla Retirement and Assisted Living Community | Senior housing/assisting living/congregate care | 30121 Niguel Road | In operation |
| 7 | Crown Valley Community Center and Pool Renovation Project | Community center with offices, multipurpose rooms, classrooms, and aquatics center | 29751 Crown Valley Parkway | Under construction |
| 8 | J03P01 Channel Entry Improvements | Storm channel improvements and removal of dip crossing | Entrance to Crown Valley Community Park | In operation |
| **Aliso Viejo** | | | | |
| 9 | Extra Space Storage | Site Development Permit, Conditional Use Permit, Exception Permit, and Temporary Use Permit to construct a 171,528-square-foot storage facility | 4 Orion | Under review |
| 10 | Liberty @ Aliso Apartment | Site Development Permit/ Conditional Use Permit for construction of a 200-unit affordable multi-family development | 100 Freedom Lane | Under construction |
| 11 | Aliso Viejo Behavioral Health | Site Development Permit/ Conditional Use Permit for construction of a 146,540-square-foot managed care facility with 137 beds | 200 Freedom Lane | Under construction |

| No. | Project | Description | Location | Status |
|---|---|---|---|---|
| 12 | Belmont Village Assisted Living | Site Development Permit/ Conditional Use Permit for construction of a two-story 76,200-square-foot managed care facility with 120 beds | 300 Freedom Lane | Under construction |
| 13 | CT Realty Office Park | Site Development Permit/ Conditional Use Permit for construction of four medical office buildings totaling 80,250 square feet | 400-700 Freedom Lane | Awaiting submittal |
| 14 | Kaiser Permanente | Site Development Permit/ Conditional Use Permit for construction of one 66,000-square-foot medical office building | 800 Freedom Lane | Awaiting submittal |
| 15 | Soka University Residence Halls/Academic Building | Conditional Use Permit; Site Development Permit; and Exception Permit to construct two new residence hall with a total of 100 student housing units, two faculty/staff apartments, and a 90,425 square foot science building. | 335 & 336 University Drive | Under construction |
| 16 | The Ranch | Site Development Permit, Conditional Use Permit, Exception Permit, and Master Sign Permit for development of 16,000-square-foot community facilities and small-scale farm | 100 Park Avenue | Under review |
| 17 | Cedarbrook Dog Park | Conditional Use Permit for 1.13-acre dog park | 25894 Cedarbrook | Under construction |
| 18 | Polaris Office Building and Parking Structure | Site Development Permit and Conditional Use Permit for 42,400-square-foot office and 423-space parking structure | 1 & 6 Polaris | Awaiting submittal |
| **Laguna Hills** | | | | |
| None in the vicinity of the proposed project. | | | | |
| **San Juan Capistrano** | | | | |
| 19 | Hidden Creek Estates | Subdivide a 2.5-acre parcel into 8 separate lots for development of single-family detached homes | 29921 Camino Capistrano | Under construction |
| 20 | Olivia Development | Development of 40 single-family homes on 21 acres | 32281 Del Obispo Street | In operation |

| No. | Project | Description | Location | Status |
|---|---|---|---|---|
| 21 | The Farms at Del Obispo | General Plan Amendment and Specific Plan to develop up to 180 residential units on 40,000 square feet of commercial on 34 acres | Southeast corner of Del Obispo Street and Via Vermeulen | Under review |
| 22 | Toyota Modification | Exterior modifications for an existing Toyota car dealership | 33395 Camino Capistrano | Under review |
| 23 | Ganahl-Lower Rosan | 15 acres of former redevelopment property was awarded to Ganahl Lumber Company for a new facility, car storage, and quick serve restaurant | 25865 Stonehill Drive | Under review |
| **Dana Point** | | | | |
| 24 | South Shores Church Master Plan | Demolition of 23,467 square feet of building space, and construction of 70,284 square feet of building space, including a new preschool and administration buildings, two Christian education buildings, and a community life center. Additionally, the proposed project includes a two-level partially subterranean parking structure. | 32712 Crown Valley Parkway | Under construction |
| **County of Orange** | | | | |
| None in the vicinity of the proposed project. | | | | |

The proposed project would facilitate implementation of the Laguna Niguel Wetlands O&M Plan, which proposes a systematic program for flood control maintenance at the proposed 13 wetland sites including activities such as removing herbaceous vegetation and accumulated sediment around outfalls, risers, culverts, and bridge crossings; establishing pilot channels to facilitate positive flow and maintain flood capacity (i.e., flowline maintenance); and trimming understory of riparian vegetation (i.e., below the tree canopy) to prevent obstruction of flow. The wetland sites are located through the City in the Sulphur Creek watershed; a portion of the Salt Creek Watershed, within Chapparosa Park; and within Crown Valley Regional Park. As discussed above in Sections I through XVIII, the proposed project would not result in any unavoidable significant impacts. Resource areas for which the proposed project could contribute to cumulative impacts include air quality, biological resources, cultural resources, geology and soils, GHG emissions, hydrology and water quality, noise, transportation/traffic, and tribal cultural resources.

*Air Quality*

According to State CEQA Guidelines Section 15130 (b), a summary of projections contained in a local, regional, or statewide plan may be used for a discussion of cumulative impacts. SCAQMD has responsibility for managing the Basin's air resources, and is responsible for bringing the Basin into attainment for federal and state air quality standards. To achieve this goal, SCAQMD prepares and/or updates the Basin's AQMP every 4 years.

The 2016 AQMP was adopted by SCAQMD as a program to lead the Basin into compliance with several criteria pollutant standards and other federal requirements. It relies on emissions forecasts based on the demographic and economic growth projections provided by the SCAG RTP/SCS (SCAQMD 2016:4-42). SCAG is charged by California law to prepare and approve "the portions of each AQMP relating to demographic projections and integrated regional land use, housing, employment, and transportation programs, measures and strategies" (SCAQMD 2016:4-42). Projects whose growth is included in the projections used in the formulation of the AQMP are considered to be consistent with the plan and to not obstruct its implementation. SCAQMD recommends that, when determining whether a project is consistent with the current AQMP, a lead agency must assess: (1) whether the project would directly obstruct implementation of the plan through an increase in the frequency or severity of existing air quality violations, or cause or contribute to new violations, or delay timely attainment of air quality standards, and (2) whether it is consistent with the demographic and economic assumptions (typically land use related, such as resultant employment or residential units) upon which the plan is based (SCAQMD 1993).

The proposed project would not obstruct implementation of the AQMP, as emissions resulting from project implementation ~~are not anticipated to~~would not exceed SCAQMD's regional mass emissions thresholds and localized significance thresholds. The project's emissions would not increase concentrations of criteria pollutants or their precursors in a manner that could obstruct SCAQMD's efforts to achieve attainment of ambient air quality standards for any criteria pollutant for which it is currently not in attainment, or jeopardize the current attainment status of the Basin for other criteria pollutants. Given that the project would involve maintenance of wetland sites, and would not change development patterns that would increase employment or residential units in the project area or elsewhere in the region, the proposed project is consistent with the demographic and economic assumptions upon which the AQMP is based.

Because the proposed project would not exceed regional or localized emissions thresholds, and the project would be consistent with demographic and economic assumptions upon which the AQMP is based, air quality impacts would not be cumulatively considerable.

*Biological Resources*

As described in Section IV, *Biological Resources*, the proposed project would result in temporary and permanent direct and indirect impacts on sensitive upland and wetland natural communities that support sensitive species. However, potentially significant impacts would be reduced through implementation of **Mitigation Measure MM-BIO-1** and **Mitigation Measure MM-BIO-2**, which would mitigate for the functions and services lost through the routine maintenance activities by preserving habitat within 11 of the wetland sites and protecting these wetland sites from further degradation and development. In addition, mitigation would include the restoration of riparian habitat within one of the wetland sites. Although past, present, and future projects such as those in Table 3-6~~5~~ will continue to reduce the available biological resources in the cumulative project study

**Legend**

Project Location

Cummulative Projects

| | City of Laguna Niguel |
|---|---|
| 1 | Forbes Road Apartments |
| 2 | Skye Apartments |
| 3 | Apex Apartments |
| 4 | Broadstone Apartments |
| 5 | Picerne Apartments |
| 6 | Crestvilla Retirement and Assisted Living Communitiy |
| 7 | Crown Valley Community Center and Pool Renovation Project |
| 8 | J03P01 Channel Entry Improvements |
| | **City of Aliso Viejo** |
| 9 | Extra Space Storage |
| 10 | Liberty @ Aliso Apartment |
| 11 | Aliso Viejo Behavorial Health |
| 12 | Belmont Village Assisted Living |
| 13 | CT Realty Office Park |
| 14 | Kaiser Permanente |
| 15 | Soka University Residence Halls/Academic Building |
| 16 | The Ranch |
| 17 | Cedarbrook Dog Park |
| 18 | Polaris Ofice Building and Parking Structure |
| | **City of San Juan Capistrano** |
| 19 | Hidden Creek Estates |
| 20 | Olivia Development |
| 21 | The Farms at Del Obispo |
| 22 | Toyota Modfication |
| 23 | Ganahl-Lower Rosan |
| | **City of Dana Point** |
| 24 | South Shores Church - Master Plan |

\\PDCC1TRDSGIS2\Irvine\GIS\Projects\City_of_Laguna_Niguel\P0724_15_CitywideOM\mapdocs\IS_MND\Fig3-5_CummulativeProj.mxd; User: 37316; Date: 11/15/2018

0 2,000 4,000 Feet

1:60,000

N

**Figure 3-5**
**Cummulative Projects**
**Laguna Niguel Wetlands Operations and Maintenance Project IS/MND**

area, which is considered cumulatively significant, the project's contribution to this loss is less than cumulatively considerable because any associated impacts would be minimized through the proposed project's Environmental Commitments and fully mitigated through implementation of **Mitigation Measure MM-BIO-1** and **Mitigation Measure MM-BIO-2**. Therefore, the project's incremental contribution to cumulative biological resource impacts would not be cumulatively considerable.

*Cultural Resources*

Impacts on cultural resources tend to be site specific and are assessed on a site-by-site basis. The results indicate that there are no known cultural resources eligible for the CRHR within the project area. As discussed in Section V, *Cultural Resources*, the proposed project's potential impacts on cultural resources would be limited to very specific tasks conducted during the implementation of the program. These tasks include excavation or grading at 2 feet below the surface. As described in Section V, the possibility of encountering archaeological resources and human remains would be low given the extensive disturbance that has occurred on site. However, the possibility still exists that undiscovered cultural resources may be encountered during ground-disturbing activities associated with the project. Although past, present, and future projects such as those in Table 3-6~~5~~ have the potential to encounter cultural resources in the cumulative project study area, and combined there is a potential cumulatively significant impact, the project's contribution to any loss of cultural resources would be less than cumulatively considerable because there is a low potential for archaeological resources and implementation of **Mitigation Measure MM-CUL-1** would address as-yet undocumented cultural resources. Therefore, the project's incremental contribution to cumulative cultural resources impacts would not be cumulatively considerable.

*Geology and Soils*

Development in the seismically active region can put people and structures at risk from a wide range of earthquake-related effects. However, potentially adverse environmental effects associated with seismic hazards usually are site specific and generally do not combine with similar effects that could occur with other projects in the City. Moreover, the proposed project involves maintenance of existing wetland sites and does not feature the construction of any habitable structures (or otherwise) that could expose people to risk. As it relates to projects in the project's vicinity, various mechanisms are in place to reduce risks at the project level, including project-specific hazards evaluation processes mandated by the Seismic Hazards Mapping Act, as well as the seismic design standards promulgated by the City's building code. It is expected that related projects would be implemented applying these requirements. Therefore, the proposed project (or related projects) would not contribute considerably to the existing cumulative impact related to seismic hazards.

In the event that O&M activities encounter a unique paleontological resource or unique geologic feature, implementation of **Mitigation Measure MM-GEO-1** would require that a qualified paleontologist evaluate the find and make recommendations. Moreover, impacts on paleontological resources tend to be limited to those that would directly compromise their physical integrity. As no previously documented paleontological resources are located within the project footprint and implementation of **Mitigation Measure MM-GEO-1** would address as-yet undocumented paleontological resources, the project would not contribute to a significant cumulative impact.

*Greenhouse Gas Emissions*

GHG emissions and climate change are exclusively cumulative impacts; there are no non-cumulative GHG emissions impacts from a climate change perspective. Climate change is the result of cumulative global emissions. No single project, when considered in isolation, can cause climate change because a single project's emissions are not enough to change the radiative balance of the atmosphere. Because climate change is the result of GHG emissions and GHGs are emitted by innumerable sources worldwide, global climate change will have a significant cumulative impact on the natural environment as well as human development and activity. As such, GHGs and climate change are cumulatively considerable, even though the contribution may be individually limited (SCAQMD 2008). SCAQMD methodology and thresholds are thus cumulative in nature.

As discussed above, the proposed project would result in a short-term increase in GHG emissions due to the amount of maintenance activities that would be undertaken. This would involve GHG emissions from the use of construction equipment and vehicles. Although this would be a temporary increase over existing conditions, the enhanced wetland sites would not change the development pattern of the surrounding area, and would therefore not impede implementation of GHG reduction measures identified in AB 32, Senate Bill 32, and local/regional plans. Therefore, impacts related to GHG emissions would not be cumulatively considerable.

*Hydrology and Water Quality*

Water Quality

Development of the proposed project, combined with other past and future development or redevelopment within the potentially affected geographic area (the Aliso Creek sub-watershed and the Salt Creek – Frontal Gulf of Santa Catalina sub-watersheds), could degrade stormwater quality through an increase in impervious surface area and an increase in contaminated runoff. This could ultimately violate water quality standards, affect beneficial uses, and/or further impair 303(d)-listed waters within the watershed. The quality of stormwater runoff varies with surrounding land uses, topography, and the amount of impervious cover as well as the intensity (energy) and frequency of irrigation or rainfall.

Stormwater drainage can result in cumulative effects on water quality within the affected basin. Development in the vicinity of the proposed project could degrade stormwater quality during O&M activities through land disturbance and during operation through an increase in impervious surface area and contaminated runoff. During O&M activities, runoff may contain sediments and other materials and wastes, resulting from activities such as site clearing, demolition of existing structures and pavement, grading, excavation, and paving. During operation, runoff may contain oil, grease, and metals, as well as pesticides, nutrients, animal waste, and trash from landscaped areas.

When the effects of the proposed project on water quality are considered in combination with the potential effects of other cumulative projects, there would be the potential for cumulative impacts on surface and groundwater quality. The incremental water quality impact contribution from implementation of the project would be minor. The combined effects on water quality from the project and other projects could result in a cumulatively significant impact. However, new projects are subject to the requirements of the Orange County Municipal Separate Storm Sewer System Permit and city municipal codes as they relate to water quality; these regulatory requirements have been designed to protect water quality. Additionally, development projects would be subject to an environmental review process, which would identify potential site- and/or project-specific water

quality impacts and mitigate for any potential significant impacts. Therefore, cumulative impacts on water quality as a result of the proposed project would be less than considerable.

Groundwater

The project area is not within a recognized groundwater basin; however, shallow pockets of groundwater may be present. During construction of other reasonably foreseeable development projects, potential dewatering could be conducted on a one-time or temporary basis during the construction phase but would not result in a loss of water that would deplete groundwater supplies. During operation, new impervious areas can reduce the potential for groundwater recharge. However, most other reasonably foreseeable projects would be redevelopment or infill projects in highly urbanized areas where there is limited existing recharge through infiltration due to impervious area. Development in highly urbanized areas would not be expected to increase the amount of impervious surfaces substantially because this development would be occurring mostly in areas with a substantial amount of existing impervious surfaces. Therefore, groundwater recharge from percolating rainfall would not be adversely affected, and an indirect lowering of the local groundwater table is not likely to occur. Implementation of the proposed project would not result in an increase in impervious surface area; therefore, the proposed project would not reduce groundwater recharge. Maintenance and operation of the wetland sites would restore their desired functions to maintain the integrity of the restored ecosystems and to manage the sites for the long-term stability, health, and sustainability of the watershed.

Cumulative development could require increases in water supplies. The proposed project would not rely on surface or groundwater supplies; therefore, groundwater supplies would not be affected during project implementation. Groundwater will continue to infiltrate. Therefore, impacts related to development of the proposed project would not be cumulatively considerable and cumulative impacts on groundwater recharge and supply would be less than considerable.

Flooding

Cumulative development within the vicinity of the proposed project could increase the volume and rate of stormwater runoff. Such increases could cause localized flooding if the storm drainage capacity is exceeded or excess flows are conveyed to overbank areas where flood storage may not be available. Generally, cumulative projects would occur in developed areas with existing impervious surfaces, and would not be expected to substantially increase the amount of new impervious surfaces.

All new development is required to handle stormwater in a manner that ensures that flooding will not increase and flood flows will not be redirected to areas that are not currently prone to flooding. All cumulative projects would be required to include stormwater management features, such as low-impact development measures, in project designs to reduce flows to pre-project conditions. If improvements to storm drainage capacity are needed, the County of Orange would be required to coordinate with local agencies to ensure the appropriate conditions of approval for storm drainage improvements are identified. The proposed project would not result in an increase in impervious surfaces. The proposed project would include minor maintenance activities such as establishing pilot channels to facilitate positive flow and maintain flood capacity (i.e., flowline maintenance), and trimming understory of riparian vegetation (i.e., below the tree canopy) to prevent obstruction of flow. Therefore, the proposed project would not likely contribute to the cumulative exceedance of

storm drainage capacity, and there would be a less-than-considerable contribution to the cumulative impact.

Implementation of the proposed project would not contribute to the potential for flooding or the exposure of people and structures to flood risks. Although the proposed project is partially within a FEMA-designated 100-year flood zone, it would improve drainage patterns over existing conditions, and would ultimately reduce flooding off site. Development in existing or future flood-prone areas could contribute to cumulative impacts related to flooding. However, with the maintenance of positive hydraulic flow and flood capacity and prevention of obstructed flow, any potential for overland flood flows would be minimized. Therefore, the risk of flooding would have a less-than-considerable contribution to the cumulative impact. Compliance by other reasonably foreseeable development projects with relevant regulations would also reduce or avoid any significant cumulative impacts. Therefore, the proposed project and the cumulative flood risk impact would be less than considerable.

*Noise*

Depending on the timing of the proposed project and related projects in the vicinity, it is possible that project activity could occur simultaneously with construction activity at nearby sites. As discussed previously, all project activity would occur only during the hours permitted by the City's municipal code and would therefore be exempt from specific noise limits. By extension, any other construction activities occurring simultaneously would also be exempt. In addition, given the modest and infrequent noise levels anticipated as a result of the project, they would not contribute substantially to long-term cumulative noise levels. Considering all these factors, cumulative noise impacts would be less than significant.

*Transportation/Traffic*

As discussed in Section XVI, *Transportation/Traffic*, there is a potential for project-related traffic and staging areas to affect adjacent roadways providing access to the wetland sites. However, no full roadway closures are expected and access for emergency vehicles, buses, and bicyclists would be maintained. Staging areas along Alicia Parkway and Crown Valley Parkway have been identified along wetland Sites 1, 2, 3, 4, 5, and 7. During O&M activities, these wetland sites may require the use of the adjacent sidewalk and one lane of Alicia Parkway and Crown Valley Parkway for equipment staging areas. These staging areas would only be utilized as O&M activities occur at each wetland site and would only take place at one wetland site at a time. O&M activities would not last for more than 14 days at each wetland site that could result in impacts on Alicia Parkway and Crown Valley Parkway. All other equipment staging areas would take place away from major arterials. Once O&M activities are completed, access to the project sites would be limited to periodic inspection and maintenance on a biannual (twice per year) basis, and would not result in a significant increase in traffic volume. It is anticipated each wetland site would take about one day to complete operation and maintenance activities and only one site would be visited at a time; thus, all activities would be completed before moving on the next site.

The related cumulative projects are close to the project sites and construction schedules could overlap with the proposed project. Should construction overlap, the related cumulative projects could utilize the same roadways as the proposed project. However, each project would be subject to an environmental review process, which would identify potential transportation and traffic impacts and mitigate for any potential significant impacts. Thus, the adjacent roadway network is expected

to be able to accommodate the anticipated additional construction traffic in combination with the other cumulative projects. Therefore, the proposed project would not contribute to or create a cumulatively significant impact related to construction traffic.

During operation of the proposed project, a substantial increase in traffic volumes is not expected, as maintenance activities would only occur on a biannual basis lasting about 14 days in total. Therefore, no operational cumulative impacts would occur.

*Tribal Cultural Resources*

The proposed project was also assessed for potential impacts on tribal cultural resources. The NAHC indicated that tribal cultural resources are present within the project area. AB 52 consultation is ongoing and determination of cumulative impacts on tribal cultural resources is pending.

***c. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?***

**Less-than-Significant Impact**. As described in Chapter 2, *Project Description and Environmental Setting*, the proposed project proposes a systematic program for flood control maintenance, long-term sustainability, and public safety at 13 wetland sites throughout the City. All impacts identified in this IS were below the level of significance or were reduced to less-than-significant levels with the implementation of mitigation measures; therefore, the proposed project would not cause substantial adverse effects on human beings.

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Chapter 5
# List of Preparers

## City of Laguna Niguel Public Works

| | |
|---|---|
| Ziad Mazboudi | Engineering Services Manager |
| Hal Ghafari | Environmental Programs Supervisor |

## ICF

| | |
|---|---|
| Lanika Cervantes | Project Manager |
| Tanya Jones | CEQA Manager; Mandatory Findings |
| Chad Beckstrom, AICP | Senior Reviewer/QA-QC |
| Meagan Flacy | Agriculture & Forestry Resources; Mineral Resources; Population & Housing; Public Services; Recreation; Transportation/Traffic; Utilities & Service Systems |
| Rusty Whisman | Air Quality & Greenhouse Gas Emissions |
| Kimberly Davis | Biological Resources |
| Karolina Chmiel<br>Karen Crawford<br>Timothy Yates | Cultural Resources/Scientific Resources & Tribal Cultural Resources |
| Mario Barrera | Aesthetics; Geology and Soils; Hazards & Hazardous Materials; Land Use and Planning |
| Katrina Sukola | Hydrology & Water Quality |
| Jonathan Higginson | Noise |
| Johnnie Garcia | GIS Specialist |
| Saadia Byram | Editor |
| Elizabeth Irvin | Editor |

Appendix A

# Operations & Maintenance Plan

# ~~DRAFT~~ FINAL OPERATIONS AND MAINTENANCE PLAN

# LAGUNA NIGUEL WETLANDS OPERATION AND MAINTENANCE ACTIVITIES PROJECT, LAGUNA NIGUEL, CA

**PREPARED FOR:**

City of Laguna Niguel
30111 Crown Valley Parkway
Laguna Niguel, CA 92677
Contact: Ziad Mazboudi

**PREPARED BY:**

ICF
525 B Street, Suite 1700
San Diego, CA 92101
Contact: Lanika Cervantes

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# Acronyms and Abbreviations

| | |
|---|---|
| AMSL | above mean sea level |
| BO | Biological Opinion |
| CDFW | California Department of Fish and Wildlife |
| City | City of Laguna Niguel |
| EPA | U.S. Environmental Protection Agency |
| ITP | Incidental Take Permit |
| NRCS | Natural Resource Conservation Service |
| O&M | operations and maintenance |
| Plan | operations and maintenance plan |
| project | Laguna Niguel Wetlands Operations and Maintenance Project |
| RWQCB | Regional Water Quality Control Board |
| SWPT | southern western pond turtle |
| USACE | U.S. Army Corps of Engineers |
| USFWS | U.S. Fish and Wildlife Service |

# Summary

This operations and maintenance (O&M) plan (Plan) has been prepared for the City of Laguna Niguel (City) as a systematic program for flood control maintenance in 13 wetland sites located throughout the Aliso Creek Watershed in the City of Laguna Niguel, within Orange County, California (Figure 1). This Plan is being prepared to support permits for routine maintenance activities for the 13 wetland sites. A majority of these wetland sites are previous restoration sites designed to improve water quality and help reestablish some of the historic habitat functions and values associated with riparian and wetland systems in southern California and in the Laguna Niguel area. Several federally listed species, such as southwestern willow flycatcher (*Empidonax traillii*), least Bell's vireo (*Vireo bellii pusillus*), and coastal California gnatcatcher (*Polioptila californica californica*), are endemic to and utilize the riparian systems present within the 13 wetland sites. Additionally, a probable observation of steelhead trout (federally listed as endangered) was observed by the California Department of Fish and Wildlife (CDFW) and National Marine Fisheries Service in March of 2019 in Aliso Creek, to which the wetland sites are tributary. These restoration projects were not only designed to provide water quality improvements, but to enhance habitat for these species and others.

This O&M Plan integrates management of the 13 wetland sites for both flood control and biological resources. This O&M Plan describes the 13 wetland sites, including their serviceable structures, and outlines the specific maintenance activities that are necessary to maintain flood control and biological functions for each of the 13 wetland sites. Specifically, the following goals are the primary purpose of this O&M Plan.

- Implement flood control and vector control for public safety.
- Maintain the integrity of the restored ecosystems.
- Manage the sites for the long-term stability, health, and sustainability of the Aliso Creek Watershed.

# Chapter 1
# Introduction

ICF has prepared this operation and maintenance (O&M) plan (Plan) for the Laguna Niguel Wetlands Operations and Maintenance Project (project). The City of Laguna Niguel (City) conducts operations and maintenance activities at stormwater facilities (referred to herein as maintenance facilities) associated with 13 wetland sites.

## 1.1 Purpose and Need

This O&M Plan details the routine maintenance and habitat management activities to be performed at the 13 wetland sites located throughout the Aliso Creek Watershed within the City, in Orange County, California. The 13 sites are shown on the general vicinity map (Appendix A, Figure 1). The O&M Plan was prepared as a guide for the City to manage and maintain the 13 wetland sites for long-term sustainability and public safety. It establishes routine maintenance activities that will be performed at the 13 wetland sites, compensatory mitigation requirements, and general reporting requirements. Specifically, the following goals are the primary purpose of this O&M Plan.

- Implement flood control and vector control for public safety.
- Maintain the integrity of the restored ecosystems.
- Manage the sites for the long-term stability, health, and sustainability of the Aliso Creek Watershed.

Maintenance activities will be conducted on a regular basis, which could permanently (no permanent loss) impact aquatic resources and species habitat protected by federal and state laws within the purview of the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), U.S. Fish and Wildlife Service (USFWS), and California Department of Fish and Wildlife (CDFW). This Plan is being prepared to support programmatic permits for routine maintenance activities for the 13 wetland sites. While specific wetland sites are identified in this O&M Plan, it is meant to be a living document, giving the City the ability to add additional wetland/riparian restoration sites and/or maintenance facilities to the maintenance program as needed. Updates to this O&M Plan would generally occur every 5 years, when the associated programmatic permits are renewed and updated.

This O&M Plan and the associated Draft Biological Technical Report (ICF 2017a) will be used to support the regulatory process, so that the proposed project will be independently permitted by the appropriate regulatory agencies.

## 1.2 General Overview and History of Project Sites

The wetland sites identified in this O&M Plan are situated in a suburban environment. Residential development and open space influence the structure and functionality of these systems. Three projects are sited along the east and west sides of Alicia Parkway (Site 1 – West Alicia Wetland, Site 2 – East Alicia Treatment Wetland, and Site 3 – North Alicia Treatment Wetland). Four projects are

situated along a continuous stretch of Upper Sulphur Creek along Crown Valley Parkway (Site 5 – Crown Valley Enhancement Area/Sulphur Creek Park, Site 7 – Rancho Niguel Upper Sulphur, Site 8 – Crowne Royale Upper Sulphur, and Site 9 – Niguel Ridge Upper Sulphur). Four projects are situated in and around Crown Valley Park along Sulphur Creek (Site 4 – Crown Valley Park Wetland Creation/J03P01, Site 6 – Sulphur Creek Creation Area, Site 10 – USACE Restoration Area and Crown Valley Park restoration, and Site 11 – Sulphur Creek in Crown Valley Community Park). One site consists of four distinct wetland features surrounding La Paz Park (Site 12 – La Paz Park). These sites range in size from approximately 1 to 16 acres. Finally, one site (Site 13 – Salt Creek Corridor Habitat Restoration Area) is within the Salt Creek Watershed and includes the Salt Creek Mainstem and several unnamed tributaries to Salt Creek.

In 2001, the Aliso Creek watershed, including Sulphur Creek, was the subject of a feasibility study that included an assessment of stream functions throughout the watershed. As documented in the 2001 functional assessment of the Aliso Creek watershed, 86%, or 12.2 miles of the total 14.2 creek miles in the Sulphur Creek subbasin, were considered highly degraded as a result of human modifications. Of this total, 10.5 miles (74%) have been affected to the point that they provide no measurable functional output, and none of the remaining stream reaches function at a high level. Functional output is defined as a measurement of a wetland's hydrologic, biogeochemical, and biologic health via comparison or reference to a relatively fully functional or healthy wetland ecosystem in the same region. This dramatic reduction in wetland functional capacity on a watershed scale resulted in a number of significant resource-related concerns, including loss of riparian habitat, erosion and channel incision, poor water quality, flooding, and declines in populations of native fauna.

The Sulphur Creek Ecosystem Restoration Project (Sites 1 through 12) was designed with the goals of the 2001 study in mind, in particular to reestablish a stable, healthy, and sustainable watershed environment and to identify feasible management options to improve environmental conditions in the Aliso Creek watershed. The restoration project was not provided as compensatory mitigation for impacts on wetlands or riparian areas but was voluntarily undertaken to improve water quality and help reestablish some of the historic habitat functions and values associated with riparian and wetland systems in southern California and in the Laguna Niguel area. In addition, this project furthers the goals of the City's General Plan, i.e., "preservation and enhancement of the natural setting of the City" and "to strive and improve the City's existing environmental quality."

Several listed endangered species are endemic to riparian systems in this region. The federally listed endangered southwestern willow flycatcher (*Empidonax traillii*) has been sighted in the surrounding areas. Other listed endangered species include the least Bell's vireo (*Vireo bellii pusillus*) and coastal California gnatcatcher (*Polioptila californica californica*). This restoration project was designed to enhance habitat for these species and others, and was jointly funded by the City, State of California Department of Water Resources, and USACE.

The City applied for and received permits from CDFW (Streambed Alteration Agreement #1600-R5-2003-0156) and RWQCB Section 401 Water Quality Certification (WPN: 401 Certification # 03C-016 – Sulphur Creek Ecosystem Restoration Project and WPN: 401 Certification # 03C-093 – Sulphur Creek Ecosystem Restoration Disposal Site Project) to implement restoration activities at 12 of the wetland restoration sites. The 5-year monitoring of the 12 sites within Sulphur Creek Watershed was recently completed, and the resource agencies have approved all 12 sites as achieving their success criteria. No additional maintenance or monitoring is currently required by the resources

agencies as conditions to these permits, but the City wishes to continue maintenance to ensure these sites fulfill their intended flood control and ecological purposes.

In 2016, the City obtained permits from CDFW (Streambed Alteration Agreement #1600-2015-0098) and RWQCB (Section 401 Water Quality Certification [401 Certification # R9-2015-0098]) for the construction of the Crown Valley Park Wetland Creation Area J03P01, which occurs within Site 4. Compensatory mitigation required for implementation of this project included establishment of riparian habitat downstream of this project within Site 4. The mitigation for this project is currently underway.

## 1.3 Required Permits

To fulfill the purpose of this O&M Plan, new resource agency permits will need to be obtained for routine maintenance activities associated with this plan. Required permits include the following.

- USACE Clean Water Act Section 404 Permit.
- RWQCB Clean Water Act Section 401 Water Quality Certification and Porter-Cologne Act Waste Discharge Requirements.
- CDFW Section 1602 Streambed Alteration Agreement.
- USFWS Biological Opinion (BO) pursuant to Section 7 of the Endangered Species Act.

## 1.4 Responsible Parties

The land manager for all 13 wetland sites identified in this O&M Plan is the City. The land manager, and subsequent land managers upon transfer, will implement this O&M Plan, managing and monitoring the 13 sites described herein to preserve its habitat, functions, and values in accordance with the goals identified above. The land manager will be responsible for receiving any necessary permits to conduct long-term operations and maintenance activities identified in this plan.

# Chapter 2
# Property Descriptions

This section describes the existing conditions and biological environment in the project areas and how the proposed operation and maintenance activities may affect that environment and sensitive biological resources.

## 2.1 General Setting and Location

The 13 wetland sites are within the City of Laguna Niguel, Orange County, California (Appendix A, Figure 1). All sites occur within City maintained areas. Wetland sites either occur within City-owned property or the City retains a maintenance easement over them to allow for the proposed O&M activities. Figure 2 (Appendix A) shows each site on a topographic map. Each site is generally located within a suburban, heavily disturbed environment. Most adjacent land uses include residential and commercial developments, transportation services, roads, recreational facilities, and open space. As described in the *Laguna Niguel Wetlands Operations and Maintenance Activities Project, Laguna Niguel, CA Biological Technical Report*, ICF biologists conducted general biological surveys, focused species surveys, and a delineation of jurisdictional waters and wetlands in June and July 2016 (ICF 2017a).

### 2.1.1 Surrounding Land Uses

Land uses in the local vicinity of the Project areas include residential and commercial developments, undeveloped open space, schools, and recreational uses including pedestrian and bicycle trails, and parks. Several parks are in the vicinity, including Laguna Niguel Regional Park, Crown Valley Park, Salt Corridor Regional Park, and Aliso and Wood Canyons Wilderness Park.

### 2.1.2 Topography

The project study areas occur in either flat valleys or along steep slopes with an elevation ranging from roughly 150 feet above mean sea level (AMSL) at the northern end near Laguna Niguel Regional Park to approximately 600 feet AMSL at the southeastern end of Chapparosa Park (GoogleEarth 2016).

### 2.1.3 Hydrology

Sulphur Creek is a perennial tributary to Aliso Creek, fed by runoff from surrounding development, and is approximately 5 miles long. Downstream of the Sulphur Creek confluence, Aliso Creek flows approximately 5 miles to the Pacific Ocean where it empties at Aliso Beach County Park. Salt Creek is an intermittent coastal stream that flows out to the Pacific Ocean at Salt Creek County Beach.

### 2.1.4 Soils

NRCS has mapped the following soil series as occurring within the Project areas that support jurisdictional waters based on the SSURGO database (NRCS 2015a): Alo, Balcom, Botella, Calleguas, Cropley, and Sorrento. A description of each soil series is provided in the subsections below.

No additional map units were found to occur within the Project areas according to the NRCS (NRCS 2016). None of the soil series that occur within the Project area are listed as hydric soils (Orange County and Part of Riverside County) (NRCS 2015b). Figure 3 depicts the soils locations within Project areas.

## 2.2 Site Descriptions

The following describes each of the 13 sites in detail, including unique history and adjacent land uses if different than the general description provided above, hydrology and topography, vegetation, and aquatic resources. As provided after the site descriptions, Table 1 reports the vegetation communities and land cover types and Table 2 reports the aquatic resources occurring as of the date of ICF's most recent site assessment (ICF 2017a) and jurisdictional delineation (ICF 2017b). All site figures are provided in Appendix A.

Aliso Creek is 20 kilometers north of the southernmost extremity of the Southern California Distinct Population Segment (DPS) range at San Mateo Creek. The wetland sites are tributary to Aliso Creek and occur within the range of the Southern California DPS; therefore, there is a potential for Southern California DPS to occur within all of the wetland sites.

### 2.2.1 West Alicia Wetland (Site 1)

Site 1 occurs on the west side of Alicia Parkway (Figure 3-1A through 3-1F). Site 1 consists of a 4.76-acre restored channel and is composed of six vegetation communities and other cover types (Table 1). Site 1 contains a tributary to Aliso Creek, a perennial drainage, that flows north through the site along Alicia Parkway for approximately 2,734 feet from a small concrete collection channel to a large concrete culvert, eventually flowing outside of the project area to an unnamed tributary to Aliso Creek. There are several small concrete outfalls that collect runoff from the surrounding hillside to the west and direct flow into this drainage as it proceeds northward. Site 1 supports 1.97 acres of wetlands within the project area. Approximately 4.89 acres of CDFW riparian is present along the channel and 0.02 acre of CDFW streambed was mapped along the concrete apron where the stream passes through the large concrete culvert (Table 2). Vegetation observed at this wetland site includes Mexican rush (*Juncus mexicanus*), chairmaker's club-rush (*Schoenoplectus americanus*), salt grass (*Districhlis spicata*), yerba mansa (*Anemopsis californica*), and mulefat (*Baccharis salicifolia*). Vegetation in the adjacent upland area included coyote brush (*Baccharis pilularis*), California rose (*Rosa californica*), and salt grass. No special-status species were observed during site surveys, and none are expected to occur within this site.

### 2.2.2 East Alicia Wetland (Site 2)

Site 2 occurs on the east side of Alicia Parkway, to the south of Kite Hill Drive (Figure 3-2A through 3-B). This site totals 1.30 acres and is composed of four vegetation communities (Table 1). Site 2 supports 0.40 acre of wetland waters and 1.03 acres of CDFW riparian (Table 2). Surface water,

when present, appears to settle in a ponded area before flowing into a concrete stormwater collection ditch that transports flow to the north. Riparian vegetation around the wetland waters is dominated by club-rush and arroyo willow (*Salix lasiolepis*). Ice plant (*Carpobrotus edulis*), coyote brush, and arroyo willow are also present in upland areas surrounding the wetland. No special-status species were detected during site surveys, and none are expected to occur within this site.

### 2.2.3 North Alicia Wetland (Site 3)

Site 3 occurs on the east side of Alicia Parkway, to the north of Kite Hill Drive (Figure 3-3). This site is located on City property granted under an easement with the County of Orange and consists of a 0.60-acre network of six human-made retention basins linked by small over-flow channels. A small (approximately 4-foot-wide) concrete box culvert contributes water to the most upstream basin in the southeastern corner of the project area. At the downstream (northwestern) corner, a culvert receives water from Site 2 and flows toward an unnamed tributary to Aliso Creek. Site 3 supports one vegetation community (Table 1) and 0.25 acre of wetland waters and 0.64 acre of CDFW riparian (Table 2). The basins have riparian vegetation with a nearly closed canopy, dominated by arroyo willow and black willow. Herbaceous vegetation is dominated by club-rush. Adjacent upland habitat also has sandbar willow (*Salix exigua*), arroyo willow, and coyote brush. The closest known special-status species is the western mastiff bat (*Eumops perotis*) (CNDDB 2017). No special-status species were detected during site surveys, and none are expected to occur within this site.

### 2.2.4 Crown Valley Park Wetland Creation Area/J03P01 (Site 4)

Site 4 occurs north of Crown Valley Parkway and adjacent to Crown Valley Community Park (Figure 3-4A through 3-4C). Site 4 is a 4.16-acre segment of Sulphur Creek, a perennial drainage, and is composed of four vegetation communities (Table 1). This tributary flows northeast for approximately 1,940 feet through the project site within the Crown Valley Community Park grounds to its confluence with Sulphur Creek. The wetland is bound on the southern edge by a large concrete culvert and concrete low flow channel, and on the northern edge by a pedestrian bridge that crosses the drainage. The drainage is also bisected by the Community Park Road dip crossing. The upstream portion of Site 4 consists of braided channels between the dip crossing and the upstream culvert. The channel widens at a shallow scour pool below the culvert. In the downstream portion of Site 4, between the Community Park Bridge and a pedestrian footbridge, the drainage is substantially confined by adjacent land use activities (playing fields and sidewalk). In total, Site 4 supports 1.08 acres of wetland waters, 0.49 acre (1,108 linear feet) of CDFW streambed, and 3.35 acres of CDFW riparian (Table 2).

Vegetation along the upstream portion of Site 4 is dominated by arroyo willow, and also included watercress (*Nasturtium officinale*) and small matted sandmat (*Euphorbia serpens*). Vegetation in the adjacent upland area includes arroyo willow, small matted sandmat, Bermuda grass (*Cynodon dactylo*), and tall flatsedge. At the time of the site visit all riparian vegetation had been removed. Remaining herbaceous vegetation includes Bermuda grass, tall flatsedge, and cattails.

This site is currently under construction under current permits issued by the resource agencies (SAA No. 1600-2015-0098-R5, WQC# R9-2015-0098:815677:dbradford). The existing Crown Valley Park Road dip crossing structure, grouted rock slopes, and grouted rock apron in the stream has been replaced with a 48-foot-wide dual arched culvert crossing, associated non-grouted rock rip-rap

blanket, and associated concrete grade control structures at the upstream and downstream ends of the rock rip-rap. The pedestrian boardwalk across the stream has also been moved and replaced. A sediment forebay, incorporating a trash boom, was constructed within the stream at the upstream end of the project and is equipped with a floating trash boom with a 36-inch underwater skirt. A maintenance access ramp will be constructed to facilitate routine trash and sediment removal. A treatment wetland has also been constructed and will be planted with emergent vegetation. The low flow channel will be maintained to enter this treatment wetland and then flow into the constructed meandering bioswales. This O&M plan includes the maintenance of these new structures.

### 2.2.5 Sulphur Creek Park Wetland Enhancement Area (Site 5)

Site 5 covers 2.41-acre and occurs on the north side of Crown Valley Parkway, just east of Central Park Drive (Figure 3-5). Site 5 has been restored from previous concrete channelization. Within the project area, Sulphur Creek is a small, approximately 4-foot-wide channel that flows southeast toward Crown Valley Community Park and is composed of three vegetation communities (Table 1). The site currently supports 0.56 acre of wetland waters and 0.02 acre of nonwetland waters. In addition, the site supports 1.35 acres of CDFW riparian and 0.04 acre of CDFW streambed (Table 2). Riparian vegetation throughout Site 5 is dominated by arroyo willow, and there is no herbaceous vegetation present as understory. No special-status species were detected during site surveys and none are expected to occur within this site.

### 2.2.6 Sulphur Creek Wetland Creation Area (Site 6)

Site 6 occurs north of Crown Valley Parkway and adjacent to Crown Valley Community Park, immediately south of the USACE Sulphur Creek Restoration Project (Figure 3-6). Site 6 is a high flow channel and associated braided channels of Sulphur Creek within the project site and is composed of three vegetation communities (Table 1). This is a restoration site and is a 0.71-acre drainage area that flows in a northern direction toward Aliso Creek. Site 6 supports 0.42 acre of wetland waters and 0.62 acres of CDFW riparian (Table 2). This portion of the Sulphur Creek drainage flows in a northern direction toward Aliso Creek. Riparian vegetation is dominated by arroyo willow, and herbaceous vegetation is dominated by club-rush. No special-status species were detected during site surveys, and none are expected to occur within this site.

### 2.2.7 Rancho Niguel Master Association Upper Sulphur Creek (Site 7)

Site 7 is an approximately 3,390-foot-long section of Sulphur Creek that runs between Crown Valley Parkway and an adjacent residential development within the project area, and is approximately bisected by Golden Lantern Street (Figure 3-7A through 3-7G). This 16.38-acre drainage supports six vegetation types (Table 1) and has been restored from previous concrete channelization. Within the project area, Sulphur Creek is a small, approximately 4-foot-wide channel that flows southeast. There are four large concrete box culverts through which the stream passes: at the northern edge of the project site, at the upstream and downstream ends of Golden Lantern Street crossing, and at the southern edge of the project site. Approximately 0.15 acre of non-wetland water, 3.51 acres of wetland waters, 0.38 acre of CDFW streambed, and 8.26 acres of CDFW riparian habitat is supported in Site 7 (Table 2). Riparian vegetation along Site 7 is dominated by arroyo willow, which formed a closed canopy and nearly excluded herbaceous vegetation.

## 2.2.8 Crowne Royale Homeowners Association Upper Sulphur Creek (Site 8)

Site 8 is an approximately 3.75-acre site that includes an approximately 1,500-foot-long section of Sulphur Creek that runs between Crown Valley Parkway and adjacent residential development within the project area (Figure 3-8A through 3-8B). Site 8 has been restored from previous concrete channelization to support wetland and riparian habitat, including four vegetation and land cover types (Table 1). Within the project site, Sulphur Creek is a small, approximately 4-foot-wide channel that flows southeast. At the northern end of the project area, there is a large concrete box culvert and concrete apron through which the stream passes inside a shallow low-flow channel as it exits under Nueva Vista Road. There is a concrete outfall and velocity dissipating structure within the channel near the intersection of Crown Valley Parkway and Adelanto Road. At the southern edge of the project area, the stream enters another large concrete box culvert as it passes under La Paz Road. Site 8 currently supports 0.03 acre of non-wetland waters, 0.88 acre of wetland waters, 2.17 acres of CDFW riparian along the stream, and 0.29 acre of CDFW streambed mapped where the stream flows through concrete culverts and bank protections (Table 2). Vegetation along Site 8 is dominated by yerba mansa, cattails, and salt grass. No special-status species were detected during site surveys and none are expected to occur within this site.

## 2.2.9 Niguel Ridge Homeowners Association Upper Sulphur Creek (Site 9)

Site 9 is an approximately 2.20-acre site that is an approximately 1,786-foot-long section of Sulphur Creek that runs between Crown Valley Parkway and adjacent residential development within the project area (Figure 3-9A through 3-9C). This site has been restored from previous concrete channelization to support wetland and riparian habitat, and currently supports three vegetation and land cover types (Table 1). Within the project area, Sulphur Creek is a small, approximately 4-foot-wide channel that flows southeast. At the northern end of the project area, there is a large concrete box culvert and concrete apron through which the stream passes inside a shallow low-flow channel as it exits under La Paz Road. The wetland site is approximately bisected by La Plata Road, which crosses over the drainage, where the stream runs through a large concrete box culvert that is flanked on both sides by a concrete apron with a low-flow concrete channel. Site 9 currently supports 0.07 acre of non-wetland waters, 0.43 acre of wetland waters as well as 1.17 acres of CDFW riparian and 0.59 acre of CDFW streambed (Table 2). Riparian vegetation along Site 9 is dominated by arroyo willow. Herbaceous vegetation is dominated by alkali heath (*Frankenia salina*). No special-status species were detected during site surveys and none are expected to occur within this site.

## 2.2.10 USACE Sulphur Creek Restoration Project (Site 10)

Site 10 occurs north of Crown Valley Parkway directly downstream of the Sulphur Creek Wetland Creation Area site in Crown Valley Community Park (Figure 3-10A through 3-10D). Site 10 covers 7.16 acres and was restored from previous concrete channelization and currently supports six vegetation and land cover types (Table 1). In addition, this site supports 1.91acres of wetland waters as well as 5.41 acres of CDFW riparian and 0.25 acre of CDFW streambed (Table 2). Riparian vegetation along Site 10 is dominated by arroyo willow and mulefat, and the riparian canopy was mostly closed above the stream. Herbaceous vegetation is dominated by yerba mansa. The larger

floodplain present in this area is approximately 100 feet wide. No special-status species were detected during site surveys and none are expected to occur within this site.

## 2.2.11 Sulphur Creek in Crown Valley Community Park (Site 11)

Site 11 is an approximately 555-foot-long section of Sulphur Creek totaling 0.83 acres (Figure 3-11). Within the project site, the drainage has been restored from previous concrete channelization and supports one vegetation community (Table 1). Within the project area, Sulphur Creek is a small, approximately 5-foot-wide channel that flows west. Site 11 currently supports 0.64 acre of wetland waters as well as 1.04 acres of CDFW riparian (Table 2).

Riparian vegetation along Site 11 is dominated by arroyo willow, and the riparian canopy is mostly closed above the stream. Herbaceous vegetation is dominated by a mix of garden celery (*Apium graveolens*), great plantain (*Plantago major*), white sweetclover (*Melilotus albus*), and alkali bulrush (*Bolboschoenus maritimus*). No special-status species were detected during site surveys and none are expected to occur within this site.

## 2.2.12 La Paz Park Wetlands (Site 12)

Site 12 consists of a 1.20-acre site supporting four vegetation and land cover types (Table 1). The site contains 3 drainage features including: an unnamed tributary to Sulphur Creek and two small side drainage channels (Figure 3-12). Within the project site, the unnamed tributary, is a small, approximately 6-foot-wide channel that flows west and is incised within steep banks. The stream exits a large concrete culvert with concrete slope protection as it passes under La Paz Road past the eastern end of the project area. A small drainage channel to the north of the unnamed tributary, has an active channel approximately 3 feet wide, is fed from a concrete outfall located at the eastern end, and drains to the unnamed tributary through a culvert on its western end. The second side drainage feature, located northwest of the unnamed tributary, is fed by two concrete outfall structures on its northern and western sides, and drains through a concrete culvert on the southern side to the unnamed tributary. In total, Site 12 supports 0.27 acre of wetland waters as well as 1.17 acre of CDFW riparian. Site 12 is dominated by black willow and blackberry (*Rubus ursinus*). The riparian canopy is mostly closed above the stream. No special-status species were detected during site surveys and none are expected to occur within this site.

## 2.2.13 Salt Creek Corridor Habitat Restoration Area (Site 13)

Site 13 includes Salt Creek Mainstem and six unnamed tributaries to Salt Creek. The portion of Salt Creek within Site 13 is a southward flowing perennial stream primarily fed by urban runoff from irrigation and support nine vegetation and land cover types (Table 1). It has a natural channel that runs between two large (greater than 20-foot-wide) concrete culverts that pass the stream under the Salt Creek Bike Trail and Niguel Road (Figures 3-13A through 3-13F). The channel is sharply incised with an approximately 4-foot drop separating the active channel from upland habitat. The six unnamed tributaries to Salt Creek Mainstem support ephemeral flows. The ephemeral channels are characterized as being steeply incised and dominated by upland grasses and coastal sage scrub species and in general lack hydrophytic vegetation. Site 13 supports 1.40 acres of non-wetland waters and 4.48 acres of wetland waters, as well as 9.88 acres of CDFW riparian and 2.43 acres of CDFW streambed (Table 2). Riparian vegetation within the Salt Creek Mainstem creates a mostly

closed canopy and is dominated by arroyo willow. The herbaceous layer of the wetland waters is dominated by cattails (*Typha domingensis*) and California bulrush (*Schoeneoplectus californicus*). Other native vegetation present outside of the OHWM includes goldenbush, salt grass, and alkali heath. Nonnative vegetation present at this site includes tree of heaven (*Ailanthus altissima*) and white sweetclover within the wetland waters, and bristly ox-tongue (*Helminthotheca echioides*) and European sea lavender (*Limonium duriusculum*) within upland habitat.

At the southern end of the reach, adjacent to the concrete culvert under Niguel Road, the channel widens at a large ponded area, and riparian vegetation is limited to cattails, without substantial canopy cover. One southwestern willow flycatcher was detected and two least Bell's vireo territories were identified during the 2016 focused surveys within Site 13 near (east of) the ball fields. The observed southwestern willow flycatcher is considered to be a migrant; there was only a single observation and indicating Site 13 supports suitable foraging and nesting habitat. Both least Bell's vireo territories were confirmed as paired with fledglings and were adjacent to one another.

**Table 1. Vegetation Communities and Land Cover Types**

| Vegetation Communities and Land Cover Types | West Alicia Wetland (Site 1) | East Alicia Wetland (Site 2) | North Alicia Wetland (Site 3) | Crown Valley Park Wetland Creation Area (Site 4) | Sulphur Creek Park Wetland Enhancement Area ( Site 5) | Sulphur Creek Wetland Creation Area (Site 6) | Rancho Niguel Upper Sulphur Creek (Site 7) | Crowne Royale Upper Sulphur Creek (Site 8) | Niguel Ridge Upper Sulphur Creek (Site 9) | USACE Sulphur Creek Restoration Project (Site 10) | Sulphur Creek in Crown Valley Community Park (Site 11) | La Paz Park Wetlands (Site 12) | Salt Creek Corridor Habitat Restoration Area (Site 13) | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Riparian and Wetlands** | | | | | | | | | | | | | | |
| American bulrush marsh | 0.09 | 0.15 | – | – | – | – | – | – | – | – | – | – | – | 0.24 |
| Arroyo willow thickets | – | – | – | 1.57 | 1.44 | – | 3.50 | 2.14 | 1.22 | – | – | – | 2.15 | 12.03 |
| Black willow thickets | 1.83 | – | 0.60 | – | – | – | 6.19 | – | – | 1.56 | 0.83 | 0.82 | 6.94 | 18.78 |
| California bulrush marsh | – | -- | – | 0.18 | – | – | – | 0.59 | 0.04 | – | – | – | – | 0.81 |
| California sycamore woodlands | 1.84 | 0.47 | – | – | – | – | – | – | – | – | – | 0.22 | – | 2.53 |
| Cattail marshes | 0.27 | – | – | – | – | – | 0.88 | – | – | – | – | – | 3.15 | 4.31 |
| Fremont cottonwood forest | – | – | – | 0.47 | – | 0.20 | – | – | – | 3.05 | – | – | – | 3.71 |
| Mule's fat thickets | – | – | – | – | – | 0.23 | – | – | – | – | – | 0.10 | – | 0.34 |
| Salt grass flats | 0.30 | – | – | – | – | – | – | – | – | – | – | – | – | 0.30 |
| Total Riparian and Wetlands | 4.33 | 0.62 | 0.60 | 2.22 | 1.44 | 0.43 | 10.57 | 2.73 | 1.26 | 4.61 | 0.83 | 1.15 | 12.24 | 43.04 |
| **Uplands** | | | | | | | | | | | | | | |
| California Annual Grassland | – | – | – | – | – | – | – | – | – | 0.24 | – | – | 33.44 | 33.68 |
| California brittle bush scrub | – | – | – | – | – | – | – | – | – | 0.38 | – | – | – | 0.38 |

| Vegetation Communities and Land Cover Types | West Alicia Wetland (Site 1) | East Alicia Wetland (Site 2) | North Alicia Wetland (Site 3) | Crown Valley Park Wetland Creation Area (Site 4) | Sulphur Creek Park Wetland Enhancement Area ( Site 5) | Sulphur Creek Wetland Creation Area (Site 6) | Rancho Niguel Upper Sulphur Creek (Site 7) | Crowne Royale Upper Sulphur Creek (Site 8) | Niguel Ridge Upper Sulphur Creek (Site 9) | USACE Sulphur Creek Restoration Project (Site 10) | Sulphur Creek in Crown Valley Community Park (Site 11) | La Paz Park Wetlands (Site 12) | Salt Creek Corridor Habitat Restoration Area (Site 13) | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| California sagebrush scrub | – | – | – | – | – | – | – | – | – | – | – | – | 17.13 | 17.13 |
| Coyote brush scrub | – | 0.59 | – | – | 0.86 | 0.28 | – | – | – | 1.77 | – | – | 0.53 | 4.03 |
| Eucalyptus groves | – | – | – | – | 0.10 | – | 0.42 | – | – | – | – | – | – | 0.53 |
| Lemonade berry scrub | – | – | – | – | – | – | – | – | – | – | – | – | 0.35 | 0.35 |
| Menzies's golden bush scrub | – | – | – | – | – | – | 3.14 | 0.38 | – | – | – | – | – | 3.52 |
| Pampas grass patches | – | – | – | – | – | – | – | – | – | – | – | – | 0.20 | 0.20 |
| Total Uplands | – | 0.59 | – | – | 0.96 | 0.28 | 3.56 | 0.38 | – | 2.38 | – | – | 51.65 | 59.81 |
| **Other Land Cover Types** | | | | | | | | | | | | | | |
| Disturbed habitat | – | – | – | – | – | – | – | – | – | 0.16 | – | – | 0.17 | 0.33 |
| Urban/Developed | 0.43 | 0.09 | | 1.95 | – | – | 2.24 | 0.64 | 0.94 | – | – | 0.05 | 0.59 | 6.92 |
| Total Other Land Cover Types | 0.43 | 0.09 | – | 1.95 | – | – | 2.24 | 0.64 | 0.94 | 0.16 | – | 0.05 | 0.75 | 7.25 |
| **Total** | **4.76** | **1.30** | **0.60** | **4.16** | **2.41** | **0.71** | **16.38** | **3.75** | **2.20** | **7.16** | **0.83** | **1.20** | **64.64** | **110.10** |

**Table 2. Waters of the U.S. and State within the Wetland Project Site**

| | | USACE/RWQCB | | CDFW | |
|---|---|---|---|---|---|
| **Feature** | **Linear Feet** | **Non-wetland Waters (Acres)** | **Wetland Waters (Acres)** | **Streambed (Acres)** | **Riparian (Acres)** |
| 1 – West Wetland | 2,734 | – | 1.965 | 0.017 | 4.885 |
| 2 – East Wetland | 636 | – | 0.395 | – | 1.028 |
| 3 – North Wetland | 326 | – | 0.253 | – | 0.635 |
| 4 – Crown Valley Park Wetland Creation Area/J03P01 | 1,940 | – | 1.075 | 00.489 | 3.352 |
| 5 – Sulphur Creek Park Wetland Enhancement Area | 790 | 0.018 | 0.558 | 0.044 | 1.343 |
| 6 – Sulphur Creek Creation Area at Crown Valley | 204 | – | 0.422 | – | –0.621 |
| 7 – Rancho Niguel Upper Sulphur Creek | 3,391 | 0.147 | 3.510 | 0.380 | 8.262 |
| 8 – Crown Royale Upper Sulphur Creek | 1,527 | 0.032 | 0.884 | 0.288 | 2.174 |
| 9 – Niguel Ridge Upper Sulphur Creek | 1,786 | 0.068 | 0.432 | 0.587 | 1.170 |
| 10 - USACE Sulphur Creek Restoration Area | 1,791 | – | 1.913 | 0.248 | 5.412 |
| 11 – Sulphur Creek in Crown Valley Park | 555 | – | 0.641 | – | 1.042 |
| 12 – La Paz Park Wetlands | 748 | – | 0.269 | – | 1.167 |
| 13. Salt Creek Restoration Area | 13,136 | 1.399 | 4.484 | 2.426 | 9.876 |
| **Total** | **29,564** | **1.664** | **16.802** | **4.478** | **40.962** |

# Chapter 3
# Project Description

The City plans to conduct routine O&M activities within 13 ~~City-owned~~ wetland sites located in the Sulphur Creek watershed; a portion of the Salt Creek Watershed, within Chapparosa Park; and in the new construction associated with the J03P01 channel within Crown Valley Regional Park (Figure 1 and Figure 2). The Project would include minor maintenance activities such as removing herbaceous vegetation and accumulated sediment around outfalls, risers, culverts, bridge crossings, establishing pilot channels to facilitate positive flow and maintain flood capacity (i.e., flowline maintenance), and trimming understory of riparian vegetation (i.e. below the tree canopy) to prevent obstruction of flow. This O&M Plan establishes objectives, describes specific operations and maintenance activities for each wetland site, identifies impacts, and identifies reporting requirements. In general, operations and maintenance activities will include the following.

1. Vegetation Maintenance – Storm drain outfalls, inlets, risers, and concrete or stone weirs will be cleared of all herbaceous vegetation. Additionally, a 3- to 30-foot radius surrounding the maintenance facility will be cleared, by hand or mechanized equipment, of herbaceous vegetation. Understory vegetation trimming may also be necessary to allow clearance for inspections and maintain hydraulic flow. Native plants and native vegetative detritus within wetland areas will be pruned, and trimmed, to alleviate encroachment of vegetation over or onto a public area such as a sidewalk or trail. Native vegetation may be removed only if determined to be a public safety hazard and will be limited to dying or unstable trees located near public sidewalks or trails. Damaged limbs occurring at locations where the public would be threatened if the limbs fall will be addressed, as will vegetative or detritus impediments to stream flow that could potentially cause flooding or seepage of water onto public areas. Combustible vegetative fuel buildup near fire-susceptible structures or developments will be managed, as well as vegetative blocking of signage visibility or access for County Vector Control or environmental research activities and encroachment into overhead utility lines or impeding required access to maintenance facilities, cleanouts, manholes or vaults. Debris from trimming of native vegetation will be cut and disposed of off-site.

2. Sediment Maintenance - Storm drain outfalls, inlets, risers, and concrete or stone weirs will be cleaned of accumulated sediment to maintain hydraulic flow. Where equipment access is available, equipment for sediment removal will include a mini-excavator, a bobcat loader, and a dewatering bin that will be used to stockpile the sediment. In areas where access is limited, hand tools (e.g. shovels and wheel barrels) will be used to remove accumulated sediment. Additionally, a 3- to 30-foot radius above and/or below the maintenance facilities will also be cleared of accumulated sediment. All sediment will be legally disposed of off-site.

3. Flowline Maintenance – Pilot low-flow channels will be maintained within 12 of the ~~City-owned~~ wetland sites (excludes Site 3. North Alicia Wetland) in order to maintain positive hydraulic flow. Pilot channels will be limited to 3 feet wide and run the length of the wetland site. Where equipment access is available, equipment for the establishment of the pilot channels will include a backhoe with extend-a-hoe, a vactor pump truck, and a dewatering bin. In areas where access is limited, hand tools (e.g. shovels and wheel barrels) will be used. The established pilot channels will be maintained (i.e., removal of herbaceous vegetation, accumulated vegetative

detritus, and sediment, tree/shrub understory trimming, trash and debris removal, and maintenance of access paths) on a biannual basis, typically in spring and fall.

4. Access Path Maintenance – All designated dirt paths for maintenance and vector control access will be maintained in a clean and safe condition. Access path maintenance includes pruning and trimming of adjacent and overhanging vegetation for a 6-foot vertical and 3-foot horizontal clearance, removal of any dead or damaged branches or limbs overhanging the access path, and path erosion repair. General tree pruning will be conducted on an as-needed basis and no more than once per year and with the intent of developing structurally sound trees with adequate vertical and horizontal clearance adjacent to public access ways. Tripping hazards such as rocks and exposed roots will be removed and holes will be filled with dirt or decomposed granite. No new access paths are proposed, only the maintenance of existing footpaths are proposed.
5. Nonnative Vegetation Removal - All nonnative vegetation will be removed and may require chemical application of herbicides in extreme circumstances. Only herbicides approved by the U.S. Environmental Protection Agency (EPA) as suitable near water sources, such as AquaMaster, would be used. All nonnative material will be cut and disposed of off-site. Nonnative vegetation removal will occur within the entirety of the wetland sites.
6. Trash and Debris Maintenance – All trash and debris will be removed by hand or by hand-held mechanized equipment from the entirety of the wetland sites and legally disposed of off-site. Trash and debris maintenance will occur quarterly in the wetland areas. Trash and debris removal in the wetland sites will be conducted once in spring, once in early fall prior to the first rain, and two times during the winter after significant rainstorms.
7. Rodent and Pest Control – Rodents and pests will be controlled only as necessary to limit excessive damage to native areas or adjacent ornamental landscaping. Rodents include gophers and ground squirrels and pests include but are not limited to, shot hole beetles, snails, sow bugs, aphids, caterpillars, etc., that could cause damage to any plants, shrubs, groundcover, trees, irrigation systems, facilities or cause erosion. All methods employed to perform rodent and pest control will conform to all federal, state and county environmental regulations. Only non-chemical practices are used for rodent control.

# Chapter 4
# Maintenance

This section describes the specific routine maintenance activities to be conducted at each of the 13 wetland/restoration sites. A Maintenance Facility Summary Table which describes the activities and impacts associated with each maintenance facility is provided in Appendix B.

## 4.1 Routine Maintenance

### 4.1.1 West Alicia Wetland (Site 1)

On a biannual (twice per year) basis all sediment and herbaceous vegetation will be removed from the all structures within Site 1 as shown in Figures 3-1A through 3-1F). In addition to the structures, a 3-foot-wide low flow channel would be maintained through Site 1 in order to maintain positive hydraulic flow. Finally, overhanging native vegetation will be trimmed on an as-needed basis to allow clearance for inspections and maintain hydraulic flow. Debris from trimming of native vegetation may be cut up and left in place (outside of jurisdictional waters) or disposed of offsite. The site in its entirety will be managed for nonnative vegetation and removal of nonnatives will occur on an as-needed basis. Access to the site will occur off of Alicia Parkway at the northern and southern most ends of the site.

### 4.1.2 East Alicia Wetland (Site 2)

On a biannual (twice per year) basis all sediment and herbaceous vegetation will be removed from all structures within Site 2 as shown in Figures 3-2A through 3-2B). Additionally, a 3-foot wide low flow channel will be maintained through Site 2 in order to maintain positive hydraulic flow. The low flow channel will be maintained on a biannual basis. Finally, overhanging native vegetation will be trimmed on an as-needed basis to allow clearance for inspections and maintain hydraulic flow. Debris from trimming of native vegetation may be cut up and left in place (outside of jurisdictional waters) or disposed of offsite. The site in its entirety will be managed for nonnative vegetation and removal of nonnatives will occur on an as-needed basis. Access to the site will occur off of Alicia Parkway, on the northern bank of Site 2.

### 4.1.3 North Alicia Wetland (Site 3)

On a biannual (twice per year) basis all sediment and herbaceous vegetation will be removed from the structures and wetland basins within Site 3 as shown on Figure 3-3. All sediment and vegetation within the six human-made retention basins and over-flow channels will be removed on a biannual basis to maintain positive hydraulic flow. All vegetation will be removed by hand or hand-held mechanized equipment and sediment will be removed via a mini-excavator and a bobcat loader. The site in its entirety will be managed for nonnative vegetation and removal of nonnatives will occur on an as-needed basis. Access to the site will occur off of Alicia Parkway, at the northern end of the site.

### 4.1.4 Crown Valley Park Wetland Creation Area/J03P01 (Site 4)

On a biannual (twice per year) basis all sediment and vegetation will be removed from all structures within Site 4 as shown in Figures 3-4A through 3-4C. Additionally, a3-foot-wide low flow channel upstream of Community Park Road Bridge will be maintained through the upper half of Site 4 and flow into the treatment wetland. Downstream of Community Park Road Bridge, the low flow channel will then be directed into the bioswales before flowing back into the mainstem of Sulphur Creek. Both the recently constructed treatment wetland and bioswales will be maintained to construction designs specifications to ensure proper function.

Overhanging native vegetation will be trimmed on an as-needed basis to allow clearance for inspections and maintain hydraulic flow. The site in its entirety will be managed for nonnative vegetation and removal of nonnatives will occur on an as-needed basis. There are two access points to Site 4. One occurs off of Crown Valley Parkway, near Structure 4A and runs north paralleling the site. The second access point is off of Community Park Road Bridge near Structure 4C and runs north paralleling the site.

### 4.1.5 Sulphur Creek Park Wetland Enhancement Area (Site 5)

On a biannual (twice per year) basis all sediment and vegetation will be removed from the structures within Site 5 as shown on Figure 3-5. A 3-foot-wide low flow channel would be maintained through Site 5 to maintain positive hydraulic flow. Finally, overhanging native vegetation will be trimmed on an as-needed basis to allow clearance for inspections. The site in its entirety will be managed for nonnative vegetation and removal of nonnatives will occur on an as-needed basis. Access to the site will occur from Crown Valley Parkway and Central Park Drive, near Structure 5A.

### 4.1.6 Sulphur Creek Wetland Creation Area (Site 6)

There are no structures within Site 6 that require routine maintenance, however a 3-foot-wide high flow channel will be maintained through this site to provide hydrology to this restored wetland area as shown on Figure 3-6. The high-flow channel will be maintained on a biannual basis. Overhanging native vegetation will be trimmed on an as-needed basis to allow clearance for inspections and maintain hydraulic flow through the wetland site. The site in its entirety will be managed for nonnative vegetation and removal of nonnatives will occur on an as-needed basis. Access to the site will occur from the footpath and bridge Structure 10C.

### 4.1.7 Rancho Niguel Upper Sulphur Creek (Site 7)

On a biannual (twice per year) basis all sediment and vegetation will be removed from all structures within Site 7 as shown in Figure 3-7A through 3-7G. A 3-foot-wide low-flow channel will be maintained through the site. Overhanging native vegetation will be trimmed on an as-needed basis to allow clearance for inspections and maintain hydraulic flow. The site in its entirety will be managed for nonnative vegetation and removal of nonnatives will occur on an as-needed basis. Access to the site will occur from two points. The southern and northern portions of Site 7 will be accessed from an improved trail off of Moulton Parkway, east of the intersection with Crown Valley Parkway.

### 4.1.8 Crowne Royale Upper Sulphur Creek (Site 8)

On a biannual (twice per year) basis all sediment and vegetation will be removed from all structures within Site 8 as shown on Figures 3-8A through 3-8B. A 3-foot-wide low flow channel will be maintained through Site 8.Overhanging native vegetation will be trimmed on an as-needed basis to allow clearance for inspections and maintain hydraulic flow. The site in its entirety will be managed for nonnative vegetation and removal of nonnatives will occur on an as-needed basis. Access to the site will be from the improved trail located to the east of Site 8.

### 4.1.9 Niguel Ridge Upper Sulphur Creek (Site 9)

On a biannual (twice per year) basis all sediment and vegetation will be removed from all structures within Site 9 as shown on Figures 3-9A through 3-9C. A 3-foot-wide low-flow channel will be maintained through the site. Overhanging native vegetation will be trimmed on an as-needed basis to allow clearance for inspections and maintain hydraulic flow. The site in its entirety will be managed for nonnative vegetation and removal of nonnatives will occur on an as-needed basis. Access to the site will be from an improved trail that runs parallel to and east of Site 9.

### 4.1.10 USACE Sulphur Creek Restoration Project (Site 10)

On a biannual (twice per year) basis all sediment and vegetation will be removed from all structures within Site 10 as shown in Figures 3-10A through 3-10D. A 3-foot-wide low flow channel maintained through the site. Overhanging native vegetation will be trimmed on an as-needed basis to allow clearance for inspections and to maintain hydraulic flow. The site in its entirety will be managed for nonnative vegetation and removal of nonnatives will occur on an as-needed basis. Access to Site 10 will occur from two points off of the improved trail located to the west of the site. The first is at the northernmost end of the site, near Structure 10A, and the second is near Structure 10B.

### 4.1.11 Sulphur Creek in Crown Valley Community Park (Site 11)

On a biannual (twice per year) basis all sediment and vegetation will be removed from all structures located within Site 11 as shown on Figures 3-11. A 3-foot-wide low flow channel will be maintained through the site as well as a 3-foot-wide high flow channel that flows into Site 6Overhanging native vegetation will be trimmed on an as-needed basis to allow clearance for inspections and maintain hydraulic flow. The site in its entirety will be managed for nonnative vegetation and removal of nonnatives will occur on an as-needed basis. Access to the site will occur near Structure 11A, where the improved trail intersects with Crown Valley Parkway.

### 4.1.12 La Paz Park Wetlands (Site 12)

On a biannual (twice per year) basis all sediment and vegetation will be removed from all structures located within Site 12 as shown on Figure 3-12. A 3-foot-wide low flow channel will be maintained through the site. Overhanging native vegetation will be trimmed on an as-needed basis to allow clearance for inspections and maintain hydraulic flow. The site in its entirety will be managed for nonnative vegetation and removal of nonnatives will occur on an as-needed basis. Access to the site

will be provided along an improved trail, around the south end of the baseball fields and off of La Paz Parkway.

### 4.1.13 Salt Creek Corridor Habitat Restoration Area (Site 13)

On a biannual (twice per year) basis all sediment and vegetation will be removed from all structures within Site 13 as shown on Figures 3-13A through 3-13F. Due to occupied least Bell's vireo habitat within the upstream portion of Salt Creek (Figures 3-13-A and 3-13B) native tree trimming will be limited in this area and only when deemed necessary in order to maintain positive flows. Finally, a 3-foot-wide low flow channel will be maintained through the site. Overhanging native vegetation will be trimmed on an as-needed basis to allow clearance for inspections and maintain hydraulic flow. The site in its entirety will be managed for nonnative vegetation and removal of nonnatives will occur on an as-needed basis. Access to the site will occur from the Salt Creek Bike Path, near Structures 13B and 13G.

# Chapter 5
# Impacts and Avoidance and Minimization Measures

## 5.1 Aquatic Resource Impacts

Implementation of flood control maintenance would result in recurring transitory effects on vegetation communities from sediment, debris, and vegetation removal. These effects would be short-lived and minor, but would occur routinely. These recurring transitory effect areas would be within USACE, RWQCB, and CDFW jurisdiction. Impacts on delineated aquatic resources would total 3.14 acres of waters of the U.S. (including 2.79 acres of wetland waters of the U.S.) subject to regulation by USACE and RWQCB and a total of 6.47 acres of CDFW jurisdiction (including 3.77 acres of riparian habitat)For the purposes of this impact analysis, all areas subject to routine maintenance are considered to be permanently impacted; however, the routine maintenance will not change the designation of the area as a waters of the U.S. or State. Table 3 details the impact acreage proposed for each of the 13 wetland sites included in this O&M Plan. For a detailed discussion of direct, indirect, and cumulative effects of routine maintenance activities covered under this O&M Plan on jurisdictional resources refer to Sections 5.3 and 5.4 of the Biological Technical Report (ICF 2017a).

**Table 3. Impacts on Waters of the U.S. and State within the Wetland Project Site**

| | USACE and RWQCB Jurisdiction | | CDFW Jurisdiction | |
|---|---|---|---|---|
| **Wetland Site** | **Non-wetland (acre)** | **Wetland (acre)** | **Streambed (acre)** | **Riparian (acre)** |
| 1 – West Alicia Wetland | – | 0.23 | 0.02 | 0.25 |
| 2 – East Alicia Wetland | – | 0.05 | – | 0.08 |
| 3 – North Alicia Wetland | – | 0.27 | – | 0.27 |
| 4 – Crown Valley Park Wetland Creation Area/J03P01 | – | 0.28 | 0.47 | 0.79 |
| 5 – Sulphur Creek Park Wetland Enhancement Area | 0.02 | 0.10 | 0.04 | 0.11 |
| 6 – Sulphur Creek Creation Area at Crown Valley | – | 0.01 | – | 0.01 |
| 7 – Rancho Niguel Master Association Upper Sulphur Creek | 0.05 | 0.47 | 0.34 | 0.65 |
| 8 – Crown Royale Homeowners Association Upper Sulphur Creek | 0.03 | 0.15 | 0.29 | 0.21 |
| 9 – Niguel Ridge Homeowners Association Upper Sulphur Creek | 0.07 | 0.17 | 0.59 | 0.22 |
| 10 - USACE Restoration Area | – | 0.23 | 0.26 | 0.21 |
| 11 – Sulphur Creek in Crown Valley Park | – | 0.09 | – | 0.11 |
| 12 – La Paz Park Wetlands | – | 0.04 | – | 0.09 |
| 13 – Salt Creek Corridor Habitat Restoration Area | 0.17 | 0.70 | 0.69 | 0.77 |
| **Total** | **0.34** | **2.79** | **2.70** | **3.77** |

# 5.2 Avoidance and Minimization Measures

The following applicable avoidance and minimization measures as described in the BTR will be instituted, when and where appropriate, during the maintenance activities to protect habitat and water quality.

MM-BIO-4. Access routes for maintenance activities associated with vegetation clearing, trimming, or sediment removal shall be confined to existing footpaths and access paths and shall be confined to the minimal amount of area necessary for maintenance activities and safe, reliable work. Development of new footpaths and access paths shall be limited to the maximum extent possible. All staging areas and footpaths and access paths shall be clearly delineated in the final plans.

MM-BIO-5. General tree pruning shall be conducted not more often than once per year between November and December and with the intent of developing structurally sound trees with adequate vertical and horizontal clearance adjacent to public access ways. Access path maintenance shall include pruning and trimming of adjacent and overhanging vegetation for a 6-foot vertical and 3-foot horizontal clearance, removal of any dead or damaged branches or limbs overhanging the access path, and path erosion repair.

MM-BIO-6. A Worker Environmental Awareness Plan shall be developed and implemented prior to the start of O&M activities.

MM-BIO-7. Environmental training shall be led annually by the qualified biologist(s) and will cover the sensitive resources found onsite, flagging/fencing of exclusion areas, permit requirements, and other environmental issues. All personnel overseeing maintenance activities within the wetland and riparian habitat shall receive instruction prior to initiation of maintenance activities, as to the sensitivity of the work environment and the limitation of activities outlined herein. The conditions of the regulatory permits and this supplemental information shall be reviewed by all personnel overseeing in these maintenance activities at a minimum of once per year.

MM-BIO-8. All personnel shall be prohibited from bringing domestic pets and firearms to the site.

MM-BIO-9. All maintenance activities associated with vegetation clearing, trimming, or sediment removal shall not be conducted during heavy rains to prevent unnecessary erosion, runoff, and sedimentation, and will not resume until conditions are suitable for the movement of equipment and materials.

MM-BIO-10. Daytime vehicle speeds shall be restricted to posted speed limits on existing paved roads and to 15 miles per hour on dirt access roads during the all phases of the Project.

MM-BIO-11. Trash and debris removal in the wetland areas shall be conducted quarterly. All trash and debris shall be removed by hand or by handheld mechanized equipment from the wetland sites and legally disposed of offsite.

MM-BIO-12. Rodents and pests will be controlled as necessary to limit excessive damage to native areas or adjacent ornamental landscaping. For rodents: Only non-chemical practices will be used for rodent control which incorporate Integrated Pest Management protocols such habitat reduction, exclusion, food reduction, trapping, and similar type methods. For shot hole beetles: The City proactively removes any infected trees that have the potential to conflict with pedestrians and vehicles, as well as down limbs that are determined to be a problem with clogging streambeds. The goal is to reduce the risk of harm from falling trees and limbs, as well as reduce the spread of shot

hole beetles. The City's website provides information to residents and contractors for the control of shot hole beetles. The website has a link to the University of California, Riverside's Eskalen Lab. City staff and contractors continually examine City-owned trees to assess their viability. ~~Rodents and pests shall be controlled as necessary to limit excessive damage to native areas or adjacent ornamental landscaping. Rodents include gophers and ground squirrels and pests include but are not limited to, snails, sow bugs, aphids, caterpillars, etc., that could cause damage to any plants, shrubs, groundcover, trees, irrigation systems, facilities or cause erosion. All methods employed to perform rodent and pest control will conform to all federal, state and county environmental regulations.~~

MM-BIO-13. Necessary vegetation clearing and trimming shall occur primarily within the channel bottom and shall be limited to access paths along bank slopes to prevent the potential for erosion problems or trails.

MM-BIO-14: All maintenance activities associated with vegetation clearing, trimming, or sediment removal shall be conducted during nonbreeding season (typically September 15 through February 15) for avian species protected under the Migratory Bird Treaty Act. If maintenance activities must occur during the breeding season, then compliance with MM-BIO-18 would be required.

MM-BIO-15: When possible, the City shall use hand tools for manual vegetation clearing and sediment removal, and will only use heavy equipment when necessary.

MM-BIO-16. Vegetation clearing shall occur outside of the breeding seasons for habitat occupied by CAGN, LBV, SWFL, yellow warbler, and yellow-breasted chat and other avian species (e.g., CAGN, February 15 through August 15; LBV, March 15 through September 15). If vegetation clearing must occur during the CAGN, LBV or SWFL breeding season, a focused pre-activity nest survey shall be conducted work area and 300-foot buffer by the qualified biologist(s) during 3 separate visits (on separate days), with the final visit occurring not more than ~~a minimum of~~ 3 days prior to the start of O&M activities in any given area of the Project area. If no active nests are discovered, O&M activities may proceed. If active nests are observed that could be disturbed by O&M activities, these nests and a 300-foot buffer shall be avoided until the young have fledged and/or the monitor determines that no impacts are anticipated on the nesting birds or their young. The qualified biologist(s) shall be responsible for coordinating with USFWS and CDFW to determine if O&M activities could disturb an active nest and when nests are no longer active. If O&M activities ceases for 5 or more consecutive days during the nesting season, additional nesting bird surveys shall be required to ensure that new nesting locations have not been established.

MM-BIO-17. Noise monitoring shall be conducted if O&M activities are scheduled during the CAGN or LBV breeding season to determine if the O&M-related noise levels will exceed 60 A-weighted decibels (dBA) hourly equivalent sound level (Leq) within 300 feet of the noise source. If nesting CAGN or LBV are in the vicinity of the Project area and O&M activities are occurring during the breeding season, temporary noise attenuation barriers will be built to reduce O&M-related noise to below 60 dBA hourly Leq. The qualified biologist(s) will be responsible for ensuring that noise attenuation barriers are successful at reducing noise levels. Documentation of the noise monitoring results will be provided to USFWS, and CDFW within 45 days of completing the final noise monitoring event.

MM-BIO-18. Vegetation clearing will occur outside of the breeding season for other avian species protected under the Migratory Bird Treaty Act (e.g., February 15 through September 15). If vegetation clearing must occur during the general avian breeding season, a pre-activity nest survey

will be conducted within the O&M activity area and 300-foot buffer by the qualified biologist(s) 3 days prior to the start of O&M activities in any given area of the project area. If no active nests are discovered, maintenance activities may proceed. If active nests are observed that could be disturbed by maintenance activities, these nests and an appropriately sized buffer (typically a 300-foot buffer) will be avoided until the young have fledged and/or the monitor determines that no impacts are anticipated on the nesting birds or their young. If O&M activities ceases for 5 or more consecutive days during the nesting season, additional nesting bird surveys will be required to ensure that new nesting locations have not been established

MM-BIO-19. The established channels within jurisdictional waters shall be maintained (i.e., removal of vegetation, accumulated vegetative detritus, and sediment, tree/shrub trimming, trash and debris removal and maintenance of access paths) on a biannual basis, typically in spring and fall.

MM-BIO-20. Discharge of imported sediment into the wetland/riparian area shall not be permitted under any circumstances.

MM-BIO-21. All maintenance activities associated within in-water project activities (i.e., vegetation clearing or sediment removal) will be conducted outside of the steelhead juvenile migration window (March–May, or when habitat is inaccessible due to ephemeral flows or water temperatures exceed 25 degrees Centigrade).

MM-MIT-1. For unavoidable impacts on special-status species and any corresponding USFWS-designated Critical Habitats and sensitive vegetation communities, mitigation shall be provided by the following measures, in consultation with USFWS and CDFW: The preservation in perpetuity of all natural habitat areas within 11 of the wetland sites (excludes Sites 3 and 4, as Site 4 is a new mitigation site for Crown Valley Park Wetland Creation Area J03P01 [401 Certification: R9-2015-0098; 1602 Permit: 1600-2015-0098]) and therefore is already protected and Site 3 is a series of wetland treatment ponds that will be entirely maintained). A permanent protection mechanism (e.g. restrictive covenant) shall be placed upon the land and the City shall manage the land in perpetuity or transfer the land to an approved land manager. The City or subsequent land manager shall implement the O&M plan, managing and monitoring the 13 sites described herein to preserve the habitat, functions, and values in accordance with the goals identified in the O&M plan. The land manager shall be responsible for receiving any necessary permits to conduct long-term O&M activities identified in the plan. Activities to preserve the natural vegetation communities may include enhancement activities.

MM-MIT-2. Maintenance would not permanently remove habitat and would not change the designation of the area as a water of the U.S. or State. Mitigation for unavoidable impacts to the functions and services performed by the aquatic water resources jurisdictional to USACE, CDFW, or RWQCB shall be provided by the following measures, in consultation with USACE, CDFW, and/or RWQCB:

- The preservation in perpetuity of all natural habitat areas and streambeds within 11 of the wetland sites (excludes Sites 3 and 4, as Site 4 is a new mitigation site for Crown Valley Park Wetland Creation Area J03P01 [401 Certification: R9-2015-0098; 1602 Permit: 1600-2015-0098]) and therefore is already protected and Site 3 is a series of wetland treatment ponds that will be entirely maintained). A permanent protection mechanism (e.g., restrictive covenant) shall be placed upon the land and the City shall manage the land in perpetuity or transfer the land to an approved land manager. The City or subsequent land manager shall implement the O&M plan, managing and monitoring the wetland sites described herein to preserve the habitat,

functions, and values in accordance with the goals identified above. Activities to preserve the natural vegetation communities may include enhancement activities.

The rehabilitation and enhancement of up to 2.37 acres of wetland and riparian habitat located within Site 13. Salt Creek. The City shall preparing a Habitat Mitigation and Monitoring Plan (HMMP) to be submitted to the USACE, CDFW, and RWQCB for final approval. The HMMP will include the location and type of mitigation proposed as well as outline the maintenance and monitoring program proposed for the 5 Year maintenance and monitoring period. Maintenance areas would continue to provide most wetland functions at the current level; the maintenance work would restore the wetland sites' hydrology; habitat connectivity in the channel would be retained. Only a few functions, such as energy dissipation, nutrient cycling, particulate retention, and plant communities would be slightly degraded; other functions, including surface water storage and organic carbon export, would be improved. Minimization of maintenance needs would preserve vegetation to the extent feasible, maintain habitat connectivity, and improve habitat quality for sensitive species. After maintenance is performed, natural substrate and tree canopy cover would remain, and shrubby and herbaceous vegetation would recover and return; this would result in successional growth, which is advantageous for many species, including LBV (for the case of Site 13).

# Chapter 6
# Notification and Reporting

## 6.1 Maintenance Activity Notification

The City will submit a pre-maintenance notification to the resource agencies annually, detailing the current status of the wetland sites and the maintenance in accordance with this O&M Plan to be undertaken during the following maintenance year. The notification will also include the anticipated schedule and dates for work at each wetland site proposed for maintenance, minimization measures to be implemented, and biological monitor information.

## 6.2 Post-Maintenance Summary Report

At the end of the maintenance year (i.e., June 30), a post-maintenance summary will be prepared and submitted to the agencies documenting the activities and actual acreage of impacts that occurred under this O&M Plan for the year. A post-maintenance letter report will be provided 60 days after the conclusion of the maintenance year by the biological monitor and will substantially follow the form provided in Appendix C. The report will include dates of work, minimization measures implemented, incidental wildlife observations, any issues or concerns that need short- and/or long-term attention (e.g., weed control, sediment removal, vector control), any adaptive management or changes in the maintenance and monitoring program that appear warranted based on monitoring results to date, and before and after photographs. The report details and timing may be modified during the permitting process by the USACE, RWQCB, and/or CDFW.

# Chapter 7
# **Conclusion**

This O&M Plan is a systematic plan for continued flood channel maintenance within the 13 wetland sites that not only achieves successful flood control protection, but ensures sustainability of existing aquatic resources and downstream water quality are being met. This O&M Plan provides background information, the project description, a description of flood control maintenance activities within each wetland site, and monitoring requirements. The preventative maintenance detailed in this document defines a strategy that would help lessen the need to implement drastic maintenance actions, such as mass clearing and removal of sediment and vegetation under emergency situations, and prevent damage to public infrastructure such as bridges and roads. By limiting actions to the minimum necessary to maintain positive hydraulic flows through the wetland sites, the overall impact on the biological and ecological integrity of the watershed would be minimized while meeting the flood control and safety needs of the City.

# Chapter 8
# **References**

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———. 2017b. Jurisdictional Delineation Report: Laguna Niguel Wetlands Operation and Maintenance Activities Project, Laguna Niguel, CA. June.

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———. 2015b. *National Hydric Soils List*. Available: <http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/>. Accessed: July 2016.

Appendix A

# Figures

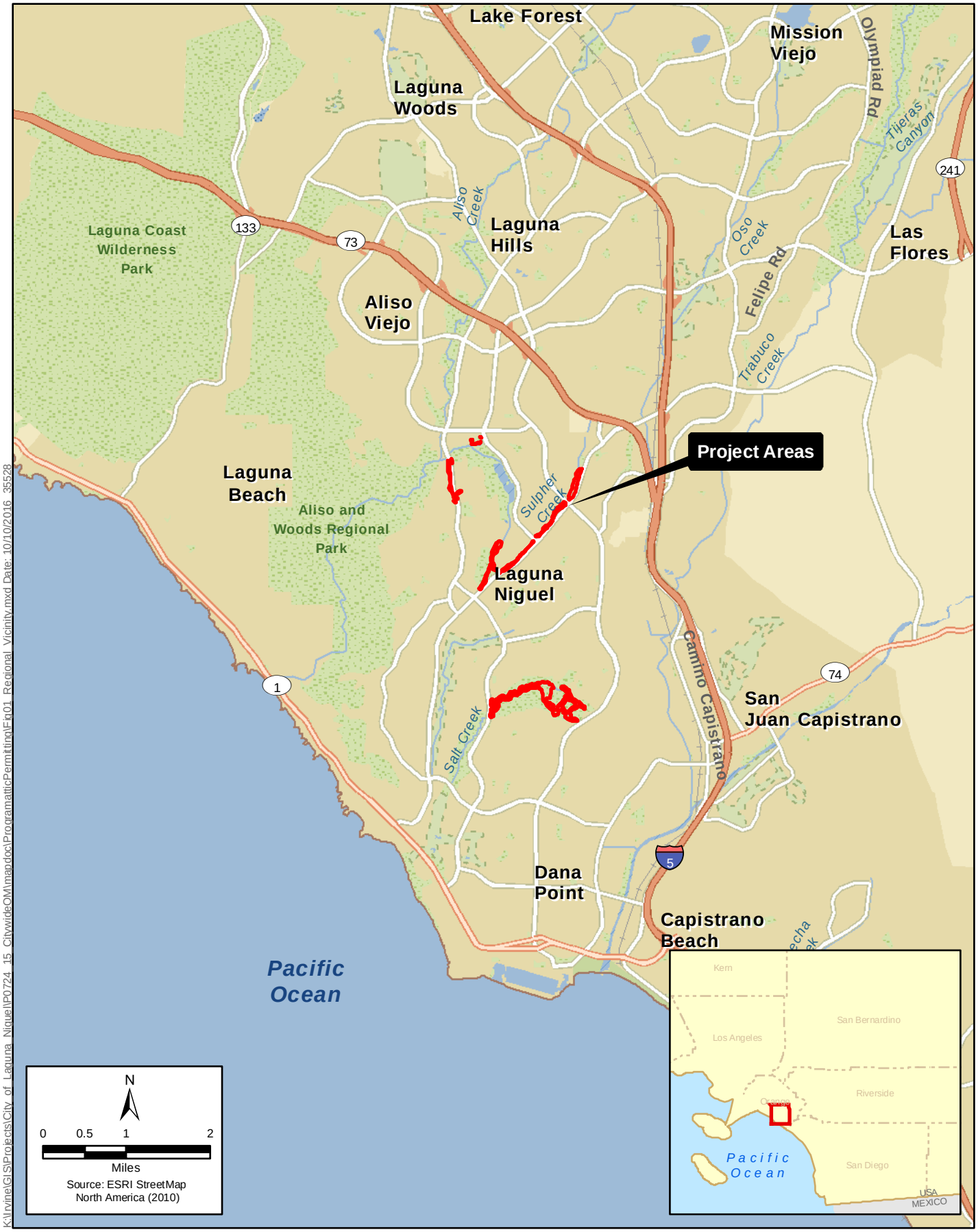
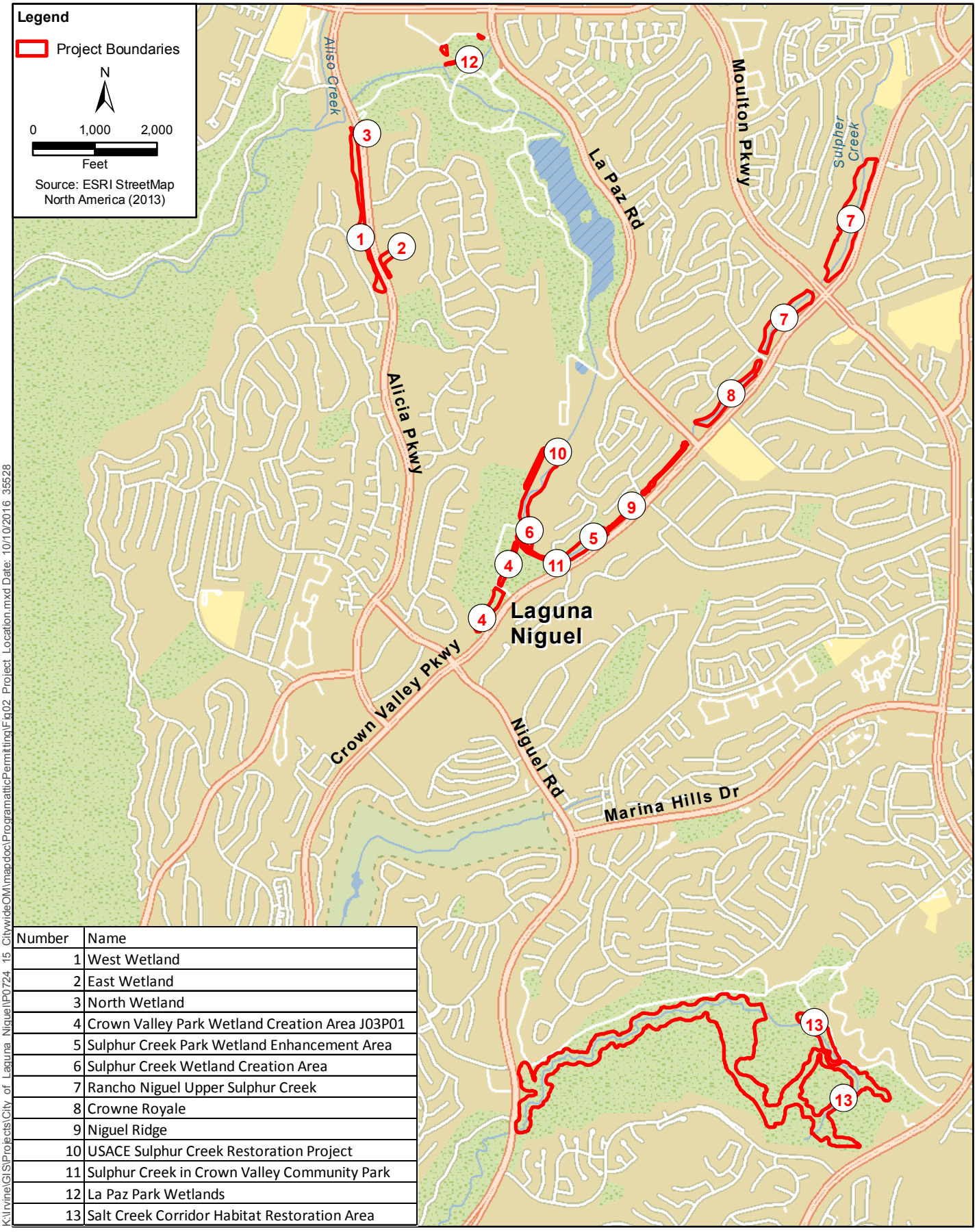



**Figure 1**
**Vicinity Map**
**City of Laguna Niguel Programmatic Permitting**




| Number | Name |
|---|---|
| 1 | West Wetland |
| 2 | East Wetland |
| 3 | North Wetland |
| 4 | Crown Valley Park Wetland Creation Area J03P01 |
| 5 | Sulphur Creek Park Wetland Enhancement Area |
| 6 | Sulphur Creek Wetland Creation Area |
| 7 | Rancho Niguel Upper Sulphur Creek |
| 8 | Crowne Royale |
| 9 | Niguel Ridge |
| 10 | USACE Sulphur Creek Restoration Project |
| 11 | Sulphur Creek in Crown Valley Community Park |
| 12 | La Paz Park Wetlands |
| 13 | Salt Creek Corridor Habitat Restoration Area |

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**Figure 2**
**Project Location**
**City of Laguna Niguel Programmatic Permitting**




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**Figure 3-1 Overview**
**1. West Wetland**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

1A: Inlet
Vegetation clearing/removal
Sediment Removal Removal of noxious weeds
20 foot by 20 foot Area
USACE Impacts: 290 Square Feet
CDFW Impacts: 1038 Square Feet

1B: Low-Flow Channel
Sediment Removal
Cattail/Freshwater Marsh Removal
3 feet wide
USACE Impacts: 7412 Square Feet
CDFW Impacts: 7412 Square Feet

1. West Wetland

Alicia Pkwy

Alicia Pkwy

Aliso & Wood Canyons Park

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Feet
1 inch = 50 feet

**Figure 3-1A**
**1. West Wetland**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

1. West Wetland

Aliso & Wood Canyons Park

1I: Weir- Pool Complex
Sediment Removal
Vegetation clearing/removal

Within serviceable structure plus 10ft x 15ft pool
USACE Impacts: 303 Square Feet
CDFW Impacts: 303 Square Feet

1J: Weir- Pool Complex
Sediment Removal
Vegetation clearing/removal
Within serviceable structure plus 10ft x 15ft pool
USACE Impacts: 300 Square Feet
CDFW Impacts: 300 Square Feet

Alicia Pkwy

Alicia Pkwy

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Feet
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**Figure 3-1B**
**1. West Wetland**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

1C: Concrete V-ditch Outlet
Sediment Removal
Vegetation clearing/removal

3 foot radius
USACE Impacts: 8 Square Feet
CDFW Impacts: 28 Square Feet

1K: Concrete V-ditch Outlet
Sediment Removal
Vegetation clearing/removal

3 foot radius
USACE Impacts: 7 Square Feet
CDFW Impacts: 7 Square Feet

1L: Berm
Sediment Removal
Vegetation clearing/removal

Within serviceable structure
USACE Impacts: 48 Square Feet
CDFW Impacts: 48 Square Feet

1M: Berm
Sediment Removal
Vegetation clearing/removal

Within serviceable structure
USACE Impacts: 53 Square Feet
CDFW Impacts: 53 Square Feet

1. West Wetland

kwy

Alicia Pkwy

Shrike Dr

Hill Dr N

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Feet
1 inch = 50 feet

**Figure 3-1C**
**1. West Wetland**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

1D: Concrete V-ditch Outlet
Sediment Removal
Vegetation clearing/removal

3 foot radius
USACE Impacts: 20 Square Feet
CDFW Impacts: 28 Square Feet

1N: Weir- Pool Complex
Sediment Removal
Vegetation clearing/removal

Within serviceable structure plus 10ft x 15ft pool
USACE Impacts: 300 Square Feet
CDFW Impacts: 300 Square Feet

1O: Weir- Pool Complex
Sediment Removal
Vegetation clearing/removal

Within serviceable structure plus 10ft x 15ft pool
USACE Impacts: 300 Square Feet
CDFW Impacts: 300 Square Feet

1. West Wetland

Alicia Pkwy

Brant L

Sean

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**Figure 3-1D**
**1. West Wetland**
**City of Laguna Niguel Programmatic Permitting**

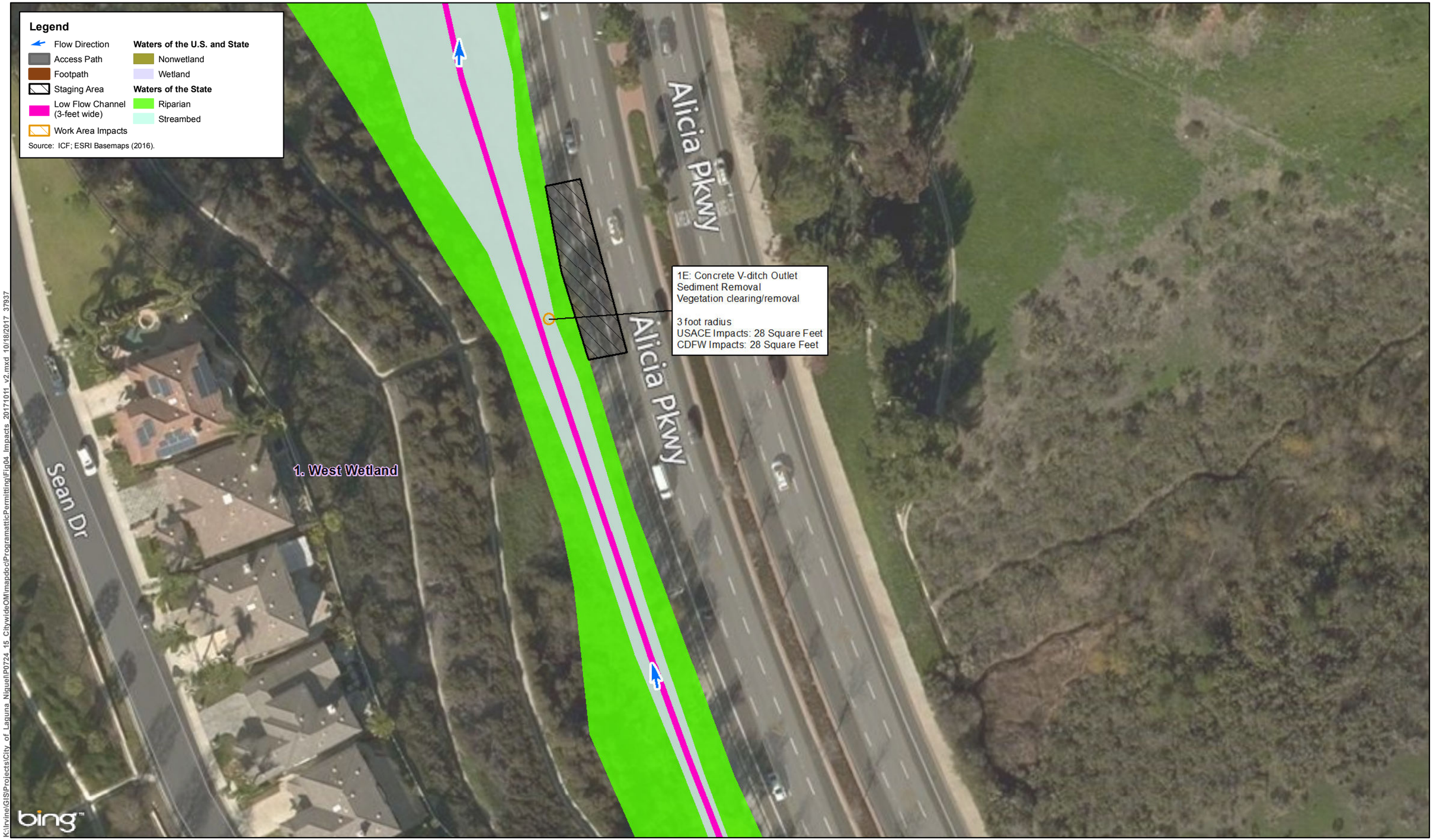


**Figure 3-1E**
**1. West Wetland**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

1F: Concrete V-ditch Outlet
Sediment Removal
Vegetation clearing/removal

3 foot radius
USACE Impacts: 26 Square Feet
CDFW Impacts: 28 Square Feet

1G: Weir- Pool Complex
Sediment Removal
Vegetation clearing/removal

Within serviceable structure plus 10ft x 15ft pool
USACE Impacts: 300 Square Feet
CDFW Impacts: 300 Square Feet

1H: Outlet
Sediment Removal
Vegetation clearing/removal

20 foot radius
USACE Impacts: 673 Square Feet
CDFW Impacts: 1254 Square Feet

Sean Dr

Alicia Pkwy

1. West Wetland

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**Figure 3-1F**
**1. West Wetland**
**City of Laguna Niguel Programmatic Permitting**




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**Figure 3-2 Overview**
**2. East Wetland**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

2A: Outlet
Sediment Removal
Vegetation clearing/removal

3 foot radius above inlet
10 foot radius downstream of inlet
USACE Impacts: 290 Square Feet
CDFW Impacts: 558 Square Feet

2C: Outlet
Sediment Removal
Vegetation clearing/removal

10 foot radius
USACE Impacts: 0 Square Feet
CDFW Impacts: 314 Square Feet

2B: Low-Flow Channel
Sediment Removal
Cattail/Freshwater Marsh Removal
3 feet wide
USACE Impacts: 1828 Square Feet
CDFW Impacts: 1828 Square Feet

2E: Riser
Sediment Removal
Vegetation clearing/removal

10 foot radius
USACE Impacts: 45 Square Feet
CDFW Impacts: 314 Square Feet

2. East Wetland

Alicia

bing

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Feet
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**Figure 3-2A**
**2. East Wetland**
**City of Laguna Niguel Programmatic Permitting**

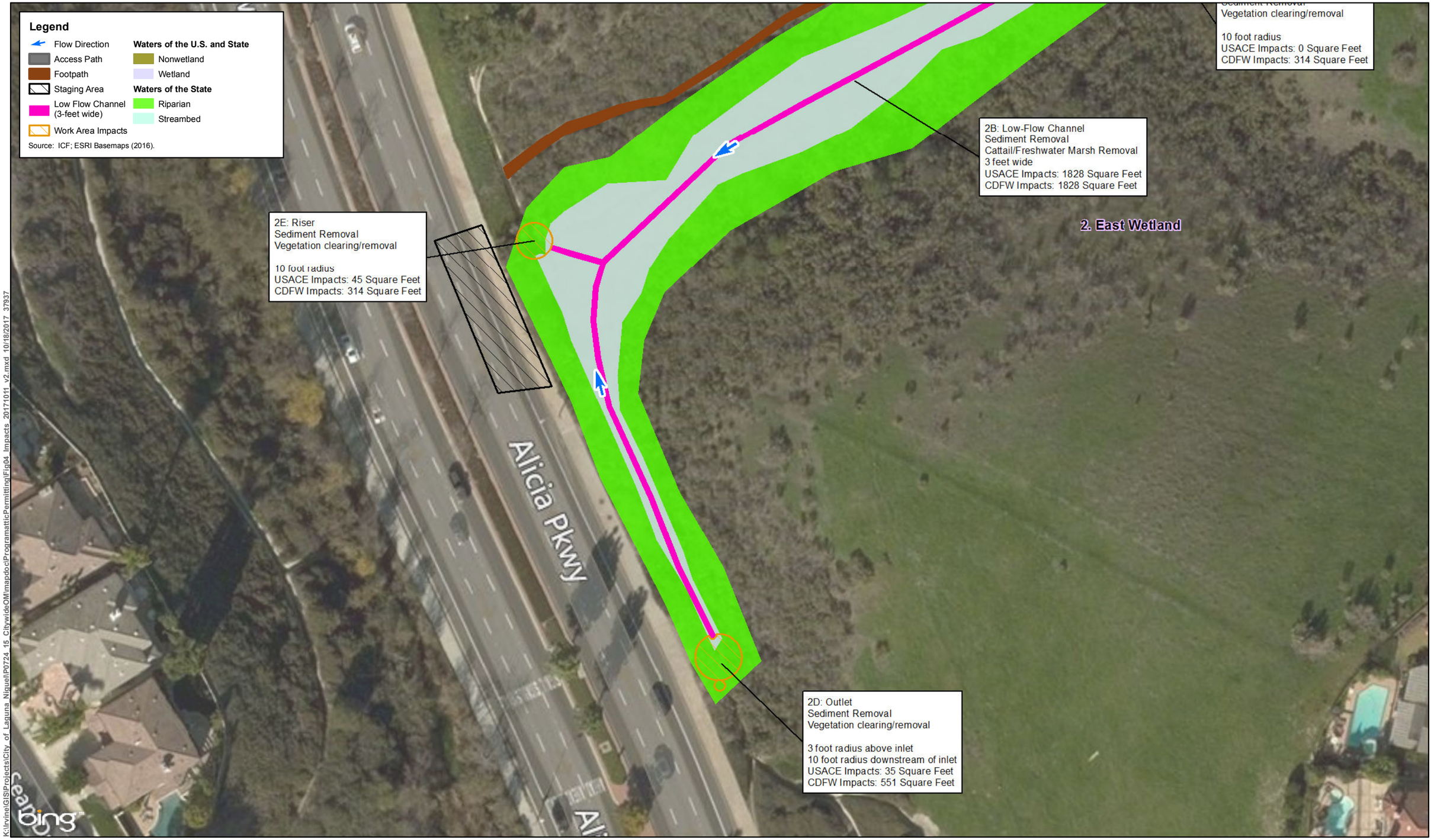


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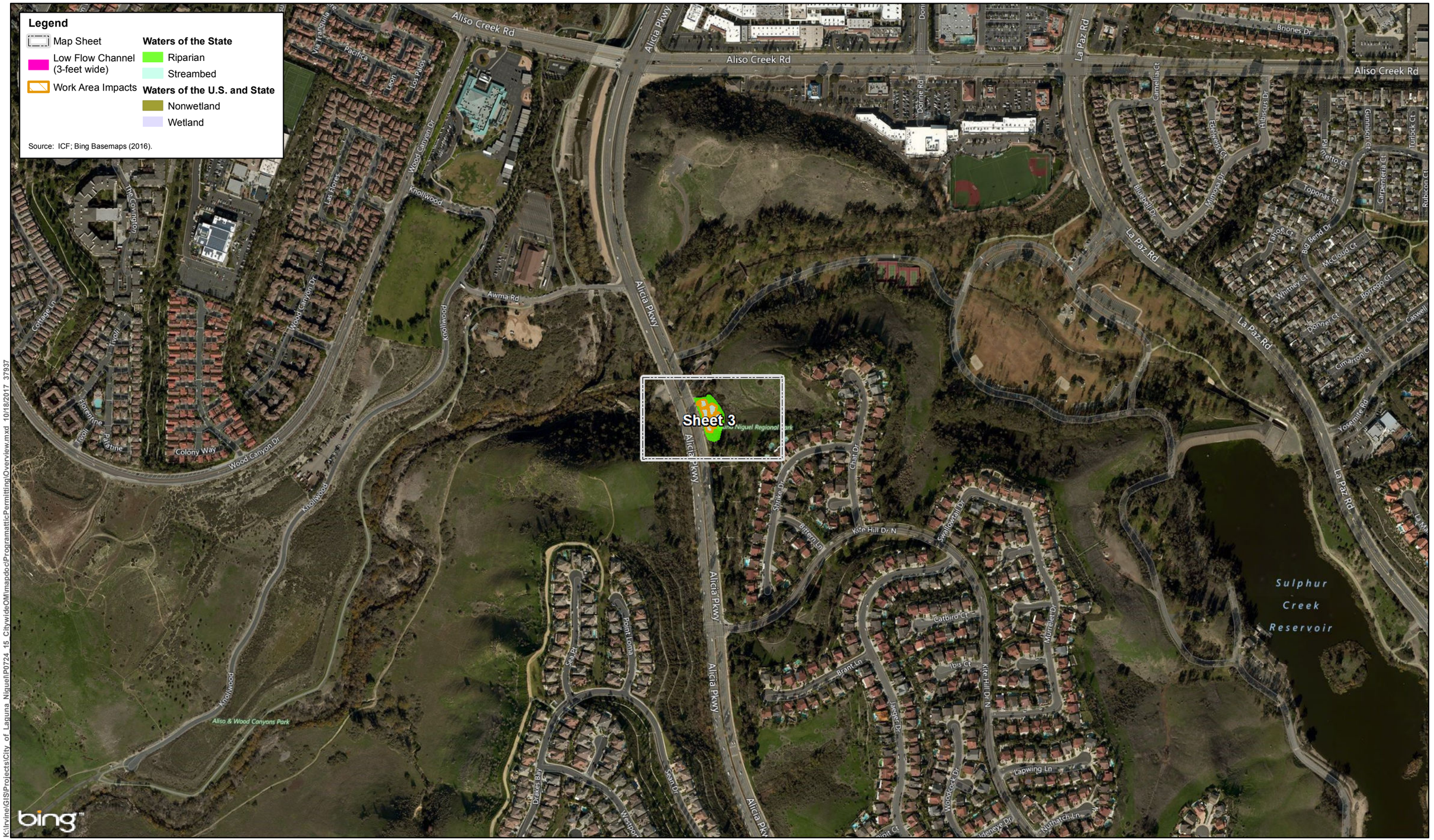
**Figure 3-2B**
**2. East Wetland**
**City of Laguna Niguel Programmatic Permitting**

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1 inch = 500 feet

**Figure 3-3 Overview**
**3. North Wetland**
**City of Laguna Niguel Programmatic Permitting**




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Feet
1 inch = 50 feet

**Figure 3-3**
**3. North Wetland**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Map Sheet
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the State**

- Riparian
- Streambed

**Waters of the U.S. and State**

- Nonwetland
- Wetland

Source: ICF; Bing Basemaps (2016).

Sheet 4A

Sheet 4B

Sheet 4C

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N

0 250 500

Feet

1 inch = 500 feet

**Figure 3-4 Overview**
**4. Crown Valley Park Wetland Creation Area J03P01**
**City of Laguna Niguel Programmatic Permitting**




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N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-4A**
**4. Crown Valley Park Wetland Creation Area J03P01**
**City of Laguna Niguel Programmatic Permitting**

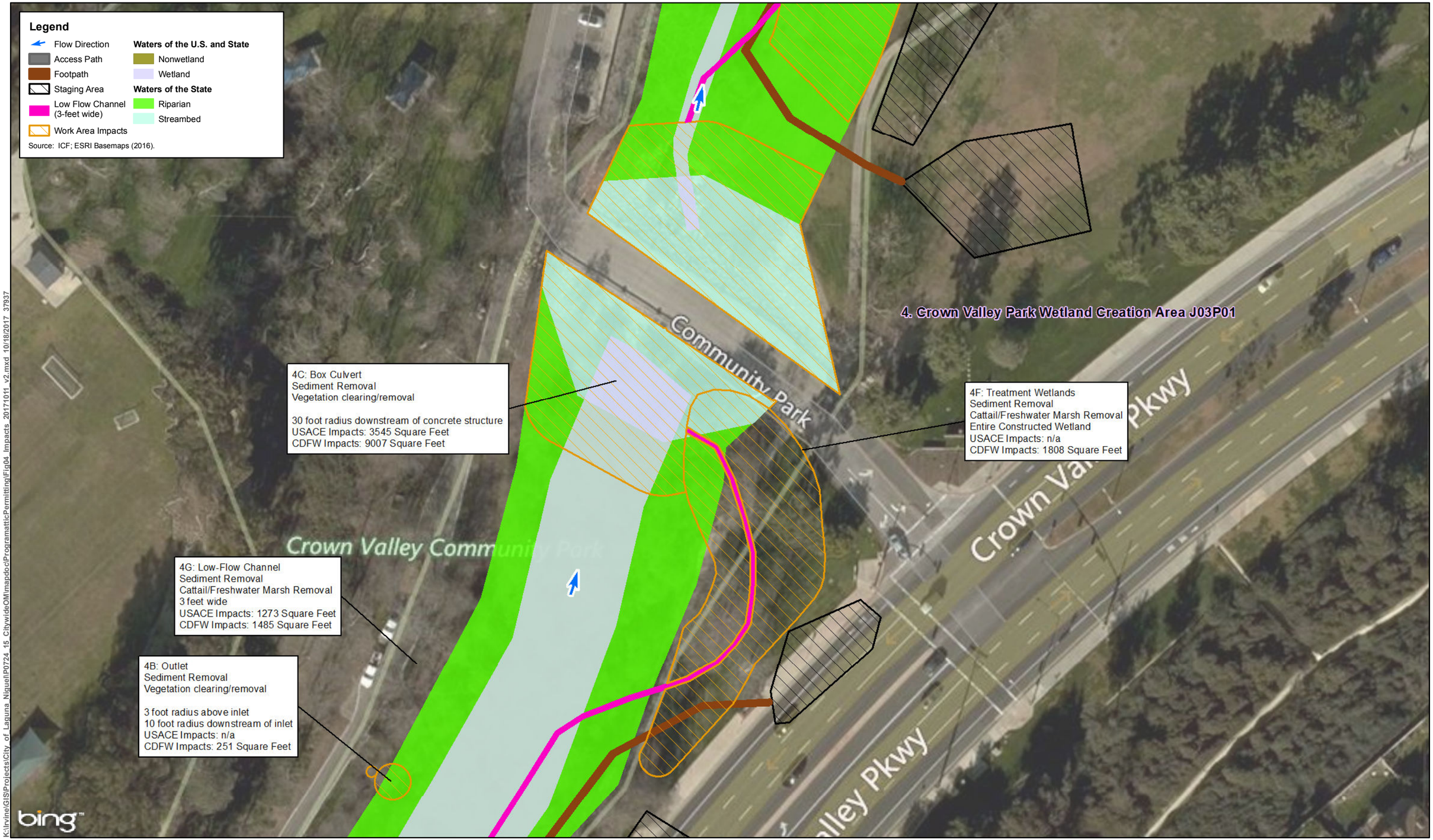


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**Figure 3-4B**
**4. Crown Valley Park Wetland Creation Area J03P01**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

4K: Outlet
Sediment Removal
3 feet wide
USACE Impacts: n/a
CDFW Impacts: 9 Square Feet

4A: Outlet
Sediment Removal
Vegetation clearing/removal
30 foot radius downstream of structure
USACE Impacts: 5617 Square Feet
CDFW Impacts: 12462 Square Feet

4. Crown Valley Park Wetland Creation Area J03P01

4I: Outlet
Sediment Removal
Vegetation clearing/removal
3 foot radius above inlet
10 foot radius downstream of inlet
USACE Impacts: n/a
CDFW Impacts: 207 Square Feet

Crown Valley Pkwy

bing™

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ICF

N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-4C**
**4. Crown Valley Park Wetland Creation Area J03P01**
**City of Laguna Niguel Programmatic Permitting**

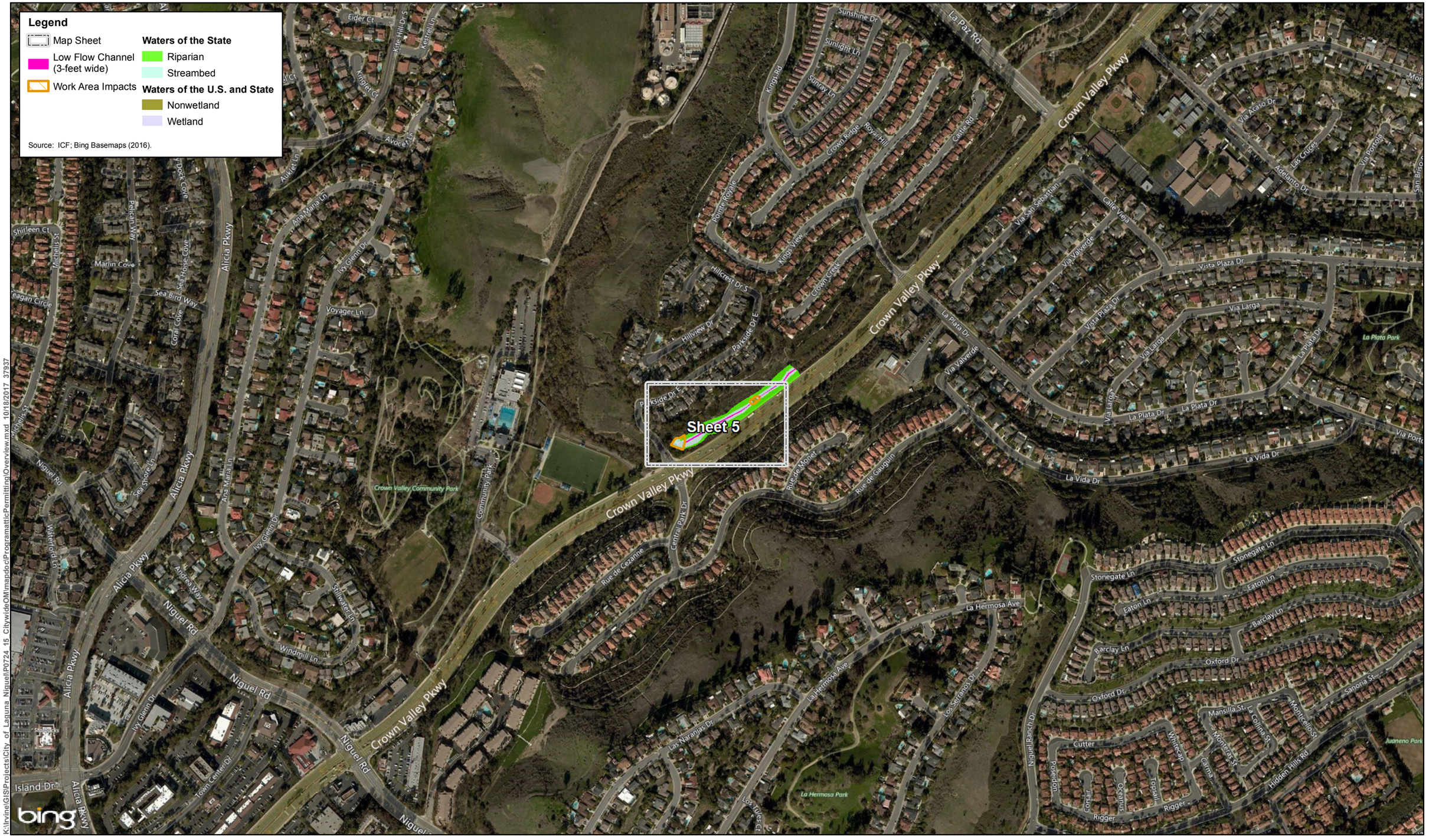


**Figure 3-5 Overview**
**5. Sulphur Creek Park Wetland Enhancement Area**
**City of Laguna Niguel Programmatic Permitting**

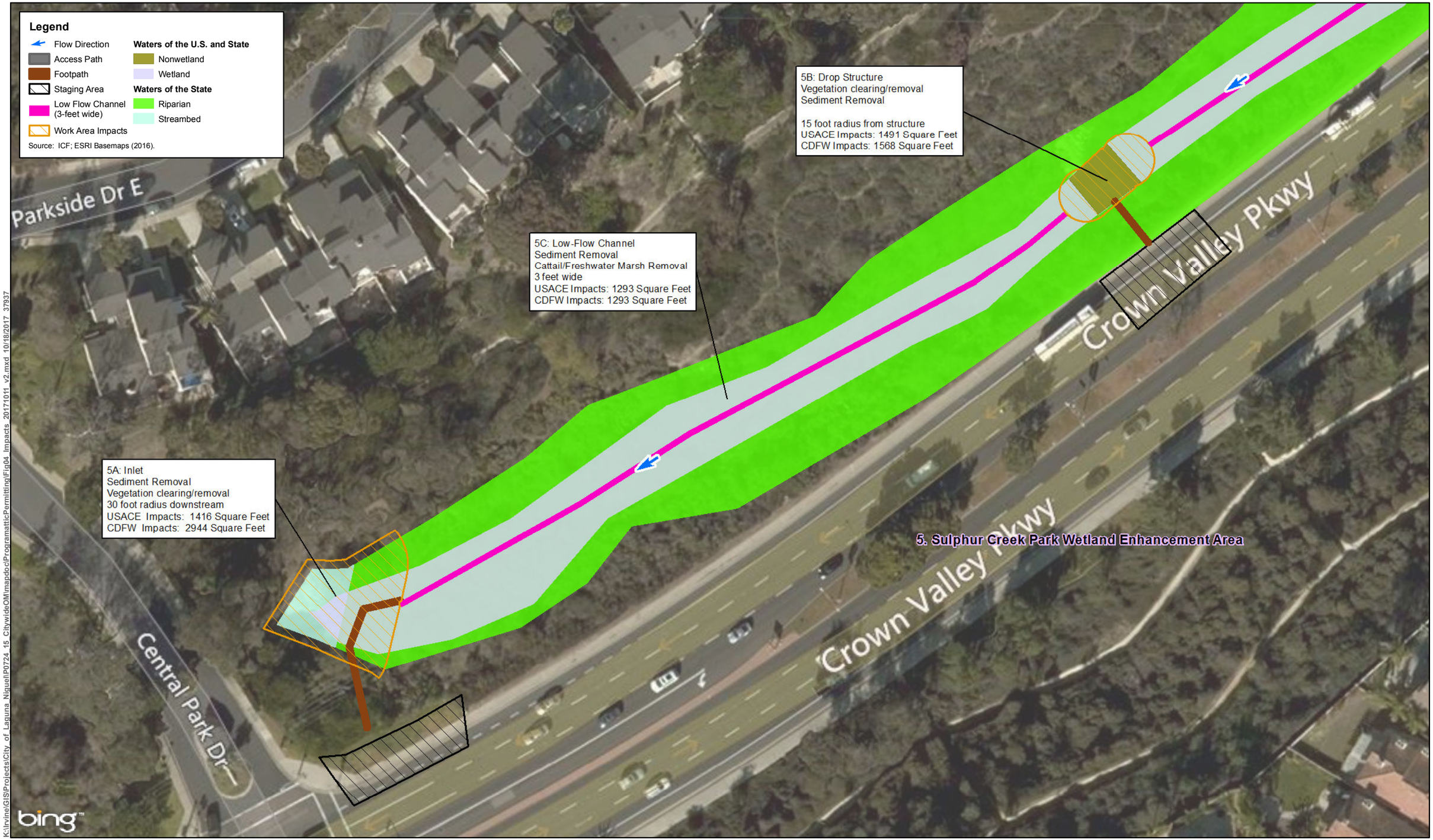


**Figure 3-5**
**5. Sulphur Creek Park Wetland Enhancement Area**
**City of Laguna Niguel Programmatic Permitting**

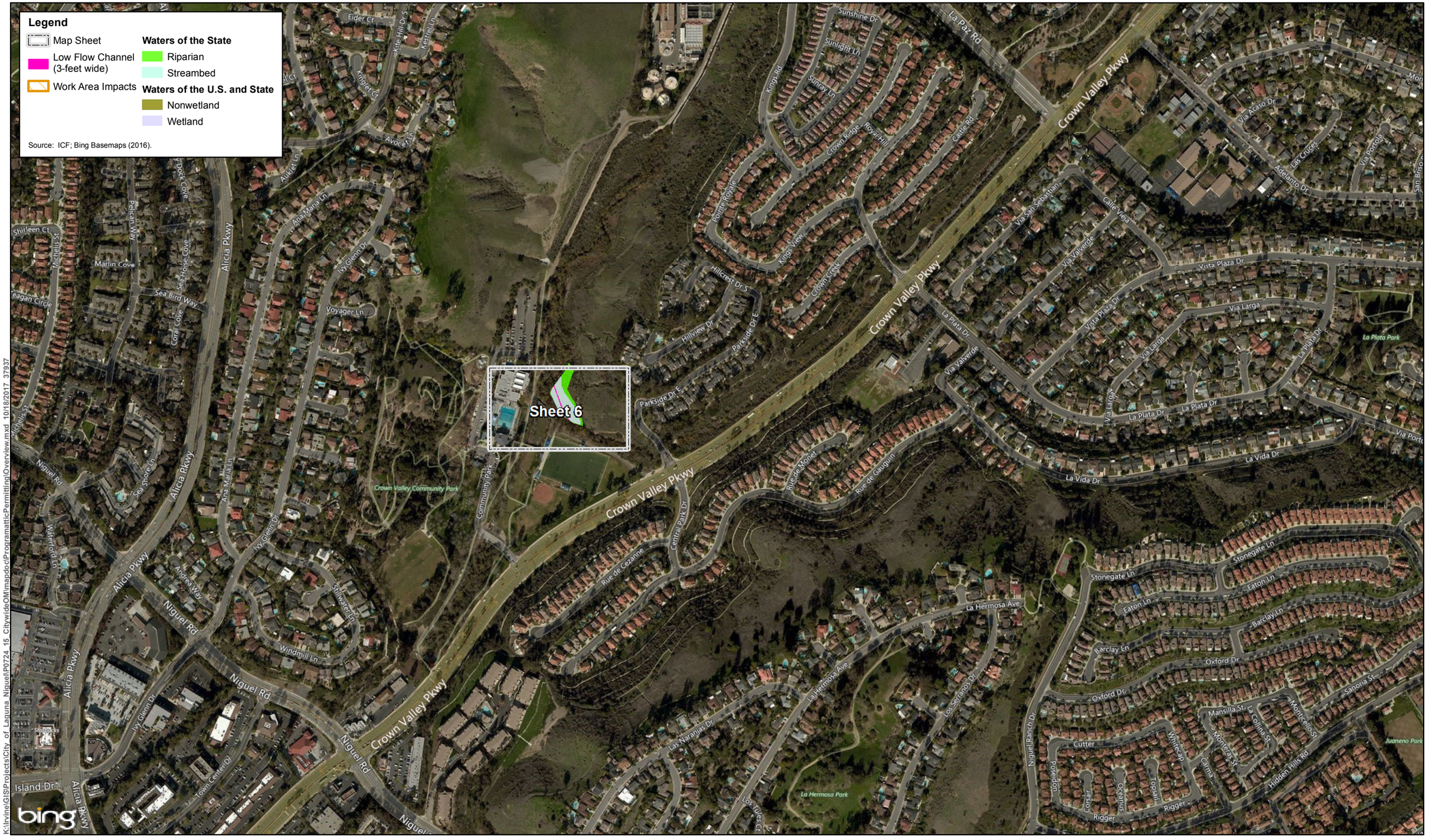


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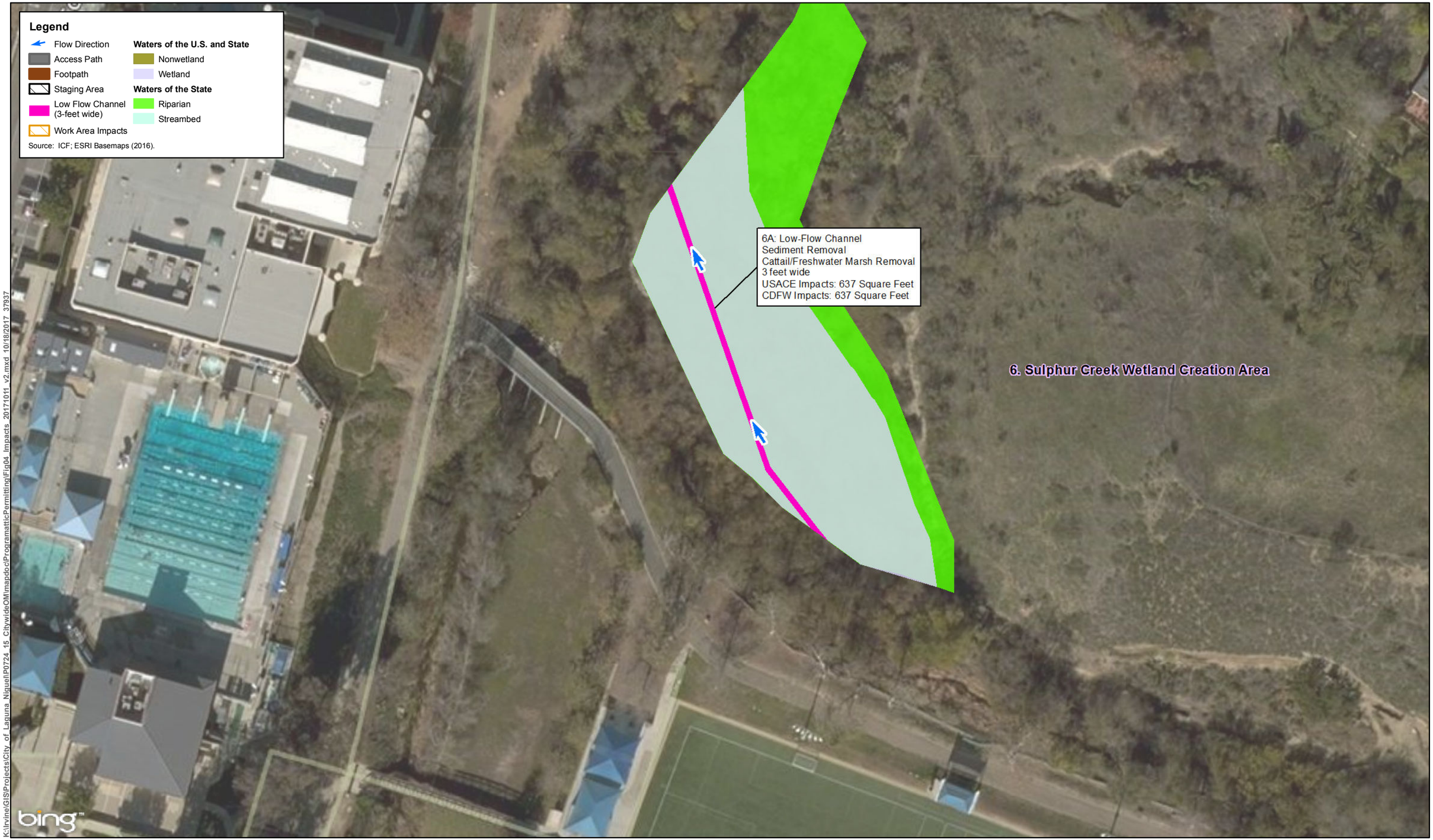
**Figure 3-6 Overview**
**6. Sulphur Creek Wetland Creation Area**
**City of Laguna Niguel Programmatic Permitting**

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N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-6**
**6. Sulphur Creek Wetland Creation Area**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Map Sheet
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the State**

- Riparian
- Streambed

**Waters of the U.S. and State**

- Nonwetland
- Wetland

Source: ICF; Bing Basemaps (2016).

Sheet 7A
Sheet 7B
Sheet 7C
Sheet 7D
Sheet 7E
Sheet 7F
Sheet 7G

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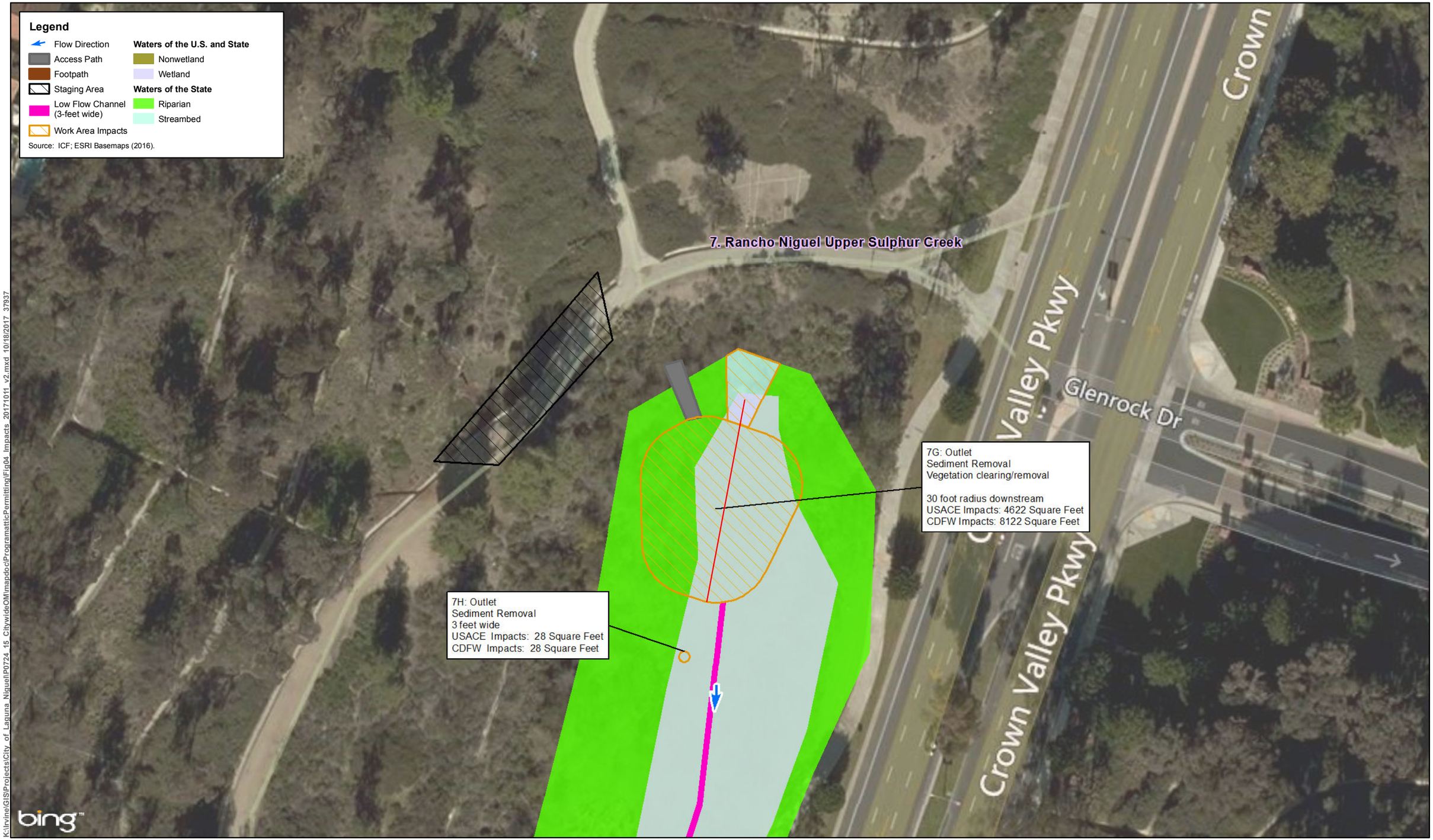
N

0 250 500
Feet
1 inch = 500 feet

**Figure 3-7 Overview**
**7. Rancho Niguel Upper Sulphur Creek**
**City of Laguna Niguel Programmatic Permitting**

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N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-7A**
**7. Rancho Niguel Upper Sulphur Creek**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

7L: Concrete V-ditch Outlet
Sediment Removal
3 feet wide
USACE Impacts: n/a
CDFW Impacts: n/a

Crown Valley Pkwy

Crown Valley Pkwy

bing

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N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-7B**
**7. Rancho Niguel Upper Sulphur Creek**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

7J: Concrete V-ditch Outlet
Sediment Removal
3 feet wide
USACE Impacts: n/a
CDFW Impacts: n/a

7B: Low-Flow Channel
Sediment Removal
Cattail/Freshwater Marsh Removal
3 feet wide
USACE Impacts: 5802 Square Feet
CDFW Impacts: 5802 Square Feet

Crown Valley Pkwy

Crown Valley Pkwy

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ICF

N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-7C**
**7. Rancho Niguel Upper Sulphur Creek**
**City of Laguna Niguel Programmatic Permitting**




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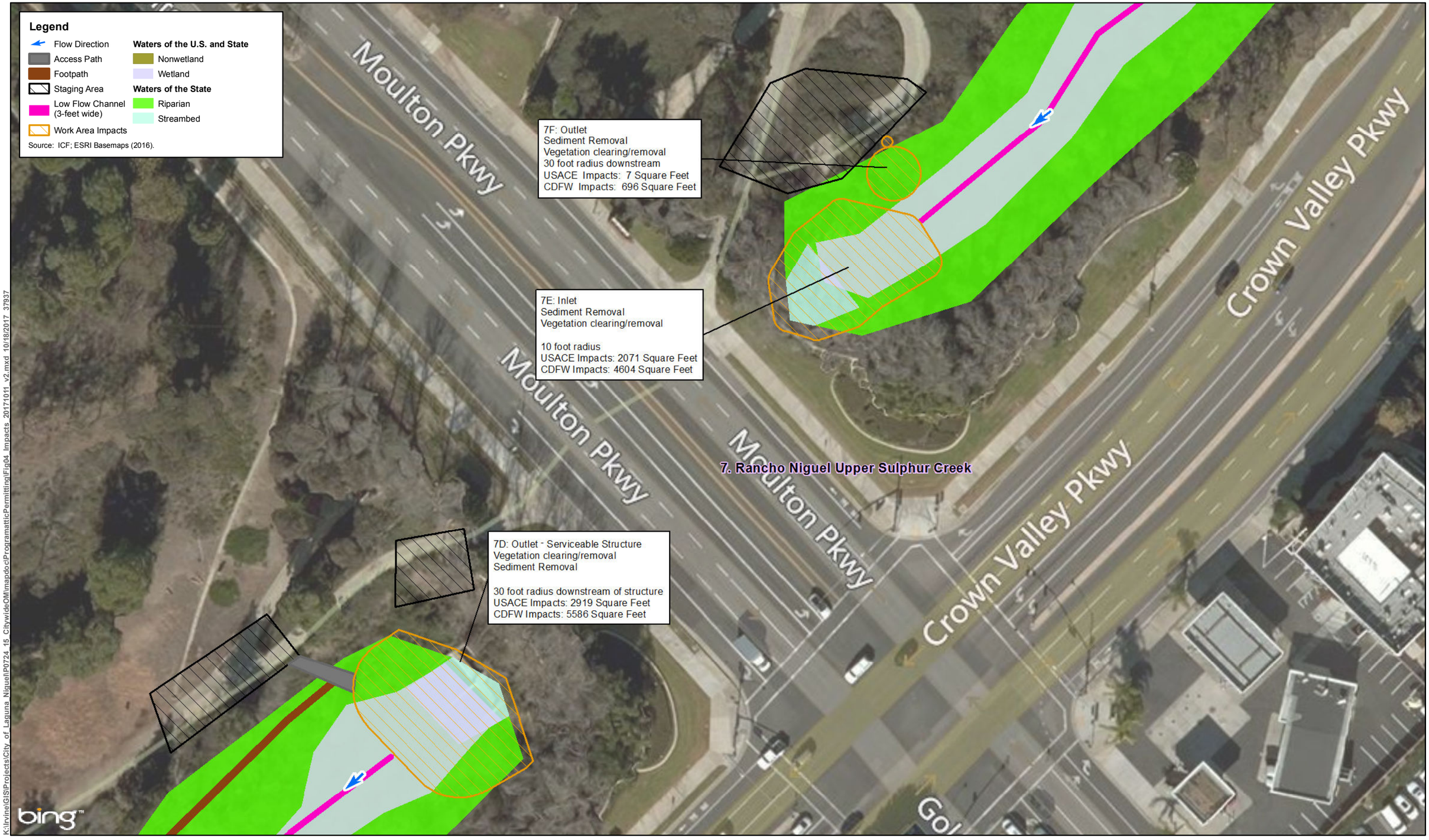
N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-7D**
**7. Rancho Niguel Upper Sulphur Creek**
**City of Laguna Niguel Programmatic Permitting**

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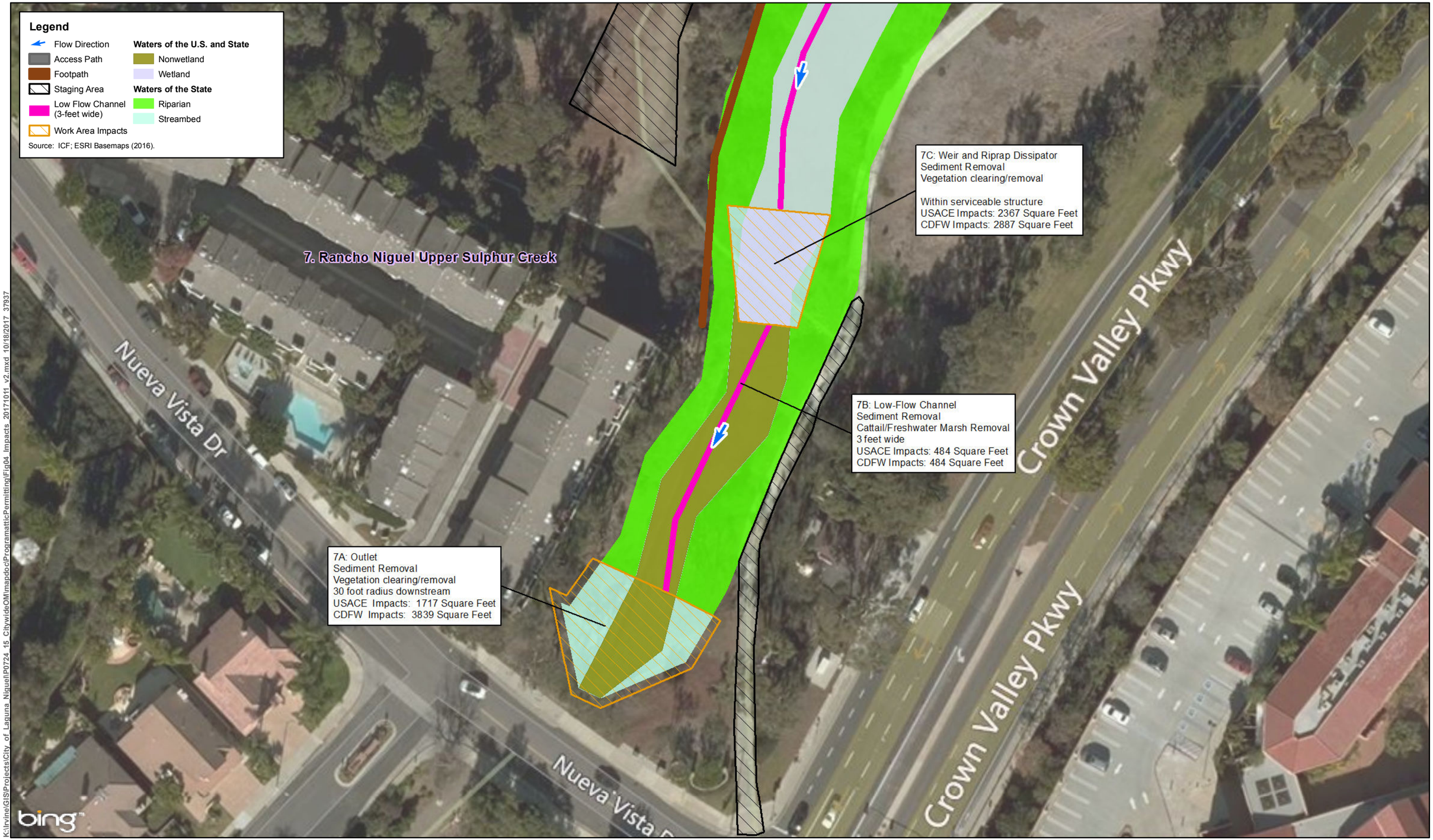
N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-7E**
**7. Rancho Niguel Upper Sulphur Creek**
**City of Laguna Niguel Programmatic Permitting**




**Figure 3-7F**
**7. Rancho Niguel Upper Sulphur Creek**
**City of Laguna Niguel Programmatic Permitting**




ICF

N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-7G**
**7. Rancho Niguel Upper Sulphur Creek**
**City of Laguna Niguel Programmatic Permitting**

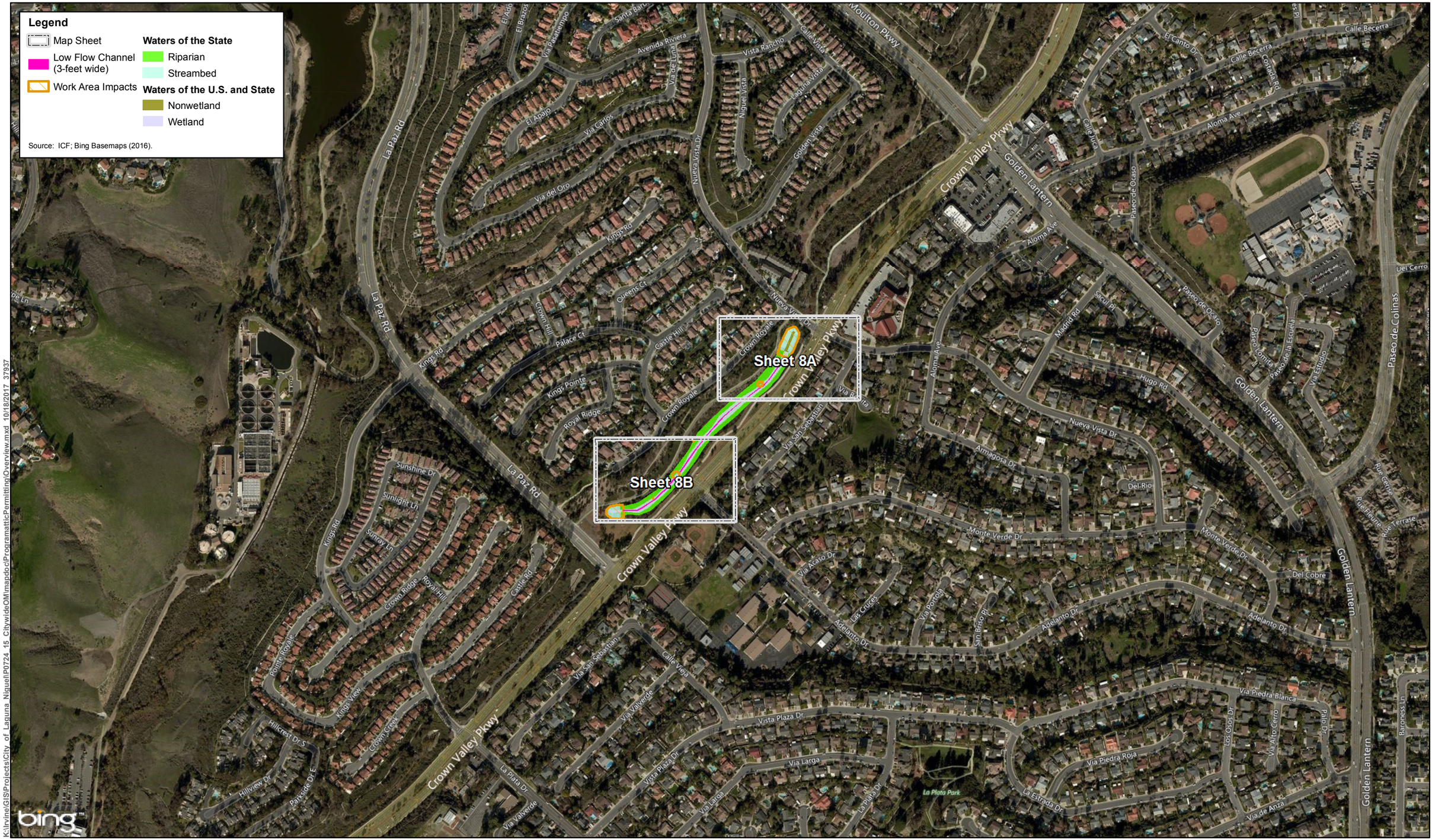



**Figure 3-8 Overview**
**8. Crowne Royale**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

8D: Outlet
Vegetation clearing/removal
Sediment Removal

30 foot radius downstream
USACE Impacts: 2161 Square Feet
CDFW Impacts: 10846 Square Feet

8E: Outlet
Vegetation clearing/removal
Sediment Removal

3 foot radius above
15 foot radius downstream
USACE Impacts: 300 Square Feet
CDFW Impacts: 735 Square Feet

Crown Royale

Nueva Vista Dr

Crown Valley Pkwy

Via San Sebastian

Via Bonita

**8. Crowne Royale**

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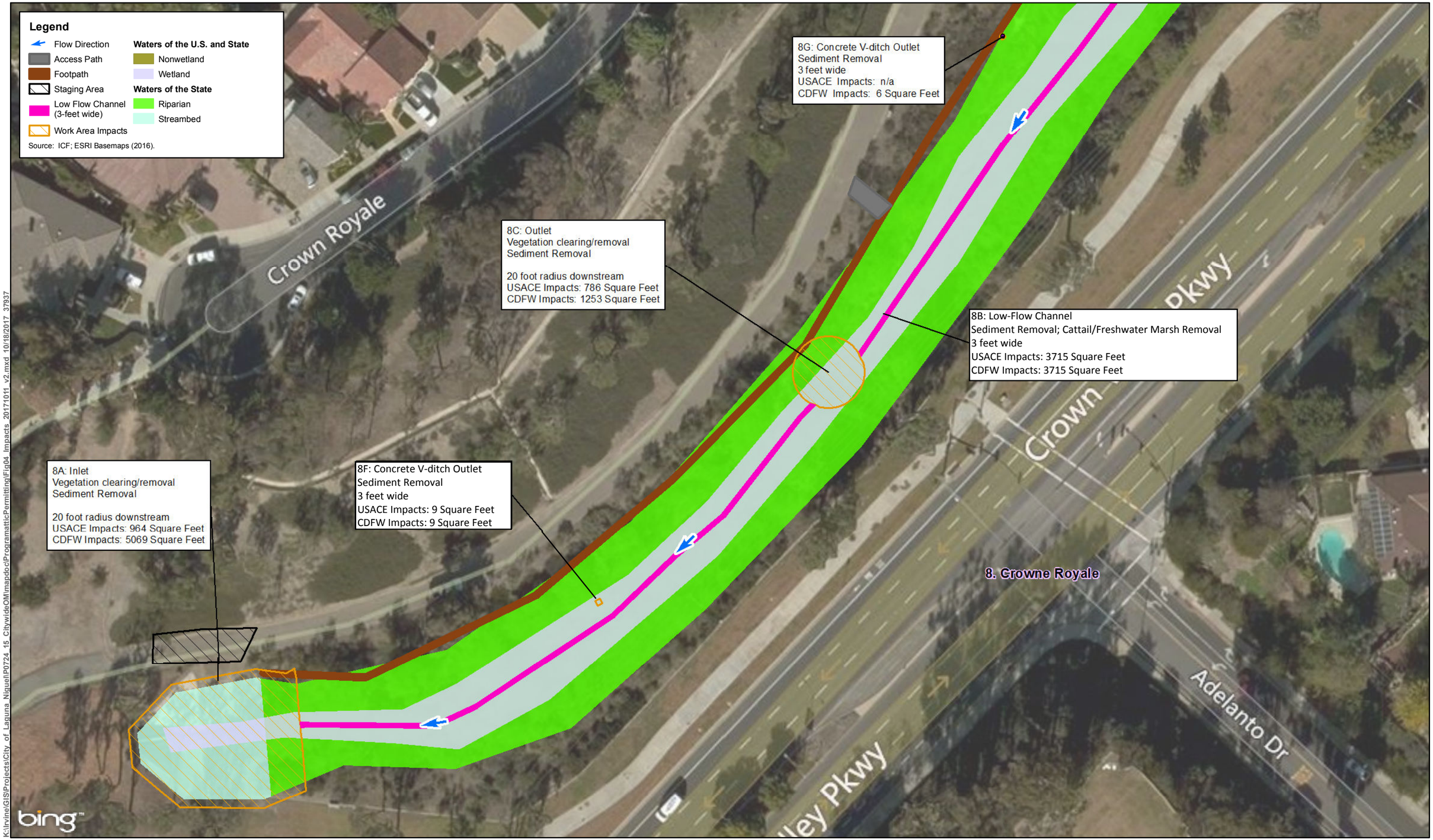
ICF

N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-8A**
**8. Crowne Royale**
**City of Laguna Niguel Programmatic Permitting**

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N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-8B**
**8. Crowne Royale**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Map Sheet
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the State**

- Riparian
- Streambed

**Waters of the U.S. and State**

- Nonwetland
- Wetland

Source: ICF; Bing Basemaps (2016).

Sheet 9A

Sheet 9B

Sheet 9C

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N

0 250 500

Feet

1 inch = 500 feet

**Figure 3-9 Overview**
**9. Niguel Ridge**
**City of Laguna Niguel Programmatic Permitting**




**Figure 3-9A**
**9. Niguel Ridge**
**City of Laguna Niguel Programmatic Permitting**




**Figure 3-9B**
**9. Niguel Ridge**
**City of Laguna Niguel Programmatic Permitting**




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ICF

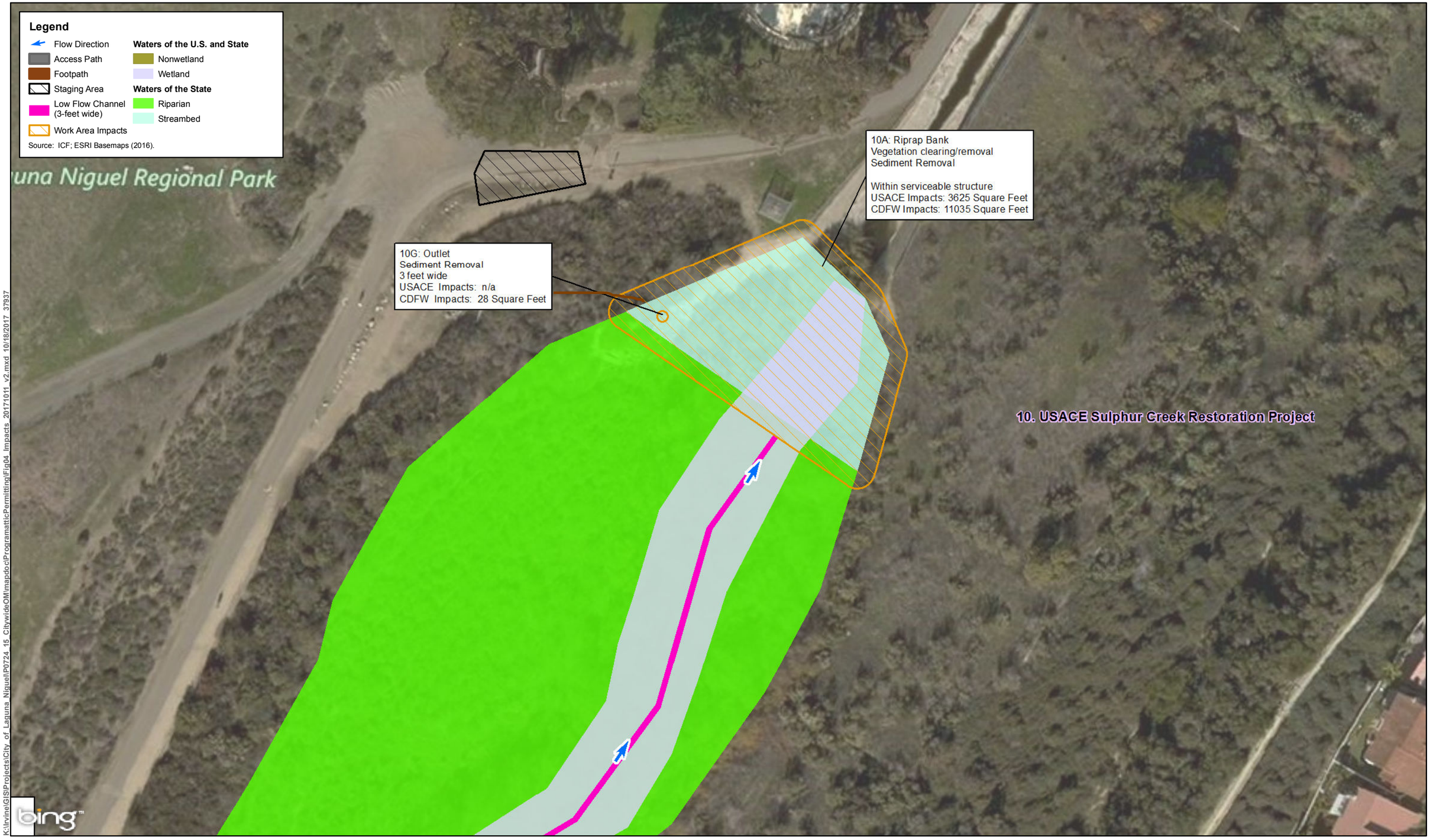
N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-9C**
**9. Niguel Ridge**
**City of Laguna Niguel Programmatic Permitting**




**Figure 3-10 Overview**
**10. USACE Sulphur Creek Restoration Project**
**City of Laguna Niguel Programmatic Permitting**

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ICF

N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-10A**
**10. USACE Sulphur Creek Restoration Project**
**City of Laguna Niguel Programmatic Permitting**

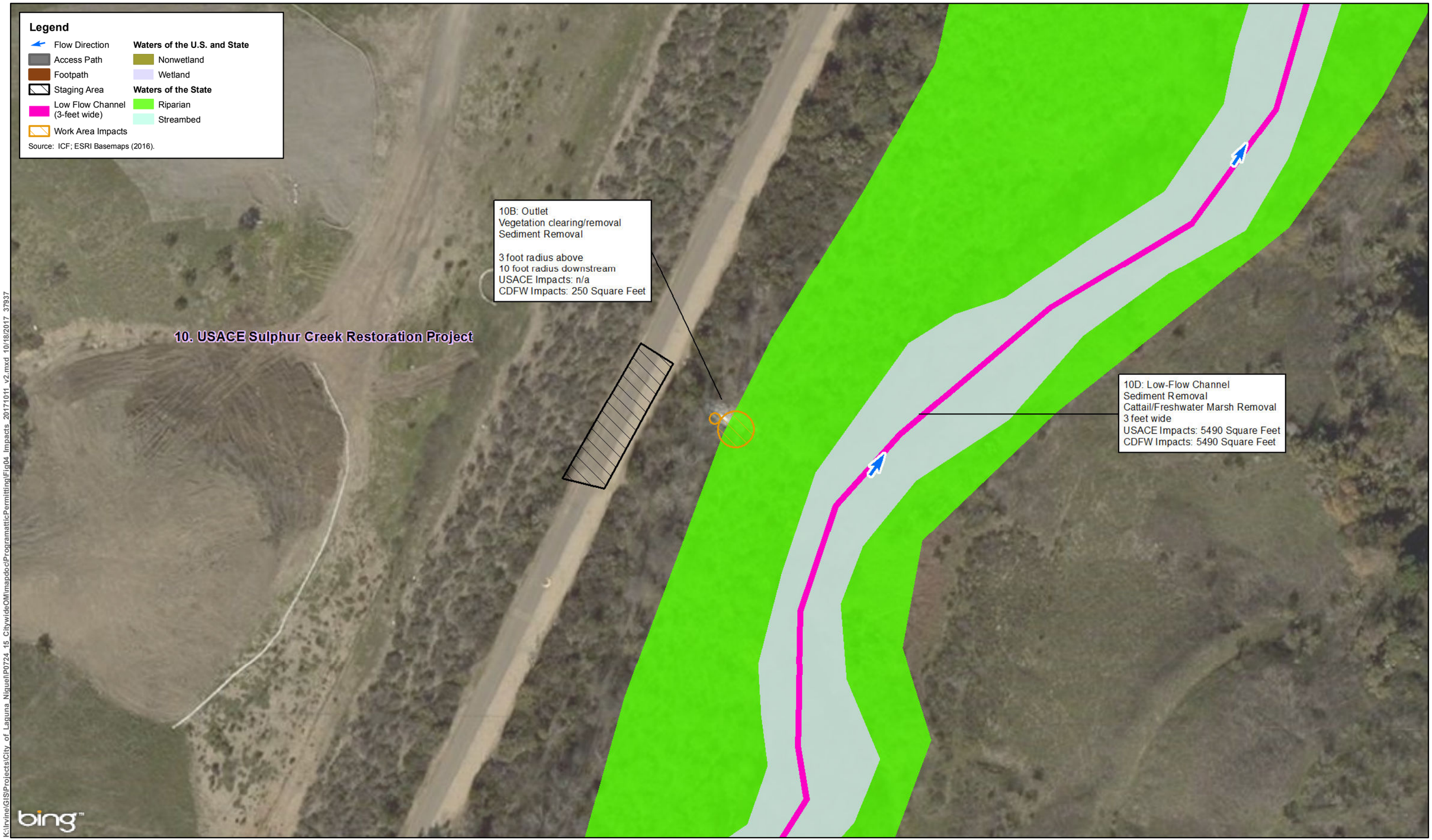


**Figure 3-10B**
**10. USACE Sulphur Creek Restoration Project**
**City of Laguna Niguel Programmatic Permitting**




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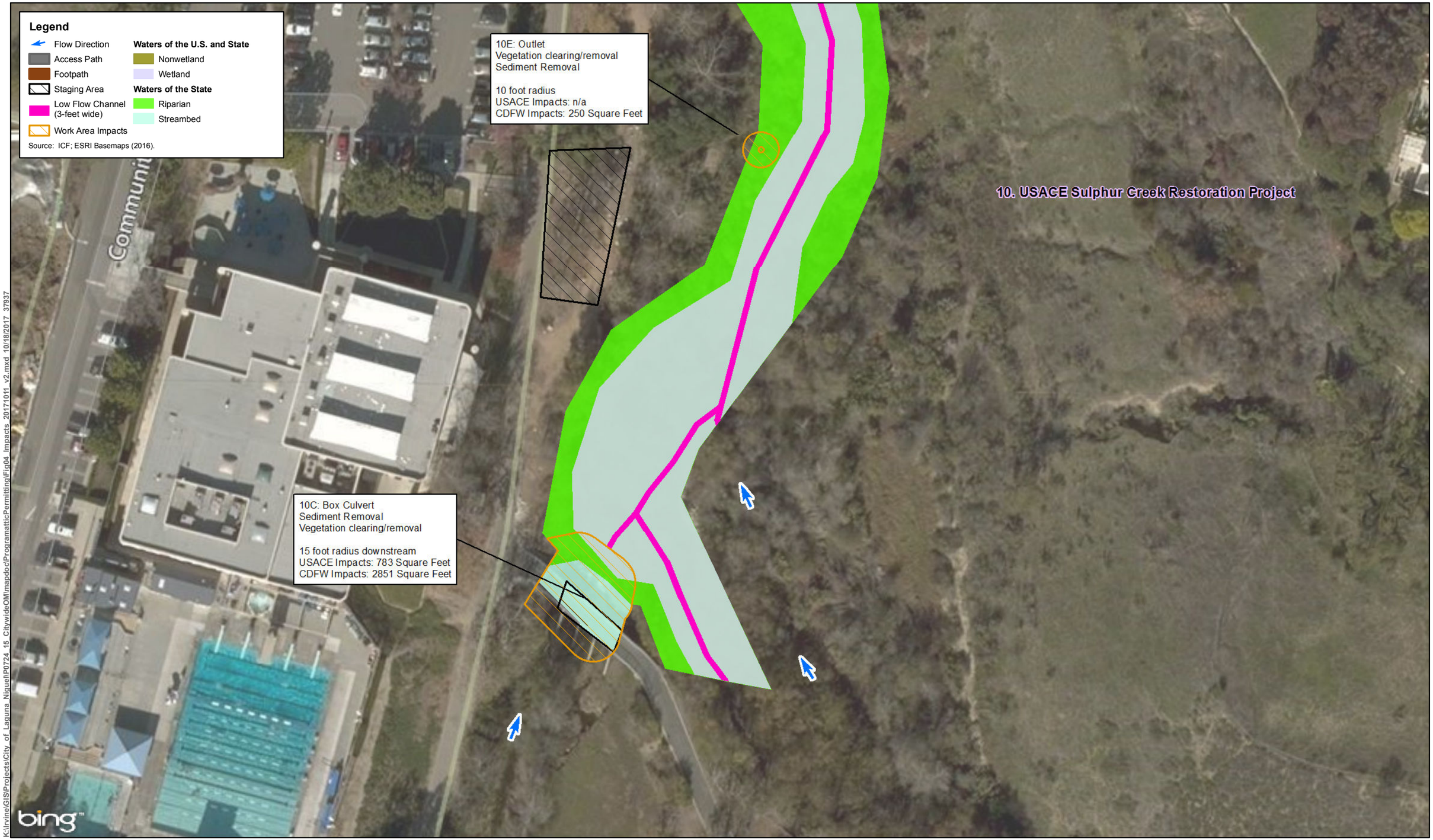
N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-10C**
**10. USACE Sulphur Creek Restoration Project**
**City of Laguna Niguel Programmatic Permitting**

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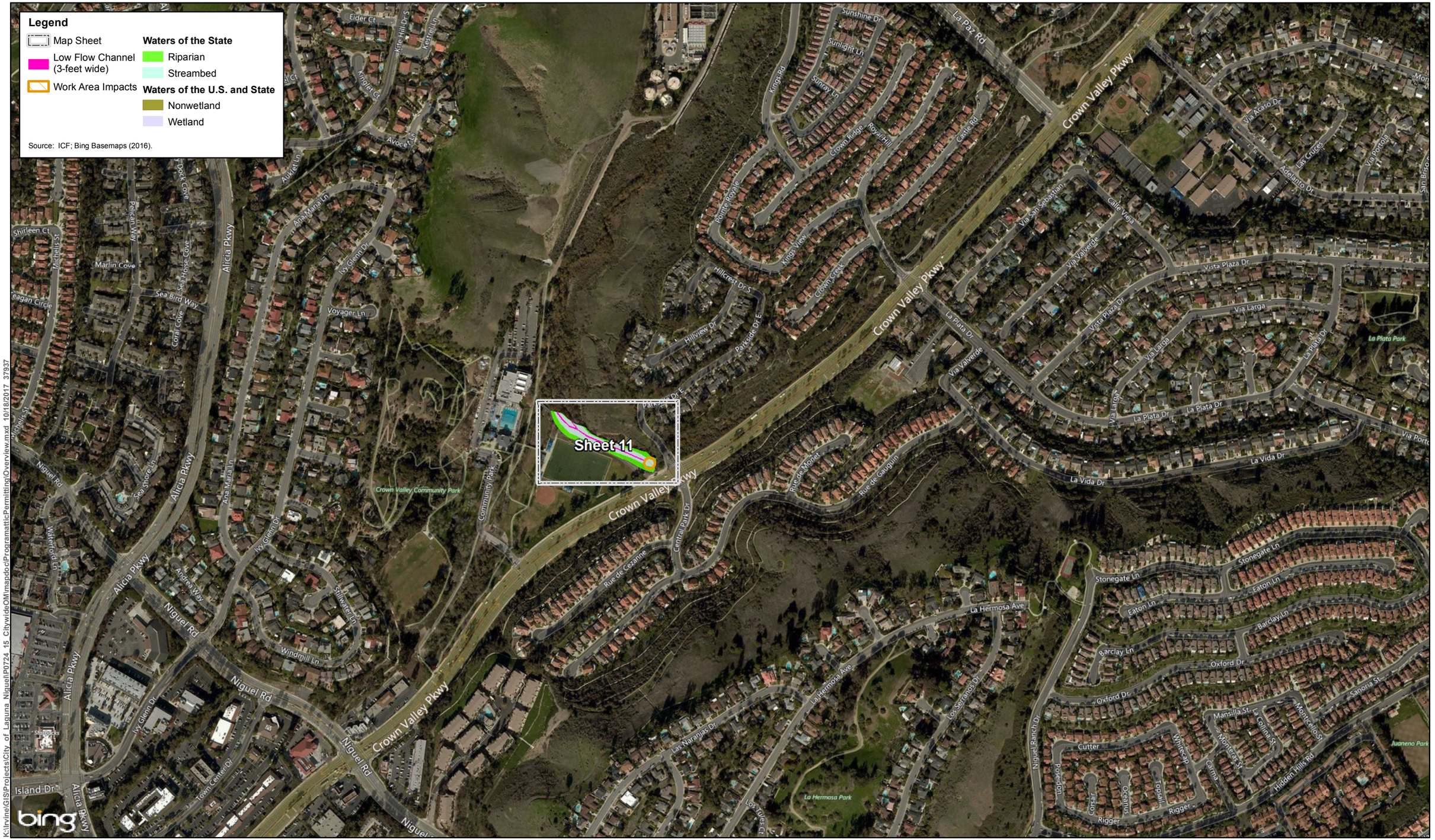
N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-10D**
**10. USACE Sulphur Creek Restoration Project**
**City of Laguna Niguel Programmatic Permitting**

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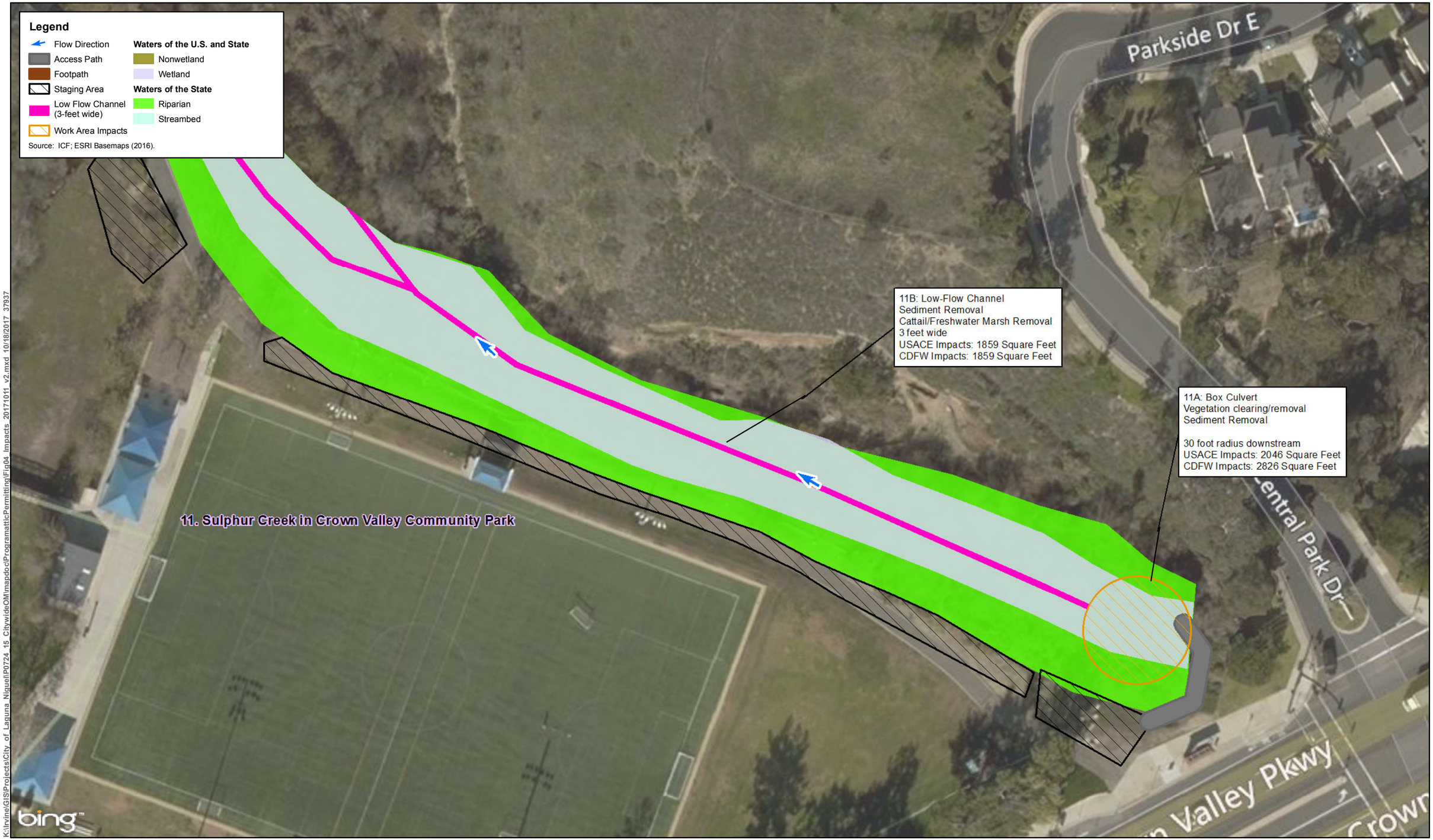
N

0 250 500
Feet
1 inch = 500 feet

**Figure 3-11 Overview**
**11. Sulphur Creek in Crown Valley Community Park**
**City of Laguna Niguel Programmatic Permitting**

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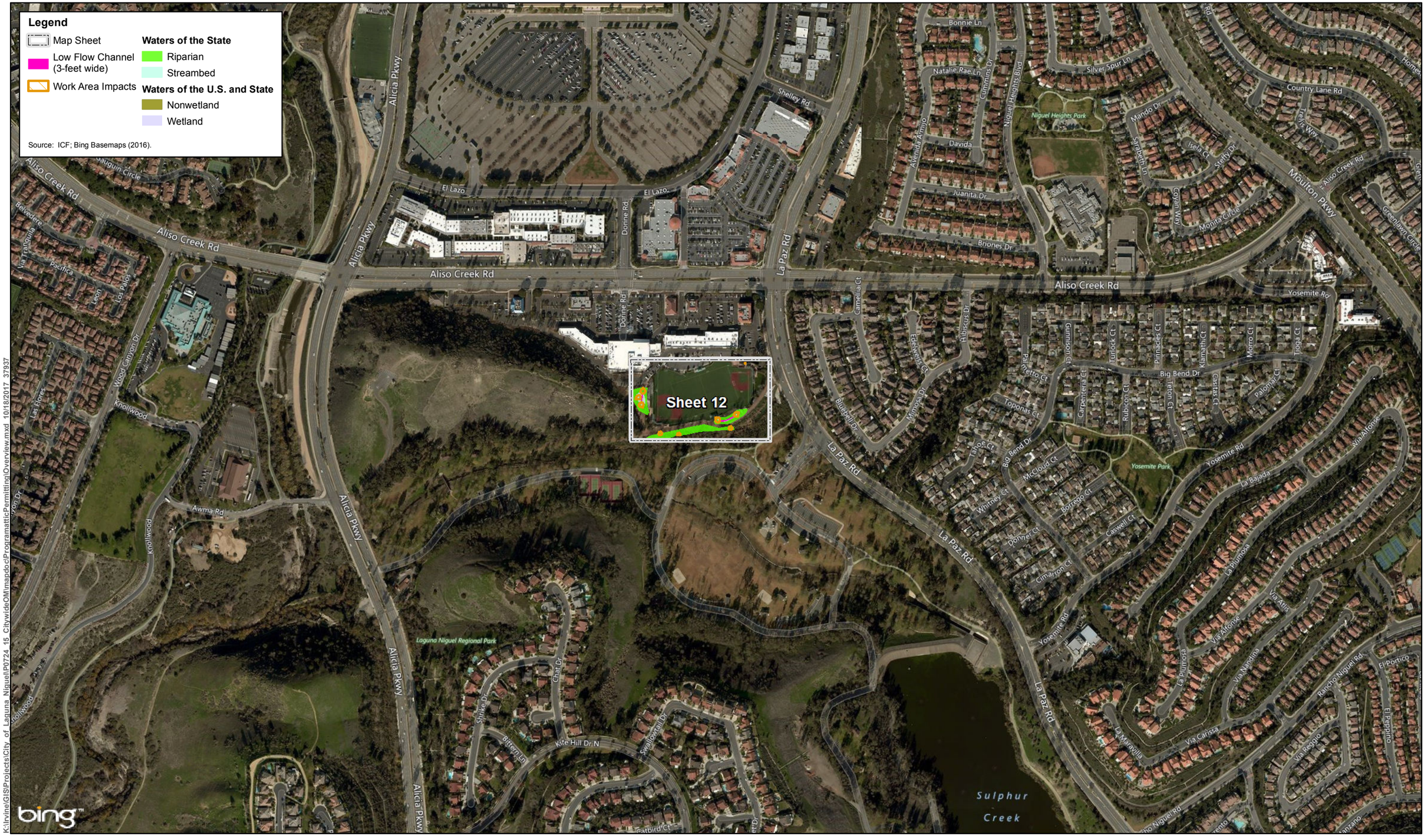
ICF

N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-11**
**11. Sulphur Creek in Crown Valley Community Park**
**City of Laguna Niguel Programmatic Permitting**

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N

0 250 500
Feet
1 inch = 500 feet

**Figure 3-12 Overview**
**12. La Paz Park Wetlands**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

## 12. La Paz Park Wetlands

12A: Outlet
Sediment Removal
Vegetation clearing/removal

3 foot radius above
10 foot radius downstream
USACE Impacts: 76 Square Feet
CDFW Impacts: 558 Square Feet

12B: Outlet
Sediment Removal
Vegetation clearing/removal

3 foot radius above
10 foot radius downstream
USACE Impacts: 475 Square Feet
CDFW Impacts: 558 Square Feet

12K: Low-Flow Channel
Sediment Removal
Vegetation clearing/removal

3 feet wide
USACE Impacts: 156 Square Feet
CDFW Impacts: 156 Square Feet

12C: Inlet
Sediment Removal
Vegetation clearing/removal

3 foot radius above
10 foot radius downstream
USACE Impacts: 340 Square Feet
CDFW Impacts: 558 Square Feet

12D: Outlet
Removal of noxious weeds
Trimming of riparian trees and shrubs

10 foot radius
USACE Impacts: n/a
CDFW Impacts: 120 Square Feet

12E: Outlet
Removal of noxious weeds
Trimming of riparian trees and shrubs

10 foot radius
USACE Impacts: n/a
CDFW Impacts: 205 Square Feet

12F: Inlet
Sediment Removal
Vegetation clearing/removal

3 foot radius above
10 foot radius downstream
USACE Impacts: 207 Square Feet
CDFW Impacts: 558 Square Feet

12J: Low-Flow Channel
Sediment Removal
Vegetation clearing/removal

3 feet wide
USACE Impacts: 352 Square Feet
CDFW Impacts: 352 Square Feet

12I: Inlet
Sediment Removal
Vegetation clearing/removal

3 foot radius
USACE Impacts: n/a
CDFW Impacts: n/a

12H: Outlet
Sediment Removal
Vegetation clearing/removal

3 foot radius above
10 foot radius downstream
USACE Impacts: 223 Square Feet
CDFW Impacts: 558 Square Feet

12G: Outlet
Removal of noxious weeds
Trimming of riparian trees and shrubs

10 foot radius
USACE Impacts: 1 Square Feet
CDFW Impacts: 313 Square Feet

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N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-12**
**12. La Paz Park Wetlands**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Map Sheet
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the State**

- Riparian
- Streambed

**Waters of the U.S. and State**

- Nonwetland
- Wetland

Source: ICF; Bing Basemaps (2016).

Sheet 13D

Sheet 13C

Sheet 13B

Sheet 13A

Sheet 13E

Sheet 13F

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ICF

N

0 250 500

Feet

1 inch = 500 feet

**Figure 3-13 Overview**
**13. Salt Creek Restoration Area**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

## 13. Salt Creek Restoration Area

13I: Drop Structure
Herbaceous Vegetation removal
Sediment Removal

30 foot radius
USACE Impacts: 1268 Square Feet
CDFW Impacts: 1424 Square Feet

13P: Outlet
Herbaceous Vegetation removal
Sediment Removal

30 foot radius
USACE Impacts: 562 Square Feet
CDFW Impacts: 706 Square Feet

13R: Basin with Riser
Weed Wiping and rack out
Vegetation trimming

20 foot radius
USACE Impacts: 218 Square Feet
CDFW Impacts: 329 Square Feet

13K: Outlet
Sediment Removal
Vegetation Clearing/Removal
15 foot radius
USACE Impacts: n/a
CDFW Impacts: 133 Square Feet

13L: Outlet
Herbaceous Vegetation removal
Sediment Removal

30 foot radius
USACE Impacts: 1205 Square Feet
CDFW Impacts: 2437 Square Feet

13O: Riser
Weed Wiping and rack out
Vegetation trimming

20 foot radius
USACE Impacts: 63 Square Feet
CDFW Impacts: 128 Square Feet

13J: Inlet
Weed Wiping and rack out
Vegetation trimming

20 foot radius
USACE Impacts: n/a
CDFW Impacts: n/a

13M: Outlet
Herbaceous Vegetation removal
Sediment Removal

10 foot radius
USACE Impacts: n/a
CDFW Impacts: n/a

13N: Inlet
Herbaceous Vegetation removal
Sediment Removal

15 foot radius
USACE Impacts: 230 Square Feet
CDFW Impacts: 291 Square Feet

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N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-13A**
**13. Salt Creek Restoration Area**
**City of Laguna Niguel Programmatic Permitting**

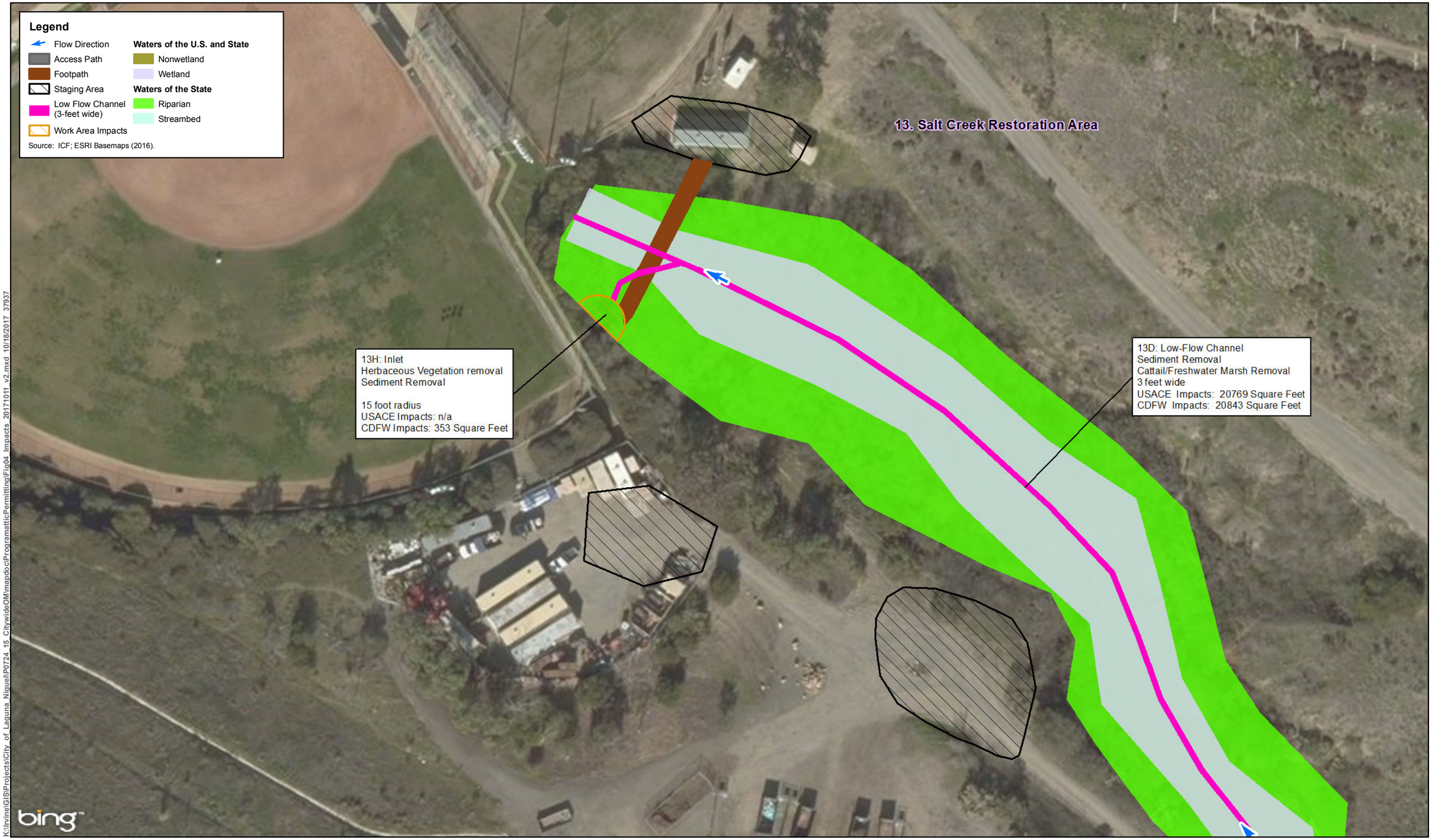


**Figure 3-13B**
**13. Salt Creek Restoration Area**
**City of Laguna Niguel Programmatic Permitting**




**Figure 3-13C**
**13. Salt Creek Restoration Area**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

## 13. Salt Creek Restoration Area

13E: Outlet
Vegetation clearing/removal
Sediment Removal

30 foot radius
USACE Impacts: 717 Square Feet
CDFW Impacts: 2534 Square Feet

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N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-13D**
**13. Salt Creek Restoration Area**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

13Q: Riser
Vegetation clearing/removal
Sediment Removal

15 foot radius
USACE Impacts: n/a
CDFW Impacts: n/a

13. Salt Creek Restoration Area

13D: Low-Flow Channel
Sediment Removal
Cattail/Freshwater Marsh Removal
3 feet wide
USACE Impacts: 20769 Square Feet
CDFW Impacts: 20843 Square Feet

13C: Outlet
Vegetation clearing/removal
Sediment Removal

30 foot radius
USACE Impacts: 891 Square Feet
CDFW Impacts: 1700 Square Feet

Niguel Rd

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N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-13E**
**13. Salt Creek Restoration Area**
**City of Laguna Niguel Programmatic Permitting**

**Legend**

- Flow Direction
- Access Path
- Footpath
- Staging Area
- Low Flow Channel (3-feet wide)
- Work Area Impacts

**Waters of the U.S. and State**

- Nonwetland
- Wetland

**Waters of the State**

- Riparian
- Streambed

Source: ICF; ESRI Basemaps (2016).

13. Salt Creek Restoration Area

Niguel Rd

13A: Outlet
Vegetation clearing/removal
Sediment Removal

Within serviceable structure
USACE Impacts: 7297 Square Feet
CDFW Impacts: 22385 Square Feet

13B: Inlet
Vegetation clearing/removal
Sediment Removal
30 foot radius
USACE Impacts: 2752 Square Feet
CDFW Impacts: 7673 Square Feet

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ICF

N

0 25 50
Feet
1 inch = 50 feet

**Figure 3-13F**
**13. Salt Creek Restoration Area**
**City of Laguna Niguel Programmatic Permitting**

Appendix B

# Maintenance Summary Table

Maintenance Facility Summary Table

| Station ID | Facility Type | Wetland Project Area | Map Sheet | Latitude | Longitude | Waterbody | Maintenance Activities | Frequency | Impact Dimensions | Waters of the U.S. (USACE/RWQCB) | | | CDFW Jurisdiction | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Linear Feet | Wetland (Square Feet) | Non-Wetland (Square Feet) | CDFW Streambed | CDFW Riparian |
| 1A | Inlet | 1. West Wetland | Figure 4-1A | 33.549952 | -117.717216 | Tributary to Aliso Creek | Vegetation clearing/removal Sediment Removal | biannually | 20 foot by 20 foot Area | 10 | 290 | - | 748 | 290 |
| 1B | Low-Flow Channel | 1. West Wetland | Figure 4-1A | 33.546409 | -117.716440 | Tributary to Aliso Creek | Sediment Removal Cattail/Freshwater Marsh Removal | biannually | 3 feet wide | 2470 | 7412 | - | - | 7412 |
| 1C | Concrete V-ditch Outlet | 1. West Wetland | Figure 4-1C | 33.547560 | -117.716671 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | 3 foot radius | 5 | 8 | - | - | 28 |
| 1D | Concrete V-ditch Outlet | 1. West Wetland | Figure 4-1D | 33.546393 | -117.716499 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | 3 foot radius | 6 | 20 | - | - | 28 |
| 1E | Concrete V-ditch Outlet | 1. West Wetland | Figure 4-1E | 33.544896 | -117.716242 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | 3 foot radius | 6 | 28 | - | - | 28 |
| 1F | Concrete V-ditch Outlet | 1. West Wetland | Figure 4-1F | 33.543903 | -117.715782 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | 3 foot radius | 6 | 26 | - | - | 28 |
| 1G | Weir- Pool Complex | 1. West Wetland | Figure 4-1F | 33.543418 | -117.715600 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | Within serviceable structure plus 10ft x 15ft pool | 25 | 300 | - | - | 300 |
| 1H | Outlet | 1. West Wetland | Figure 4-1F | 33.543028 | -117.715372 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | 20 foot radius | 32 | 673 | - | - | 1254 |
| 1I | Weir- Pool Complex | 1. West Wetland | Figure 4-1B | 33.548867 | -117.716914 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | Within serviceable structure plus 10ft x 15ft pool | 25 | 303 | - | - | 303 |
| 1J | Weir- Pool Complex | 1. West Wetland | Figure 4-1B | 33.548019 | -117.716773 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | Within serviceable structure plus 10ft x 15ft pool | 25 | 300 | - | - | 300 |
| 1K | Concrete V-ditch Outlet | 1. West Wetland | Figure 4-1C | 33.547727 | -117.716674 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | 3 foot radius | 3 | 7 | - | - | 7 |
| 1L | Berm | 1. West Wetland | Figure 4-1C | 33.547246 | -117.716618 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | Within serviceable structure | 10 | 48 | - | - | 48 |
| 1M | Berm | 1. West Wetland | Figure 4-1C | 33.546713 | -117.716539 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | Within serviceable structure | 10 | 53 | - | - | 53 |
| 1N | Weir- Pool Complex | 1. West Wetland | Figure 4-1D | 33.545968 | -117.716498 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | Within serviceable structure plus 10ft x 15ft pool | 25 | 300 | - | - | 300 |
| 1O | Weir- Pool Complex | 1. West Wetland | Figure 4-1D | 33.545649 | -117.716518 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | Within serviceable structure plus 10ft x 15ft pool | 25 | 300 | - | - | 300 |
| 2A | Outlet | 2. East Wetland | Figure 4-2A | 33.544974 | -117.714306 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | 3 foot radius above inlet 10 foot radius downstream of inlet | 17 | 290 | - | - | 558 |
| 2B | Low-Flow Channel | 2. East Wetland | Figure 4-2A | 33.544434 | -117.714985 | Tributary to Aliso Creek | Sediment Removal Cattail/Freshwater Marsh Removal | biannually | 3 feet wide | 638 | 1914 | - | - | 1914 |
| 2C | Outlet | 2. East Wetland | Figure 4-2A | 33.544853 | -117.714370 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | 10 foot radius | - | - | - | - | 314 |
| 2D | Outlet | 2. East Wetland | Figure 4-2B | 33.543718 | -117.715132 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | 3 foot radius above inlet 10 foot radius downstream of inlet | 4 | 35 | - | - | 551 |
| 2E | Riser | 2. East Wetland | Figure 4-2A | 33.544355 | -117.715479 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | 10 foot radius | 4 | 45 | - | - | 314 |
| 3A | Constructed Wetland Ponds | 3. North Wetland | Figure 4-3 | 33.550134 | -117.716472 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | Entire Pond Area | 326 | 11026 | - | - | 11026 |
| 3B | Overflow Drain | 3. North Wetland | Figure 4-3 | 33.550315 | -117.716673 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | 10 foot radius | 10 | 150 | - | - | 314 |
| 3C | Outlet | 3. North Wetland | Figure 4-3 | 33.550053 | -117.716342 | Tributary to Aliso Creek | Sediment Removal Vegetation clearing/removal | biannually | 3 foot radius above inlet 10 foot radius downstream of outlet | 25 | 404 | - | - | 558 |
| 4A | Inlet | 4. Crown Valley Park Wetland Creation Area J03P01 | Figure 4-4C | 33.528054 | -117.710020 | Sulphur Creek | Sediment Removal Vegetation clearing/removal | biannually | 30 foot radius downstream of structure | 122 | 5617 | - | 6939 | 5522 |
| 4B | Inlet | 4. Crown Valley Park Wetland Creation Area J03P01 | Figure 4-4B | 33.529084 | -117.709411 | Sulphur Creek | Sediment Removal Vegetation clearing/removal | biannually | 3 foot radius above inlet 10 foot radius downstream of inlet | - | - | - | - | 251 |
| 4C | Box Culvert | 4. Crown Valley Park Wetland Creation Area J03P01 | Figure 4-4B | 33.529721 | -117.709032 | Sulphur Creek | Sediment Removal Vegetation clearing/removal | biannually | 30 foot radius downstream of concrete structure | 65 | 3545 | - | 5438 | 3569 |
| 4D | Box Culvert | 4. Crown Valley Park Wetland Creation Area J03P01 | Figure 4-4B | 33.529922 | -117.708783 | Sulphur Creek | Sediment Removal Vegetation clearing/removal | biannually | 30 foot radius downstream of concrete structure | 35 | 508 | - | 7510 | 3480 |
| 4E | Low-Flow Channel | 4. Crown Valley Park Wetland Creation Area J03P01 | Figure 4-4A | 33.530969 | -117.708445 | Sulphur Creek | Sediment Removal Cattail/Freshwater Marsh Removal | biannually | 3 feet wide | 420 | 1262 | - | 7 | 1428 |
| 4F | Treatment Wetlands (Planned) | 4. Crown Valley Park Wetland Creation Area J03P01 | Figure 4-4B | 33.529428 | -117.708778 | Sulphur Creek | Sediment Removal Cattail/Freshwater Marsh Removal | biannually | Entire Constructed Wetland | - | - | - | 776 | 1032 |
| 4G | Low-Flow Channel | 4. Crown Valley Park Wetland Creation Area J03P01 | Figure 4-4B | 33.529019 | -117.709208 | Sulphur Creek | Sediment Removal Cattail/Freshwater Marsh Removal | biannually | 3 feet wide | 424 | 1273 | | 17 | 1468 |
| 4H | Concrete V-ditch | 4. Crown Valley Park Wetland Creation Area J03P01 | Figure 4-4A | 33.530811 | -117.708308 | Sulphur Creek | Sediment Removal Vegetation clearing/removal | biannually | Within serviceable structure | - | - | - | - | 1028 |
| 4I | Outlet | 4. Crown Valley Park Wetland Creation Area J03P01 | Figure 4-4C | 33.528192 | -117.709759 | Sulphur Creek | Sediment Removal Vegetation clearing/removal | biannually | 3 foot radius above inlet 10 foot radius downstream of inlet | - | - | - | - | 207 |
| 4J | Bioswales | 4. Crown Valley Park Wetland Creation Area J03P01 | Figure 4-4A | 33.530482 | -117.708520 | Sulphur Creek | Sediment Removal/Weed Removal | biannually | Extent of Bioswales | 4 | 2 | - | - | 16441 |

Maintenance Facility Summary Table

| Station ID | Facility Type | Wetland Project Area | Map Sheet | Latitude | Longitude | Waterbody | Maintenance Activities | Frequency | Impact Dimensions | Waters of the U.S. (USACE/RWQCB) | | | CDFW Jurisdiction | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Linear Feet | Wetland (Square Feet) | Non-Wetland (Square Feet) | CDFW Streambed | CDFW Riparian |
| 4K | Outlet | 4. Crown Valley Park Wetland Creation Area J03P01 | Figure 4-4C | 33.528170 | -117.710084 | Sulphur Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 3 foot radius | - | - | - | - | 9 |
| 5A | Inlet | 5. Sulphur Creek Park Wetland Enhancment Area | Figure 4-5 | 33.531331 | -117.705520 | Sulphur Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 30 foot radius downstream | 40 | 1416 | - | 1109 | 1834 |
| 5B | Drop Structure | 5. Sulphur Creek Park Wetland Enhancment Area | Figure 4-5 | 33.532001 | -117.704095 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 15 foot radius from structure | 60 | 694 | 797 | 797 | 772 |
| 5C | Low-Flow Channel | 5. Sulphur Creek Park Wetland Enhancment Area | Figure 4-5 | 33.531633 | -117.704767 | Sulphur Creek | Sediment Removal<br>Cattail/Freshwater Marsh Removal | biannually | 3 feet wide | 688 | 2066 | - | - | 2066 |
| 6A | Low-Flow Channel | 6. Sulphur Creek Wetland Creation | Figure 4-6 | 33.531911 | -117.707662 | Sulphur Creek | Sediment Removal<br>Cattail/Freshwater Marsh Removal | biannually | 3 feet wide | 112 | 637 | - | - | 637 |
| 7A | Outlet | 7. Rancho Niguel Upper Sulphur Creek | Figure 4-7G | 33.540515 | -117.695265 | Sulphur Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 30 foot radius downstream | 60 | - | 1717 | 3839 | 4 |
| 7B | Low-Flow Channel | 7. Rancho Niguel Upper Sulphur Creek | Figure 4-7c, 7G, and 7F | 33.542173 | -117.694074 | Sulphur Creek | Sediment Removal<br>Cattail/Freshwater Marsh Removal | biannually | 3 feet wide | 1094 | 8602 | 484 | 484 | 8602 |
| 7C | Weir and Riprap Dissipator | 7. Rancho Niguel Upper Sulphur Creek | Figure 4-7G | 33.541116 | -117.694982 | Sulphur Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | Within serviceable structure | 64 | 2367 | - | 2887 | - |
| 7D | Inlet - Serviceable Structure | 7. Rancho Niguel Upper Sulphur Creek | Figure 4-7E | 33.543117 | -117.692830 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 30 foot radius downstream of structure | 56 | 2919 | - | 1531 | 4055 |
| 7E | Inlet | 7. Rancho Niguel Upper Sulphur Creek | Figure 4-7E | 33.543787 | -117.692129 | Sulphur Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 10 foot radius | 61 | 2071 | - | 1029 | 3575 |
| 7F | Outlet | 7. Rancho Niguel Upper Sulphur Creek | Figure 4-7E | 33.548876 | -117.689744 | Sulphur Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 30 foot radius downstream | 7 | 7 | - | 848 | 7970 |
| 7G | Outlet | 7. Rancho Niguel Upper Sulphur Creek | Figure 4-7A | 33.546185 | -117.690643 | Sulphur Creek | Sediment Removal<br>Cattail/Freshwater Marsh Removal | biannually | 30 foot radius downstream | 105 | 4622 | - | 4122 | 4000 |
| 7H | Outlet | 7. Rancho Niguel Upper Sulphur Creek | Figure 4-7A | 33.548677 | -117.689994 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 3 foot radius | 6 | 28 | - | - | 28 |
| 7I | Concrete V-ditch | 7. Rancho Niguel Upper Sulphur Creek | Figure 4-7F | 33.542353 | -117.693982 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 3 foot radius | - | - | - | - | 7 |
| 7J | Concrete V-ditch | 7. Rancho Niguel Upper Sulphur Creek | Figure 4-7C | 33.546826 | -117.690605 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 3 foot radius | - | - | - | - | - |
| 7K | Concrete V-ditch | 7. Rancho Niguel Upper Sulphur Creek | Figure 4-7D | 33.544747 | -117.691212 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 3 foot radius | - | - | - | 7 | - |
| 7L | Concrete V-ditch | 7. Rancho Niguel Upper Sulphur Creek | Figure 4-7B | 33.547954 | -117.690261 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 3 foot radius | - | - | - | - | - |
| 8A | Inlet | 8. Crowne Royale | Figure 4-8B | 33.537315 | -117.698670 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 20 foot radius downstream | 74 | 964 | - | 3875 | 1195 |
| 8B | Low-Flow Channel | 8. Crowne Royale | Figure 4-8B | 33.537525 | -117.698002 | Sulphur Creek | Sediment Removal<br>Cattail/Freshwater Marsh Removal | biannually | 3 feet wide | 1238 | 3715 | - | - | 3715 |
| 8C | Outlet | 8. Crowne Royale | Figure 4-8B | 33.537895 | -117.697553 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 20 foot radius downstream | 35 | 786 | - | - | 1253 |
| 8D | Outlet - Serviceable Structure | 8. Crowne Royale | Figure 4-8A | 33.539974 | -117.695518 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 30 foot radius downstream | 147 | 777 | 1384 | 8672 | 2173 |
| 8E | Outlet | 8. Crowne Royale | Figure 4-8A | 33.539308 | -117.696044 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 3 foot radius above<br>15 foot radius downstream | 29 | 300 | - | - | 735 |
| 8F | Concrete V-ditch | 8. Crowne Royale | Figure 4-8B | 33.537543 | -117.697950 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 3 foot radius | 3 | 9 | - | - | 9 |
| 8G | Concrete V-ditch | 8. Crowne Royale | Figure 4-8B | 33.538412 | -117.697243 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 3 foot radius | - | - | - | - | 6 |
| 9A | Outlet | 9. Niguel Ridge | Figure 4-9B | 33.533780 | -117.701952 | Sulphur Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 30 foot radius downstream | 150 | 2672 | - | 8746 | 1611 |
| 9B | Inlet - Serviceable Structure | 9. Niguel Ridge | Figure 4-9B | 33.534432 | -117.701196 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 30 foot radius downstream | 259 | 241 | 1508 | 10411 | 1741 |
| 9C | Low-Flow Channel | 9. Niguel Ridge | Figure 4-9A | 33.535359 | -117.700200 | Sulphur Creek | Sediment Removal<br>Cattail/Freshwater Marsh Removal | biannually | 3 feet wide | 580 | 1738 | - | - | 1738 |
| 9D | Outlet | 9. Niguel Ridge | Figure 4-9A | 33.535481 | -117.700045 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 15 foot radius | 60 | 501 | - | - | 1413 |
| 9E | Outlet - Serviceable Structure | 9. Niguel Ridge | Figure 4-9A | 33.536261 | -117.699350 | Sulphur Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 30 foot radius downstream | 159 | 571 | 1368 | 6392 | 1306 |
| 9F | Outlet | 9. Niguel Ridge | Figure 4-9C | 33.533003 | -117.702528 | Sulphur Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 15 foot radius | 15 | 30 | - | - | 135 |
| 9G | Concrete V-ditch Outlet | 9. Niguel Ridge | Figure 4-9C | 33.532996 | -117.702731 | Sulphur Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 3 foot radius | - | - | - | - | 14 |
| 9H | Low-Flow Channel | 9. Niguel Ridge | Figure 4-9C | 33.532998 | -117.702693 | Sulphur Creek | Sediment Removal<br>Cattail/Freshwater Marsh Removal | biannually | 3 feet wide | 557 | 1670 | - | - | 1670 |

Maintenance Facility Summary Table

| Station ID | Facility Type | Wetland Project Area | Map Sheet | Latitude | Longitude | Waterbody | Maintenance Activities | Frequency | Impact Dimensions | Waters of the U.S. (USACE/RWQCB) | | | CDFW Jurisdiction | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Linear Feet | Wetland (Square Feet) | Non-Wetland (Square Feet) | CDFW Streambed | CDFW Riparian |
| 9I | Concrete V-ditch Outlet | 9. Niguel Ridge | Figure 4-9A | 33.535900 | -117.699646 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 3 foot radius | 6 | 28 | - | - | 28 |
| 9J | Concrete V-ditch Outlet- Serviceab | 9. Niguel Ridge | Figure 4-9B | 33.534349 | -117.701285 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 3 foot radius | 6 | - | 28 | 28 | - |
| 9K | Concrete V-ditch Outlet | 9. Niguel Ridge | Figure 4-9B | 33.533562 | -117.702193 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 3 foot radius | 3 | 4 | - | - | 7 |
| 9L | Concrete V-ditch Outlet | 9. Niguel Ridge | Figure 4-9C | 33.532551 | -117.703285 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 3 foot radius | 3 | 9 | - | - | 7 |
| 10A | Riprap Bank | 10. USACE Sulphur Creek Restoration Project | Figure 4-10A | 33.536032 | -117.705865 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | Within serviceable structure | 91 | 3625 | - | 9429 | 1605 |
| 10B | Outlet | 10. USACE Sulphur Creek Restoration Project | Figure 4-10B | 33.534970 | -117.707070 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 3 foot radius above<br>10 foot radius downstream | - | - | - | - | 250 |
| 10C | Box Culvert | 10. USACE Sulphur Creek Restoration Project | Figure 4-10D | 33.531921 | -117.708040 | Sulphur Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 15 foot radius downstream | 58 | 783 | - | 1912 | 939 |
| 10D | Low-Flow Channel | 10. USACE Sulphur Creek Restoration Project | Figure 4-10B | 33.534116 | -117.707119 | Sulphur Creek | Sediment Removal<br>Cattail/Freshwater Marsh Removal | biannually | 3 feet wide | 1830 | 5490 | - | - | 5490 |
| 10E | Outlet | 10. USACE Sulphur Creek Restoration Project | Figure 4-10D | 33.532602 | -117.707715 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 10 foot radius | - | - | - | - | 257 |
| 10F | Outlet | 10. USACE Sulphur Creek Restoration Project | Figure 4-10C | 33.533514 | -117.707799 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | Within serviceable structure | 20 | 81 | - | - | 402 |
| 10G | Outlet | 10. USACE Sulphur Creek Restoration Project | Figure 4-10A | 33.536008 | -117.706045 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 3 foot radius | - | - | - | 28 | - |
| 11A | Box Culvert | 11. Sulphur Creek in Crown Valley Community Park | Figure 4-11 | 33.531032 | -117.706062 | Sulphur Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 30 foot radius downstream | 59 | 2046 | - | - | 2826 |
| 11B | Low-Flow Channel | 11. Sulphur Creek in Crown Valley Community Park | Figure 4-11 | 33.531325 | -117.706859 | Sulphur Creek | Sediment Removal<br>Cattail/Freshwater Marsh Removal | biannually | 3 feet wide | 620 | 1859 | - | - | 1859 |
| 12A | Outlet | 12. La Paz Park Wetlands | Figure 4-12 | 33.553837 | -117.712317 | Narco Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 3 foot radius above<br>10 foot radius downstream | 6 | 76 | - | - | 558 |
| 12B | Outlet | 12. La Paz Park Wetlands | Figure 4-12 | 33.553735 | -117.712400 | Narco Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 3 foot radius above<br>10 foot radius downstream | 26 | 475 | - | - | 558 |
| 12C | Inlet | 12. La Paz Park Wetlands | Figure 4-12 | 33.553620 | -117.712343 | Narco Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 3 foot radius above<br>10 foot radius downstream | 21 | 340 | - | - | 558 |
| 12D | Outlet | 12. La Paz Park Wetlands | Figure 4-12 | 33.553191 | -117.711990 | Narco Creek | Removal of noxious weeds<br>Trimming of riparian trees and | biannually | 10 foot radius | - | - | - | - | 120 |
| 12E | Outlet | 12. La Paz Park Wetlands | Figure 4-12 | 33.553178 | -117.711652 | Narco Creek | Removal of noxious weeds<br>Trimming of riparian trees and shrubs | biannually | 10 foot radius | - | - | - | - | 205 |
| 12F | Inlet | 12. La Paz Park Wetlands | Figure 4-12 | 33.553405 | -117.710934 | Narco Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 3 foot radius above<br>10 foot radius downstream | 20 | 207 | - | - | 558 |
| 12G | Outlet | 12. La Paz Park Wetlands | Figure 4-12 | 33.553283 | -117.710701 | Narco Creek | Removal of noxious weeds<br>Trimming of riparian trees and | biannually | 10 foot radius | 4 | 1 | - | - | 313 |
| 12H | Outlet | 12. La Paz Park Wetlands | Figure 4-12 | 33.553495 | -117.710595 | Narco Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 3 foot radius above<br>10 foot radius downstream | 23 | 223 | - | - | 558 |
| 12I | Inlet | 12. La Paz Park Wetlands | Figure 4-12 | 33.554289 | -117.710444 | Narco Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 3 foot radius | - | - | - | - | - |
| 12J | Low-Flow Channel | 12. La Paz Park Wetlands | Figure 4-12 | 33.553416 | -117.710754 | Narco Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 3 feet wide | 88 | 352 | - | - | 352 |
| 12K | Low-Flow Channel | 12. La Paz Park Wetlands | Figure 4-12 | 33.553729 | -117.712334 | Narco Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 3 feet wide | 52 | 156 | - | - | 156 |
| 13A | Outlet | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13F | 33.505357 | -117.708611 | Salt Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | Within serviceable structure | 162 | | 7297 | 22385 | - |
| 13B | Inlet | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13F | 33.506019 | -117.707317 | Salt Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 30 foot radius | 144 | 2752 | - | 5560 | 2113 |
| 13C | Outlet | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13E | 33.508504 | -117.707335 | Salt Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 30 foot radius | 52 | 891 | - | 713 | 987 |
| 13D | Low-Flow Channel | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13B | 33.509712 | -117.700975 | Salt Creek | Sediment Removal<br>Cattail/Freshwater Marsh Removal | biannually | 3 feet wide | 6920 | 20688 | 81 | - | 20843 |
| 13E | Outlet | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13C | 33.511904 | -117.697089 | Salt Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 30 foot radius | 42 | 717 | - | - | 2534 |
| 13F | Outlet | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13C | 33.511633 | -117.695652 | Salt Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 15 foot radius | - | - | - | - | 47 |
| 13G | Outlet | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13C | 33.511243 | -117.694731 | Salt Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 30 foot radius | 51 | 2146 | - | 761 | 1886 |
| 13H | Inlet | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13B | 33.510925 | -117.692858 | Salt Creek | Herbaceous Vegetation removal<br>Sediment Removal | biannually | 15 foot radius | - | - | - | - | 353 |
| 13I | Drop Structure | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13A | 33.510020 | -117.691577 | Salt Creek | Herbaceous Vegetation removal<br>Sediment Removal | biannually | 30 foot radius | 55 | 1210 | 58 | - | 1424 |
| 13J | Inlet | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13A | 33.508934 | -117.691226 | Salt Creek | Weed Wiping and rack out<br>Vegetation trimming | biannually | 20 foot radius | - | - | - | - | - |

Maintenance Facility Summary Table

| Station ID | Facility Type | Wetland Project Area | Map Sheet | Latitude | Longitude | Waterbody | Maintenance Activities | Frequency | Impact Dimensions | Waters of the U.S. (USACE/RWQCB) | | | CDFW Jurisdiction | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Linear Feet | Wetland (Square Feet) | Non-Wetland (Square Feet) | CDFW Streambed | CDFW Riparian |
| 13K | Outlet | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13A | 33.509093 | -117.691110 | Salt Creek | Sediment Removal<br>Vegetation clearing/removal | biannually | 15 foot radius | - | - | - | | 133 |
| 13L | Outlet | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13A | 33.509138 | -117.690826 | Salt Creek | Herbaceous Vegetation removal<br>Sediment Removal | biannually | 30 foot radius | 60 | 1205 | - | - | 2437 |
| 13M | Outlet | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13A | 33.509204 | -117.690695 | Salt Creek | Herbaceous Vegetation removal<br>Sediment Removal | biannually | 10 foot radius | - | - | - | - | - |
| 13N | Inlet | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13A | 33.508965 | -117.690389 | Salt Creek | Herbaceous Vegetation removal<br>Sediment Removal | biannually | 15 foot radius | 16 | 230 | - | | 291 |
| 13O | Riser | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13A | 33.509317 | -117.690488 | Salt Creek | Weed Wiping and rack out<br>Vegetation trimming | biannually | 20 foot radius | 21 | | 63 | 128 | |
| 13P | Outlet | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13A | 33.509848 | -117.691476 | Salt Creek | Herbaceous Vegetation removal<br>Sediment Removal | biannually | 30 foot radius | 30 | 496 | 66 | - | 706 |
| 13Q | Riser | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13E | 33.509018 | -117.707450 | Salt Creek | Vegetation clearing/removal<br>Sediment Removal | biannually | 15 foot radius | - | - | - | - | - |
| 13R | Basin with Riser | 13. Salt Creek Corridor Habitat Restoration Area | Figure 4-13A | 33.509509 | -117.691942 | Salt Creek | Weed Wiping and rack out<br>Vegetation trimming | biannually | 20 foot radius | 17 | - | 218 | 329 | - |

| Total USACE/RWQCB | Square Feet | Acres |
|---|---|---|
| **Wetland (Square Feet)** | 121,632 | **2.79** |
| **Non-Wetland (Sqaure Feet)** | 15,069 | **0.35** |
| **Linear Feet** | **20,942** | |

| Total CDFW | Square Feet | Acres |
|---|---|---|
| **CDFW Streambed** | 117457 | **2.70** |
| **CDFW Riparian** | 164287 | **3.77** |

Appendix C

# Post-Maintenance Summary Report Outline

# Laguna Niguel Wetlands Operations and Maintenance Annual Post-Maintenance Summary Report

Time period covering _____ to _____
dd/mm/yy dd/mm/yy

## PART 1 – SITE SPECIFIC MAINTENANCE ACTIVITIES

Wetland Site Name: _____

Maintenance Facility ID Numbers (i.e. 1A, 1B, etc) work was completed for:

_____

Date(s) Performed: _____

Maintenance Actions Completed:

- ☐ Vegetation Maintenance
- ☐ Sediment Maintenance
- ☐ Flowline Maintenance
- ☐ Trash and Debris Maintenance
- ☐ Access Path Maintenance
- ☐ Rodent and Pest Control

Minimization Measures Implemented:

- ☐ Avoidance of nesting season
- ☐ Biological Monitor
- ☐ Erosion Control
- ☐ Personnel Training
- ☐ Off-site Disposal
- ☐
- ☐
- ☐ Other:

Site Specific Issues/Concerns/Recommendations: _____
_____
_____
_____
_____
_____

# PART 2 – PROGRAM OVERVIEW AND RECOMMENDATIONS

## Table 1. Annual Operation and Maintenance Impacts

| **Wetland Site** | **Linear Feet** | **USACE and RWQCB Jurisdictional** | | **CDFW Jurisdictional** | |
|---|---|---|---|---|---|
| | | **Non-wetland (acre)** | **Wetland (acre)** | **Streambed** | **Riparian** |
| 1– West Wetland | | | | | |
| 2 – East Wetland | | | | | |
| 3 – North Wetland | | | | | |
| 4 – Crown Valley Park Wetland Creation Area/J03P01 | | | | | |
| 5 – Sulphur Creek Park Wetland Enhancement Area | | | | | |
| 6 – Sulphur Creek Creation Area at Crown Valley | | | | | |
| 7 – Rancho Niguel Upper Sulphur Creek | | | | | |
| 8 – Crown Royale Upper Sulphur Creek | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 9 – Niguel Ridge Upper Sulphur Creek | | | | | |
| 10 - USACE Restoration Area | | | | | |
| 11 – Sulphur Creek in Crown Valley Park | | | | | |
| 12 – La Paz Park Wetlands | | | | | |
| 13 – Salt Creek Corridor Habitat Restoration Area | | | | | |
| Total | | | | | |

General Program Notes and Recommendations (including adaptive management and monitoring):

_____
_____
_____
_____
_____
_____
_____

Attachment 1. Pre- and Post-Maintenance Photographs

Appendix B

# Biological Resources Technical Report

# BIOLOGICAL TECHNICAL REPORT FOR THE LAGUNA NIGUEL WETLANDS OPERATIONS AND MAINTENANCE ACTIVITIES PROJECT, LAGUNA NIGUEL, CA

**PREPARED FOR:**

City of Laguna Niguel
30111 Crown Valley Parkway
Laguna Niguel, CA 92677
Contact: Ziad Mazboudi

**PREPARED BY:**

ICF
525 B Street, Suite 1700
San Diego, CA 92101
Contact: Lanika Cervantes

November 2017



ICF. 2017. *Biological Technical Report for the Laguna Niguel Wetlands Operations and Maintenance Activities Project*. Draft. November. (ICF 00357.16.) San Diego, CA. Prepared for the City of Laguna Niguel, CA.

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# Acronyms and Abbreviations

| | |
|---|---|
| AMSL | above mean sea level |
| CAGN | California gnatcatcher |
| CCR | California Code of Regulation |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CFGC | California Fish and Game Code |
| CFR | Code of Federal Regulations |
| City | City of Laguna Niguel |
| CNDDB | California Natural Diversity Data Base |
| CNPS | California Native Plant Society |
| CRPR | California Rare Plant Rank |
| CWA | Clean Water Act |
| dBA | A-weighted decibels |
| EPA | U.S. Environmental Protection Agency |
| ESRI | Environmental Systems Research Institute |
| FESA | Federal Endangered Species Act |
| FR | Federal Register |
| GPS | global positioning systems |
| I-5 | Interstate 5 |
| LBV | least Bell's vireo |
| Leq | equivalent sound level |
| MBTA | Migratory Bird Treaty Act |
| NAIP | National Agriculture Imagery Program |
| NRCS | Natural Resources Conservation Service |
| NWI | National Wetland Inventory |
| O&M | operations and maintenance |
| OHWM | Ordinary High Water Mark |
| PCE | primary constituent element |
| Project | Wetlands Operations and Maintenance Project |
| RWQCB | Regional Water Quality Control Board |
| SSURGO | Soil Survey Geographic |
| SWFL | Southwestern willow flycatcher |
| SWPT | Southwestern pond turtle |
| USACE | U.S. Army Corps of Engineers |
| USDA | U.S. Department of Agriculture |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |

# Chapter 1
# Introduction

ICF has prepared this biological technical report for the City of Laguna Niguel (City) Wetlands Operations and Maintenance Project (Project). The City conducts operations and maintenance (O&M) activities at stormwater facilities associated with 13 wetland restoration and mitigation sites.

## 1.1 Project Location

The Project is located in the City of Laguna Niguel, within Orange County, California (Figure 1), west of Interstate 5 (I-5), east of Aliso Woods Regional Park, south of State Route 73, and north of the Pacific Ocean. Specifically, the Project is within the area bounded by Street of the Golden Lantern to the east, Alicia Parkway and Crown Valley Parkway to the west, Aliso Creek Road to the north, and Beacon Hill Way to the south (Figure 2). The Project area contains one blue-line/perennial drainage (Salt Creek), and one intermittent drainage (Sulphur Creek), as depicted on the U.S. Geological Survey (USGS) 7.5-minute San Juan Capistrano quadrangle (USGS 1981).

## 1.2 Project Description

The City plans to conduct routine O&M activities within 13 City-owned wetland sites located in the Sulphur Creek watershed; a portion of the Salt Creek Watershed, within Chapparosa Park; and in the new construction associated with the J03P01 channel within Crown Valley Regional Park (Figure 1 and Figure 2). The Project would include minor maintenance activities such as removing herbaceous vegetation and accumulated sediment around outfalls, risers, culverts, bridge crossings, establishing pilot channels to facilitate positive flow and maintain flood capacity (i.e., flowline maintenance), and trimming understory of riparian vegetation (i.e. below the tree canopy) to prevent obstruction of flow.

An O&M plan, *Laguna Niguel Wetlands Operation and Maintenance Activities Project, Laguna Niguel, CA* (ICF 2017) establishes objectives, describes specific O&M activities for each wetland site, identifies impacts, and identifies reporting requirements. In general, O&M activities will include the following:

(1) Vegetation Maintenance – Storm drain outfalls, inlets, risers, and concrete or stone weirs will be cleared of all herbaceous vegetation. Additionally, a 3- to 30-foot radius surrounding the maintenance facility will be cleared, by hand or mechanized equipment, of herbaceous vegetation. Understory vegetation trimming may also be necessary to allow clearance for inspections and maintain hydraulic flow. Native plants and native vegetative detritus within wetland areas will be pruned, and trimmed, to alleviate encroachment of vegetation over or onto a public area such as a sidewalk or trail. Native vegetation may be removed only if determined to be a public safety hazard and will be limited to dying or unstable trees located near public sidewalks or trails. Damaged limbs occurring at locations where the public would be threatened if the limbs fall will be addressed, as will vegetative or detritus impediments to stream flow that could potentially cause flooding or seepage of water onto

public areas. Combustible vegetative fuel buildup near fire-susceptible structures or developments will be managed, as well as vegetative blocking of signage visibility or access for County Vector Control or environmental research activities and encroachment into overhead utility lines or impeding required access to maintenance facilities, cleanouts, manholes or vaults. Debris from trimming of native vegetation will be cut and disposed of off-site.

(2) Sediment Maintenance - Storm drain outfalls, inlets, risers, and concrete or stone weirs will be cleaned of accumulated sediment to maintain hydraulic flow. Where equipment access is available, equipment for sediment removal will include a mini-excavator, a bobcat loader, and a dewatering bin that will be used to stockpile the sediment. In areas where access is limited, hand tools (e.g. shovels and wheel barrels) will be used to remove accumulated sediment. Additionally, a 3- to 30-foot radius above and/or below the maintenance facilities will also be cleared of accumulated sediment. All sediment will be legally disposed of off-site.

(3) Flowline Maintenance – Pilot low-flow channels will be maintained within 12 of the City-owned wetland sites (excludes Site 3. North Alicia Wetland) in order to maintain positive hydraulic flow. Pilot channels will be limited to 3 feet wide and run the length of the wetland site. Where equipment access is available, equipment for the establishment of the pilot channels will include a backhoe with extend-a-hoe, a vactor pump truck, and a dewatering bin. In areas where access is limited, hand tools (e.g. shovels and wheel barrels) will be used. The established pilot channels will be maintained (i.e., removal of herbaceous vegetation, accumulated vegetative detritus, and sediment, tree/shrub understory trimming, trash and debris removal, and maintenance of access paths) on a biannual basis, typically in spring and fall.

(4) Access Path Maintenance – All designated dirt paths for maintenance and vector control access will be maintained in a clean and safe condition. Access path maintenance includes pruning and trimming of adjacent and overhanging vegetation for a 6-foot vertical and 3-foot horizontal clearance, removal of any dead or damaged branches or limbs overhanging the access path, and path erosion repair. General tree pruning will be conducted on an as-needed basis and no more than once per year and with the intent of developing structurally sound trees with adequate vertical and horizontal clearance adjacent to public access ways. Tripping hazards such as rocks and exposed roots will be removed and holes will be filled with dirt or decomposed granite. No new access paths are proposed, only the maintenance of existing footpaths are proposed.

(5) Nonnative Vegetation Removal - All nonnative vegetation will be removed and may require chemical application of herbicides in extreme circumstances. Only herbicides approved by the U.S. Environmental Protection Agency (EPA) as suitable near water sources, such as AquaMaster, would be used. All nonnative material will be cut and disposed of off-site. Nonnative vegetation removal will occur within the entirety of the wetland sites.

(6) Trash and Debris Maintenance – All trash and debris will be removed by hand or by hand-held mechanized equipment from the entirety of the wetland sites and legally disposed of off-site. Trash and debris maintenance will occur quarterly in the wetland areas. Trash and debris removal in the wetland sites will be conducted once in spring, once in early fall prior to the first rain, and two times during the winter after significant rainstorms.

(7) Rodent and Pest Control – Rodents and pests will be controlled only as necessary to limit excessive damage to native areas or adjacent ornamental landscaping. Rodents include gophers and ground squirrels and pests include but are not limited to, snails, sow bugs, aphids, caterpillars, etc., that could cause damage to any plants, shrubs, groundcover, trees,

irrigation systems, facilities or cause erosion. All methods employed to perform rodent and pest control will conform to all federal, state and county environmental regulations.

## 1.2.1 Description of Wetland Sites

A general description of each of the 13 City-owned wetland sites is provided below (Figure 2).

### 1.2.1.1 West Alicia Wetland (Site 1)

Site 1 is a restored channel. The West Alicia Wetland contains a portion of Sulphur Creek, a perennial drainage, that flows north through the site along Alicia Parkway for approximately 2,800 feet from a small concrete collection channel to a large concrete culvert, eventually flowing outside of the Project area to an unnamed tributary to Aliso Creek. There are several small concrete outfalls that collect runoff from the surrounding hillside to the west and direct flow into this drainage as it proceeds northward.

### 1.2.1.2 East Alicia Wetland (Site 2)

The East Alicia Wetland is an approximately 1.28-acre site occurring in the lower area, approximately 400 feet of a short, intermittent drainage that collects runoff from surrounding development.

### 1.2.1.3 North Alicia Wetland (Site 3)

Site 3 is a network of six built retention basins linked by small over-flow channels, located on the eastern side of Alicia Parkway within the project area. A small (approximately 4-foot-wide) concrete box culvert contributes water to the most upstream basin in the southeastern corner of the Project area. At the downstream (northwestern) corner, a culvert receives water from East Alicia Wetland (Site 2) and flows toward an unnamed tributary to Aliso Creek.

### 1.2.1.4 Crown Valley Park Wetland Creation Area/J03P01 (Site 4)

Site 4 is a perennial unnamed tributary to Sulphur Creek that flows northeast for approximately 1,500 feet through the Project site within the Crown Valley Community park grounds to its confluence with Sulphur Creek. The wetland is bound on the southern edge by a large concrete culvert and concrete low-flow channel, and on the northern edge by a pedestrian bridge that crosses the drainage. The drainage has also been previously permanently impacted where the Community Park road crosses the drainage, and the stream is routed through three large culverts within the bridge structure. The upstream (southern) portion of Site 4 consists of braided channels between the bridge crossing and the upstream culvert. The channel widens at a shallow scour pool below the culvert. In the downstream portion of Site 4, between the Community Park Bridge and a pedestrian footbridge, the drainage is substantially confined by adjacent land use activities (playing fields and sidewalk).

### 1.2.1.5 Sulphur Creek Park Wetland Enhancement Area (Site 5)

Site 5 is comprised of an approximately 800-foot-long section of Sulphur Creek that runs between Crown Valley Parkway and adjacent residential development within the Project site. This drainage has been restored from previous concrete channelization and currently supports wetland habitat. Within the Project area, Sulphur Creek is a small, approximately 4-foot-wide channel that flows

southeast toward Crown Valley Community Park. There is a large concrete box culvert at the southern edge of the Project area, and there is a concrete and riprap velocity control structure approximately halfway upstream in the reach of Site 5.

#### 1.2.1.6 Sulphur Creek Creation Area at Crown Valley (Site 6)

Site 6 is a high-flow channel and associated braided channels of Sulphur Creek within the Project site. This is a restoration site that flows in a northern direction toward Aliso Creek.

#### 1.2.1.7 Rancho Niguel Master Association Upper Sulphur Creek (Site 7)

Site 7 is an approximately 3,700-foot-long section of Sulphur Creek that runs between Crown Valley Parkway and adjacent residential development within the Project area, and is approximately bisected by Golden Lantern Street. This drainage has been restored from previous concrete channelization as part of the Upper Sulphur Creek Channel Restoration Project. Within the Project area, Sulphur Creek is a small, approximately 4-foot-wide channel that flows southeast. There are four large concrete box culverts through which the stream passes: at the northern edge of the Project site, at the upstream and downstream ends of Golden Lantern Street crossing, and at the southern edge of the Project site.

#### 1.2.1.8 Crown Royale Homeowners Association Upper Sulphur Creek (Site 8)

Site 8 is an approximately 1,500-foot-long section of Sulphur Creek that runs between Crown Valley Parkway and adjacent residential development within the Project area. The site has been restored from previous concrete channelization to support wetland and riparian habitat as part of the Upper Sulphur Creek Channel Restoration Project. Within the Project site, Sulphur Creek is a small, approximately 4-foot-wide channel that flows southeast. At the northern end of the Project area, there is a large concrete box culvert and concrete apron through which the stream passes inside a shallow low-flow channel as it exits under Nueva Vista Road. There is a concrete outfall and velocity dissipating structure within the channel near the intersection of Crown Valley Parkway and Adelanto Road. At the southern edge of the Project area, the stream enters another large concrete box culvert as it passes under La Paz Road.

#### 1.2.1.9 Niguel Ridge Homeowners Association Upper Sulphur Creek (Site 9)

Site 9 is an approximately 1,900-foot-long section of Sulphur Creek running between Crown Valley Parkway and adjacent residential development within the Project site. Site 9 has been restored from previous concrete channelization to support wetland and riparian habitat as part of the Upper Sulphur Creek Channel Restoration Project. Within the Project area, Sulphur Creek is a small, approximately 4-foot-wide channel that flows southeast. At the northern end of the Project area, there is a large concrete box culvert and concrete apron through which the stream passes inside a shallow low-flow channel as it exits under La Paz Road. The wetland site is approximately bisected by La Plata Road, which crosses over the drainage, where the stream runs through a large concrete box culvert that is flanked on both sides by a concrete apron with a low-flow concrete channel.

### 1.2.1.10 U.S. Army Corps of Engineers Sulphur Creek Restoration Area (Site 10)

Site 10 occurs north of Crown Valley Parkway directly downstream of the Sulphur Creek Wetland Creation Area site in Crown Valley Community Park. This wetland site was restored by the U.S. Army Corps of Engineers (USACE) to widen the active floodplain of Sulphur Creek to improve flood capacity. Riparian vegetation along Site 10 is dominated by arroyo willow and mule's fat, and the riparian canopy has mostly closed above the stream. Herbaceous vegetation is dominated by yerba mansa. The larger floodplain present in this area is approximately 100 feet wide.

### 1.2.1.11 Sulphur Creek in Crown Valley Park (Site 11)

Site 11 is an approximately 700-foot-long section of Sulphur Creek. Within the Project site, the drainage has been restored from previous concrete channelization. Within the Project area, Sulphur Creek is a small, approximately 5-foot-wide channel that flows west.

### 1.2.1.12 La Paz Park Wetlands (Site 12)

Site 12 consists of an approximately 600-foot-long section of an unnamed tributary to Sulphur Creek (Site 12b), two small side drainage channels (Site 12a and Site 12c), and one additional isolated inlet (Site 12d) within the Project site, where Site 12b, the unnamed tributary, is a small, approximately 6-foot-wide channel that flows west and is incised within steep banks (Figure 5-Sheet 1). The stream exits a large concrete culvert with concrete slope protection as it passes under La Paz Road past the eastern end of the Project area. Site 12a, a small drainage channel to the north of the unnamed tributary, has an active channel approximately 3 feet wide, is fed from a concrete outfall located at the eastern end, and drains to the unnamed tributary through a culvert on its western end. The second side drainage feature, Site 12c, located northwest of the stream features, is fed by two concrete outfall structures on its northern and western sides, and drains through a concrete culvert on the southern side to the unnamed tributary (Site 12b). The isolated inlet feature (Site 12d) is not a jurisdictional feature and only supports a few mule's fat and upland vegetation. This feature directs urban runoff from the parking lot into the inlet structure.

### 1.2.1.13 Salt Creek Corridor Habitat Restoration Area (Site 13)

Site 13 includes Salt Creek Mainstem and six unnamed tributaries to Salt Creek. The portion of Salt Creek located within Site 13 is a southward flowing perennial stream primarily fed by urban runoff from irrigation. It has a natural channel that runs for approximately 1,400 feet between two large (wider than 20 feet) concrete culverts that pass the stream under the Salt Creek Bike Trail and Niguel Road. The channel is sharply incised with an approximately 4-foot drop separating the active channel from upland habitat.

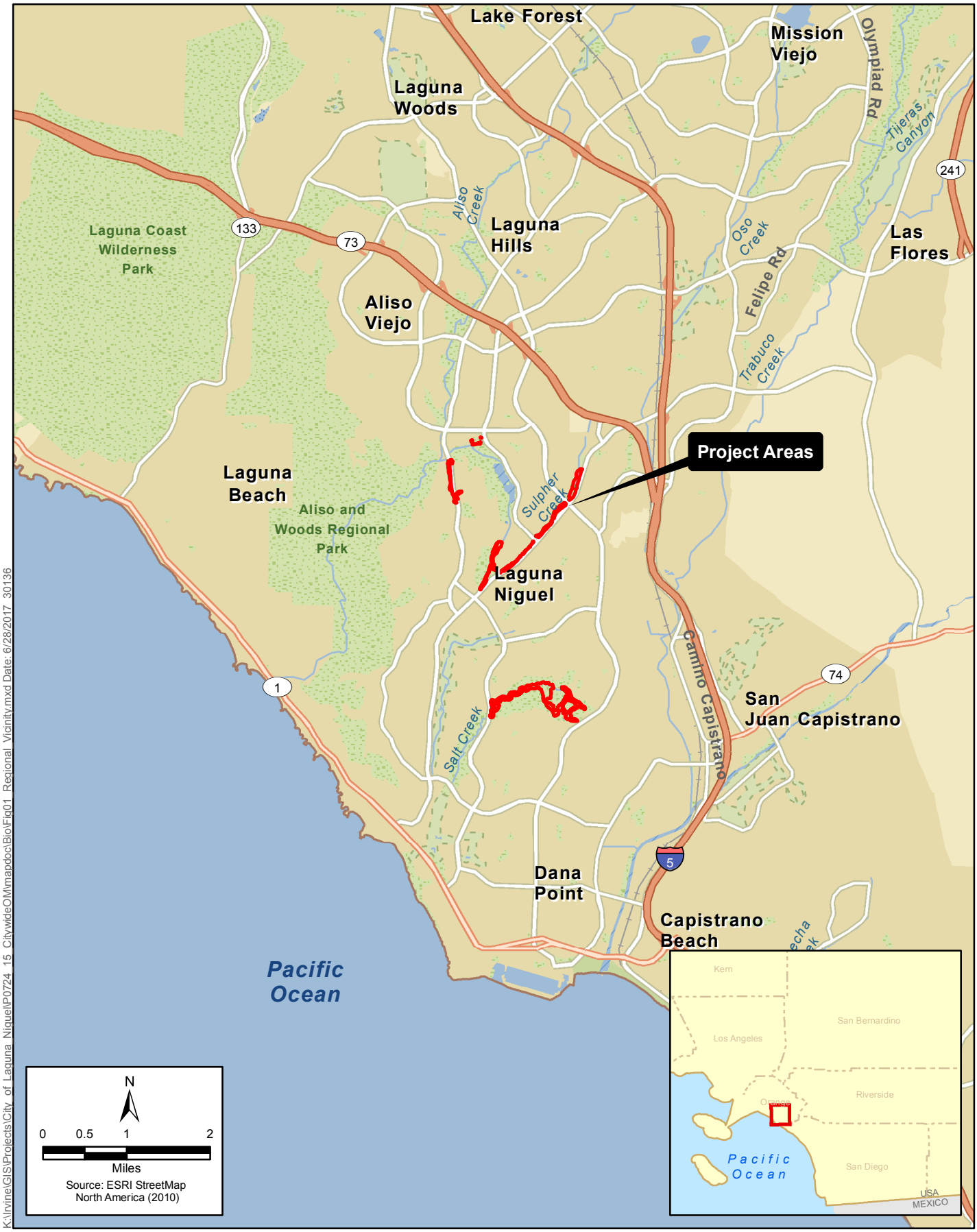


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**Figure 1**
**Vicinity Map**
**Laguna Niguel O&M Program**

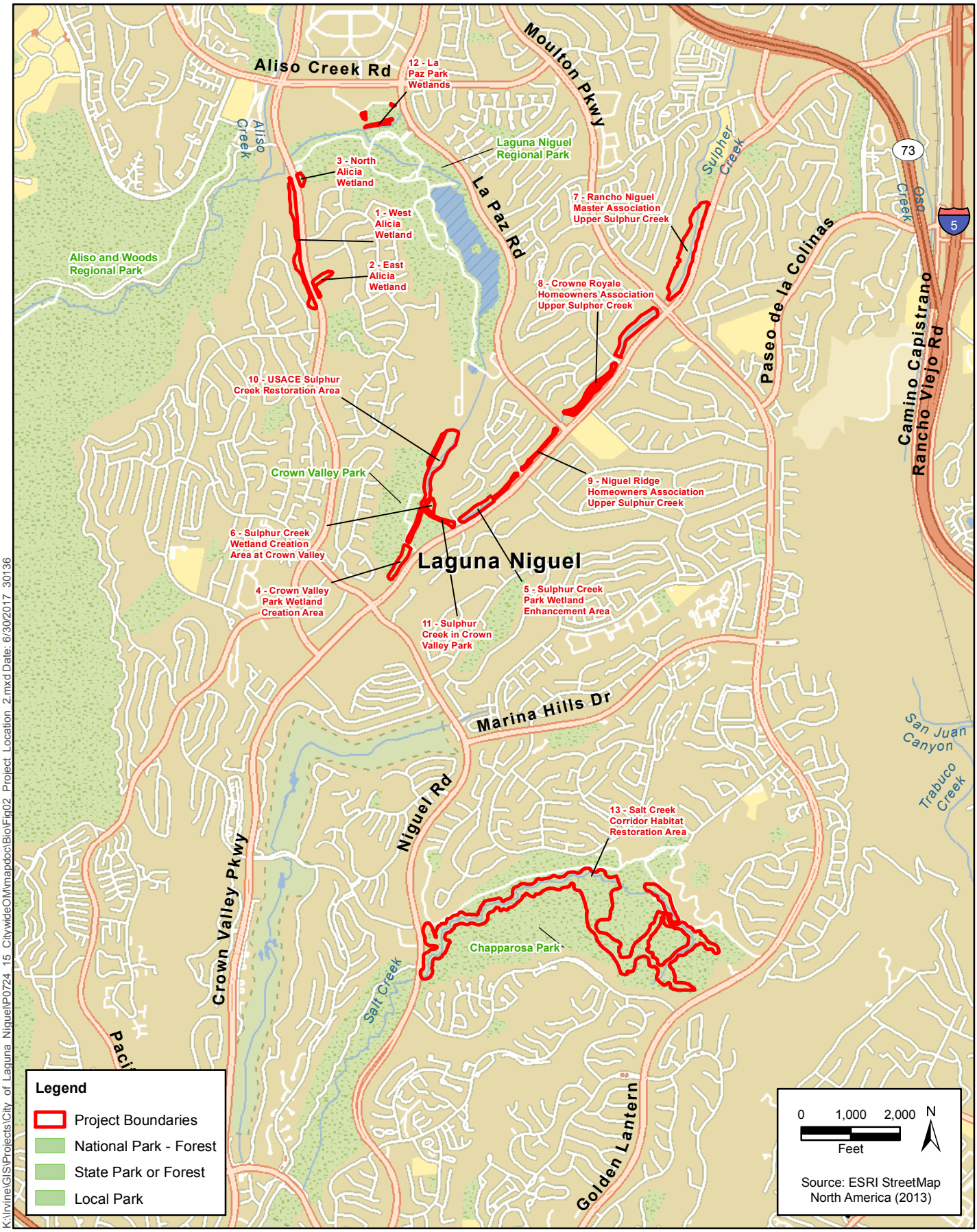


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**Figure 2**
**Project Location**
**Laguna Niguel O&M Program**

# Chapter 2
# Methods

## 2.1 Literature Review

Prior to conducting field surveys, ICF conducted a literature and records search for information on special-status species occurrences within the Project area. The following databases/resources were reviewed for occurrences within 5 miles of the Project:

- CDFW Special Animals List (CDFW 2017).
- California Natural Diversity Data Base (CNDDB) element occurrences (CDFW 2017).
- California Native Plant Society's (CNPS) Online Inventory of Rare and Endangered Plants, 8th Edition (CNPS 2017).
- eBird (2017) online database of bird distribution and abundance (Sullivan et al 2009).
- National Wetlands Inventory database.
- USGS 7.5-minute topographical maps of the Project area and vicinity (USGS 2017).
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey maps (2015).
- For the purposes of this report, species are considered to have special status if they meet at least one of the following criteria:
- Species listed or proposed for listing as threatened or endangered under the Federal Endangered Species Act (FESA) (Code of Federal Regulations [CFR], Title 50, Section 17.12 [listed plants]).
- 50 CFR 17.11 (listed animals); and various notices in the *Federal Register* (FR) (proposed species).
- Species that are candidates for possible future listing as threatened or endangered under the FESA (79 FR 72450, December 5, 2014).
- Species listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (CESA) (14 California Code of Regulations [CCR] 670.5).
- Plant species listed as rare under the California Native Plant Protection Act (California Fish and Game Code 1900, et seq.).
- Species that meet the definitions of *rare* or *endangered* under the California Environmental Quality Act (CEQA) (Sections 15380 and 15125).
- Wildlife Species of Special Concern to the CDFW.
- Wildlife species that are fully protected in California (California Fish and Game Code [CFGC] Sections 3511 [birds], 4,700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish]).

- Plant species listed as having a California Rare Plant Rank (CRPR) as 1A (presumed extinct in California), 1B (rare, threatened, and endangered in California and elsewhere), or 2 (rare, threatened, or endangered in California, but more common elsewhere) (CNPS 2017). CRPR List 1A, 1B, 2, and 3 species are considered special-status plant species as defined in the Native Plant Protection Act, CFGC Section 1901, or the CESA, CFGC Sections 2050 through 2098.
- CRPR 3 (plants for which more information is needed [a review list]), or 4 (plants of limited distribution [watch list]) (CNPS 2017). Many CRPR 4 species do not meet the definitions of special status as defined in the Native Plant Protection Act, CFGC Section 1901, or CESA, CFGC Sections 2050 through 2098 but are strongly recommended for consideration under CEQA (CNPS 2017).

The results of the literature review were compiled into a list of potentially occurring plant and wildlife species, and each species was analyzed for its potential to occur within the Project area (Appendices A and B).

**Table 2-1. Criteria for Evaluating Special-Status Species Potential to Occur**

| Potential | Criteria |
|---|---|
| Not Expected | Species is restricted to habitats or environmental conditions that do not occur within the Project area, or a plant was not observed during focused rare plant surveys that would have been observed if present in the Project area (i.e., a conspicuous perennial, shrub or tree). |
| Low | Records for this species exist within 5 miles of the Project area but habitats or environmental conditions needed to support the species do not exist, are very limited, are isolated, or are highly disturbed within the Project area. Low potential to occur may also be used when species records are very old (pre-1980s), regardless of habitat conditions within the Project area. For special-status plants, low potential may also be used when the plant was not observed during special-status plant surveys and its lack of detectability may be due to environmental limitations such as drought or annual variability in germination (e.g., bulbiferous perennials, annuals). |
| Moderate | Records for this species exist within 1 to 5 miles of the Project area; however habitats or environmental conditions needed to support the species are limited within the Project area. Species records indicate few previously documented occurrences within 1 mile of the Project area. |
| High | Records for this species exist within 1 mile of the Project area and habitats or environmental conditions needed to support the species exists within the Project area. Species records indicate previously documented occurrences within 1 mile of the Project area. |
| Present | Species was detected within or near the Project area during surveys. |

## 2.2 General Biological Survey

ICF biologists Kim Ferree and Courtney Casey completed a habitat assessment of the 13 wetland sites in May of 2016. ICF biologists Lance Woolley completed vegetation mapping within the 12 wetland restoration sites and portions of Salt Creek and its six unnamed tributaries within Chapparosa Park on June 28, June 30, and July 11, 2016, by walking meandering transects and from selected vantage points that allowed an expansive view of the Project area. Vegetation communities

were classified based on the dominant and characteristic plant species, in accordance with *A Manual of California Vegetation* (Sawyer et al. 2009, Second Edition). Vegetation mapping was conducted with iPad Air devices using the Environmental Systems Research Institute (ESRI) Collector application. Digital imagery for the Project area was loaded into ESRI Collector, which allowed for digitally creating and editing data (points, polygons, and lines) at any scale. The minimum mapping unit was 0.5 acre upland communities and 0.1 acre for riparian communities.

Plant species observed were identified by visual characteristics and morphology in the field. Taxonomic nomenclature for plants follows the Jepson Manual: Higher Plants of California (Baldwin et al. 2012).

ICF biologists conducted a desktop analysis and field habitat assessment to identify potentially suitable southern western pond turtle (SWPT) (*Actinemys pallida*) habitat that could be impacted by the City of Laguna Niguel's (City) operation and maintenance activities at stormwater facilities and wetland restorations sites. The field habitat assessment was conducted within the project area by ICF wildlife biologists Manna Warburton and Sarah Horwath on July 14, 2016.

Based on the results of the habitat evaluations, it was determined that focused surveys would be needed for least Bell's vireo (LBV) (*Vireo bellii pusillus*), Southwestern willow flycatcher (SWFL) (*Empidonax trailli extimus*), and SWPT. In addition, a jurisdictional delineation of each wetland site was conducted. Table 2-2 summarizes the survey dates when and the field personnel who performed the surveys described.

**Table 2-2. Survey Dates, Types, and Personnel**

| Survey Type | Survey Dates (2016)[1] | Personnel |
|---|---|---|
| Habitat Assessments | 5/2 | Kim Ferree and Courtney Casey |
| Vegetation Mapping | 6/28, 6/30, 7/11 | Lance Wooley with Sarah Horwath |
| Southwestern Pond Turtle Habitat Assessment | 7/14 | Sarah Horwath and Manna Warburton |
| Least Bell's Vireo Focused Survey | 5/6, 5/17, 6/3, 6/16, 6/27, 7/8, 7/19, 7/30 | Kim Ferree with Courtney Casey, Ryan Layden, and Jason Berkeley |
| Southwestern Willow Flycatcher Focused Survey | 5/17, 6/3, 6/16, 6/27, 7/8 | Kim Ferree with Courtney Casey, Ryan Layden, and Jason Berkeley |
| Southwestern Pond Turtle Focused Survey | 9/25/2017 – 9/29/2017 | William Kohn with Sarah Horwath |
| Jurisdictional Delineation | 6/28, 6/30, 7/11 | Lance Wooley with Sarah Horwath |

[1] Surveys completed in 2016, unless otherwise specified.

# 2.3 Focused Studies

## 2.3.1 Least Bell's Vireo Survey

The focused survey for least Bell's vireo followed the guidelines provided by USFWS (2001) to determine the presence/absence of the species within the wetland sites. ICF biologists conducted eight presence/absence surveys within all potentially suitable habitat in the Project area from May 6 to July 30, 2016. All visits were performed during the morning hours (before 12:30 p.m.) when the

species are most active, and included frequent stops to look for individuals and listen for vocalizations. Some of the focused surveys for least Bell's vireo were performed concurrently with the surveys for SWFL. No surveys were performed during inclement weather such as extreme hot or cold temperatures, fog, high winds, or rain. Details of the full survey methodology, survey dates, and conditions are found in Appendix C.

### 2.3.2 Southwestern Willow Flycatcher

A five-visit protocol-level survey following the amended USFWS survey protocol for SWFL (Sogge et al. 2010) was conducted between May 17 and July 8, 2016 by ICF biologist, Kim Feree (USFWS permit # TE-122632). Potentially suitable habitat was slowly walked with frequent stops to look, listen, and play recordings of flycatcher vocalizations. Recordings were played at distance intervals of approximately 75 to 100 feet and only while stationary and after first looking and listening for any potential flycatchers. One survey occurred within the first survey period (May 15–31), two within the second survey period (June 1–24), and two within the third survey period (June 25–July 17). Each survey was conducted at least 5 days apart and concluded by 11:30 a.m. Details of the full survey methodology, survey dates, and conditions are found in Appendix C.

### 2.3.3 Southwestern Pond Turtle

A focused trapping survey for SWPT was conducted between October 3 through October 6, 2017, by ICF biologists Sarah Horwath (Scientific Collecting Permit [SCP] #9656.) and William Kohn (SCP #3387). Trapping was conducted based on the recommended guidelines provided by the *USGS Western Pond Turtle (Emys marmorata) Trapping Survey Protocol for the Southcoast Ecoregion* (USGS 2006a). Visual surveys for turtles were conducted opportunistically between trap deployments and trap checks, and generally followed recommended guidelines provided by the *USGS Western Pond Turtle Visual Survey Protocol for the Southcoast Ecoregion Survey Protocol* (USGS 2006b). Prior to the trapping, a field visit was conducted on September 25, 2017 by ICF biologists Sarah Horwath and William Kohn to re-visit potential SWPT habitats identified in July 2016 for trapping prioritization. Sites were prioritized for trapping based on previous turtle observations, habitat suitability for SWPT, accessibility for trap deployments, and risk of vandalism. The full survey methodology, survey dates, and site conditions are found in Appendix D.

## 2.4 Jurisdictional Delineation

ICF biologists conducted the jurisdictional waters and wetland delineation on June 28, June 30, and July 11, 2016. Prior to the field visit, sub 1-meter resolution NAIP aerial imagery (NAIP 2016), the USGS 7.5-minute topographic quadrangle maps for San Juan Capistrano (2015), and aerial imagery in Google Earth (Google Earth 2016) were compared to observe vegetation types, topographic changes, and visible drainage patterns associated with the Project areas. Known stormwater facilities and outfalls were reviewed as mapped in the Orange County Watersheds GIS Cloud data portal (OC Watersheds 2016a). The USDA NRCS Soil Survey Geographic (SSURGO) database (NRCS 2015a) and National Wetland Inventory (NWI) were reviewed to identify the soil series and mapped wetlands that occur within the Project areas (USFWS 2016). The Project area for the delineation consisted of the 12 wetland restoration sites, and portions of Salt Creek and its seven unnamed tributaries within Chapparosa Park. The survey was conducted on foot, and jurisdictional limits were recorded using high-resolution aerial photographs (1 inch=200 feet) and a sub-meter accuracy

Trimble global positioning systems (GPS) unit. Within areas that could potentially support wetlands, soil pits were dug to examine soil color and texture and determine the wetland boundary. A paired-pit technique was used (one sample point with wetland results paired with one sample point with non-wetland results, used to identify a wetland boundary). Existing conditions were documented as field notes and site photographs. Detailed methods of the jurisdictional waters and wetlands survey are presented in the Jurisdictional Delineation Report: City Of Laguna Niguel Wetlands Operations And Maintenance Activities, Orange County, Ca (Appendix E). Table 3-2 provides a description and total acreage of jurisdictional waters within the wetland project area.

### 2.4.1 U.S. Army Corps of Engineers

Potential Waters of the US and wetlands were delineated using methods established in the *Wetland Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b). Non-wetland waters were delineated based on the presence of OHWM indicators. Non-wetland waters under the jurisdiction of the U.S. Army Corps of Engineers (USACE) were delineated based on the presence of OHWM indicators, as defined in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley 2008). Changes in particle size, water staining, changes in vegetation cover/species, changes in slope from the active floodplain to the low terrace, shelving, and discernible bed and bank were the most common indicators used to delineate OHWMs in the survey area.

Features were also assessed for the potential to support jurisdictional wetlands. As described in the *Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a) the following three criteria normally must be fulfilled in order to classify an area as a jurisdictional USACE wetland: (1) a predominance of hydrophytic vegetation, (2) the presence of hydric soils, and (3) the presence of wetland hydrology.

### 2.4.2 State Jurisdiction

Evaluation of state jurisdiction followed guidance from Section 401 of the Clean Water Act (CWA) and typically follows the same jurisdictional areas as USACE. In addition, the Project areas were reviewed for resources potentially regulated under Porter-Cologne Act (i.e., isolated features). Isolated vernal pools, isolated wetlands, or other aquatic features not normally subject to federal regulation did not occur within the Project areas so no further evaluation was necessary. Non-wetland waters under the jurisdiction of the Regional Water Quality Control Board (RWQCB) were delineated based on the presence of OHWM indicators, as defined in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley 2008) as discussed in the previous section.

### 2.4.3 CDFW Jurisdictional Delineation

CDFW jurisdiction typically includes water features with a defined bed and bank. Evaluation of potentially jurisdictional areas followed the guidance of standard practices by CDFW personnel pursuant to CFGC, Chapter 6, Section 1600, et seq. CDFW jurisdiction was delineated by measuring

outer width and length boundaries of potentially jurisdictional areas (lakes or streambeds), consisting of the greater of either the top of bank measurement or the extent of associated riparian or wetland vegetation.

A delineation of federal and state waters and wetlands was conducted by ICF biologists on June 28, June 30, and July 11, 2016. The Project area for the delineation consisted of the 12 wetland restoration sites and parts of Salt Creek and its seven unnamed tributaries within Chapparosa Park. Details of the survey methodology, survey dates, and detailed description of each wetland site is provided in Appendix E.

Chapter 3
# Existing Conditions

## 3.1 Regulatory Setting

### 3.1.1 Federal Requirements

#### 3.1.1.1 Federal Endangered Species Act

FESA and its subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. Section 9 of the act lists all activities that are prohibited by FESA. The "take" of any listed species is prohibited. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Section 7 of the FESA requires federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of Critical Habitat for these species. For non-marine environments, USFWS is responsible for administering FESA. Regulations governing interagency cooperation under Section 7 are found in 50 CFR Part 402. The opinion issued at the conclusion of consultation will include a statement authorizing take that may occur incidental to an otherwise legal activity.

#### 3.1.1.2 Clean Water Act

CWA provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 404 establishes a permit program administered by USACE regulating the discharge of dredged or fill material into waters of the United States (including wetlands). Implementation regulations by USACE are found at 33 CFR Parts 320–330. Guidelines for implementation are referred to as Section 404 (b)(1) Guidelines and were developed by the EPA in conjunction with USACE (40 CFR Parts 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

#### 3.1.1.3 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act applies to any federal project where the waters of any stream or other body of water are impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with USFWS and the appropriate state wildlife agency. These agencies prepare reports and recommendations that document project effects on wildlife and identify measures that may be adopted to prevent loss or damage to wildlife resources. The term *wildlife* includes both animals and plants. Provisions of this act are implemented through the Section 404 permit process.

#### 3.1.1.4 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) is a treaty with Canada, Mexico, and Japan that makes it unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, or kill

migratory birds. The law applies to the removal of nests occupied by migratory birds during the breeding season. Migratory birds as defined under this act are most native birds in North America except galliformes (a group of birds containing turkeys, grouse, chickens, quails, and pheasants) and a few others (e.g., wrentit). Permitted activities are allowed under USFWS regulations for hunting and for actions to prevent or minimize risks to human safety.

## 3.1.2 State Requirements

### 3.1.2.1 California Endangered Species Act

CESA establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. It prohibits the "take" of any species that the California Fish and Wildlife Commission determines to be a threatened or endangered species and is administered by CDFW. CESA mandates that state agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no state agency consultation procedures under CESA. For projects that affect both a state and federal listed species, compliance with the federal ESA will satisfy CESA if CDFW determines that the federal incidental take authorization is "consistent" with CESA under Fish & Wildlife Code Section 2080.1.

### 3.1.2.2 California Fish and Game Code, Sections 3511, 4700, 5050, 5515—Fully Protected Species

The State of California first began to designate species as "fully protected" prior to the creation of CESA. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction, and included fish, mammals, amphibians and reptiles, and birds. Most fully protected species have since been listed as threatened or endangered under CESA and/or FESA. The Fully Protected Species statutes provide that fully protected species may not be taken or possessed at any time. Furthermore, these statutes prohibit any state agency from issuing incidental take permits for fully protected species except for necessary scientific research.

### 3.1.2.3 California Fish and Game Code, Section 1600-1616 - Wetlands

The Fish and Game Code of California mandates: "It is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds, without first notifying the department of such activity." CDFW jurisdiction includes ephemeral, intermittent, and perennial watercourses (including dry washes) and lakes characterized by the presence of (1) definable bed and banks and (2) existing fish or wildlife resources. Furthermore, CDFW jurisdiction is often extended to habitats adjacent to watercourses, such as oak woodlands in canyon bottoms or willow woodlands that function hydrologically as part of the riparian system.

Historic court cases have further extended CDFW jurisdiction to include watercourses that seemingly disappear, but re-emerge elsewhere. Under the CDFW definition, a watercourse need not exhibit evidence of an OHWM to be claimed as jurisdiction. Water features such as vernal pools and other seasonal swales, where the defined bed and bank are absent and the feature is not contiguous or closely adjacent to other jurisdictional features, are generally not asserted to fall within state jurisdiction. The state generally does not assert jurisdiction over human-made water bodies unless

they are located where such natural features were previously located or (importantly) where they are contiguous with existing or prior natural jurisdictional areas.

Under recently revised Fish and Game Code Sections 1600–1616, CDFW has authority to regulate work that will substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake. CDFW also has authority to regulate work that will deposit or dispose of debris, waster, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. This regulation takes the form of a requirement for a Lake or Streambed Alteration Agreement and is applicable to all nonfederal projects.

#### 3.1.2.4 Porter-Cologne Water Quality Control Act

Under Section 401 of the CWA, an applicant for a Section 404 permit must obtain a certificate from the appropriate state agency stating that the intended dredging or filling activity is consistent with the state's water quality standards and criteria. In California, the authority to grant water quality certification is delegated by the State Water Resources Control Board to the nine RWQCBs. Each of the nine must prepare and periodically update a basin plan for water quality control in accordance with the Porter-Cologne Water Quality Control Act. Each basin plan establishes water quality standards for surface water and groundwater and specifies actions to control nonpoint and point sources of pollution. These actions are intended to achieve and maintain the basin plan's water quality standards.

Basin plans represent an opportunity to protect wetlands by establishing water quality objectives. Under the Porter-Cologne Water Quality Control Act, wetlands and drainages that are considered waters of the United States by USACE are also often classified as waters of the state. More recently, the appropriate RWQCB has also generally taken jurisdiction over "waters of the state" that are not subject to USACE jurisdiction under the federal CWA, in cases where USACE has determined that certain features do not fall under its jurisdiction. Mitigation typically must require no net loss of wetlands functions and values of waters of the state pursuant to Executive Order W-59-93, "State Wetland Conservation Policy."

# 3.2 Environmental Setting

## 3.2.1 Surrounding Land Uses

Land uses in the local vicinity of the Project areas include residential and commercial developments, undeveloped open space, schools, and recreational uses including pedestrian and bicycle trails, and parks. Several parks are in the vicinity, including Laguna Niguel Regional Park, Crown Valley Park, Salt Corridor Regional Park, and Aliso and Wood Canyons Wilderness Park.

## 3.2.2 Topography

The Project areas occur in flat valleys and along steep slopes with an elevations ranging from roughly 150 feet above mean sea level (AMSL) at the northern end near Laguna Niguel Regional Park to approximately 60 feet AMSL at the southeastern end of Chapparosa Park (GoogleEarth 2016).

## 3.2.3 Hydrology

Sulphur Creek is a perennial tributary to Aliso Creek, fed by runoff from surrounding development, and is approximately 5 miles long. Downstream of the Sulphur Creek confluence, Aliso Creek flows approximately 5 miles to the Pacific Ocean where it empties at Aliso Beach County Park. Salt Creek is an intermittent coastal stream that flows out to the Pacific Ocean at Salt Creek County Beach.

## 3.2.4 Soils

NRCS has mapped the following soil series as occurring within the Project areas that support jurisdictional waters based on the SSURGO database (NRCS 2015a): Alo, Balcom, Botella, Calleguas, Cropley, and Sorrento. A description of each soil series is provided in the subsections below.

No additional map units were found to occur within the Project areas according to the NRCS (NRCS 2016). None of the soil series that occur within the Project area are listed as hydric soils (Orange County and Part of Riverside County) (NRCS 2015b). Figure 3 depicts the soils locations within Project areas.

### 3.2.4.1 Alo

The Alo soil series consists of well-drained, moderately deep substrate that was formed by weathering of shale and sandstone. Alo soils occur in mountainous areas at elevations of 200 to 3,250 feet, with slopes of 2 to 75 percent. The typical soil texture is clay loam, silty clay, or clay, with low to very high runoff and slow permeability. Alo soils have a moderate extent and are located on the Coastal Range in central and southern California Mountains.

Wetland sites 1, 2, 5, 7, 8, 9, 10, and a portion of the Salt Creek Habitat Restoration Area are located on Alo soils.

### 3.2.4.2 Balcom

The Balcom soil series consists of moderately deep, well-drained soils formed in material that weathered from soft, calcareous shale and sandstone. Balcom soils are located on rounded hills at elevations of 200 to 2,300 feet, with slopes of 5 to 75 percent. The typical soil texture is that of fine loam with silt, clay, with fine sand and coarser. They have low to high runoff and moderate to moderately slow permeability. Balcom soils have a moderate extent and are located on Coast Range Mountains in south-central California and on the west side of the Sacramento Valley.

Wetland sites 1, 3, and 12 are located on Balcom soils.

### 3.2.4.3 Botella

The Botella series consists of very deep, well-drained soils that occur on alluvial fans and valley bottoms. Botella soils occur at elevations from 50 to 2,100 feet, with slopes of 0 to 15 percent. The typical soil texture is fine loam with fragments. These soils have low to high runoff and moderately slow permeability. Botella soils have a moderate extent and are located in coastal valleys of central and southern California.

Wetland sites 1, 7, 8, 10, and a portion of the Salt Creek Habitat Restoration Area are located on Botella soils.

### 3.2.4.4 Calleguas

The Calleguas series consists of very shallow and shallow, well-drained soils that occur on exposed and often eroded south-facing slopes. They formed in material weathered from sandstone, shale, and mudstone. Calleguas soils occur at elevations from 100 to 2,800 feet, with slopes of 9 to 75 percent. The typical soil texture is loam, clay loam, silty clay loam, channery loam, channery clay loam, or channery silty clay loam, with medium or high runoff and moderate permeability. Calleguas soils have a large extent in the Coastal Range of central and south-central California.

Wetland sites 5, 6, 11, and a portion of the Salt Creek Habitat Restoration Area are located on Calleguas soils.

### 3.2.4.5 Cropley

The Cropley series consists of very deep, moderately well- and well-drained soils that occur on alluvial fans, floodplains, and small basins. They formed in alluvium from mixed rock sources. Cropley soils occur at elevations from 10 to 2,100 feet, with slopes of 0 to 15 percent. The typical soil texture is heavy clay loam, silty clay loam, silty clay or clay, with medium or high runoff and moderate permeability. Cropley soils have a moderate extent in Central California coastal valleys and Southern California coastal plain.

Wetland site 12 and a portion of the Salt Creek Habitat Restoration Area are located on Cropley soils.

### 3.2.4.6 Sorrento

The Sorrento series consists of very deep, well-drained soils that occur on alluvial fans and stabilized floodplains. They formed in alluvium from sedimentary rock sources. Sorrento soils occur at elevations from 25 to 2,100 feet, with slopes of 0 to 15 percent. The typical soil texture is fine loam, with negligible to medium runoff and moderate to moderately slow permeability. Sorrento soils have a large extent in the valleys and southern half of the California Coastal Range.

Wetland sites 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12 are located on Sorrento soils.

## 3.2.5 USFWS Critical Habitat

Critical Habitat is designated by USFWS for endangered and threatened species per FESA (16 USC Section 1533 (a)(3)) to the extent prudent and determinable and is defined as areas of land, water, and air space that contain the physical and biological features essential for the survival and recovery of endangered and threatened species. Designated Critical Habitat includes sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter. Special management of Critical Habitat, including measures for water quality and quantity, host animals and plants, food availability, pollinators, sunlight, and specific soil types, is required to ensure the long-term survival and recovery of the identified species. Critical Habitat designation delineates all suitable habitat for the species, whether or not it is occupied. In designating Critical Habitat for a species, USFWS defines primary constituent elements (PCEs) for that species, which are specific elements of physical or biological features that provide for a species' life-history processes and are essential to the conservation of the species.

A review of final Critical Habitat boundaries (USFWS 2017) indicates that designated Critical Habitat for California Gnatcatcher (CAGN) is within Salt Creek Corridor Habitat Restoration Area (Site 13).

Additionally, an area of CAGN Critical Habitat occurs directly southwest of Site 13, along the west end of Niguel Road, ending south of Camino del Avion and along the west end of Crown Valley Parkway and along Pacific Islands Drive (Figure 4).

A total of 1.53 acres of CAGN Critical Habitat occurs within the Project area and would be impacted by Project activities. The USFWS PCEs for CAGN as defined in the final Critical Habitat (December 19, 2007) are: (1) dynamic and successional sage scrub habitats that provide space for individual and population growth, normal behavior, breeding reproduction, nesting, dispersal, and foraging; and (2) non-sage scrub habitats such as chaparral, grassland, riparian areas, in proximity to sage scrub habitats as described in PCE (1) above that provide space for dispersal, foraging, and nesting. Refer to Section 3.3.3.1, *Special-Status Wildlife,* for information on the CAGN occurrences within the Project site.

Designated Critical habitat for Thread-leaved brodiaea is situated approximately 3,500 feet to the west of West Alicia Wetland (Site 1).

No other USFWS-designated Critical Habitat for any other special-status plant or animal species occurs within the Project site.

## 3.2.6 Wildlife Corridors

A wildlife migration corridor, particularly in an urban context, may generally be described as a linear landscape feature of sufficient width and buffer to allow wildlife movement between two patches of comparatively undisturbed habitat, or between a patch of habitat and a subset of vital resources. Regional corridors, or linkages, may be defined as those linking two or more patches of habitat, and local corridors may be defined as those allowing resident animals to access critical resources such as food, cover, and water in a smaller area that might otherwise be isolated by urban development.

Appropriate vegetation communities must be present to provide food and cover for both transient species and resident populations of less mobile animals. There must also be a sufficient lack of stressors and threats within and adjacent to the corridor for species to use it successfully. Corridors and linkages also function as breeding and nursery sites for a wide variety of invertebrate and vertebrate animal species, and function as stopover habitat for migrating avian species, providing food and shelter for birds traveling between North and South America.

The 13 wetland sites that comprise the Project are within areas characterized as wildlife corridors. La Paz Park Wetlands (Site 12), is situated within the northern end of Laguna Niguel Regional Park, a 227-acre park that runs generally northwest to southeast. This park is connected via a streambed and riparian habitat beneath Alicia Parkway to Aliso Wood Canyons Wilderness Park to the west, which is a 4,500-acre wilderness and open space recreational area designated as a wildlife sanctuary. The watercourse runs through Aliso Wood Canyons Wilderness Park into the Pacific Ocean. Although surrounded by heavy urban development, this habitat corridor is one of the largest naturally occurring wildlife sanctuaries within Orange County, providing vital habitat and acreage that is important for maintaining diversity while also providing animals with dispersal opportunities in an urbanized setting.

West Alicia Wetland (Site 1), East Alicia Wetland (Site 2) and North Alicia Wetland (Site 3), though divided by Alicia Parkway, are located along the Alicia Wetland habitat corridor. This corridor runs

north to south, spanning from Highway 73 to Highlands Avenue, directly adjacent to residential development in some areas. These wetlands support riparian vegetation such as American bulrush marsh, black willow thickets, California sycamore woodlands, cattail marshes, and salt grass flats. While small and interrupted by urban development, this corridor offers refuge to an array of species and provides connectivity to other open space areas.

Crown Valley Park Wetland Creation Area (Site 4) is a 3.11-acre perennial unnamed tributary to Sulphur Creek that flows northeast for approximately 1,500 feet through the Project site within the Crown Valley Park grounds to its confluence with Sulphur Creek. As this site is located within the southern portion of Crown Valley Park, and adjacent to Sulphur Creek, a small habitat corridor is created, allowing species to take refuge from the surrounding dense urban development. Vegetation within this wetland/habitat corridor consists mostly of black willow thickets, creating vital habitat for many riparian wildlife species.

Sulphur Creek Park Wetland Enhancement Area (Site 5), Sulphur Creek Creation Area at Crown Valley (Site 6), Rancho Niguel Master Association Upper Sulphur Creek (Site 7), Crown Royale Homeowners Association Upper Sulphur Creek (Site 8), and Niguel Ridge Homeowners Association Upper Sulphur Creek (Site 9), are located along Sulphur Creek, which functions as a habitat corridor and supports riparian vegetation such as arroyo willow thickets, black willow thickets, California bulrush marsh and cattail marshes, while also providing connectivity to other habitat and other corridors.

Sulphur Creek is formed by a storm culvert upstream, runs northeast to southwest, and flows generally south. There it turns northwest towards Sulphur Reservoir, a 44-acre lake about 1.5 miles long, formed by a damn on the northern end. The creek is connected downstream to Aliso Creek. Although Sulphur Creek is surrounded primarily by residential development and is therefore limited in the value it can offer and in the number of animals it can support, small corridors such as this are critical in maintaining diversity and providing dispersal opportunities for animals in urban settings.

USACE Sulphur Creek Restoration Area (Site 10), and Sulphur Creek in Crown Valley Park (Site 11) are located long Sulphur Creek, and within or adjacent to Crown Valley Park, creating a habitat corridor consisting mostly of arroyo willow thickets, coyote brush scrub and nonnative grasslands. Site 11 is an approximately 700-foot-long section of Sulphur Creek, located adjacent to open space, allowing interconnectivity for species and creating vital wetland and riparian habitat. Although the site is otherwise surrounded by residential development and is therefore limited in the value it can offer and in the number of animals it can support, this small corridor is important for maintaining diversity and providing dispersal opportunities for animals in this urban setting.

# 3.3 Biological Resources

## 3.3.1 Vegetation Communities

The total Project area is 110.10 acres and supports nine riparian and wetland vegetation communities, eight upland vegetation communities, and two other non-vegetated land cover types (Figure 5). Representative photographs of the Project area are provided in Appendix F. Table 3-1 lists the vegetation communities and land cover types present within each wetland site.

**Table 3-1. Vegetation Communities and Land Cover Types (Acres)**

| Vegetation Communities and Land Cover Types | West Alicia Wetland (Site 1) | East Alicia Wetland (Site 2) | North Alicia Wetland (Site 3) | Crown Valley Park Wetland Creation Area (Site 4) | Sulphur Creek Park Wetland Enhancement Area ( Site 5) | Sulphur Creek Wetland Creation Area (Site 6) | Rancho Niguel Upper Sulphur Creek (Site 7) | Crowne Royale Upper Sulphur Creek (Site 8) | Niguel Ridge Upper Sulphur Creek (Site 9) | USACE Sulphur Creek Restoration Project (Site 10) | Sulphur Creek in Crown Valley Community Park (Site 11) | La Paz Park Wetlands (Site 12) | Salt Creek Corridor Habitat Restoration Area (Site 13) | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Riparian and Wetlands** | | | | | | | | | | | | | | |
| American bulrush marsh | 0.09 | 0.15 | – | – | – | – | – | – | – | – | – | – | – | 0.24 |
| Arroyo willow thickets | – | – | – | 1.57 | 1.44 | – | 3.50 | 2.14 | 1.22 | – | – | – | 2.15 | 12.03 |
| Black willow thickets | 1.83 | – | 0.60 | – | – | – | 6.19 | – | – | 1.56 | 0.83 | 0.82 | 6.94 | 18.78 |
| California bulrush marsh | – | -- | – | 0.18 | – | – | – | 0.59 | 0.04 | – | – | – | – | 0.81 |
| California sycamore woodlands | 1.84 | 0.47 | – | – | – | – | – | – | – | – | – | 0.22 | – | 2.53 |
| Cattail marshes | 0.27 | – | – | – | – | – | 0.88 | – | – | – | – | – | 3.15 | 4.31 |
| Fremont cottonwood forest | – | – | – | 0.47 | – | 0.20 | – | – | – | 3.05 | – | – | – | 3.71 |
| Mule's fat thickets | – | – | – | – | – | 0.23 | – | – | – | – | – | 0.10 | – | 0.34 |
| Salt grass flats | 0.30 | – | – | – | – | – | – | – | – | – | – | – | – | 0.30 |
| Total Riparian and Wetlands | 4.33 | 0.62 | 0.60 | 2.22 | 1.44 | 0.43 | 10.57 | 2.73 | 1.26 | 4.61 | 0.83 | 1.15 | 12.24 | 43.04 |
| **Uplands** | | | | | | | | | | | | | | |
| California Annual Grassland | – | – | – | – | – | – | – | – | – | 0.24 | – | – | 33.44 | 33.68 |
| California brittle bush scrub | – | – | – | – | – | – | – | – | – | 0.38 | – | – | – | 0.38 |
| California sagebrush scrub | – | – | – | – | – | – | – | – | – | – | – | – | 17.13 | 17.13 |

| Vegetation Communities and Land Cover Types | West Alicia Wetland (Site 1) | East Alicia Wetland (Site 2) | North Alicia Wetland (Site 3) | Crown Valley Park Wetland Creation Area (Site 4) | Sulphur Creek Park Wetland Enhancement Area ( Site 5) | Sulphur Creek Wetland Creation Area (Site 6) | Rancho Niguel Upper Sulphur Creek (Site 7) | Crowne Royale Upper Sulphur Creek (Site 8) | Niguel Ridge Upper Sulphur Creek (Site 9) | USACE Sulphur Creek Restoration Project (Site 10) | Sulphur Creek in Crown Valley Community Park (Site 11) | La Paz Park Wetlands (Site 12) | Salt Creek Corridor Habitat Restoration Area (Site 13) | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Coyote brush scrub | – | 0.59 | – | – | 0.86 | 0.28 | – | – | – | 1.77 | – | – | 0.53 | 4.03 |
| Eucalyptus groves | – | – | – | – | 0.10 | – | 0.42 | – | – | – | – | – | – | 0.53 |
| Lemonade berry scrub | – | – | – | – | – | – | – | – | – | – | – | – | 0.35 | 0.35 |
| Menzies's golden bush scrub | – | – | – | – | – | – | 3.14 | 0.38 | – | – | – | – | – | 3.52 |
| Pampas grass patches | – | – | – | – | – | – | – | – | – | – | – | – | 0.20 | 0.20 |
| Total Uplands | – | 0.59 | – | – | 0.96 | 0.28 | 3.56 | 0.38 | – | 2.38 | – | – | 51.65 | 59.81 |
| **Other Land Cover Types** | | | | | | | | | | | | | | |
| Disturbed habitat | – | – | – | – | – | – | – | – | – | 0.16 | – | – | 0.17 | 0.33 |
| Urban/Developed | 0.43 | 0.09 | | 1.95 | – | – | 2.24 | 0.64 | 0.94 | – | – | 0.05 | 0.59 | 6.92 |
| Total Other Land Cover Types | 0.43 | 0.09 | – | 1.95 | – | – | 2.24 | 0.64 | 0.94 | 0.16 | – | 0.05 | 0.75 | 7.25 |
| **Total** | **4.76** | **1.30** | **0.60** | **4.16** | **2.41** | **0.71** | **16.38** | **3.75** | **2.20** | **7.16** | **0.83** | **1.20** | **64.64** | **110.10** |

General descriptions for each vegetation community (including dominant plant species) and land cover types, and the wetland sites where the vegetation communities and land cover types are present, are provided below.

### 3.3.1.1 Riparian and Wetlands

#### American Bulrush Marsh (*Schoenoplectus americanus*)

American bulrush marsh is a dense herbaceous community found along the edges of streams and ponds. In this community, American bulrush forms a continuous canopy to 13 feet in height. American bulrush is dominant with common associates including yerba mansa (*Anemopsis californica*), salt grass (*Distichlis spicata*), and cattail (*Typha* sp.). This community is a widespread marsh type in the state, and it provides habitat for wildlife. Seeds and stems of American bulrush and related species are very important food and cover. Most stands have been altered to supply water for irrigation. Approximately 0.09 acre of American bulrush marsh occurs in the West Alicia Wetland (Site 1) and 0.15 acre occurs in the East Alicia Wetland (Site 2) restoration areas (Figure 5, Sheet 2).

#### Arroyo Willow Thickets (*Salix lasiolepis*)

Arroyo willow thickets are a dense to moderately open woody riparian community found along stream edges. In this community arroyo willow forms an open to continuous canopy to 32 feet in height. Arroyo willow is dominant with common associates including coyote brush western sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii*) willow (*Salix* spp.), (*Baccharis pilularis*), and mulefat (*Baccharis salicifolia*). This community is a widespread riparian type in the state and easily colonizes moist ditches where it is often removed by flood-control districts and other agencies. The species is valuable for bank and slope stabilization. Approximately 12.03 acres of arroyo willow thickets occurs within the Project sites, with 1.57 acre in Crown Valley Park Wetland Creation Area (Site 4), 1.44 acres in Sulphur Creek Park Wetland Enhancement Area (Site 5), 3.50 acres in Rancho Niguel Homeowners Association Upper Sulphur Creek (Site 7), 2.14 acres in Crown Royale Homeowners Association Upper Sulphur Creek (Site 8), 1.22 acres in Niguel Ridge Homeowners Association Upper Sulphur Creek (Site 9), and 2.15 acres in Salt Creek (Site 13) (Figure 5, Sheets 3–10).

#### Black Willow Thickets (*Salix gooddingii*)

Black willow thickets are found along terraces and within the flood plain areas. In this community black willow forms an open to continuous canopy to 100 feet in height. Black willow is dominant or co-dominant in the tree canopy with Fremont cottonwood, red willow (*Salix laevigata*), arroyo willow (*S. lasiolepis*), and blue elderberry (*Sambucus nigra* ssp. *caerulea*). Shrubs include mulefat and coyote bush. The herbaceous layer is variable with native herbaceous perennials and annual non-native grasses. Black willow is one of the principal riparian trees in lower elevations of California. Stromberg (2001) considered mixtures of Fremont cottonwood and black willow to be globally imperiled, as a result of altered hydrologic regimes, flood control projects, and the presence of invasive plants. A total of 18.78 acres of black willow thickets occurs within the Project sites, with 1.83 acres occurring in the West Alicia Wetland (Site 1), 0.60 acre in North Alicia Wetland (Site 3), 6.19 acres in Rancho Niguel Master Association Upper Sulphur Creek (Site 7), 1.56 acres in USACE Sulphur Creek Restoration Project (Site 10), 0.83 acre in Sulphur Creek in Crown Valley Community

Park (Site 11), 0.82 acre in La Paz Park Wetlands (Site 12), and 6.94 acres in Salt Creek (Site 13; Figure 5, Sheets 1–3 and 5–10).

### California Bulrush Marsh (*Schoenoplectus californicus*)

California bulrush marsh is a dense herbaceous community found along the edges of streams and ponds. In this community California bulrush forms a continuous canopy to fifteen feet in height. American bulrush is dominant with common associates including yerba mansa, salt grass, and cattail. This community is one of the most widespread of the marsh types in the state, and it provides habitat for wildlife. Seeds and stems of California bulrush and related species are very important food and cover. Most stands have been altered to supply water for irrigation. A total of 0.81 acre of California bulrush marsh occurs within the Project sites, with 0.18 acre occurring in the Crown Valley Park Wetland Creation Area (Site 4), 0.59 acre in Crown Royale Homeowners Association Upper Sulphur Creek (Site 8), and 0.04 acre in Niguel Ridge Homeowners Association Upper Sulphur Creek (Site 9; Figure 5, Sheets 2 and 5–6).

### California Sycamore Woodlands (*Platanus racemosa*)

California sycamore woodlands are found within rocky or cobbly alluvium soils on terraces adjacent to floodplains. In this community California sycamore forms an open to intermittent canopy to 115 feet in height. California sycamore is dominant or co-dominant in the tree canopy with Fremont cottonwood, red willow, black willow, and arroyo willow. The shrub layer is open and the herbaceous layer is sparse with non-native annual grasses. This vegetation community is fairly rare in California and has endured habitat modifications. California sycamore does not compete well with more obligate wetland trees such as black willow and Fremont cottonwood. Such wetland species have reduced and invaded several stands, particularly after the construction of dams along streams that now flow through the summer (Sawyer et al. 2009). A total of 2.53 acres of California sycamore woodlands occurs within the project sites, with 1.84 acres occurring in the West Alicia Wetland (Site 1), 0.47 acre in the East Alicia Wetland (Site 2), and 0.22 acre in the La Paz Park Wetlands (Site 12; Figure 5, Sheets 1 and 2).

## Cattail Marshes (*Typha* [*angustifolia*, *domingensis*, *latifolia*])

Cattail marshes are dense stands of cattail to 5 feet in height within semi-permanently flooded areas. Narrow-leaved cattail (*Typha angustifolia*), southern cattail (*T. domingensis*) or broad-leaved cattail (*T. latifolia*) are dominant or co-dominant in the herbaceous layer with bulrush (*Schoenoplectus* spp.), sedge (*Cyperus* spp.), salt grass, barnyard grass (*Echinochloa crus-galli*), rush (*Juncus* spp.), and cocklebur (*Xanthium strumarium*). Emergent trees may be present at low cover, including various species of willow. Cattails are valuable as habitat and food for wildlife, useful in removing pollutants, and important in wetland restoration. In addition, they invade canals, ditches, cultivated fields, ponds and reservoirs (Sawyer et al. 2009). A total of 4.31 acres of cattail marshes occurs within the Project sites, with 0.27 acre occurring in the West Alicia Wetland (Site 1), 0.88 acre in the Rancho Niguel Master Association Upper Sulphur Creek (Site 7), and 3.15 acres in Salt Creek (Site 13; Figure 5, Sheets 2, 3, 7–10).

### Fremont Cottonwood Forest (*Populus fremontii*)

Fremont cottonwood forest is found within floodplains. In this community Fremont cottonwood forms an open to continuous canopy to 85 feet in height. Fremont cottonwood is dominant or co-

dominant in the tree canopy with California sycamore, red willow, and arroyo willow. Shrubs include mulefat and coyote bush. The herbaceous layer is variable with native herbaceous perennials and annual non-native grasses. Fremont cottonwood is a common plant at lower elevations, but most stands have endured negative impacts from reduced water availability through groundwater pumping, livestock use, hydrologic alterations and irrigation schemes, competition from non-native plants, direct habitat destruction, and other human activities (Sawyer et al. 2009). A total of 3.71 acres of Fremont cottonwood forest occurs within the Project sites, with 0.47 acre occurring in the Crown Valley Park Wetland Creation Area, 0.20 acre in Sulphur Creek Wetland Creation Area at Crown Valley, and 3.05 acres in USACE Sulphur Creek Restoration Project (Site 10; Figure 5, Sheets 5 and 6).

#### Mulefat Thickets (Baccharis salicifolia)

Mulefat thickets are found within seasonally or intermittently flooded areas. In this community mulefat forms a continuous canopy to fifteen feet in height. Mulefat is dominant or co-dominant in the shrub canopy with coyote bush, arroyo willow, and blue elderberry. Emergent trees may be present at low cover, including Fremont cottonwood, California sycamore, or black willow. A total of 0.34 acre of mulefat thickets occurs within the Project sites, with 0.23 acre occurring in the Sulphur Creek Wetland Creation Area at Crown Valley (Site 6) and 0.10 acre in La Paz Park Wetlands (Site 12; Figure 5, Sheets 1, 5, and 6).

#### Salt Grass Flats (*Distichlis spicata*)

Salt grass flats are found within seasonally or intermittently flooded areas. This is a low-lying herbaceous community occurring in deep soils that are alkaline or saline and poorly drained. In this community salt grass is dominant in the herbaceous layer with yerba mansa and California croton (*Croton californica*). A total of 0.30 acre of salt grass flats occurs within the Project sites, with all 0.30 acre occurring in the West Alicia Wetland (Site 1; Figure 5, Sheet 2).

### 3.3.1.2 Uplands

#### California Annual Grassland

The California annual grassland community occurs within upland and riparian habitats. This community is largely composed of non-native annual and perennial species including milk thistle (*Silybum marianum*), artichoke thistle (*Cynara cardunculus*), ripgut grass (*Bromus diandrus*), red brome (*Bromus madritensis* ssp. *rubens*), short-pod mustard (*Hirschfeldia incana*), Australian saltbush (*Atriplex semibaccata*), and Russian tumbleweed (*Salsola tragus*). A total of 33.86 acres of California annual grassland occurs within the Project sites, with 0.24 acre in USACE Sulphur Creek Restoration Project (Site 10), and 33.44 acres in Salt Creek (Site 13; Figure 5, Sheets 1–10).

#### California Brittle Bush Scrub (*Encelia farinosa*)

The California brittle bush scrub community occurs within alluvial fans, bajadas, colluvium, rocky hillsides, and slopes of small washes. In this community California brittle bush forms an open to intermittent canopy to 7 feet in height. California brittle bush is dominant with California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and deerweed (*Acmispon glaber*). The herbaceous layer is variable with native herbaceous perennials and annual non-native

grasses. A total of 0.38 acre of California brittle bush scrub occurs within the Project sites, with all 0.38 acre occurring in the USACE Sulphur Creek Restoration Project (Site 10; Figure 5, Sheet 5).

## California Sagebrush Scrub (*Artemisia californica*)

The California sagebrush scrub community occurs on steep slopes and low-gradient deposits along streams. In this community California sagebrush forms an open to intermittent canopy to 7 feet in height. California sagebrush is dominant with California buckwheat, deerweed, and California encelia (*Encelia californica*). The herbaceous layer is variable with native herbaceous perennials and annual non-native grasses. A total of 17.13 acres of California sagebrush scrub occurs within the Project sites, with all 17.13 acres occurring in Salt Creek (Site 13; Figure 5, Sheet 10).

## Coyote Brush Scrub (*Baccharis pilularis*)

The coyote brush scrub community occurs along stream edges and terraces. In this community coyote brush forms an open to intermittent canopy to 10 feet in height. Coyote brush is dominant with mulefat, California buckwheat, and deerweed. The herbaceous layer is variable with native herbaceous perennials and annual non-native grasses. A total of 4.03 acres of coyote brush scrub occurs within the Project sites, with 0.59 acre in East Alicia Wetland (Site 2), 0.86 acre in Sulphur Creek Park Wetland Enhancement Area (Site 5), 0.28 acre in Sulphur Creek Wetland Creation Area at Crown Valley (Site 6), 1.77 acres in USACE Sulphur Creek Restoration Project (Site 10), and 0.53 acre in Salt Creek (Site 13; Figure 5, Sheets 2, 5, 6, and 7).

## Eucalyptus Groves (Eucalyptus [globulus, camaldulensis])

Eucalyptus trees are native to Australia and have become established in uplands and floodplains. Within this community various species of eucalyptus can be dominant forming an intermittent to continuous tree canopy to 165 feet in height. At least nine species of Eucalyptus are naturalized in California: red gum (*E. camaldulensis*), lemon-scented gum (*E. citriodora*), sugar gum (*E. cladocalyx*), blue gum (*E. globulus*), silver dollar gum (*E. polyanthemos*), silver leaved mountain gum (*E. pulverulenta*), red iron bark (*E. sideroxylon*), forest red gum (*E. tereticornis*), and manna gum (*E. viminalis*). Understories in groves of these fast-growing, long-lived trees are usually depauperate. A buildup of allelopathic chemicals in the soil and high volumes of debris inhibit the establishment of other plants (Sawyer et al. 2009). A total of 0. 539 acre of eucalyptus occur within the Project sites, with 0.10 acre in Sulphur Creek Park Wetland Enhancement Area (Site 5) and 0.42 acre in Niguel Ridge Master Association Upper Sulphur Creek (Site 7; Figure 5, Sheets 4 and 6).

## Lemonade Berry Scrub (*Rhus integrifolia*)

The lemonade berry scrub community occurs along slopes and bluffs. In this community lemonade berry forms an open to intermittent canopy to 15 feet in height. Lemonade berry is dominant with California buckwheat and deerweed. The herbaceous layer is variable with native herbaceous perennials and annual non-native grasses. A total of 0.35 acre of lemonade berry scrub occurs within the Project sites, entirely in Salt Creek (Site 13; Figure 5, Sheet 10).

## Menzies' Golden Bush Scrub (*Isocoma menziesii*)

The Menzies' golden bush scrub community occurs along alluvial fans, arroyos, and stream terraces. In this community Menzies' golden bush forms an open to intermittent canopy to 4 feet in height. Lemonadeberry is dominant with coyote brush and big saltbush (*Atriplex lentiformis*). The

herbaceous layer is variable with native herbaceous perennials and annual non-native grasses. A total of 3.52 acres of lemonadeberry scrub occurs within the Project wetland sites, with 3.14 acres in Niguel Ridge Homeowner's Association Upper Sulphur Creek (Site 5) and 0.38 acre in Crown Royale Homeowner's Association Upper Sulphur Creek (Site 8; Figure 5, Sheets 4 and 5).

### Pampas Grass Patches (*Cortaderia* spp.)

Pampas grass species are non-native and invade and threaten California's native coastal vegetation types, particularly those in sensitive coastal dune areas. Pampas grass occurs in dense stands within coastal land, disturbed areas, estuaries, grasslands, urban areas, and wetlands. A total of 0.20 acre of pampas grass patches occurs within the Project sites, entirely in Salt Creek (Site 13; Figure 5, Sheet 10).

## 3.3.2 Land Cover Types

### Disturbed Habitat

Areas of disturbed habitat consist of barren areas devoid of vegetation that have visible soil disturbance. A total of 0.33 acre of disturbed habitat occurs within the Project sites, with 0.16 acre in USACE Sulphur Creek Restoration Project and 0.17 acre in Salt Creek (Site 13; Figure 5, Sheets 5 and 7).

### Urban/Developed

Urban/developed land consists of paved pedestrian paths, rip-rap, landscaped areas, and developed parks. A total of 6.92 acres of urban/developed land occur within the Project sites, with 0.43 acre in West Alicia Wetland (Site 1), 0.09 acre in East Alicia Wetland (Site 2), 1.95 acre in Crown Valley Park Wetland Creation Area (Site 4), 2.24 acres in Rancho Niguel Homeowners Association Upper Sulphur Creek (Site 7), 0.64 acre in Crowne Royale Homeowners Association Upper Sulphur Creek, 0.94 acre in Niguel Ridge Homeowners Association Upper Sulphur Creek (Site 9), 0.05 acre in La Paz Park Wetlands (Site 12), and 0.59 acre in Salt Creek (Site 13; Figure 5, Sheets 1–3, 6, and 10).

## 3.3.3 Flora

Sixty-two plant species were documented during the biological surveys of the wetland Project areas (Appendix G). Of these, 35 are native and 27 are non-native.

## 3.3.4 Special-Status Plants

No special-status plant species were documented in the Project area. Suitable habitat for California satintail (*Imperata brevifolia*), mud nama (*Nama stenocarpa*), and thread-leaved brodiaea (*Brodiaea filifolia*) are present within the Project sites, and these species have a moderate potential to occur based on distance from known population and quality of habitat (including surrounding development and disturbances; Figure 6). USFWS-designated Critical Habitat for thread-leaved brodiaea occurs west of the East Alicia Wetland (Site 2). Please refer to Section 3.2.4, *U.S. Fish and Wildlife Critical Habitat,* for more information.

Appendix A provides a description of each species with potential to occur in the regional vicinity.

## 3.3.5 Invasive Plants

Thirteen species documented onsite are listed as invasive by the California Invasive Plant Inventory (Appendix G; Cal-IPC, 2006). These are short-pod mustard, tree of heaven (*Ailanthus altissima*), Australian saltbush, black mustard (*Brassica nigra*), ripgut brome, artichoke thistle, Bermuda grass (*Cynodon dactylon*), gum tree, bristly ox-tongue (*Helminthotheca echioides*), milk thistle, pampas grass, hottentot fig (*Carpobrotus edulis*), and red brome.

## 3.3.6 Fauna

The majority of wildlife species detected within the wetland Project areas consisted of avian speciesthat were documented during the riparian bird focused surveys. Common bird species detected included northern mockingbird (*Mimus polyglottos*), yellow warbler (*Setophaga petechia*), black phoebe (*Sayornis nigricans*), Anna's hummingbird (*Calypte anna*), American crow (*Corvus brachyrhynchos*), Bewick's wren (*Thryomanes bewickii*), house wren (*Troglodytes aedon*), common yellowthroat (*Geothlypis trichas*), song sparrow (*Melospiza melodia*), and lesser goldfinch (*Carduelis psaltria*). A complete list of the species documented is available in Appendix G.

## 3.3.7 Special-Status Wildlife

The following special-status species were found within the wetland Project area during surveys: [1]

- Least Bell's vireo (*Vireo bellii pusillus*; FE, SE);
- Southwestern willow flycatcher SWFL (*Empidonax traillii extimus*; FE, SE);
- California gnatcatcher CAGN (*Polioptila californica*; FT);
- Yellow warbler (SSC);
- Yellow-breasted chat (*Icteria virens;* SSC); and
- .

### 3.3.7.1 Least Bell's Vireo

LBV is federally and state-endangered; it breeds in southern California and northwestern Baja California, with the majority of the population located in San Diego County. LBV is a small, migratory insectivore that prefers dense riparian vegetation for foraging and nesting. CDFW listed the LBV as endangered in 1980 and USFWS followed, listing this species as endangered in 1986. Critical Habitat was designated for this subspecies in 1994 along the southwestern coastline of California below Santa Barbara (USFWS 1994).

Historically, LBV was a common to locally abundant species found in lowland riparian habitats between northern California and coastal southern California. However, loss of riparian habitats and brown-headed cowbird (*Molothrus ater*) parasitism led to a large population decline. When USFWS first listed the bird in 1986, the population was estimated to be just 300 pairs. The latest 5-year review, dated September 2006, reported a 10-fold increase in population size since the time of its listing to an estimated 2,968 territories (USFWS 2006). The vireo population increase is largely

[1] FE= Federally Endangered; FT=Federally Threatened; SE= State Endangered; SSC= California Species of Special Concern;

attributed to cowbird control and habitat restoration and preservation (Kus 1999; Kus and Whitfield 2005).

Two LBV territories were identified in the Project site during the 2016 focused surveys. The birds in both territories were confirmed as paired and were located adjacent to one another within Survey Area A, Salt Creek. Both vireo pairs were successful and fledged at least one young. For more information refer to Appendix C.

### 3.3.7.2 Southwestern Willow Flycatcher

The SWFL is federally and state-endangered; it is restricted to a few major river drainages in the southwestern United States and has reappeared sporadically in disjunct riparian systems in southwestern California and the lower Colorado River area. The USFWS designated Critical Habitat in 2013 (USFWS 2013). During the breeding season (May 1 through August 30), this species is primarily confined to riparian woodland and riparian willow habitats. It is often found in the same habitat as the LBV; however, the willow flycatcher generally prefers larger patches of dense, mature riparian forest and nearby bodies of water. The species is migratory and breeds between March and July. The SWFL has declined primarily due to loss, alteration, and degradation of riparian habitats, and because of brown-headed cowbird nest parasitism (Unitt 2004).

One SWFL was detected during the 2016 focused surveys. The flycatcher was heard in Survey Area A, in LBV territory. It is likely that this bird is an SWFL that was moving around the region and likely did not breed in 2016. These non-territorial "floater" adults are not uncommon and have been observed in several SWFL populations (Sogge et al. 2010). For more information, refer to Appendix C.

### 3.3.7.3 Coastal California Gnatcatcher

The coastal CAGN is federally threatened; it is a small resident insectivorous species whose occurrence is strongly associated with sage scrub habitats found throughout southern California into northern Baja California, Mexico. Although coastal CAGNs have a close association with sage scrub, this species has also been documented using coastal sage-chaparral scrub, chamise chaparral, and other habitat types (Campbell et al. 1998; Bontrager 1991). USFWS listed this species as threatened in 1993 and designated Critical Habitat in 2000 (revised in 2007; USFWS 2007). The species exists within Salt Creek Corridor Habitat Restoration Area (Site 13; Figure 4).

Historically, coastal CAGNs range extended from southern Ventura County southward through Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties, and into Baja California, Mexico, to approximately 30 degrees north latitude near El Rosario (Atwood 1990). Habitat destruction, fragmentation, and modification have led to this species' decline.

No protocol coastal CAGN surveys were conducted within the Project area; however coastal CAGNs were observed during the 2016 protocol surveys for SWFL and LBV within the permanent impact area in the Salt Creek Corridor Habitat Restoration Area (Site 13; Figure 7).

### 3.3.7.4 Southwestern Pond Turtle

SWPT is a CDFW Species of Special Concern. This primarily aquatic turtle ranges throughout much of the state, from the Sierra Nevada foothills to the coast, and in coastal drainages from the Oregon border to the Mexican border. They typically inhabit ponds, slow-moving streams and rivers,

irrigation ditches, and reservoirs with abundant emergent or riparian vegetation. Female pond turtles nest in southern California between the months of March and June in coastal regions. Most reproductive females leave the stream and move into upland habitat in search of a nesting area 1 to 5 days or more in upland habitat before laying eggs. Detecting nests is very difficult, and if a nest is accidentally excavated during O&M activities, mortality is likely. The turtle requires adjacent (within 700 to 1500 feet of water) uplands for nesting and egg laying, typically in soils with high clay or silt component on unshaded, south-facing slopes. In colder climates, they may spend the winters hibernating in these upland habitats. Sometimes the neonates (baby pond turtles) leave the nest and move to the water or to upland refugia, or they remain in the nest until the following spring.

The CNDDB database has a documented occurrence of a western pond turtle approximately 200 feet southeast of La Paz Park Wetlands (Figure 6; Site 12). Unidentified turtles were observed in Crown Valley Park Wetland Creation Area (Site 4), Rancho Niguel Upper Sulphur Creek (Site 7), Crown Royale (Site 8), and Sulphur Creek in Crown Valley Community Park (Site 11) during the SWPT habitat assessment conducted in July 2016. The observed turtles were melanistic and lacked the colorful pigmentation on the head and legs commonly associated with exotic slider species. No SWPTs were captured or observed in the project area during trappings surveys conducted in October 2017. Three non-native red-eared sliders (*Trachemys scripta elegans*) were captured and a fourth red-eared slider was observed but nor captured. For details and full survey results, refer to Appendix D.

### 3.3.7.5 Yellow Warbler

Yellow warbler is a CDFW Species of Special Concern. This species nests in mature riparian woodland from coastal and desert lowlands up to 8,000 feet in elevation. Yellow warbler prefers to nest in mature cottonwood, willow, alder, and ash trees. This species frequents open to medium-density woodlands and forests with a heavy brush understory in the breeding season. Suitable foraging and nesting habitat for yellow warbler occurs within riparian, mulefat, tamarisk, and southern willow scrub habitats.

Yellow warblers and fledglings were detected in multiple locations within Rancho Niguel Upper Sulphur Creek (Site 7), Crown Royale Homeowners Association Upper Sulphur Creek (Site 8), USACE Sulphur Creek Restoration Area (Site 10), and the Salt Creek Corridor Habitat Restoration Area (Site 13). Suitable nesting and foraging habitat occurs in riparian habitat throughout the Project area. (Figure 3; Appendix C).

### 3.3.7.6 Yellow-Breasted Chat

Yellow-breasted chat is a CDFW Species of Special Concern. This species is typically found in second growth, shrubby old pastures, thickets, brushy areas, scrub, woodland undergrowth, and fencerows. Yellow-breasted chat is often found in low, wet places near streams, pond edges, or swamps. Nesting yellow-breasted chats occupy early successional riparian habitats with a well-developed shrub layer and an open canopy. Suitable foraging and nesting habitat for yellow-breasted chat occurs within riparian, mulefat, tamarisk, and southern willow scrub habitats.

Yellow-breasted chats and fledglings were detected the Rancho Niguel Upper Sulphur Creek (Site 7), Crown Royale Homeowners Association Upper Sulphur Creek (Site 8), USACE Sulphur Creek Restoration Area (Site 10), and the Salt Creek Corridor Habitat Restoration Area (Site 13). Suitable

nesting and foraging habitat occurs in riparian habitat throughout the Project area (Figure 3, Appendix C).

### 3.3.7.7 Cooper's hawk

Cooper's hawk (*Accipiter cooperii*) is a CDFW watch list species. Cooper's hawks are common year-round residents throughout North America. They are found throughout San Diego County wherever there are abundant trees and are most abundant in foothills and canyons as well as in urban areas (Unitt 2004). They are a medium-sized hawk, blue-gray in color with reddish bars on their underparts.

Migratory birds are protected under the federal Migratory Bird Treaty Act and CFGC Sections 3503, 3503.5, and/or 3513. Avian species use the Project area and adjacent habitat for nesting, foraging, wintering, and migration purposes. Cooper's hawk have a high potential to occur within the Project area. This species was documented in Salt Creek corridor and vicinity in 2017. Suitable habitat is within riparian vegetated areas.

### 3.3.7.8 Southern California Rufous-Crowned Sparrow

Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) is a CDFW watch list species. They are common year-round residents throughout North America. This species is a resident of coastal sage scrub and sparse mixed chaparral. Southern rufous-crowned sparrow has a high potential to occur within the Project area. Suitable habitat is present in the vicinity of wetland project sites. This species has also been detected in the Project area (Figure 6).

### 3.3.7.9 White-Tailed Kite

White-tailed kite (*Elanus leucurus*) is a CDFW fully protected species in California. A variety of open habitats exists within the Project area including open woodlands, grasslands, and marshes. This species requires tall trees for perching and nesting, and open ground for foraging. Riparian habitat suitable for nesting is present within the Project area, and the species has a high potential to occur. This species has been documented in Salt Creek corridor and Laguna Niguel Regional Park and vicinity in 2016 (CDFW 2017; Sullivan et al 2009).

### 3.3.7.10 Orange-Throated Whiptail

Orange-throated whiptail (*Aspidoscelis hyperythra*) is a CDFW watch list species. Orange-throated whiptail occurs in semi-arid, brushy areas typically with loose soil and rocks, including washes, stream sides, rocky hillsides, coastal sage scrub, and chaparral. This species can also occur in weedy, disturbed areas adjacent to these habitats. Orange-throated whiptail has a high potential to occur within the Project area. Potentially suitable habitat for this species occurs in the coastal sage scrub habitat on the periphery of Salt Creek and in the vicinity of other project wetland sites.

### 3.3.7.11 Coast Horned Lizard

Coast horned lizard (*Phynosoma blainvillii*) is a CDFW Species of Special Concern. It occurs from the Transverse Ranges in Kern, Los Angeles, Santa Barbara, and Ventura Counties southward throughout the Peninsular Ranges of southern California to Baja California, Mexico, as far south as San Vicente. It is found in a wide variety of habitats, including coastal sage scrub, annual grasslands, chaparral, oak woodlands, riparian woodlands, and coniferous forests. It is perhaps most abundant

in riparian and coastal sage scrub habitats on old alluvial fans of the southern California coastal plain. The primary threat to the continued existence of this species is habitat loss. Other threats include non-native ants, especially Argentine ants (*Linepithema humile*), and disturbances related to off-road vehicles. Coast horned lizard has a high potential to occur within the Project area (Figure 6). Potentially suitable habitat for this species occurs in the non-native grasslands and within the California sage scrub in the periphery of Salt Creek Corridor Habitat Restoration Area.

#### 3.3.7.12 Coastal Whiptail

The coastal whiptail (*Aspidoscelis tigris stejnegeri*) is a CDFW Species of Special Concern. The coastal whiptail is found in coastal southern California, mostly west of the Peninsular Ranges and south of the Transverse Ranges, and north into Ventura County. It has been nearly extirpated from the Los Angeles basin and in the San Diego region. The elevation range extends from near sea level to around 7,000 feet (California Herps 2017). Coastal whiptails are found in a variety of habitats, primarily hot and dry open areas with sparse foliage, such as chaparral, woodland, and riparian areas (California Herps 2017). The species has a high potential to occur within the Project area, as suitable habitat for this species occurs in the non-native grassland on the periphery of Salt Creek Corridor Habitat Restoration Area.

#### 3.3.7.13 Red Diamond Rattlesnake

Red diamond rattlesnake (*Crotalus ruber*) is a CDFW Species of Special Concern. It is a large, heavy-bodied rattlesnake that has a wide tolerance for varying environments and can be found in a variety of vegetation types, but is most commonly seen in areas with heavy brush and cacti, rocks, or boulders (Stebbins 2003). The known range extends from San Bernardino County along the coastal and desert slopes southward to Baja California. Adult red diamond rattlesnakes eat mostly squirrels and rabbits, but lizards, specifically the western whiptail, are a significant food source for juveniles (Jennings and Hayes 1994). Urban development and the trend towards planting orchards on steeper rocky hillsides have significantly decreased the amount of appropriate habitat for this species (Jennings and Hayes 1994). Red diamond rattlesnakes have a moderate potential to occur within the Project area within the non-native grassland and the California sage scrub on the periphery of Salt Creek Corridor Habitat Restoration Area.

## 3.4 Jurisdictional Delineation

A total of 18.47 acres/29,564 linear feet of USACE waters of the U.S. and 45.44 acres of CDFW riparian and/or streambed occur within the Project area (Figure 8). These jurisdictional resources occur within the Sulphur Creek and Salt Creek watersheds. A description of the jurisdictional resources within each wetland site is provided below. The total acreage of jurisdictional waters of the U.S. and state for each wetland site is summarized in Table 3-2.

### 3.4.1 Jurisdictional Waters on the Wetland Project Site

#### 3.4.1.1 West Alicia Wetland (Site 1)

The West Alicia Wetland (Site 1) is a restored channel that supports 1.96 acres/2,734 linear feet of wetlands within the project area. Approximately 4.88 acres of CDFW riparian is present along the

feature, and 0.02 acre of CDFW streambed was mapped where the stream passes through a large concrete culvert.

Surface water is present within the active channel, which varies from approximately 1 to 2 feet wide, and is confined by small, sharp banks and dense vegetation. Vegetation observed at this wetland site includes Mexican rush (*Juncus mexicanus*), chairmaker's club-rush (*Schoenoplectus americanus*), salt grass, yerba mansa (*Anemopsis californica*), and mulefat. Vegetation in the adjacent upland area includes coyote brush (*Baccharis pilularis*), California rose (*Rosa californica*), and salt grass.

#### 3.4.1.2 East Alicia Wetland (Site 2)

The East Alicia Wetland (Site 2) supports 0.40 acre/636 linear feet of USACE wetland habitat and 1.03 acres of CDFW riparian within the project area. Surface water, when present, appears to settle in a ponded area before flowing into a concrete stormwater collection ditch that transports flow to the north. Riparian vegetation around the wetland habitat is dominated by club-rush and arroyo willow. Ice plant (*Carpobrotus edulis*), coyote brush, and arroyo willow are also present in upland areas surrounding the wetland.

#### 3.4.1.3 North Alicia Wetland (Site 3)

North Alicia Wetland (Site 3) supports 0.25 acre/326 feet linear feet of USACE wetland habitat and 0.63 acre of CDFW riparian. The basins have riparian vegetation with a nearly closed canopy, dominated by arroyo willow and black willow. Herbaceous vegetation is dominated by club-rush. Adjacent upland habitat also has sandbar willow (*Salix exigua*), arroyo willow, and coyote brush.

#### 3.4.1.4 Crown Valley Park Wetland Creation Area/J03P01 (Site 4)

The upstream portion of Crown Valley Park Wetland Creation Area (Site 4) supports USACE non-wetland and wetland waters, and the downstream portion supports USACE OHWM. CDFW riparian is present along the drainage, except where the stream passes through culverts and protected concrete banks. In total, Site 4 supports 1.07 acre (1,940 linear feet) of USACE wetland waters. In addition, Site 4 supports a 3.35 acre of CDFW riparian and 0.49 acre of CDFW streambed.

Vegetation along the upstream portion of Site 4 is dominated by arroyo willow, and also includes watercress (*Nasturtium officinale*) and small matted sandmat (*Euphorbia serpens*). Vegetation in the adjacent upland area includes arroyo willow, small matted sandmat, Bermuda grass (*Cynodon dactylon*), and tall flatsedge. At the time of the site visit, all riparian vegetation had been removed. Remaining herbaceous vegetation includes Bermuda grass, tall flatsedge, and cattails.

#### 3.4.1.5 Sulphur Creek Park Wetland Enhancement Area (Site 5)

Sulphur Creek Park Wetland Enhancement Area (Site 5) has been restored from previous concrete channelization and currently supports 0.02 acre (30 linear feet) of USACE non-wetland waters and 0.56 acre (760 linear feet) of wetland waters. Approximately 1.34 acres of CDFW riparian is present along the feature, and 0.04 acre of CDFW streambed was mapped where the stream enters a large concrete culvert with bank protection. Riparian vegetation throughout Site 5 is dominated by arroyo willow, and there is no herbaceous vegetation present as understory.

### 3.4.1.6 Sulphur Creek Creation Area at Crown Valley (Site 6)

Sulphur Creek Creation Area at Crown Valley (Site 6) is a restoration area that supports 0.42 acre (204 linear feet) of adjacent wetland waters and 0.62 acre of CDFW riparian. This portion of the Sulphur Creek drainage flows in a northern direction toward Aliso Creek. Riparian vegetation is dominated by arroyo willow, and herbaceous vegetation is dominated by club-rush.

### 3.4.1.7 Rancho Niguel Master Association Upper Sulphur Creek (Site 7)

This drainage has been restored from previous concrete channelization and currently supports 0.15 acre (223 linear feet) of USACE non-wetland waters and 3.51 acres (3,168 linear feet) of wetland waters. Approximately 8.26 acres of CDFW riparian is present along the stream, and 0.38 acre of CDFW streambed was mapped where the stream flows through culverts and concrete bank protection. Riparian vegetation along Site 7 is dominated by arroyo willow, which formed a closed canopy and nearly excluded herbaceous vegetation.

### 3.4.1.8 Crown Royale Homeowners Association Upper Sulphur Creek (Site 8)

This drainage has been restored from previous concrete channelization and currently supports 0.03 acre (117 linear feet) USACE non-wetlands waters and 0.88 acre (1410 linear feet) of wetland waters. Approximately 2.17 acres of CDFW riparian is present along the stream, and 0.29 acre of CDFW streambed is mapped where the stream flows through concrete culverts and bank protections. Vegetation along Site 8 is dominated by yerba mansa, cattails, and salt grass.

### 3.4.1.9 Niguel Ridge Homeowners Association Upper Sulphur Creek (Site 9)

This drainage has been restored from previous concrete channelization and currently supports 0.07 acre (363 linear feet) USACE non-wetland waters and 0.43 acre (1,423 linear feet) of USACE wetland waters. Approximately 1.17 acres of CDFW riparian is present in a narrow corridor along the stream, and 0.59 acre of CDFW streambed was mapped where the stream flows through concrete culverts and bank protections. Riparian vegetation along Site 9 is dominated by arroyo willow. Herbaceous vegetation is dominated by alkali heath.

### 3.4.1.10 U.S. Army Corps of Engineers Sulphur Creek Restoration Area (Site 10)

This drainage has been restored from previous concrete channelization and currently supports 1.91 acres (1,791 linear feet) of USACE wetland waters. Approximately 5.42 acres of CDFW riparian is present along the stream, and 0.25 acre of CDFW streambed was mapped where the stream enters channelized banks and a concrete culvert.

Riparian vegetation along Site 10 is dominated by arroyo willow and mule's-fat, and the riparian canopy was mostly closed above the stream. Herbaceous vegetation is dominated by Yerba Mansa. The larger floodplain present in this area is approximately 100 feet wide.

### 3.4.1.11 Sulphur Creek in Crown Valley Park (Site 11)

This drainage has been recently restored from concrete channelization and currently supports 0.64 acre (555 linear feet) of USACE wetland waters. Approximately 1.04 acres of CDFW riparian is present along the stream. .

Riparian vegetation along Site 11 is dominated by arroyo willow, and the riparian canopy is mostly closed above the stream. Herbaceous vegetation is dominated by a mix of garden celery (*Apium graveolens*), great plantain (*Plantago major*), white sweetclover, and alkali bulrush (*Bolboschoenus maritimus*).

### 3.4.1.12 La Paz Park Wetlands (Site 12)

The drainage and wetland features have been restored from previous concrete channelization and currently support 0.27 acre (748 linear feet) of USACE wetland waters. Approximately 1.17 acres of CDFW riparian is present along the stream channel, surrounding the small drainage, and around the isolated wetland feature. Site 12 is dominated by black willow and blackberry (*Rubus ursinus*). The riparian canopy is mostly closed above the stream.

### 3.4.1.13 Salt Creek Corridor Habitat Restoration Area (Site 13)

Site 13 supports 4.48 acre (7,809 linear feet) of USACE wetland waters and 1.40 acres (5,327 linear feet) of USACE non-wetland waters. In addition, Site 13 supports 9.88 acres of CDFW riparian (primarily native riparian vegetation) and both native and non-native herbaceous vegetation and 2.43 acre of CDFW streambed was mapped where the stream passes through culverts and concrete banks. Riparian vegetation creates a mostly closed canopy and is dominated by arroyo willow. The herbaceous layer of the wetland habitat is dominated by cattails (*Typha domingensis*) and California bulrush. Other native vegetation present outside of the OHWM includes goldenbush, salt grass and alkali heath (*Frankenia salina*). Non-native vegetation present at this location includes tree of heaven (*Ailanthus altissima*) and white sweetclover *(Melilotus albus*) within the wetland habitat, and bristly ox-tongue (*Helminthotheca echioides*) and European sea lavender (*Limonium duriusculum*) within upland habitat. At the southern end of the reach, adjacent to the concrete culvert under Niguel Road, the channel widens at a large ponded area, and riparian vegetation is limited to cattails, without substantial canopy cover.

The six unnamed tributaries to Salt Creek mainstem support ephemeral flows. The tributaries are characterized as having an active channel ranging in width of 2 to 5 feet and consists of having both natural and man-altered (e.g., culverts and velocity dissipation structures) segments of stream channel. Some are characterized as being steeply incised and dominated by upland grasses and coastal sage scrub species and in general lack hydrophytic vegetation.

**Table 3-2. Jurisdictional Delineation Summary**

| | | USACE/RWQCB | | CDFW | |
|---|---|---|---|---|---|
| **Feature** | **Linear Feet** | **Non-wetland Waters (Acres)** | **Wetland Waters (Acres)** | **Streambed (Acres)** | **Riparian (Acres)** |
| 1 – West Alicia Wetland | 2,734 | – | 1.965 | 0.017 | 4.885 |
| 2 – East Alicia Wetland | 636 | – | 0.395 | – | 1.028 |
| 3 – North Alicia Wetland | 326 | – | 0.253 | – | 0.635 |
| 4 – Crown Valley Park Wetland Creation Area/J03P01 | 1,940 | – | 1.075 | 0.489 | 3.352 |
| 5 – Sulphur Creek Park Wetland Enhancement Area | 790 | 0.018 | 0.558 | 0.044 | 1.343 |
| 6 – Sulphur Creek Creation Area at Crown Valley | 204 | – | 0.422 | – | 0.621 |
| 7 – Rancho Niguel Upper Sulphur Creek | 3,391 | 0.147 | 3.510 | 0.380 | 8.262 |
| 8 – Crown Royale Upper Sulphur Creek | 1,527 | 0.032 | 0.884 | 0.288 | 2.174 |
| 9 – Niguel Ridge Upper Sulphur Creek | 1,786 | 0.068 | 0.432 | 0.587 | 1.170 |
| 10 - USACE Sulphur Creek Restoration Area | 1,791 | – | 1.913 | 0.248 | 5.412 |
| 11 – Sulphur Creek in Crown Valley Park | 555 | – | 0.641 | – | 1.042 |
| 12 – La Paz Park Wetlands | 748 | – | 0.269 | – | 1.167 |
| 13. Salt Creek Restoration Area | 13,136 | 1.399 | 4.484 | 2.426 | 9.876 |
| **Total** | **29,564** | **1.664** | **16.802** | **4.478** | **40.962** |

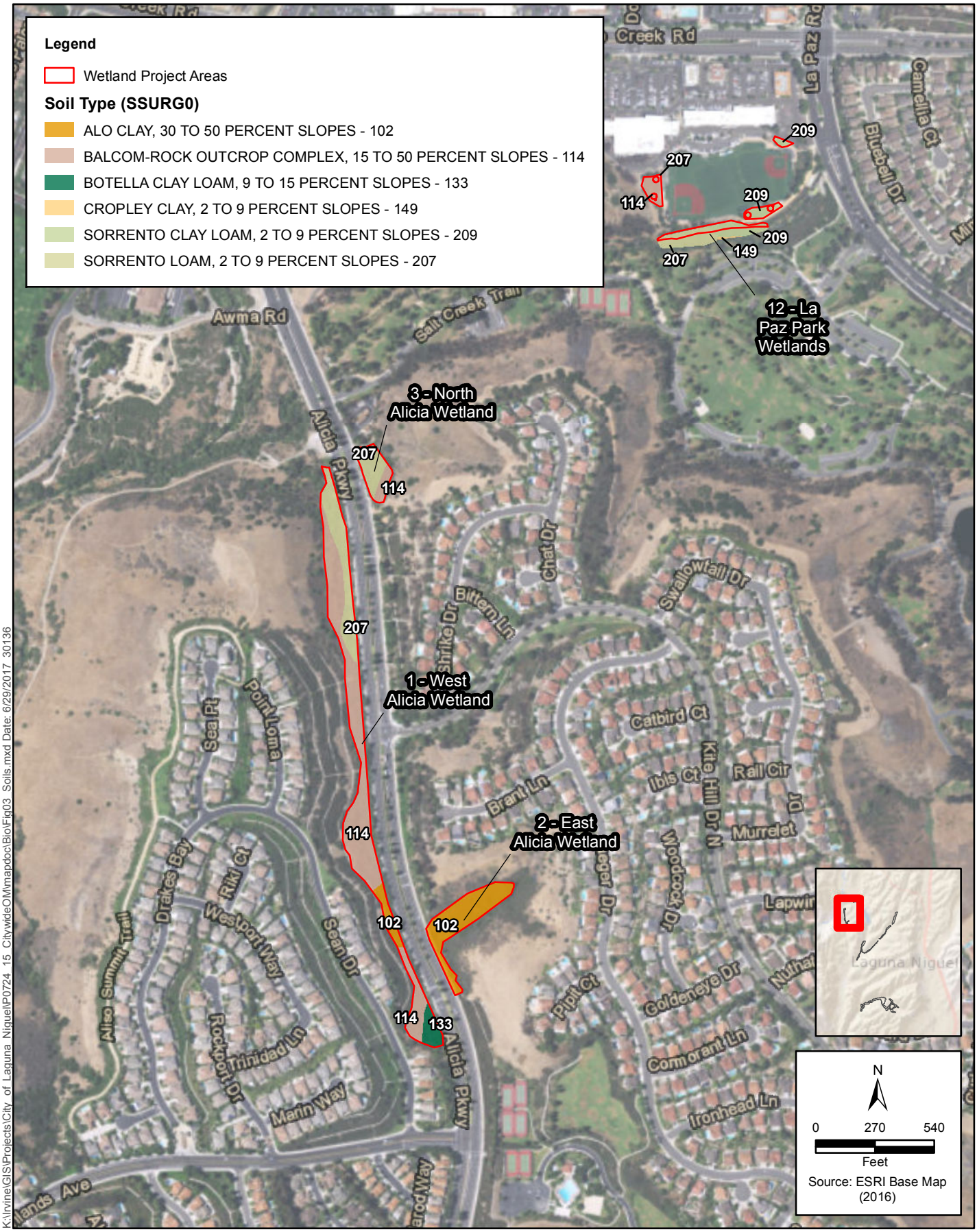


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**Figure 3-Sheet 1**
**Soils**
**Laguna Niguel O&M Program**

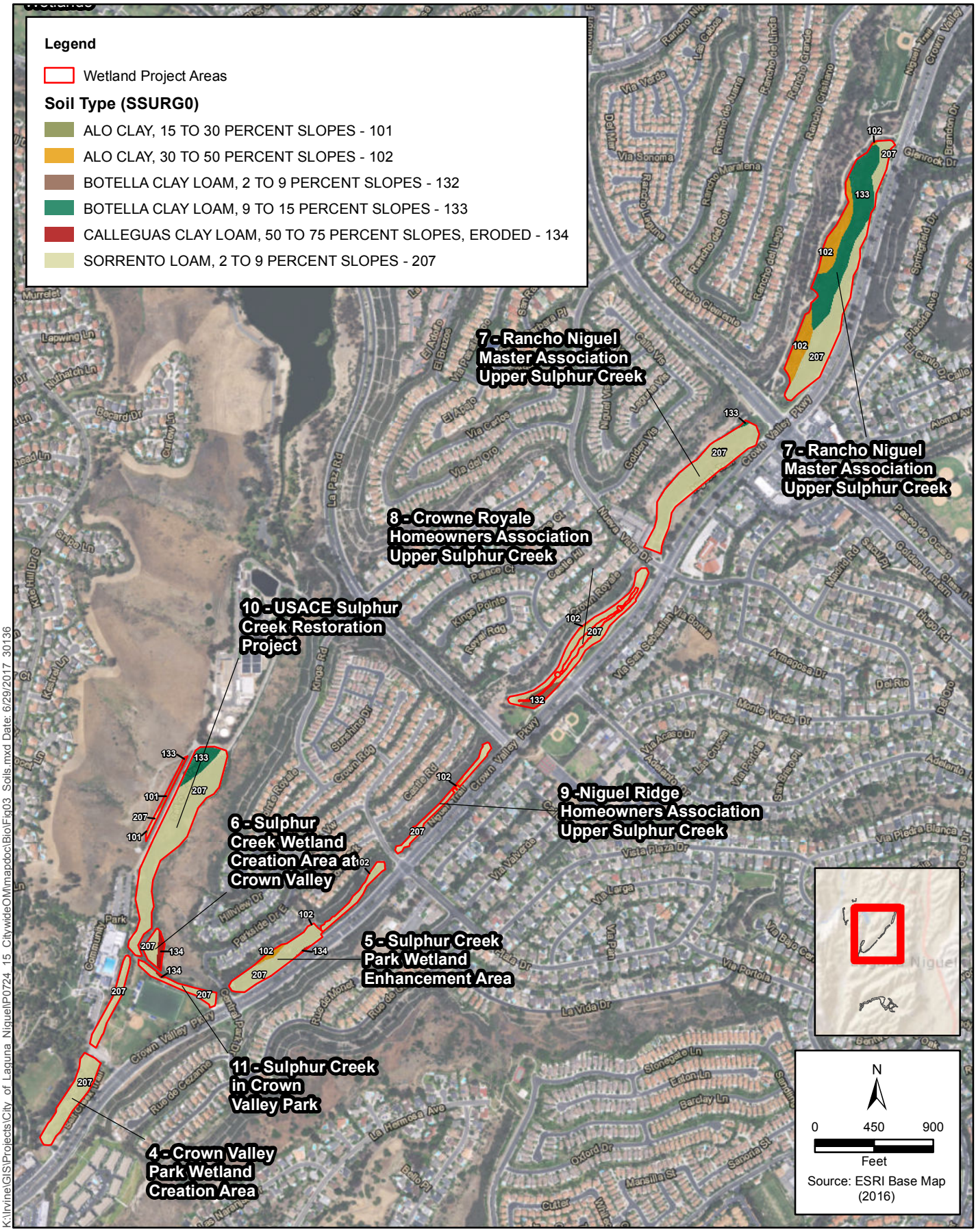


**Figure 3-Sheet 2**
**Soils**
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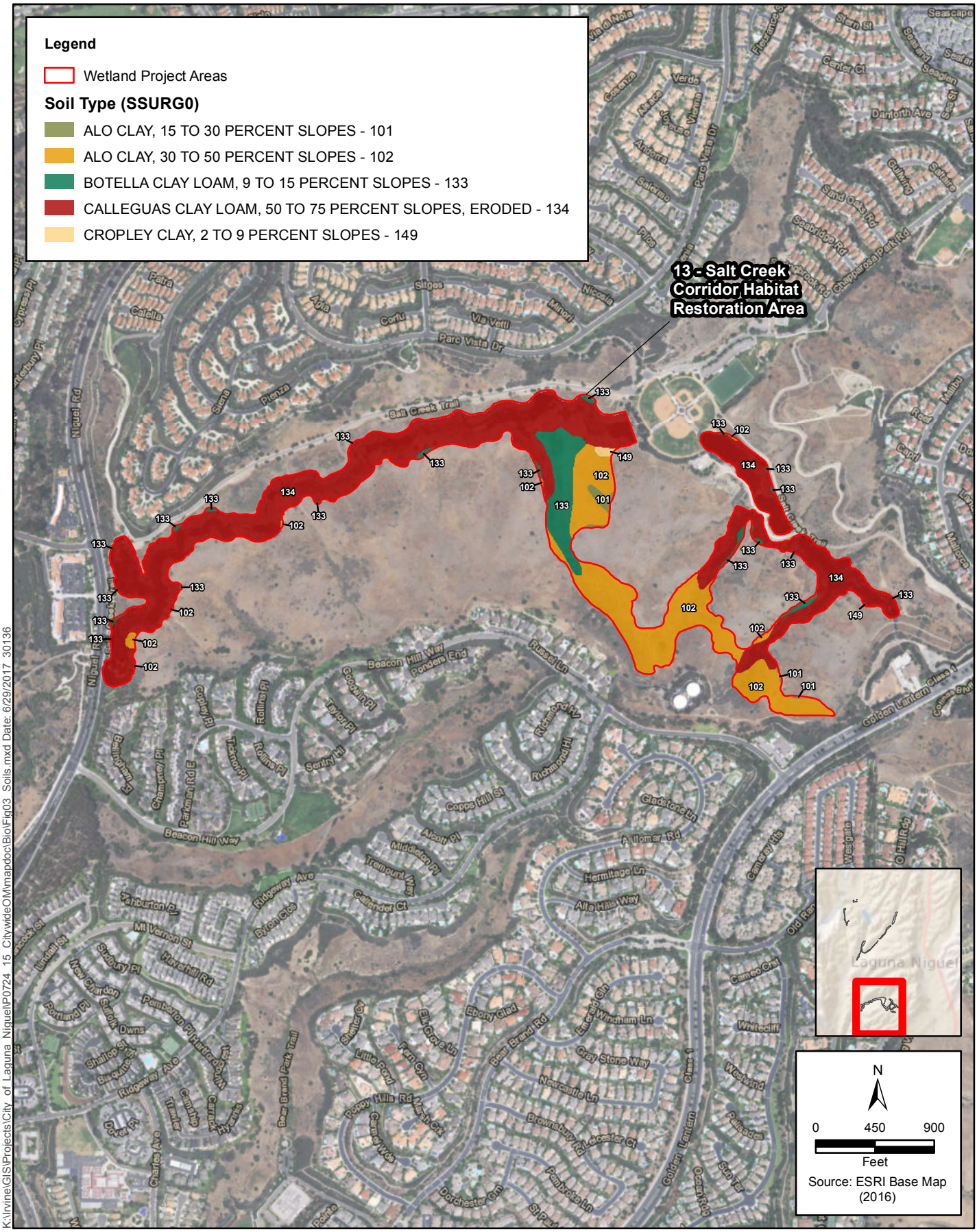


**Figure 3-Sheet 3**
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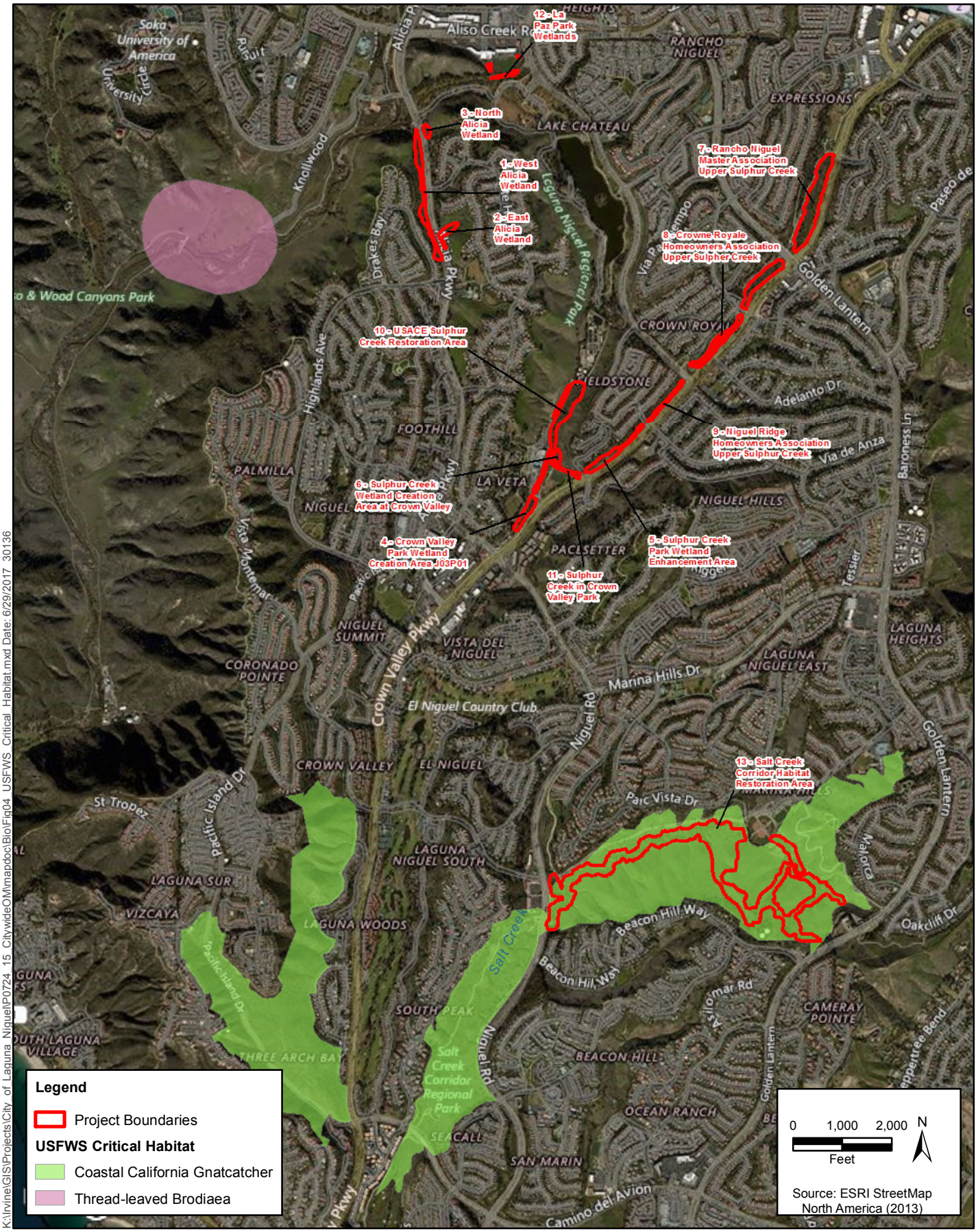


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**Figure 4**
**USFWS Critical Habitat**
**Laguna Niguel O&M Program**

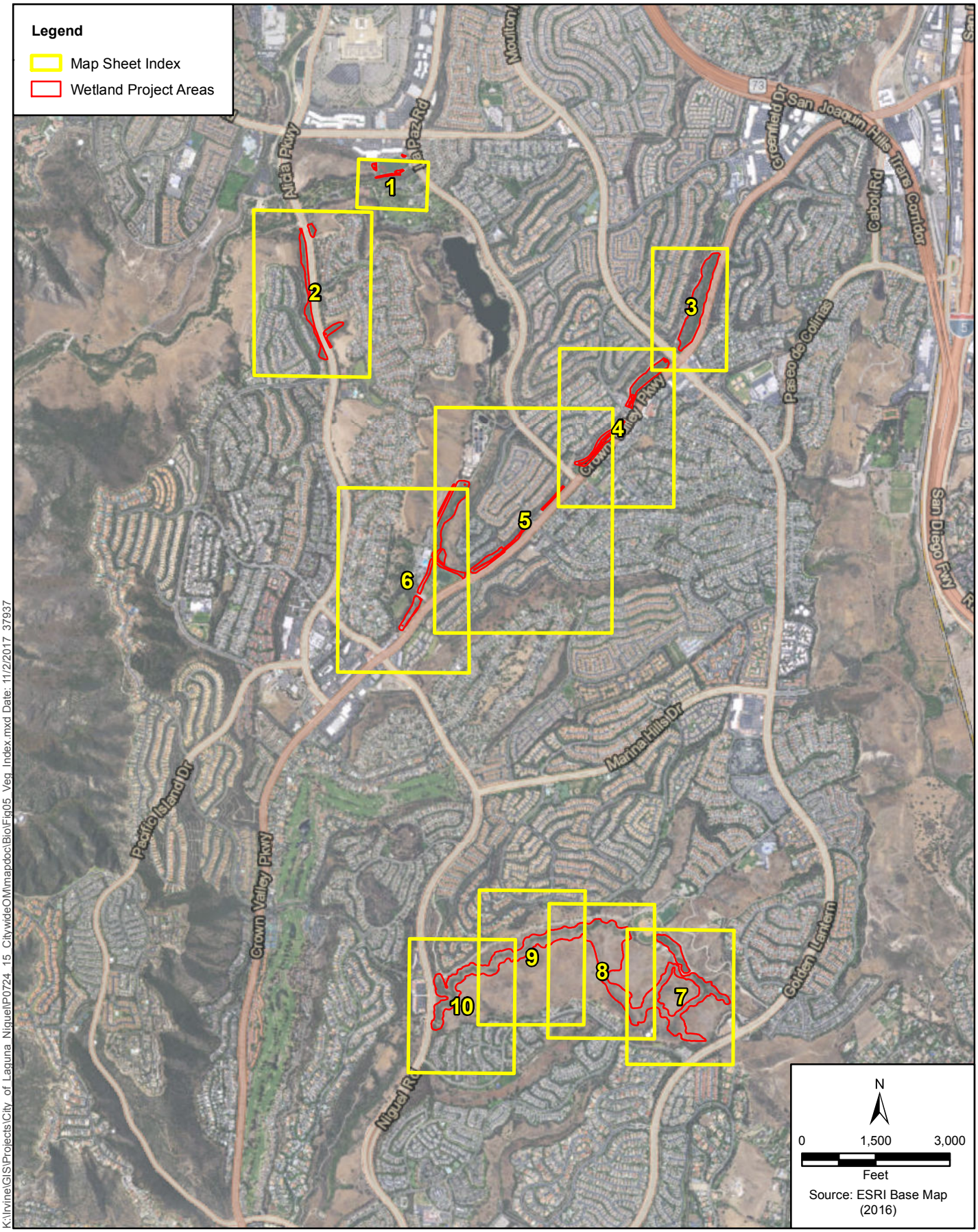


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**Figure 5-Index**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**




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**Figure 5-Sheet 1**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**

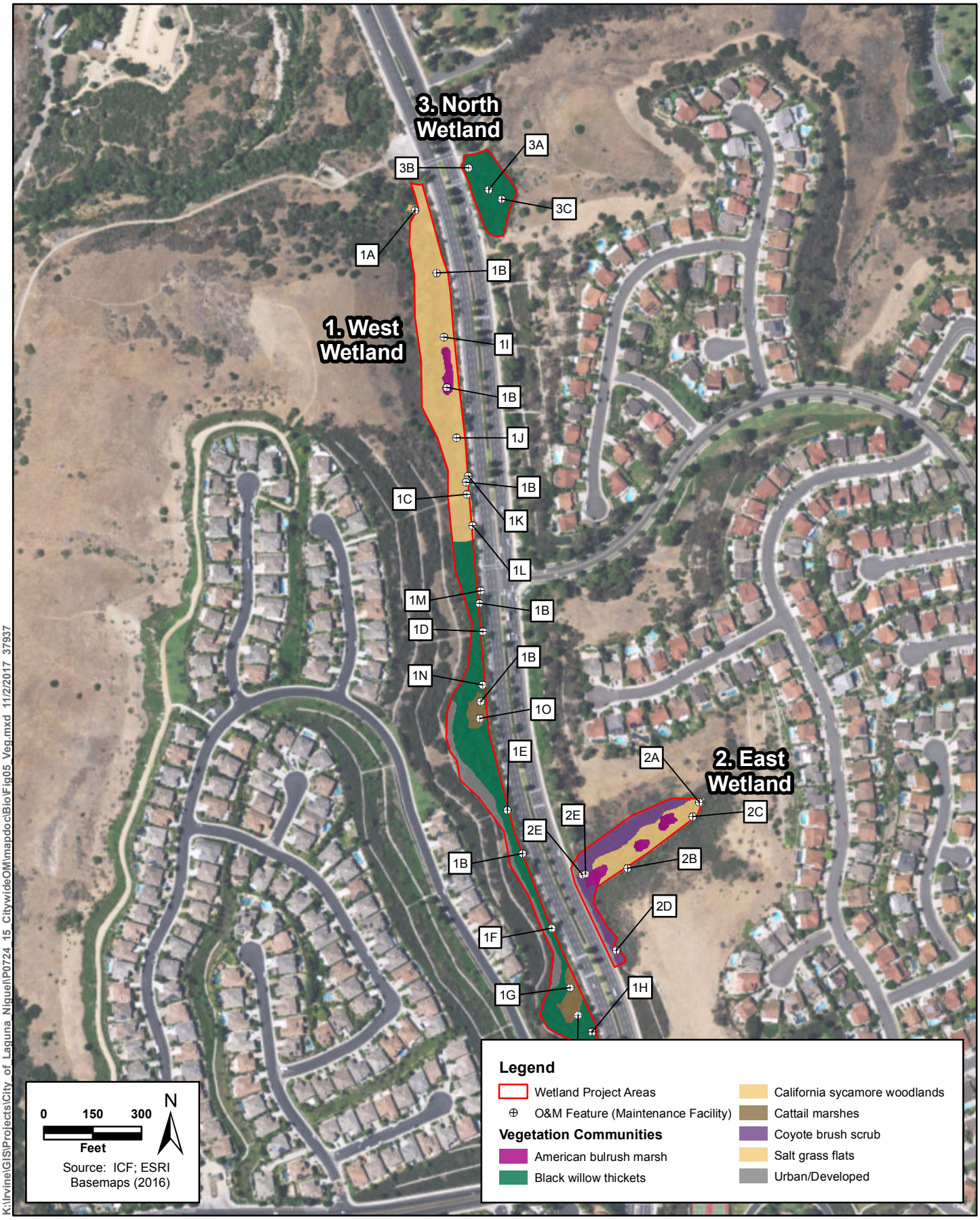


**Figure 5-Sheet 2**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**




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**Figure 5-Sheet 3**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**




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**Figure 5-Sheet 4**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**

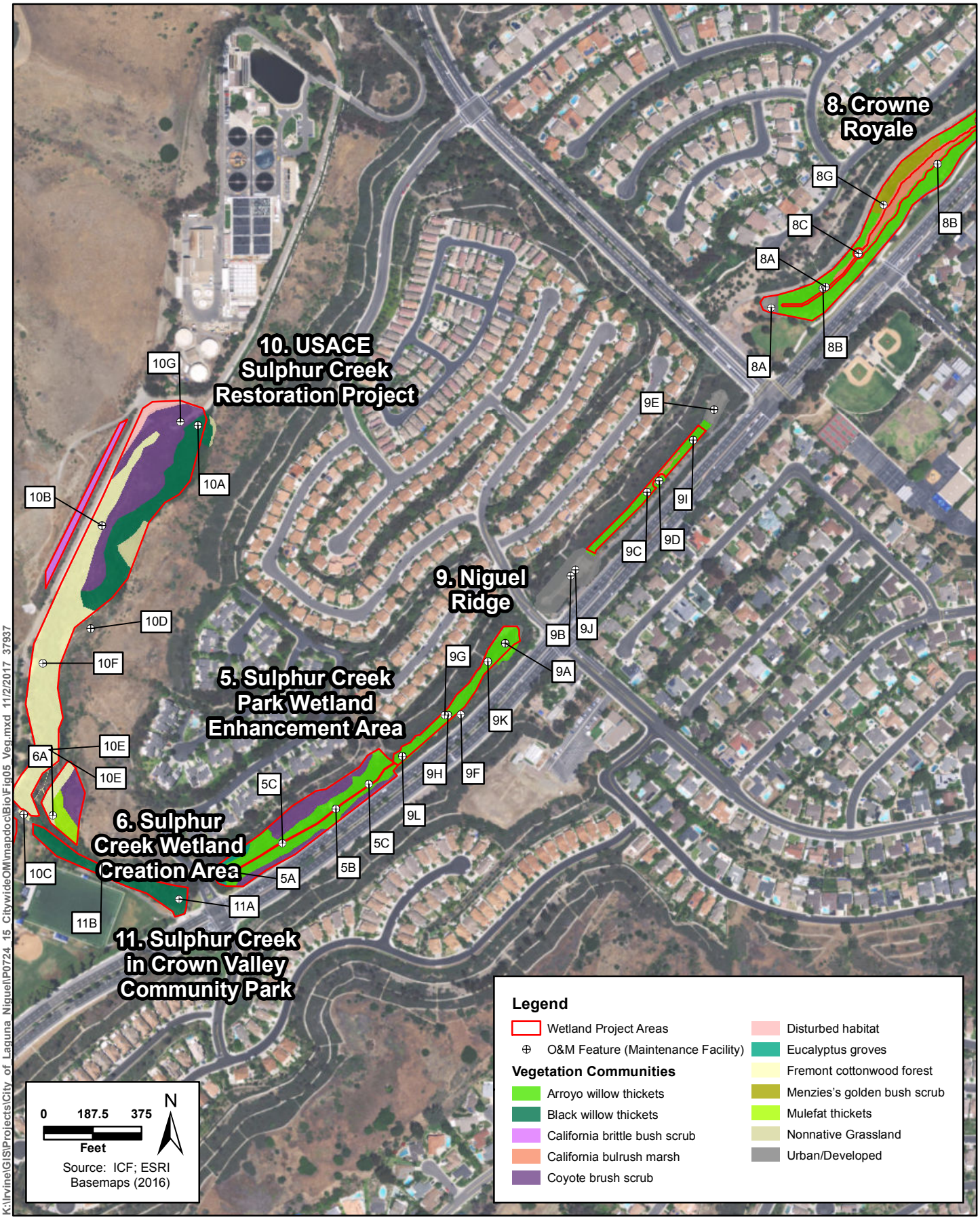



**Figure 5-Sheet 5**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**

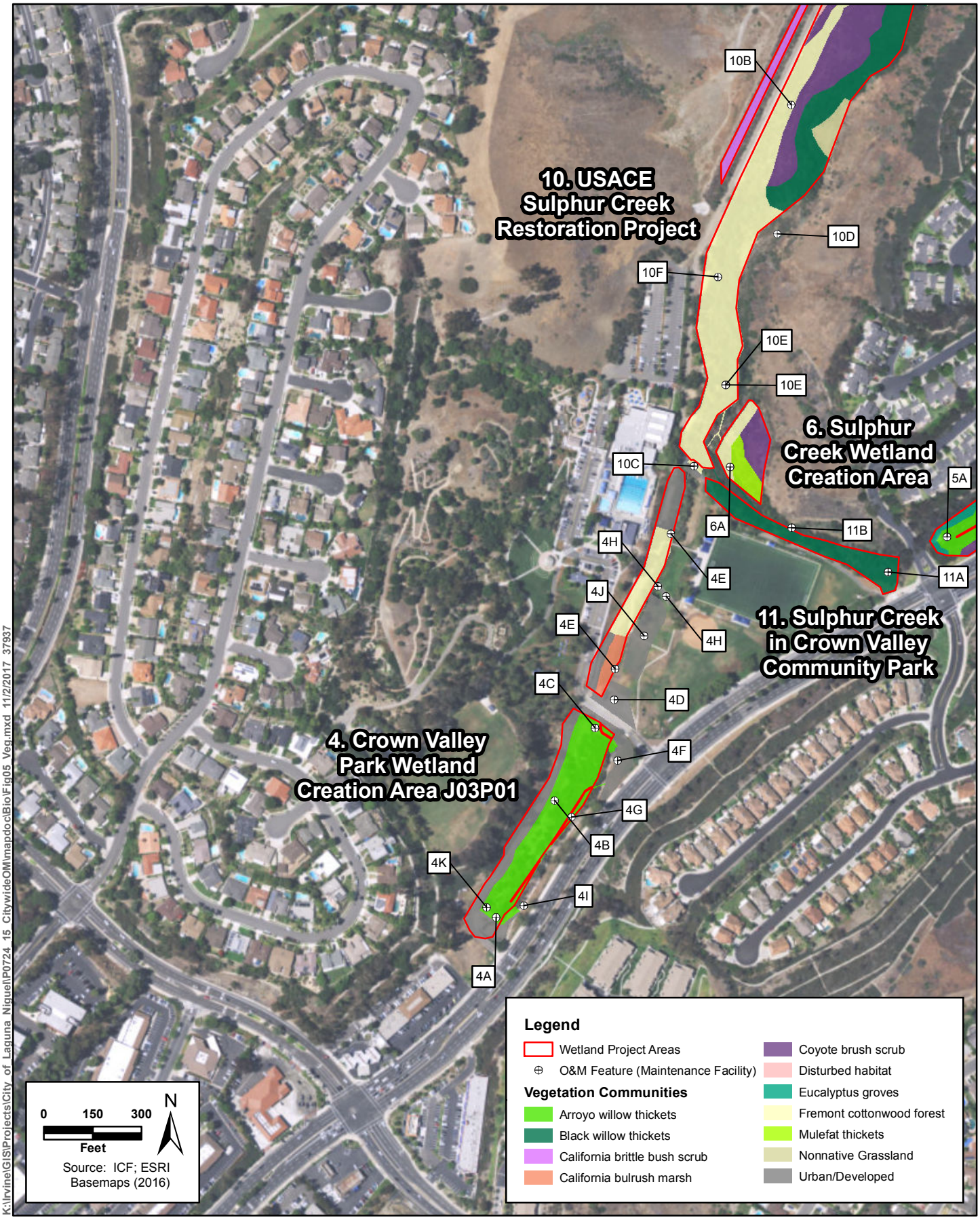



**Figure 5-Sheet 6**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**

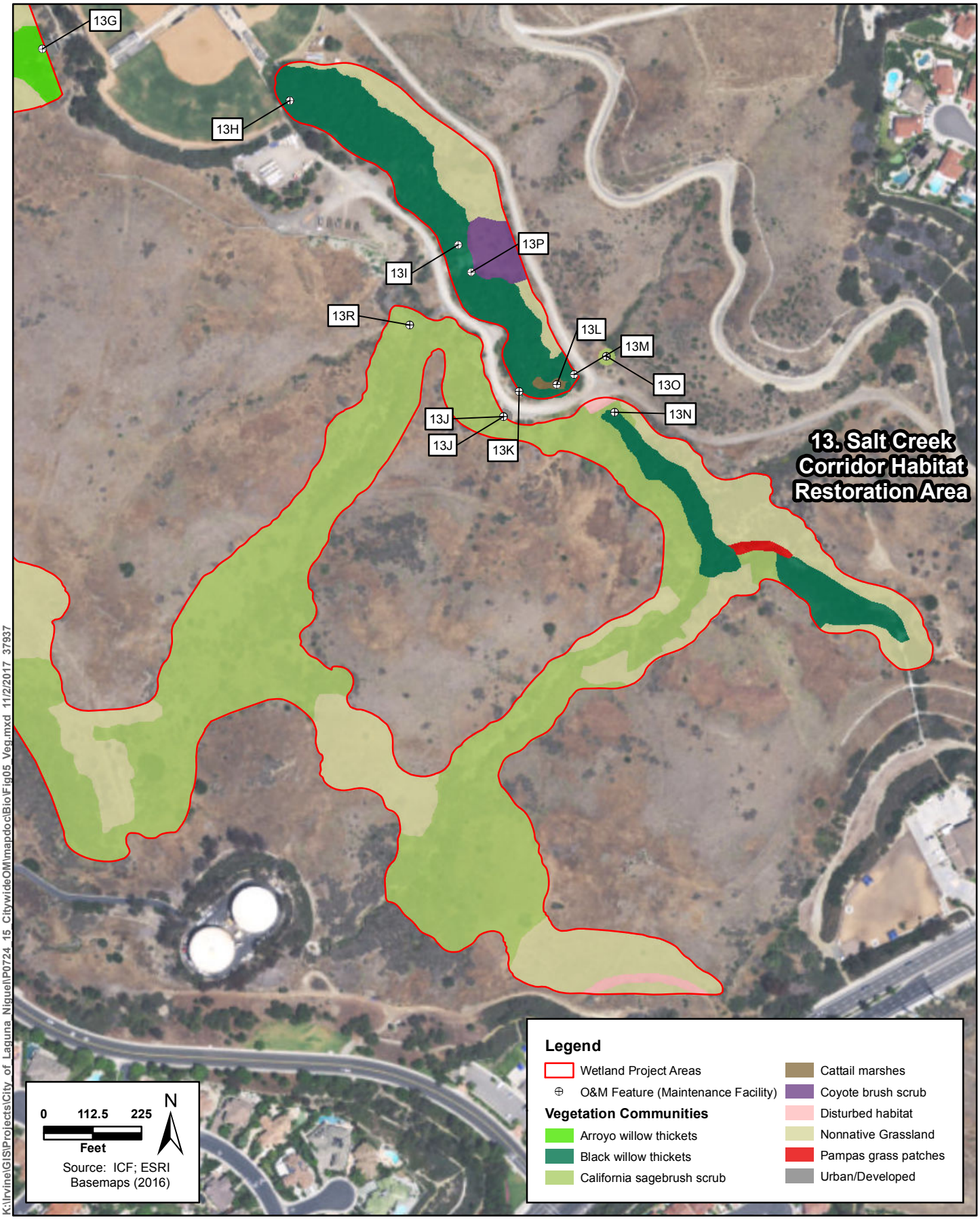



**Figure 5-Sheet 7**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**

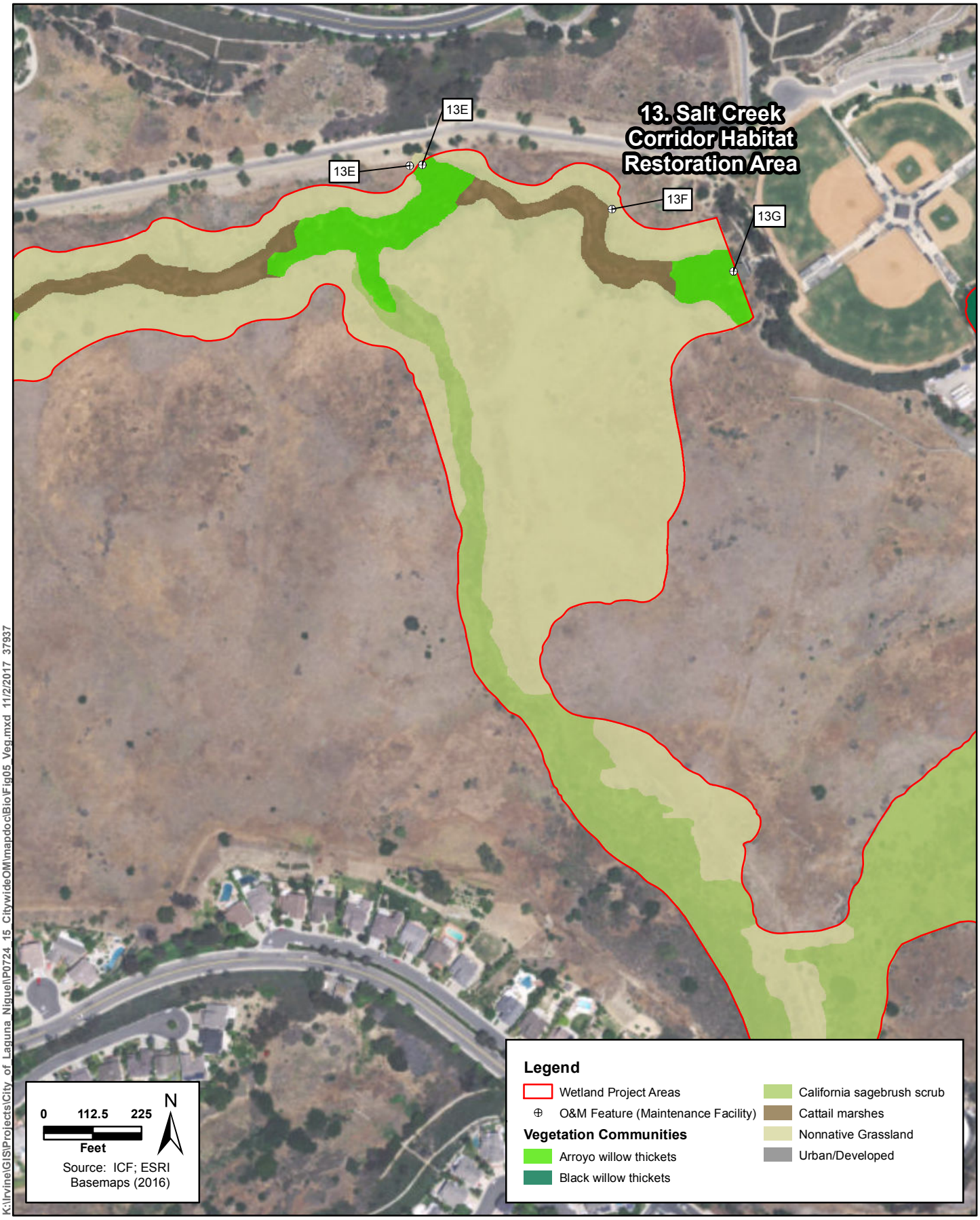



**Figure 5-Sheet 8**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**

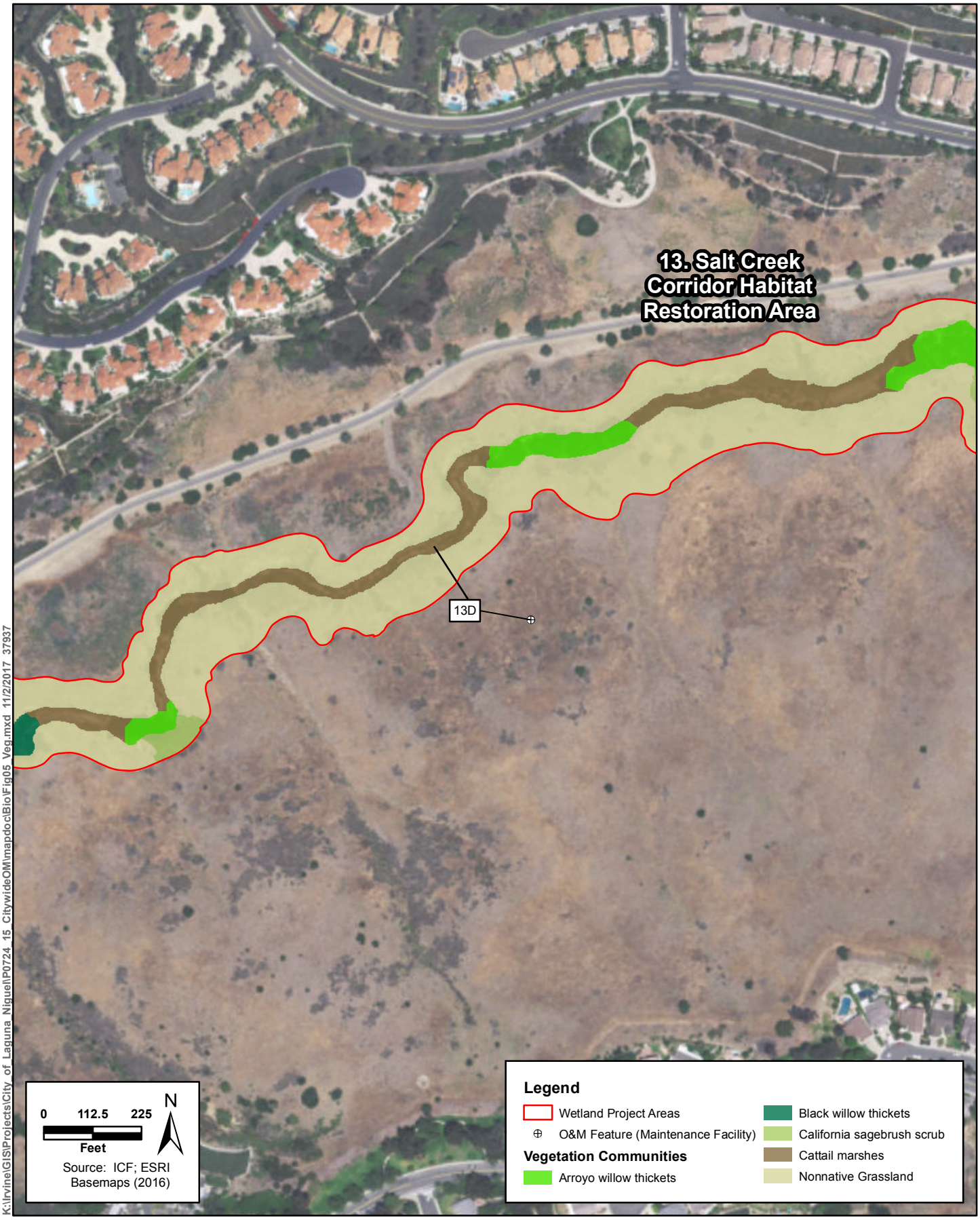



**Figure 5-Sheet 9**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**




**Figure 5-Sheet 10**
**Vegetation Communities and Land Cover Types**
**Laguna Niguel O&M Program**



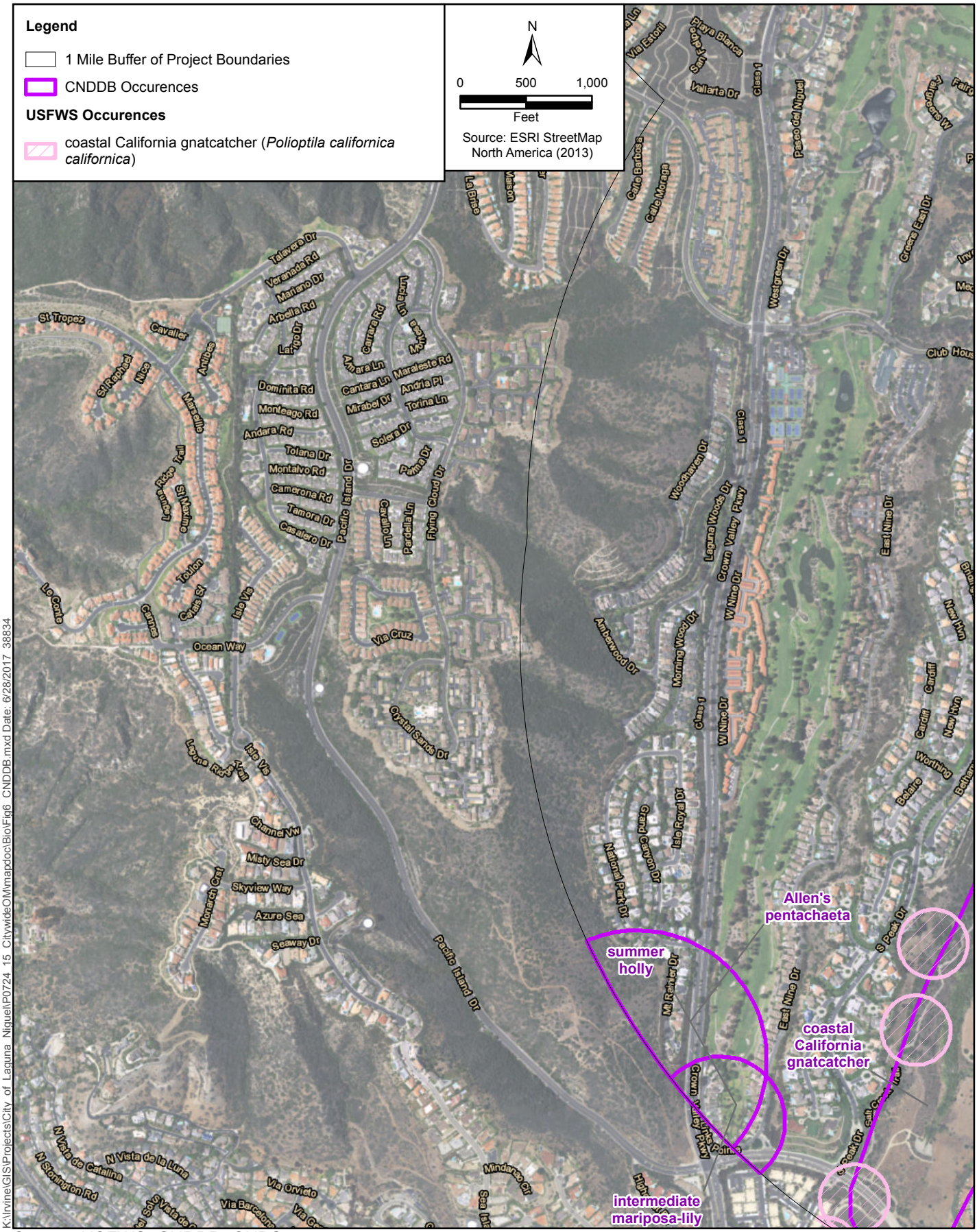

Source: USFWS, CNDDB, CNPS

**Figure 6-1**
**Sensitive Species Database Records**
**Laguna Niguel O&M Program**




Source: USFWS, CNDDB, CNPS

**Figure 6-2**
**Sensitive Species Database Records**
**Laguna Niguel O&M Program**

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Source: USFWS, CNDDB, CNPS

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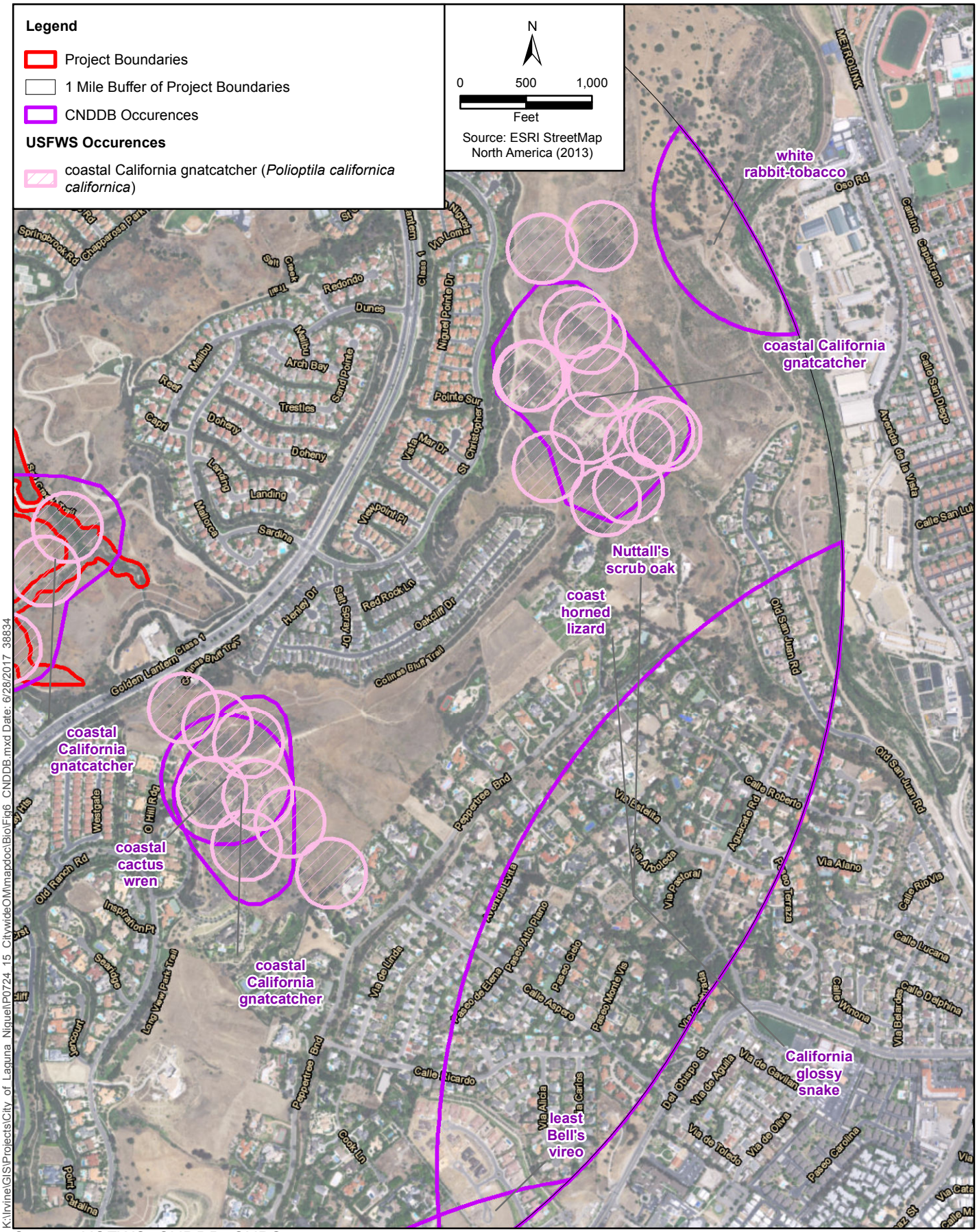
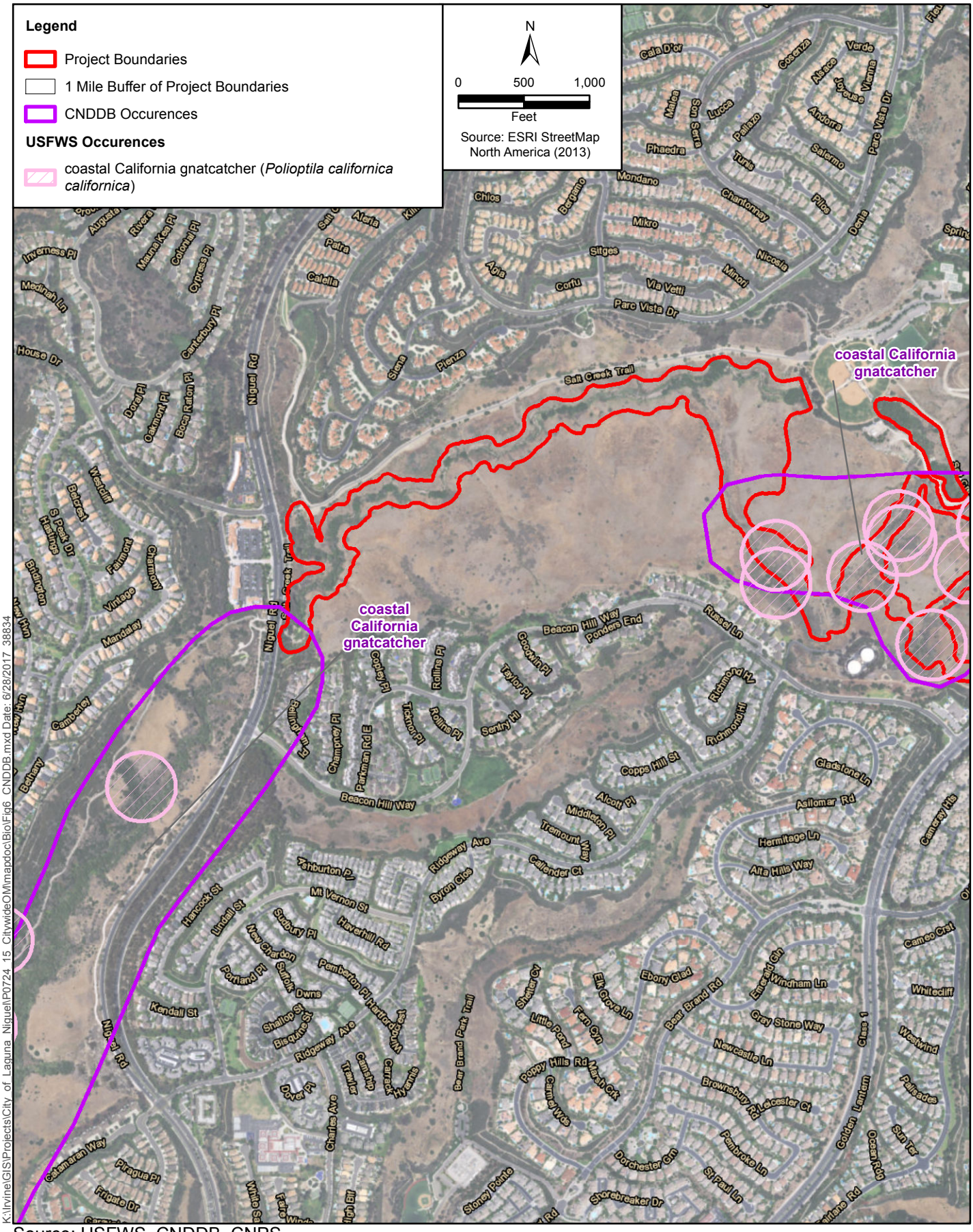
**Figure 6-3**
**Sensitive Species Database Records**
**Laguna Niguel O&M Program**



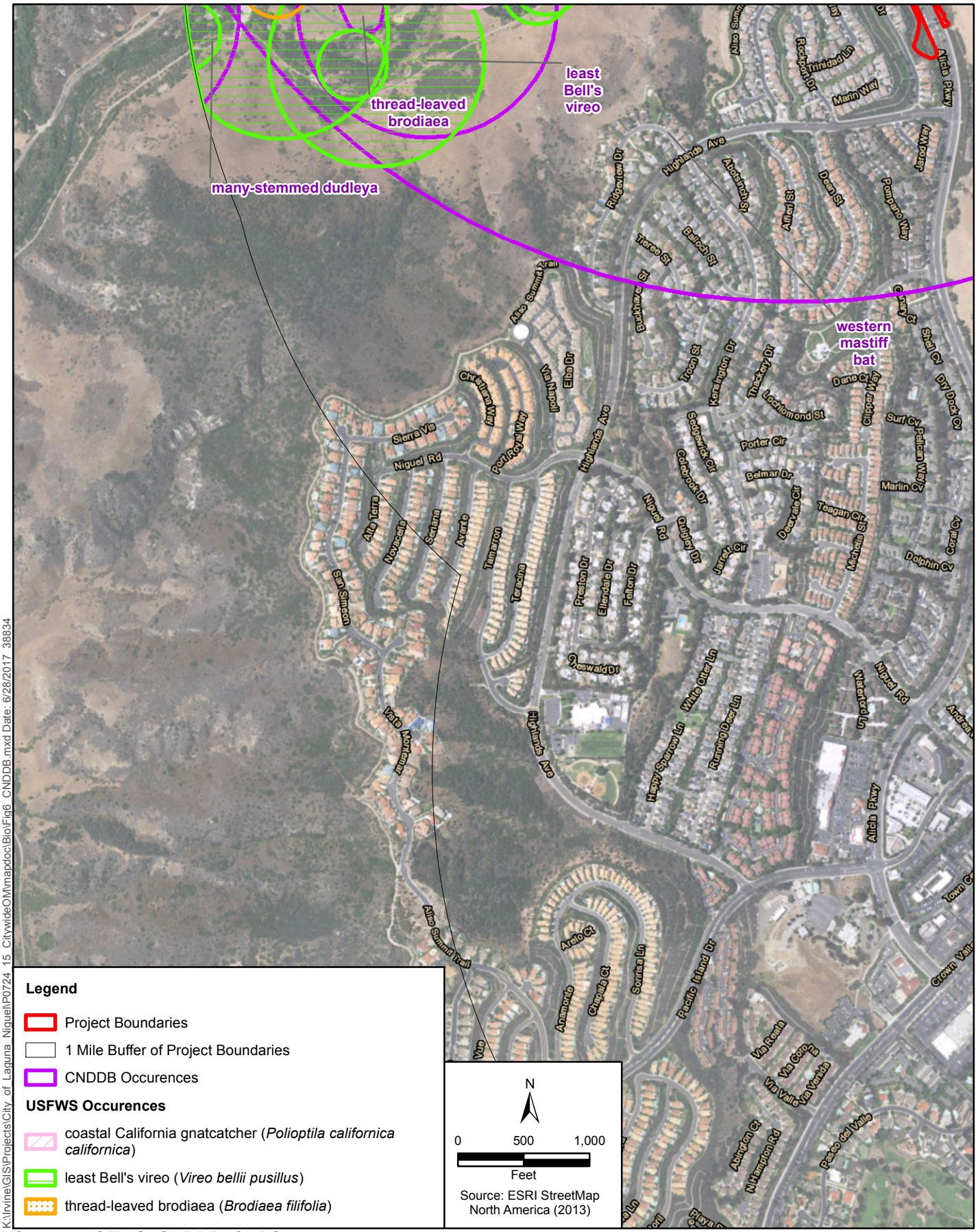

Source: USFWS, CNDDB, CNPS

**Figure 6-4**
**Sensitive Species Database Records**
**Laguna Niguel O&M Program**



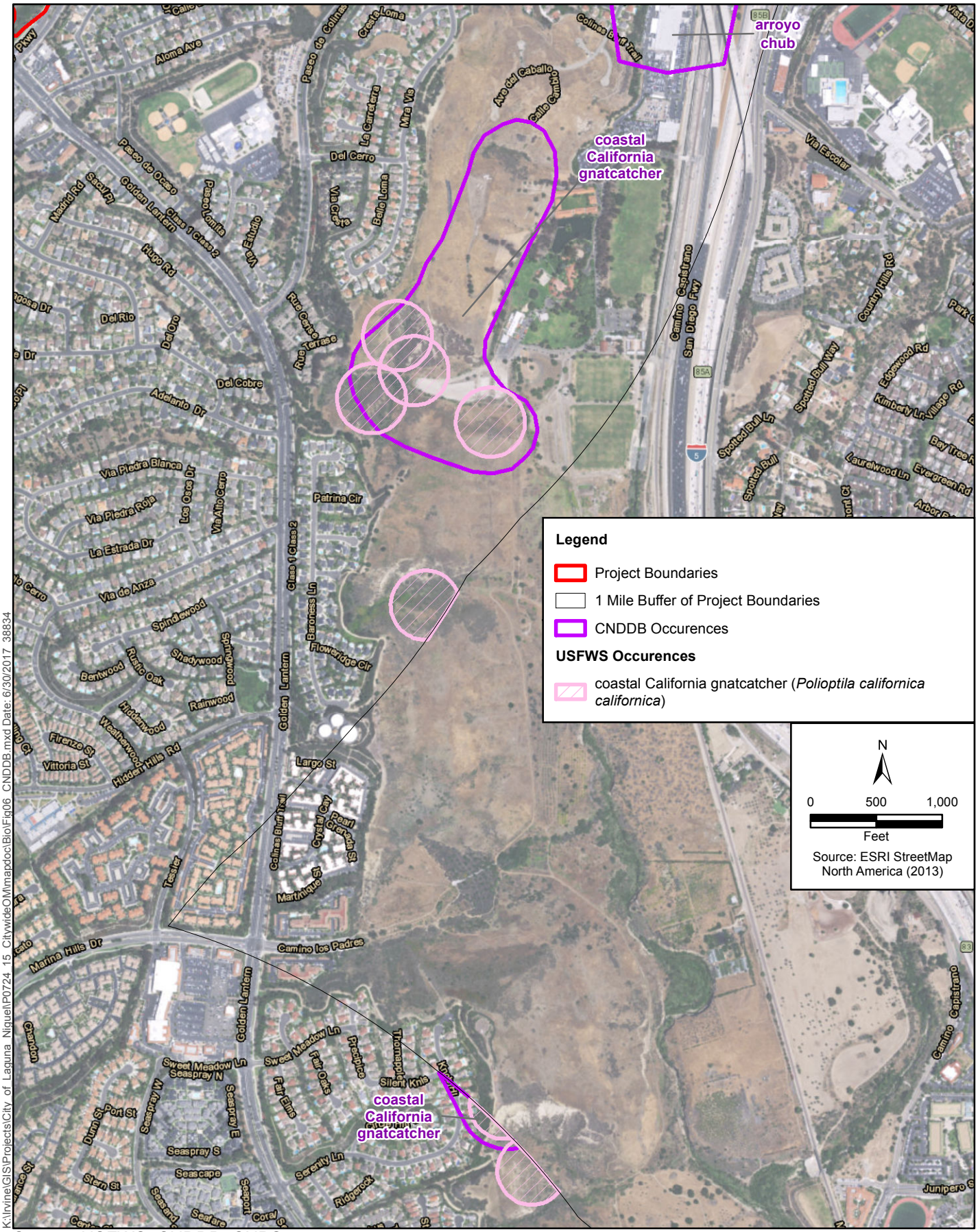

Source: USFWS, CNDDB, CNPS

**Figure 6-5**
**Sensitive Species Database Records**
**Laguna Niguel O&M Program**




Source: USFWS, CNDDB, CNPS

**Figure 6-6**
**Sensitive Species Database Records**
**Laguna Niguel O&M Program**

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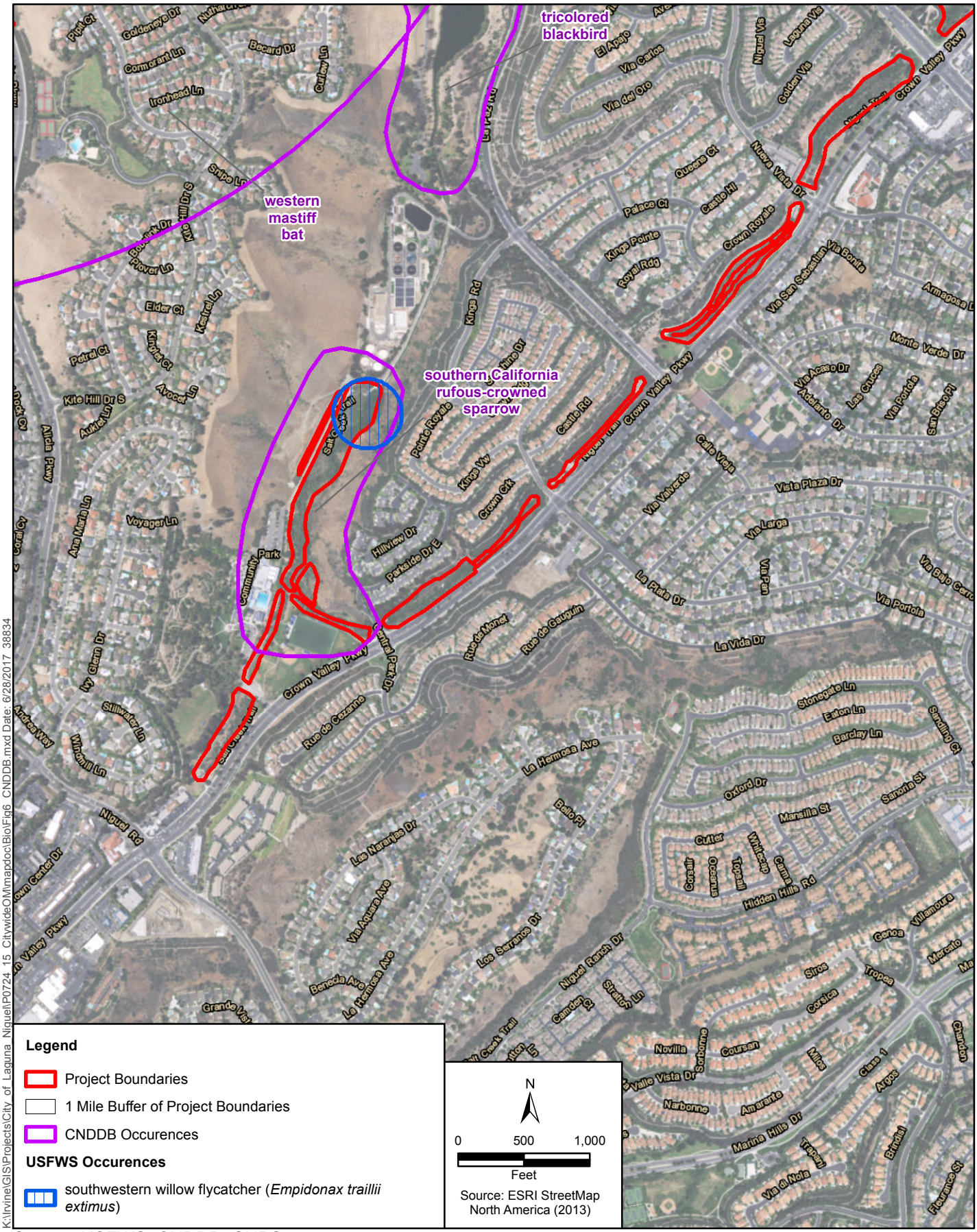
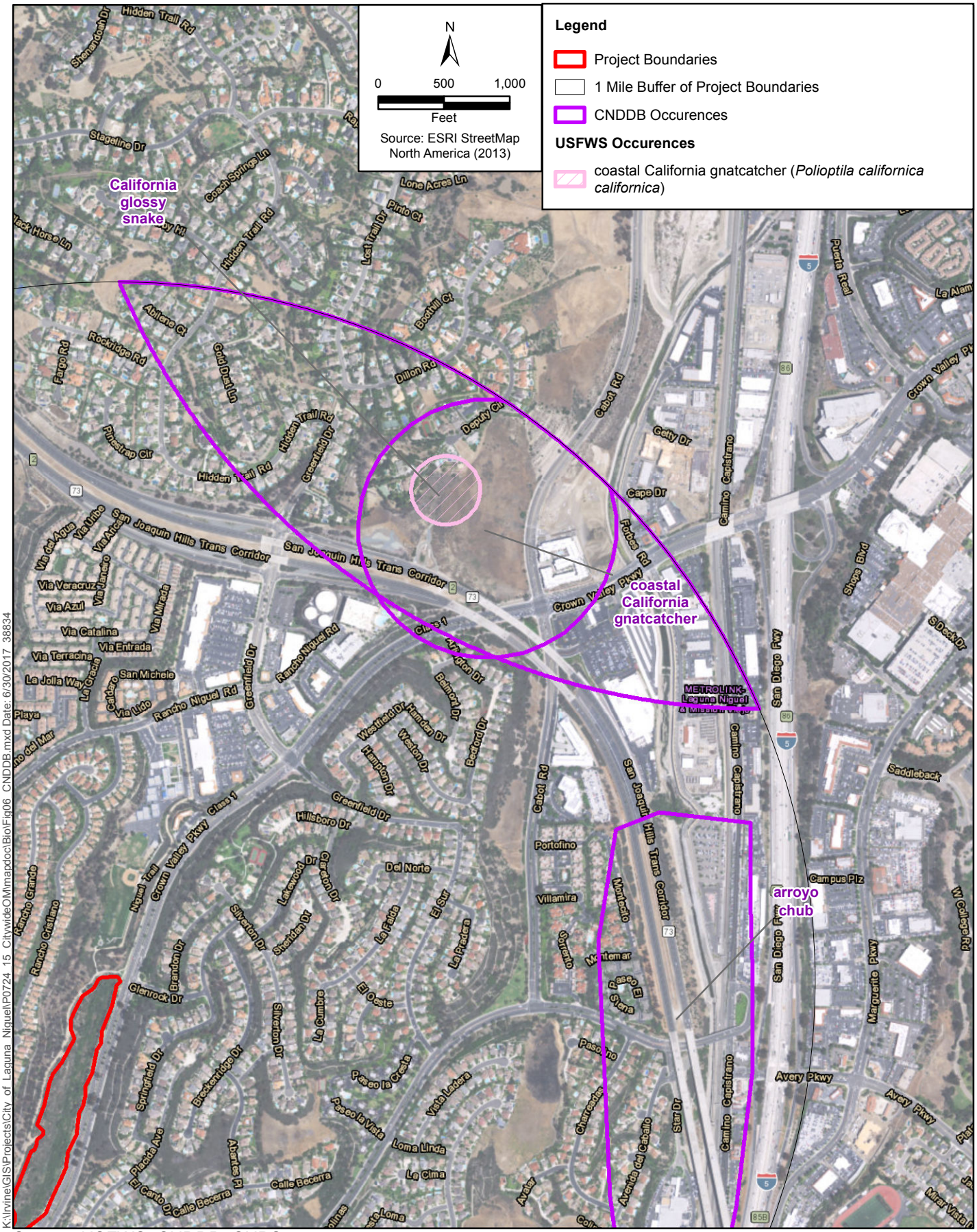
Source: USFWS, CNDDB, CNPS

**Figure 6-7**
**Sensitive Species Database Records**
**Laguna Niguel O&M Program**




Source: USFWS, CNDDB, CNPS

**Figure 6-8**
**Sensitive Species Database Records**
**Laguna Niguel O&M Program**

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Source: USFWS, CNDDB, CNPS

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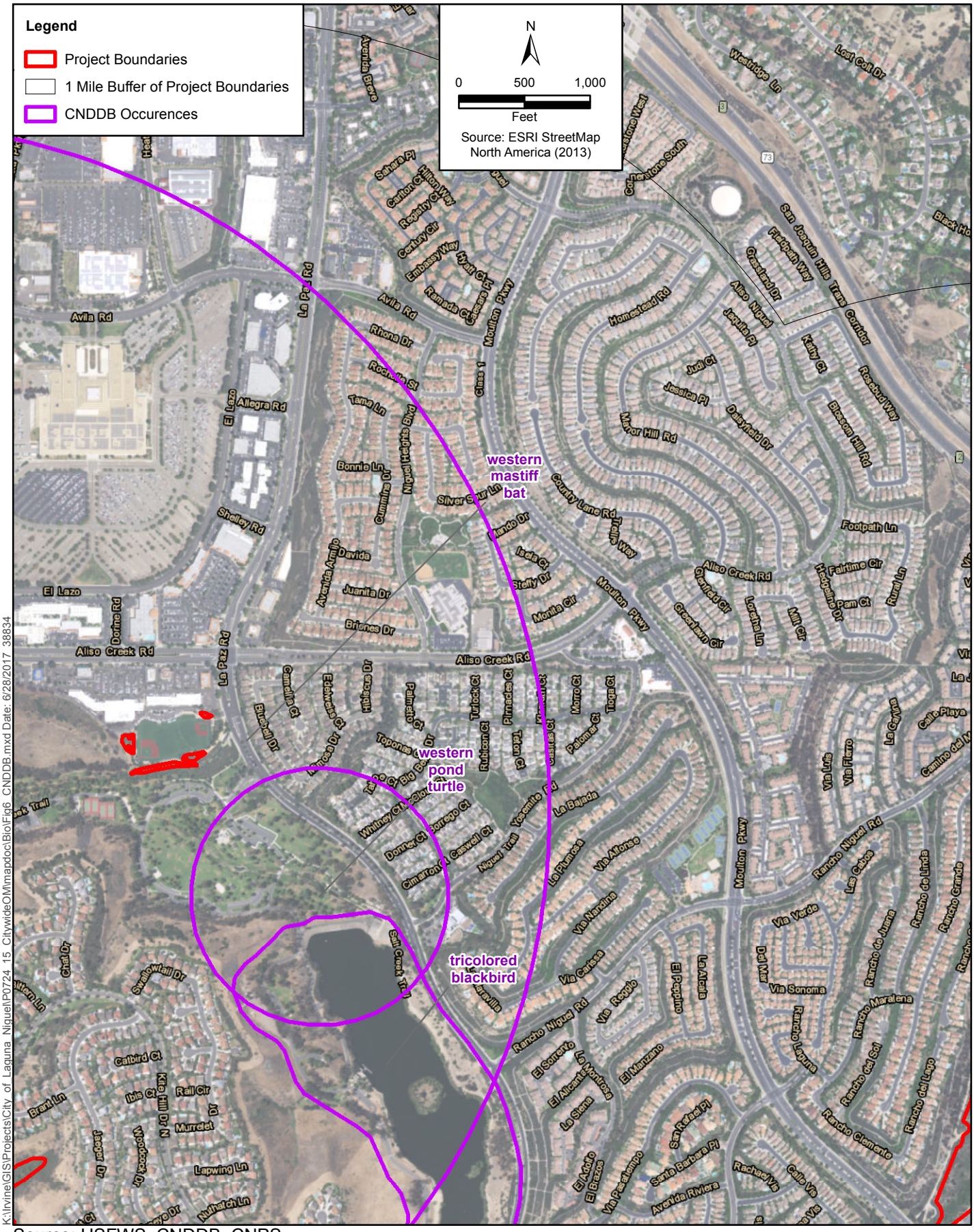
**Figure 6-9**
**Sensitive Species Database Records**
**Laguna Niguel O&M Program**

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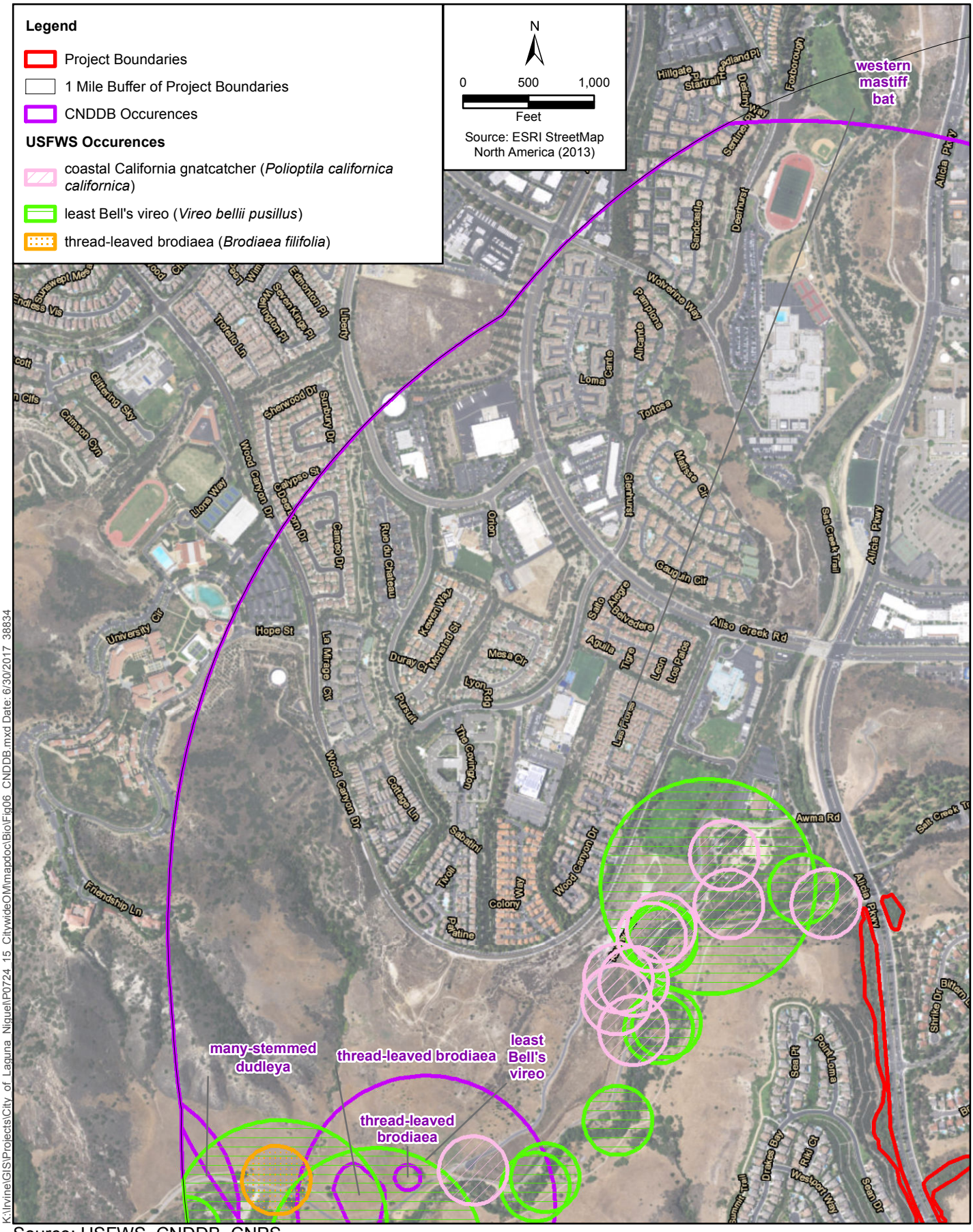
Source: USFWS, CNDDB, CNPS

**Figure 6-10**
**Sensitive Species Database Records**
**Laguna Niguel O&M Program**




Source: USFWS, CNDDB, CNPS

**Figure 6-11**
**Sensitive Species Database Records**
**Laguna Niguel O&M Program**

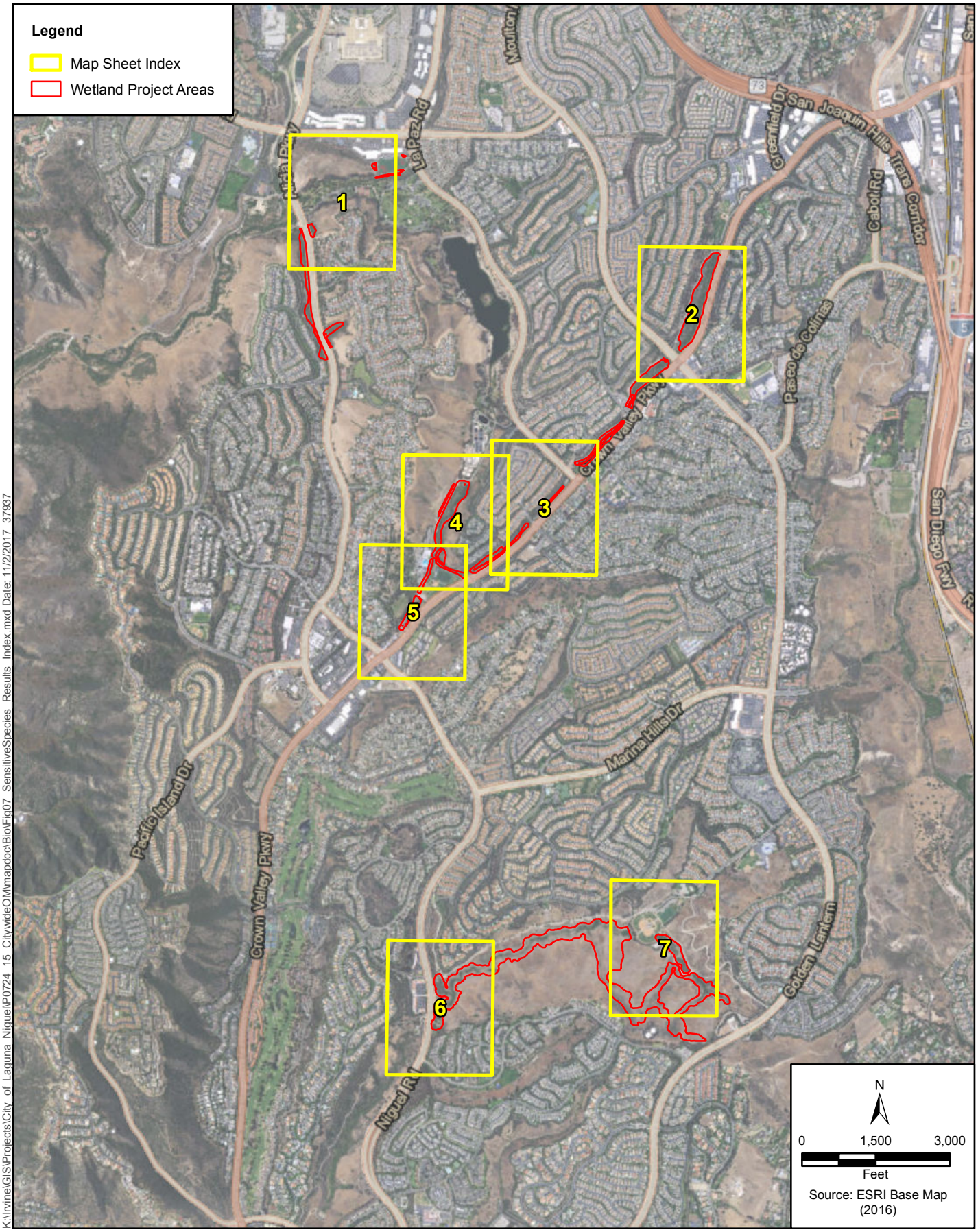



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**Figure 7-Index**
**Sensitive Species Survey Results**
**Laguna Niguel O&M Program**




**Figure 7-Sheet 1**
**Sensitive Species Survey Results**
**Laguna Niguel O&M Program**

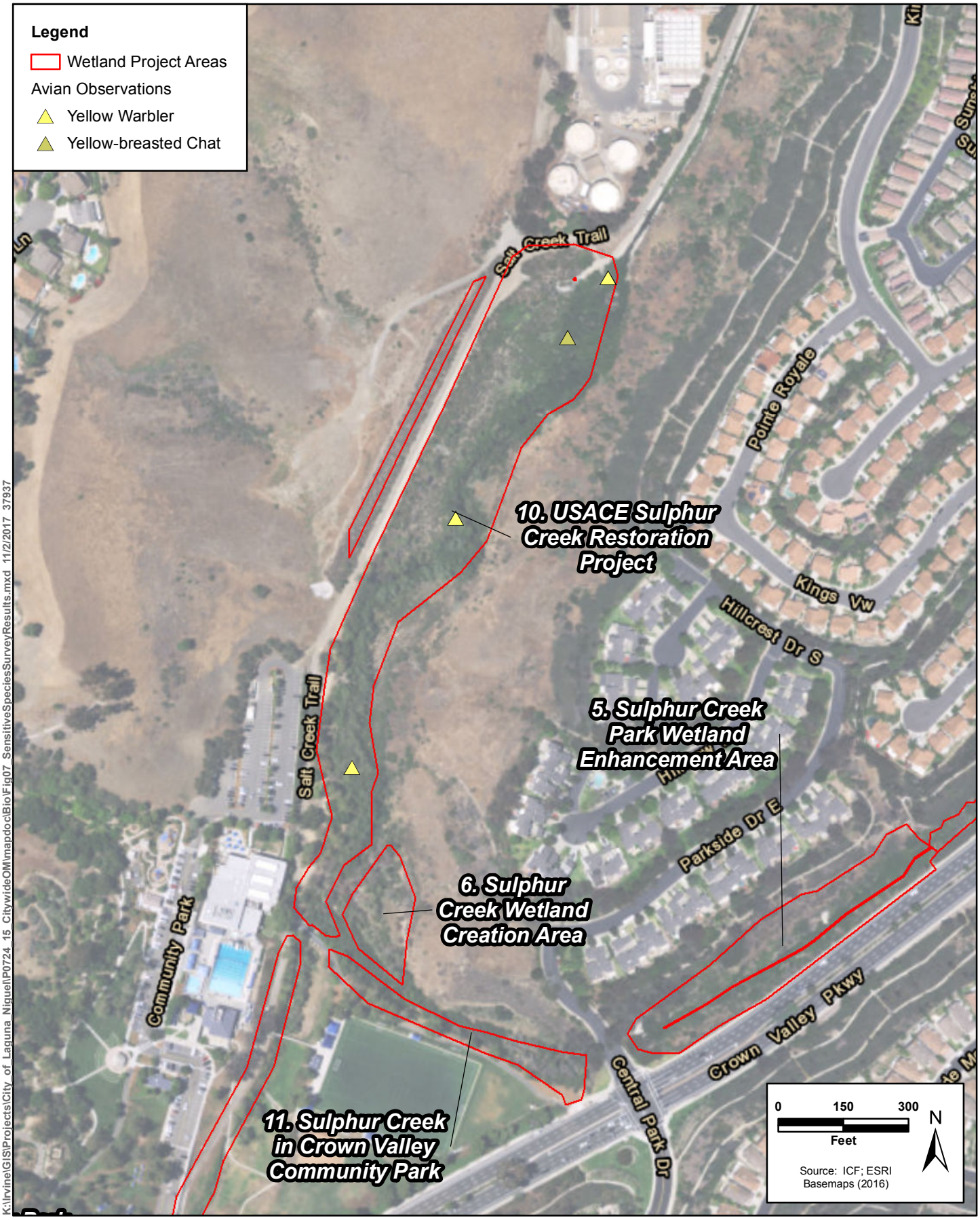



**Figure 7-Sheet 2**
**Sensitive Species Survey Results**
**Laguna Niguel O&M Program**

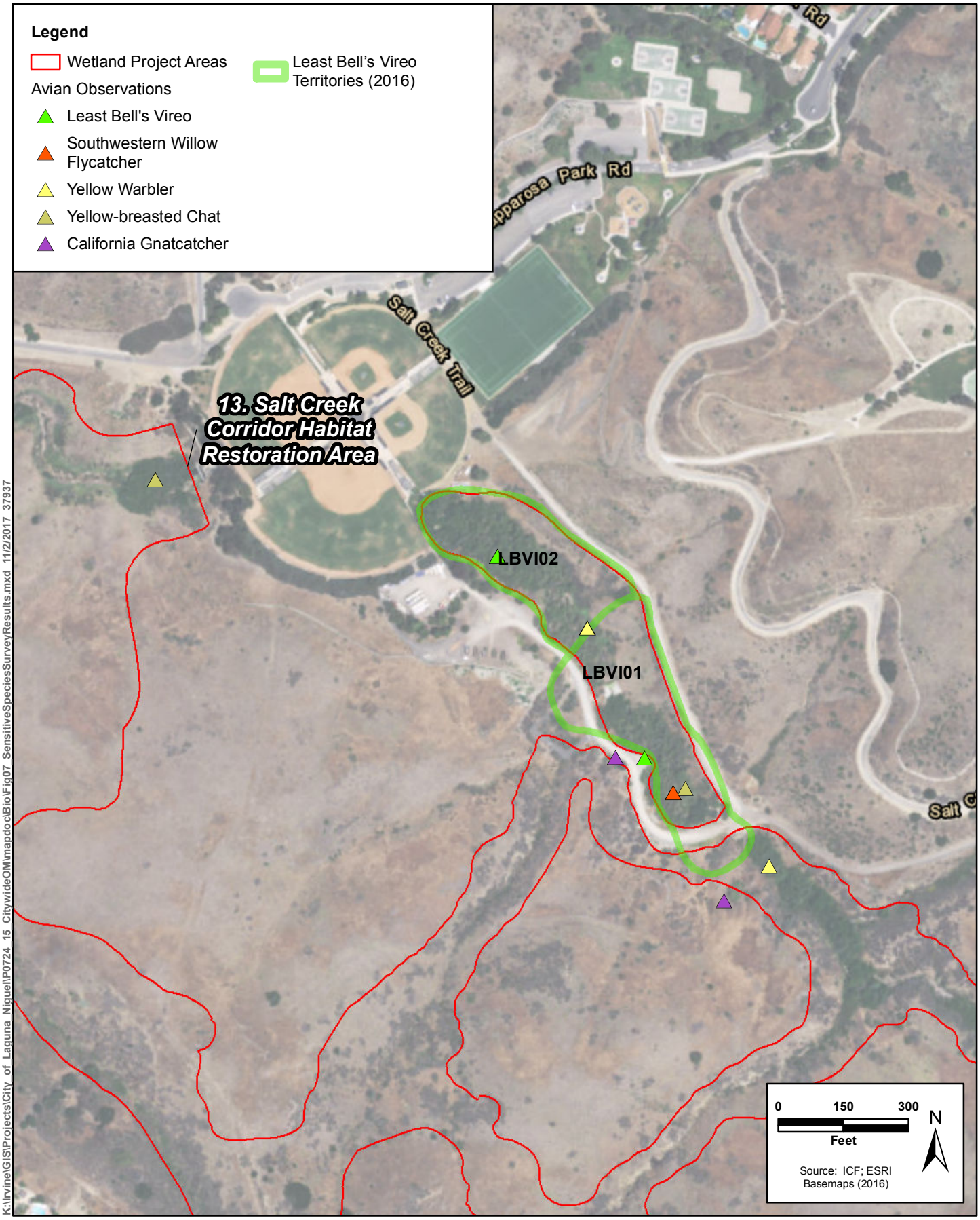
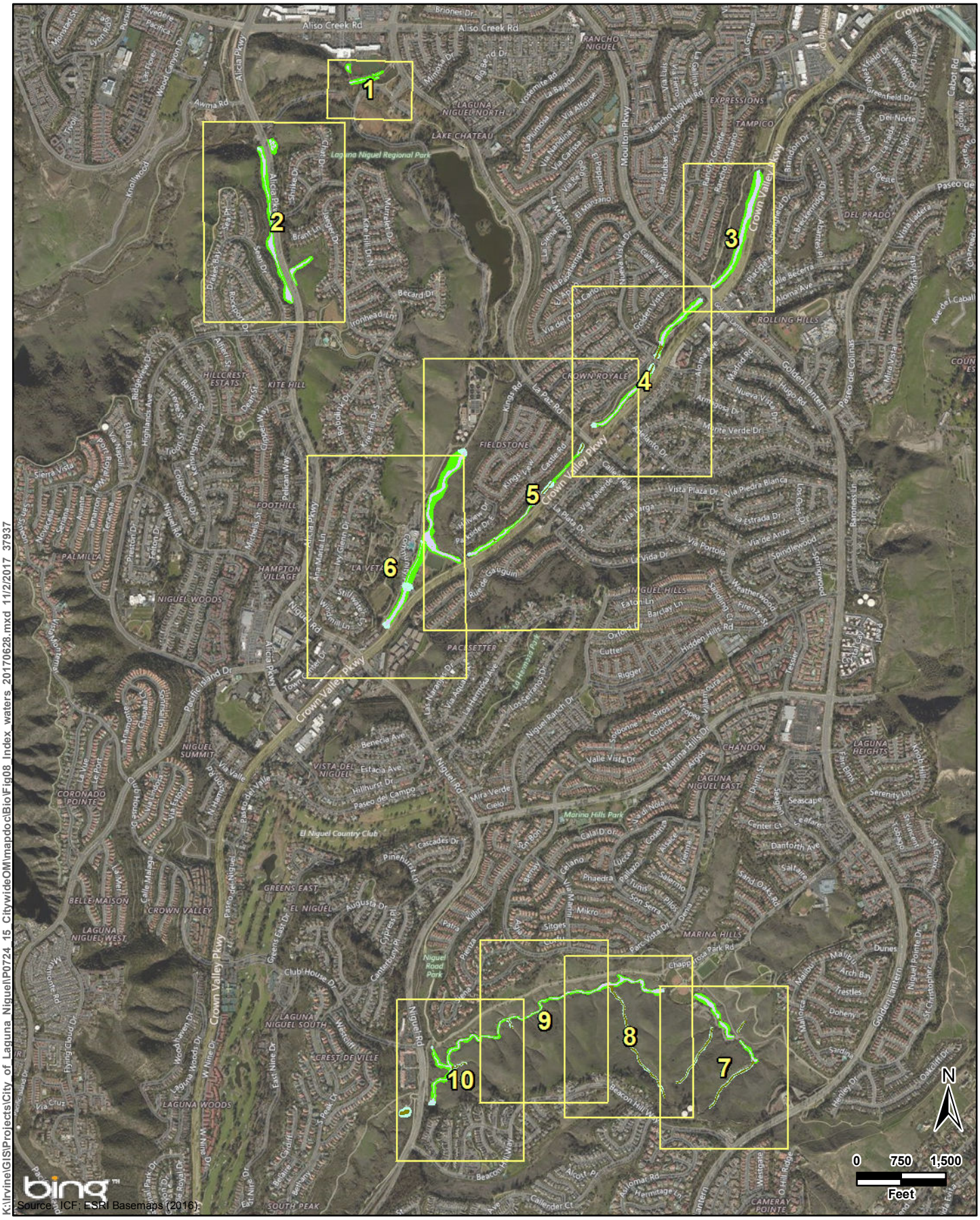



**Figure 7-Sheet 3**
**Sensitive Species Survey Results**
**Laguna Niguel O&M Program**




**Legend**

| Waters of the U.S. and State | Waters of the State |
|---|---|
| Nonwetland | Riparian |
| Wetland | Streambed |

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# Figure 8 Index Sheet
# Jurisdictional Delineation Results
# Laguna Niguel O&M Program




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**Figure 8 Sheet 1**
**Jurisdictional Delineation Waters**
**Laguna Niguel O&M Program**




**Figure 8 Sheet 2**
**Jurisdictional Delineation Waters**
**Laguna Niguel O&M Program**




**Figure 8 Sheet 3**
**Jurisdictional Delineation Waters**
**Laguna Niguel O&M Program**




**Figure 8 Sheet 4**
**Jurisdictional Delineation Waters**
**Laguna Niguel O&M Program**




**Figure 8 Sheet 5**
**Jurisdictional Delineation Waters**
**Laguna Niguel O&M Program**




**Figure 8 Sheet 6**
**Jurisdictional Delineation Waters**
**Laguna Niguel O&M Program**




**Figure 8 Sheet 7**
**Jurisdictional Delineation Waters**
**Laguna Niguel O&M Program**

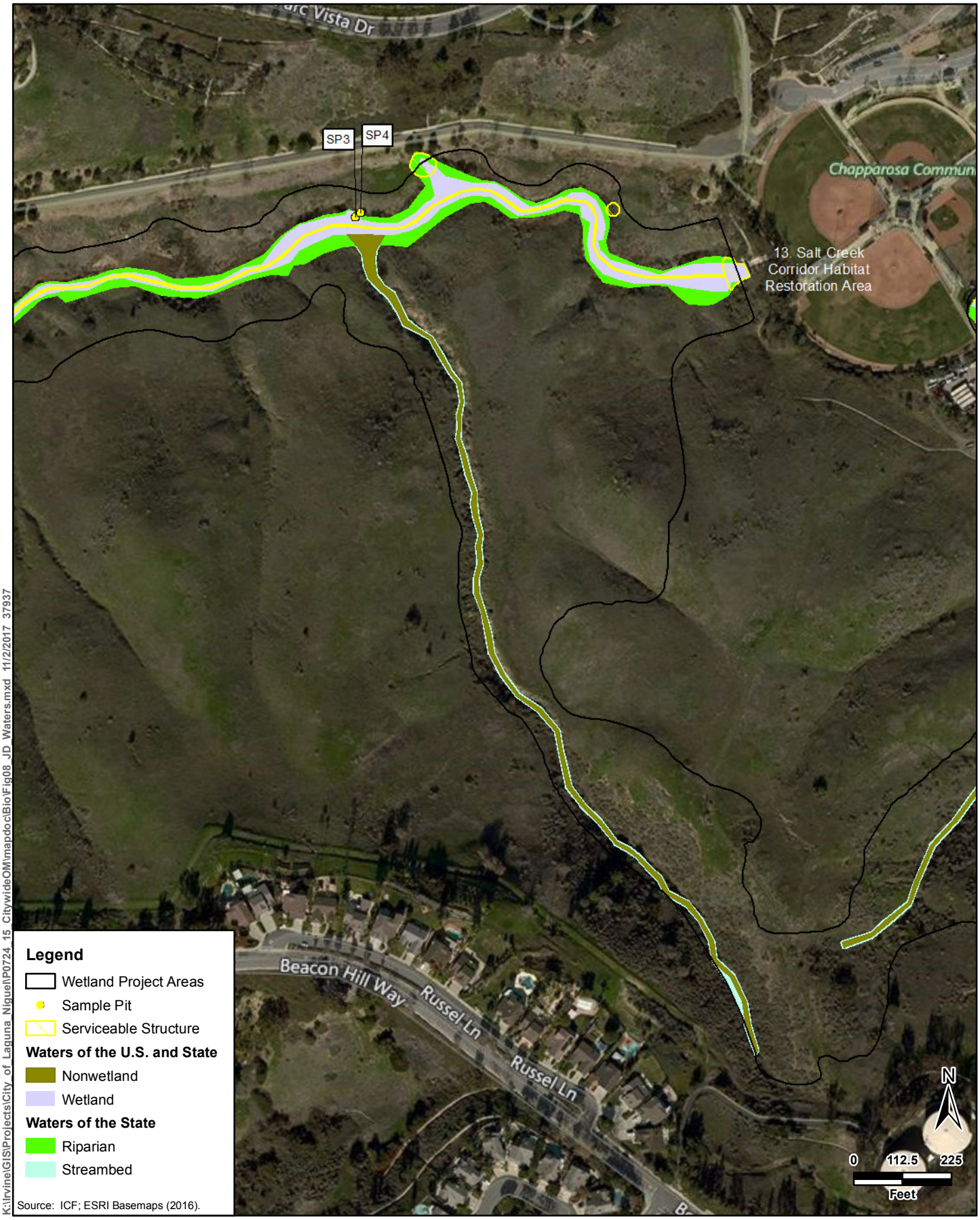


**Figure 8 Sheet 8**
**Jurisdictional Delineation Waters**
**Laguna Niguel O&M Program**




**Figure 8 Sheet 9**
**Jurisdictional Delineation Waters**
**Laguna Niguel O&M Program**




**Figure 8 Sheet 10**
**Jurisdictional Delineation Waters**
**Laguna Niguel O&M Program**

# Chapter 4
# Project Impacts

Implementation of routine flood control maintenance activities would result in recurring effects on vegetation communities from sediment, debris, and vegetation removal. These effects would be short-lived and minor, but would occur routinely. For purposes of impact analysis, all areas subject to routine maintenance are considered to be permanently impacted as presented in Table 4-1. Direct and indirect permanent and temporary impact would occur to riparian/wetland vegetation communities, upland vegetation communities, and disturbed/developed land covers (Figure 9) as well as to jurisdictional waters (Figure 10).

**Table 4-1. Permanent Impacts on Vegetation Communities (Acres)**

| Vegetation Communities and Land Cover Types | West Alicia Wetland (Site 1) | East Alicia Wetland (Site 2) | North Alicia Wetland (Site 3) | Crown Valley Park Wetland Creation Area (Site 4) | Sulphur Creek Park Wetland Enhancement Area (Site 5) | Sulphur Creek Wetland Creation Area (Site 6) | Rancho Niguel Upper Sulphur Creek (Site 7) | Crowne Royale Upper Sulphur Creek (Site 8) | Niguel Ridge Upper Sulphur Creek (Site 9) | USACE Sulphur Creek Restoration Project (Site 10) | Sulphur Creek in Crown Valley Community Park (Site 11) | La Paz Park Wetlands (Site 12) | Salt Creek Corridor Habitat Restoration Area (Site 13) | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Riparian and Wetlands** | | | | | | | | | | | | | | |
| American bulrush marsh | 0.01 | 0.01 | – | – | – | – | – | – | – | – | – | – | – | 0.02 |
| Arroyo willow thickets | – | – | – | 0.37 | 0.16 | – | 0.24 | 0.15 | 0.40 | – | – | – | 0.19 | 1.51 |
| Black willow thickets | 0.13 | – | 0.27 | – | – | 0.004 | 0.43 | – | – | 0.25 | 0.11 | 0.04 | 0.36 | 1.59 |
| California bulrush marsh | – | – | – | 0.03 | – | – | – | 0.05 | 0.01 | – | – | – | – | 0.09 |
| California sycamore woodlands | 0.07 | 0.04 | – | – | – | – | – | – | – | – | – | 0.04 | – | 0.16 |
| Cattail marshes | 0.03 | – | – | – | – | – | 0.06 | – | – | – | – | – | 0.62 | 0.71 |
| Fremont cottonwood forest | – | – | – | 0.01 | – | 0.01 | – | – | – | 0.13 | – | – | – | 0.15 |
| Mule's fat thickets | – | – | – | – | – | 0.002 | – | – | – | – | – | 0.01 | – | 0.01 |
| Salt grass flats | 0.02 | – | – | – | – | – | – | – | – | – | – | – | – | 0.02 |
| Riparian and Wetlands Totals | 0.26 | 0.05 | 0.27 | 0.41 | 0.16 | 0.01 | 0.73 | 0.20 | 0.40 | 0.38 | 0.11 | 0.09 | 1.17 | **4.26** |

| Vegetation Communities and Land Cover Types | West Alicia Wetland (Site 1) | East Alicia Wetland (Site 2) | North Alicia Wetland (Site 3) | Crown Valley Park Wetland Creation Area (Site 4) | Sulphur Creek Park Wetland Enhancement Area (Site 5) | Sulphur Creek Wetland Creation Area (Site 6) | Rancho Niguel Upper Sulphur Creek (Site 7) | Crowne Royale Upper Sulphur Creek (Site 8) | Niguel Ridge Upper Sulphur Creek (Site 9) | USACE Sulphur Creek Restoration Project (Site 10) | Sulphur Creek in Crown Valley Community Park (Site 11) | La Paz Park Wetlands (Site 12) | Salt Creek Corridor Habitat Restoration Area (Site 13) | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Uplands** | | | | | | | | | | | | | | |
| California Annual Grassland | – | – | – | – | – | – | – | – | – | 0.03 | – | – | 0.04 | 0.07 |
| California sagebrush scrub | – | – | – | – | – | – | – | – | – | – | – | – | 0.07 | 0.07 |
| Coyote brush scrub | – | 0.03 | – | – | – | – | – | – | – | 0.10 | – | – | 0.19 | 0.33 |
| Eucalyptus groves | – | – | – | – | 0.01 | – | 0.12 | – | – | – | – | – | – | 0.13 |
| Lemonade berry scrub | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| Pampas grass patches | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| Upland Totals | 0.00 | 0.03 | 0.00 | 0.00 | 0.01 | 0.00 | 0.12 | 0.00 | 0.00 | 0.13 | 0.00 | 0.00 | 0.31 | **0.60** |
| **Other Land Cover Types** | | | | | | | | | | | | | | |
| Urban/ Developed | – | <0.001 | – | 1.07 | – | – | – | 0.36 | 0.58 | – | – | <0.001 | 0.12 | **2.15** |
| **Total** | **0.26** | **0.08** | **0.27** | **1.49** | **0.17** | **0.01** | **0.85** | **0.56** | **0.98** | **0.54** | **0.11** | **0.09** | **1.60** | **7.02** |

Implementation of flood control maintenance would result in recurring effects on 1.53 acres of USFWS-designated Critical Habitat for coastal CAGN. For the purposes of impact analysis, all areas subject to routine maintenance are considered to sustain permanent impact.

**Table 4-2. Permanent Impacts on USFWS Coastal California Gnatcatcher Critical Habitat**

| | Impact Acreage |
|---|---|
| **Vegetation Communities** | **Salt Creek (Site 13)** |
| Arroyo willow thickets | 0.19 |
| Black willow thickets | 0.31 |
| California sagebrush scrub | 0.07 |
| Cattail marshes | 0.62 |
| Coyote brush scrub | 0.19 |
| California Annual Grassland | 0.04 |
| Urban/Developed | 0.10 |
| **Grand Total** | **1.53** |

Impacts on delineated aquatic resources would total 3.14 acres of waters of the U.S. (including 2.79 acres of wetland waters of the U.S.) subject to regulation by USACE and RWQCB and a total of 6.47 acres of CDFW jurisdiction (including 3.77 acres of riparian habitat). For the purposes of impact analysis, all areas subject to routine maintenance are considered to sustain permanent impact; however, the routine maintenance will not change the designation of the area as a waters of the U.S. or state.

**Table 4-3. Permanent Impacts on Waters of the U.S. and State**

| | USACE and RWQCB Jurisdiction | | CDFW Jurisdiction | |
|---|---|---|---|---|
| **Wetland Site** | **Non-wetland (acre)** | **Wetland (acre)** | **Streambed (acre)** | **Riparian (acre)** |
| 1 – West Alicia Wetland | – | 0.23 | 0.02 | 0.25 |
| 2 – East Alicia Wetland | – | 0.05 | – | 0.08 |
| 3 – North Alicia Wetland | – | 0.27 | – | 0.27 |
| 4 – Crown Valley Park Wetland Creation Area/J03P01 | – | 0.28 | 0.47 | 0.79 |
| 5 – Sulphur Creek Park Wetland Enhancement Area | 0.02 | 0.10 | 0.04 | 0.11 |
| 6 – Sulphur Creek Creation Area at Crown Valley | – | 0.01 | – | 0.01 |
| 7 – Rancho Niguel Master Association Upper Sulphur Creek | 0.05 | 0.47 | 0.34 | 0.65 |
| 8 – Crown Royale Homeowners Association Upper Sulphur Creek | 0.03 | 0.15 | 0.29 | 0.21 |

| Wetland Site | USACE and RWQCB Jurisdiction | | CDFW Jurisdiction | |
|---|---|---|---|---|
| | Non-wetland (acre) | Wetland (acre) | Streambed (acre) | Riparian (acre) |
| 9 – Niguel Ridge Homeowners Association Upper Sulphur Creek | 0.07 | 0.17 | 0.59 | 0.22 |
| 10 - USACE Restoration Area | – | 0.23 | 0.26 | 0.21 |
| 11 – Sulphur Creek in Crown Valley Park | – | 0.09 | – | 0.11 |
| 12 – La Paz Park Wetlands | – | 0.04 | – | 0.09 |
| 13 – Salt Creek Corridor Habitat Restoration Area | 0.17 | 0.70 | 0.69 | 0.77 |
| **Total** | **0.34** | **2.79** | **2.70** | **3.77** |

Chapter 5
# Analysis of Project Impacts

## 5.1 Significance Thresholds

Section 15002(g) of CEQA Guidelines states that "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. The potential significance of Project-related impacts on biological resources were evaluated for the applicable criteria from Appendix G of the CEQA Guidelines, as discussed in the following sections.

In order to determine any potential significance to biological resources, the following significance thresholds were evaluated for the Project:

Would the Project result in:

- A substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS?
- A substantial adverse impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species or other local or regional plans, policies or regulations, or by the CDFW or USFWS?
- A substantial adverse impact on wetlands (including, but not limited to, marsh, vernal pool, riparian, etc.) through direct removal, filling, hydrological interruption, or other means?
- Interfering substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or linkages, or impede the use of native wildlife nursery sites?
- A conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?
- A conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
- An introduction of invasive species of plants into a natural open space area?

## 5.2 Impact Definitions

Biological resource impacts can be considered direct, indirect, or cumulative and either permanent or temporary in nature.

- Direct: Occur when biological resources are altered, disturbed, or destroyed during project implementation. Examples include clearing vegetation, encroaching into wetland buffers, diverting surface water flows, and the loss of individual species or their habitats.

- Indirect: Occur when project-related activities affect biological resources in a manner that is not direct. Examples include elevated noise and dust levels, increased human activity, decreased water quality, and the introduction of invasive wildlife (i.e., domestic cats and dogs) and plants.
- Permanent: Permanent impacts can be direct or indirect and are not considered reversible. Examples include the removal of vegetation from areas that will have permanent structures or pavement placed on them or landscaping an area with nonnative plant species.
- Temporary: Temporary impacts can be direct or indirect and are considered reversible. Examples include the removal of vegetation from areas that will be re-vegetated, elevated noise levels, and increased levels of dust.
- Cumulative: Occur when multiple direct and indirect impacts on a biological resource affect the resource additively over time. Individual direct and indirect impacts may not be individually significant, but the additive effect when viewed in connection with the impacts of past, present, and future projects may cause the significant loss or degradation of a resource.

Implementation of flood control maintenance would result in recurring transitory effects to vegetation communities from sediment, debris, and vegetation removal. These effects would be short-lived and minor, but would occur routinely. For the purposes of this impact analysis, all areas subject to routine maintenance are considered to be permanently impacted. The routine maintenance will not change the designation of the area as a waters of the U.S. or state.

# 5.3 Impact Analyses

## 5.3.1 Sensitive Vegetation Communities

Implementation of the Project would result in temporary and permanent direct and indirect impacts on sensitive upland and wetland natural communities within the 13 wetland sites. For the purposes of this impact analysis, all areas subject to routine maintenance are considered to sustain permanent impacts. Upland and riparian vegetation communities are considered sensitive because they provide valuable nesting, breeding, and/or foraging habitat for many special-status species. Additionally, some sensitive vegetation communities, such as coastal sage scrub, are considered sensitive due to their declining abundance because of development and because of their role as the primary vegetation community that provides breeding or nesting habitat for a special-status species, in this case the coastal CAGN. Also considered sensitive are riparian and wetland vegetation communities that are potential jurisdictional waters (i.e., regulated under Section 404 of the CWA and Porter-Cologne), such as tamarisk scrub and southern willow scrub.

### 5.3.1.1 Direct Impacts

Permanent direct impacts would result from the implementation of flood control maintenance. These impacts would include recurring transitory impacts on vegetation communities from sediment, debris, and vegetation removal, and access path maintenance. These impacts would be short-lived and minor, but would occur routinely; therefore they are being assessed as permanent impacts. Permanent direct impacts would occur to 4.26 acres of riparian and wetland communities and to 0.60 acre of upland vegetation communities. Permanent direct impacts would also occur to 2.15 acres of urban developed land. Permanent direct impacts on sensitive native riparian and wetland vegetation communities would be significant. Permanent direct impacts on sensitive native

California sagebrush scrub, coyote brush scrub, lemonade berry scrub, and non-native grassland would be significant.

#### 5.3.1.2 Indirect Impacts

O&M activities have the potential to introduce non-native plants by carrying seeds from outside sources on vehicles, people, and equipment. Ground disturbance could promote the establishment and spread of opportunistic non-native plants. Additionally, wildfires caused by O&M activities are rare but may occur, and non-native plant species often frequent recently burned areas. The potential spread of non-native species into the surrounding vegetation communities would be considered a permanent indirect impact. Activities associated with flood control maintenance have the potential to create airborne dust, sedimentation, and erosion. Airborne dust may result from O&M vehicle travel on dirt access roads, grading, trenching, and other ground-disturbing activities. Flood control maintenance activities, including vegetation clearing, may result in increased erosion and sedimentation. Unauthorized access outside of the work areas by O&M workers may cause damage through trampling of plant species within adjacent vegetation communities. Impacts from dust, sedimentation, erosion, and unauthorized access have the potential to degrade the quality of surrounding vegetation communities. These would be considered a temporary indirect impact; some of which could be significant.

Eucalyptus woodland, disturbed habitat, and developed land are not considered sensitive nor are those habitat types regulated by any resource agency, therefore mitigation is not required for impacts on those habitat types.

**Significance Determination:** The permanent removal and indirect impacts on these sensitive vegetation communities would be considered significant. Potential project-related direct and indirect impacts on sensitive communities would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Chapter 6, *Avoidance, Minimization, and Mitigation Measures*.

### 5.3.2 Special-Status Plants

Sixty plant species were documented during the biological surveys of the Project areas. None of the plant species documented in the Project are candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS. There is moderate potential to occur for three species: California satintail (*Imperata brevifolia;* CRPR 2B.1), mud nama (*Nama stenocarpa;* 2B.2) and thread-leaved brodiaea (*Brodiaea filifolia;* federally threatened, state endangered, CRPR 1B.1).

No USFWS-designated Critical Habitat for any special-status plant occurs within the Project area; therefore, no impact would occur on USFWS-designated Critical Habitat for a plant species.

#### 5.3.2.1 Direct Impacts

Permanent direct impacts would occur to any special-status plant species discovered within the Project area due to removal for maintenance activities. Permanent direct impacts on these special-status plant species would be significant.

#### 5.3.2.2 Indirect Impacts

Maintenance activities have the potential to introduce non-native plants by carrying seeds from outside sources on vehicles, people, and equipment. Ground disturbance could promote the establishment and spread of opportunistic non-native plants. Additionally, wildfires caused by maintenance activities are rare but may occur, and non-native plant species establish quickly in recently burned areas. The potential spread of non-native species into the surrounding habitat for special-status plant species would be considered a permanent indirect impact.

**Significance Determination:** The permanent removal and indirect impacts on California satintail, mud nama, thread-leaved brodiaea, or any other special-status plant species that occurs would be considered significant. Potential Project-related direct and indirect impacts on special-status plant species would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Chapter 6.

### 5.3.3 Special-Status Wildlife

Forty wildlife species were documented during the biological surveys of the Project sites. Of these, five special-status species were found within the Project area sites during the survey work: LBV (federally and state-listed as endangered), SWFL (federally and state endangered), yellow warbler (CDFW Species of Special Concern), yellow-breasted chat (CDFW Species of Special Concern), and CAGN (federally threatened).

No special-status invertebrate, mammal, reptile, or amphibian species were observed within the Project sites; therefore no impacts would occur on special-status invertebrate, mammal, reptile or amphibian species.

#### 5.3.3.1 Direct Impacts

##### Least Bell's Vireo

LBV suitable habitat occurs in riparian habitat throughout the Project area. Maintenance and operation activities including removing vegetation and accumulated sediment and trimming of vegetation would result in permanent impacts on LBV suitable habitat used for nesting and foraging. Both LBV territories identified during the 2016 surveys occur within the permanent impact area within the Salt Creek Corridor Habitat Restoration Area (Site 13). Habitat within the LBV territory identified within Site 13 would sustain permanent impact during Project activities. Permanent impacts may also occur as a result of vehicular collisions, which happen most frequently during the vegetation clearing and involve eggs, nestlings, and recently fledged young that cannot safely avoid equipment. Permanent impacts may also occur as a result of nest loss due to removal of the nesting substrate.

##### Southwestern Willow Flycatcher

SWFL suitable habitat occurs in riparian habitat throughout the Project area. Maintenance and operation activities including removing vegetation and accumulated sediment and trimming of vegetation would result in permanent impacts on SWFL suitable habitat used for nesting and foraging. The SWFLs observed during the 2016 surveys occur within the permanent impact area within the Salt Creek Corridor Habitat Restoration Area (Site 13). Permanent impacts on SWFLs may also occur as a result of vehicular collisions, which occur most frequently during the vegetation

clearing and involve eggs, nestlings, and recently fledged young that cannot safely avoid equipment. Permanent impacts may also occur as a result of nest loss due to removal of the nesting substrate.

### Coastal California Gnatcatcher

Coastal CAGN suitable nesting and foraging habitat occurs in California sagebrush scrub habitat throughout the Project area. Maintenance and operation activities including removing vegetation and accumulated sediment and trimming of vegetation would result in permanent impacts on coastal CAGN suitable habitat used for nesting and foraging. The coastal CAGNs observed during the 2016 surveys occur within the permanent impact area within the Salt Creek Corridor Habitat Restoration Area (Site 13). Permanent impacts on coastal CAGNs may also occur as a result of vehicular collisions, which occur most frequently during the vegetation clearing and involve eggs, nestlings, and recently fledged young that cannot safely avoid equipment. Permanent impacts may also occur as a result of nest loss due to removal of the nesting substrate.

USFWS-designated Critical Habitat for coastal CAGN occurs within the Salt Creek Corridor Habitat Restoration Area (Site 13; Table 5-2). Maintenance and operation activities including removing vegetation and accumulated sediment and trimming of vegetation would result in permanent impacts on USFWS coastal CAGN Critical Habitat. The majority of the impacts would occur on cattail marshes, black willow thickets, and arroyo willow thickets. Impacts occurring on the primary nesting substrate of California sagebrush scrub would occur within approximately 0.07 acre.

### Yellow Warbler

Yellow warbler suitable nesting and foraging habitat occurs in riparian habitat throughout the Project area. The yellow warblers observed during the 2016 surveys occur within the permanent impact area within the Rancho Niguel Upper Sulphur Creek (Site 7), Crown Royale Homeowners Association Upper Sulphur Creek (Site 8), USACE Sulphur Creek Restoration Area (Site 10), and the Salt Creek Corridor Habitat Restoration Area (Site 13). Permanent impacts on yellow warbler are the same as those mentioned previously for special-status avian species.

### Yellow-Breasted Chat

Yellow-breasted chat suitable nesting and foraging habitat occurs in riparian habitat throughout the Project area. The yellow-breasted chat observed during the 2016 surveys occur within the permanent impact area within the Rancho Niguel Upper Sulphur Creek (Site 7), Crown Royale Homeowners Association Upper Sulphur Creek (Site 8), USACE Sulphur Creek Restoration Area (Site 10), and the Salt Creek Corridor Habitat Restoration Area (Site 13). Permanent impacts on yellow-breasted chat are the same as those mentioned previously for special-status avian species.

Additional special-status bird species that have high potential to nest and forage in the Project area include Cooper's hawk (CDFW watch list), Southern California rufous-crowned sparrow (CDFW watch list), white-tailed kite (CDFW fully protected species), orange-throated whiptail (CDFW watch list), coast horned lizard (CDFW Species of Special Concern), coastal whiptail (CDFW Species of Special Concern), and red diamond rattlesnake (CDFW Species of Special Concern).

## 5.3.3.2 Indirect Impacts

Project-related noise could occur from equipment used during vegetation clearing. Noise impacts can have a variety of indirect impacts on wildlife species, including increased stress, weakened

immune systems, altered foraging behavior, displacement due to startle, degraded communication with conspecifics (e.g., masking), damaged hearing from extremely loud noises, and increased vulnerability to predators These impacts could affect breeding activities by CAGNs, LBV, and other special-status avian species if O&M activities occurred during the breeding season. Maintenance activities associated with the Project have the potential to create airborne dust, sedimentation, and erosion. Airborne dust may result from O&M vehicle travel on dirt access roads, grading, trenching, and other ground-disturbing activities. Maintenance activities, including sediment removal and vegetation clearing, may result in increased erosion and sedimentation. Increased noise levels may have an impact on avian species during maintenance activities. These indirect impacts have the potential to degrade nesting and foraging habitat and alter species behavior and would be considered a temporary indirect impact.

Maintenance activities have the potential to introduce non-native plants by carrying seeds from outside sources on vehicles, people, and equipment. Ground disturbance by vehicles, equipment, and humans has the potential to promote the establishment and spread of opportunistic nonnative plants. Additionally, wildfires caused by O&M activities are rare but may occur, and may increase the potential for invasion of non-native plant species as many non-native plant species germinate more quickly than native plant species under such conditions. The potential spread of non-native species into the surrounding habitat for LBV, SWFL, yellow warbler, yellow-breasted chat, coastal CAGN, and SWPT habitat (including coastal CAGN Critical Habitat) would be considered a permanent indirect impact.

**Significance Determination:** Project-related direct and indirect impacts on LBV, SWFL, yellow warbler, yellow-breasted chat, coastal CAGN, SWPT, and coastal CAGN Critical Habitat would be considered significant impacts. These impacts would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Chapter 6.

## 5.3.4 Jurisdictional Resources and Wetlands

### 5.3.4.1 Direct Impacts

Implementation of flood control maintenance would result in recurring transitory effects on vegetation communities from sediment, debris, and vegetation removal. These effects would be short-lived and minor, but would occur routinely. Impacts on jurisdictional resources would occur on a quarterly basis when all sediment and vegetation will be removed from the constructed limits of all structures and from specified radii up and downstream of inlets; on a biannual basis, all sediment and vegetation will be removed from pilot channels. Impacts would occur when vegetation is removed by hand or handheld mechanized equipment, and sediment is removed via a mini-excavator and a bobcat loader. These recurring transitory effect areas would be within USACE, RWQCB, and CDFW jurisdiction. Impacts on delineated aquatic resources would total 3.14 acres of waters of the U.S. and state (including 2.79 acres of wetland waters of the U.S.) subject to regulation by the USACE and RWQCB and 3.77 acres of riparian and 2.70 acres of streambed subject to regulation by CDFW. For the purposes of this impact analysis, all areas subject to routine maintenance are considered to sustain permanent impact.

### 5.3.4.2 Indirect Impacts

Offsite erosion and sedimentation resulting from maintenance activities has the potential to result in temporary indirect impacts on jurisdictional waters and wetlands. Airborne dust may result from

vehicle travel on dirt access roads, grading, trenching, and other ground-disturbing activities and has the potential to result in temporary indirect impacts on jurisdictional waters and wetlands. Other indirect impacts are addressed in the vegetation communities section. These impacts have the potential to degrade the quality of adjacent jurisdictional waters and wetlands and would be considered a temporary indirect impacts.

**Significance Determination:** The permanent removal and adverse indirect impacts on federally protected wetlands or to any state-protected jurisdictional wetlands through direct removal, filling, hydrological interruption, or other means would be considered significant. Potential direct and indirect impacts on jurisdictional waters and wetlands would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Chapter 6.

## 5.3.5 Wildlife Corridors and Nursery Sites

Each of the 13 sites is used by a variety of wildlife species for local movement, breeding, and foraging. Some Project components are within small corridors constrained by development and roadways while others are within regional parks. All, however, are critical sustaining wildlife populations, maintaining wildlife diversity, and providing dispersal opportunities for animals in urban settings. Each of the 13 Project sites also provides migratory stopover habitat for migrating avian species within the Pacific flyway.

### 5.3.5.1 Direct Impacts

Removal of vegetation would have direct, temporary, and permanent impact on the wildlife corridors. However, maintenance activities associated with the Project would not result in the permanent installation of structures that would prevent wildlife (including terrestrial and avian) movement through the Project. Further, the narrow, linear work area and temporary nature of the work would not permanently deter or impair the ability of terrestrial and avian wildlife species to use or to cross the Project sites. Work occurring during the breeding or nursing season could affect the ability of special-status or common species to successfully complete their breeding cycles and raise their young. Direct impacts on these wildlife corridors and nursery sites would be significant if they occurred during the breeding and nesting season.

### 5.3.5.2 Indirect Impacts

Indirect impacts on wildlife movement (including terrestrial and avian) may result during O&M activities from increased human presence and work-related noise and dust. These indirect impacts are expected to be minimal because of the short duration (days) of the work. Therefore, no permanent indirect impacts on wildlife corridors resulting from Project activities are expected. Temporary indirect impacts on wildlife corridors resulting from Project activities would not be significant.

**Significance Determination:** Implementation of the maintenance activities associated with vegetation clearing, trimming, or sediment removal would temporarily affect the movement of native resident or migratory fish or wildlife species and would temporarily affect established native resident or migratory wildlife corridors or linkages, and potentially the use of native wildlife nursery sites. These impacts would be significant, and would be reduced to less than significant

through implementation of the avoidance, minimization, and mitigation measures described in Chapter 6.

## 5.3.6 Adopted Habitat Conservation Plans

The Project would be designed to comply with the Aliso Creek - Watershed Management Plan and all approved local, regional, state, and federal regulations, policies, and ordinances. The City is not a participant in a Habitat Conservation Plan or Natural Community Conservation Plan and is therefore not subject to the provisions of such a plan. Therefore, no conflicts would occur with any approved Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.

## 5.3.7 Local Policies or Ordinances

The Project would operate in compliance with the City of Laguna Niguel Municipal Code. In addition, the Project would be designed to comply with all approved local, regional, state, and federal regulations, policies, and ordinances. Therefore, no conflicts are expected with any approved regional, state, or federal regulations, policy, ordinance, or plan.

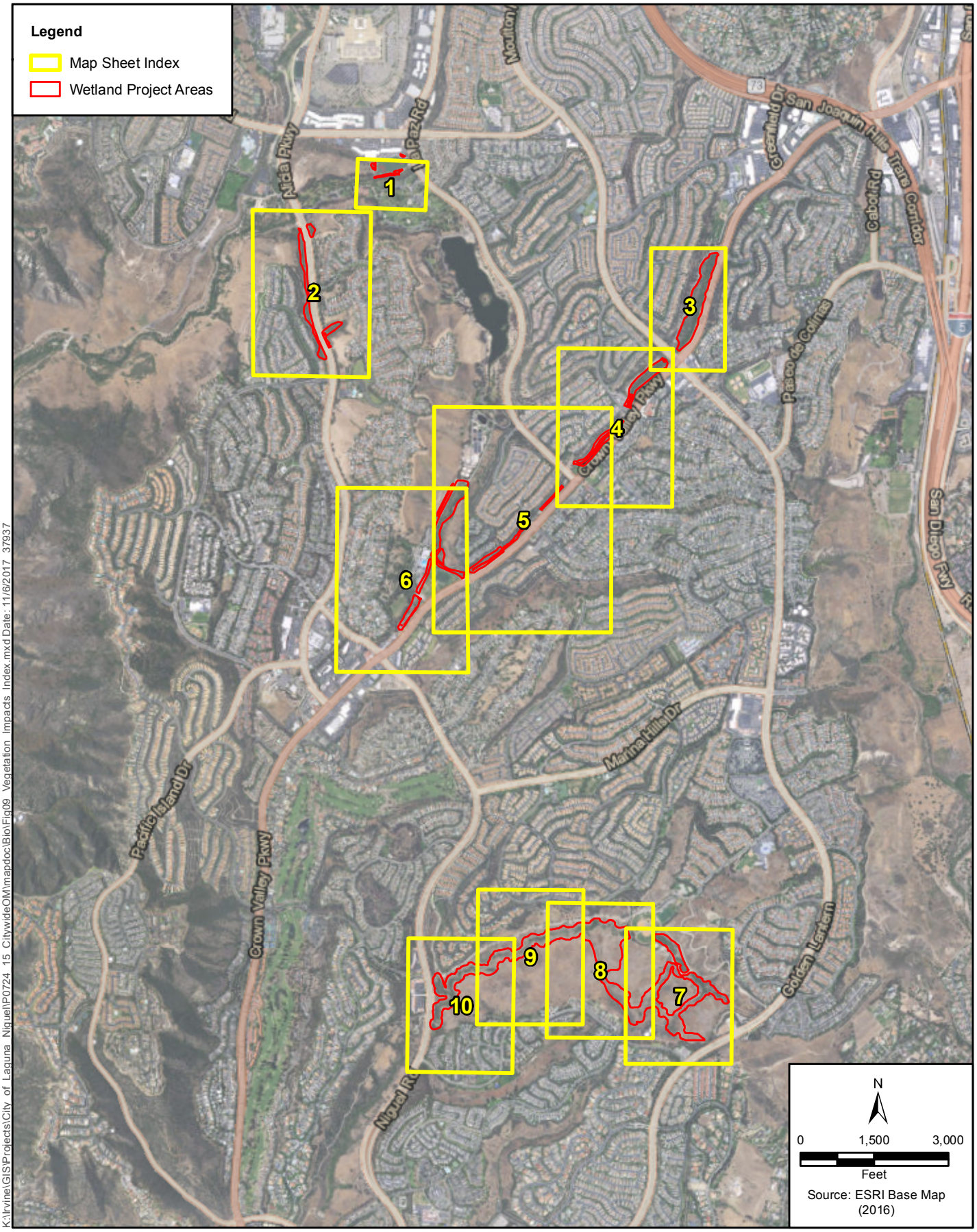


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**Figure 9-Index**
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**Laguna Niguel O&M Program**




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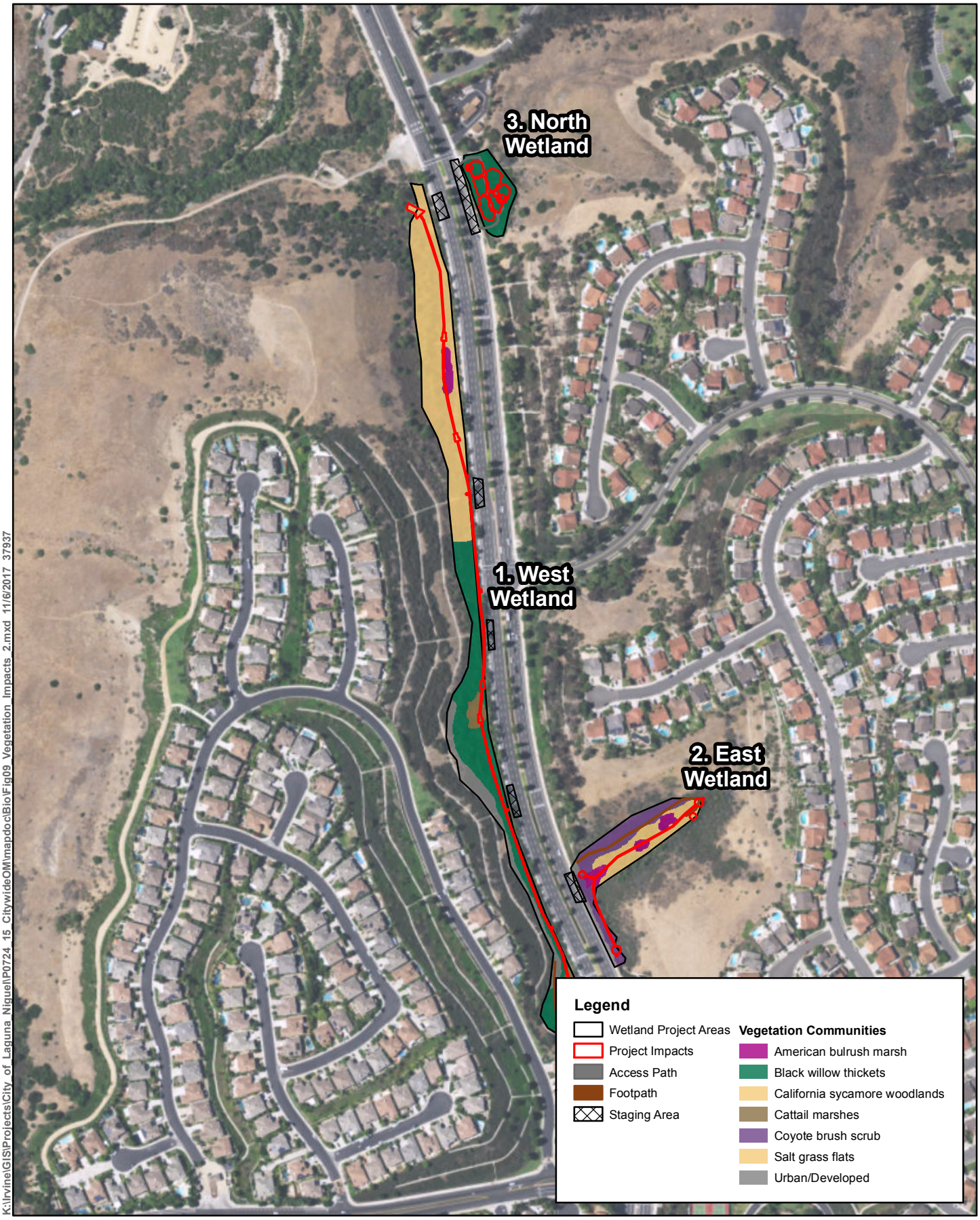


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Source: ICF; ESRI Basemaps (2016)

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Source: ICF; ESRI Basemaps (2016)

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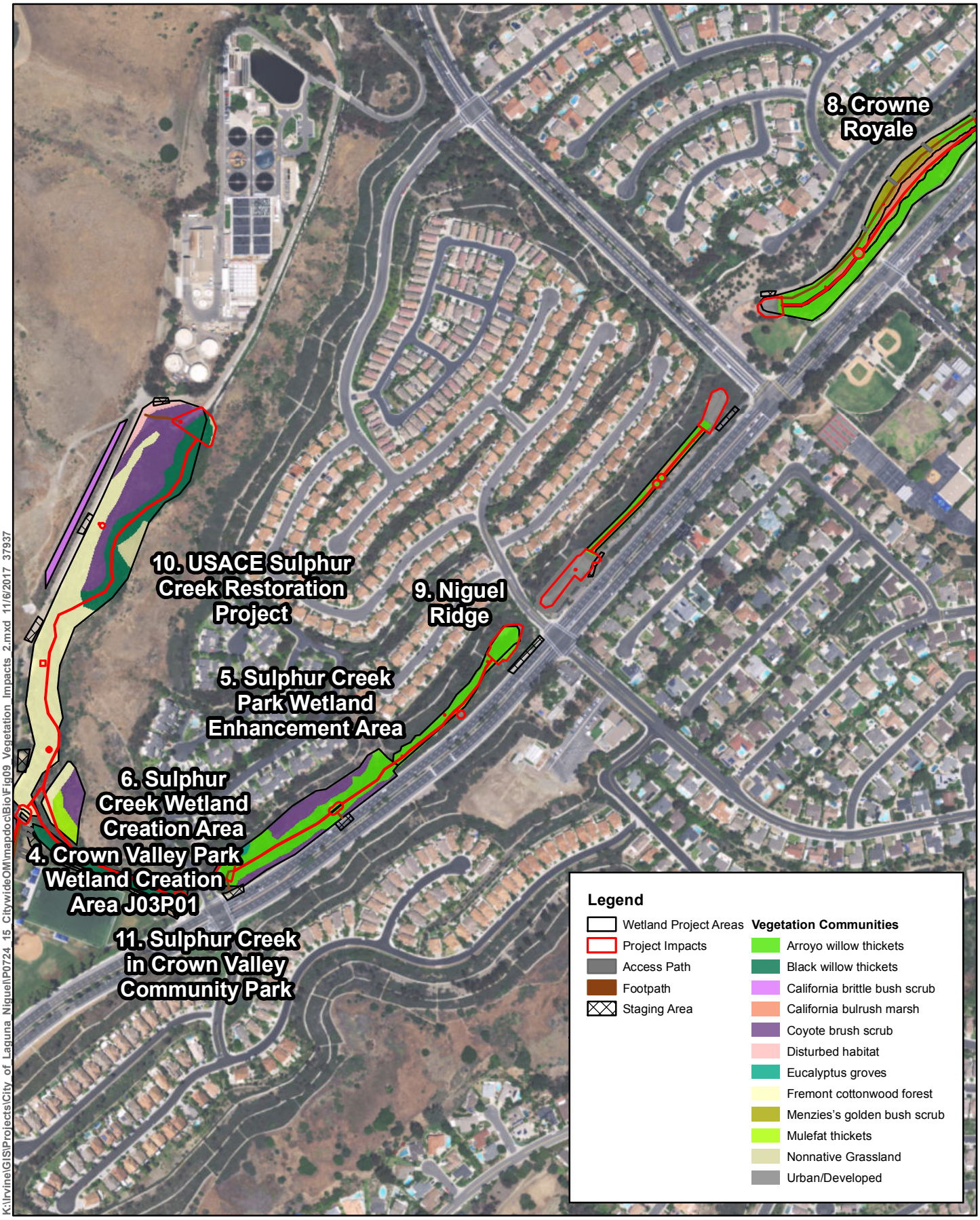


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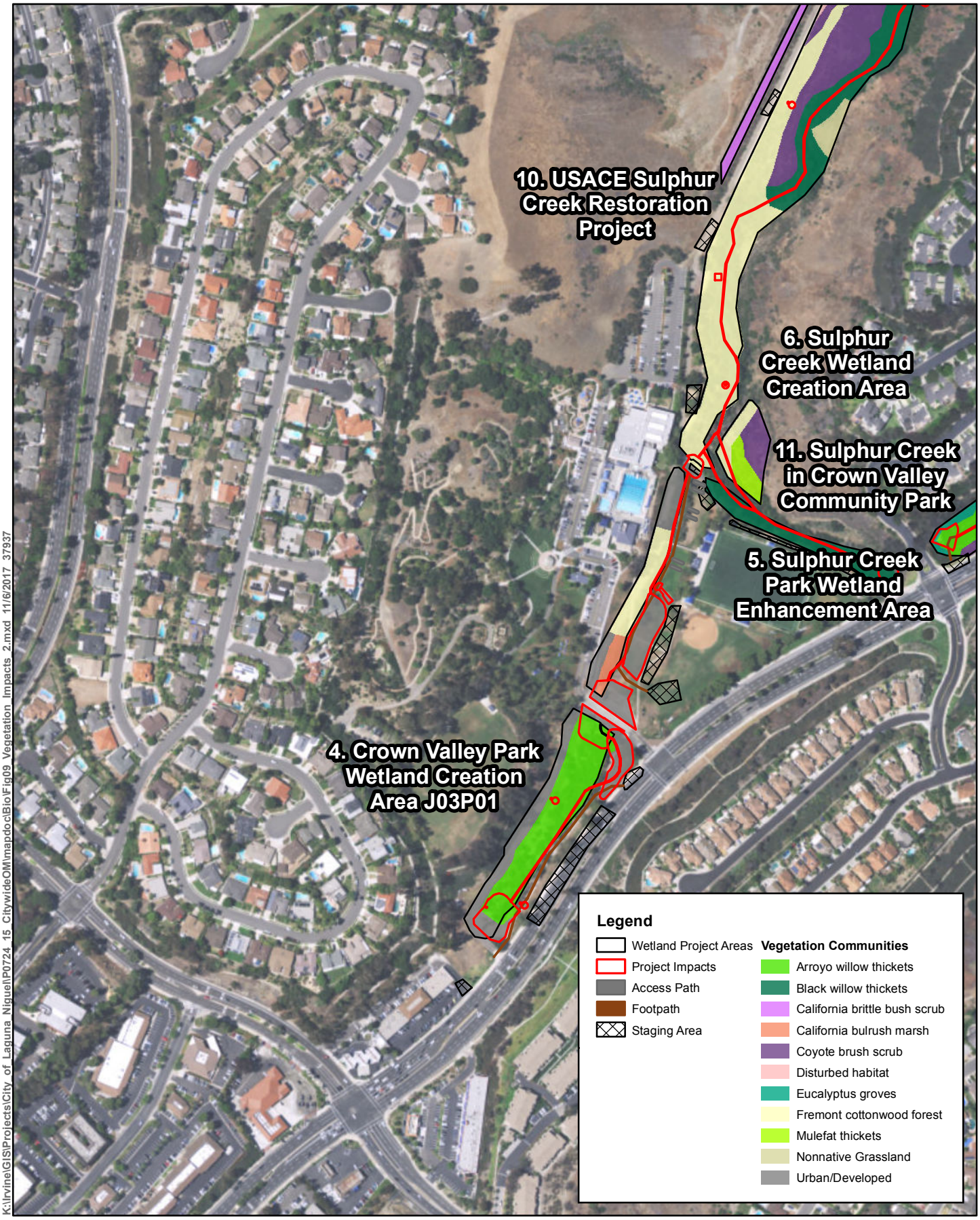


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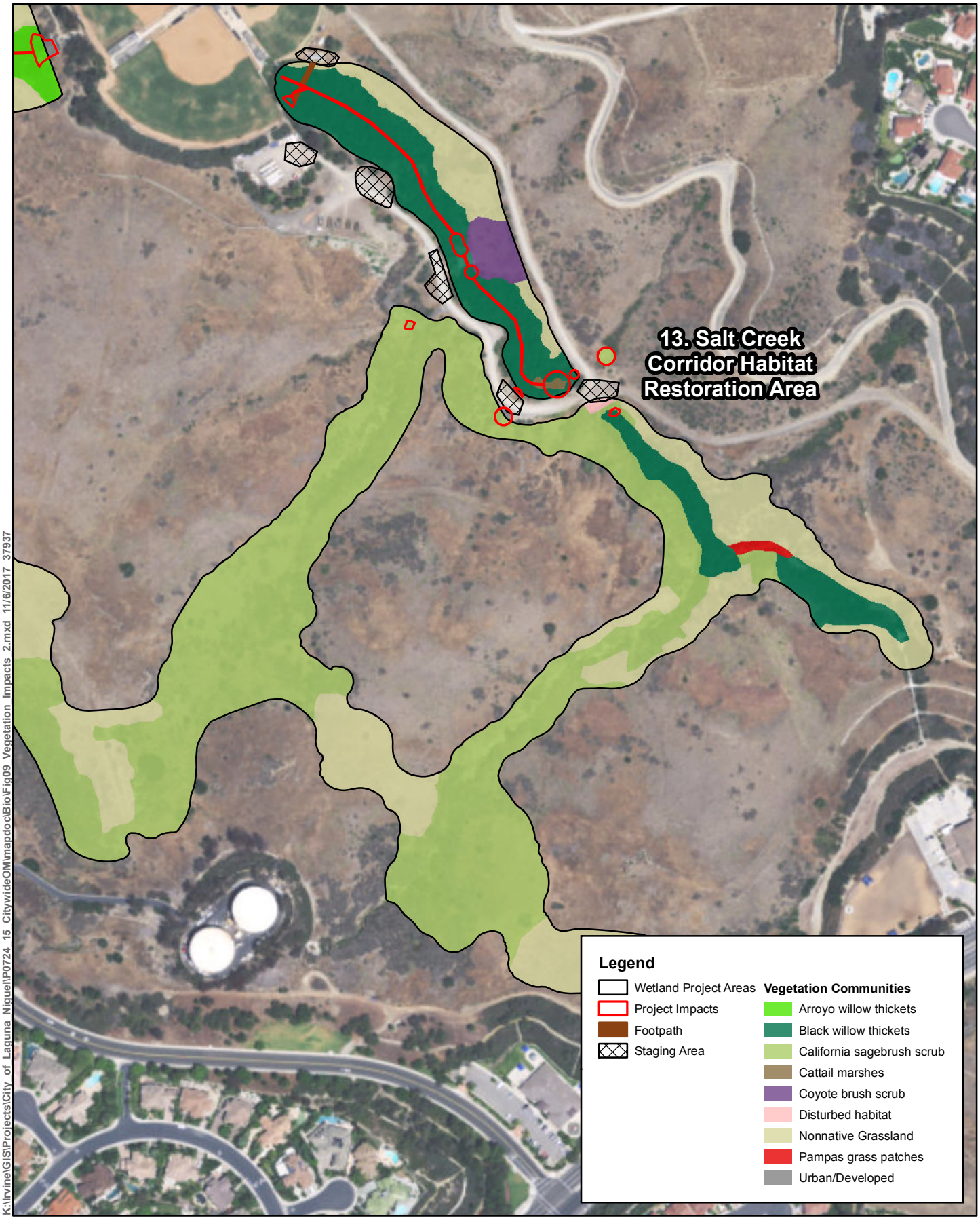


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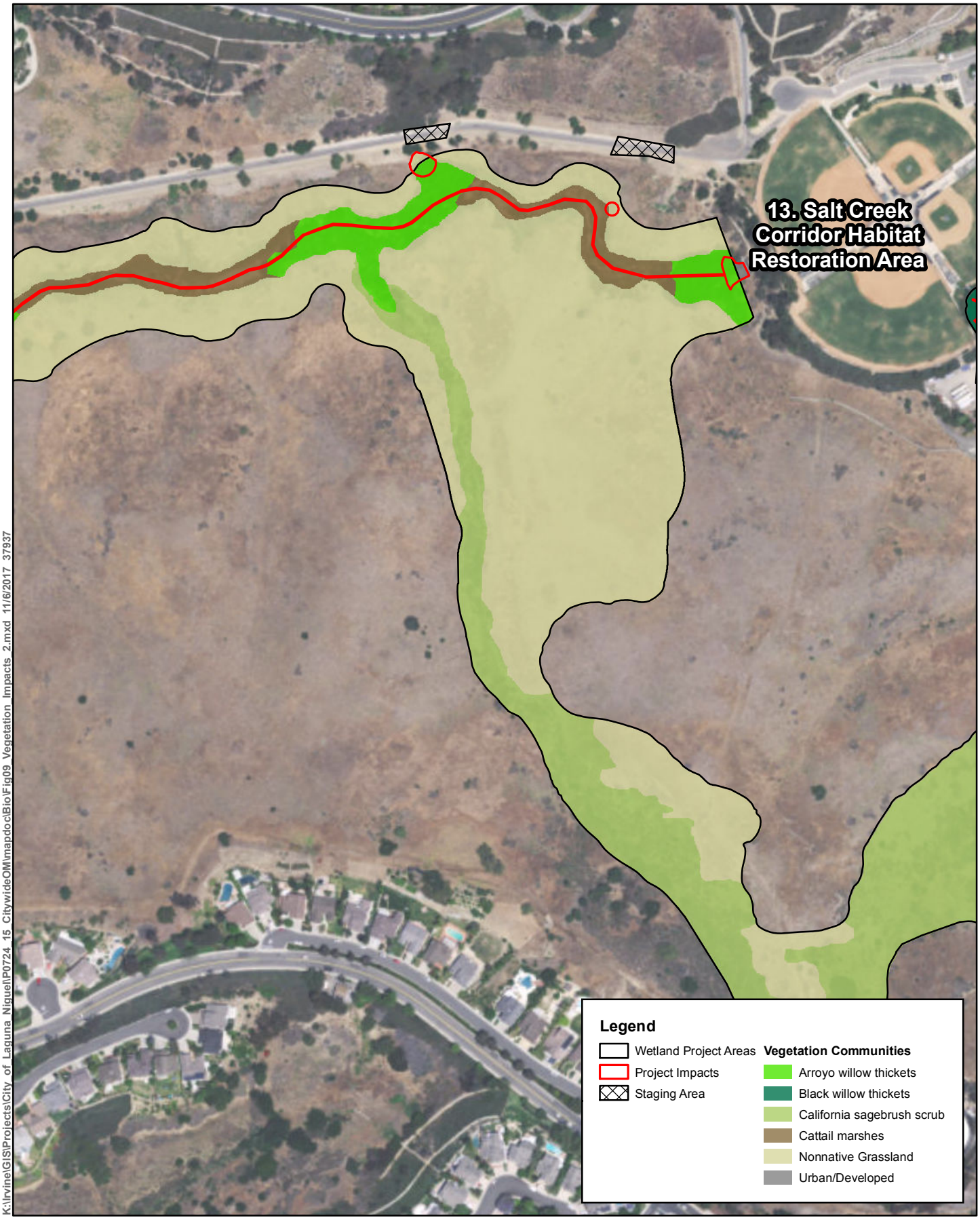


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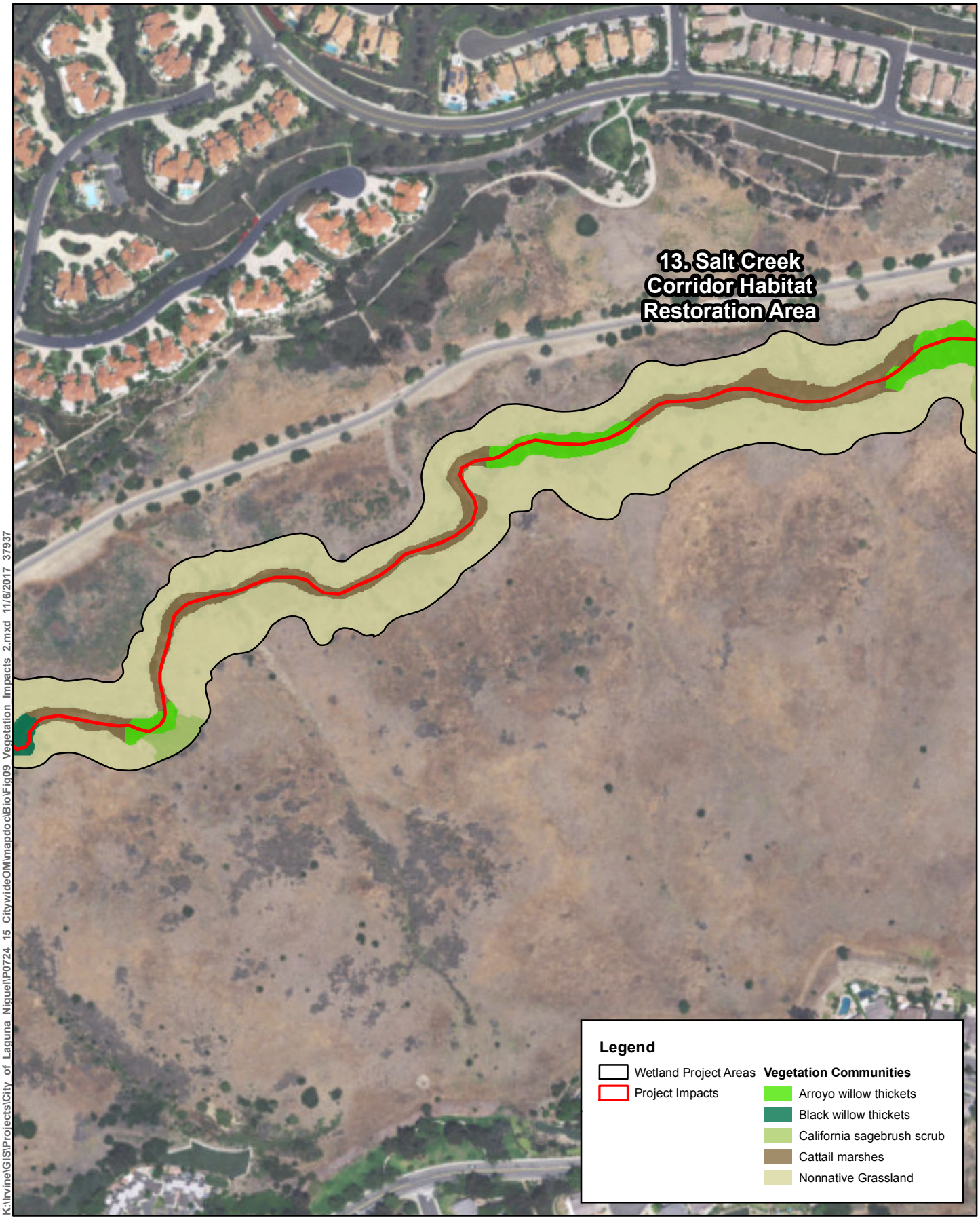


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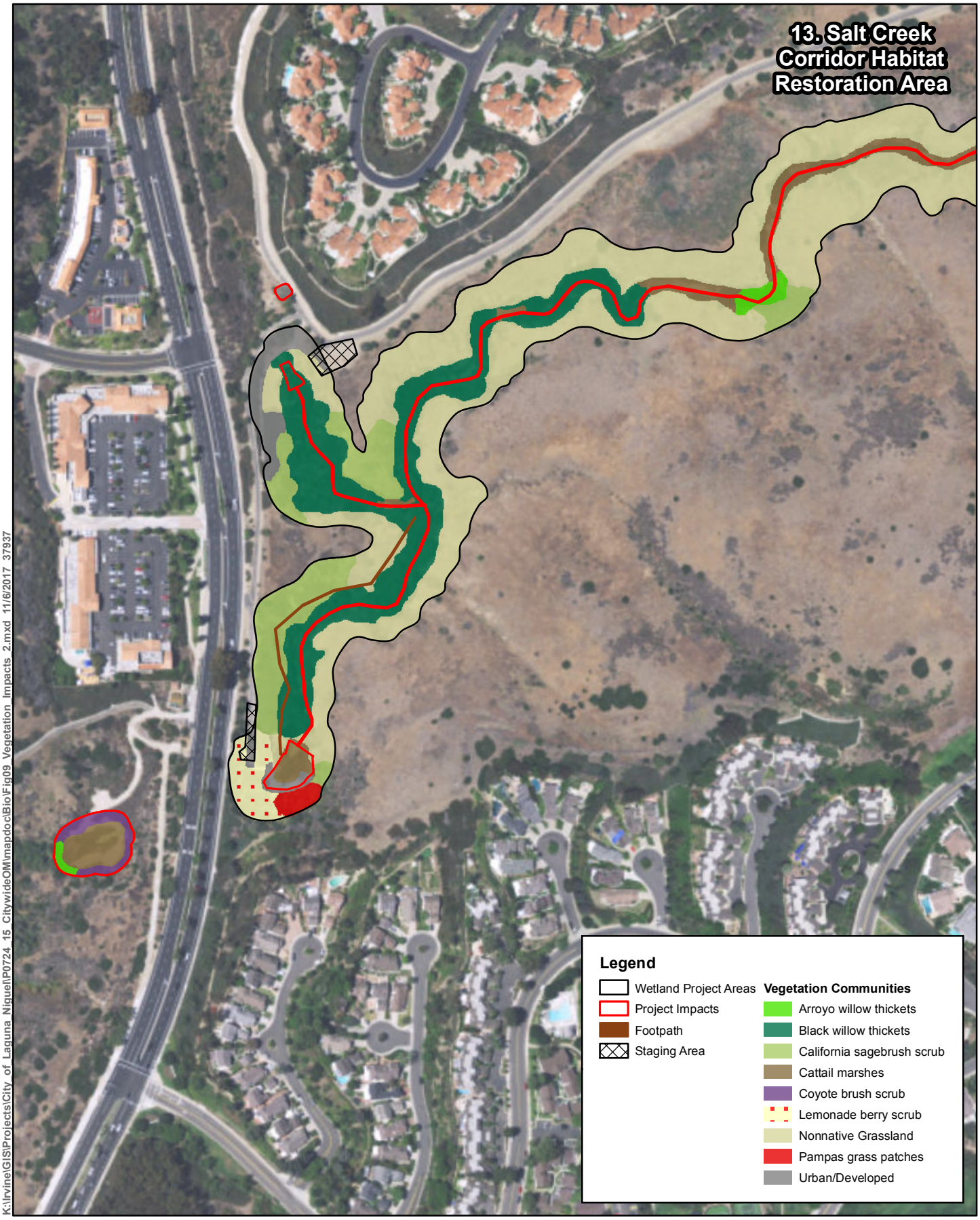


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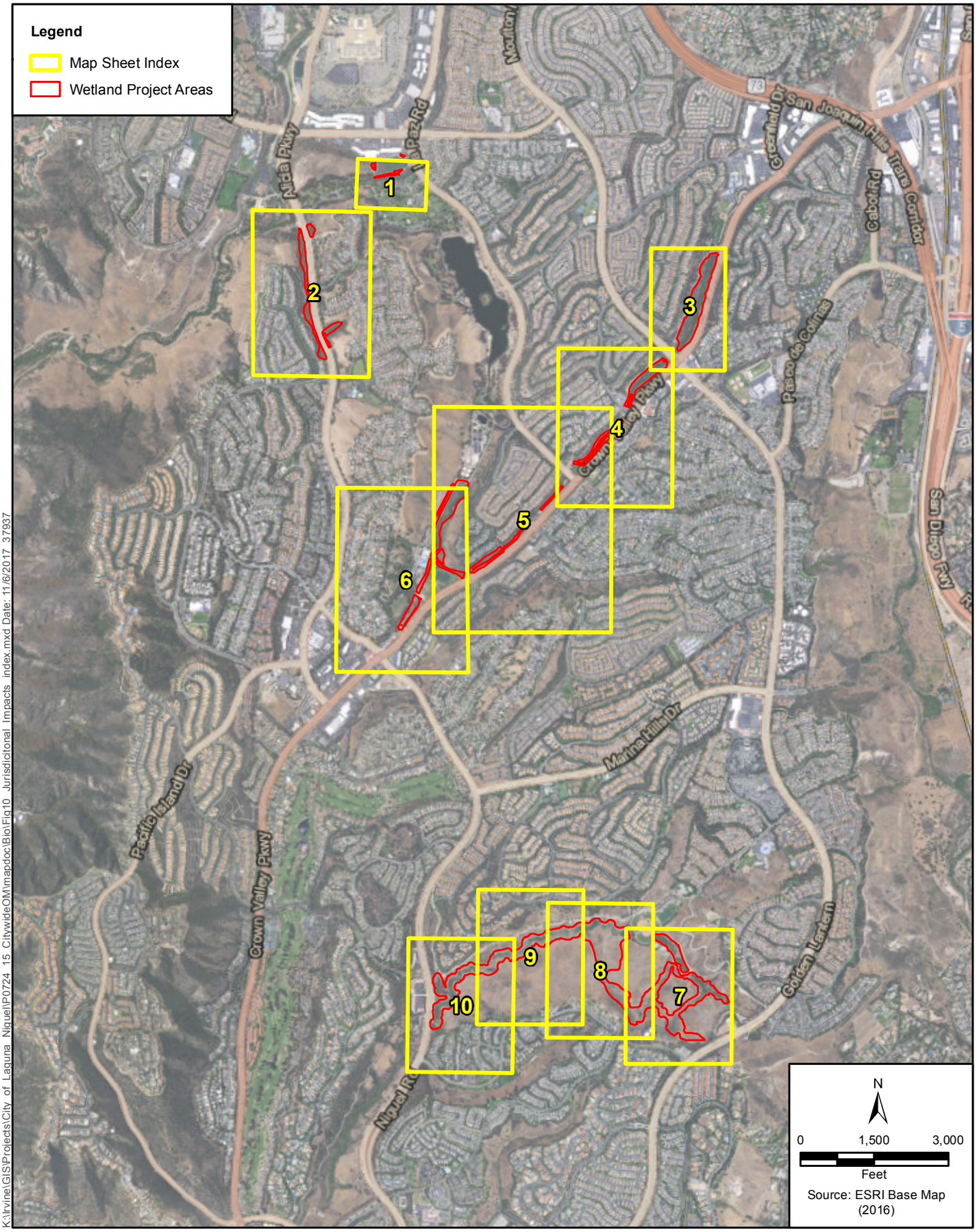


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**Figure 10-Index**
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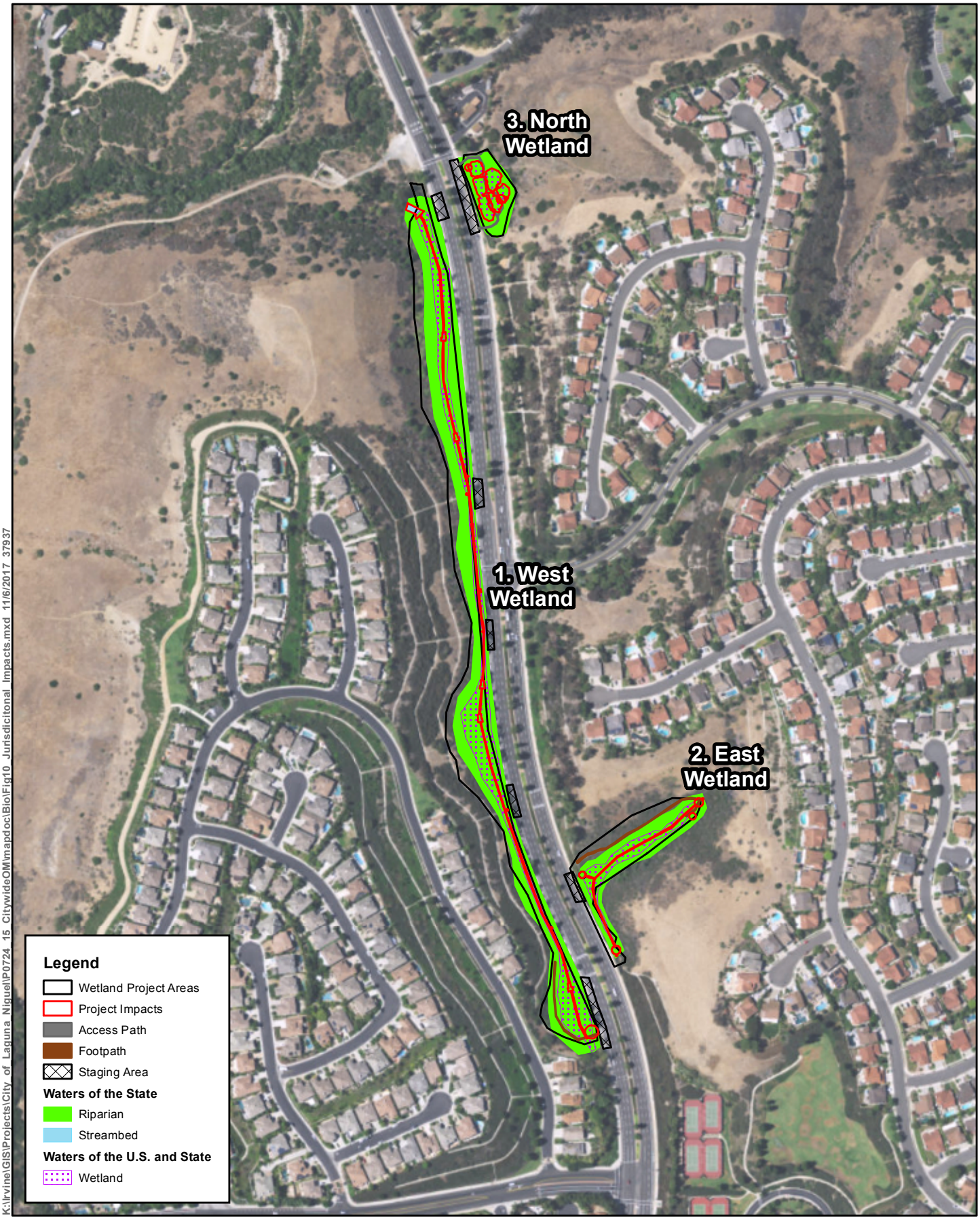


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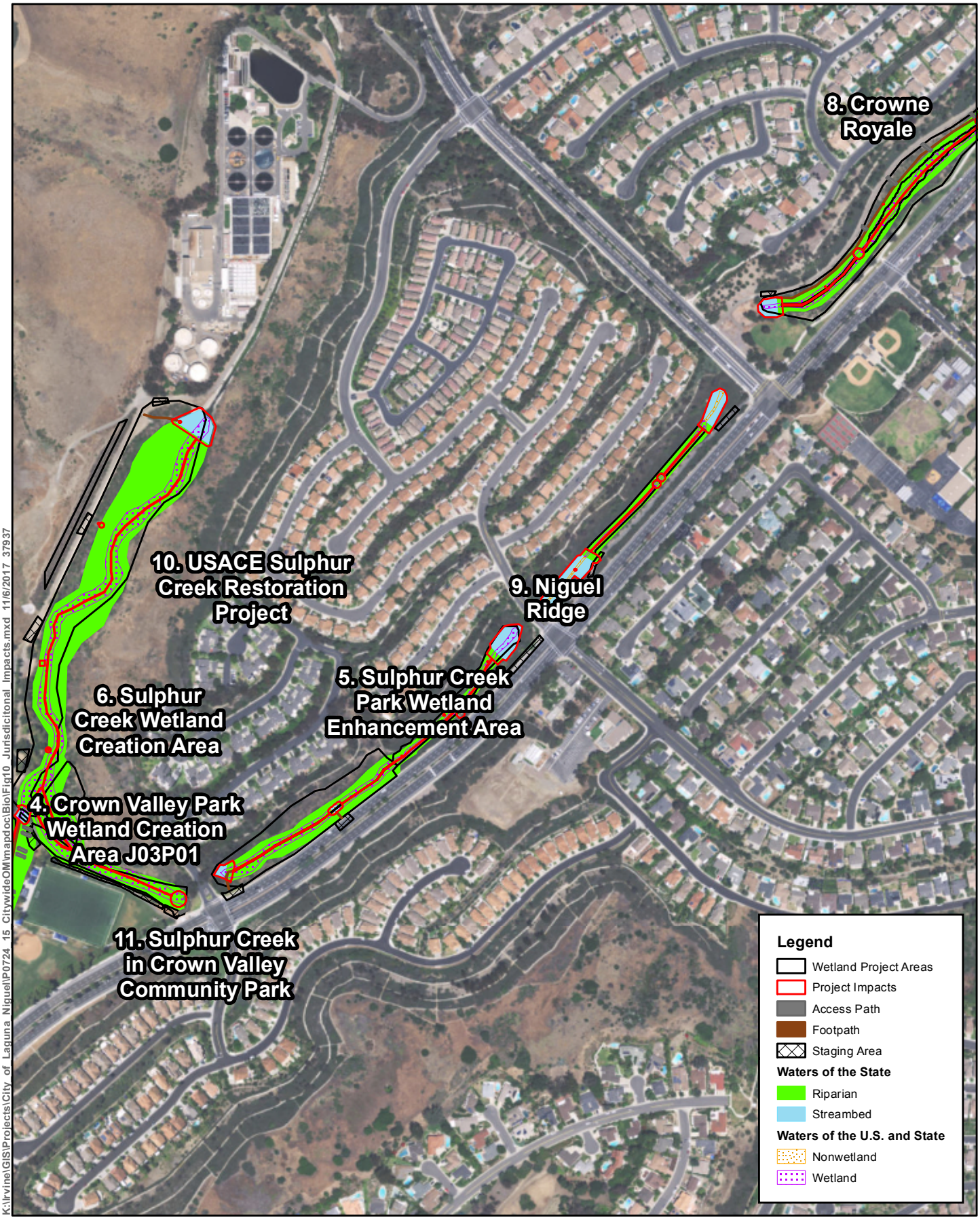


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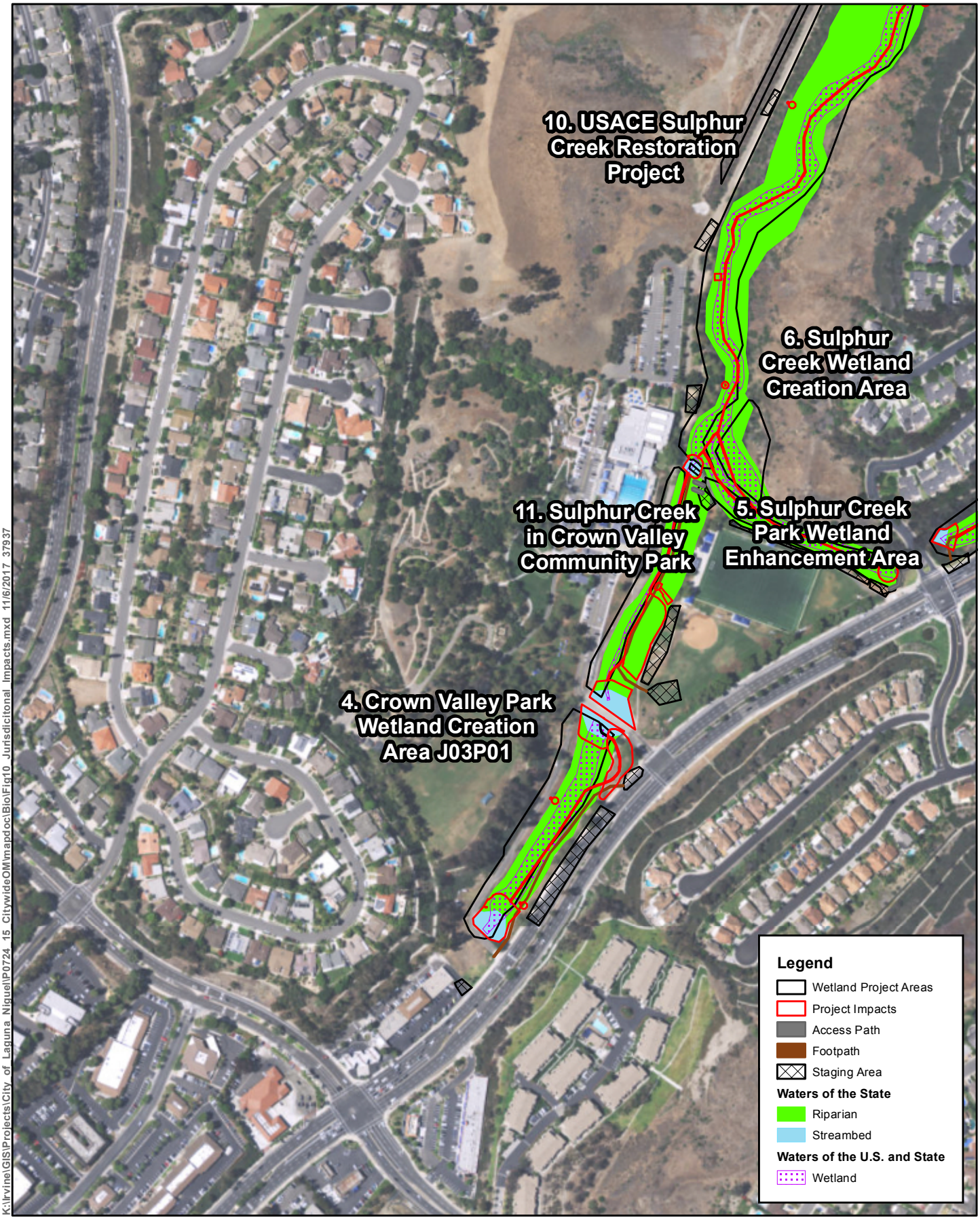


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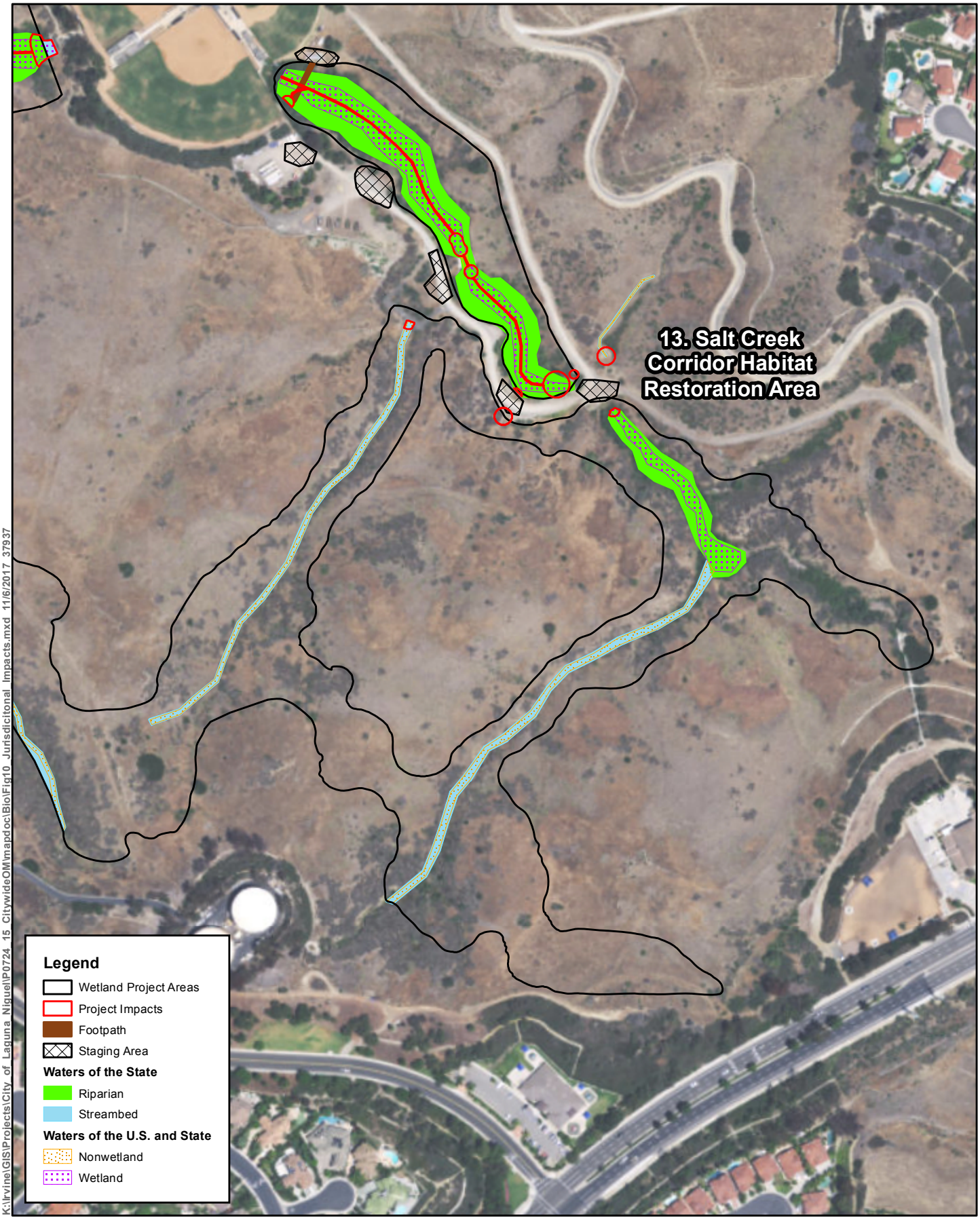


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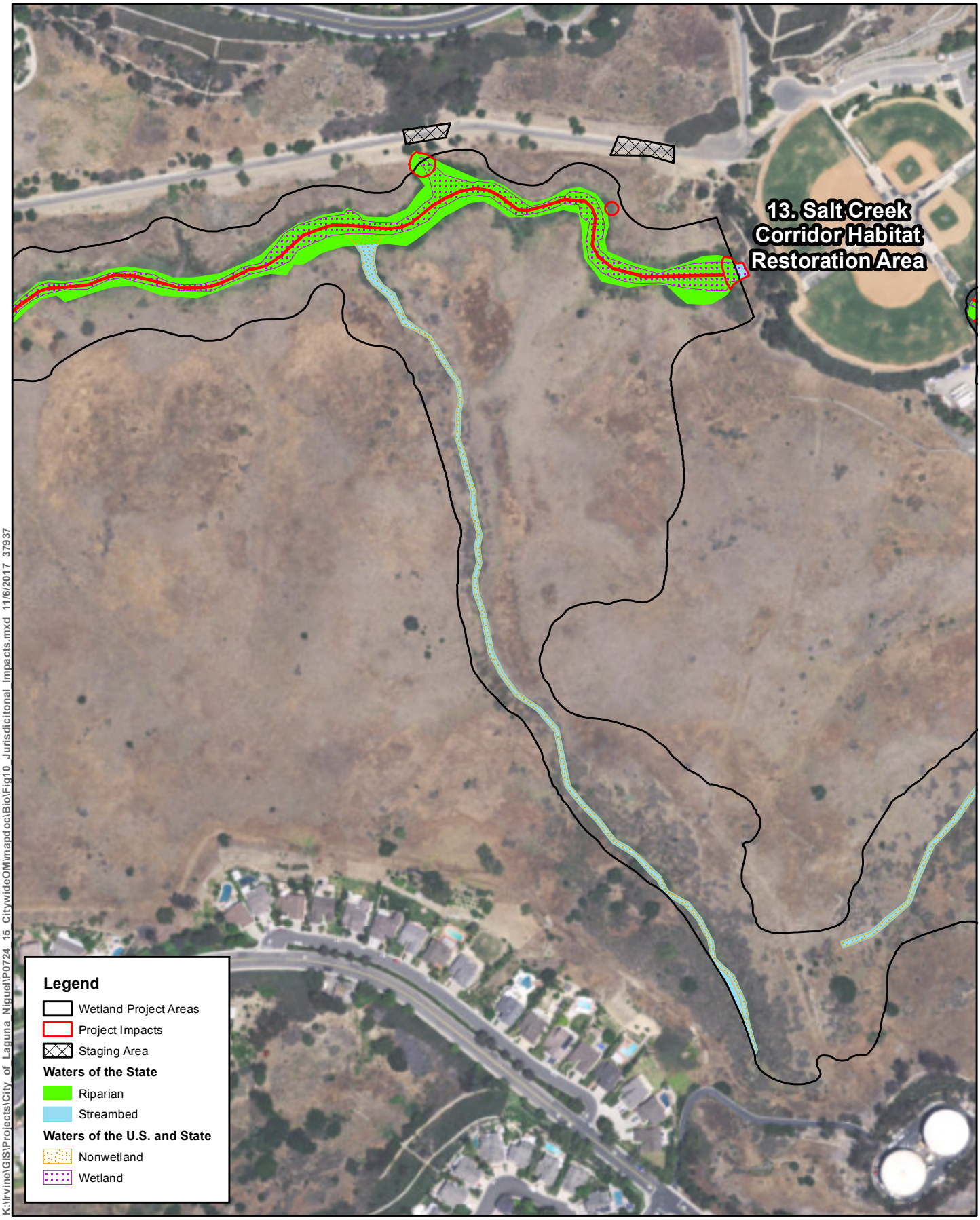


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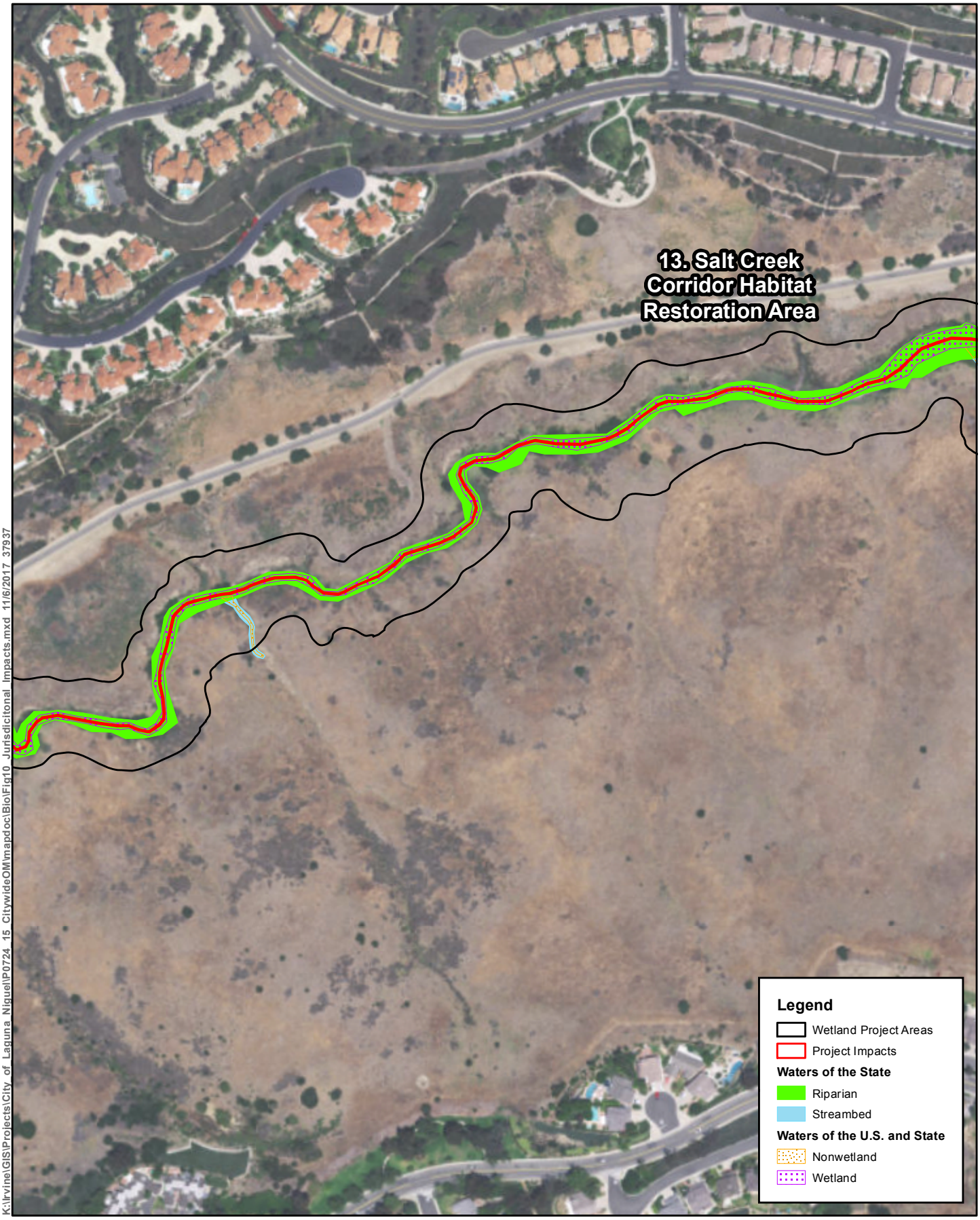


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Source: ICF; ESRI Basemaps (2016)

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Source: ICF; ESRI Basemaps (2016)

**Figure 10-Sheet 10**
**Project Jurisdictional Waters Impacts**
**Laguna Niguel O&M Program**

# Chapter 6
# Avoidance, Minimization, and Mitigation Measures

In order to reduce impacts on vegetation communities, the following O&M avoidance and minimization measures will be instituted, when and where appropriate, during the maintenance activities to protect habitat.

## 6.1 Avoidance and Minimization Measures

### 6.1.1 General

MM-BIO-1. The City shall prepare an Operations and Maintenance (O&M) Plan as a systematic program for flood control maintenance in 13 wetland sites located throughout the Aliso Creek Watershed to support permits for routine maintenance activities for the 13 wetland sites. The plan shall include a variety of measures to be undertaken during O&M activities, including a weed management plan to prevent the introduction and spread of new weed species. The O&M plan shall also address monitoring, plus educating personnel on weed identification and methods for avoiding and treating infestations. Weed control methods may include both physical and chemical control. If mulch is used, it is required to be certified as weed-free.

MM-BIO-2. The City shall submit a pre-maintenance notification to the resource agencies annually, detailing the current status of the wetland sites and the maintenance in accordance with this O&M plan to be undertaken during the following maintenance year. The notification will also include the anticipated schedule and dates for work at each wetland site proposed for maintenance, minimization measures to be implemented, and biological monitor information.

MM-BIO-3. At the end of the maintenance year (i.e., June 30), a post-maintenance summary shall be prepared and submitted to the agencies documenting the activities and actual acreage of impacts that occurred under this O&M plan for the year. A post-maintenance letter report shall be provided 60 days after the conclusion of the maintenance year by the biological monitor. The report shall include dates of work, minimization measures implemented, incidental wildlife observations, any issues or concerns that need short- and/or long-term attention (e.g., weed control, sediment removal, vector control), any adaptive management or changes in the maintenance and monitoring program that appear warranted based on monitoring results to date, and before-and-after photographs. The report details and timing may be modified during the permitting process by the USACE, RWQCB, and/or CDFW.

MM-BIO-4. Access routes for maintenance activities associated with vegetation clearing, trimming, or sediment removal shall be confined to existing footpaths and access paths on Figure 9 and shall be confined to the minimal amount of area necessary for maintenance activities and safe, reliable work. Development of new footpaths and access paths shall be limited to the maximum extent possible. All staging areas and footpaths and access paths shall be clearly delineated in the final plans.

MM-BIO-5. General tree pruning shall be conducted not more often than once per year between November and December and with the intent of developing structurally sound trees with adequate vertical and horizontal clearance adjacent to public access ways. Access path maintenance shall

include pruning and trimming of adjacent and overhanging vegetation for a 6-foot vertical and 3-foot horizontal clearance, removal of any dead or damaged branches or limbs overhanging the access path, and path erosion repair.

MM-BIO-6. A Worker Environmental Awareness Plan shall be developed and implemented prior to the start of O&M activities.

MM-BIO-7. Environmental training shall be led annually by the qualified biologist(s) and will cover the sensitive resources found onsite, flagging/fencing of exclusion areas, permit requirements, and other environmental issues. All personnel overseeing maintenance activities within the wetland and riparian habitat shall receive instruction prior to initiation of maintenance activities, as to the sensitivity of the work environment and the limitation of activities outlined herein. The conditions of the regulatory permits and this supplemental information shall be reviewed by all personnel overseeing in these maintenance activities at a minimum of once per year.

MM-BIO-8. All personnel shall be prohibited from bringing domestic pets and firearms to the site.

MM-BIO-9. All maintenance activities associated with vegetation clearing, trimming, or sediment removal shall not be conducted during heavy rains to prevent unnecessary erosion, runoff, and sedimentation, and will not resume until conditions are suitable for the movement of equipment and materials.

MM-BIO-10. Daytime vehicle speeds shall be restricted to posted speed limits on existing paved roads and to 15 miles per hour on dirt access roads during the all phases of the Project.

MM-BIO-11. Trash and debris removal in the wetland areas shall be conducted quarterly. All trash and debris shall be removed by hand or by handheld mechanized equipment from the wetland sites and legally disposed of offsite.

MM-BIO-12. Rodents and pests shall be controlled as necessary to limit excessive damage to native areas or adjacent ornamental landscaping. Rodents include gophers and ground squirrels and pests include but are not limited to, snails, sow bugs, aphids, caterpillars, etc., that could cause damage to any plants, shrubs, groundcover, trees, irrigation systems, facilities or cause erosion. All methods employed to perform rodent and pest control will conform to all federal, state and county environmental regulations.

## 6.1.2 Vegetation Communities

MM-BIO-13. Necessary vegetation clearing and trimming shall occur primarily within the channel bottom and shall be limited to access paths along bank slopes to prevent the potential for erosion problems or trails.

MM-BIO-14: All maintenance activities associated with vegetation clearing, trimming, or sediment removal shall be conducted during the nonbreeding season (typically September 15 through February 15) for avian species protected under the Migratory Bird Treaty Act. If maintenance activities must occur during the breeding season, then compliance with MM-BIO-18 would be required.

MM-BIO-15: When possible, the City shall use hand tools for manual vegetation clearing and sediment removal, and will only use heavy equipment when necessary.

## 6.1.3 Special-Status Species

### 6.1.3.1 California Gnatcatcher, Least Bell's Vireo, Southwestern Willow Flycatcher

MM-BIO-16. Vegetation clearing shall occur outside of the breeding seasons for habitat occupied by CAGN, LBV, SWFL, yellow warbler, and yellow-breasted chat and other avian species (e.g., CAGN, February 15 through August 15; LBV, March 15 through September 15). If vegetation clearing must occur during the CAGN, LBV or SWFL breeding season, a pre-activity nest survey shall be conducted work area and 300-foot buffer by the qualified biologist(s) a minimum of 3 days prior to the start of O&M activities in any given area of the Project area. If no active nests are discovered, O&M activities may proceed. If active nests are observed that could be disturbed by O&M activities, these nests and a 300-foot buffer shall be avoided until the young have fledged and/or the monitor determines that no impacts are anticipated on the nesting birds or their young. The qualified biologist(s) shall be responsible for coordinating with USFWS and CDFW to determine if O&M activities could disturb an active nest and when nests are no longer active. If O&M activities ceases for 5 or more consecutive days during the nesting season, additional nesting bird surveys shall be required to ensure that new nesting locations have not been established.

MM-BIO-17. Noise monitoring shall be conducted if O&M activities are scheduled during the CAGN or LBV breeding season to determine if the O&M-related noise levels will exceed 60 A-weighted decibels (dBA) hourly equivalent sound level (Leq) within 300 feet of the noise source. If nesting CAGN or LBV are in the vicinity of the Project area and O&M activities are occurring during the breeding season, temporary noise attenuation barriers will be built to reduce O&M-related noise to below 60 dBA hourly Leq. The qualified biologist(s) will be responsible for ensuring that noise attenuation barriers are successful at reducing noise levels. Documentation of the noise monitoring results will be provided to USFWS, and CDFW within 45 days of completing the final noise monitoring event.

### 6.1.3.2 Migratory Birds

MM-BIO-18. Vegetation clearing will occur outside of the breeding season for other avian species protected under the Migratory Bird Treaty Act (e.g., February 15 through September 15). If vegetation clearing must occur during the general avian breeding season, a pre-activity nest survey will be conducted within the O&M activities area and 300-foot buffer by the qualified biologist(s) 3 days prior to the start of O&M activities in any given area of the project area. If no active nests are discovered, maintenance activities may proceed. If active nests are observed that could be disturbed by maintenance activities, these nests and an appropriately sized buffer (typically a 300-foot buffer) will be avoided until the young have fledged and/or the monitor determines that no impacts are anticipated on the nesting birds or their young. If O&M activities ceases for 5 or more consecutive days during the nesting season, additional nesting bird surveys will be required to ensure that new nesting locations have not been established.

## 6.1.4 Jurisdictional Waters and Wetlands

MM-BIO-19. The established channels within jurisdictional waters shall be maintained (i.e., removal of vegetation, accumulated vegetative detritus, and sediment, tree/shrub trimming, trash and debris removal and maintenance of access paths) on a biannual basis, typically in spring and fall.

MM-BIO-20. Discharge of imported sediment into the wetland/riparian area shall not be permitted under any circumstances.

## 6.2 Compensatory Mitigation

MM-MIT-1. For unavoidable impacts on special-status species and any corresponding USFWS-designated Critical Habitats and sensitive vegetation communities, mitigation shall be provided by the following measures, in consultation with USFWS and CDFW: The preservation in perpetuity of all natural habitat areas within 11 of the wetland sites (excludes Sites 3 and 4 as they are either a previous mitigation site and are therefore already protected or will be impacted fully [as is the case for Site 3]). A permanent protection mechanism (e.g. restrictive covenant) shall be placed upon the land and the City shall manage the land in perpetuity or transfer the land to an approved land manager. The City or subsequent land manager shall implement the O&M plan, managing and monitoring the 13 sites described herein to preserve the habitat, functions, and values in accordance with the goals identified in the O&M plan. The land manager shall be responsible for receiving any necessary permits to conduct long-term O&M activities identified in the plan. Activities to preserve the natural vegetation communities may include enhancement activities.

MM-MIT-2. Maintenance would not permanently remove habitat and would not change the designation of the area as a water of the U.S. or State. Mitigation for unavoidable impacts to the functions and services performed by the aquatic water resources jurisdictional to USACE, CDFW, or RWQCB shall be provided by the following measures, in consultation with USACE, CDFW, and/or RWQCB:

- The preservation in perpetuity of all natural habitat areas and streambeds within 11 of the wetland sites (excludes Sites 3 and 4 as they either are previous mitigation sites or will be impacted fully). A permanent protection mechanism (e.g. restrictive covenant) shall be placed upon the land and the City shall manage the land in perpetuity or transfer the land to an approved land manager. The City or subsequent land manager shall implement the O&M plan, managing and monitoring the wetland sites described herein to preserve the habitat, functions, and values in accordance with the goals identified above. Activities to preserve the natural vegetation communities may include enhancement activities.

The rehabilitation and enhancement of up to 2.37 acres of wetland and riparian habitat located within Site 13. Salt Creek. The City shall preparing a Habitat Mitigation and Monitoring Plan (HMMP) to be submitted to the USACE, CDFW, and RWQCB for final approval. The HMMP will include the location and type of mitigation proposed as well as outline the maintenance and monitoring program proposed for the 5 Year maintenance and monitoring period. Maintenance areas would continue to provide most wetland functions at the current level; the maintenance work would restore the wetland sites' hydrology; habitat connectivity in the channel would be retained. Only a few functions, such as energy dissipation, nutrient cycling, particulate retention, and plant communities would be slightly degraded; other functions, including surface water storage and organic carbon export, would be improved. Minimization of maintenance needs would preserve vegetation to the extent feasible, maintain habitat connectivity, and improve habitat quality for sensitive species. After maintenance is performed, natural substrate and tree canopy cover would remain, and shrubby and herbaceous vegetation would recover and return; this would result in

successional growth, which is advantageous for many species, including LBV (for the case of Site 13).

## 6.3 Required Permits and Agency Coordination

Impacts on jurisdictional waters will require the following permits by regulatory federal and state agencies and acts: (1) USACE CWA Section 404 permit for placement of dredged or fill material within waters of the U.S.; (2) RWQCB CWA Section 401 State Water Quality Certification/Waiver for an action that may result in degradation of waters of the state; (3) CDFW, CFGC, Section 1602 Streambed Alteration Agreement; and (4) USFWS Biological Opinion pursuant to Section 7 of the Endangered Species Act..

The proposed mitigation is subject to the resource agencies' review and discretion; thus, the mitigation obligations for the impacts on jurisdictional wetland habitats may change from those presented here.

# Chapter 7
# References


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Appendix A
# Plant Potential to Occur

| Common Name (Scientific Name) | Sensitivity Code & Status[a] | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Aphanisma (*Aphanisma blitoides*) | 1B.2 | Annual herb found in sandy or clay soils on ocean bluffs or slopes in coastal scrub, coastal dunes, coastal bluff scrub between 3-600 feet elevation. Blooming period is from February-June. | Not Expected | Suitable coastal bluff habitat does not occur within the wetland project sites. |
| San Diego sagewort (*Artemisia palmeri*) | 4.2 | Deciduous shrub found in sandy soils in mesic areas in chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland at 49-3002 ft. Blooming period from February – September. | Low | The wetland project sites are north of the historical range of this species, however, suitable habitat is present. This species has been used in restoration sites in the project vicinity. |
| Western spleenwort (*Aslpenium vespertinum*) | 4.2 | Perennial rhizomatous herb found in rocky areas in chaparral, cismontane woodland, and coastal scrub; 590-3281 ft. Blooming period from February – June. | Not Expected | Suitable soils for this species do not occur within the wetland project sites. |
| Coulter's saltbush (*Atriplex coulteri*) | 1B.2 | Perennial herb/shrub found in alkaline to clay soils on ocean bluffs, ridgetops within coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grassland from 10-1,500 feet elevation. Blooming period is from March-October. | Not Expected | Suitable soils for this species do not occur within the wetland project sites. |
| South Coast saltscale (*Atriplex pacifica*) | 1B.2 | Annual herb found in alkaline soils in coastal scrub, coastal dunes, coastal playas, and coastal bluff scrub between 0-460 feet elevation. Blooming period is from March-October. | Not Expected | Suitable soils for this species do not occur within the wetland project sites. |

| Common Name (Scientific Name) | Sensitivity Code & Status[a] | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Parish's brittlescale (*Atriplex parishii*) | 1B.1 | Annual herb found in alkaline soils within chenopod scrub, playas, and vernal pools between 80-6,160 feet elevation. Blooming is from June-October. | Not Expected | Suitable soils for this species do not occur within the wetland project sites. |
| Davidson's saltscale (*Atriplex serenana* var. *davidsonii*) | 1B.2 | Annual herb found in alkaline soils in coastal bluff scrub, and coastal scrub between 30-650 feet elevation. Blooming period is from April-October. | Not Expected | Suitable soils for this species do not occur within the wetland project sites. |
| San Diego sunflower (*Bahiopsis laciniata*) | 4.2 | A perennial shrub found in chaparral and coastal scrub habitat. At elevations from 197 to 2,460 ft. Blooming period is from February to August. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Thread-leaved brodiaea (*Brodiaea filifolia*) | FT<br>SE<br>1B.1 | Perennial bulbiferous herb. Often found in clay soils in openings in chaparral, cismontane woodland, coastal scrub, playas, valley and foothill grassland, and vernal pools; 82-3673 ft. Blooming period from March – June. | Moderate | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. USFWS-designated Critical Habitat for this species occurs approximately 3,500 feet west of West Alicia Wetland (Site 1). |

| Common Name (Scientific Name) | Sensitivity Code & Status[a] | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Catalina mariposa lily (*Calochortus catalinae*) | 4.2 | Perennial bulbiferous herb found in chaparral, cismontane woodland, coastal scrub, and valley and foothill woodland between 50- 2,200 feet elevation. Blooming period is from February- June. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Intermediate mariposa lily (*Calochortus weedii* var. *intermedius*) | 1B.2 | Perennial bulbiferous herb found in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland on dry, rocky open slopes and rock outcrops. Between 300-2,000 feet elevation. Blooming period is from May-July. | Not Expected | Suitable rocky habitat for this species do not occur within the wetland project sites. |
| Lewis' evening-primrose (*Camissoniopsis lewisii*) | 3 | Annual herb found on sandy and clay soils within coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland between 0-600 feet elevation. Blooming is from March-June. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Payson's jewelflower (*Caulanthus simulans*) | 4.2 | Annual herb in sandy and granitic soils in chaparral and coastal scrub; occurs from 295-7218 ft. Blooming period from February – June. | Not Expected | Suitable soils for this species do not occur within the wetland project sites. |

| Common Name (Scientific Name) | Sensitivity Code & Status[a] | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Southern tarplant (*Centromadia parryi* ssp. *australis*) | 1B.1 | Annual herb found in alkaline soils and disturbed sites along coastal marsh edges, wetlands, valley foothill grasslands, salt marshes, and swamps between 0-1300 feet elevation. Blooming period is from May-November. | Not Expected | Suitable soils for this species do not occur within the wetland project sites. |
| Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*) | 1B.1 | Annual herb found in coastal bluff scrub, coastal dunes. Located on sandy soils between 0 – 330 feet elevation. Blooming is from January – August. | Not Expected | Suitable soils for this species do not occur within the wetland project sites. |
| Peninsular spineflower (*Chorizanthe leptotheca*) | 4.2 | Annual herb. Occurs in alluvial fans or granitic areas in chaparral, coastal scrub, and lower montane coniferous forest; elevation from 984-6,232 ft. Blooming period from May – August. | Not Expected | Suitable habitat for this species does not occur within the wetland project sites. |
| Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*) | 1B.2 | Annual herb. Found in clay lenses, largely devoid of shrubs in chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, and vernal pools at elevations from 98-5018 ft. Blooming period is from April – July. | Not Expected | Suitable clay lense habitat for this species does not occur within the wetland project sites. |
| Seaside cistanthe (*Cistanthe maritima*) | 4.2 | Annual herb found in coastal bluff scrub, coastal scrub, valley and foothill grassland. Located on sea bluffs and sandy sites between 15- 975 feet elevation. Blooming is from February - August. | Not expected | Suitable coastal bluff habitat does not occur within the wetland project sites. |

| Common Name (Scientific Name) | Sensitivity Code & Status[a] | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| San Miguel savory (*Clinopodium chandleri*) | 1B.2 | Perennial shrub occurs in rocky, gabbroic, or metavolcanic areas in chaparral, cismontane woodland, coastal scrub, riparian scrub, and valley and foothill grassland between 393-3526 ft. Blooming period from March – July. | Not Expected | Suitable soils for this species do not occur within the wetland project sites. |
| Summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*) | 1B.2 | Perennial evergreen shrub found in Chaparral and Cismontane woodland between 90-2,400 feet elevation. Blooming is from April-June. | Low | A limited amount of potentially suitable habitat for this species occurs in the coastal scrub habitat on the periphery of Salt Creek. |
| Small-flowered morning-glory (*Convolvulus simulans*) | 4.2 | Annual herb found in chaparral, coastal scrub, valley and foothill grassland. Located in openings on wet clay soils and serpentine seeps between 95 – 2275 feet elevation. Blooming is from March – July. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Paniculate tarplant (*Deinandra paniculata*) | 4.2 | Annual herb found in coastal scrub, valley and foothill grassland, and vernal pools. Typically located on vernally mesic sites. Sometimes in vernal pools or on mima mounds near them between 80 – 3055 feet elevation. Blooming is from April – November. | Not Expected | Suitable mesic grassland habitat does not occur within the wetland project sites. |

| Common Name (Scientific Name) | Sensitivity Code & Status[a] | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Western dichondra (*Dichondra occidentalis*) | 4.2 | Perennial rhizomatous herb found in chaparral, cismontane woodland, coastal scrub, and valley and foothill grasslands between 150-1500 feet elevation. Blooming is from January-July. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Cleveland's bush monkeyflower (*Diplacus clevelandii*) | 4.2 | Perennial rhizomatous herb that occurs in chaparral, cismontane woodland, and lower montane coniferous forest, in gabbroic soils often in disturbed areas, or openings in rocky areas. From 1,476 to 6,562 feet. Blooming period from April to July. | Not Expected | Suitable soils for this species do not occur within the wetland project sites. |
| Slender-horned spineflower (*Dodecahema leptoceras*) | FE<br>SE<br>1B.1 | Annual herb found in sandy soils within chaparral, cismontane woodland, and coastal scrub (alluvial fan) between 650-2500 feet elevation. Blooming is from April-June. | Not Expected | Suitable soils for this species do not occur within the wetland project sites. |
| Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*) | 1B.1 | Perennial herb occurs in rocky, often clay or serpentine soils in coastal bluff scrub, chaparral, coastal scrub, and valley and foothill grassland from 16-1476 ft in elevation. Blooming period from April – June. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |

| Common Name (Scientific Name) | Sensitivity Code & Status[a] | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Santa Monica dudleya (*Dudley cymosa* ssp. *ovatifolia*) | 1B.1 | Perennial herb. Found in volcanic or sedimentary rocky soils in chaparral and coastal scrub from 492 - 5494 ft. Blooming period is from March – June. | Not Expected | Suitable soils for this species do not occur within the wetland project sites. |
| Many-stemmed dudleya (*Dudleya multicaulis*) | 1B.2 | Perennial herb found in heavy clayey soils on grassy slopes in chaparral, coastal scrub, valley and foothill grasslands between 45-2400 feet elevation. Blooming period is from April-July. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Laguna Beach dudleya (*Dudley stolonifera*) | FT<br>ST<br>1B.1 | Perennial stoloniferous herb found on rocky substrates in chaparral. Cismontane woodland, costal scrub, and valley and foothill needlegrass between 30-780 feet elevation. Blooming is from May-July. | Not Expected | Suitable rocky habitat for this species does not occur within the wetland project sites. |
| Sticky dudleya (*Dudleya viscida*) | 1B.2 | Perennial herb. Found in rocky soils in coastal bluff scrub, chaparral, cismontane woodland, and coastal scrub at elevations from 32-1804 ft. Blooming period is from May – June. | Not Expected | Suitable rocky habitat for this species does not occur within the wetland project sites. |
| Pendleton button-celery (*Eryngium pendletonense*) | 1B.1 | Perennial herb found in clay soils or vernally mesic areas in coastal bluff scrub, valley and foothill grassland, and vernal pools. Elevation from 49-360 ft and blooming period from April – July. | Not Expected | Suitable mesic grassland habitat does not occur within the wetland project sites. |

| Common Name (Scientific Name) | Sensitivity Code & Status[a] | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Palomar monkeyflower (*Erythranthe diffusa*) | 4.3 | An annual herb found on sandy or gravelly soils in chaparral and lower montane coniferous forests. Elevation range is from 4,003 to 6,004 ft. Blooms from April to June. | Not Expected | Suitable soils for this species do not occur within the wetland project sites. |
| Cliff spurge (*Euphorbia misera*) | 2B.2 | Perennial shrub found in rocky sites within coastal bluff scrub, coastal scrub, and Mojave desert scrub between 30-1500 feet elevation. Blooming is from December-October. | Not Expected | Suitable habitat for this species does not occur within the wetland project sites. |
| Palmer's grapplinghook (*Harpagonella palmeri*) | 4.2 | Annual herb. Occurs in clay soils in chaparral, grasslands, coastal sage scrub between 65 to 3132 ft. Blooming period from March – May. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Los Angeles sunflower (*Helianthus nuttallii* ssp. *parishii*) | 1A | Perennial rhizomatous herb found in coastal and freshwater marsh and swamps between 30-5000 feet elevation. Blooming is from August-October. | Not Expected | Lastobserved in 1937. Extirpated by urbanization. |
| Tecate cypress (*Hesperocyparis forbesii*) | 1B.1 | Perennial evergreen tree forum in clay, gabbroic or metavolcanic soils within closed-cone coniferous forest and chaparral between 250-5000 feet elevation. | Not Expected | Suitable soils for this species do not occur within the wetland project sites. |

| Common Name (Scientific Name) | Sensitivity Code & Status[a] | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Vernal barley (*Hordeum intercedens*) | 3.2 | Annual herb fund in coastal dunes, coastal scrub, vernal pools, and valley and foothill grasslands between. 15-3,000 feet elevation. Blooming is from March-June. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Mesa horkelia (*Horkelia cuneata var. puberula*) | 1B.1 | Perennial herb found in chaparral, cismontane woodland, coastal scrub. Located on sandy or gravelly sites between 225 – 2,625 feet elevation. Blooming is from February – September. | Not Expected | Suitable soils for this species do not occur within the wetland project sites. |
| California satintail (*Imperata brevifolia*) | 2B.1 | Perennial rhizomatous herb that is found in mesic soils in chaparral, coastal scrub, Mojavean desert scrub, riparian scrub, meadows and seeps (often alkali). Occurs from sea level to 3985 ft. Blooming period is from September – May. | Moderate | Suitable habitat for this species occurs within the wetland project sites. The nearest known occurrence of this species is approximately 5 miles east of the wetland project sites. |
| Decumbent goldenbush (*Isocoma menziesii* var. *decumbens*) | 1B.2 | Perennial herb found in chaparral, coastal scrub often in sandy, disturbed areas between 30-400 feet elevation. Blooming is from April-November. | Not Expected | Suitable sandy soils for this species do not occur within the wetland project sites. |
| Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*) | 1B.1 | Annual herb found in coastal salt marshes and swamps, playas and vernal pools below 4,000 feet in elevation. Blooming period is from February-June. | Not Expected | Suitable soils for this species do not occur within the wetland project sites. |

| Common Name (Scientific Name) | Sensitivity Code & Status[a] | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Heart-leaved pitcher sage (*Lepechinia cardiophylla*) | 1B.2 | Perennial shrub. Found in closed-cone coniferous forest, chaparral, cismontane woodland from 1705-4493 ft. Blooming period from April – July. | Not Expected | The wetland project sites are well west of the historical range of this species. |
| Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*) | 4.3 | Annual herb found in chaparral and coastal scrub between 1-2,700 feet elevation. Blooming is from January-July. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Santa Catalina Island desert-thorn (*Lycium brevipes* var. *hassei*) | 3.1 | Deciduous shrub found in coastal bluff scrub and coastal scrub at elevations from 213 - 984 ft. Blooming period is from June – August. | Not expected | Suitable coastal bluff habitat does not occur within the wetland project sites. |
| California box-thorn (*Lycium californicum*) | 4.2 | Perennial shrub found on coastal bluff scrub and coastal scrub between 15-500 feet elevation. Blooming is from December-August. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |

| Common Name (Scientific Name) | Sensitivity Code & Status[a] | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Cliff malacothrix (Malacothrix saxatilis var. saxatilis) | 4.2 | Perennial rhizomatous herb found in coastal bluff scrub and coastal scrub between 10-600 feet elevation. Blooming is from March-September. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Small-flowered microseris (*Microseris douglasii* ssp. *platycarpha*) | 4.2 | Annual herb. Occurs in clay soils in cismontane woodland, coastal scrub, valley and foothill grassland, and vernal pools from 49-3510 ft. Blooming period is from March - May | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Intermediate monardella (*Monardella hypoleuca* ssp. *intermedia*) | 1B.3 | Perennial rhizomatous herb. Usually found in the understory in chaparral, cismontane woodland, and sometimes in lower montane coniferous forest; occurs at elevations from 1312-4100 ft. Blooming period is from April – September. | Not Expected | Suitable habitat for this species does not occur within the wetland project sites. |
| Intermediate monardella (*Monardella hypoleuca* ssp. *lanata*) | 1B.2 | Rhizomatous herb. Occurs in chaparral and cismontane woodland at elevations from 984-5040 ft. Blooming Period from June – August. | Not Expected | Suitable habitat for this species does not occur within the wetland project sites. |

| Common Name (Scientific Name) | Sensitivity Code & Status[a] | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Hall's monardella (*Monardella macrantha* ssp. *hallii*) | 1B.3 | Perennial rhizomatous herb. Found in broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland at elevations from 2394-7199 ft. Blooming period from June – October. | Not Expected | The wetland project sites are well below the known elevation range of this species. |
| Little mousetail (*Myosurus minimus* ssp. *apus*) | 3.1 | Annual herb. Found in valley and foothill grassland, and alkaline vernal pools at elevations from 65-2100 ft. Blooming period is from March – June. | Not Expected | Suitable vernal pool habitat for this species does not occur within the wetland project sites. |
| Mud nama (*Nama stenocarpa*) | 2B.2 | Annual or perennial herb found in lake or river margin marshes and swamps between 15-1500 feet elevation. Blooming is from January-July. | Moderate | Suitable habitat for this species occurs within the wetland project sites. The nearest known occurrence of this species is approximately 4 miles east of the wetland project sites. |
| Prostrate vernal pool navarretia (*Navarretia prostrata*) | 1B.1 | Annual herb found in alkaline soils in grassland, vernal; pool on mesic sites within coastal scrub, valley and foothill grassland, and vernal pools between 9-3600 feet elevation. Blooming is from April-July. | Not Expected | Suitable alkaline and vernal pool habitat for this species does not occur within the wetland project sites. |
| Chaparral nolina (*Nolina cismontane*) | 1B.2 | Perennial evergreen shrub. Occurs in sandstone and gabbro soils in chaparral, and coastal scrub at elevations from 459-4183 ft. Blooming period from May – July. | Not Expected | Suitable soils for this species do not occur within the wetland project sites. |

| Common Name (Scientific Name) | Sensitivity Code & Status[a] | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Allen's pentachaeta (*Pentachaeta aurea* ssp. *allenii*) | 1B.1 | Annual herb found in coastal scrub and valley and foothill grassland between 225-1600 feet elevation. Blooming is from March-June. Threats include development, habitat alteration, and vehicles. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Santiago Peak phacelia (*Phacelia keckii*) | 1B.3 | Annual herb. Occurs in closed-cone coniferous forest and chaparral; elevation ranges from 1788 - 5248 ft. Blooming period from May – June. | Not Expected | Suitable habitat for this species does not occur within the wetland project sites. |
| South coast branching phacelia (*Phacelia ramosissima var. austrolitoralis*) | 3.2 | Perennial herb found in sandy and rocky substrates within chaparral, coastal dunes, costal scrub, and coastal swamps and marshes between 10-900 feet elevation. Blooming is from March-August. | Not Expected | Suitable sandy and rocky soils are not present within the wetland project sites. |
| Chaparral rein orchid (*Piperia cooperi*) | 4.2 | Perennial herb found in chaparral, cismontane woodland, and valley and foothill grassland. Elevation ranges from 49-5200 ft. Blooming period from March – June. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Narrow-petaled rein orchid (*Piperia leptopetala*) | 4.3 | Perennial herb. Occurs in cismontane woodland, lower and upper montane coniferous forest from 1246-7298 ft. Blooming period is from May - July | Not Expected | Suitable habitat for this species does not occur within the wetland project sites. |

| Common Name (Scientific Name) | Sensitivity Code & Status[a] | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Fish's milkwort (*Polygala cornuta* var. *fishiae*) | 4.3 | Perennial deciduous shrub. Found in chaparral, cismontane woodland, and riparian woodland; Occurs from 328-3280 ft. Blooming period from May – August. | Not expected | Suitable chaparral and riparian woodland habitat does not occur within the wetland project sites. |
| White rabbit-tobacco (*Pseudognaphalium leucocephalum*) | 2B.2 | Perennial herb found in sandy or gravelly soils in chaparral, cismontane woodland, coastal scrub, and riparian woodland; Elevation ranges from sea level to 6888 ft. Blooming period from July – December. | Not Expected | Suitable sandy and rocky soils are not present within the wetland project sites. |
| Nuttall's scrub oak (*Quercus dumosa*) | 1B.1 | Perennial evergreen shrub blooms from February to August at elevations from 49 to 1,312 feet. It inhabits sandy soils and clay loam in coastal scrub, chaparral, and closed-cone coniferous forests. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Coulter's matilija poppy (*Romneya coulteri*) | 4.2 | Perennial rhizomatous herb. Found in chaparral and coastal scrub; often in burned areas; elevation range 65-3,936 ft. Blooming period is from March – July. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |

| Common Name (Scientific Name) | Sensitivity Code & Status[a] | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Chaparral ragwort (*Senecio aphanactis*) | 2B.2 | Annual herb found in (sometimes alkaline) chaparral, cismontane woodland, and coastal scrub between 45-2400 feet elevation. Blooming is from January-April. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Salt spring checkerbloom (*Sidalcea neomexicana*) | 2B.2 | Perennial herb found in alkali playas, brackish marshes, chaparral, coastal scrub, lower montane coniferous forest, Mojavean Desert scrub. Located on alkali springs and marshes between 45 – 4,960 feet elevation. Blooming is from March – June. | Not Expected | Suitable alkali spring habitat does not occur within the wetland project areas. |
| Estuary seablite (*Suaeda esteroa*) | 1B.2 | Perennial herb found in coastal salt marshes and swamps. Located on clay, silt, and sandy substrates between 0 – 15 feet elevation. Blooming is from May – January. | Not Expected | Suitable salt marsh habitat does not occur within the wetland project areas. |
| Woolly seablite (Suaeda taxifolia) | 4.2 | Perennial evergreen shrub found in coastal bluff scrub, coastal dunes, marshes, and swamps (margins of coastal salt) between 0-150 feet elevation. Blooming is form January-December. | Not Expected | Suitable salt marsh habitat does not occur within the wetland project areas. |

| Common Name (Scientific Name) | Sensitivity Code & Status[a] | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| San Bernardino aster (*Symphyotrichum defoliatum*) | 1B.2 | Perennial rhizomatic herb found in cismontane woodland, coastal scrub, lower montane coniferous forest, marsh and swamp, meadow and seep, valley & foothill grassland, and wetlands between 5-8,000 feet elevation. Blooming is from July-November. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Parry's tetracoccus (*Tetracoccus dioicus*) | 1B.1 | Perennial deciduous shrub found within chaparral and coastal sage scrub between 500-3200 feet elevation. Blooming is from April-May. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Big-leaved crownbeard (*Verbesina dissita*) | FT<br>ST<br>1B.1 | Perennial herb found in maritime chaparral and coastal scrub between 130-650 feet elevation. Blooming is from April-July. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |

| Common Name (Scientific Name) | Sensitivity Code & Status[a] | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|

**Notes:**

[a] Status Codes

Federal

FE = Federally listed; Endangered

PE = Proposed Endangered

FT = Federally listed; Threatened

FC = Federal Candidate for Listing

FSC = Federal Species of Concern

D = Delisted

State

SE = State listed; Endangered

CE = Candidate Endangered

ST = State listed; Threatened CT= Candidate Threatened

R = Rare (Native Plant Protection Act)

SSC = California Species of Special Concern

CFP = California Fully Protected Species

CNPS Rare Plant Rank (CRPR)

1A = Plants presumed extinct in California

1B = Plants rare, threatened, or endangered in California and elsewhere

2 = Plants rare, threatened, or endangered in California, but more common elsewhere

3 = Plants about which we need more information

4 = Limited distribution (Watch List)

CNPS CRPR Threat Codes

0.1 = Seriously endangered in California

0.2 = Fairly endangered in California

0.3 = Not very endangered in California

[b] Potential to Occur Definitions

Present: Species documented on the project site.

High: Species is known to occur in the immediate vicinity of the project site and high quality suitable habitat is present.

Moderate: Species is known to occur in the region and suitable habitat is present.

Low: Suitable habitat is present but is limited in extent and of poor quality.

Not Expected: No suitable habitat is present (i.e., lacks soils, range, topography, and/or vegetation)

Appendix B
# Wildlife Potential to Occur

| Common Name (*Scientific Name*) | Sensitivity Code & Status | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| **Invertebrates** | | | | |
| San Diego Fairy Shrimp (*Branchinecta sandiegoensis*) | FE | Vernal pools. All known localities are below 701m (2,300 feet) and are within 64km (40 miles) of the Pacific Ocean. | Not Expected | There are no vernal pools present within the wetland project sites. This species would not occur in the salt grass flats. |
| Riverside Fairy Shrimp (*Streptocephalus woottoni*) | FE | Vernal swales, detention basins and deeper vernal pools. It occurs from Los Angeles County to Baja California. | Not Expected | There are no vernal pools present within the wetland project sites. |
| **Fish** | | | | |
| Arroyo Chub (*Gila orcuttii*) | SSC | Los Angeles basin south coast streams. Slow water stream sections with mud or san bottoms. Feeds heavily on aquatic vegetation and associated invertebrates. | Moderate | Habitat present within wetland project sites and species documented within coastal streams within the region. |
| Steelhead – Southern California DPS (*Oncorhynchus mykiss irideus*) | FE SSC | Spends most of their adult lives in the ocean and spawn in freshwater streams and rivers. | Not Expected | Streams within the wetland project area are not suitable. |
| Santa Ana speckled dace (*Rhinichthys osculus*) | SSC | Headwaters of the Santa Ana and San Gabriel Rivers. May be extirpated from the Los Angeles River system. Requires permanent flowing streams with summer water temperatures of 17-20 °C. Usually inhabits shallow cobble and gravel riffles. | Not Expected | Substrates in project site not suitable for species |
| Tidewater goby (*Eucyclogobius newberryi*) | FE SSC | Restricted throughout its life cycle to brackish water along the coast in lagoons, marshes, and for some distance up creeks. | Not Expected | Streams on wetland project sites do not have brackish influence, so no suitable habitat is present. |
| **Amphibians** | | | | |
| Arroyo Toad (*Anaxyrus californicus)* | FE SSC | Exposed shallow pools with a sand or gravel base are used for breeding. Breeding pools must occur in the vicinity (ca. 10-100 m) of a braided sandy channel with shorelines or central bars made of stable, sandy terraces. | Not Expected | Habitat in project site not suitable for species. |

| Common Name (*Scientific Name*) | Sensitivity Code & Status | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Western spadefoot (*Spea hammondii*) | SSC | Temporary pools with water temperatures between 9°C and < 30°C that last at least 3 weeks within areas of open vegetation. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland on the periphery of Salt Creek Corridor Habitat Restoration Area. Most of this area has a high cover of nonnative grasses and forbs. |
| Coast Range newt (*Taricha torosa*) | SSC | Occurs from near seal level to around 6,000 feet. Frequent terrestrial habitats, but breed in ponds, reservoirs, and slow moving streams | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland on the periphery of Salt Creek Corridor Habitat Restoration Area. Most of this area has a high cover of nonnative grasses and forbs. Remainder of project site occurs in urbanized area with limited terrestrial habitats available. |
| **Reptiles** | | | | |
| Coastal whiptail (*Aspidoscelis tigris stejnegeri*) | SSC | Found in openings and sparse foliage within chaparral, woodland, and riparian areas. | High | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland on the periphery of Salt Creek Corridor Habitat Restoration Area. Most of this area has a high cover of nonnative grasses and forbs. |
| Orange-throat whiptail (Aspidoscelis hyperythra) | WL | Found in coastal scrub, chaparral, and valley-foothill hardwood habitats. Often found in wash or sandy areas. | High | Potentially suitable habitat for this species occurs in the coastal sage scrub habitat on the periphery of Salt Creek and in the vicinity of other project wetland sites. |

| Common Name (*Scientific Name*) | Sensitivity Code & Status | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Coast horned lizard (*Phrynosoma blainvillii*) | SSC | Grasslands, brushlands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging. | High | A limited amount of potentially suitable habitat for this species occurs in the nonnative grasslands in the periphery of Salt Creek Corridor Habitat Restoration Area.. |
| California mountain kingsnake (*Lampropeltis zonata pulchra)* | WL | Most common in rock outcrops within stands of conifers and oaks or in riparian woodlands; uses crevices, logs, and rocks for cover; active from March through November. | Low | Suitable habitat is low quality. Limited amount of potentially suitable habitat present in riparian habitat. |
| Coast patched-nosed snake (*Salvadora hexalepis virgultea)* | SSC | Inhabits semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains. | Not Expected | No suitable habitat is present. |
| Coronado Island skink (*Plestiodon skiltonianus interparietalis*) | WL | Forest, open woodland and grassy areas. Usually found under leaf litter, logs or rocks. | Low | Low quality habitat present due to limited amount of shelter for species. |
| Red-diamond rattlesnake (*Crotalus ruber*) | SSC | Occurs from sea level to 914m (3,000 ft) in chaparral, woodland, and arid desert habitats with rocky areas and dense vegetation. | Moderate | Low quality habitat is present in scrub habitat. Project sites lack suitable shelter for species. |
| Western pond turtle *(Actinemys marmorata pallid*) | SSC | Requires slack- or slow-water aquatic habitat as well as aerial and aquatic basking sites. Also requires an upland oviposition site on an unshaded slope with clay soils, in the vicinity of the aquatic site. | Moderate | Suitable habitat is present within aquatic habitats however trapping surveys indicated an absence of this species. |
| Two-striped garter snake (*Thamnophis hammondii*) | SSC | Inhabits perennial and intermittent streams with rocky beds and bordered by willow thickets or other dense vegetation. | Moderate | Suitable habitat is present within riparian habitats and streams in the wetland project sites. |
| **Birds** | | | | |
| Coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*) | SSC | Cactus thickets of *Opuntia* or *Cylindropuntia* species, preferably over 1m tall. | Moderate | Suitable habitat present within California sagebrush scrub in the vicinity of Salt Creek site. |

| **Common Name (*Scientific Name*)** | **Sensitivity Code & Status** | **Habitat Preference/Requirements** | **Potential to Occur[b]** | **Rationale** |
|---|---|---|---|---|
| Coastal California gnatcatcher (*Polioptila californica californica*) | FT<br>SSC | Prefer open scrubby habitats such as coastal sage scrub and some forms of chaparral. | Present | Species detected within suitable habitat at Salt Creek. Federal designated Critical Habitat occurs within the Salt Creek Corridor Habitat Restoration Area. |
| Cooper's hawk (*Accipiter cooperii*) | WL | Found in woodlands including urban trees ; nests in riparian areas, live oaks and urban trees. | High. | Documented in Salt Creek corridor and vicinity in 2017. Suitable habitat within riparian vegetated areas. |
| Golden eagle (*Aquila chrysaetos)* | FP<br>WL | Nest on cliff ledges or trees on steep slopes. Forage in grasslands, sage scrub or broken chaparral. | Breeding: Not Expected<br>Foraging: Low | No suitable breeding habitat is present. Limited foraging habitat is available in the nonnative grassland in the periphery of Salt Creek. |
| Ferruginous hawk (*Buteo regalis*) | WL | Open grasslands, desert scrub, low foothills, and fringes of pinyon and juniper habitats. Breeds on cliffs, rock outcrops, or groves. | Breeding: None<br>Foraging: Low | Project site is outside of the breeding range. There is a limited amount of foraging habitat in the nonnative grassland in the periphery of Salt Creek due to species highly specialized diet of small mammals. |
| Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) | WL | Resident of coastal sage scrub and sparse mixed chaparral. | High | Suitable habitat is present in the vicinity of wetland project sites. Species has been detected in the area (CNDDB 2016). |

| Common Name (*Scientific Name*) | Sensitivity Code & Status | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| California horned lark (*Eremophila alpestris actia*) | WL | Occurs in meadows, short grasslands, alkali flats, open coastal plains, and fallow grain fields. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland on the periphery of Salt Creek Corridor Habitat Restoration Area. Most of this area has a high cover of nonnative grasses and forbs. |
| Grasshopper sparrow (*Ammodramus savannarum perpallidus*) | SSC | Occurs in dry, dense grasslands, especially those with a variety of grasses and tall forbs and scattered shrubs for singing perches. Nests in slight depressions in dense grasslands. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland on the periphery of Salt Creek Corridor Habitat Restoration Area. Most of this area has a high cover of nonnative grasses and forbs. |
| Least Bell's vireo (*Vireo bellii pusillus*) | FE<br>SE | Riparian thickets either near water or in dry portions of river bottoms; nests along margins of bushes and forages low to the ground; may also be found using mesquite and arrow weed in desert canyons. | Present | Species documented in 2016 within two territories at east end of the Salt Creek Corridor Habitat Restoration Area. |
| Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) | SE | Inhabits coastal salt marshes and nests in pickleweed. | Not Expected | No suitable habitat is present. |
| Northern harrier (*Circus cyaneus*) | SSC | Grasslands and marshes. Nests are on the ground and typically concealed within a marsh or other dense, low-growing vegetation. The northern harrier is considered a breeding resident and a migrant species. Nesting harriers are now considered rare and the known breeding population in San Diego County is estimated at 25 to 75 pairs. | Breeding: Moderate<br>Foraging: High | Marsh habitat in Salt Creek may provide suitable breeding habitat. Suitable foraging habitat occurs within the periphery of Salt Creek. |

| Common Name (*Scientific Name*) | Sensitivity Code & Status | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Long-eared owl (*Asio otus*) | SSC | Occurs in mature riparian forests adjacent to open lands. | Low | Limited areas where mature riparian habitat occurs adjacent to open lands that could be used for foraging. |
| Southwestern willow flycatcher (*Empidonax trallii extimus)* | FE<br>SE | Riparian woodlands in southern California. | Present | Species documented at east end of the Salt Creek Corridor Habitat Restoration Area. |
| Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) | FT<br>SE | Occurs in dense riparian forests and woodlands adjacent to water. | Not Expected | Although riparian habitat is present, this species requires dense forests/woodlands. Thus it is not expected. |
| Tricolored blackbird (*Agelais tricolor)* | CT<br>SSC | Breeds near fresh water, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, tall herbs. Feeds in grassland and cropland habitats. | Low | Patches of cattail marsh occur throughout the wetland project site. |
| Western burrowing owl (*Athene cunicularia*) | SSC | Prairies, grasslands, lowland scrub, agricultural lands, coastal dunes, desert floors, and some artificial, open areas. They require large open expanses of sparsely vegetated areas on gently rolling or level terrain with an abundance of active small mammal burrows. They use rodent or other burrows for roosting and nesting cover and also known to use pipes, culverts, and nest boxes where burrows are scarce. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| White-tailed kite (*Elanus leucarus*) | FP | A variety of open habitats including open woodlands, grasslands, agricultural fields and marshes. Require tall trees for perching and nesting, and open ground for foraging. | High | Suitable riparian habitat is present. Documented in Salt Creek corridor and Laguna Niguel Regional Park and vicinity in 2016. |

| Common Name (*Scientific Name*) | Sensitivity Code & Status | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Yellow warbler (*Setophaga petechia*) | SSC | Occurs in riparian thickets. | Present | Documented in Salt Creek and Sulphur Creek throughout wetland project sites. |
| Yellow-breasted chat (*Icteria virens)* | SSC | Dense riparian woodland. | Present | Documented at east end of Salt Creek Corridor Habitat Restoration Area. |
| California black rail (*Laterallus jamaicensis coturniculus*) | ST CFP | Inhabits freshwater marshes, wet meadows, and shallow margins of saltwater marshes. | Low | A limited amount of potentially suitable habitat for this species occurs in marshes. Within the region, only known from Upper Newport Bay. |
| Light-footed clapper rail (*Rallus longirostris levipes*) | FE SE CFP | Found in tidal and salt marshes. Requires pickleweed or cordgrass for nesting and feeds on mollusks and other crustaceans. | Breeding: Not Expected Foraging: Low | No suitable breeding habitat is present. Limited foraging habitat is present based on presence of aquatic invertebrates at wetland sites. |
| California least tern (*Sternula antillarum browni)* | FE SE CFP | Inhabits bare or sparsely vegetated flats and sand beaches. | Not Expected | No suitable habitat is present. |
| **Mammals** | | | | |
| American badger (*Taxidea taxus*) | SSC | Inhabit a diversity of habitats with principal requirements of sufficient food, friable soils, and relatively open, uncultivated ground. Grasslands, savannas, mountain meadows, and desert scrub. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Big free-tailed bat (*Nyctinomops macrotis*) | SSC | Inhabits arid, rocky areas; roosts in crevices in cliffs. Has been recorded in urban locations in San Diego County. | Roosting: Not Expected Foraging: Low | No suitable habitat for roosting is present. Potential to forage in open areas and over creeks |

| Common Name (*Scientific Name*) | Sensitivity Code & Status | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Dulzura pocket mouse (*Chaetodipus californicus femoralis)* | SSC | Coastal and montane regions in grassland, sage scrub, and chaparral slopes. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax)* | SSC | Occurs in arid coastal and desert habitats including coastal scrub, chaparral, chamise-redshank, desert scrub, pinyon-juniper, and annual grassland | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Pacific pocket mouse (*Perognathus longimembris pacificus*) | SSC | An obligate resident of fine-grained sandy soils of coastal strand, coastal dune, river and marine alluvium, and coastal sage scrub in close proximity to the ocean. Has never been collected more than 2 miles from the coast or above 600 feet elevation. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Pallid bat (*Antrozous pallidus*) | SSC | Throughout So. Cal. From coast to mixed conifer forest; grasslands, shrublands, woodlands, & forest; most common in open, dry habitats with rocky areas for roosting; yearlong resident in most of range. Roosts in rock crevices, caves, mine shafts, under bridges, in buildings and tree hollows. | Roosting: Low<br>Foraging: Low | Suitable habitat is present within riparian areas but low potential to roost under bridges adjacent to the project site. Species sensitive to disturbances in urban environment. |
| Mexican long-tongued bat (*Choeronycteris mexicana*) | SSC | Occurs in deep canyons, caves, and buildings for day roosts. Feeds primarily on fruit, pollen, and nectar. | Not Expected | No suitable habitat is present for roosting or foraging. |

| Common Name (*Scientific Name*) | Sensitivity Code & Status | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|
| Pocketed free-tailed bat (*Nyctinomops femorosaccus*) | SSC | Lives in deserts and sage scrub, roosts in rocky crevices. | Roosting: Low<br>Foraging: Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| San Diego desert woodrat (*Neotoma lepida intermedia*) | SSC | Variety of shrub and desert habitats primarily associated with rock outcroppings, boulders, cacti, or areas of dense undergrowth. | Low | A limited amount of potentially suitable habitat for this species occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek. Most of this area has a high cover of nonnative grasses and forbs. |
| Southern California saltmarsh shrew (*Sorex ornatus salicornicus*) | SSC | Inhabits coastal marshes. Uses dense vegetation and woody debris for cover. | Not Expected | Suitable habitat is not present on the project site. |
| Stephen's kangaroo rat (*Dipodomys stephensi*) | FE<br>ST | Uses annual grasslands with sparse perennial vegetation. | Not Expected | Grasslands mapped in the project site have a high cover of nonnative grasses and forbs. |
| Western mastiff bat (*Eumops perotis californicus*) | SSC | Primarily a cliff-dwelling species for breeding. Found foraging in a variety of habitats, from dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, montane meadows, and agricultural areas. | Breeding: Not Expected<br>Foraging: Low | A limited amount of potentially suitable habitat for foraging occurs in the nonnative grassland and coastal scrub habitat on the periphery of Salt Creek.. No breeding would occur as no cliffs are present. |
| Western red bat (*Lasiurus blossevillii*) | SSC | Usually occurs among dense foliage, in forests and wooded areas, making long migrations from the northern latitudes to warmer climes for winter, sometimes hibernates in tree hollows or woodpecker holes. | Roosting: Moderate<br>Foraging: Moderate | Suitable roosting and foraging habitat within riparian forests/ woodlands are present. |

| Common Name (*Scientific Name*) | Sensitivity Code & Status | Habitat Preference/Requirements | Potential to Occur[b] | Rationale |
|---|---|---|---|---|

**Notes:**

[a] Status:

Federal

FE - listed as endangered under the federal Endangered Species Act.

FT - listed as threatened under the federal Endangered Species Act.

FP – listed as fully protected

F Delisted = Delisted

State

SE - listed as endangered under the California Endangered Species Act.

ST- listed as threatened under the California Endangered Species Act.

CT- candidate threatened

S Delisted - Delisted

CDFW FP – fully protected species in California.

SSC – species of special concern in California.

WL – Watch List

[b] Potential to Occur Definitions

Present: Species documented on the project site.

High: Species is known to occur in the immediate vicinity of the project site and high quality suitable habitat is present.

Moderate: Species is known to occur in the region and suitable habitat is present.

Low: Suitable habitat is present but is limited in extent and of poor quality.

Not Expected: No suitable habitat is present (i.e., lacks soils, range, topography, and/or vegetation)

Appendix C

# 2016 Least Bell's Vireo and Southwestern Willow Flycatcher Surveys

# 2016 Least Bell's Vireo and Southwestern Willow Flycatcher Surveys: City of Laguna Niguel, California

**Prepared for:**

City of Laguna Niguel

**Prepared by:**

ICF International
525 B Street, Suite 1700
San Diego, California 92101

**August 2016**



ICF International. 2016. 2016 Least Bell's Vireo and Southwestern Willow Flycatcher Surveys: Laguna Niguel. California. August. (ICF 00357.16) Prepared for City of Laguna Niguel.

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# 1.0 Introduction

This report documents the results of the protocol presence/absence surveys conducted by ICF International (ICF) in 2016 for Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*) within areas of Salt Creek and Sulphur Creek watersheds, located in Laguna Niguel, California (Figures 1 and 2).

## Project Description

The City of Laguna Niguel plans to conduct operations and maintenance activities within City-owned wetlands located in the Sulphur Creek watershed, the riparian areas and infrastructure within Chaparrosa Park and the Salt Creek corridor, and the planned new construction associated with the J03P01 channel within Crown Valley Regional Park. These activities will include general maintenance, cleaning of outfall/inlet structures, and restructuring a low-flow channel. ICF conducted a survey to determine the presence/absence of federally- and state-listed Least Bell's Vireo and Southwestern Willow Flycatcher within the study area (Figure 2).

The study area is located within the City of Laguna Niguel, California, specifically within Township 8 South, Range 8 West, in Sections 2, 3, and un-sectioned areas of the U.S. Geological Survey 7.5 minute quadrangle maps for San Juan Capistrano, California (Figure 2). The study area is comprised of several non-contiguous areas of wetland and riparian habitat. Within the study area are 2 survey areas that included potential Least Bell's Vireo and Southwestern Willow Flycatcher habitat: (1) Survey Area A includes the Salt Creek Habitat Restoration Area and(2) Survey Area B includes 7 distinct sections of riparian habitat located within the Sulphur Creek watershed that include Rancho Niguel Upper Sulphur Creek, Sulphur Creek Park Wetland Enhancement Area, Sulphur Creek Wetland Creation Area, Sulphur Creek in Crown Valley Community Park, Crown Valley Park Wetland Creation Area J03P01, USACE Sulphur Creek Restoration Area, and Niguel Ridge (Figure 2.). A total of 5 sites located within Survey Area B were removed from the survey area because either there was insufficient riparian habitat to support a breeding Least Bells' Vireo or Southwestern Willow Flycatcher territory or the habitat was of lower quality as indicated by a more open riparian with a high incidence of non-native plant species. These areas include East Wetland, West Wetland, North Wetland, La Paz Park Wetlands, and Crowne Royale (Figure 2). All areas were surveyed at least once.

Surrounding land use of the study area consists of residential, parks, and open space. Dominant vegetation communities in the study area included arroyo willow (*Salix lasiolepis*) and black willow (*Salix goodingii*) riparian, Cattail marsh (*Typha* sp.), mulefat (*Baccharis salicifolia*) scrub, California bulrush (*Scirpus californicus*) marsh, coyote brush (*Baccharis pilularis*) scrub, and Fremont cottonwood (*Populus fremontii*) riparian. Dominant plants include arroyo willow, black willow, mulefat, coyote brush, and Fremont cottonwood. Elevation of the study area ranges from approximately 200 to 350 feet above mean sea level (AMSL).

## Species Account

### Least Bell's Vireo

The Least Bell's Vireo breeds in southern California and northwestern Baja California, with the majority of the population located in San Diego County. The Least Bell's Vireo is a small, migratory insectivore that prefers dense riparian vegetation for foraging and nesting. The California Department of Fish and Wildlife (CDFW) listed the Least Bell's Vireo as endangered in 1980. The U. S. Fish and Wildlife Service (USFWS)

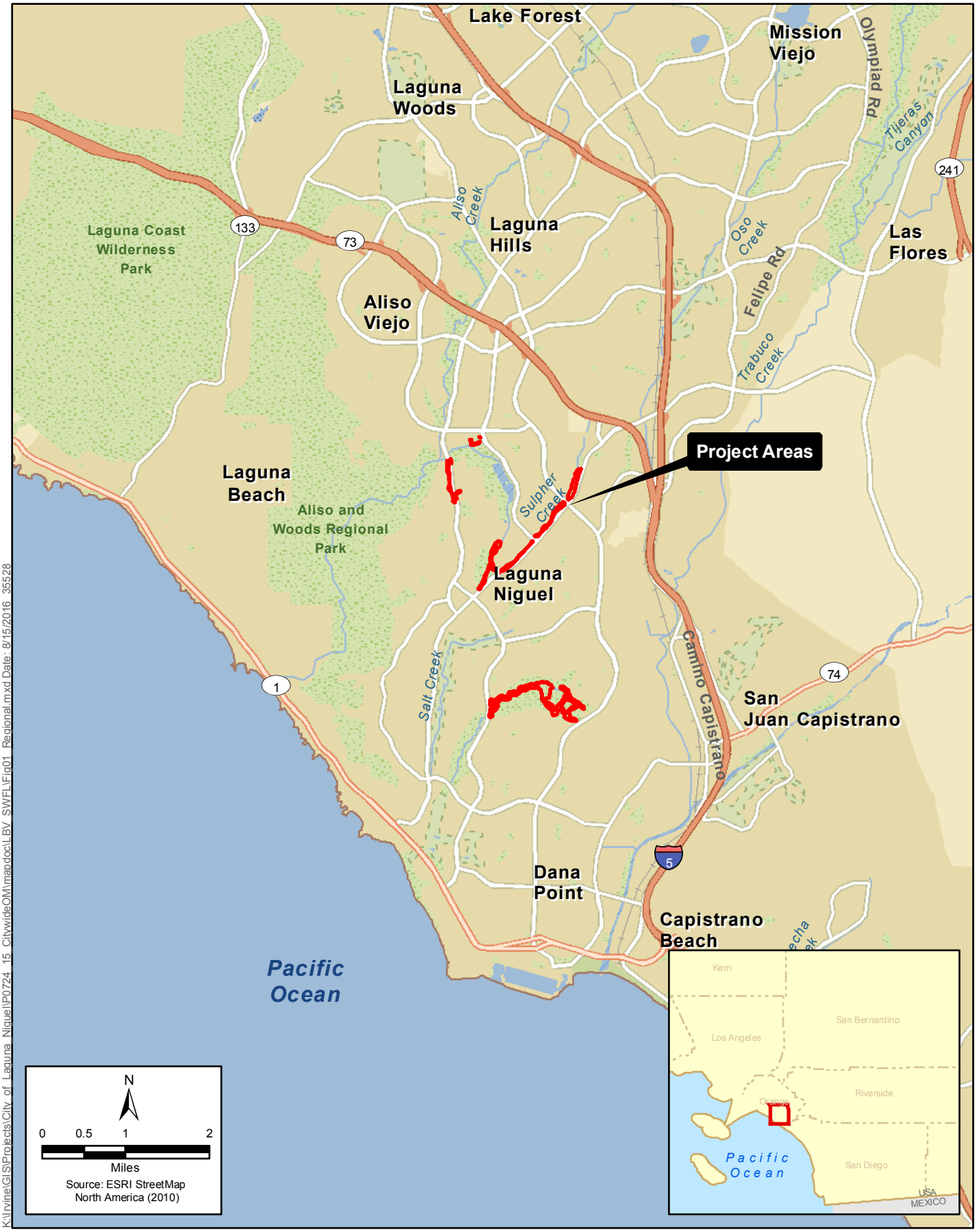


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**Figure 1**
**Regional Location**
**Laguna Niguel O&M Program**

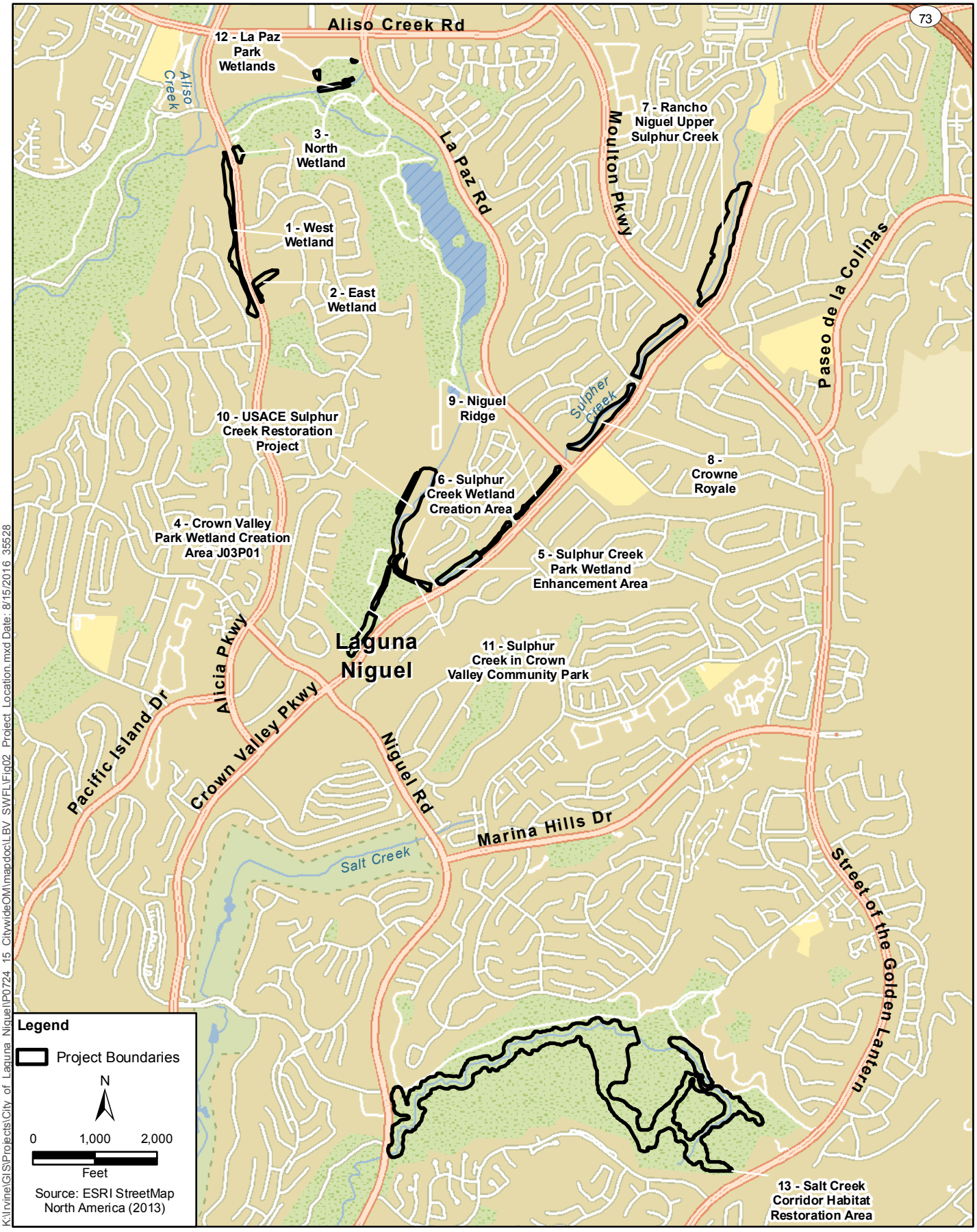


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**Figure 2**
**Project Location**
**Laguna Niguel O&M Program**

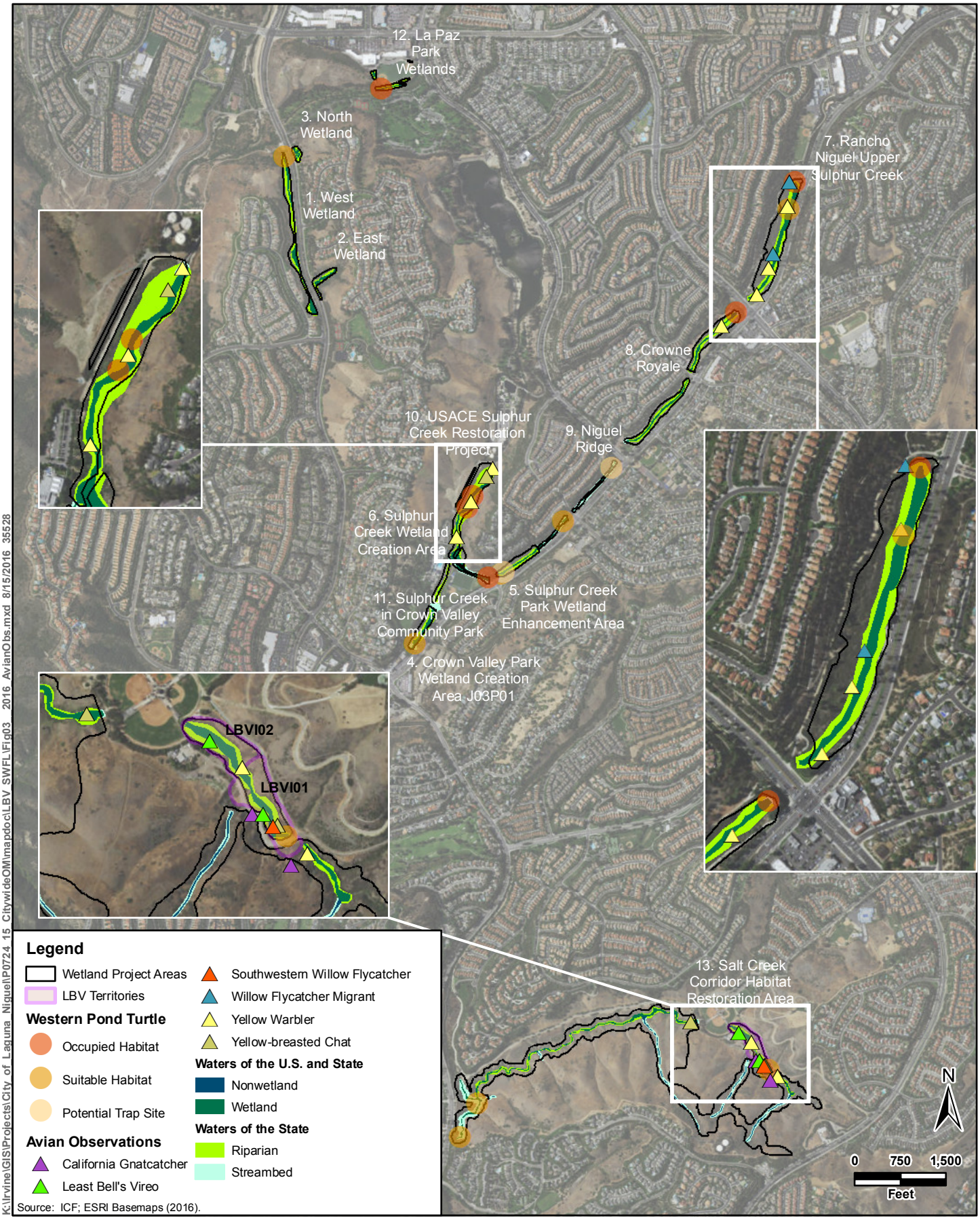


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**Figure 3**
**Avian Observations**
**Laguna Niguel O&M Program**




**Figure 4**
**Locations of 2016 Least Bell's Vireo Territories**
**Laguna Niguel O&M Program**

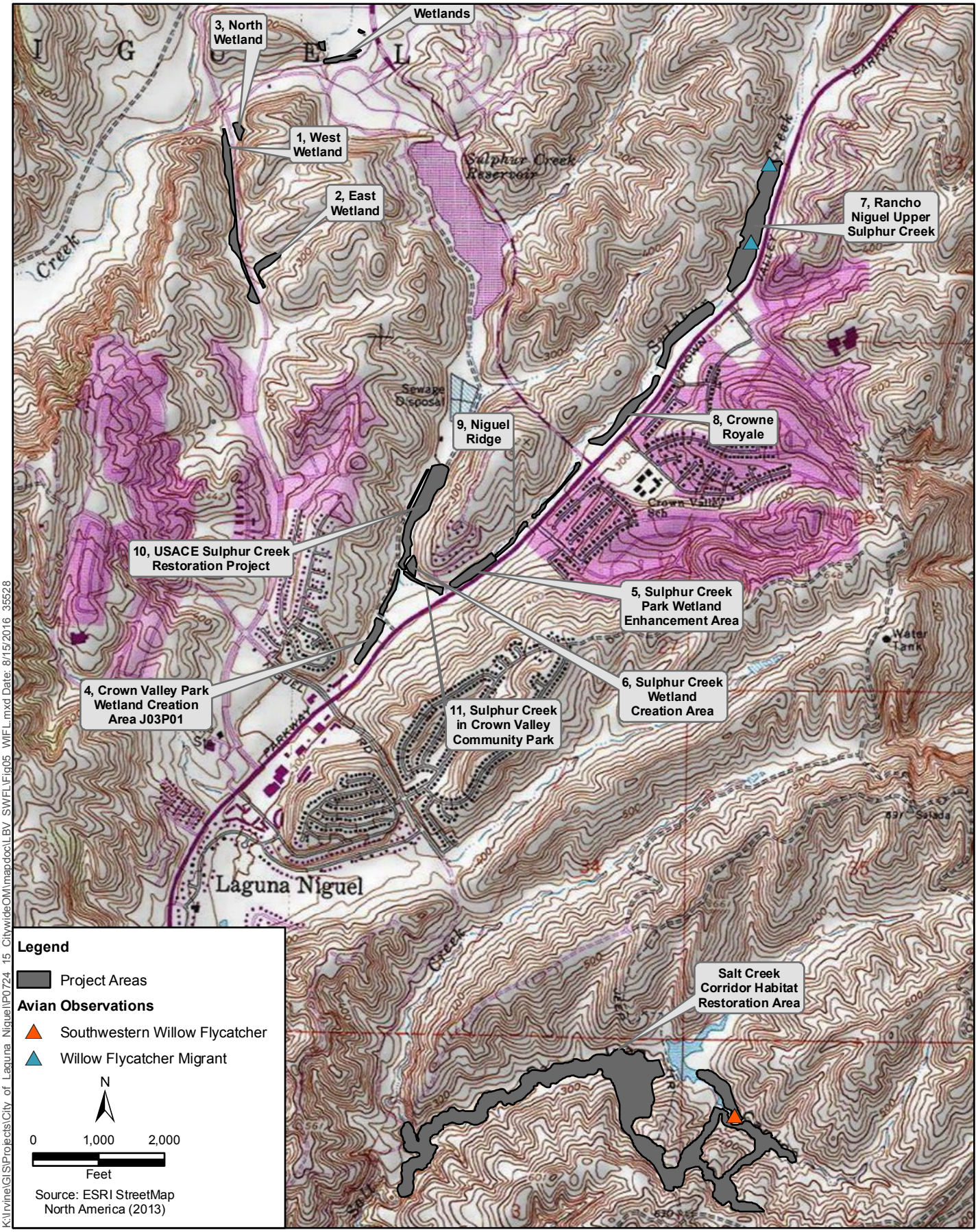


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**Figure 5**
**Locations of 2016 Willow Flycatcher Detections**
**Laguna Niguel O&M Program**

followed suit in 1986. Critical habitat was designated for this subspecies in 1994 along the southwestern coastline of California below Santa Barbara (USFWS 1994).

Historically, Least Bell's Vireo was a common to locally abundant species found in lowland riparian habitats between northern California and coastal southern California. However, loss of riparian habitats and Brown-Headed Cowbird (*Molothrus ater*) parasitism led to a large population decline. When USFWS first listed the bird in 1986, the population was estimated to be just 300 pairs. The latest Five Year Review, dated September 2006, reported a 10-fold increase in population size since the time of its listing to an estimated 2,968 territories (USFWS 2006). The vireo population increase is largely attributed to cowbird control and habitat restoration and preservation (Kus 1999, Kus and Whitfield 2005).

Least Bell's Vireos typically begin to arrive on their breeding grounds by mid to late March. Males tend to arrive first and establish territories; females arrive a few days later. Site fidelity is high among adult Least Bell's Vireo, with many birds returning to the same territory each year and even using the same shrub as previous years (Salata 1983, Kus 2002). Nests are typically placed within 1 meter of the ground in dense shrubby riparian habitat, and a diverse canopy height is required for foraging, with willows often dominating the canopy layer (Salata 1983). Nesting lasts from early April through July, at which some vireos may begin to depart; however most adults and juvenile birds remain on the breeding grounds into late September/early October. In southern California, Least Bell's Vireo nest sites were most frequently located in riparian stands between 5 and 10 years old (SANDAG and RECON 1990). Based on rigorous statistical analysis of Least Bell's Vireo habitat structure and composition, this species appears to preferentially select sites with large amounts of shrub and tree cover, a large degree of vertical stratification, and small amounts of aquatic and herbaceous cover (SANDAG and RECON 1990, ).

## Southwestern Willow Flycatcher

The Southwestern Willow Flycatcher is one of four subspecies of willow flycatcher in the United States that breeds in southern California and was listed as an endangered species by CDFW in 1991 (CDFW 2015) and the USFWS in 1995 (USFWS 1995). Critical habitat for this species was revised by the USFWS in 2013 (USFWS 2013). The other three willow flycatcher subspecies are not listed as sensitive by the federal or state governments.

This small, insectivorous, migratory bird is usually found in dense riparian vegetation occurring along streams or other wetlands (Sogge et al. 2010). The structure of these habitats typically consists of a dense midstory and understory and can also include a dense canopy (USFWS 1995). However, suitable vegetation is not uniformly dense and typically includes interspersed patches of open habitat. Typical plant species associated with their habitat include willow, mule-fat, box-elder (*Acer negundo*), stinging nettle (*Urtica* spp.), cottonwood (*Populus* spp.), tamarisk (*Tamarix* spp.), and Russian olive (*Elaeagnus angustifolia*). Plant species composition does not seem as important as a dense twig structure and an abundance of live, green foliage (Sogge et al. 2010). Within the habitat structure parameters discussed above, Southwestern Willow Flycatcher does demonstrate adaptability in that it can occupy riparian habitats composed of native broadleaf species, a mix of native and exotic species, or monotypic stands of exotics (Sogge et al. 2010).

The Southwestern Willow Flycatcher is known to breed in southern California, Arizona, New Mexico, extreme southern portions of Nevada and Utah, far western portions of Texas, possibly in southwestern Colorado, and in extreme northwestern Mexico (USFWS 1995). When listed by the USFWS in 1995, only 577 individuals were known to exist. The decline of this species was mostly due to disturbance and removal of riparian vegetation; water diversions and groundwater pumping; limited food availability and nesting sites; mismanagement of livestock; recreational development; and brood parasitism by the Brown-Headed Cowbird (USFWS 1995).

Southwestern Willow Flycatchers usually arrive on their breeding grounds in southern California in early-May and remain through late-July. Timing of departure of locally breeding birds is difficult to determine

because of their extremely secretive behavior at that time, coupled with more abundant migrants of the three other willow flycatcher subspecies passing through the area. Migrants of subspecies other than Southwestern Willow Flycatcher, such as the northwestern subspecies (*E. t. brewsteri*), are widespread as they pass through southern California. Other subspecies occurrences are mainly from late-May through mid-June, when generally uncommon, and from late-July through September, when fairly common. In light of these migration windows, definitive identification of a willow flycatcher as the southwestern subspecies usually occurs between June 14 and July 17 (Sogge et al. 2010).

# 2.0 Methods

Methods for the focused vireo surveys adhered to the recommended guidelines provided by the USFWS for presence/absence surveys (USFWS 2001). ICF biologists conducted eight presence/absence surveys for least Bell's vireo within potentially suitable habitat in the study area between May 6 and July 30, 2016 (Table 1). All visits were performed during morning hours and concluded before 1230, when vireos are most active, and included frequent stops to look for individuals and listen for vocalizations (songs and/or scolds).

Five protocol southwestern willow flycatcher surveys of the study area were conducted following the amended survey methodology between May 17 and July 8, 2016 (Sogge et al. 2010; U.S. Fish and Wildlife Service 2000) (Table 1). One survey occurred within the first survey period (May 15–31), two within the second survey period (June 1–24), and two within the third survey period (June 25–July 17). Each survey was conducted at least 5 days apart and was concluded by 1130. Surveys included thorough coverage of all potentially suitable habitats, which consisted of slowly walking with frequent stops to look, listen, and play recordings of flycatcher vocalizations. Recordings were played at distance intervals of approximately 75–100 feet, and only while stationary and after first looking and listening for any potential flycatchers.

For both species, surveys were not conducted during inclement weather such as extreme hot or cold temperatures, fog, high winds, or rain (Table 1). Birds were considered transients if they were detected once during the season. Vireo surveys were led by Kimberly Ferree and Jason Berkeley with assistance from Courtney Casey and Ryan Layden. Flycatcher surveys were conducted by permitted biologist Kimberly Ferree (TE-122632).

In conjunction with protocol vireo and flycatcher surveys, all other bird species that were detected during the survey were recorded. In addition, bird species on the County of San Diego Sensitive Animal List (County of San Diego 2010) were plotted on a map. A species list and map of the sensitive county birds that were detected are provided (Appendix B and Figure 3).

# 3.0 Results

## Least Bell's Vireo

A total of 2 Least Bell's Vireo territories were identified during the 2016 focused surveys (Table 2). Both territories were confirmed as paired and were located adjacent to one another within Survey Area A, Salt Creek (Figure 3, Figure 4). Both vireo pairs were successful and fledged at least one young; one pair (LBVI01) was observed with a fledgling on July 8 and July 30 and the second pair (LBVI02) was observed feeding a fledgling on July 30.

## Southwestern Willow Flycatcher

One Southwestern Willow Flycatcher was detected on July 8, 2016 during the 2016 focused surveys. The flycatcher was heard in Survey area A, in a Least Bell's Vireo territory (LBVI01) (Table 3, Figure 3, Figure 5). It called 4 times (fitzbew) but was never observed visually. Three subsequent visits were conducted from July 10-30, but the bird was not detected again. It is likely that this bird is a Southwestern Willow Flycatcher that was moving around the region and likely did not breed in 2016. These non-territorial "floater" adults are not uncommon and have been observed in several Southwestern Willow Flycatcher populations (Sogge et al. 2010). Most floater individuals are unpaired males and may indicate a lack of high quality breeding habitat in the area. Two non-listed willow flycatchers (*Empidonax trailli*) were detected in

the Rancho Niguel Upper Sulphur Creek site in Survey Area B (Figure 3). Both birds vocalized with a variety of calls and one Willow Flycatcher responded to the playback. These 2 individual Willow Flycatchers were not detected on subsequent surveys and therefore are considered to be migrant flycatchers. Suitable southwestern willow flycatcher habitat typically consists of a dense mid-story and understory and can also include a dense canopy (USFWS 1995). The study area supports suitable foraging and nesting habitat for southwestern willow flycatchers in the willow and cottonwood riparian habitat. At this time, the study area has moderate potential to support breeding southwestern willow flycatchers.

Table 1. Survey dates and weather conditions for Least Bell's Vireo (LBVI) and Southwestern Willow Flycatcher (SWFL) protocol presence/absence surveys in Laguna Niguel, California, in 2016.

| Survey Date | Survey Type and Number | Survey Site (s)[1] | Start–End Time | Temperature (Start–Stop, °F) | Wind Speed (mph) | % Cloud Cover (Start–Stop) | Surveyors |
|---|---|---|---|---|---|---|---|
| May 6, 2016 | LBVI1 | A, B | 0640-1215 | 61-68 | 0-1 | 100-0 | K. Ferree |
| May 17, 2016 | LBVI2/SWFL1 | A, B | 0630-1130 | 61-70 | 0-2 | 100-100 | K. Ferree<br>C. Casey |
| June 3, 2016 | LBVI3/SWFL2 | A, B | 0610-0830 | 59-72 | 0-1 | 100-0 | K. Ferree<br>C. Casey |
| June 16, 2016 | LBVI4/SWFL3 | A, B | 0600-1120 | 56-71 | 0-1 | 0-0 | K. Ferree<br>R. Layden |
| June 27, 2016 | LBVI5/SWFL4 | A, B | 0540-1130 | 68-79 | 0-0 | 100-0 | K. Ferree<br>R. Layden |
| July 8, 2016 | LBVI6/SWFL2 | A, B | 0600-1045 | 66-80 | 0-2 | 100-0 | K. Ferree<br>R. Layden |
| July 19, 2016 | LBVI7 | A, B | 0605-1130 | 64-82 | 0-2 | 0-0 | K. Ferree |
| July 30, 2016 | LBVI8 | A, B | 05:30-1145 | 66-78 | 0-2 | 0-80 | J. Berkeley |

[1] Survey Area A includes the Salt Creek Habitat Restoration Area and Survey Area B includes 7 sections of riparian habitat located within the Sulphur Creek watershed that include Rancho Niguel Upper Sulphur Creek, Sulphur Creek Park Wetland Enhancement Area, Sulphur Creek Wetland Creation Area, Sulphur Creek in Crown Valley Community Park, Crown Valley Park Wetland Creation Area J03P01, USACE Sulphur Creek Restoration Area, and Niguel Ridge.

Table 2. Survey results for Least Bell's Vireo (LBVI) protocol presence/absence surveys conducted in Laguna Niguel, California, in 2016.

| Survey Date | Survey Type and Number | Survey Area (s)[1] | # Males | # Females | # Juveniles | # Territories | Comments |
|---|---|---|---|---|---|---|---|
| May 6, 2016 | LBVI1 | N/A | 0 | 0 | 0 | 0 | No LBVI detected |
| May 17, 2016 | LBVI2 | N/A | 0 | 0 | 0 | 0 | No LBVI detected |
| June 3, 2016 | LBVI3 | B | 1 | 0 | 0 | 1 | LBVI01 detected in Salt Creek. |
| June 16, 2016 | LBVI4 | B | 2 | 0 | 0 | 2 | LBVI01 heard singing twice then quiet. Heard counter-singing with LBVI02. First detection for LBVI02, singing high and frequently. |
| June 27, 2016 | LBVI5 | B | 2 | 0 | 0 | 2 | LBVI01 heard singing sporadically. LBVI02 heard singing high and frequently, counter-singing with LBVI01. Localized at end near baseball field. No female detected. |
| July 8, 2016 | LBVI6 | B | 2 | 0 | 1 | 2 | Heard LBVI01 fledgling contact call once and heard male singing twice. LBVI02 heard singing frequently near ball field. |
| July 19, 2016 | LBVI7 | B | 2 | 0 | 0 | 2 | LBVI02 sang briefly then quiet for 15 minutes—occurred 3 times. Always singing from up high near drainage and 20m west. No female or fledglings detected. LBVI01 was observed singing from Baccharis scrub north of road. Singing frequently high, also psych squeaky call. Counter singing with male to east. |
| July 30, 2016 | LBVI8 | B | 2 | 2 | 2 | 2 | LBVI01 male and female observed feeding at least one fledgling. LBVI02 male observed singing, female heard feeding begging fledgling. |

[1] Survey Area A includes the Salt Creek Habitat Restoration Area and Survey Area B includes 7 sections of riparian habitat located within the Sulphur Creek watershed that include Rancho Niguel Upper Sulphur Creek, Sulphur Creek Park Wetland Enhancement Area, Sulphur Creek Wetland Creation Area, Sulphur Creek in Crown Valley Community Park, Crown Valley Park Wetland Creation Area J03P01, USACE Sulphur Creek Restoration Area, and Niguel Ridge.

Table 3. Survey results for Southwestern Willow Flycatcher protocol presence/absence surveys conducted in Laguna Niguel, California, in 2016.

| Survey Date | Survey Type and Number | Survey Area (s)[1] | # Males | # Females | # Juveniles | # Unknown | # Territories | Comments |
|---|---|---|---|---|---|---|---|---|
| May 17, 2016 | SWFL1 | A | 0 | 0 | 0 | 2 | 2 | 2 Willow Flycatcher migrants detected. One responded to playback. Several fitzbew and britt calls. Very responsive. 2nd bird heard whitting, then fitzbews. Moving around whitting frequently. Localized near sewage drainage. |
| June 3, 2016 | SWFL2 | N/A | 0 | 0 | 0 | 0 | 0 | No SWFL detected |
| June 16, 2016 | SWFL3 | N/A | 0 | 0 | 0 | 0 | 0 | No SWFL detected |
| June 27, 2016 | SWFL4 | N/A | 0 | 0 | 0 | 0 | 0 | No SWFL detected |
| July 8, 2016 | SWFL5 | B | 0 | 0 | 0 | 1 | 1 | Heard fitzbew call (fast) 4 times while searching for LBVI. No visual. High, but localized. |

[1] Survey Area A includes the Salt Creek Habitat Restoration Area and Survey Area B includes 7 sections of riparian habitat located within the Sulphur Creek watershed that include Rancho Niguel Upper Sulphur Creek, Sulphur Creek Park Wetland Enhancement Area, Sulphur Creek Wetland Creation Area, Sulphur Creek in Crown Valley Community Park, Crown Valley Park Wetland Creation Area J03P01, USACE Sulphur Creek Restoration Area, and Niguel Ridge.

### Other Special-Status Bird Species

In total, 40 bird species were detected. A complete list of bird species detected during the surveys is presented in Appendix B.

Yellow Warbler (*Setophaga petechia*) and Yellow-breasted Chat (*Icteria virens*), are California species of special concern and were detected in the study area. Suitable nesting habitat for this species occurs throughout the study area; both species were detected with fledglings within the study area. California Gnatcatcher, a federally threatened species, were detected at Salt Creek and are likely nesting in the area.

# 4.0 References


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USFWS. 2013. Final Rule. "Designation of Critical Habitat for the Southwestern Willow Flycatcher". Federal Register 50: 344- 534.

# 5.0 Certification

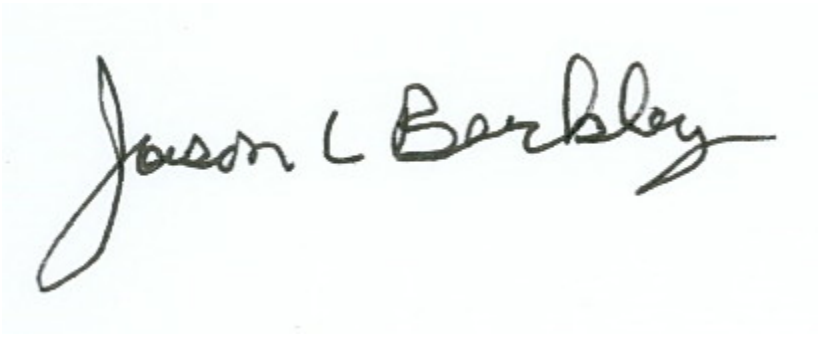
I certify that the information in this survey report and attached exhibits fully and accurately represent my work.



August 15, 2015

Kimberly Ferree (Permit No. TE-122632)
Wildlife Biologist
*Author and Surveys*

Date



August 15, 2015

Jason Berkley (Permit No. TE-009015-4) Date
Wildlife Biologist
*Surveys*

# Appendix A
# USFWS Survey Notification

May 09, 2016

Stacey Love
Recovery Permit Coordinator
Department of Interior
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Subject:15-Day Pre-Survey Notification of Focused Surveys for Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus)* for the Sulpher Creek Restoration Project Area, the Treatment Wetlands, and Salt Creek

Dear Stacey:

The intent of this letter is to inform you that we plan to conduct Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus)* protocol surveys at the Sulpher Creek Restoration Project Area, the Treatment Wetlands, and Salt Creek, in Laguna Niguel, California (Figure 1). Proposed project activities include general maintenance, cleaning out outfall/inlet structures, and restructuring a low-flow channel.

The surveys have been tentatively scheduled to occur from May 13 – July 31, 2016 for Least Bell's Vireos and from May 15 – July 17, 2016 for Southwestern Willow Flycatchers and will be conducted according to the survey methodology (U.S. Fish and Wildlife Service 1997). Surveys will be conducted by myself (TE-122632). An additional biologist may be present during one or all of the surveys to accrue survey hours. Please do not hesitate to contact me at (858) 444-3926 or kimberly.ferree@icfi.com with any questions.

Sincerely,

Kimberly Ferree
TE- TE-122632

Senior Wildlife Biologist

Sogge, M.K., Ahlers, Darrell, and Sferra, S.J., 2010, A natural history summary and survey protocol for the southwestern willow flycatcher: U.S. Geological Survey Techniques and Methods 2A-10, 38 p.

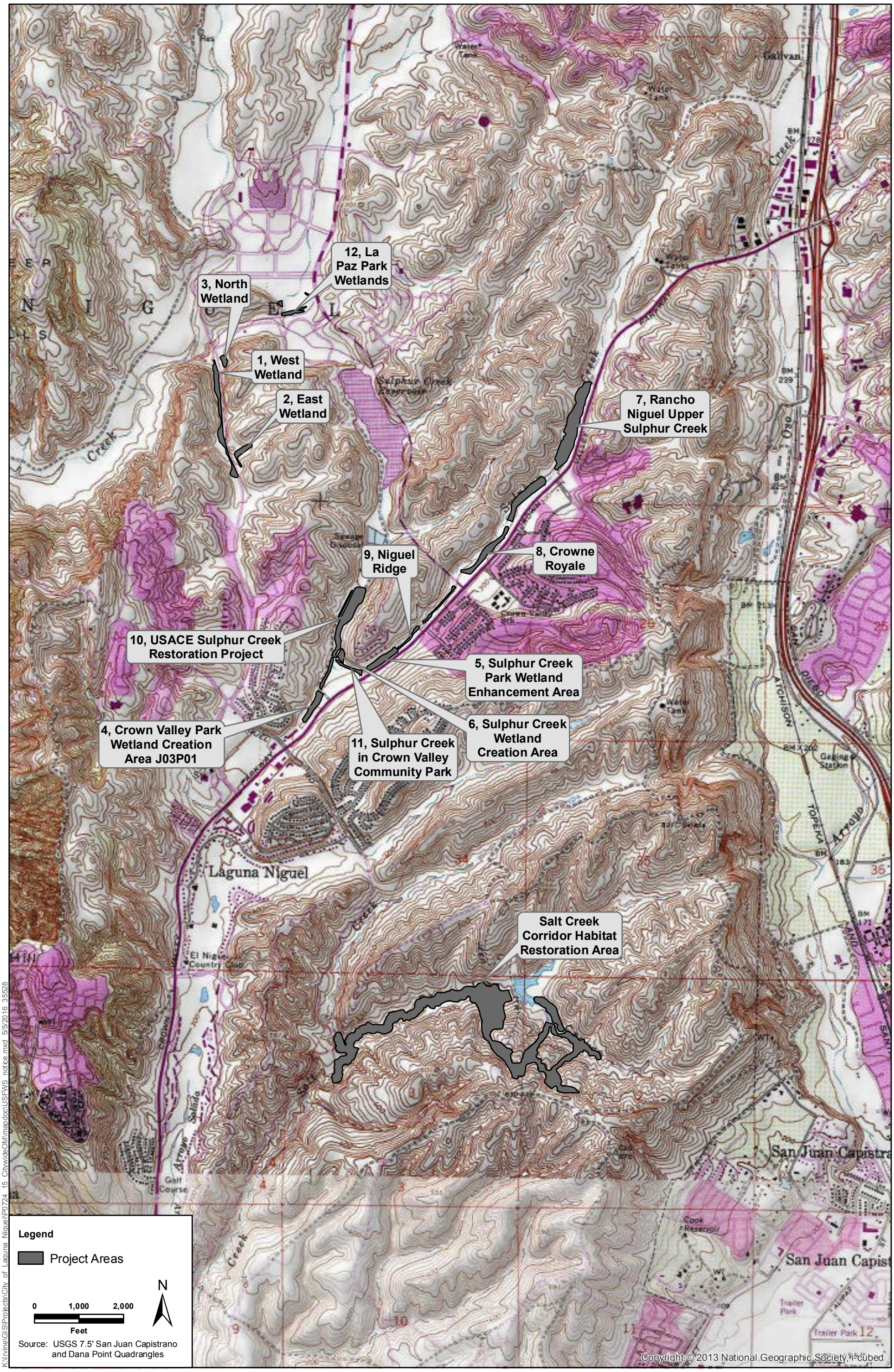



**Figure 1**
**Survey Areas**
**City of Laguna Niguel Project**

USFWS. 2001. Least Bell's Vireo Survey Guidelines. Report from Carlsbad, California Field Office, dated 19 January 2001. 3 pp.

# Appendix B
# Species List

**Table 1.** Avian Species Detected

| Scientific Name | Common Name | Special Status |
|---|---|---|
| **VERTEBRATES** | | |
| **Birds** | | |
| *Butorides virescens* | Green Heron | |
| *Cathartes aura* | Turkey Vulture | |
| *Buteo lineatus* | Red-shouldered Hawk | |
| *Buteo jamaicensis* | Red-tailed Hawk | |
| *Zenaida macroura* | Mourning Dove | |
| *Calypte anna* | Anna's Hummingbird | |
| *Selasphorus sasin* | Allen's Hummingbird | |
| *Picoides nuttallii* | Nuttall's Woodpecker | |
| *Falco sparverius* | American Kestrel | |
| *Empidonax traillii extimus* | Southwestern Willow Flycatcher | FE, SE |
| *Empidonax difficilis* | Pacific-slope Flycatcher | |
| *Sayornis nigricans* | Black Phoebe | |
| *Myiarchus cinerascens* | Ash-throated Flycatcher | |
| *Tyrannus vociferans* | Cassin's Kingbird | |
| *Vireo bellii pusillus* | Least Bell's Vireo | FE, SE |
| *Vireo huttoni* | Hutton's Vireo | |
| *Vireo gilvus* | Warbling Vireo | |
| *Aphelocoma californica* | Western Scrub-Jay | |
| *Corvus brachyrhynchos* | American Crow | |
| *Petrochelidon pyrrhonota* | Cliff Swallow | |
| *Psaltriparus minimus* | Bushtit | |
| *Troglodytes aedon* | House Wren | |
| *Thryomanes bewickii* | Bewick's Wren | |
| *Polioptila californica* | California Gnatcatcher | FT, CSC |
| *Chamaea fasciata* | Wrentit | |
| *Sialia mexicana* | Western Bluebird | |
| *Mimus polyglottos* | Northern Mockingbird | |
| *Geothlypis trichas* | Common Yellowthroat | |
| *Setophaga petechia* | Yellow Warbler | CSC |
| *Icteria virens* | Yellow-breasted Chat | CSC |

| Scientific Name | Common Name | Special Status |
|---|---|---|
| *Pipilo maculatus* | Spotted Towhee | |
| *Melozone crissalis* | California Towhee | |
| *Melospiza melodia* | Song Sparrow | |
| *Pheucticus melanocephalus* | Black-headed Grosbeak | |
| *Passerina caerulea* | Blue Grosbeak | |
| *Icterus cucullatus* | Hooded Oriole | |
| *Icterus bullockii* | Bullock's Oriole | |
| *Haemorhous mexicanus* | House Finch | |
| *Carduelis psaltria* | Lesser Goldfinch | |
| **Lonchura punctulata* | Nutmeg Mannikin | |

**Legend**

*= Non-native or invasive species

Special Status:

Federal:
FE = Endangered
FT = Threatened

State:
SE = Endangered
ST =Threatened
CSC = California Species of Special Concern
CFP = California Fully Protected Species

# Appendix C
# SWFL Survey Form

# Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name: **City of Laguna Niguel** State: **California** County: **San Diego**

USGS Quad Name: **San Juan Capistrano, Sections 2 and 3, T 8 South, Rang** Elevation: **100** (meters)

Creek, River, or Lake Name: **Sulpher Creek and Salt Creek**

***Is copy of USGS map marked with survey area and WIFL sightings attached (as required)?*** ***Yes*** **X** ***No*** ____

Survey Coordinates: Start: E **33.52805** N **-117.71018** UTM Datum: ____ (See instructions)

Stop: E **33.50703** N **-117.70713** UTM Zone: ____

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

*****Fill in additional site information on back of this page*****

| Survey # Observer(s) (Full Name) | Date (m/d/y) Survey Time | Number of Adult WIFLs | Estimated Number of Pairs | Estimated Number of Territories | Nest(s) Found? Y or N If Yes, number of nests | Comments (e.g., bird behavior; evidence of pairs or breeding;-potential threats [livestock, cowbirds, *Diorhabda* spp.]). If *Diorhabda* found, contact USFWS and State WIFL coordinator. | GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary. | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Survey # 1** | Date: | | | | | | # Birds | Sex | UTM E | UTM N |
| Observer(s): | 5/17/2016 | | | | | | 1 | Unk | 33.549027,-117.689991 | |
| Kimberly Ferree and Courtney Casey | Start: 6:30 | 2 | 0 | 2 | N | WIFL01: Responded to playback. Several fitzbews and brritt calls. Very responsive. In mixed willow-cottonwood. Slow, stagnant water. 10:30-10:50. WIFL02: Heard whitts, then fitzbew. Moving around whitting frequently. Localized near sewage drainage. Lots of good looks. Habitat = Arroyo willow-cottonwood riparian with thick BASA and willow understory. Water present. | 1 | Unk | 33.545771,-117.690828 | |
| | Stop: 11:30 | | | | | | | | | |
| | Total hrs: 5.0 | | | | | | | | | |
| **Survey # 2** | Date: | | | | | | # Birds | Sex | UTM E | UTM N |
| Observer(s): | 6/3/2016 | | | | | | | | | |
| Kimberly Ferree and Courtney Casey | Start: 6:10 | 0 | 0 | 0 | N | | | | | |
| | Stop: 11:30 | | | | | | | | | |
| | Total hrs: 5.5 | | | | | | | | | |
| **Survey # 3** | Date: | | | | | | # Birds | Sex | UTM E | UTM N |
| Observer(s): | 6/16/2016 | | | | | | | | | |
| Kimberly Ferree and Ryan Layden | Start: 6:00 | 0 | 0 | 0 | N | | | | | |
| | Stop: 11:20 | | | | | | | | | |
| | Total hrs: 5.5 | | | | | | | | | |
| **Survey # 4** | Date: | | | | | | # Birds | Sex | UTM E | UTM N |
| Observer(s): | 6/27/2016 | | | | | | | | | |
| Kimberly Ferree | Start: 5:40 | 0 | 0 | 0 | N | | | | | |
| | Stop: 11:40 | | | | | | | | | |
| | Total hrs: 5.0 | | | | | | | | | |
| **Survey # 5** | Date: | | | | | | # Birds | Sex | UTM E | UTM N |
| Observer(s): | 7/8/2016 | | | | | | 1 | Unk | 33.50927 | -117.69105 |
| Kimberly Ferree | Start: 6:00 | 1 | 0 | 1 | N | | | | | |
| | Stop: 10:45 | | | | | | | | | |
| | Total hrs: 4.8 | | | | | | | | | |

| Overall Site Summary | Total Adult Residents | Total Pairs | Total Territories | Total Nests |
|---|---|---|---|---|
| Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. | | | | |
| Total survey hrs: 25.8 | 0 | 0 | 3 | 0 |

Were any WIFLs color-banded? Yes ____ No **x**

If yes, report color combination(s) in the comments section on back of form and report to USFWS.

Reporting Individual: **Kimberly Ferree** Date Report Completed: **8/15/2016**

US Fish & Wildlife Service Permit #: **TE-122632** State Wildlife Agency Permit #: **SC-8808**

***Submit*** ***form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.***

***Fill in the following information completely. Submit form by September 1 st. Retain a copy for your records.***

Reporting Individual **Kimberly Ferree** Phone # **7605791454**

Affiliation **ICF International** E-mail kimberly.ferree@gmail.com, kimber

Site Name **City of Laguna Niguel** Date report Completed **8/15/2016**

Was this site surveyed in a previous year? Yes____ No____ Unknown __X__

Did you verify that this site name is consistent with that used in previous yrs? Yes ____ No **X** Not Applicable ____

If name is different, what name(s) was used in the past? ____

If site was surveyed last year, did you survey the same general area this year? Yes ____ No ____ If no, summarize below.

Did you survey the same general area during each visit to this site this year? Yes **X** No ____ If no, summarize below.

Management Authority for Survey Area: Federal ____ Municipal/County **X** State **CA** Tribal ____ Private ____

Name of Management Entity or Owner (e.g., Tonto National Forest) **City of Laguna Niguel**

Length of area surveyed: **7.0** (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

____ Native broadleaf plants (entirely or almost entirely, > 90% native)

**x** Mixed native and exotic plants (mostly native, 50 - 90% native)

____ Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)

____ Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.

*Salix lasiolepis,Salix Gooddingii, Populus spp., Bacharis salisifolia*

Average height of canopy (Do not include a range): **8** (meters)

Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections;

2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests;

3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features. Attach additional sheets if necessary.

Territory Summary Table. Provide the following information for each verified territory at your site.

| Territory Number | All Dates Detected | UTM E | UTM N | Pair Confirmed? Y or N | Nest Found? Y or N | Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior) |
|---|---|---|---|---|---|---|
| WIFL1 | 5/17/16 | 33.549027, | -117.689910 | N | N | WIFL01: Responded to playback. Several fitzbews and brritt calls. Very responsive. In mixed willow- |
| WIFL2 | 5/17/16 | 33.54577 | -117.690828 | N | N | WIFL02: Heard whitts, then fitzbew. Moving around whitting frequently. Localized near sewage drainage. |
| SWFL1 | 7/8/16 | 33.50927 | -117.691050 | N | N | Heard fitzbew (fast) 4 x while searching for LBVI. No visual. High, but localized. 7:15-8:45. |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Attach additional sheets if necessary

# MEMORANDUM

**To:** Ziad Mazboudi; City of Laguna Niguel

**From:** Sarah Horwath & William Kohn; ICF

**Date:** October 24, 2017

**Re:** Turtle Trapping Study in support of City of Laguna Niguel Wetlands Operations and Maintenance Services Environmental Permitting

---

## Introduction

This turtle trapping study was conducted to evaluate presence/absence of southern western pond turtle (SWPT) (*Actinemys pallida*) at the City of Laguna Niguel's (City) stormwater facilities and wetland restorations sites in Laguna Niguel, California.

In July 2016, ICF biologists conducted a desktop analysis and field habitat assessment to identify suitable habitat for SWPT that could be impacted by the City's operation and maintenance activities at stormwater facilities and wetland restorations sites. The findings presented in the memo titled *Southern Western Pond Turtle Habitat Survey in support of City of Laguna Niguel Wetlands Operations and Maintenance Services Environmental Permitting*, completed February 2017, indicated potential habitat for SWPT is present within the project area. During the 2016 habitat assessment, four unidentified turtles were observed within the project areas. It was unknown if they were native SWPT or non-native red-eared slider (*Trachemys scripta elegans*). This turtle trapping study was conducted to further investigate the potential for SWPT to occur within the project area. Results of this study will be incorporated into the Biological Technical Report and used to support the CEQA document and the state regulatory permitting with the California Department of Fish and Wildlife (CDFW).

The project area includes 13 wetland and habitat restoration sites in within in the City of Laguna Niguel, California (Figures 1 and 2). Twelve of the wetland restoration sites are within the Sulphur Creek Watershed, within the HUC-12 Aliso Creek Watershed, and one restoration site is within the Salt Creek Watershed, within the HUC-12 Salt Creek-Frontal Gulf of Santa Catalina Watershed (Figure 3). Sulphur Creek is a perennial tributary to Aliso Creek, fed by runoff from surrounding development, and is approximately 5 miles long (Figure 4). Salt Creek is an intermittent coastal stream that flows out to the Pacific Ocean at Salt Creek County Beach (Figure 4).

SWPT are found in a range of aquatic habitats including creeks, ponds, canals, and other water bodies (Rathbun et al 2002). They prefer habitats with slowly flowing water and need structures for basking sites (such as exposed banks and logs) as well as complex habitat for aquatic and streamside refuge areas (such as deep pools, undercut banks, and emergent vegetation) (Reese 1996, Reese & Welsh 1997). Suitable habitat for reproductive SWPT populations must have nearby, accessible upland habitat for nesting and overwintering (Lovich & Meyer 2002, Holland 1991).

# Methods

Trapping was conducted by ICF biologists Sarah Horwath (Scientific Collection Permit [SCP] #9656.) and William Kohn (SCP #3387) in accordance with. Prior to the trapping, a field visit was conducted on September 25, 2017 by ICF biologists Sarah Horwath and William Kohn to re-visit potential SWPT habitats identified in July 2016 for trapping prioritization. Sites were prioritized for trapping based on previous turtle observations, habitat suitability for SWPT, accessibility for trap deployments, and risk of vandalism. Eight sites were chosen for trap deployments (Table 1, Figure 5). One turtle was observed during the September 25, 2017 field visit: a non-native red-eared slider at the La Paz Park Wetlands project site.

Trapping was conducted based on the recommended guidelines provided by the *USGS Western Pond Turtle (Emys marmorata) Trapping Survey Protocol for the Southcoast Ecoregion* (USGS 2006a). Visual surveys for turtles were conducted opportunistically between trap deployments and trap checks, and generally followed recommended guidelines provided by the *USGS Western Pond Turtle Visual Survey Protocol for the Southcoast Ecoregion Survey Protocol* (USGS 2006b).

The study's trapping plan was reviewed and approved by CDFW. ICF biologists notified CDFW of the intention to conduct trapping in early October, and CDFW provided written approval of the timeframe prior to initiation of the study.

Floating hoop-style turtle traps were used. Each trap measured approximately 3-foot diameter by 5-foot long, with 2-inch mesh size, and was held open with two PVC poles (Photo 1). Prior to the trapping effort, all gear was decontaminated and each trap was cleaned using chlorine bleach and left to dry. Two empty 1-gallon plastic jugs were attached to each trap for floatation. Traps were floated such that captured animals would have space to breathe in the chambers, while keeping the trap funnel entrance submerged. Canned sardines in oil, which hung suspended in the trap chamber, were used as bait. A business card with the biologist's scientific collecting permit number was sealed in a plastic bag and attached to each trap.



**Photo 1. Floating hoop-style trap deployed in a pool habitat.**

Prior to deploying traps, ICF biologists surveyed each trapping site and made visual observations with the aid of binoculars. At trap deployment, photos were taken of each trap site and water and air temperature was recorded. After deployment, traps were checked twice a day (in the morning and afternoon).

Data collected during trap deployments and at trap checks included: GPS location, date and time, weather conditions, water and air temperatures, identification of all species captured. Captured turtles were identified, measured for carapace length (CL), carapace width (CW), and weight, photographed, sex was determined, and external signs of disease/lesions were noted. If a SWPT was collected, its age would be estimated by counting annuli on scutes of the plastron and/or carapace. Non-native species were sacrificed following recommendations of CDFW staff (pers. comm. Barabe 2017). If a trap was empty, bait was supplemented, if needed, then the trap was redeployed. Traps were removed at the conclusion of the study.

## Trapping Results

Turtle trapping was conducted at 8 sites within the project area by ICF wildlife biologists William Kohn and Sarah Horwath (Figure 5). Trap deployments are shown in the photo log. Traps were deployed for four days and three nights between October 3, 2017 and October 6, 2017. Weather conditions during the trapping dates were warm; air temperatures warmed from cool mornings to hot afternoons, ranging from 51-89 °F. Winds were generally variable, skies were clear to partly cloudy, and visibility was good. Water temperatures at the trapping sites ranged from 59-72 °F.

Results of the trapping are summarized in Table 1. No SWPT were captured nor observed during the trapping study. Three non-native red-eared sliders were captured: 2 females at the USACE Sulphur Creek Restoration project site (Site 10) on the afternoon of October 5, 2017, and 1 female at the Rancho Niguel Upper Sulphur Creek project site (Site 7) on the morning of October 6, 2017. Photos 2 and 3 are of a red-eared slider captured in the trap at the USACE Sulphur Creek project site. Table 2 provides data collected for the captured red-eared sliders.





**Photo 2 & Photo 3. Red-eared slider captured at Trap 3 (Site 10. USACE Sulphur Creek Restoration Project)**

Red-swamp crayfish (*Procambarus clarkia*) were also found in traps at the Crown Valley Park Wetland Creation Area and at the Crown Royale trap sites. Mosquitofish (*Gambusia affinis*) and American bullfrog adults (*Lithobates catesbeianus*) were incidentally observed at trap sites.

Only non-native red-eared sliders were captured and observed during the October 2017 turtle trapping study. These results suggest SWPT may not be present within the City project sites.

**Table 1. Turtle Trap Deployments and Trapping Results**

| Trap Number (Project Site) | Latitude | Longitude | Trap Deployments | Trap Checks | Incidental Observations |
|---|---|---|---|---|---|
| Trap 1 (Site 10. USACE Sulphur Creek Restoration Project) | 33.5342 | -117.7078 | 10/3/17, 12:45 - 10/6/17, 13:10 | 10/4/17, 09:30: empty<br>10/4/17, 14:50: empty<br>10/5/17, 10:05: empty<br>10/5/17, 15:42: empty<br>10/6/17, 09:42: empty<br>10/6/17, 13:10: empty | Mosquitofish (*Gambusia affinis*) |
| Trap 2 (Site 10. USACE Sulphur Creek Restoration Project) | 33.5328 | -117.7067 | 10/3/17, 13:00 - 10/6/17, 13:20 | 10/4/17, 09:40: empty<br>10/4/17, 14:55: empty<br>10/5/17, 10:15: empty<br>10/5/17, 15:50: empty<br>10/6/17, 09:47: empty<br>10/6/17, 13:20: empty | Adult bullfrog (*Lithobates catesbeianus*) |
| Trap 3 (Site 10. USACE Sulphur Creek Restoration Project) | 33.5344 | -117.7069 | 10/3/17, 13:15 - 10/6/17, 13:25 | 10/4/17, 09:43: empty<br>10/4/17, 15:05: empty<br>10/5/17, 10:35: empty<br>10/5/17, 15:54: 2 red-eared sliders<br>10/6/17, 09:50: empty<br>10/6/17, 13:25: empty | Mosquitofish |
| Trap 4 (Site 13. Salt Creek Corridor Habitat Restoration Area) | 33.5061 | -117.7072 | 10/3/17, 13:45 - 10/6/17, 12:45 | 10/4/17, 09:04: empty<br>10/4/17, 14:25: empty<br>10/5/17, 09:40: empty<br>10/5/17, 15:20: empty<br>10/6/17, 09:25: empty<br>10/6/17, 12:45: empty | Mosquitofish, duckweed (*Lemna* sp.) covering surface |
| Trap 5 (Site 4. Crown Valley Park Wetland Creation Area) | 33.5272 | -117.7103 | 10/3/17, 14:20 - 10/6/17, 13:45 | 10/4/17, 09:55: empty<br>10/4/17, 15:23: empty<br>10/5/17, 10:35: empty<br>10/5/17, 16:28: 1 crayfish<br>10/6/17, 10:02: empty<br>10/6/17, 13:45: empty | Mosquitofish |
| Trap 6 (Site 8. Crown Royale) | 33.5431 | -117.6919 | 10/3/17, 14:55 - 10/6/17, 12:10 | 10/4/17, 07:58: 1 crayfish<br>10/4/17, 13:36: empty<br>10/5/17, 08:45: empty<br>10/5/17, 14:35: empty<br>10/6/17, 08:40: empty<br>10/6/17, 12:10: empty | Duckweed covering surface |
| Trap 7 (Site 7. Rancho Niguel Upper Sulphur Creek) | 33.5500 | -117.6883 | 10/3/17, 15:15 - 10/6/17, 14:30 | 10/4/17, 08:17: empty<br>10/4/17, 13:15: empty<br>10/5/17, 08:15: empty<br>10/5/17, 14:20: empty<br>10/6/17, 08:20: 1 red-eared slider<br>10/6/17, 14:30: empty | Mosquitofish, unidentified turtle (later captured and identified as red-eared slider) |
| Trap 8 (Site 12. La Paz Park Wetlands) | 33.5544 | -117.7122 | 10/3/17, 15:45 - 10/6/17, 14:05 | 10/4/17, 08:34: empty<br>10/4/17, 13:55: trap collapsed, redeployed<br>10/5/17, 09:10: empty<br>10/5/17, 14:55: empty<br>10/6/17, 08:55: empty<br>10/6/17, 14:05: empty | Unidentified turtle (likely red-eared slider seen 9/25/17) |

**Table 2. Summary of Potentially Suitable SWPT Habitats Observed on July 14, 2016**

| Trap Number (Project Site) | Capture Date, Time | Species | Carapace Measurements[1] | Weight | Sex |
|---|---|---|---|---|---|
| Trap 3 (Site 10. USACE Sulphur Creek Restoration Project) | 10/5/17, 15:54 | Red-eared slider | 200 mm CL 163 mm CW | 1.63 kg | female |
| Trap 3 (Site 10. USACE Sulphur Creek Restoration Project) | 10/5/17, 15:54 | Red-eared slider | 210 mm CL 157 mm CW | 1.45 kg | female |
| Trap 7 (Site 7. Rancho Niguel Upper Sulphur Creek) | 10/6/17, 08:20 | Red-eared slider | 191 mm CL 154 mm CW | 2.00 kg | female |

[1] *Carapace measurements: CL = carapace length, CW = carapace width*

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# Figures

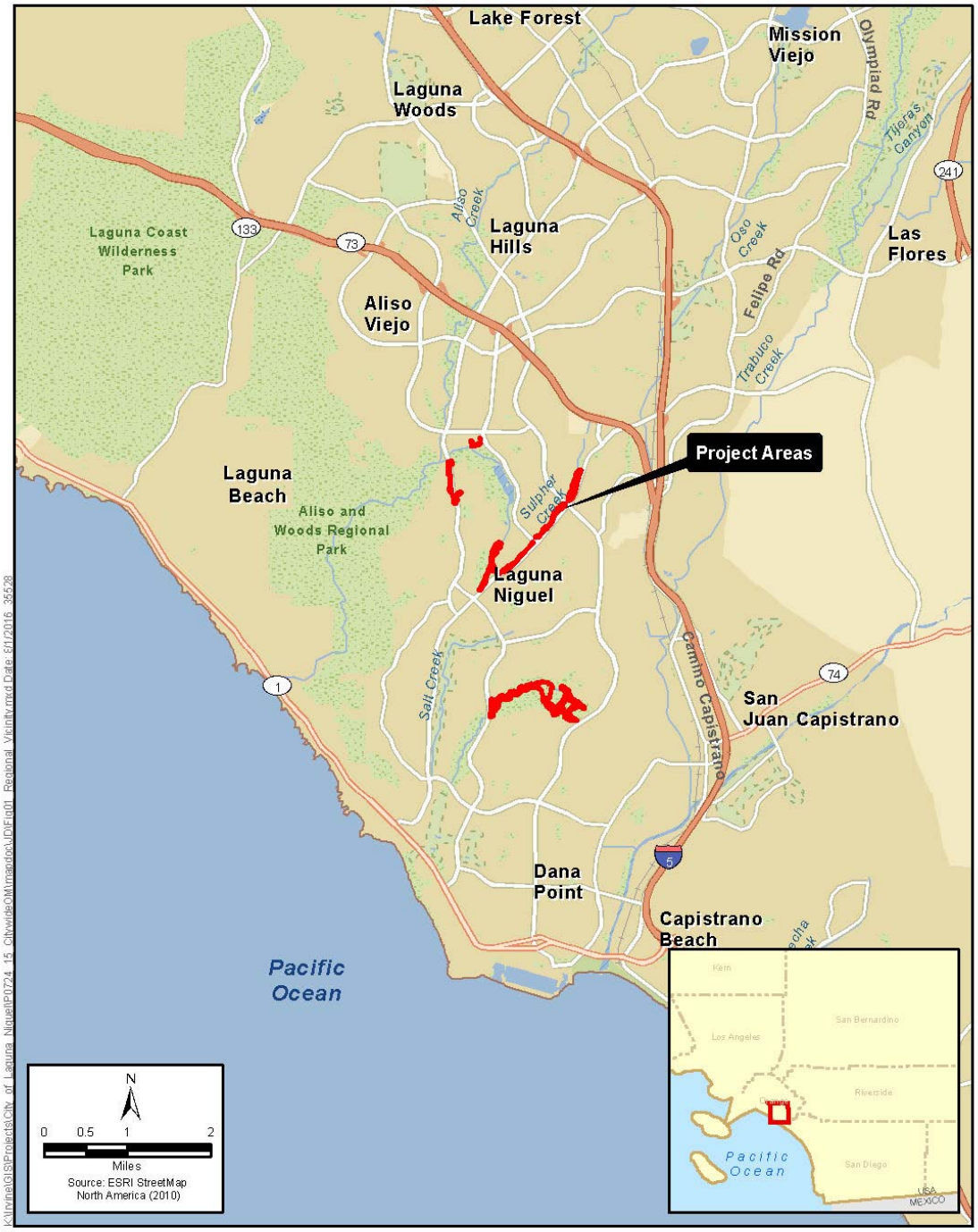


**Figure 1**
**Vicinity Map**
**City of Laguna Niguel Programmatic Permitting**

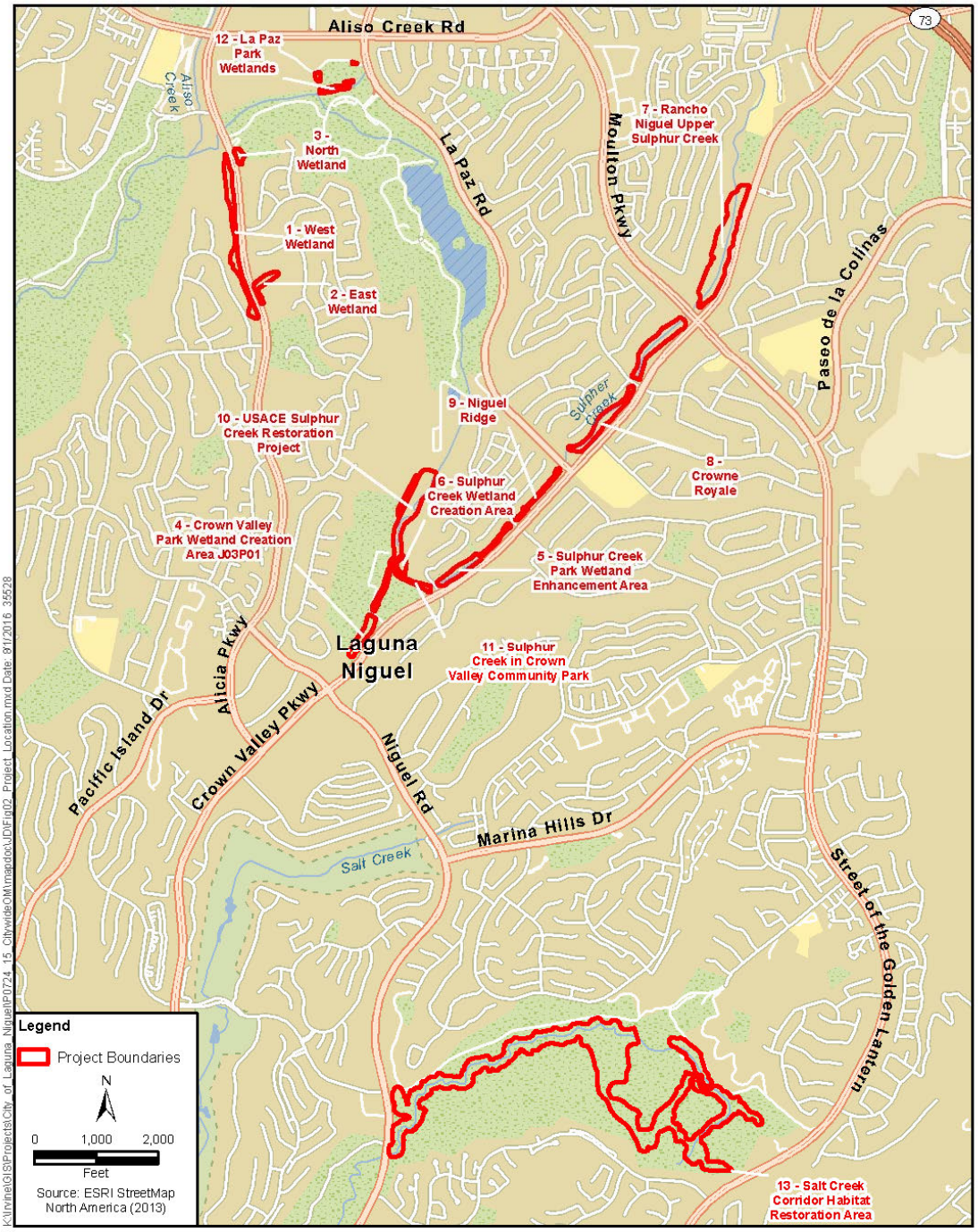


**Figure 2**
**Project Location**
**City of Laguna Niguel Programmatic Permitting**

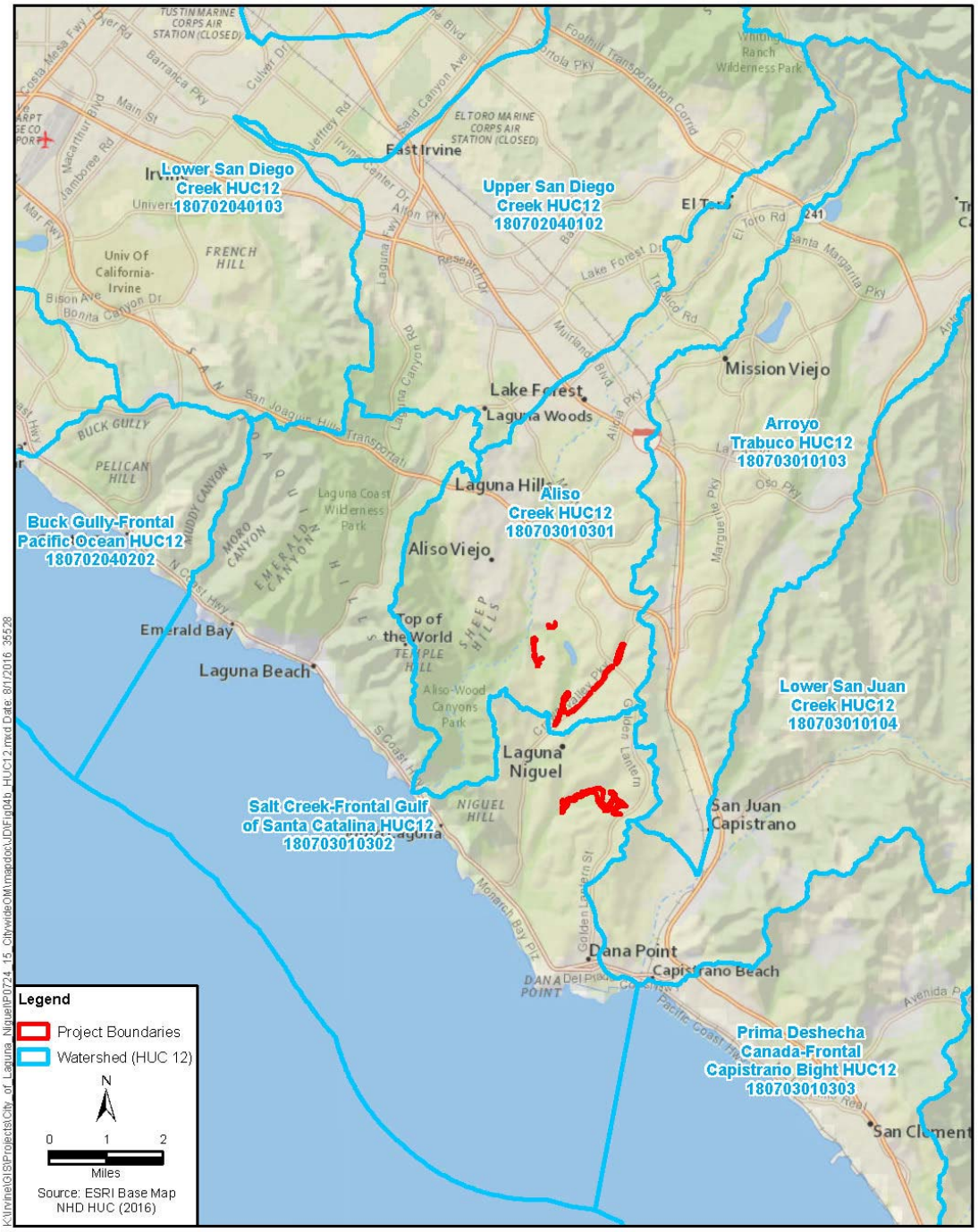


**Figure 3**
**HUC 12 Watersheds**
**City of Laguna Niguel Programmatic Permitting**

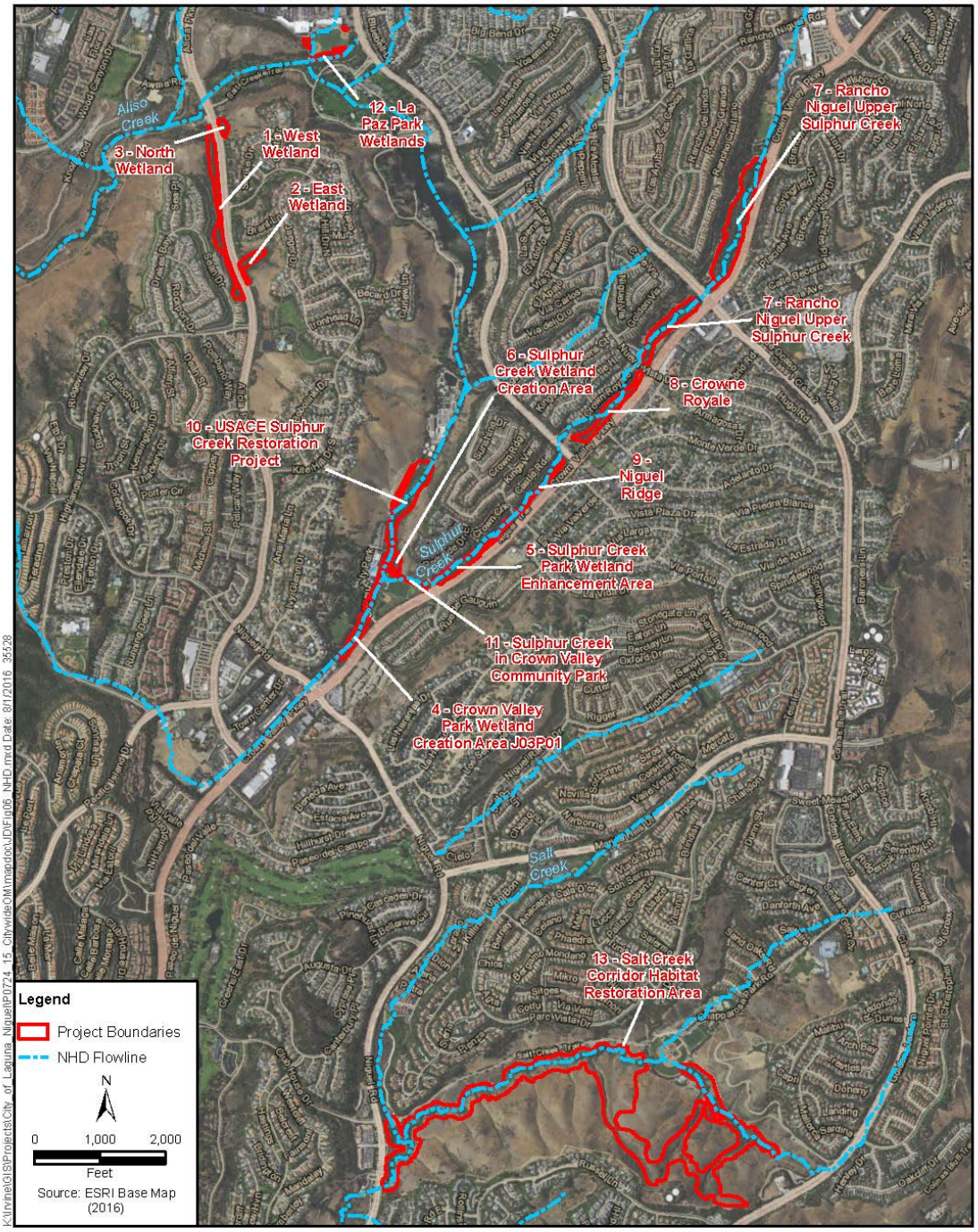


**Figure 4**
**National Hydrologic Dataset (NHD)**
**City of Laguna Niguel Programmatic Permitting**

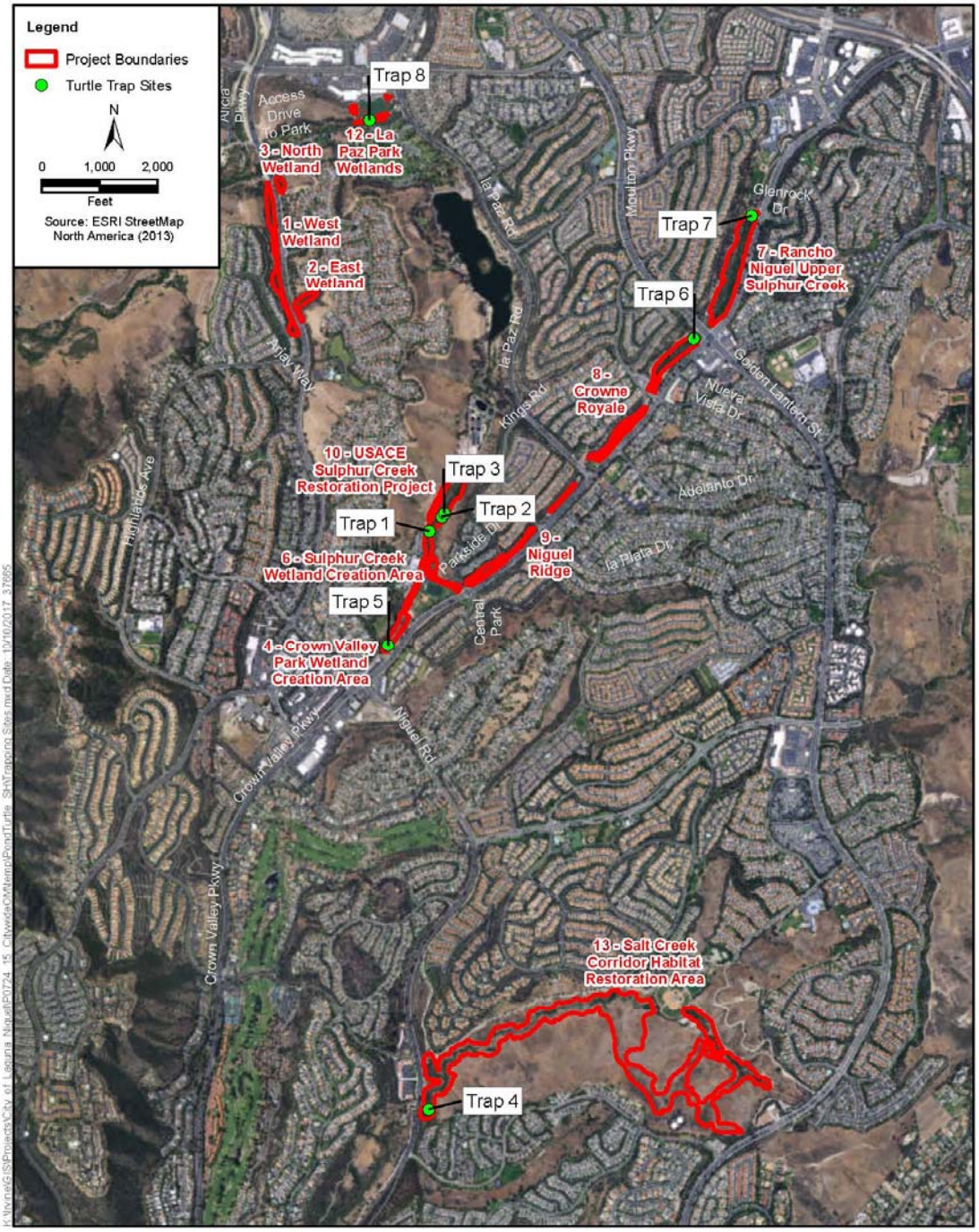


**Figure 5**
**Turtle Trap Sites, Southern Western Pond Turtle Trapping Study**
**City of Laguna Niguel Programmatic Permitting**

# Photo Log – Trap Site Photos



Trap 1 at Project Site 10 – USACE Sulphur Creek Restoration Project.



Trap 2 at Project Site 10 – USACE Sulphur Creek Restoration Project.



Trap 3 at Project Site 10 – USACE Sulphur Creek Restoration Project.



Trap 4 at Project Site 13 – Salt Creek Corridor Habitat Restoration Area.



Trap 5 at Project Site 4 – Crown Valley Park Wetland Creation Area.



Trap 6 at Project Site 8 – Crowne Royale.



Trap 7 at Project Site 7 – Rancho Niguel Upper Sulphur Creek.



Trap 8 at Project Site 12 – La Paz Park Wetlands.

# JURISDICTIONAL DELINEATION REPORT

# CITY OF LAGUNA NIGUEL WETLANDS OPERATIONS AND MAINTENANCE ACTIVITIES, ORANGE COUNTY, CALIFORNIA

**PREPARED FOR:**

City of Laguna Niguel
30111 Crown Valley Parkway
Laguna Niguel, CA 92677
Contact: Ziad Mazboudi

**PREPARED BY:**

ICF
525 B Street, Suite 1700
San Diego, CA 92101
Contact: Lanika Cervantes
858-444-3916

**June 2017**



ICF. 2017. Jurisdictional Delineation Report, City of Laguna Niguel Wetlands Operations and Maintenance Activities, Orange County, California. June. (ICF 00357.16.) San Diego County, CA. Prepared for City of Laguna Niguel, Laguna Niguel, CA.

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# Acronyms and Abbreviations

| | |
|---|---|
| AMSL | above mean sea level |
| CDFW | California Department of Fish and Wildlife |
| City | City of Laguna Niguel |
| CWA | Clean Water Act |
| FAC | facultative |
| FACW | facultative wetland |
| FEMA | Federal Emergency Management Agency |
| GPS | global positioning systems |
| HUC | Hydrologic Unit Code |
| NHD | National Hydrography Dataset |
| no indicator | NI |
| no occurrence | NO |
| NRCS | Natural Resources Conservation Service |
| NWI | National Wetland Inventory |
| OBL | obligate |
| OHWM | Ordinary High Water Mark |
| Porter- Cologne Act | Porter-Cologne Water Quality Control Act |
| project | Wetlands Operations and Maintenance Activities |
| RWQCB | Regional Water Quality Control Board |
| SSURGO | Soil Survey Geographic |
| SWRCB | State Water Resources Control Board |
| TMDL | Total Maximum Daily Loads |
| USACE | U.S. Army Corps of Engineers |
| USDA | U.S. Department of Agriculture |
| USGS | United States Geological Survey |

# Executive Summary

ICF conducted a formal delineation of jurisdictional waters and wetlands for the City of Laguna Niguel's (City's) development of a programmatic permit for Wetlands Operations and Maintenance Activities (project) at stormwater facilities and wetland restoration sites. The purpose of this delineation was to identify the extent of jurisdictional waters within the project sites subject to state and federal jurisdiction under Sections 401 and 404 of the Clean Water Act (CWA) as well as Section 13260 of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) and Section 1602 of the California Fish and Game Code with the potential to be impacted by the proposed project. Relevant jurisdictions include federal jurisdiction regulated by the U.S. Army Corps of Engineers (USACE) as waters of the U.S. or USACE wetlands, state waters regulated by the State Water Resources Control Board (SWRCB) and/or San Diego Regional Water Quality Control Board (RWQCB), and aquatic features regulated by the California Department of Fish and Wildlife (CDFW).

A study area comprising the full extent of the floodplain for each project site was assessed for jurisdictional waters. A total of 18.47 acres/29,564 linear feet of waters of the U.S. is present within the study area. Of this, 16.802 acres are wetland waters of the U.S. and 1.664 acres linear feet are non-wetland waters of the U.S. In addition, there are 44.44 acres/29,564 linear feet of waters of the state within the study area. Of this, 4.478 acres are CDFW streambed and 40.962 acres are CDFW riparian.

Figures are included as Attachment 1. Site Photographs from June and July 2016 are included as Attachment 2. Wetland Determination forms are included as Attachment 3.

# Chapter 1
# Introduction

ICF has conducted a routine-level delineation of jurisdictional waters and wetlands for the City of Laguna Niguel's (City's) development of a programmatic permit for Wetlands Operations and Maintenance Activities (project) at stormwater facilities and wetland restoration sites. The purpose of this delineation was to identify the extent of federal and state jurisdiction within the project site pursuant to Sections 401 and 404 of the Clean Water Act (CWA) as well as Section 13260 of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) and Section 1602 of the California Fish and Game Code.

The information and results presented herein document the investigation, best professional judgment, and conclusions of ICF. It is correct and complete to the best of our knowledge. However, all jurisdictional delineations should be considered preliminary until reviewed and approved/determined by the regulatory agencies.

## 1.1 Project Description

The City is developing a programmatic permit (regional general permit) that would provide regulatory coverage for operations and maintenance activities at City stormwater facilities and wetland sites. The project will include minor maintenance activities such as removing vegetation and sediment around outfalls, risers, and under bridges and roads, and cutting pilot channels to facilitate water movement through the stream slope.

This project includes a total of 13 wetland sites: 12 occur within the Sulphur Creek Watershed and 1 within Salt Creek. A study area comprising the full extent of the floodplain for each of the 13 wetland sites was assessed for jurisdictional waters.

## 1.2 Project Location

The study area is located in the City of Laguna Niguel, in Orange County, California (Figure 1). The study area is west of Interstate 5, east of Aliso Woods Regional Park, south of State Route 73, and north of the Pacific Ocean. Specifically, the study area is within the area bounded by Street of the Golden Lantern to the east, Alicia Parkway and Crown Valley Parkway to the west, Aliso Creek Road to the north, and Beacon Hill Way to the south (Figure 2). The study area contains one perennial drainage, and one intermittent drainage, as depicted on the United States Geological Survey (USGS) 7.5-minute San Juan Capistrano quadrangle (USGS 2015) (Figure 3) and on the National Hydrography Dataset (NHD) (USGS 2016). Sulphur Creek is a perennial tributary to Aliso Creek, fed by run off from surrounding development, and is approximately 5 miles long. Downstream of the Sulphur Creek confluence, Aliso Creek flows approximately 5 miles to the Pacific Ocean where it empties at Aliso Beach County Park. Salt Creek is an intermittent coastal stream that flows out to the Pacific Ocean at Salt Creek County Beach.

Chapter 2
# Methodology

## 2.1 Project Research

Prior to conducting field investigations, ICF compared sub 1-meter resolution aerial imagery (NAIP 2016), the USGS 7.5-minute topographic quadrangle maps for San Juan Capistrano (2015), and aerial imagery in Google Earth (Google Earth 2016) to observe vegetation types, topographic changes, and visible drainage patterns associated with the study area. Known stormwater facilities and outfalls were reviewed as mapped in the Orange County Environmental Resources GIS Data Portal (County of Orange 2016a). The U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) database (USDA/NRCS 2015a) and National Wetland Inventory (NWI) (USFWS 2016) were reviewed to identify the soil series and mapped wetlands that occur within the study area. Figure 4a shows the study area in relation to Hydrologic Unit Code (HUC) level 8 and level 10 watersheds, and Figure 4b shows them in relation to HUC-12 watersheds. Maps depicting the study area in relation to NHD drainages, NWI, and the Federal Emergency Management Agency (FEMA) 100- and 200-year flood zones are provided on Figures 6, 7, and 8, respectively.

## 2.2 Field Investigation

ICF biologists Lanika Cervantes, Lance Wooley, and Sarah Horwath conducted the jurisdictional waters and wetland delineation on June 28, June 30, and July 11, 2016.

The surveys were conducted on foot, and jurisdictional limits were recorded using high-resolution aerial photographs (1 inch=200 feet) and a sub-meter accuracy Trimble global positioning systems (GPS) unit. Existing conditions were documented as field notes and site photographs.

Common plant species observed were identified by visual characteristics and morphology in the field. Taxonomic nomenclature for plants follows the *Jepson Manual: Higher Plants of California* (Baldwin et. al. 2012).

### 2.2.1 USACE Jurisdiction

Potential waters of the U.S. and wetlands were delineated using methods established in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Determination Manual* (USACE 2008b). Non-wetland waters were delineated based on the presence of OHWM indicators. At each study area, several parameters were considered to determine whether the sample point is within a wetland. Three criteria normally must be fulfilled in order to classify an area as a

jurisdictional USACE wetland: (1) a predominance of hydrophytic vegetation, (2) the presence of hydric soils, and (3) the presence of wetland hydrology. The application of these techniques is described below.

- **Hydrophytic Vegetation:** The hydrophytic vegetation criterion is satisfied at a location if greater than 50% of all the dominant species present within the vegetation unit have a wetland indicator status of obligate (OBL), facultative wetland (FACW), or facultative (FAC) (Environmental Laboratory 1987). An OBL indicator status refers to plants that almost always occur in wetlands under natural conditions. A FACW indicator status refers to plants that usually occur in wetlands but are occasionally found elsewhere. A FAC indicator status refers to plants that are equally likely to occur in wetlands or elsewhere. An NI (no indicator) status designates that insufficient information was available to determine an indicator status. An NO (no occurrence) status indicates that the species does not occur in the region; when a plant with an NO status is found within a region, it usually indicates that the plant is ornamental. The wetland indicator status used for this report follows the National Wetland Plant List (Lichvar et al. 2016).
- **Hydric Soils:** The definition of 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 (USDA/NRCS 1994). This determination is made based on various field indicators detailed in the *Arid West Supplement* and the *Field Indicators of Hydric Soils in the United States (Version 7.0)* (USDA/NRCS 2010).
- **Wetland Hydrology:** Wetland hydrology is determined using indicators of inundation or saturation (flooding, ponding, or tidally influenced) detailed in the *Wetland Delineation Manual* and the *Arid West Supplement*.

Within areas that could potentially support wetlands, soil pits were dug to examine soil color and texture and determine the wetland boundary. Wetland Determination Forms are included as Attachment 3 to this report. A paired-pit technique was used (one sample point with wetland results paired with one sample point with non-wetland results, used to identify a wetland boundary).

### 2.2.2 State Jurisdiction

Evaluation of state jurisdiction followed guidance from Section 401 of the CWA and typically follows the same jurisdictional areas as USACE. In addition, the study area was reviewed for resources potentially regulated under the Porter-Cologne Act (i.e., isolated features). Isolated vernal pools, isolated wetlands, or other aquatic features not normally subject to federal regulation did not occur within the study area; therefore, no further evaluation was necessary.

### 2.2.3 CDFW Jurisdiction

CDFW jurisdiction typically includes water features with a defined bed and bank. Evaluation of potentially jurisdictional areas followed the guidance of standard practices by CDFW personnel. Briefly, CDFW jurisdiction was delineated by measuring outer width and length boundaries of potentially jurisdictional areas (lakes or streambeds), consisting of the greater of either the top of bank measurement or the extent of associated riparian or wetland vegetation.

Chapter 3
# Environmental Setting

The following section describes the topography and land use, hydrology, and soils associated with the study area.

## 3.1 Topography and Land Use

The study area occur in either flat valleys or along steep slopes with an elevation ranging from roughly 150 feet above mean sea level (AMSL) at the northern end near Laguna Niguel Regional Park, to approximately 600 feet AMSL at the southeastern end of Chapparosa Park (Google Earth 2016).

Land uses in the local vicinity of the study area include residential and commercial developments, undeveloped open space, and recreational uses such as pedestrian and bicycle trails, schools, and parks.

## 3.2 Hydrology

### 3.2.1 Precipitation

Average precipitation in Laguna Niguel is approximately 7.06 inches per year (The Weather Channel 2016). Table 3-1 summarizes the average precipitation by calendar month.

**Table 3-1. Rainfall Data Summary for the Study Area (in inches)**

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average | 2.9 | 3.4 | 2.0 | 0.9 | 0.3 | 0.1 | 0.1 | 0.0 | 0.3 | 0.7 | 1.1 | 2.4 | 14.2 |

Source: The Weather Channel. 2016. The Laguna Niguel weather monitoring station is located approximately 0.5 mile from the study area.

## 3.3 Watershed

The study area is within the following California watersheds: San Juan Hydrologic Unit, Laguna Hydrologic Area, and Aliso Hydrologic Subarea (901.13). The study area is also within the USGS Aliso Creek-Frontal Gulf of Santa Catalina hydrologic unit (HUC 10 code: 1807030103) (Figure 4a) and the following subwatersheds: Aliso Creek (HUC 12 code: 180703010301) and the Salt Creek/Dana Point Coastal Streams Watershed (HUC 12 code: 180703010302) (Figure 4b).

General information on these sub-watersheds is provided below.

### 3.3.1 Aliso Creek Watershed

The Aliso Creek 12-digit HUC encompasses approximately 35 square miles—made up of Aliso Creek and its tributaries— which has headwaters in Cleveland National Forest and eventually drains into the Pacific Ocean (Figure 4b). The dominant land uses in the watershed are urban (residential and commercial development), open space, and undeveloped (OC Watersheds 2016a).

More than half of the land area categorized as urban is composed of residential communities and commercial uses (OC Watersheds 2016a), and 75% of the watershed is considered developed (USACE and OC Watersheds 2009a). The most important watershed issues for Aliso Creek Watershed are related to the protection of water quality, addressing creek instability, the protection and restoration of sensitive wildlife and their habitats, and damages from flooding (Orange County 2006, USACE and OC Watersheds 2009b).

Within the study area, Sulphur Creek is considered a 303(d) listed waterbody for indicator bacteria, phosphorus, and toxicity. Receiving waters downstream, including Aliso Creek (for indicator bacteria, phosphorus, selenium, total nitrogen, and toxicity) and Aliso Creek Mouth (for indicator bacteria), are also listed (SWRCB 2015). Aliso Creek was included in the Beaches and Creeks Total Maximum Daily Loads (TMDL) for indicator bacteria approved by the San Diego Regional Water Quality Control Board (RWQCB 2010).

### 3.3.2 Salt Creek/Dana Point Coastal Streams Watershed

The Dana Point Coastal Streams Watershed, located south of the Aliso Creek Watershed and including Salt Creek, is part of the Salt Creek-Frontal Gulf of Santa Catalina 12-digit HUC (Figure 4b). All streams and their tributaries in these small watersheds eventually drain into the Pacific Ocean. Salt Creek and its tributaries comprise the majority of streams within the Dana Point Coastal Streams Watershed, which encompasses approximately 10.3 square miles (OC Watersheds 2016b). The Salt Creek Watershed encompasses approximately 6 square miles (County of Orange 2013)

The dominant land uses in the Dana Point Coastal Streams Watershed are urban, open space, agriculture, and undeveloped. Residential use accounts for more than half of the area in the watershed (OC Watersheds 2016b). The priority concern associated with the Salt Creek drainage is poor water quality at Salt Creek Beach related to inland runoff. Bacteria levels in Salt Creek during dry-weather flows are reduced by advanced stormwater treatment at the Salt Creek Ozone Treatment Facility, which has been in seasonal operation (generally May through October) since 2005 (County of Orange 2013).

None of the delineated features of the Dana Point Coastal Streams Watershed within the study area are considered 303(d) listed waterbodies. However, receiving waters downstream are listed, including the Pacific Ocean shoreline where Salt Creek outflows at Monarch Beach/Salt Creek Beach (for total coliform) (SWRCB 2015). This section of the Pacific Ocean shoreline at the outlet of Salt Creek was included in the Beaches and Creeks TMDL for indicator bacteria approved by the San Diego RWQCB (California RWQCB 2010)

# 3.4 Soils

## 3.4.1 Soil Series

The NRCS has mapped the following soil series as occurring within the study area that support jurisdictional waters based on the SSURGO database (USDA/NRCS 2015a).

- Alo
- Balcom
- Botella
- Calleguas
- Cropley
- Sorrento

The locations of the soils associated with the study area are shown on Figure 5. A description of all of the series included within the SSURGO mapping units is provided below based on the official soil descriptions provided by the USDA (USDA/NRCS 2016):

### 3.4.1.1 Alo

The Alo soil series consists of well-drained, moderately deep substrate that was formed by weathering of shale and sandstone. Alo soils occur in mountainous areas at elevations of 200 to 3,250 feet, with slopes of 2 to 75%. The typical soil texture is clay loam, silty clay, or clay, with low to very high runoff and slow permeability. Alo soils have a moderate extent and are located on the Coastal Range in central and southern California Mountains.

Wetland sites 1, 2, 5, 7, 8, 9, and10, and a portion of wetland site 13 (Figure 5—Sheets 1, 2, and 3) are located on Alo soils.

### 3.4.1.2 Balcom

The Balcom soil series consists of moderately deep, well-drained soils formed in material that weathered from soft, calcareous shale and sandstone. Balcom soils are located on rounded hills at elevations of 200 to 2,300 feet, with slopes of 5 to 75%. The typical soil texture is that of fine loam with silt, clay, fine sand, or coarser material. The series has low to high runoff and moderate to moderately slow permeability. Balcom soils have a moderate extent and are located on Coast Range Mountains in south-central California and on the west side of the Sacramento Valley.

Wetland sites 1, 3, and 12 (Figure 5—Sheet 1) are located on Balcom soils.

### 3.4.1.3 Botella

The Botella series consists of very deep, well-drained soils that occur on alluvial fans and valley bottoms. Botella soils occur at elevations from 50 to 2,100 feet, with slopes of 0 to 15%. The typical soil texture is fine loam with fragments. These soils have low to high runoff and

moderately slow permeability. Botella soils have a moderate extent and are located in coastal valleys of central and southern California.

Wetland sites 1, 7, 8, and 10, and a portion of wetland site 13 (Figure 5—Sheets 1, 2, and 3) are located on Botella soils.

#### 3.4.1.4 Calleguas

The Calleguas series consists of very shallow and shallow, well-drained soils that occur on exposed and often eroded south-facing slopes. They formed in material weathered from sandstone, shale, and mudstone. Calleguas soils occur at elevations from 100 to 2,800 feet, with slopes of 9 to 75%. The typical soil texture is loam, clay loam, silty clay loam, channery loam, channery clay loam, or channery silty clay loam, with medium or high runoff and moderate permeability. Calleguas soils have a large extent in the Coastal Range of central and south-central California.

Wetland sites 5, 6, and 11, and a portion of wetland site 13 (Figure 5—Sheets 2 and 3) are located on Calleguas soils.

#### 3.4.1.5 Cropley

The Cropley series consists of very deep, moderately well- and well-drained soils that occur on alluvial fans, floodplains, and small basins. They formed in alluvium from mixed rock sources. Cropley soils occur at elevations from 10 to 2,100 feet, with slopes of 0 to 15%. The typical soil texture is heavy clay loam, silty clay loam, silty clay or clay, with medium or high runoff and moderate permeability. Cropley soils have a moderate extent in Central California coastal valleys and Southern California coastal plain.

Wetland site 12 and a portion of wetland site 13 (Figure 5—Sheets 1 and 3) are located on Cropley soils.

#### 3.4.1.6 Sorrento

The Sorrento series consists of very deep, well-drained soils that occur on alluvial fans and stabilized floodplains. They formed in alluvium from sedimentary rock sources. Sorrento soils occur at elevations from 25 to 2,100 feet, with slopes of 0 to 15%. The typical soil texture is fine loam, with negligible to medium runoff and moderate to moderately slow permeability. Cropley soils have a large extent in the valleys and southern half of the California Coastal Range.

Wetland sites 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12 (Figure 5—Sheets 1, 2, and 3) are located on Sorrento soils.

### 3.4.2 Hydric Soil Types

None of the soil series that occur within the study area are listed as hydric soils (USDA/NRCS 2015b).

# Chapter 4
# Jurisdictional Delineation Results

The following describes the delineated features and expected jurisdictional status within the study area. This report documents existing conditions within the study area.

The information and results included herein document the investigation, best professional judgment, and conclusions of ICF. It is correct and complete to the best of our knowledge. However, all jurisdictional determinations should be considered preliminary until reviewed and approved by the regulatory agencies.

Detailed information, including maps of the features delineated within the study area, photographs, and Wetland Determination Forms are provided in the following attachments.

- Attachment 1 provides figures of the delineated features and the study area. Figure 9 shows USACE/RWQCB and CDFW jurisdictional delineation results.
- Attachment 2 contains photographs.
- Attachment 3 contains Wetland Determination Forms.

## 4.1 Delineated Feature Description

A detailed description of the delineated features within each wetland site is provided below. Jurisdictional delineation figures depicting the delineated features and sample points are provided in Attachment 1 as Figure 9—Sheets 1 through 10. All of the wetland sites supported a jurisdictional water and are shown on the map sheets.

**1 – West Wetland.** Site 1 contains a portion of Sulphur Creek, a perennial drainage, that flows north through the site along Alicia Parkway eventually flowing outside of the wetland site to an unnamed tributary to Aliso Creek (Figures 2 and 9—Sheet 2). The drainage supports OHWM indicators and adjacent wetlands within the wetland site. There are several small concrete outfalls that collect runoff from the surrounding hillside to the west and direct flow into this drainage as it proceeds northward.

Surface water was present within the low-flow channel, which varies from approximately 1 feet to 2 feet wide, and is confined by short sharp banks and dense vegetation. Hydrology indicators observed include surface cracks, saturation, oxidized rhizospheres along living roots, and FAC-neutral pass. Dominant vegetation at this site included Mexican rush (*Juncus mexicanus*), chairmaker's club-rush (*Schoenoplectus americanus*), salt grass, Yerba Mansa (*Anemopsis californica*), and mule's-fat (*Baccharis salicifolia*). Vegetation in the adjacent upland area included coyote brush (*Baccharis pilularis*), California rose (*Rosa californica*), and salt grass.

**2 – East Wetland.** Site 2a is short, intermittent drainage that collects runoff from surrounding development (Figure 9—Sheet 2). Surface water, when present, appears to settle in a ponded area before flowing into a concrete stormwater collection ditch that transports flow to the north. The site supports wetland habitat and CDFW riparian within the wetland site.

Hydrology indicators included saturation and high water table. Wetland vegetation was dominated by club-rush and arroyo willow. Ice plant (*Carpobrotus edulis*), coyote brush, and arroyo willow were also present in surrounding upland/riparian areas.

**3 – North Wetland.** Site 3is a network of six artificial treatment basins linked by small over-flow channels, located on the eastern side of Alicia Parkway within the wetland site (Figure 9—Sheet 2). A small (approximately 4-foot-wide) concrete box culvert contributes water to the most upstream basin in the southeastern corner of the wetland site.

North wetland supports wetland habitat and CDFW riparian. Surface water was present within some basins as well as water marks, water stained leaves, and hydrogen sulfide odor. The basins have wetland/riparian vegetation with a nearly closed canopy, dominated by arroyo willow and black willow. Herbaceous vegetation was dominated by club-rush. Adjacent riparian/upland habitat also had sandbar willow (*Salix exigua*, FACW), arroyo willow, and coyote brush.

**4 – Crown Valley Park Wetland Creation Area (J03P01).** Site 4 is a perennial segment of Sulphur Creek that flows northeast through the wetland site within the Crown Valley Community Park grounds to its confluence with another segment of Sulphur Creek. The wetland is bound on the southern edge by a large concrete culvert and concrete low flow channel, and on the northern edge by a pedestrian bridge that crosses the drainage (Figure 9—Sheet 6). The drainage crosses Community Park Road through a bridge structure consisting of three large culverts.

Surface water was present, and vegetation along the upstream portion of Site 4 was dominated by arroyo willow and also included watercress (*Nasturtium officinale*, OBL) and small matted sandmat (*Euphorbia serpens*, FACU). Vegetation in the adjacent riparian/upland area included arroyo willow, small matted sandmat, Bermuda grass (*Cynodon dactylon*, FACU), and tall flatsedge. The downstream portion of Site 4 had surface water present, but all riparian vegetation had been removed prior to the site visit due to construction activities. Remaining herbaceous vegetation included Bermuda grass, tall flatsedge, and cattails. Non-wetland segments of this wetland site consisted of the concrete portions of the drainage.

**5 – Sulphur Creek Park Wetland Enhancement Area.** Site 5 is Sulphur Creek that runs between Crown Valley Parkway and adjacent residential development within the wetland site (Figure 9—Sheet 5). This drainage supports OHWM indicators and wetland habitat. CDFW riparian is present along the drainage, and CDFW streambed was mapped where the stream enters a large concrete culvert with bank protection. Within the wetland site, Sulphur Creek is a small, approximately 4-foot-wide channel that flows southeast toward Crown Valley Community Park. There is a large concrete box culvert at the southern edge of the wetland site, and there is a concrete and riprap velocity control structure approximately halfway upstream in the reach of Site 5.

Surface water was present in the low flow channel. Hydrology indicators included drift deposits and drainage pattern. Riparian vegetation was dominated by arroyo willow, and no herbaceous understory was present.

**6 – Sulphur Creek Creation Area at Crown Valley.** Site 6 is a high flow channel and associated braided channels of Sulphur Creek (Figure 9—Sheet 6). The site supports OHWM indicators, adjacent wetland habitat, and CDFW riparian. This portion of the Sulphur Creek drainage flows in a northerly direction toward Aliso Creek.

Riparian vegetation is dominated by arroyo willow, and herbaceous vegetation is dominated by club-rush. Hydrology indicators present included sediment deposits, drift deposits, and desiccated aquatic invertebrates found in the soil sample.

**7 – Rancho Niguel Upper Sulphur Creek.** Site 7 is a section of Sulphur Creek that runs between Crown Valley Parkway and adjacent residential development, and is approximately bisected by Street of the Golden Lantern (Figure 9—Sheet 3). This drainage has been restored from previous concrete channelization and supports OHWM indicators, wetland habitat, and CDFW riparian. Within the wetland site, Sulphur Creek has a small, approximately 4-foot-wide low-flow channel that flows southeast. There are four large concrete box culverts through which the stream passes: at the northern edge of the wetland site, at the upstream and downstream ends of the Street of the Golden Lantern road crossing, and at the southern edge of the wetland site.

Surface water was present in the channel; in addition, the following hydrology indicators were observed: high water table, soil saturation, riverine sediment deposits, and riverine drift deposits. Riparian vegetation along Site 7 was dominated by arroyo willow, which formed a closed canopy and nearly excluded herbaceous vegetation.

**8 – Crown Royale Upper Sulphur Creek.** Site 8 is a section of Sulphur Creek that runs between Crown Valley Parkway and adjacent residential development (Figure 9—Sheet 4). This drainage has been restored from previous concrete channelization and supports OHWM indicators, wetland habitat, and CDFW riparian. Within the wetland site, Sulphur Creek is a small, approximately 4-foot-wide low-flow channel that flows southeast. At the northern end of the wetland site, there is a large concrete box culvert and concrete apron through which the stream passes inside a shallow low-flow channel as it exits under Nueva Vista Road. There is a concrete outfall and velocity-dissipating structure within the channel near the intersection of Crown Valley Parkway and Adelanto Road. At the southern edge of the wetland site, the stream enters another large concrete box culvert when it passes under La Paz Road.

Surface water was present in the channel; in addition, the following hydrology indicators were observed: high water table, saturation, and hydrogen sulfide odor. Wetland vegetation was dominated by Yerba Mansa, cattails, and salt grass.

**9 – Niguel Ridge Upper Sulphur Creek.** Site 9 is a section of Sulphur Creek that runs between Crown Valley Parkway and adjacent residential development (Figure 9—Sheet 5). This drainage has been restored from previous concrete channelization and supports OHWM indicators, wetland habitat, and CDFW riparian. Within the wetland site, Sulphur Creek is a small, approximately 4-foot-wide low-flow channel that flows southeast. At the northern end of the wetland site, there is a large concrete box culvert and concrete apron through which the stream passes inside a shallow low-flow channel as it exits under La Paz Road. The site is approximately bisected by La Plata Road, which crosses over the drainage where the stream

runs through a large concrete box culvert that is flanked on both sides by a concrete apron with a low-flow concrete channel.

Surface water was present in the channel; in addition, the following hydrology indicators were observed: riverine drift and sediment deposits. Riparian vegetation was dominated by arroyo willow. Herbaceous vegetation was dominated by alkali heath.

**10 – USACE Sulphur Creek Restoration Area.** Site 10 is a section of Sulphur Creek. The wetland site is located along a trail and bike path within the Crown Valley Community Park grounds (Figure 9—Sheet 6). This drainage currently supports OHWM indicators, wetland habitat, and CDFW riparian. Within the wetland site, Sulphur Creek is a small, approximately 6- to 8-foot-wide channel that flows north. The site is bound by a pedestrian bridge at the southern end and by a concrete channelization at the northern end where Sulphur Creek runs adjacent to the South Orange County Wastewater Authority Regional Treatment Plant.

Surface water was present in the channel; in addition, the following hydrology indicators were observed: riverine sediment and drift deposits. Riparian vegetation was dominated by arroyo willow and mule's-fat. Herbaceous vegetation was dominated by Yerba Mansa. The larger floodplain present in this area is approximately 100 feet wide.

**11 – Sulphur Creek in Crown Valley Park.** Site 11 is a section of Sulphur Creek (Figure 9—Sheet 6). Within the wetland site, the drainage supports OHWM indicators, wetland habitat, and CDFW riparian. Within the wetland site, Sulphur Creek supports a small approximately 5-foot-wide low-flow channel that flows west.

Surface water was present; in addition, the following hydrology indicators were observed: riverine sediment and drift deposits. Riparian vegetation was dominated by arroyo willow. Herbaceous vegetation was dominated by a mix of garden celery (*Apium graveolens*, NL), great plantain (*Plantago major*, FAC), white sweetclover, and alkali bulrush (*Bolboschoenus maritimus*, NL).

**12 – La Paz Park Wetlands.** Site 12 consists of an unnamed tributary to Sulphur Creek, a small side drainage channel, and one additional basin feature (Figure 9—Sheet 1). The drainage supports OHWM indicators, wetland habitat, and CDFW riparian. Within the wetland site, the unnamed tributary is a small, approximately 6-foot-wide channel that flows west and is incised within steep banks. The stream exits a large concrete culvert with concrete slope protection as it passes under the La Paz Road past the eastern end of the wetland site. The small drainage channel is fed from a concrete outfall located at the eastern end and drains to the unnamed tributary through a culvert on its western end. The basin feature, located northwest of the stream features, flows to the unnamed tributary at high flows. It is fed by two concrete outfall structures on its northern and western sides, and drains through a concrete culvert on the southern side.

Surface water was present in the channel; in addition, the following hydrology indicators were observed: riverine drift deposits, riverine sediment deposits, and FAC-neutral test pass. Riparian vegetation was dominated by black willow and blackberry (*Rubus ursinus*, FAC).

**13 – Salt Creek Restoration Area.** Site 13 consists of Salt Creek, a perennial stream, primarily fed by urban runoff from irrigation. Within the western portion of the wetland site, this drainage supports OHWM indicators, wetland habitat, and CDFW riparian. Riparian vegetation is dominated by arroyo willow (*Salix lasiolepis*, FACW), and the herbaceous layer is dominated by cattails (*Typha domingensis*, OBL) and California bulrush (*Schoenoplectus californicus*, OBL). At the southern end of wetland site, adjacent to the concrete culvert under Niguel Road, the channel widens at a large ponded area, and riparian vegetation is limited to cattails, without substantial canopy cover.

Surface water was present across the width of the channel of the drainage. The channel was sharply incised, with an approximately 4-foot-high drop separating the active channel from upland habitat.

Six non-wetland tributaries to Salt Creek were also delineated within this wetland site. All tributaries are first-order ephemeral drainages and are steeply incised due to the steep topography of the area. These tributaries are dominated by upland grasses and coastal sage scrub species; no hydrophytic vegetation was observed.

## 4.2 Delineation Results Summary

A total of 18.47 acres/29,564 linear feet of waters of the U.S. is present within the study area. Of this, 16.802 acres are wetland waters of the U.S. and 1.664 acres linear feet are non-wetland waters of the U.S. In addition, there are 44.44 acres/29,564 linear feet of waters of the state within the study area. Of this, 4.478 acres are CDFW streambed and 40.962 acres are CDFW riparian. All drainages delineated within the study area are subject to USACE, RWQCB, and CDFW jurisdiction. Table 4-1 contains jurisdictional summaries for each drainage.

Salt Creek is a Relatively Permanent Water, while the unnamed tributaries to Salt Creek are non-Relatively Permanent Waters. Salt Creek flows directly into the Pacific Ocean approximately 2.5 miles downstream of the study area. Sites 1 through 12 include Sulphur Creek and its unnamed tributaries. Sulphur Creek is a tributary to Aliso Creek, which flows directly to the Pacific Ocean approximately 5 miles downstream of the study area. Therefore, all drainages delineated are subject to regulation under Sections 404 and 401 of the CWA and CDFW jurisdiction under Sections 1600–1616 of the California Fish and Game Code.

**Table 4-1. Jurisdictional Delineation Summary**

| | | USACE/RWQCB | | CDFW | |
|---|---|---|---|---|---|
| **Feature** | **Linear Feet** | **Non-wetland Waters (Acres)** | **Wetland Waters (Acres)** | **Streambed (Acres)** | **Riparian (Acres)** |
| 1 – West Wetland | 2,734 | – | 1.965 | 0.017 | 4.885 |
| 2 – East Wetland | 636 | – | 0.395 | – | 1.028 |
| 3 – North Wetland | 326 | – | 0.253 | – | 0.635 |
| 4 – Crown Valley Park Wetland Creation Area/J03P01 | 1,940 | – | 1.075 | 00.489 | 3.352 |
| 5 – Sulphur Creek Park Wetland Enhancement Area | 790 | 0.018 | 0.558 | 0.044 | 1.343 |
| 6 – Sulphur Creek Creation Area at Crown Valley | 204 | – | 0.422 | – | –0.621 |
| 7 – Rancho Niguel Upper Sulphur Creek | 3,391 | 0.147 | 3.510 | 0.380 | 8.262 |
| 8 – Crown Royale Upper Sulphur Creek | 1,527 | 0.032 | 0.884 | 0.288 | 2.174 |
| 9 – Niguel Ridge Upper Sulphur Creek | 1,786 | 0.068 | 0.432 | 0.587 | 1.170 |
| 10 - USACE Sulphur Creek Restoration Area | 1,791 | – | 1.913 | 0.248 | 5.412 |
| 11 – Sulphur Creek in Crown Valley Park | 555 | – | 0.641 | – | 1.042 |
| 12 – La Paz Park Wetlands | 748 | – | 0.269 | – | 1.167 |
| 13. Salt Creek Restoration Area | 13,136 | 1.399 | 4.484 | 2.426 | 9.876 |
| **Total** | **29,564** | **1.664** | **16.802** | **4.478** | **40.962** |

# 4.3 List of Delineators and Report Preparers/Reviewer

Lanika Cervantes, Regulatory Specialist/Biologist-Delineator – Report Preparer/Senior Review

Sarah Horwath, Biologist – Delineator/Report Preparer

Lance Wooley, Biologist/Botanist – Delineator/Report Preparer

Brad Stein – GIS Specialist

# Chapter 5
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Attachment 1

# Figures




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**Figure 1**
**Vicinity Map**
**Laguna Niguel Wetlands O&M Activities**

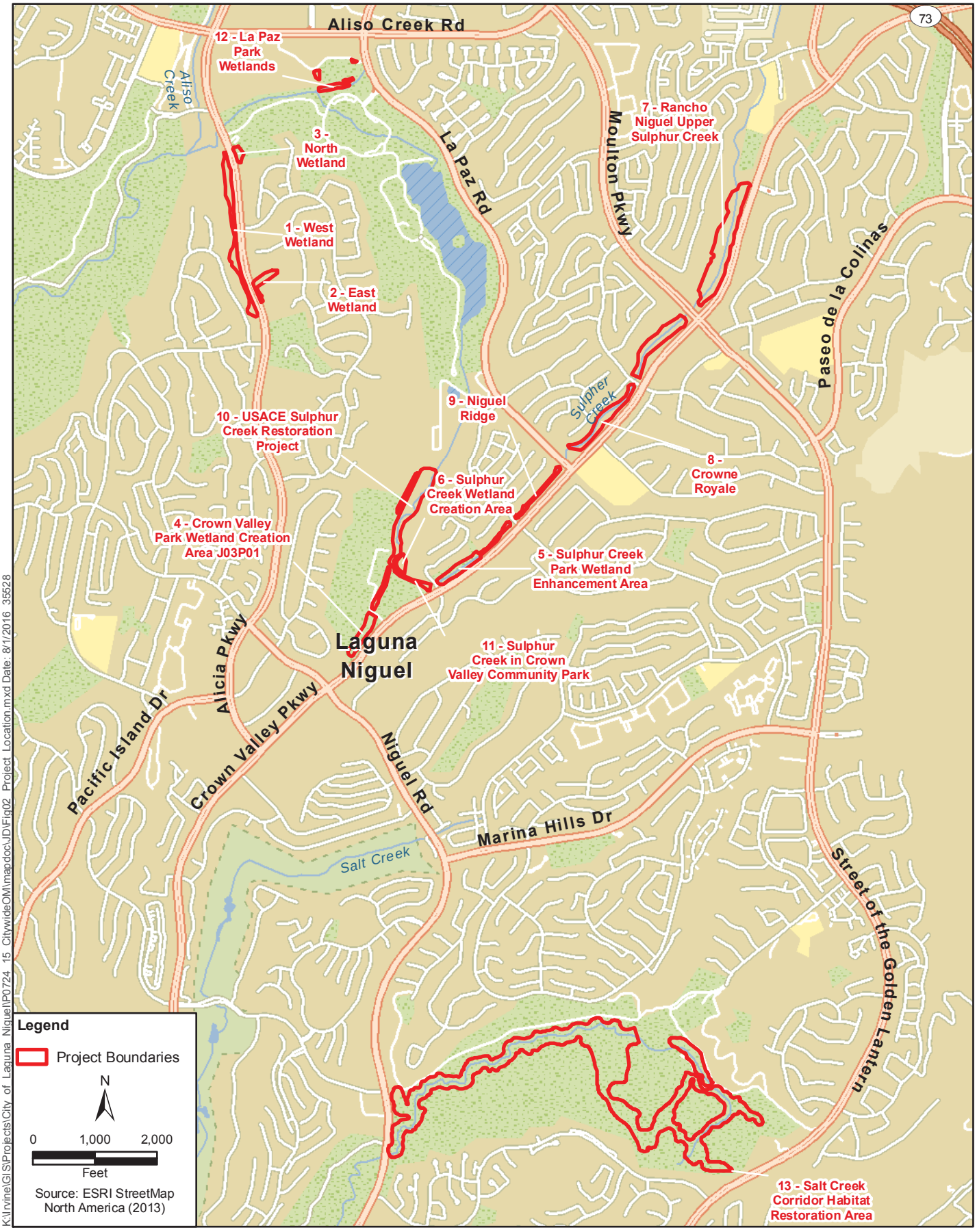


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**Figure 2**
**Project Location**
**Laguna Niguel Wetlands O&M Activities**

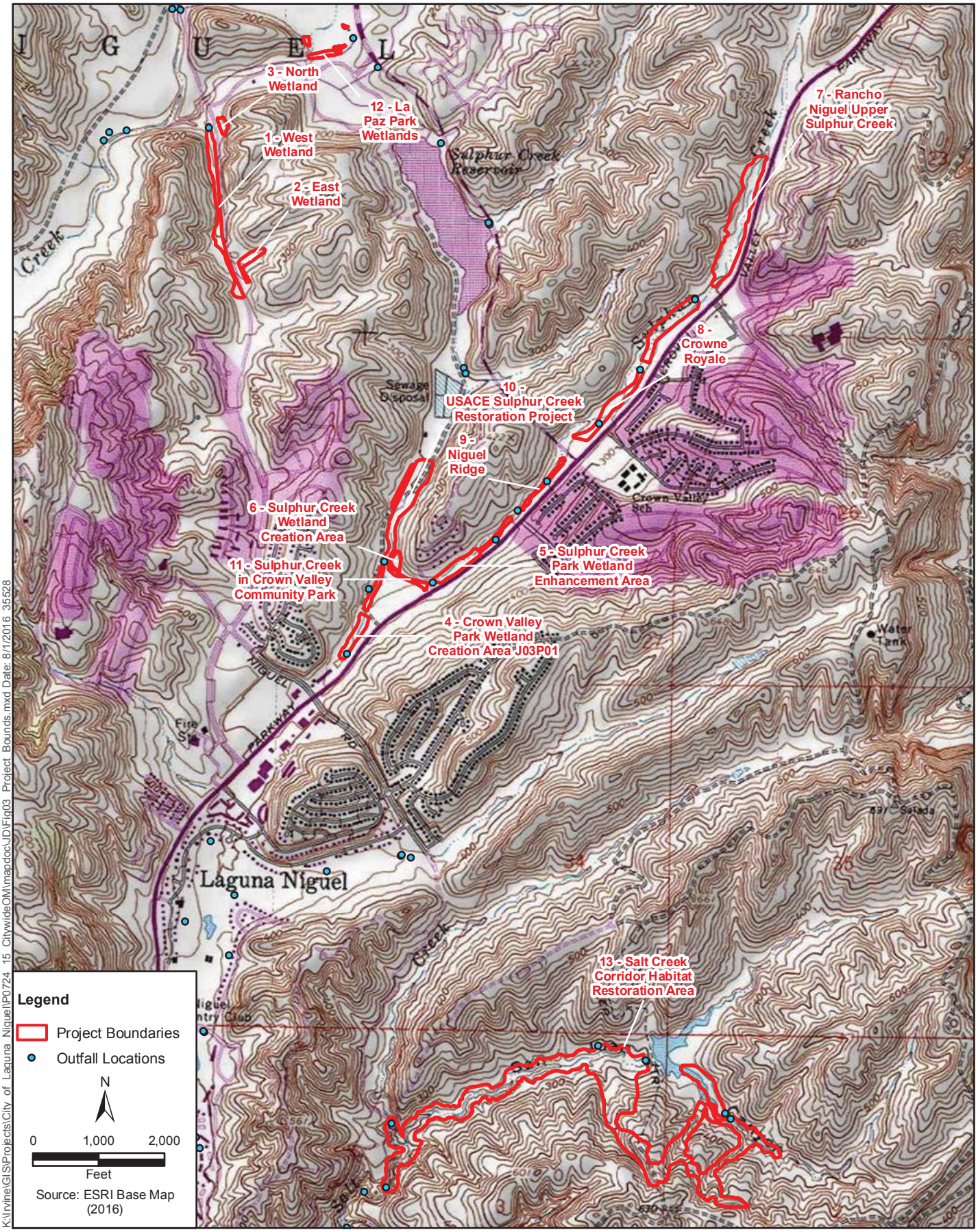


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**Figure 3**
**Project Boundaries USGS (San Juan Capistrano Quad)**
**Laguna Niguel Wetlands O&M Activities**




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**Figure 4a**
**HUC 8 & 10 Watersheds**
**Laguna Niguel Wetlands O&M Activities**

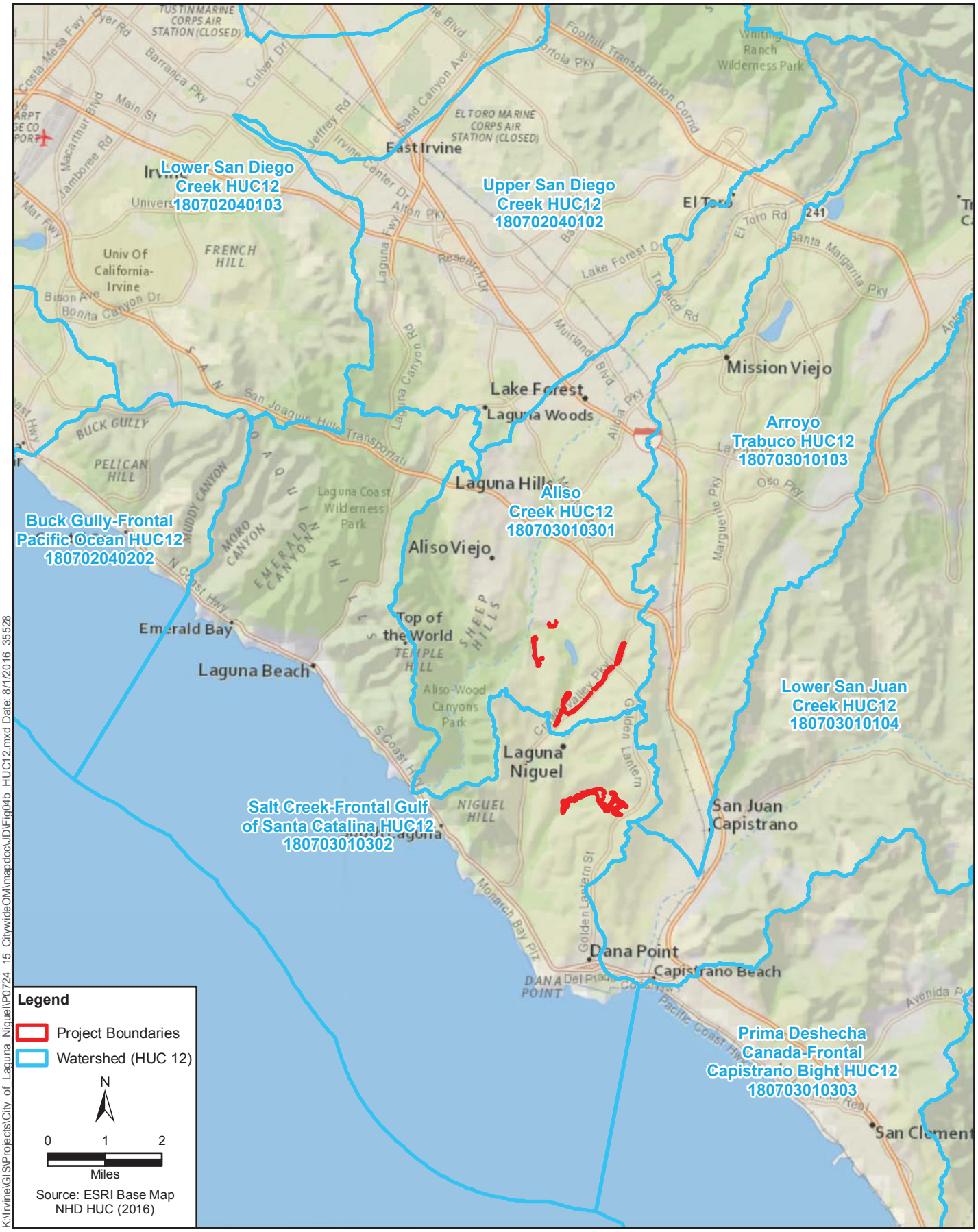


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**Figure 4b**
**HUC 12 Watersheds**
**Laguna Niguel Wetlands O&M Activities**

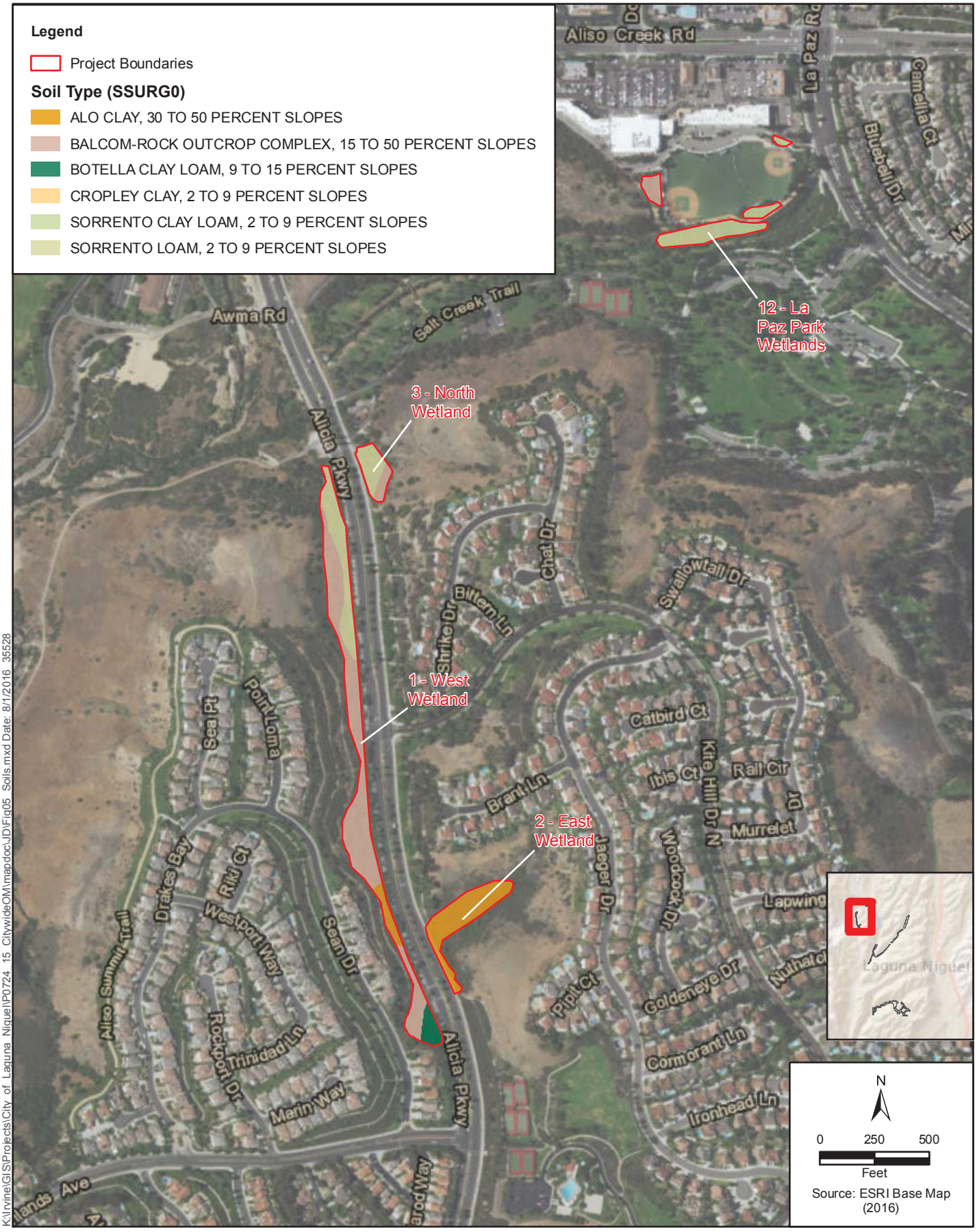


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**Figure 5 Sheet 1**
**Soils**
**Laguna Niguel Wetlands O&M Activities**

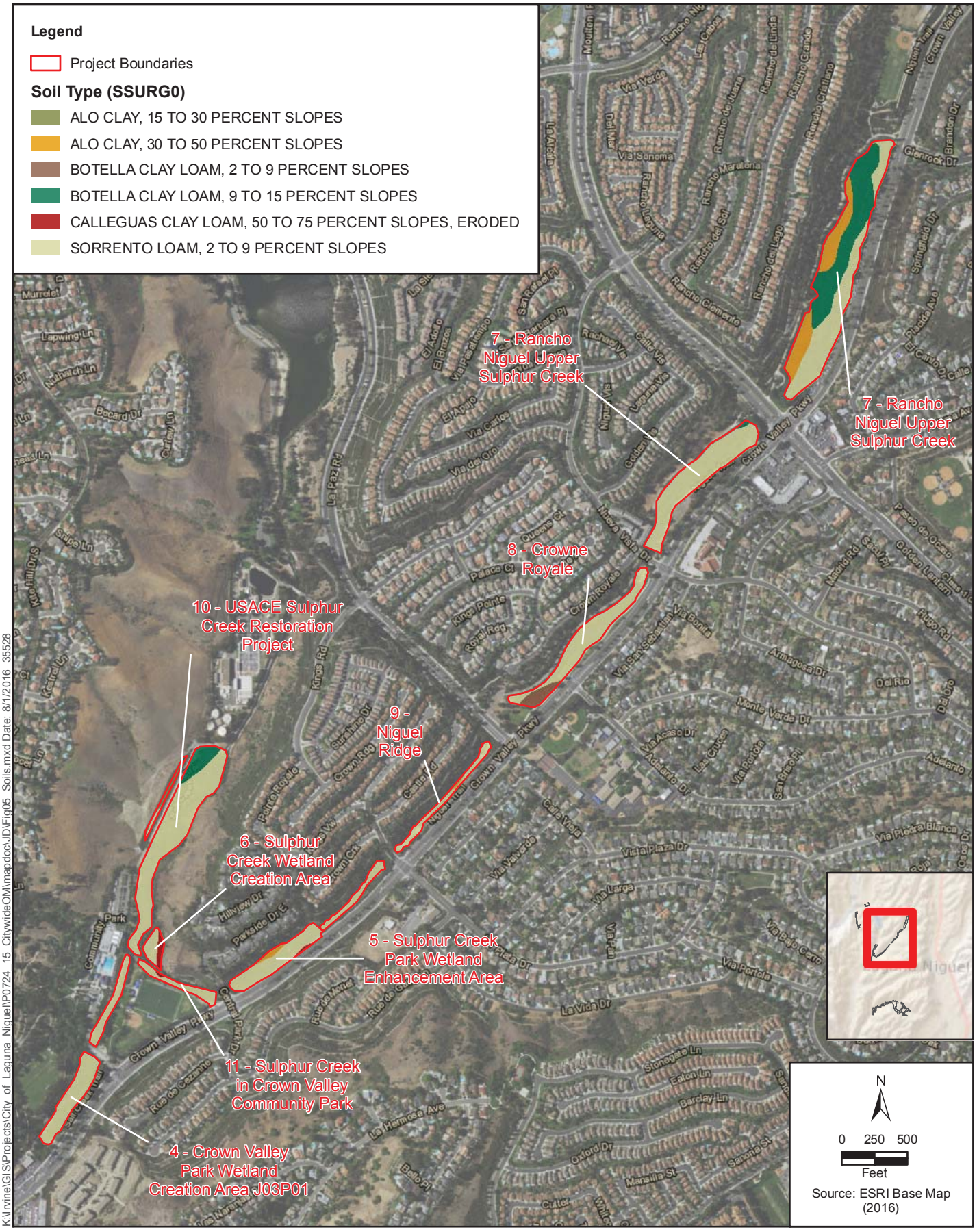


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**Figure 5 Sheet 2**
**Soils**
**Laguna Niguel Wetlands O&M Activities**

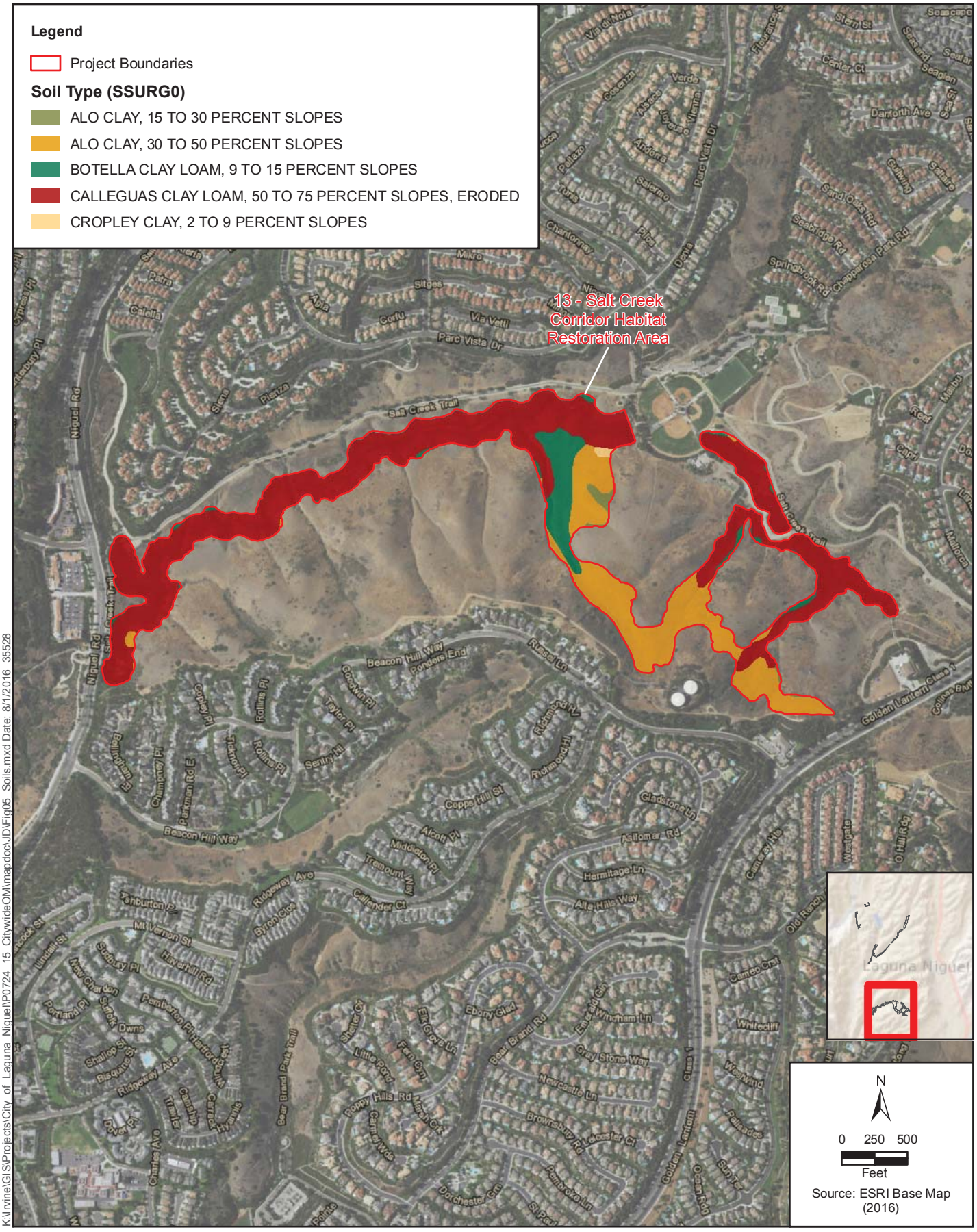


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**Figure 5 Sheet 3**
**Soils**
**Laguna Niguel Wetlands O&M Activities**

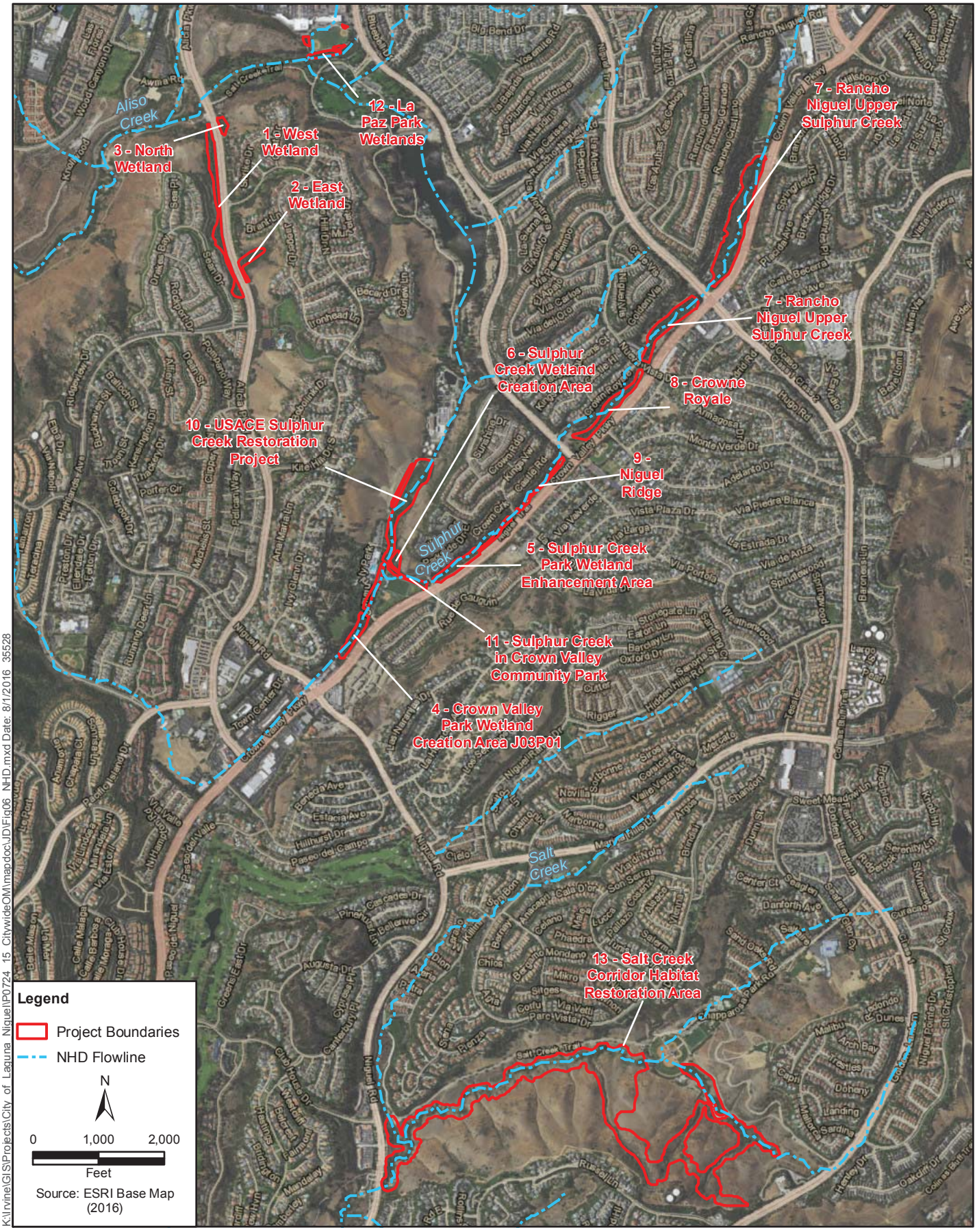


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**Figure 6**
**National Hydrologic Dataset (NHD)**
**Laguna Niguel Wetlands O&M Activities**




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**Figure 7 Sheet 1**
**National Wetlands Inventory (NWI)**
**Laguna Niguel Wetlands O&M Activities**

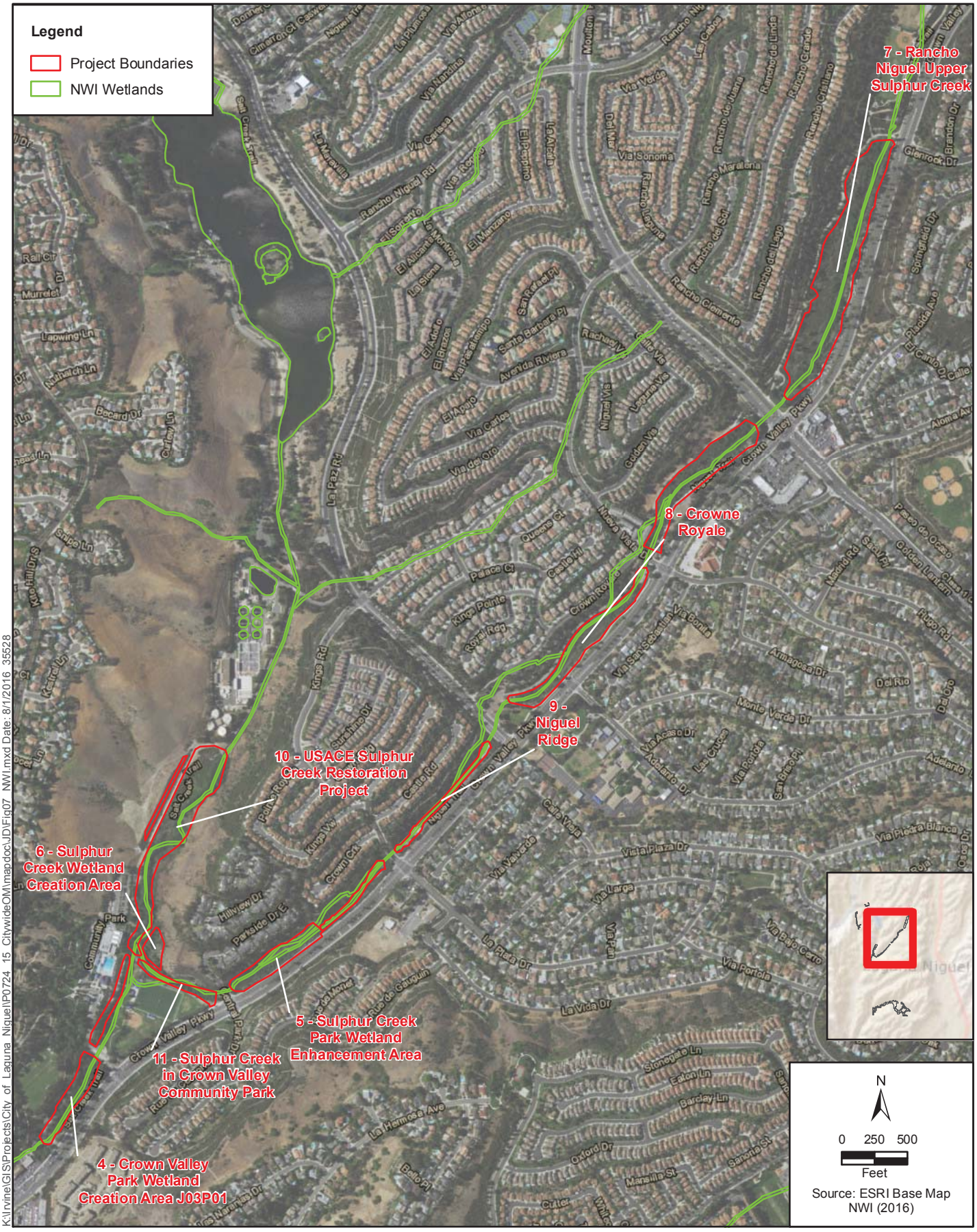


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**Figure 7 Sheet 2**
**National Wetlands Inventory (NWI)**
**Laguna Niguel Wetlands O&M Activities**




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**Figure 7 Sheet 3**
**National Wetlands Inventory (NWI)**
**Laguna Niguel Wetlands O&M Activities**

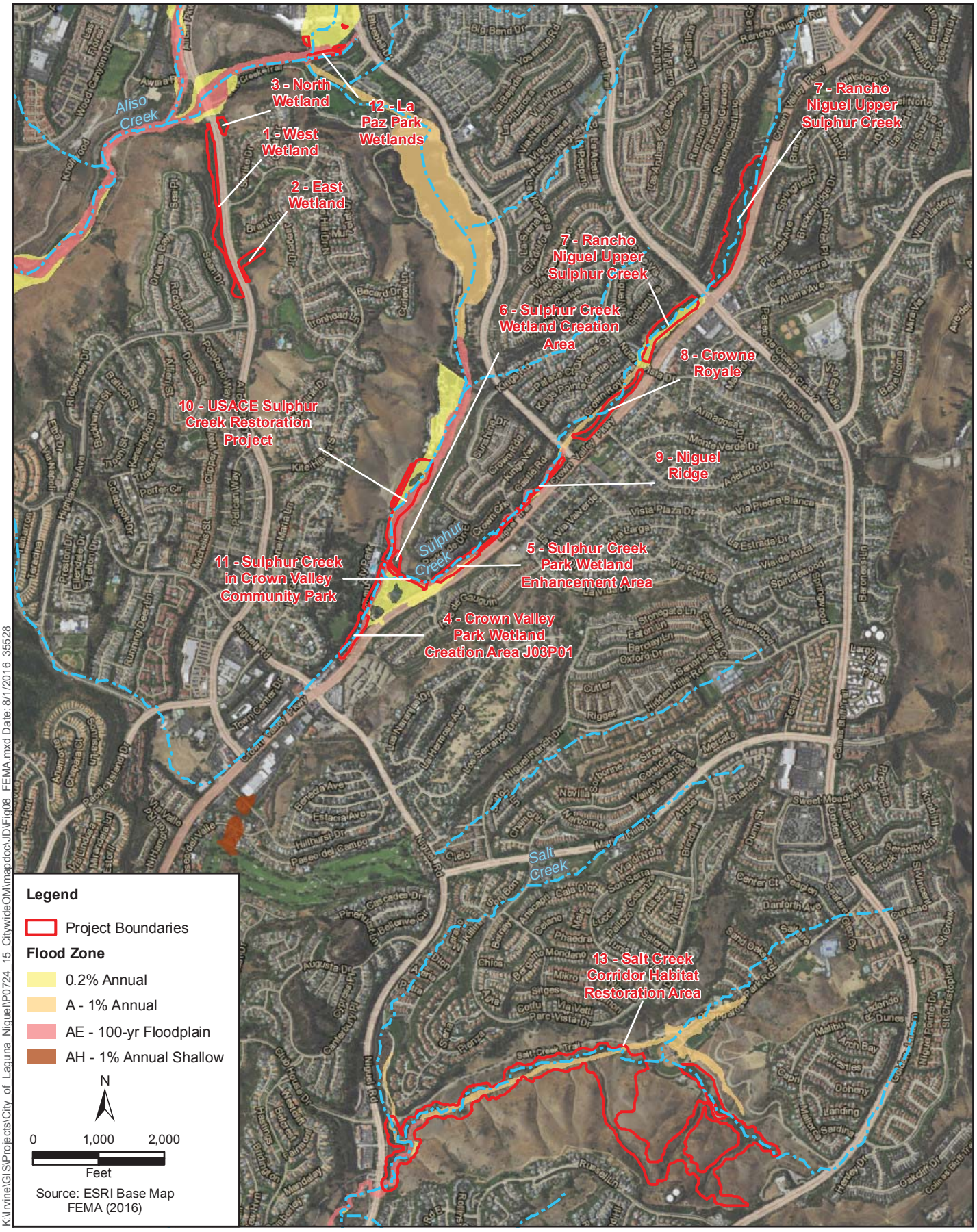


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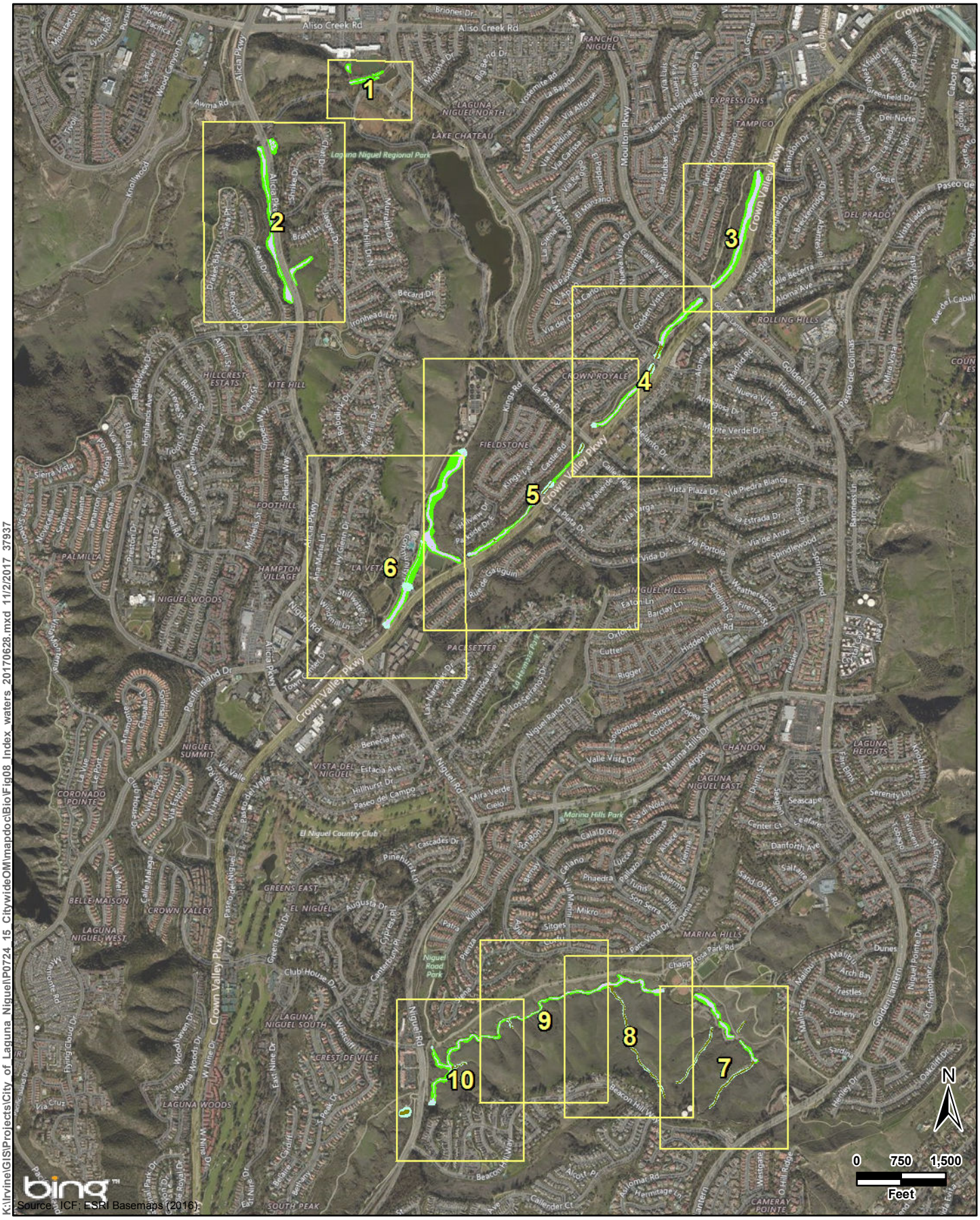
**Figure 8**
**FEMA Flood Zones**
**Laguna Niguel Wetlands O&M Activities**

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**Legend**

| Waters of the U.S. and State | Waters of the State |
|---|---|
| Nonwetland | Riparian |
| Wetland | Streambed |

**Figure 9 Index Sheet**
**Jurisdictional Delineation Results**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 1**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 2**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 3**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 4**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 5**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 6**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 7**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**

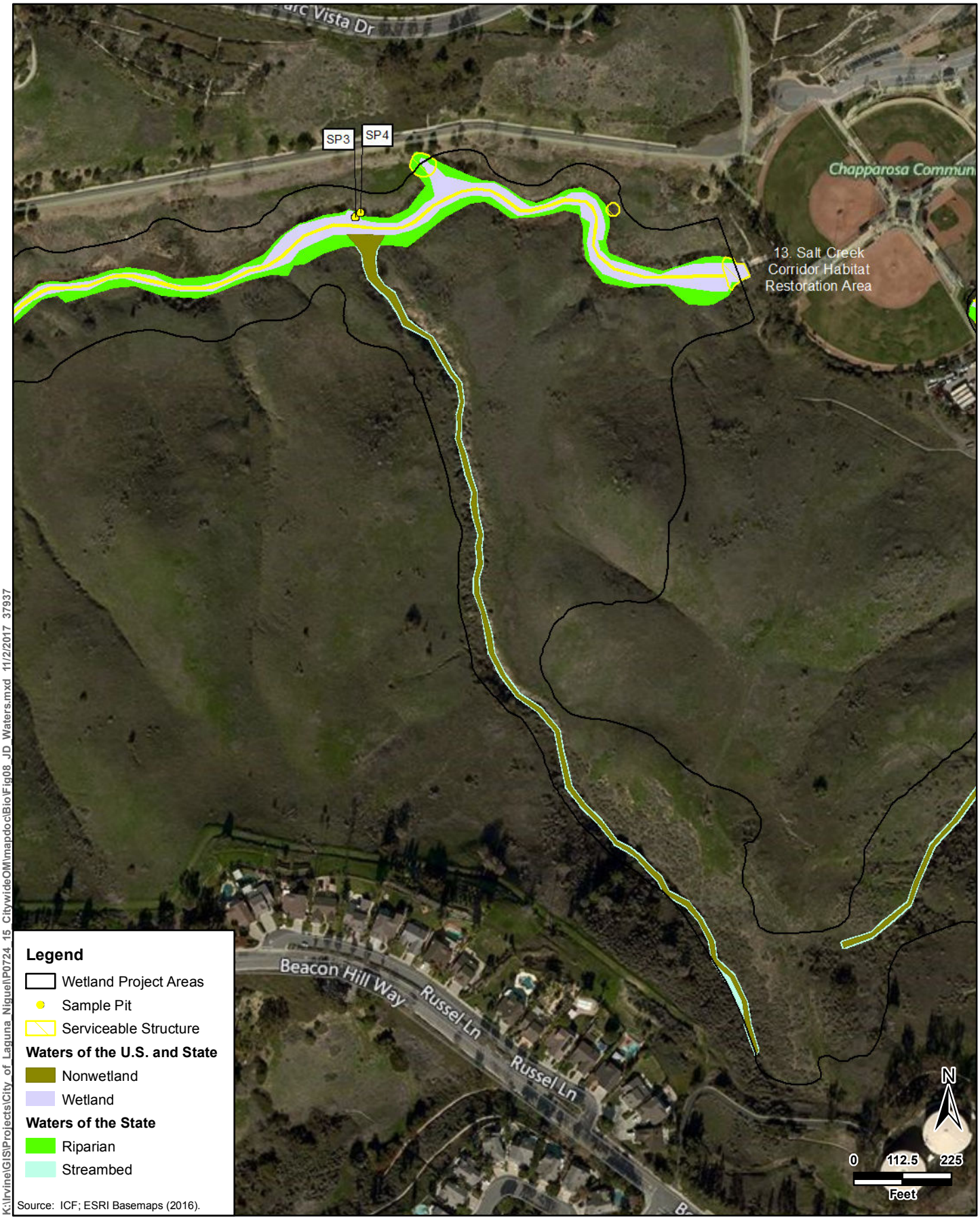


**Figure 9 Sheet 8**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 9**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 10**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**

Attachment 2

# Site Photographs, June and July 2016



Site 1. West Wetland. View of Sample Point 9.



Site 1. West Wetland. View of Sample Point 10, riparian habitat ends near the sidewalk.



Site 2. East Wetland. View of Sample Point 11, majority of wetland understory is freshwater marsh habitat.



Site 3. North Wetland. View of Sample Point 7 within one of the man-made basins. Basins typically have fringe wetlands with sparse vegetation within the center.



Site 3. North Wetland. View of Sample Point 8 along paths that occur in-between the basins.



Site 4. Crown Valley Park Wetland Creation Area/J03P01. View of Sample Point 30.



Site 5. Sulphur Creek Park Wetland Enhancement Area. View of Sample Point 27, site is fully vegetated area.



Site 6. Sulphur Creek Creation Area at Crown Valley. View of Sample Point 24 within the wetland floodplain.



Site 7. Rancho Niguel Upper Sulphur Creek. View of Sample Point 13 within the wetland floodplain. Area dominated by riparian/wetland canopy.



Site 7. Rancho Niguel Upper Sulphur Creek. View of Sample Point 15 near the low-flow channel.



Site 8. Crown Royale Upper Sulphur Creek. View of Sample Point 17 within the wetland floodplain.



Site 9. Niguel Ridge Upper Sulphur Creek. View of Sample Point 19 near the low-flow channel.



Site 10. USACE Sulphur Creek Restoration Area. View of Sample Point 22 taken within wetland waters.



Site 10. USACE Sulphur Creek Restoration Area. View of Sample Point 21 taken within outer floodplain CDFW riparian areas.



Site 11. Sulphur Creek in Crown Valley Park. View of Sample Point 25 taken within wetland waters.



Site 12. La Paz Park Wetlands. View of Sample Points 5 and 6 taken near edge of wetland limits.



Site 12. La Paz Park Wetlands. View of one of the fully vegetated basins.



Site 13. Salt Creek Restoration Area. View of Sample Points 1 and 2 taken near edge of wetland limits. Steep drop to drainage.




Site 13. Salt Creek Restoration Area. View of Sample Point 3. Steep hillside along northern edge. Small terrace area supporting wetlands near main channel.




Site 13. Salt Creek Restoration Area. View of non-wetland tributaries that flow directly into Salt Creek.




Site 13. Salt Creek Restoration Area. View of non-wetland tributaries that flow directly into Salt Creek.

Attachment 3

# Wetland Determination Forms

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Salt Creek City/County: Laguna Niguel/Orange County Sampling Date: 06/28/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP1

Investigator(s): Lanika Cervantes, Sarah Horwath, Lance Wood Section, Township, Range: T8S R8W

Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 33.50773 Long: -117.706471 Datum: NAD 1963

Soil Map Unit Name: Calleguas Clay Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (●) No ( ) |
| Wetland Hydrology Present? | Yes (●) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 20 | Yes | FACW |
| 2. *Ailanthus altissima* | 5 | Yes | FACU |
| 3. | | | |
| 4. | | | |
| Total Cover: | 25 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Typha domingensis* | 35 | Yes | OBL |
| 2. *Schoenoplectus californicus* | 10 | No | OBL |
| 3. *Melilotus albus* | 3 | No | FACU |
| 4. *Helminthotheca echioides* | 3 | No | FAC |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 51 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 24 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 45 | x 1 = | 45 |
| FACW species | 20 | x 2 = | 40 |
| FAC species | 3 | x 3 = | 9 |
| FACU species | 8 | x 4 = | 32 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 76 (A) | | 126 (B) |

Prevalence Index = B/A = 1.66

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP1

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| N/A | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks: No soil pit sample was taken. Soils were assumed to be hydric due to surface water present during dry season.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☒ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 4

Water Table Present? Yes ◉ No ○ Depth (inches): Surface

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): Surface

**Wetland Hydrology Present?** Yes ◉ No ○

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

Remarks:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Salt Creek | City/County: Laguna Niguel/Orange County | Sampling Date: 06/28/2016

Applicant/Owner: City of Laguna Niguel | State: CA | Sampling Point: SP2

Investigator(s): Lanika Cervantes, Sarah Horwath, Lance Wood | Section, Township, Range: T8S R8W

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 10

Subregion (LRR): C - Mediterranean California | Lat: 33.507762 | Long: -117.706501 | Datum: NAD 1963

Soil Map Unit Name: Calleguas Clay Loam | NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area within a Wetland?** Yes ( ) No (●) |
| Wetland Hydrology Present? | Yes ( ) | No (●) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Isocoma menziesii* | 5 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 5 % | | |
| **Herb Stratum** | | | |
| 1. *Distichlis spicata* | 35 | Yes | FAC |
| 2. *Frankenia salina* | 10 | Yes | FACW |
| 3. *Limonium duriusculum* | 3 | No | Not Listed |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 48 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 10 % | % 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 10 | x 2 = | 20 |
| FAC species | 40 | x 3 = | 120 |
| FACU species | | x 4 = | 0 |
| UPL species | 3 | x 5 = | 15 |
| Column Totals: | 53 (A) | | 155 (B) |

Prevalence Index = B/A = 2.92

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP2

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-18 | 10 YR 5/3 | 100 | | | | | CL | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: No redox features, does not meet criteria for soils.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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: Sample point is approximately 5 feet higher than wetland elevation, but no hydrology indicators.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Salt Creek | City/County: Laguna Niguel/Orange County | Sampling Date: 06/28/2016

Applicant/Owner: City of Laguna Niguel | State: CA | Sampling Point: SP3

Investigator(s): Lanika Cervantes, Sarah Horwath, Lance Wood | Section, Township, Range: T8S R8W

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%):

Subregion (LRR): C - Mediterranean California | Lat: 33.511573 | Long: -117.697593 | Datum: 1963 NAD

Soil Map Unit Name: Calleguas Clay Loam | NWI classification: Freshwater Forested/Shrub

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 ○ | |
| Hydric Soil Present? | Yes ◉ | No ○ | **Is the Sampled Area within a Wetland?** Yes ◉ No ○ |
| Wetland Hydrology Present? | Yes ◉ | No ○ | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Isocoma menziesii* | 5 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 5 % | | |
| **Herb Stratum** | | | |
| 1. *Frankenia salina* | 90 | Yes | FACW |
| 2. *Distichlis spicata* | 10 | No | FAC |
| 3. *Cyperus eragrostis* | 5 | No | FACW |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 105 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 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: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 95 | x 2 = | 190 |
| FAC species | 15 | x 3 = | 45 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 110 (A) | | 235 (B) |

Prevalence Index = B/A = 2.14

**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.

**Hydrophytic Vegetation Present?** Yes ◉ No ○

Remarks: Small terrace area adjacent to drainage.

## SOIL

Sampling Point: SP3

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-18 | 10YR 3/2 | 95 | 5YR 5/6 | 5 | D | PL | LC | Redox features observed |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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: Several hydrology indicators observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Salt Creek | City/County: Laguna Niguel/Orange County | Sampling Date: 06/28/2016

Applicant/Owner: City of Laguna Niguel | State: CA | Sampling Point: SP4

Investigator(s): Lanika Cervantes, Sarah Horwath, Lance Wood | Section, Township, Range: T8S R8W

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 60

Subregion (LRR): C - Mediterranean California | Lat: 33.511610 | Long: -117.697558 | Datum: NAD 1963

Soil Map Unit Name: Calleguas Clay Loam | NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area within a Wetland?** Yes ( ) No (●) |
| Wetland Hydrology Present? | Yes ( ) | No (●) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Distichlis spicata* | 40 | Yes | FAC |
| 2. *Frankenia salina* | 20 | Yes | FACW |
| 3. *Bromus madritensis* | 2 | No | UPL |
| 4. *Salsola tragus* | 1 | No | FACU |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 63 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 37 % | % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 20 | x 2 = | 40 |
| FAC species | 40 | x 3 = | 120 |
| FACU species | 1 | x 4 = | 4 |
| UPL species | 2 | x 5 = | 10 |
| Column Totals: | 63 (A) | | 174 (B) |

Prevalence Index = B/A = 2.76

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP4

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-18 | 10YR 5/3 | 100 | | | | | LC | Dry |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: No redox observed, soils are dry.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators observed. Sample point taken on hillslope.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Wetland 12 City/County: Laguna Niguel/Orange County Sampling Date: 06/28/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP5

Investigator(s): Lanika Cervantes, Sarah Horwath, Lance Wood Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 33.553149 Long: -117.711675 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (●) No ( ) |
| Wetland Hydrology Present? | Yes (●) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix gooddingii* | 25 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 25 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Rubus ursinus* | 50 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 50 % | | |
| **Herb Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 50 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 25 | x 2 = | 50 |
| FAC species | 50 | x 3 = | 150 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 75 (A) | | 200 (B) |

Prevalence Index = B/A = 2.67

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP5

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-15 | 10YR 4/2 | 100 | | | | | Sand | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks: No redox features, however met wetland plants and hydrologic indicator criteria. Hydric soils are assumed present.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Wetland 12 City/County: Laguna Niguel/Orange County Sampling Date: 06/28/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP6

Investigator(s): Lanika Cervantes, Sarah Horwath, Lance Wooll Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR): C - Mediterranean California Lat: 33.553237 Long: -117.711796 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area within a Wetland?** Yes ( ) No (●) |
| Wetland Hydrology Present? | Yes ( ) | No (●) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Platanus racemosa* | 30 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 30 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis salicifolia* | 20 | Yes | FAC |
| 2. *Rosa californica* | 10 | Yes | FAC |
| 3. *Rubus ursinus* | 5 | No | FAC |
| 4. | | | |
| 5. | | | |
| Total Cover: | 35 % | | |
| **Herb Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | | x 2 = | 0 |
| FAC species | 65 | x 3 = | 195 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 65 (A) | | 195 (B) |

Prevalence Index = B/A = 3.00

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP6

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-2 | 5YR 4/4 | 100 | | | | | Loamy/Clay | |
| 2-15 | 10YR 3/2 | 100 | | | | | Loamy/Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: Soils do not meet a hydric soil indicator. No hydrology indicators observed therefore soils not assumed hydric.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators observed. Sample point taken on bank of drainage located approximately 5 feet higher in elevation from the wetland point.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/North Wetland 3 City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP7

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Pond Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 33.550354 Long: -117.716629 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 ( ) | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (●) No ( ) |
| Wetland Hydrology Present? | Yes (●) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix gooddingii* | 30 | Yes | FACW |
| 2. *Salix lasiolepis* | 20 | Yes | FACW |
| 3. | | | |
| 4. | | | |
| Total Cover: | 50 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Schoenoplectus californicus* | 10 | Yes | OBL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 10 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 40 % % 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 10 | x 1 = | 10 |
| FACW species | 50 | x 2 = | 100 |
| FAC species | | x 3 = | 0 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 60 (A) | | 110 (B) |

Prevalence Index = B/A = 1.83

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP7

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-10 | 10YR 2/1 | 80 | 5YR 5/8 | 20 | D | M | Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☒ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): Surface

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: Some ponds with water and some are dry.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/North Wetland 3 City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP8

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 3

Subregion (LRR): C - Mediterranean California Lat: 33.550283 Long: -117.716380 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area within a Wetland?** Yes ( ) No (●) |
| Wetland Hydrology Present? | Yes ( ) | No (●) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 50 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 50 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis pilularis* | 10 | Yes | Not Listed |
| 2. *Salix exigua* | 10 | Yes | FACW |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 20 % | | |
| **Herb Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 30 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 60 | x 2 = | 120 |
| FAC species | | x 3 = | 0 |
| FACU species | | x 4 = | 0 |
| UPL species | 10 | x 5 = | 50 |
| Column Totals: | 70 (A) | | 170 (B) |

Prevalence Index = B/A = 2.43

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP8

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-5 | 2.5Y 5/3 | 100 | | | | | Sandy Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: Compacted soil at five inches.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrologic indicators.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/West Wetland 1 City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP9

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 33.549402 Long: -117.7169937 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 ( ) | |
| Hydric Soil Present? | Yes (•) | No ( ) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes (•) | No ( ) | **within a Wetland?** **Yes** (•) **No** ( ) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis salicifolia* | 5 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 5 % | | |
| **Herb Stratum** | | | |
| 1. *Juncus mexicanus* | 70 | Yes | FACW |
| 2. *Schoenoplectus americanus* | 5 | No | OBL |
| 3. *Distichlis spicata* | 5 | No | FACW |
| 4. *Anemopsis californica* | 5 | No | OBL |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 85 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 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: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 10 | x 1 = | 10 |
| FACW species | 75 | x 2 = | 150 |
| FAC species | 5 | x 3 = | 15 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 90 (A) | | 175 (B) |

Prevalence Index = B/A = 1.94

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** **Yes** (•) **No** ( )

Remarks:

## SOIL

Sampling Point: SP9

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-12 | 10YR 3/1 | 90 | 5YR 5/8 | 10 | D | PL | Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 8

**Wetland Hydrology Present?** Yes ◉ No ○

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

Remarks:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/West Wetland 1 City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP10

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 33.549493 Long: -117.716894 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 (•) | |
| Hydric Soil Present? | Yes ( ) | No (•) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes ( ) | No (•) | **within a Wetland?** Yes ( ) No (•) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Rosa californica* | 5 | Yes | FAC |
| 2. *Baccharisa pilularis* | 2 | Yes | Not Listed |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 7 % | | |
| **Herb Stratum** | | | |
| 1. *Distichlis spicata* | 45 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 45 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 50 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | | x 2 = | 0 |
| FAC species | 50 | x 3 = | 150 |
| FACU species | | x 4 = | 0 |
| UPL species | 2 | x 5 = | 10 |
| Column Totals: | 52 (A) | | 160 (B) |

Prevalence Index = B/A = 3.08

**Hydrophytic Vegetation Indicators:**

- [X] 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.

**Hydrophytic Vegetation Present?** Yes ( ) No (•)

Remarks:

## SOIL

Sampling Point: SP10

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes ○ No ◉

Remarks: Restrictive layer - sidewalk. Wetland boundary is adjacent to sidewalk therefore a soil pit could not be dug.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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: Wetlands about the sidewalk. No hydrology indicators observed in the out pit.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/East Wetland 2 City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP11

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 33.544343 Long: -117.715481 Datum: NAD 1963

Soil Map Unit Name: Alo Clay NWI classification: None

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 ( ) | |
| Hydric Soil Present? | Yes (•) | No ( ) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes (•) | No ( ) | **within a Wetland?** **Yes** (•) **No** ( ) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 20 | Yes | FAC* |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 20 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis pilularis* | 5 | Yes | Not Listed |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 5 % | | |
| **Herb Stratum** | | | |
| 1. *Schoenoplectus americanus* | 40 | Yes | OBL |
| 2. *Carpobrotus edulis* | 2 | No | Not Listed |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 42 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 25 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 40 | x 1 = | 40 |
| FACW species | | x 2 = | 0 |
| FAC species | 20 | x 3 = | 60 |
| FACU species | | x 4 = | 0 |
| UPL species | 7 | x 5 = | 35 |
| Column Totals: | 67 (A) | | 135 (B) |

Prevalence Index = B/A = 2.01

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** **Yes** (•) **No** ( )

Remarks:

## SOIL

Sampling Point: SP11

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10 YR 2/1 | 100 | | | | | Loamy/Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [x] 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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes (•) No ( )

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] 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 Plowed Soils (C6)
- [ ] 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)
- [ ] Thin Muck Surface (C7)
- [ ] 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): 8 |
| Saturation Present? (includes capillary fringe) | Yes (•) | No ( ) | Depth (inches): 0 |

**Wetland Hydrology Present?** Yes (•) No ( )

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

Remarks: Surface water present adjacent to pit.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/East Wetland 2 City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP12

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 30

Subregion (LRR): C - Mediterranean California Lat: 33.544357 Long: -117.715498 Datum: NAD 1963

Soil Map Unit Name: Alo Clay NWI classification: None

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes ( ) | No (●) | **within a Wetland?** **Yes** ( ) **No** (●) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 2 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 2 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis pilularis* | 40 | Yes | Not Listed |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 40 % | | |
| **Herb Stratum** | | | |
| 1. *Schoenoplectus americanus* | 40 | Yes | OBL |
| 2. *Carpobrotus edulis* | 5 | No | Not Listed |
| 3. *Polypogon monspeliensis* | 2 | No | FACW |
| 4. *Lysimachia arvensis* | 2 | No | FAC |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 49 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 44 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 40 | x 1 = | 40 |
| FACW species | 4 | x 2 = | 8 |
| FAC species | 2 | x 3 = | 6 |
| FACU species | | x 4 = | 0 |
| UPL species | 45 | x 5 = | 225 |
| Column Totals: | 91 (A) | | 279 (B) |

Prevalence Index = B/A = 3.07

**Hydrophytic Vegetation Indicators:**

- [X] 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.

**Hydrophytic Vegetation Present?** **Yes** (●) **No** ( )

Remarks:

## SOIL

Sampling Point: SP12

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10YR 4/1 | 100 | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: No redpx observed within soils, no hydrology indicators were observed therefore the soils were not assumed hydric.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/7 (northern) City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP13

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR): C - Mediterranean California Lat: 33.545589 Long: -117.690829 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (●) No ( ) |
| Wetland Hydrology Present? | Yes (●) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 60 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 60 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 40 % % 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 60 | x 2 = | 120 |
| FAC species | | x 3 = | 0 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 60 (A) | | 120 (B) |

Prevalence Index = B/A = 2.00

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks: No understory present at this location.

## SOIL

Sampling Point: SP13

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-2 | 10YR 5/1 | 100 | | | | | Sandy Clay | |
| 2-18 | 10YR 3/1 | 80 | 5YR 5/8 | 20 | D | | Sandy Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 18 |
| Saturation Present? (includes capillary fringe) | Yes ◉ | No ○ | Depth (inches): 18 |

**Wetland Hydrology Present?** Yes ◉ No ○

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

Remarks: Water table hit at 18 inches. Adjacent stream channel is flowing.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/7 (northern) City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP14

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 20

Subregion (LRR): C - Mediterranean California Lat: 33.545616 Long: -117.690890 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 (•) | |
| Hydric Soil Present? | Yes ( ) | No (•) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes ( ) | No (•) | **within a Wetland?** Yes ( ) No (•) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 60 | Yes | FACW |
| 2. *Plantanus racemosa* | 5 | No | FAC |
| 3. | | | |
| 4. | | | |
| Total Cover: | 65 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis pilularis* | 5 | Yes | Not Listed |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 5 % | | |
| **Herb Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 30 % % 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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 60 | x 2 = | 120 |
| FAC species | 5 | x 3 = | 15 |
| FACU species | | x 4 = | 0 |
| UPL species | 5 | x 5 = | 25 |
| Column Totals: | 70 (A) | | 160 (B) |

Prevalence Index = B/A = 2.29

**Hydrophytic Vegetation Indicators:**

[ ] Dominance Test is >50%

[X] 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.

**Hydrophytic Vegetation Present?** Yes ( ) No (•)

Remarks:

## SOIL

Sampling Point: SP14

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-12 | 10YR 4/2 | 100 | | | | | Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/7 (southern) City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP15

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 5

Subregion (LRR): C - Mediterranean California Lat: 33.541979 Long: -117.694450 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (●) No ( ) |
| Wetland Hydrology Present? | Yes (●) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 60 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 60 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Lysimachia arvensis* | 1 | Yes | FAC |
| 2. *Heliotropium curassavicum* | 2 | Yes | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 3 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 37 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 60 | x 2 = | 120 |
| FAC species | 1 | x 3 = | 3 |
| FACU species | 2 | x 4 = | 8 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 63 (A) | | 131 (B) |

Prevalence Index = B/A = 2.08

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP15

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10YR 2/1 | 100 | | | | | Sandy Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: Roots

Depth (inches): 8

**Hydric Soil Present?** Yes ◉ No ○

Remarks: No redox features, however met wetland plants and hydrologic indicator criteria. Hydric soils are assumed present. Soil is moist and water table hit below roots. Roots prevented soil extraction from deep pit.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 8 |
| Saturation Present? (includes capillary fringe) | Yes ◉ | No ○ | Depth (inches): 8 |

**Wetland Hydrology Present?** Yes ◉ No ○

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

Remarks:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/7 (southern) City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP16

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 10

Subregion (LRR): C - Mediterranean California Lat: 33.542027 Long: -117.694447 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 (●) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes ( ) | No (●) | **within a Wetland?** Yes ( ) No (●) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 60 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 60 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis pilularis* | 5 | Yes | Not Listed |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 5 % | | |
| **Herb Stratum** | | | |
| 1. *Heliotropium curassavicum* | 10 | Yes | FACU |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 10 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 25 % % 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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 60 | x 2 = | 120 |
| FAC species | | x 3 = | 0 |
| FACU species | 10 | x 4 = | 40 |
| UPL species | 5 | x 5 = | 25 |
| Column Totals: | 75 (A) | | 185 (B) |

Prevalence Index = B/A = 2.47

**Hydrophytic Vegetation Indicators:**

- [ ] Dominance Test is >50%
- [x] 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.

**Hydrophytic Vegetation Present?** Yes ( ) No (●)

Remarks:

## SOIL

Sampling Point: SP16

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-18 | 10YR 3/2 | 100 | | | | | Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 8 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP17

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): C - Mediterranean California Lat: 33.538230 Long: -117.697328 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (•) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (•) No ( ) |
| Wetland Hydrology Present? | Yes (•) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Anemopsis californica* | 40 | Yes | OBL |
| 2. *Typha domingensis* | 30 | Yes | OBL |
| 3. *Distichlis spicata* | 30 | Yes | FAC |
| 4. *Frankenia salina* | 20 | No | FACW |
| 5. *Schoenoplectus californicus* | 10 | No | OBL |
| 6. *Limonium duriusculum* | 2 | No | Not Listed |
| 7. | | | |
| 8. | | | |
| Total Cover: | 132 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 80 | x 1 = | 80 |
| FACW species | 20 | x 2 = | 40 |
| FAC species | 30 | x 3 = | 90 |
| FACU species | | x 4 = | 0 |
| UPL species | 2 | x 5 = | 10 |
| Column Totals: | 132 (A) | | 220 (B) |

Prevalence Index = B/A = 1.67

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (•) No ( )

Remarks:

## SOIL

Sampling Point: SP17

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10YR 3/1 | 100 | | | | | Sandy Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 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:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 8 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP18

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 15

Subregion (LRR): C - Mediterranean California Lat: 33.538251 Long: -117.697362 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area within a Wetland?** Yes ( ) No (●) |
| Wetland Hydrology Present? | Yes ( ) | No (●) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Isocoma menziesii* | 35 | Yes | FAC |
| 2. *Baccharis salicifolia* | 5 | No | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 40 % | | |
| **Herb Stratum** | | | |
| 1. *Frankenia salina* | 50 | | FACW |
| 2. *Distichlis spicata* | 5 | | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 55 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 50 | x 2 = | 100 |
| FAC species | 45 | x 3 = | 135 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 95 (A) | | 235 (B) |

Prevalence Index = B/A = 2.47

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP18

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10 YR 5/2 | 100 | | | | | Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: Compacted soil

Depth (inches): 8

**Hydric Soil Present?** Yes ○ No ◉

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 9 City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP19

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 10

Subregion (LRR): C - Mediterranean California Lat: 33.536000 Long: -117.699520 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (•) | No ( ) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes (•) | No ( ) | **within a Wetland?** **Yes** (•) **No** ( ) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 30 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 30 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Frankenia salina* | 50 | Yes | FACW |
| 2. *Atriplex canescens* | 5 | No | Not Listed |
| 3. *Salvia mellifera* | 5 | No | Not Listed |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 60 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

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

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 80 | x 2 = | 160 |
| FAC species | | x 3 = | 0 |
| FACU species | | x 4 = | 0 |
| UPL species | 10 | x 5 = | 50 |
| Column Totals: | 90 (A) | | 210 (B) |

Prevalence Index = B/A = 2.33

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** **Yes** (•) **No** ( )

Remarks:

## SOIL

Sampling Point: SP19

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 2.5 YR 5/3 | 100 | | | | | Sandy Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: Roots

Depth (inches): 4

**Hydric Soil Present?** Yes ◉ No ○

Remarks: No redox features - however met wetland plants and hydrologic indicator criteria. Hydric soils are assumed present.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 9 City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP20

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 10

Subregion (LRR): C - Mediterranean California Lat: 33.535981 Long: -117.699521 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 (●) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes ( ) | No (●) | **within a Wetland?** Yes ( ) No (●) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 10 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 10 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis pilularis* | 40 | Yes | Not Listed |
| 2. *Atriplex canescens* | 20 | Yes | Not Listed |
| 3. *Salvia mellifera* | 10 | No | Not Listed |
| 4. *Baccharis salicifolia* | 5 | No | FAC |
| 5. | | | |
| Total Cover: | 75 % | | |
| **Herb Stratum** | | | |
| 1. *Frankenia salina* | 5 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 5 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 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: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 15 | x 2 = | 30 |
| FAC species | 5 | x 3 = | 15 |
| FACU species | | x 4 = | 0 |
| UPL species | 70 | x 5 = | 350 |
| Column Totals: | 90 (A) | | 395 (B) |

Prevalence Index = B/A = 4.39

**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.

**Hydrophytic Vegetation Present?** Yes ( ) No (●)

Remarks:

## SOIL

Sampling Point: SP20

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 5Y 5/3 | 100 | | | | | Sandy Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: Compacted soil

Depth (inches): 6

**Hydric Soil Present?** Yes ○ No ◉

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 10 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP21

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 33.535096 Long: -117.706945 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area within a Wetland?** Yes ( ) No (●) |
| Wetland Hydrology Present? | Yes (●) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Populus fremontii* | 10 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 10 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis pilularis* | 30 | Yes | Not Listed |
| 2. *Baccharis salicifolia* | 10 | Yes | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 40 % | | |
| **Herb Stratum** | | | |
| 1. *Malvella leprosa* | 5 | Yes | FACU |
| 2. *Artemisia douglasiana* | 2 | Yes | FACW |
| 3. *Frankenia salina* | 2 | No | FACW |
| 4. *Kickxia elatine* | 2 | No | UPL |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 11 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 39 % % 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 4 | x 2 = | 8 |
| FAC species | 20 | x 3 = | 60 |
| FACU species | 5 | x 4 = | 20 |
| UPL species | 32 | x 5 = | 160 |
| Column Totals: | 61 (A) | | 248 (B) |

Prevalence Index = B/A = 4.07

**Hydrophytic Vegetation Indicators:**

- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP21

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-15 | 10YR 3/1 | 100 | | | | | Silty Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: Redox was present closer to the draiange, however was lost within the outer floodplain.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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: Although hydrology indicators were observed within this area, it is near an outfall structure and therefore indicators may be due to the outfall rather than the periodic flooding of Sulphur Creek.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 10 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP22

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): C - Mediterranean California Lat: 33.535051 Long: -117.706747 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes (●) | No ( ) | **within a Wetland?** **Yes** (●) **No** ( ) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 40 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 40 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis salicifolia* | 20 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 20 % | | |
| **Herb Stratum** | | | |
| 1. *Anemopsis californica* | 50 | Yes | OBL |
| 2. *Carex spissa* | 10 | No | |
| 3. *Schoenoplectus californicus* | 5 | No | OBL |
| 4. *Artemisia douglasiana* | 2 | No | FACW |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 67 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 55 | x 1 = | 55 |
| FACW species | 42 | x 2 = | 84 |
| FAC species | 20 | x 3 = | 60 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 117 (A) | | 199 (B) |

Prevalence Index = B/A = 1.70

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** **Yes** (●) **No** ( )

Remarks:

## SOIL

Sampling Point: SP22

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-12 | 10 YR 5/1 | 98 | 5 YR 5/6 | 2 | D | M | Sandy Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 6 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP23

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR): C - Mediterranean California Lat: 33.531835 Long: -117.707424 Datum: NAD 1963

Soil Map Unit Name: Calleguas Clay Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (•) | **Is the Sampled Area within a Wetland?** Yes ( ) No (•) |
| Wetland Hydrology Present? | Yes ( ) | No (•) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Frankenia salina* | 80 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 80 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 20 % % 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 80 | x 2 = | 160 |
| FAC species | | x 3 = | 0 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 80 (A) | | 160 (B) |

Prevalence Index = B/A = 2.00

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (•) No ( )

Remarks:

## SOIL

Sampling Point: SP23

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-12 | 10YR 4/1 | 100 | | | | | Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: No redox or other hydric soil indicators were observed.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 6 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP24

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Dry high flow channel Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): C - Mediterranean California Lat: 33.531428 Long: -117.707077 Datum: NAD 1963

Soil Map Unit Name: SorrentoLoam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (•) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (•) No ( ) |
| Wetland Hydrology Present? | Yes (•) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 50 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 50 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Schoenoplectus californicus* | 30 | Yes | OBL |
| 2. *Frankenia salina* | 5 | No | FACW |
| 3. *Polypogon monspeliensis* | 5 | No | FACW |
| 4. *Epilobium ciliatum* | 5 | No | FACW |
| 5. *Melilotus albus* | 2 | No | Not Listed |
| 6. *Lysimachia arvensis* | 2 | No | FAC |
| 7. *Pulicaria paludosa* | 2 | No | FAC |
| 8. | | | |
| Total Cover: | 51 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 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: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 30 | x 1 = | 30 |
| FACW species | 65 | x 2 = | 130 |
| FAC species | 4 | x 3 = | 12 |
| FACU species | | x 4 = | 0 |
| UPL species | 2 | x 5 = | 10 |
| Column Totals: | 101 (A) | | 182 (B) |

Prevalence Index = B/A = 1.80

**Hydrophytic Vegetation Indicators:**

- [x] Dominance Test is >50%
- [x] 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.

**Hydrophytic Vegetation Present?** Yes (•) No ( )

Remarks:

## SOIL

Sampling Point: SP24

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-12 | 10 YR 3/1 | 100 | | | | | Silty Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks: Problematic soils. Freshwater invertebrates found dessicated in soil. Soils are assumed hydric because of presence of hydrophytic vegetation and hydrology indicators. Soils may be dried out due to drought.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 11 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP25

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Channel Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): C - Mediterranean California Lat: 33.531463 Long: -117.707041 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes (●) | No ( ) | **within a Wetland?** **Yes** (●) **No** ( ) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 40 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 40 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Apium graveolens* | 5 | Yes | Not Listed |
| 2. *Plantago major* | 5 | Yes | FAC |
| 3. *Melilotus albus* | 5 | Yes | Not Listed |
| 4. *Bolboschoenus maritimus* | 5 | Yes | OBL |
| 5. *Cotula australis* | 2 | No | FAC |
| 6. *Agrostis viridus* | 2 | No | Not Listed |
| 7. *Polypogon monspeliensis* | 2 | No | FACW |
| 8. | | | |
| Total Cover: | 26 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

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

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 5 | x 1 = | 5 |
| FACW species | 42 | x 2 = | 84 |
| FAC species | 7 | x 3 = | 21 |
| FACU species | | x 4 = | 0 |
| UPL species | 12 | x 5 = | 60 |
| Column Totals: | 66 (A) | | 170 (B) |

Prevalence Index = B/A = 2.58

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** **Yes** (●) **No** ( )

Remarks:

## SOIL

Sampling Point: SP25

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 10YR 3/1 | 100 | | | | | Silty Clay | |
| 4-12 | 10YR 6/1 | 95 | 5YR 4/6 | 5 | D | M | Silty Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 11 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP26

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 5

Subregion (LRR): C - Mediterranean California Lat: 33.531454 Long: -117.707107 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (•) | **Is the Sampled Area within a Wetland?** Yes ( ) No (•) |
| Wetland Hydrology Present? | Yes ( ) | No (•) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Frankenia salina* | 40 | Yes | FACW |
| 2. *Bromus madritensis* | 10 | No | UPL |
| 3. *Ambrosia psilostachya* | 5 | No | FACU |
| 4. *Distichlis spicata* | 2 | No | FAC |
| 5. *Brassica nigra* | 2 | No | Not Listed |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 59 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 41 % % 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 40 | x 2 = | 80 |
| FAC species | 2 | x 3 = | 6 |
| FACU species | 5 | x 4 = | 20 |
| UPL species | 12 | x 5 = | 60 |
| Column Totals: | 59 (A) | | 166 (B) |

Prevalence Index = B/A = 2.81

**Hydrophytic Vegetation Indicators:**

- [x] Dominance Test is >50%
- [x] 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.

**Hydrophytic Vegetation Present?** Yes (•) No ( )

Remarks:

## SOIL

Sampling Point: SP26

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-1 | 10YR 5/1 | 100 | | | | | Silty Clay | |
| 1-12 | 10YR 7/2 | 100 | | | | | Silty Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: No redox or hydric soil indicators were observed.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 5 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP27

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 33.531819 Long: -117.704329 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (●) No ( ) |
| Wetland Hydrology Present? | Yes (●) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 50 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 50 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 48 % % 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 50 | x 2 = | 100 |
| FAC species | | x 3 = | 0 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 50 (A) | | 100 (B) |

Prevalence Index = B/A = 2.00

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP27

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10YR 5/2 | 75 | 5YR 5/8 | 25 | D | PL | Sandy Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 5 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP28

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR): C - Mediterranean California Lat: 33.531878 Long: -117.704316 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 (●) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes ( ) | No (●) | **within a Wetland?** Yes ( ) No (●) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis pilularis* | 40 | Yes | Not Listed |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 40 % | | |
| **Herb Stratum** | | | |
| 1. *Kickxia elatine* | 30 | Yes | UPL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 30 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 30 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | | x 2 = | 0 |
| FAC species | | x 3 = | 0 |
| FACU species | | x 4 = | 0 |
| UPL species | 70 | x 5 = | 350 |
| Column Totals: | 70 (A) | | 350 (B) |

Prevalence Index = B/A = 5.00

**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.

**Hydrophytic Vegetation Present?** Yes ( ) No (●)

Remarks:

## SOIL

Sampling Point: SP28

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-10 | 10YR 5/2 | 100 | | | | | Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: No redox or hydric soil indicators were observed.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 4 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP29

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

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

Subregion (LRR): C - Mediterranean California Lat: 33.529641 Long: -117.709010 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 (•) | |
| Hydric Soil Present? | Yes ( ) | No (•) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes ( ) | No (•) | **within a Wetland?** **Yes** ( ) **No** (•) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 10 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 10 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Cynodon dactylon* | 5 | Yes | FACU |
| 2. *Cyperus eragrostis* | 2 | Yes | FACW |
| 3. *Euphorbia serpens* | 2 | Yes | FACU |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 9 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 81 % % Cover of Biotic Crust %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 12 | x 2 = | 24 |
| FAC species | | x 3 = | 0 |
| FACU species | 7 | x 4 = | 28 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 19 (A) | | 52 (B) |

Prevalence Index = B/A = 2.74

**Hydrophytic Vegetation Indicators:**

- [ ] Dominance Test is >50%
- [x] 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.

**Hydrophytic Vegetation Present?** **Yes** ( ) **No** (•)

Remarks:

## SOIL

Sampling Point: SP29

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-15 | 10YR 4/1 | 100 | | | | | Silty Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: No redox or hydric soil indicators were observed.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 4 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP30

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Wetted Channel Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C - Mediterranean California Lat: 33.529694 Long: -117.709063 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (•) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (•) No ( ) |
| Wetland Hydrology Present? | Yes (•) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 40 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 40 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Nasturtium officinale* | 5 | Yes | FACU |
| 2. *Euphorbia serpens* | 2 | Yes | OBL |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 7 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 53 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 2 | x 1 = | 2 |
| FACW species | 40 | x 2 = | 80 |
| FAC species | | x 3 = | 0 |
| FACU species | 5 | x 4 = | 20 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 47 (A) | | 102 (B) |

Prevalence Index = B/A = 2.17

**Hydrophytic Vegetation Indicators:**

- [x] Dominance Test is >50%
- [x] 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.

**Hydrophytic Vegetation Present?** Yes (•) No ( )

Remarks:

## SOIL

Sampling Point: SP30

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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)
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- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks: No pit dug, wetted channel.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☒ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 pit dug. Stream channel wetted and adjacent to USACE/OHWM boundary.

# Appendix F
# Site Photographs

**Photo 1**
**Date:** June 28, 2016
**Site:** La Paz Park Wetland
**Direction:** East
**Description:** Mulefat thickets




**Photo 2**
**Date:** June 28, 2016
**Site:** Salt Creek Corridor Habitat Restoration Area
**Direction:** North
**Description:** California sagebrush scrub surrounded by nonnative grassland



**Photo 3**
**Date:** June 28, 2016
**Site:** Salt Creek Corridor Habitat Restoration Area
**Direction:** South
**Description:** California sage brush scrub




**Photo 4**
**Date:** June 28, 2016
**Site:** Salt Creek Tributary
**Direction:** Southeast
**Description:** Cattail marsh



**Photo 5**
**Date:** June 28, 2016
**Site:** East Wetland
**Direction:** Northeast
**Description:** American bulrush marsh




**Photo 6**
**Date:** June 28, 2016
**Site:** La Paz Park Wetlands
**Direction:** Southeast
**Description:** Black willow thickets



**Photo 7**
**Date:** July 14, 2016
**Site:** Niguel Ridge Wetlands
**Direction:** Southwest
**Description:** Arroyo willow thickets



**Photo 8**
**Date:** July 11, 2016
**Site:** Crowne Royale Wetlands
**Direction:** Northeast
**Description:** California bulrush marsh



**Photo 9**
**Date:** June 30, 2016
**Site:** West Wetland
**Direction:** Southeast
**Description:** Salt grass flats




**Photo 10**
**Date:** July 11, 2016
**Site:** Crowne Royale Wetlands
**Direction:** West
**Description:** Menzie's golden bush scrub



**Photo 11**
**Date:** July 11, 2016
**Site:** Sulphur Creek Park Wetland Enhancement Area
**Direction:** West
**Description:** Coyote brush scrub




**Photo 12**
**Date:** July 14, 2016
**Site:** Salt Creek Salt Creek Corridor Habitat Restoration Area
**Direction:** East
**Description:** Black willows, cattail marsh, California sagebrush, and nonnative grassland



Appendix G

# Plant and wildlife Species Detected

## Appendix G: Table 1 Plant Species Detected

| Scientific Name | Common Name | Special Status |
|---|---|---|
| **MAGNOLIIDS** | | |
| **Saururaceae - Lizard's-tail family** | | |
| Anemopsis californica | Yerba mansa | |
| **EUDICOTS** | | |
| **Adoxaceae - Muskroot family** | | |
| Sambucus nigra ssp. caerulea | Blue elderberry | |
| **Aizoaceae - Fig-marigold family** | | |
| * Carpobrotus edulis | Hottentot fig | |
| **Anacardiaceae - Sumac Or Cashew family** | | |
| Rhus integrifolia | Lemonadeberry | |
| **Apiaceae - Carrot family** | | |
| * Apium graveolens | Garden celery | |
| **Asteraceae - Sunflower family** | | |
| Ambrosia psilostachya | Western ragweed | |
| Artemisia californica | California sagebrush | |
| Artemisia douglasiana | Douglas' sagewort | |
| Baccharis pilularis | Coyote brush | |
| Baccharis salicifolia | Mulefat | |
| * Cotula australis | Australian cotula | |
| * Cynara cardunculus | Artichoke thistle | |
| Encelia californica | California encelia | |
| * Helminthotheca echioides | Bristly ox-tongue | |
| Isocoma menziesii | Menzies' goldenbush | |
| * Pulicaria paludosa | Spanish false fleabane | |
| * Silybum marianum | Milk thistle | |
| Xanthium strumarium | Cocklebur | |
| **Boraginaceae - Borage family** | | |
| Heliotropium curassavicum | Salt heliotrope | |
| **Brassicaceae - Mustard family** | | |
| * Brassica nigra | Black mustard | |
| * Hirschfeldia incana | Short-pod mustard | |
| Nasturtium officinale | Watercress | |

| Scientific Name | Common Name | Special Status |
|---|---|---|
| **Chenopodiaceae - Goosefoot family** | | |
| Atriplex lentiformis | Big saltbush | |
| * Atriplex semibaccata | Australian saltbush | |
| * Salsola tragus | Russian tumbleweed | |
| **Euphorbiaceae - Spurge family** | | |
| * Euphorbia serpens | Small matted spurge | |
| **Fabaceae - Legume family** | | |
| Acmispon glaber | Deerweed | |
| * Melilotus albus | White sweetclover | |
| **Frankeniaceae - Frankenia family** | | |
| Frankenia salina | Alkali heath | |
| **Lamiaceae - Mint family** | | |
| Salvia mellifera | Black sage | |
| **Malvaceae - Mallow family** | | |
| Malvella leprosa | Alkali mallow | |
| **Myrsinaceae - Myrsine family** | | |
| * Lysimachia nummularia | Creeping-Jenny | |
| **Myrtaceae - Myrtle family** | | |
| * Eucalyptus spp. | gum | |
| **Plantaginaceae - Plantain family** | | |
| * Kickxia elatine | Sharpleaf cancerwort | |
| * Plantago major | Great plantain | |
| **Platanaceae - Plane Tree, Sycamore family** | | |
| Platanus racemosa | Western sycamore | |
| **Plumbaginaceae - Leadwort family** | | |
| * Limonium duriusculum | European sea lavender | |
| **Polygonaceae - Buckwheat family** | | |
| Eriogonum fasciculatum | California buckwheat | |
| **Rosaceae - Rose family** | | |
| Rosa californica | California rose | |
| Rubus ursinus | California blackberry | |
| **Salicaceae - Willow family** | | |
| Populus fremontii ssp. fremontii | Fremont cottonwood | |
| Salix exigua | Sand bar willow | |
| Salix gooddingii | Goodding's black willow | |
| Salix laevigata | Red willow | |

| Scientific Name | Common Name | Special Status |
|---|---|---|
| Salix lasiolepis | Arroyo willow | |
| **Simaroubaceae - Quassia Or Simarouba family** | | |
| * Ailanthus altissima | Tree of heaven | |
| **MONOCOTS** | | |
| **Cyperaceae - Sedge family** | | |
| Bolboschoenus maritimus | Alkali bulrush | |
| Carex spissa | San Diego sedge | |
| Cyperus eragrostis | Tall flatsedge | |
| Schoenoplectus americanus | American bulrush | |
| **Juncaceae - Rush family** | | |
| Juncus mexicanus | Mexican rush | |
| **Poaceae - Grass family** | | |
| * Bromus diandrus | Ripgut brome | |
| * Bromus madritensis ssp. rubens | Red brome | |
| * Cortaderia spp. | pampas grass | |
| * Cynodon dactylon | Bermuda grass | |
| Distichlis spicata | Salt grass | |
| * Echinochloa crus-galli | Barnyard grass | |
| * Polypogon monspeliensis | Rabbit foot beard grass | |
| * Polypogon viridis | Water beard grass | |
| **Typhaceae - Cattail family** | | |
| * Typha angustifolia | Narrow-leaved cattail | |
| Typha domingensis | Southern cattail | |
| Typha latifolia | Broad-leaved cattail | |

| Scientific Name | Common Name | Special Status |
|---|---|---|

**Legend**

*= Non-native or invasive species

**Appendix G: Table 2. Wildlife Species Detected**

| Scientific Name | Common Name | Special Status |
|---|---|---|
| **INVERTEBRATES** | | |
| **Branchiopods** | | |
| **Procambarus clarkii* | Red swamp crayfish | |
| **VERTEBRATES** | | |
| **Fish** | | |
| *Gambusia affinis* | Western mosquitofish | |
| **Turtles** | | |
| *Actinemys marmorata*** | Western pond turtle | SSC |
| **Trachemys scripta elegans* | Red-eared slider | |
| **Birds** | | |
| *Butorides virescens* | Green heron | |
| *Cathartes aura* | Turkey vulture | |
| *Buteo lineatus* | Red-shouldered hawk | |
| *Buteo jamaicensis* | Red-tailed hawk | |
| *Zenaida macroura* | Mourning dove | |
| *Calypte anna* | Anna's hummingbird | |
| *Selasphorus sasin* | Allen's hummingbird | |
| *Picoides nuttallii* | Nuttall's woodpecker | |
| *Falco sparverius* | American kestrel | |
| *Empidonax traillii* | Willow flycatcher | |
| *Empidonax traillii extimus* | Southwestern willow flycatcher | FE, SE |
| *Empidonax difficilis* | Pacific-slope flycatcher | |
| *Sayornis nigricans* | Black phoebe | |
| *Sayornis saya* | Say's phoebe | |
| *Myiarchus cinerascens* | Ash-throated flycatcher | |
| *Tyrannus vociferans* | Cassin's kingbird | |
| *Vireo bellii pusillus* | Least bell's vireo | FE, SE |
| *Vireo huttoni* | Hutton's vireo | |
| *Vireo gilvus* | Warbling vireo | |
| *Aphelocoma californica* | Western scrub-jay | |
| *Corvus brachyrhynchos* | American crow | |
| *Petrochelidon pyrrhonota* | Cliff swallow | |
| *Psaltriparus minimus* | Bushtit | |

| Scientific Name | Common Name | Special Status |
|---|---|---|
| *Troglodytes aedon* | House wren | |
| *Thryomanes bewickii* | Bewick's wren | |
| *Polioptila californica* | California gnatcatcher | FT, SSC |
| *Chamaea fasciata* | Wrentit | |
| *Sialia mexicana* | Western bluebird | |
| *Mimus polyglottos* | Northern mockingbird | |
| *Geothlypis trichas* | Common yellowthroat | |
| *Setophaga petechia* | Yellow warbler | SSC |
| *Icteria virens* | Yellow-breasted chat | SSC |
| *Pipilo maculatus* | Spotted towhee | |
| *Melozone crissalis* | California towhee | |
| *Melospiza melodia* | Song sparrow | |
| *Pheucticus melanocephalus* | Black-headed grosbeak | |
| *Passerina caerulea* | Blue grosbeak | |
| *Icterus cucullatus* | Hooded oriole | |
| *Icterus bullockii* | Bullock's oriole | |
| *Haemorhous mexicanus* | House finch | |
| *Carduelis psaltria* | Lesser goldfinch | |
| **Lonchura punctulata* | Nutmeg mannikin | |

**Legend**

*= Non-native or invasive species

**= Possible southwestern pond turtle

Special Status:

Federal:
FE = Endangered
FT = Threatened

State:
SE = Endangered
ST =Threatened
SSC = California Species of Special Concern
CFP = California Fully Protected Species

Appendix C
# Jurisdictional Delineation

# JURISDICTIONAL DELINEATION REPORT

# CITY OF LAGUNA NIGUEL WETLANDS OPERATIONS AND MAINTENANCE ACTIVITIES, ORANGE COUNTY, CALIFORNIA

**PREPARED FOR:**

City of Laguna Niguel
30111 Crown Valley Parkway
Laguna Niguel, CA 92677
Contact: Ziad Mazboudi

**PREPARED BY:**

ICF
525 B Street, Suite 1700
San Diego, CA 92101
Contact: Lanika Cervantes
858-444-3916

**June 2017**



ICF. 2017. Jurisdictional Delineation Report, City of Laguna Niguel Wetlands Operations and Maintenance Activities, Orange County, California. June. (ICF 00357.16.) San Diego County, CA. Prepared for City of Laguna Niguel, Laguna Niguel, CA.

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# Acronyms and Abbreviations

| | |
|---|---|
| AMSL | above mean sea level |
| CDFW | California Department of Fish and Wildlife |
| City | City of Laguna Niguel |
| CWA | Clean Water Act |
| FAC | facultative |
| FACW | facultative wetland |
| FEMA | Federal Emergency Management Agency |
| GPS | global positioning systems |
| HUC | Hydrologic Unit Code |
| NHD | National Hydrography Dataset |
| no indicator | NI |
| no occurrence | NO |
| NRCS | Natural Resources Conservation Service |
| NWI | National Wetland Inventory |
| OBL | obligate |
| OHWM | Ordinary High Water Mark |
| Porter- Cologne Act | Porter-Cologne Water Quality Control Act |
| project | Wetlands Operations and Maintenance Activities |
| RWQCB | Regional Water Quality Control Board |
| SSURGO | Soil Survey Geographic |
| SWRCB | State Water Resources Control Board |
| TMDL | Total Maximum Daily Loads |
| USACE | U.S. Army Corps of Engineers |
| USDA | U.S. Department of Agriculture |
| USGS | United States Geological Survey |

# Executive Summary

ICF conducted a formal delineation of jurisdictional waters and wetlands for the City of Laguna Niguel's (City's) development of a programmatic permit for Wetlands Operations and Maintenance Activities (project) at stormwater facilities and wetland restoration sites. The purpose of this delineation was to identify the extent of jurisdictional waters within the project sites subject to state and federal jurisdiction under Sections 401 and 404 of the Clean Water Act (CWA) as well as Section 13260 of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) and Section 1602 of the California Fish and Game Code with the potential to be impacted by the proposed project. Relevant jurisdictions include federal jurisdiction regulated by the U.S. Army Corps of Engineers (USACE) as waters of the U.S. or USACE wetlands, state waters regulated by the State Water Resources Control Board (SWRCB) and/or San Diego Regional Water Quality Control Board (RWQCB), and aquatic features regulated by the California Department of Fish and Wildlife (CDFW).

A study area comprising the full extent of the floodplain for each project site was assessed for jurisdictional waters. A total of 18.47 acres/29,564 linear feet of waters of the U.S. is present within the study area. Of this, 16.802 acres are wetland waters of the U.S. and 1.664 acres linear feet are non-wetland waters of the U.S. In addition, there are 44.44 acres/29,564 linear feet of waters of the state within the study area. Of this, 4.478 acres are CDFW streambed and 40.962 acres are CDFW riparian.

Figures are included as Attachment 1. Site Photographs from June and July 2016 are included as Attachment 2. Wetland Determination forms are included as Attachment 3.

# Chapter 1
# Introduction

ICF has conducted a routine-level delineation of jurisdictional waters and wetlands for the City of Laguna Niguel's (City's) development of a programmatic permit for Wetlands Operations and Maintenance Activities (project) at stormwater facilities and wetland restoration sites. The purpose of this delineation was to identify the extent of federal and state jurisdiction within the project site pursuant to Sections 401 and 404 of the Clean Water Act (CWA) as well as Section 13260 of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) and Section 1602 of the California Fish and Game Code.

The information and results presented herein document the investigation, best professional judgment, and conclusions of ICF. It is correct and complete to the best of our knowledge. However, all jurisdictional delineations should be considered preliminary until reviewed and approved/determined by the regulatory agencies.

## 1.1 Project Description

The City is developing a programmatic permit (regional general permit) that would provide regulatory coverage for operations and maintenance activities at City stormwater facilities and wetland sites. The project will include minor maintenance activities such as removing vegetation and sediment around outfalls, risers, and under bridges and roads, and cutting pilot channels to facilitate water movement through the stream slope.

This project includes a total of 13 wetland sites: 12 occur within the Sulphur Creek Watershed and 1 within Salt Creek. A study area comprising the full extent of the floodplain for each of the 13 wetland sites was assessed for jurisdictional waters.

## 1.2 Project Location

The study area is located in the City of Laguna Niguel, in Orange County, California (Figure 1). The study area is west of Interstate 5, east of Aliso Woods Regional Park, south of State Route 73, and north of the Pacific Ocean. Specifically, the study area is within the area bounded by Street of the Golden Lantern to the east, Alicia Parkway and Crown Valley Parkway to the west, Aliso Creek Road to the north, and Beacon Hill Way to the south (Figure 2). The study area contains one perennial drainage, and one intermittent drainage, as depicted on the United States Geological Survey (USGS) 7.5-minute San Juan Capistrano quadrangle (USGS 2015) (Figure 3) and on the National Hydrography Dataset (NHD) (USGS 2016). Sulphur Creek is an intermittent tributary to Aliso Creek, fed by run off from surrounding development, and is approximately 5 miles long. Downstream of the Sulphur Creek confluence, Aliso Creek flows approximately 5 miles to the Pacific Ocean where it empties at Aliso Beach County Park. Salt Creek is a perennial stream that flows out to the Pacific Ocean at Salt Creek County Beach.

Chapter 2
# Methodology

## 2.1 Project Research

Prior to conducting field investigations, ICF compared sub 1-meter resolution aerial imagery (NAIP 2016), the USGS 7.5-minute topographic quadrangle maps for San Juan Capistrano (2015), and aerial imagery in Google Earth (Google Earth 2016) to observe vegetation types, topographic changes, and visible drainage patterns associated with the study area. Known stormwater facilities and outfalls were reviewed as mapped in the Orange County Environmental Resources GIS Data Portal (County of Orange 2016a). The U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) database (USDA/NRCS 2015a) and National Wetland Inventory (NWI) (USFWS 2016) were reviewed to identify the soil series and mapped wetlands that occur within the study area. Figure 4a shows the study area in relation to Hydrologic Unit Code (HUC) level 8 and level 10 watersheds, and Figure 4b shows them in relation to HUC-12 watersheds. Maps depicting the study area in relation to NHD drainages, NWI, and the Federal Emergency Management Agency (FEMA) 100- and 200-year flood zones are provided on Figures 6, 7, and 8, respectively.

## 2.2 Field Investigation

ICF biologists Lanika Cervantes, Lance Wooley, and Sarah Horwath conducted the jurisdictional waters and wetland delineation on June 28, June 30, and July 11, 2016.

The surveys were conducted on foot, and jurisdictional limits were recorded using high-resolution aerial photographs (1 inch=200 feet) and a sub-meter accuracy Trimble global positioning systems (GPS) unit. Existing conditions were documented as field notes and site photographs.

Common plant species observed were identified by visual characteristics and morphology in the field. Taxonomic nomenclature for plants follows the *Jepson Manual: Higher Plants of California* (Baldwin et. al. 2012).

### 2.2.1 USACE Jurisdiction

Potential waters of the U.S. and wetlands were delineated using methods established in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Determination Manual* (USACE 2008b). Non-wetland waters were delineated based on the presence of OHWM indicators. At each study area, several parameters were considered to determine whether the sample point is within a wetland. Three criteria normally must be fulfilled in order to classify an area as a

jurisdictional USACE wetland: (1) a predominance of hydrophytic vegetation, (2) the presence of hydric soils, and (3) the presence of wetland hydrology. The application of these techniques is described below.

- **Hydrophytic Vegetation:** The hydrophytic vegetation criterion is satisfied at a location if greater than 50% of all the dominant species present within the vegetation unit have a wetland indicator status of obligate (OBL), facultative wetland (FACW), or facultative (FAC) (Environmental Laboratory 1987). An OBL indicator status refers to plants that almost always occur in wetlands under natural conditions. A FACW indicator status refers to plants that usually occur in wetlands but are occasionally found elsewhere. A FAC indicator status refers to plants that are equally likely to occur in wetlands or elsewhere. An NI (no indicator) status designates that insufficient information was available to determine an indicator status. An NO (no occurrence) status indicates that the species does not occur in the region; when a plant with an NO status is found within a region, it usually indicates that the plant is ornamental. The wetland indicator status used for this report follows the National Wetland Plant List (Lichvar et al. 2016).
- **Hydric Soils:** The definition of 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 (USDA/NRCS 1994). This determination is made based on various field indicators detailed in the *Arid West Supplement* and the *Field Indicators of Hydric Soils in the United States (Version 7.0)* (USDA/NRCS 2010).
- **Wetland Hydrology:** Wetland hydrology is determined using indicators of inundation or saturation (flooding, ponding, or tidally influenced) detailed in the *Wetland Delineation Manual* and the *Arid West Supplement*.

Within areas that could potentially support wetlands, soil pits were dug to examine soil color and texture and determine the wetland boundary. Wetland Determination Forms are included as Attachment 3 to this report. A paired-pit technique was used (one sample point with wetland results paired with one sample point with non-wetland results, used to identify a wetland boundary).

### 2.2.2 State Jurisdiction

Evaluation of state jurisdiction followed guidance from Section 401 of the CWA and typically follows the same jurisdictional areas as USACE. In addition, the study area was reviewed for resources potentially regulated under the Porter-Cologne Act (i.e., isolated features). Isolated vernal pools, isolated wetlands, or other aquatic features not normally subject to federal regulation did not occur within the study area; therefore, no further evaluation was necessary.

### 2.2.3 CDFW Jurisdiction

CDFW jurisdiction typically includes water features with a defined bed and bank. Evaluation of potentially jurisdictional areas followed the guidance of standard practices by CDFW personnel. Briefly, CDFW jurisdiction was delineated by measuring outer width and length boundaries of potentially jurisdictional areas (lakes or streambeds), consisting of the greater of either the top of bank measurement or the extent of associated riparian or wetland vegetation.

Chapter 3
# Environmental Setting

The following section describes the topography and land use, hydrology, and soils associated with the study area.

## 3.1 Topography and Land Use

The study area occur in either flat valleys or along steep slopes with an elevation ranging from roughly 150 feet above mean sea level (AMSL) at the northern end near Laguna Niguel Regional Park, to approximately 600 feet AMSL at the southeastern end of Chapparosa Park (Google Earth 2016).

Land uses in the local vicinity of the study area include residential and commercial developments, undeveloped open space, and recreational uses such as pedestrian and bicycle trails, schools, and parks.

## 3.2 Hydrology

### 3.2.1 Precipitation

Average precipitation in Laguna Niguel is approximately 7.06 inches per year (The Weather Channel 2016). Table 3-1 summarizes the average precipitation by calendar month.

**Table 3-1. Rainfall Data Summary for the Study Area (in inches)**

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average | 2.9 | 3.4 | 2.0 | 0.9 | 0.3 | 0.1 | 0.1 | 0.0 | 0.3 | 0.7 | 1.1 | 2.4 | 14.2 |

Source: The Weather Channel. 2016. The Laguna Niguel weather monitoring station is located approximately 0.5 mile from the study area.

## 3.3 Watershed

The study area is within the following California watersheds: San Juan Hydrologic Unit, Laguna Hydrologic Area, and Aliso Hydrologic Subarea (901.13). The study area is also within the USGS Aliso Creek-Frontal Gulf of Santa Catalina hydrologic unit (HUC 10 code: 1807030103) (Figure 4a) and the following subwatersheds: Aliso Creek (HUC 12 code: 180703010301) and the Salt Creek/Dana Point Coastal Streams Watershed (HUC 12 code: 180703010302) (Figure 4b).

General information on these sub-watersheds is provided below.

### 3.3.1 Aliso Creek Watershed

The Aliso Creek 12-digit HUC encompasses approximately 35 square miles—made up of Aliso Creek and its tributaries— which has headwaters in Cleveland National Forest and eventually drains into the Pacific Ocean (Figure 4b). The dominant land uses in the watershed are urban (residential and commercial development), open space, and undeveloped (OC Watersheds 2016a).

More than half of the land area categorized as urban is composed of residential communities and commercial uses (OC Watersheds 2016a), and 75% of the watershed is considered developed (USACE and OC Watersheds 2009a). The most important watershed issues for Aliso Creek Watershed are related to the protection of water quality, addressing creek instability, the protection and restoration of sensitive wildlife and their habitats, and damages from flooding (Orange County 2006, USACE and OC Watersheds 2009b).

Within the study area, Sulphur Creek is considered a 303(d) listed waterbody for indicator bacteria, phosphorus, and toxicity. Receiving waters downstream, including Aliso Creek (for indicator bacteria, phosphorus, selenium, total nitrogen, and toxicity) and Aliso Creek Mouth (for indicator bacteria), are also listed (SWRCB 2015). Aliso Creek was included in the Beaches and Creeks Total Maximum Daily Loads (TMDL) for indicator bacteria approved by the San Diego Regional Water Quality Control Board (RWQCB 2010).

### 3.3.2 Salt Creek/Dana Point Coastal Streams Watershed

The Dana Point Coastal Streams Watershed, located south of the Aliso Creek Watershed and including Salt Creek, is part of the Salt Creek-Frontal Gulf of Santa Catalina 12-digit HUC (Figure 4b). All streams and their tributaries in these small watersheds eventually drain into the Pacific Ocean. Salt Creek and its tributaries comprise the majority of streams within the Dana Point Coastal Streams Watershed, which encompasses approximately 10.3 square miles (OC Watersheds 2016b). The Salt Creek Watershed encompasses approximately 6 square miles (County of Orange 2013)

The dominant land uses in the Dana Point Coastal Streams Watershed are urban, open space, agriculture, and undeveloped. Residential use accounts for more than half of the area in the watershed (OC Watersheds 2016b). The priority concern associated with the Salt Creek drainage is poor water quality at Salt Creek Beach related to inland runoff. Bacteria levels in Salt Creek during dry-weather flows are reduced by advanced stormwater treatment at the Salt Creek Ozone Treatment Facility, which has been in seasonal operation (generally May through October) since 2005 (County of Orange 2013).

None of the delineated features of the Dana Point Coastal Streams Watershed within the study area are considered 303(d) listed waterbodies. However, receiving waters downstream are listed, including the Pacific Ocean shoreline where Salt Creek outflows at Monarch Beach/Salt Creek Beach (for total coliform) (SWRCB 2015). This section of the Pacific Ocean shoreline at the outlet of Salt Creek was included in the Beaches and Creeks TMDL for indicator bacteria approved by the San Diego RWQCB (California RWQCB 2010)

# 3.4 Soils

## 3.4.1 Soil Series

The NRCS has mapped the following soil series as occurring within the study area that support jurisdictional waters based on the SSURGO database (USDA/NRCS 2015a).

- Alo
- Balcom
- Botella
- Calleguas
- Cropley
- Sorrento

The locations of the soils associated with the study area are shown on Figure 5. A description of all of the series included within the SSURGO mapping units is provided below based on the official soil descriptions provided by the USDA (USDA/NRCS 2016):

### 3.4.1.1 Alo

The Alo soil series consists of well-drained, moderately deep substrate that was formed by weathering of shale and sandstone. Alo soils occur in mountainous areas at elevations of 200 to 3,250 feet, with slopes of 2 to 75%. The typical soil texture is clay loam, silty clay, or clay, with low to very high runoff and slow permeability. Alo soils have a moderate extent and are located on the Coastal Range in central and southern California Mountains.

Wetland sites 1, 2, 5, 7, 8, 9, and10, and a portion of wetland site 13 (Figure 5—Sheets 1, 2, and 3) are located on Alo soils.

### 3.4.1.2 Balcom

The Balcom soil series consists of moderately deep, well-drained soils formed in material that weathered from soft, calcareous shale and sandstone. Balcom soils are located on rounded hills at elevations of 200 to 2,300 feet, with slopes of 5 to 75%. The typical soil texture is that of fine loam with silt, clay, fine sand, or coarser material. The series has low to high runoff and moderate to moderately slow permeability. Balcom soils have a moderate extent and are located on Coast Range Mountains in south-central California and on the west side of the Sacramento Valley.

Wetland sites 1, 3, and 12 (Figure 5—Sheet 1) are located on Balcom soils.

### 3.4.1.3 Botella

The Botella series consists of very deep, well-drained soils that occur on alluvial fans and valley bottoms. Botella soils occur at elevations from 50 to 2,100 feet, with slopes of 0 to 15%. The typical soil texture is fine loam with fragments. These soils have low to high runoff and

moderately slow permeability. Botella soils have a moderate extent and are located in coastal valleys of central and southern California.

Wetland sites 1, 7, 8, and 10, and a portion of wetland site 13 (Figure 5—Sheets 1, 2, and 3) are located on Botella soils.

#### 3.4.1.4 Calleguas

The Calleguas series consists of very shallow and shallow, well-drained soils that occur on exposed and often eroded south-facing slopes. They formed in material weathered from sandstone, shale, and mudstone. Calleguas soils occur at elevations from 100 to 2,800 feet, with slopes of 9 to 75%. The typical soil texture is loam, clay loam, silty clay loam, channery loam, channery clay loam, or channery silty clay loam, with medium or high runoff and moderate permeability. Calleguas soils have a large extent in the Coastal Range of central and south-central California.

Wetland sites 5, 6, and 11, and a portion of wetland site 13 (Figure 5—Sheets 2 and 3) are located on Calleguas soils.

#### 3.4.1.5 Cropley

The Cropley series consists of very deep, moderately well- and well-drained soils that occur on alluvial fans, floodplains, and small basins. They formed in alluvium from mixed rock sources. Cropley soils occur at elevations from 10 to 2,100 feet, with slopes of 0 to 15%. The typical soil texture is heavy clay loam, silty clay loam, silty clay or clay, with medium or high runoff and moderate permeability. Cropley soils have a moderate extent in Central California coastal valleys and Southern California coastal plain.

Wetland site 12 and a portion of wetland site 13 (Figure 5—Sheets 1 and 3) are located on Cropley soils.

#### 3.4.1.6 Sorrento

The Sorrento series consists of very deep, well-drained soils that occur on alluvial fans and stabilized floodplains. They formed in alluvium from sedimentary rock sources. Sorrento soils occur at elevations from 25 to 2,100 feet, with slopes of 0 to 15%. The typical soil texture is fine loam, with negligible to medium runoff and moderate to moderately slow permeability. Cropley soils have a large extent in the valleys and southern half of the California Coastal Range.

Wetland sites 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12 (Figure 5—Sheets 1, 2, and 3) are located on Sorrento soils.

### 3.4.2 Hydric Soil Types

None of the soil series that occur within the study area are listed as hydric soils (USDA/NRCS 2015b).

# Chapter 4
# Jurisdictional Delineation Results

The following describes the delineated features and expected jurisdictional status within the study area. This report documents existing conditions within the study area.

The information and results included herein document the investigation, best professional judgment, and conclusions of ICF. It is correct and complete to the best of our knowledge. However, all jurisdictional determinations should be considered preliminary until reviewed and approved by the regulatory agencies.

Detailed information, including maps of the features delineated within the study area, photographs, and Wetland Determination Forms are provided in the following attachments.

- Attachment 1 provides figures of the delineated features and the study area. Figure 9 shows USACE/RWQCB and CDFW jurisdictional delineation results.
- Attachment 2 contains photographs.
- Attachment 3 contains Wetland Determination Forms.

## 4.1 Delineated Feature Description

A detailed description of the delineated features within each wetland site is provided below. Jurisdictional delineation figures depicting the delineated features and sample points are provided in Attachment 1 as Figure 9—Sheets 1 through 10. All of the wetland sites supported a jurisdictional water and are shown on the map sheets.

**1 – West Wetland.** Site 1 contains a portion of Sulphur Creek, a perennial drainage, that flows north through the site along Alicia Parkway eventually flowing outside of the wetland site to an unnamed tributary to Aliso Creek (Figures 2 and 9—Sheet 2). The drainage supports OHWM indicators and adjacent wetlands within the wetland site. There are several small concrete outfalls that collect runoff from the surrounding hillside to the west and direct flow into this drainage as it proceeds northward.

Surface water was present within the low-flow channel, which varies from approximately 1 feet to 2 feet wide, and is confined by short sharp banks and dense vegetation. Hydrology indicators observed include surface cracks, saturation, oxidized rhizospheres along living roots, and FAC-neutral pass. Dominant vegetation at this site included Mexican rush (*Juncus mexicanus*), chairmaker's club-rush (*Schoenoplectus americanus*), salt grass, Yerba Mansa (*Anemopsis californica*), and mule's-fat (*Baccharis salicifolia*). Vegetation in the adjacent upland area included coyote brush (*Baccharis pilularis*), California rose (*Rosa californica*), and salt grass.

**2 – East Wetland.** Site 2a is short, intermittent drainage that collects runoff from surrounding development (Figure 9—Sheet 2). Surface water, when present, appears to settle in a ponded area before flowing into a concrete stormwater collection ditch that transports flow to the north. The site supports wetland habitat and CDFW riparian within the wetland site.

Hydrology indicators included saturation and high water table. Wetland vegetation was dominated by club-rush and arroyo willow. Ice plant (*Carpobrotus edulis*), coyote brush, and arroyo willow were also present in surrounding upland/riparian areas.

**3 – North Wetland.** Site 3is a network of six artificial treatment basins linked by small over-flow channels, located on the eastern side of Alicia Parkway within the wetland site (Figure 9—Sheet 2). A small (approximately 4-foot-wide) concrete box culvert contributes water to the most upstream basin in the southeastern corner of the wetland site.

North wetland supports wetland habitat and CDFW riparian. Surface water was present within some basins as well as water marks, water stained leaves, and hydrogen sulfide odor. The basins have wetland/riparian vegetation with a nearly closed canopy, dominated by arroyo willow and black willow. Herbaceous vegetation was dominated by club-rush. Adjacent riparian/upland habitat also had sandbar willow (*Salix exigua*, FACW), arroyo willow, and coyote brush.

**4 – Crown Valley Park Wetland Creation Area (J03P01).** Site 4 is a perennial segment of Sulphur Creek that flows northeast through the wetland site within the Crown Valley Community Park grounds to its confluence with another segment of Sulphur Creek. The wetland is bound on the southern edge by a large concrete culvert and concrete low flow channel, and on the northern edge by a pedestrian bridge that crosses the drainage (Figure 9—Sheet 6). The drainage crosses Community Park Road through a bridge structure consisting of three large culverts.

Surface water was present, and vegetation along the upstream portion of Site 4 was dominated by arroyo willow and also included watercress (*Nasturtium officinale*, OBL) and small matted sandmat (*Euphorbia serpens*, FACU). Vegetation in the adjacent riparian/upland area included arroyo willow, small matted sandmat, Bermuda grass (*Cynodon dactylon*, FACU), and tall flatsedge. The downstream portion of Site 4 had surface water present, but all riparian vegetation had been removed prior to the site visit due to construction activities. Remaining herbaceous vegetation included Bermuda grass, tall flatsedge, and cattails. Non-wetland segments of this wetland site consisted of the concrete portions of the drainage.

**5 – Sulphur Creek Park Wetland Enhancement Area.** Site 5 is Sulphur Creek that runs between Crown Valley Parkway and adjacent residential development within the wetland site (Figure 9—Sheet 5). This drainage supports OHWM indicators and wetland habitat. CDFW riparian is present along the drainage, and CDFW streambed was mapped where the stream enters a large concrete culvert with bank protection. Within the wetland site, Sulphur Creek is a small, approximately 4-foot-wide channel that flows southeast toward Crown Valley Community Park. There is a large concrete box culvert at the southern edge of the wetland site, and there is a concrete and riprap velocity control structure approximately halfway upstream in the reach of Site 5.

Surface water was present in the low flow channel. Hydrology indicators included drift deposits and drainage pattern. Riparian vegetation was dominated by arroyo willow, and no herbaceous understory was present.

**6 – Sulphur Creek Creation Area at Crown Valley.** Site 6 is a high flow channel and associated braided channels of Sulphur Creek (Figure 9—Sheet 6). The site supports OHWM indicators, adjacent wetland habitat, and CDFW riparian. This portion of the Sulphur Creek drainage flows in a northerly direction toward Aliso Creek.

Riparian vegetation is dominated by arroyo willow, and herbaceous vegetation is dominated by club-rush. Hydrology indicators present included sediment deposits, drift deposits, and desiccated aquatic invertebrates found in the soil sample.

**7 – Rancho Niguel Upper Sulphur Creek.** Site 7 is a section of Sulphur Creek that runs between Crown Valley Parkway and adjacent residential development, and is approximately bisected by Street of the Golden Lantern (Figure 9—Sheet 3). This drainage has been restored from previous concrete channelization and supports OHWM indicators, wetland habitat, and CDFW riparian. Within the wetland site, Sulphur Creek has a small, approximately 4-foot-wide low-flow channel that flows southeast. There are four large concrete box culverts through which the stream passes: at the northern edge of the wetland site, at the upstream and downstream ends of the Street of the Golden Lantern road crossing, and at the southern edge of the wetland site.

Surface water was present in the channel; in addition, the following hydrology indicators were observed: high water table, soil saturation, riverine sediment deposits, and riverine drift deposits. Riparian vegetation along Site 7 was dominated by arroyo willow, which formed a closed canopy and nearly excluded herbaceous vegetation.

**8 – Crown Royale Upper Sulphur Creek.** Site 8 is a section of Sulphur Creek that runs between Crown Valley Parkway and adjacent residential development (Figure 9—Sheet 4). This drainage has been restored from previous concrete channelization and supports OHWM indicators, wetland habitat, and CDFW riparian. Within the wetland site, Sulphur Creek is a small, approximately 4-foot-wide low-flow channel that flows southeast. At the northern end of the wetland site, there is a large concrete box culvert and concrete apron through which the stream passes inside a shallow low-flow channel as it exits under Nueva Vista Road. There is a concrete outfall and velocity-dissipating structure within the channel near the intersection of Crown Valley Parkway and Adelanto Road. At the southern edge of the wetland site, the stream enters another large concrete box culvert when it passes under La Paz Road.

Surface water was present in the channel; in addition, the following hydrology indicators were observed: high water table, saturation, and hydrogen sulfide odor. Wetland vegetation was dominated by Yerba Mansa, cattails, and salt grass.

**9 – Niguel Ridge Upper Sulphur Creek.** Site 9 is a section of Sulphur Creek that runs between Crown Valley Parkway and adjacent residential development (Figure 9—Sheet 5). This drainage has been restored from previous concrete channelization and supports OHWM indicators, wetland habitat, and CDFW riparian. Within the wetland site, Sulphur Creek is a small, approximately 4-foot-wide low-flow channel that flows southeast. At the northern end of the wetland site, there is a large concrete box culvert and concrete apron through which the stream passes inside a shallow low-flow channel as it exits under La Paz Road. The site is approximately bisected by La Plata Road, which crosses over the drainage where the stream

runs through a large concrete box culvert that is flanked on both sides by a concrete apron with a low-flow concrete channel.

Surface water was present in the channel; in addition, the following hydrology indicators were observed: riverine drift and sediment deposits. Riparian vegetation was dominated by arroyo willow. Herbaceous vegetation was dominated by alkali heath.

**10 – USACE Sulphur Creek Restoration Area.** Site 10 is a section of Sulphur Creek. The wetland site is located along a trail and bike path within the Crown Valley Community Park grounds (Figure 9—Sheet 6). This drainage currently supports OHWM indicators, wetland habitat, and CDFW riparian. Within the wetland site, Sulphur Creek is a small, approximately 6- to 8-foot-wide channel that flows north. The site is bound by a pedestrian bridge at the southern end and by a concrete channelization at the northern end where Sulphur Creek runs adjacent to the South Orange County Wastewater Authority Regional Treatment Plant.

Surface water was present in the channel; in addition, the following hydrology indicators were observed: riverine sediment and drift deposits. Riparian vegetation was dominated by arroyo willow and mule's-fat. Herbaceous vegetation was dominated by Yerba Mansa. The larger floodplain present in this area is approximately 100 feet wide.

**11 – Sulphur Creek in Crown Valley Park.** Site 11 is a section of Sulphur Creek (Figure 9—Sheet 6). Within the wetland site, the drainage supports OHWM indicators, wetland habitat, and CDFW riparian. Within the wetland site, Sulphur Creek supports a small approximately 5-foot-wide low-flow channel that flows west.

Surface water was present; in addition, the following hydrology indicators were observed: riverine sediment and drift deposits. Riparian vegetation was dominated by arroyo willow. Herbaceous vegetation was dominated by a mix of garden celery (*Apium graveolens*, NL), great plantain (*Plantago major*, FAC), white sweetclover, and alkali bulrush (*Bolboschoenus maritimus*, NL).

**12 – La Paz Park Wetlands.** Site 12 consists of an unnamed tributary to Sulphur Creek, a small side drainage channel, and one additional basin feature (Figure 9—Sheet 1). The drainage supports OHWM indicators, wetland habitat, and CDFW riparian. Within the wetland site, the unnamed tributary is a small, approximately 6-foot-wide channel that flows west and is incised within steep banks. The stream exits a large concrete culvert with concrete slope protection as it passes under the La Paz Road past the eastern end of the wetland site. The small drainage channel is fed from a concrete outfall located at the eastern end and drains to the unnamed tributary through a culvert on its western end. The basin feature, located northwest of the stream features, flows to the unnamed tributary at high flows. It is fed by two concrete outfall structures on its northern and western sides, and drains through a concrete culvert on the southern side.

Surface water was present in the channel; in addition, the following hydrology indicators were observed: riverine drift deposits, riverine sediment deposits, and FAC-neutral test pass. Riparian vegetation was dominated by black willow and blackberry (*Rubus ursinus*, FAC).

**13 – Salt Creek Restoration Area.** Site 13 consists of Salt Creek, a perennial stream, primarily fed by urban runoff from irrigation. Within the western portion of the wetland site, this drainage supports OHWM indicators, wetland habitat, and CDFW riparian. Riparian vegetation is dominated by arroyo willow (*Salix lasiolepis*, FACW), and the herbaceous layer is dominated by cattails (*Typha domingensis*, OBL) and California bulrush (*Schoenoplectus californicus*, OBL). At the southern end of wetland site, adjacent to the concrete culvert under Niguel Road, the channel widens at a large ponded area, and riparian vegetation is limited to cattails, without substantial canopy cover.

Surface water was present across the width of the channel of the drainage. The channel was sharply incised, with an approximately 4-foot-high drop separating the active channel from upland habitat.

Six non-wetland tributaries to Salt Creek were also delineated within this wetland site. All tributaries are first-order ephemeral drainages and are steeply incised due to the steep topography of the area. These tributaries are dominated by upland grasses and coastal sage scrub species; no hydrophytic vegetation was observed.

## 4.2 Delineation Results Summary

A total of 18.47 acres/29,564 linear feet of waters of the U.S. is present within the study area. Of this, 16.802 acres are wetland waters of the U.S. and 1.664 acres linear feet are non-wetland waters of the U.S. In addition, there are 44.44 acres/29,564 linear feet of waters of the state within the study area. Of this, 4.478 acres are CDFW streambed and 40.962 acres are CDFW riparian. All drainages delineated within the study area are subject to USACE, RWQCB, and CDFW jurisdiction. Table 4-1 contains jurisdictional summaries for each drainage.

Salt Creek is a Relatively Permanent Water, while the unnamed tributaries to Salt Creek are non-Relatively Permanent Waters. Salt Creek flows directly into the Pacific Ocean approximately 2.5 miles downstream of the study area. Sites 1 through 12 include Sulphur Creek and its unnamed tributaries. Sulphur Creek is a tributary to Aliso Creek, which flows directly to the Pacific Ocean approximately 5 miles downstream of the study area. Therefore, all drainages delineated are subject to regulation under Sections 404 and 401 of the CWA and CDFW jurisdiction under Sections 1600–1616 of the California Fish and Game Code.

**Table 4-1. Jurisdictional Delineation Summary**

| | | USACE/RWQCB | | CDFW | |
|---|---|---|---|---|---|
| **Feature** | **Linear Feet** | **Non-wetland Waters (Acres)** | **Wetland Waters (Acres)** | **Streambed (Acres)** | **Riparian (Acres)** |
| 1 – West Wetland | 2,734 | – | 1.965 | 0.017 | 4.885 |
| 2 – East Wetland | 636 | – | 0.395 | – | 1.028 |
| 3 – North Wetland | 326 | – | 0.253 | – | 0.635 |
| 4 – Crown Valley Park Wetland Creation Area/J03P01 | 1,940 | – | 1.075 | 00.489 | 3.352 |
| 5 – Sulphur Creek Park Wetland Enhancement Area | 790 | 0.018 | 0.558 | 0.044 | 1.343 |
| 6 – Sulphur Creek Creation Area at Crown Valley | 204 | – | 0.422 | – | –0.621 |
| 7 – Rancho Niguel Upper Sulphur Creek | 3,391 | 0.147 | 3.510 | 0.380 | 8.262 |
| 8 – Crown Royale Upper Sulphur Creek | 1,527 | 0.032 | 0.884 | 0.288 | 2.174 |
| 9 – Niguel Ridge Upper Sulphur Creek | 1,786 | 0.068 | 0.432 | 0.587 | 1.170 |
| 10 - USACE Sulphur Creek Restoration Area | 1,791 | – | 1.913 | 0.248 | 5.412 |
| 11 – Sulphur Creek in Crown Valley Park | 555 | – | 0.641 | – | 1.042 |
| 12 – La Paz Park Wetlands | 748 | – | 0.269 | – | 1.167 |
| 13. Salt Creek Restoration Area | 13,136 | 1.399 | 4.484 | 2.426 | 9.876 |
| **Total** | **29,564** | **1.664** | **16.802** | **4.478** | **40.962** |

# 4.3 List of Delineators and Report Preparers/Reviewer

Lanika Cervantes, Regulatory Specialist/Biologist-Delineator – Report Preparer/Senior Review

Sarah Horwath, Biologist – Delineator/Report Preparer

Lance Wooley, Biologist/Botanist – Delineator/Report Preparer

Brad Stein – GIS Specialist

# Chapter 5
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Attachment 1

# Figures




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**Figure 1**
**Vicinity Map**
**Laguna Niguel Wetlands O&M Activities**

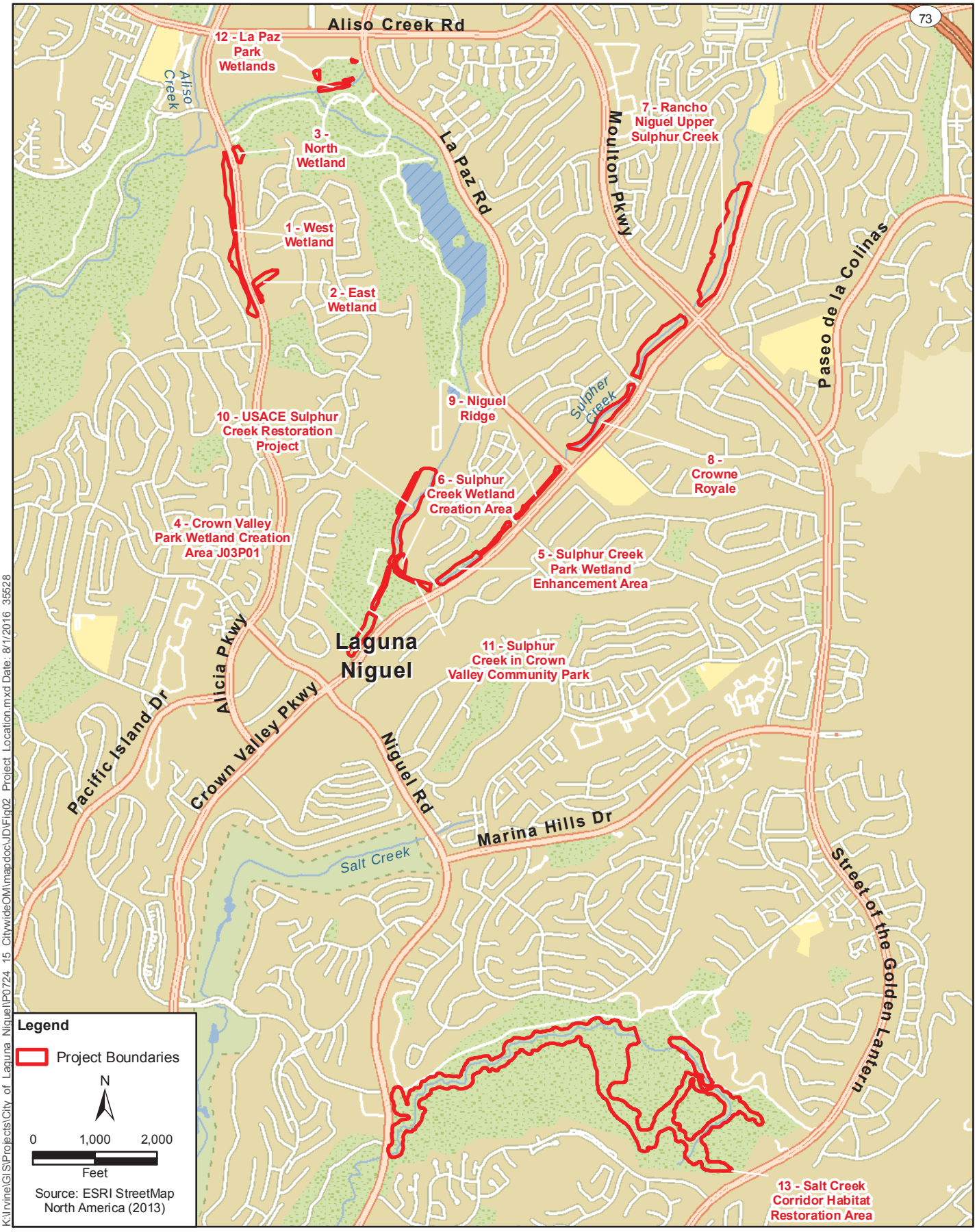


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**Figure 2**
**Project Location**
**Laguna Niguel Wetlands O&M Activities**

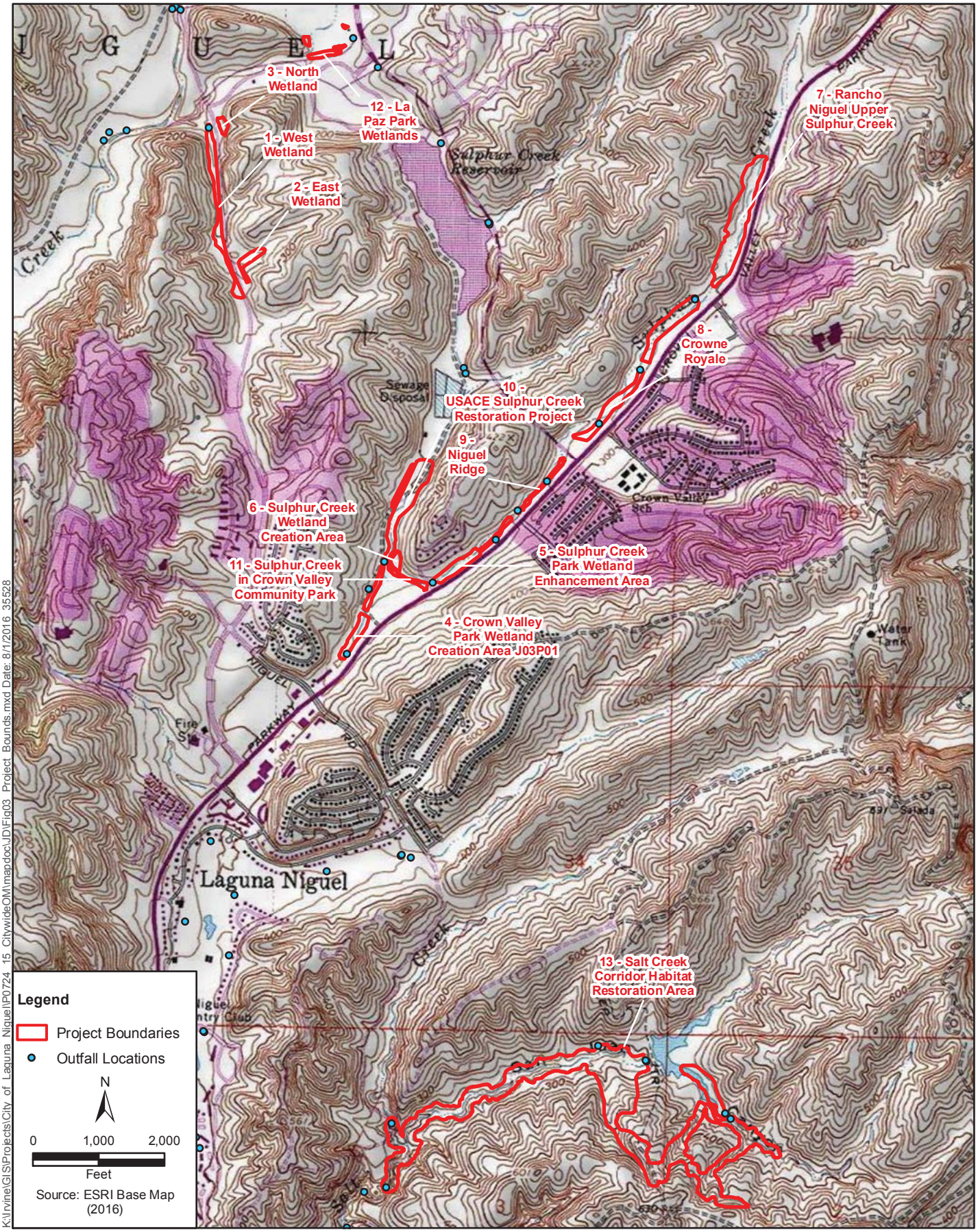


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**Figure 3**
**Project Boundaries USGS (San Juan Capistrano Quad)**
**Laguna Niguel Wetlands O&M Activities**




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**Figure 4a**
**HUC 8 & 10 Watersheds**
**Laguna Niguel Wetlands O&M Activities**

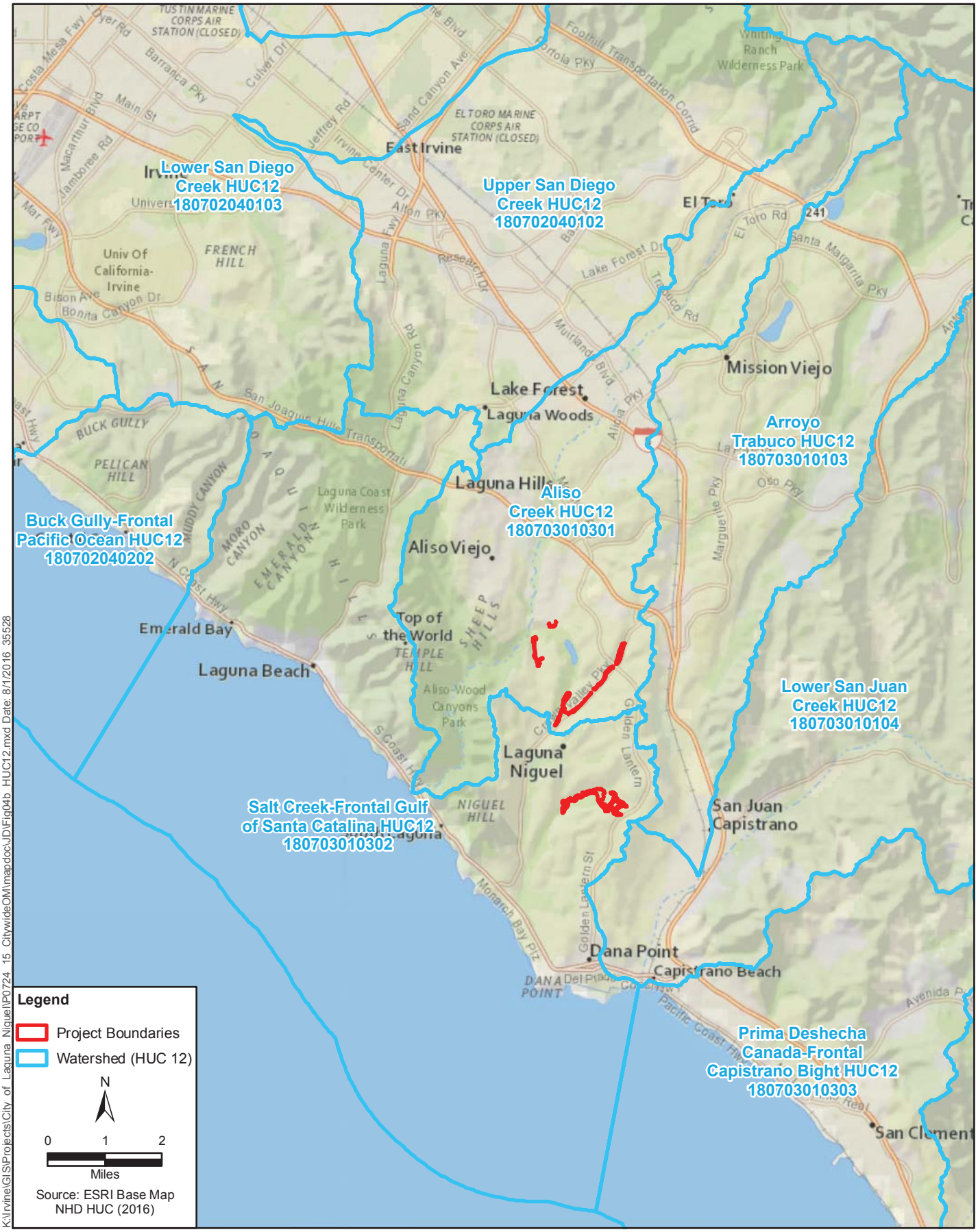


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**Figure 4b**
**HUC 12 Watersheds**
**Laguna Niguel Wetlands O&M Activities**

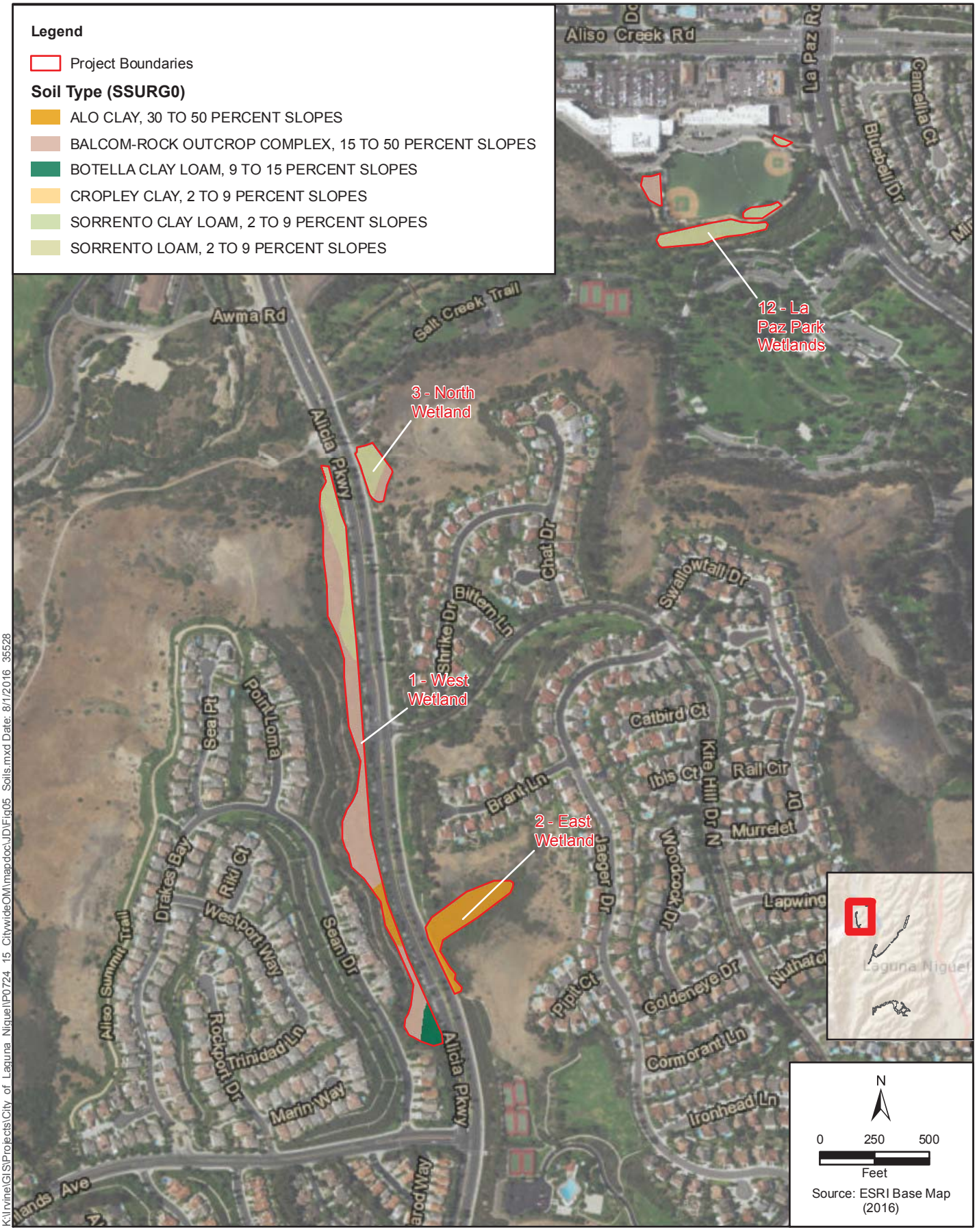


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**Figure 5 Sheet 1**
**Soils**
**Laguna Niguel Wetlands O&M Activities**

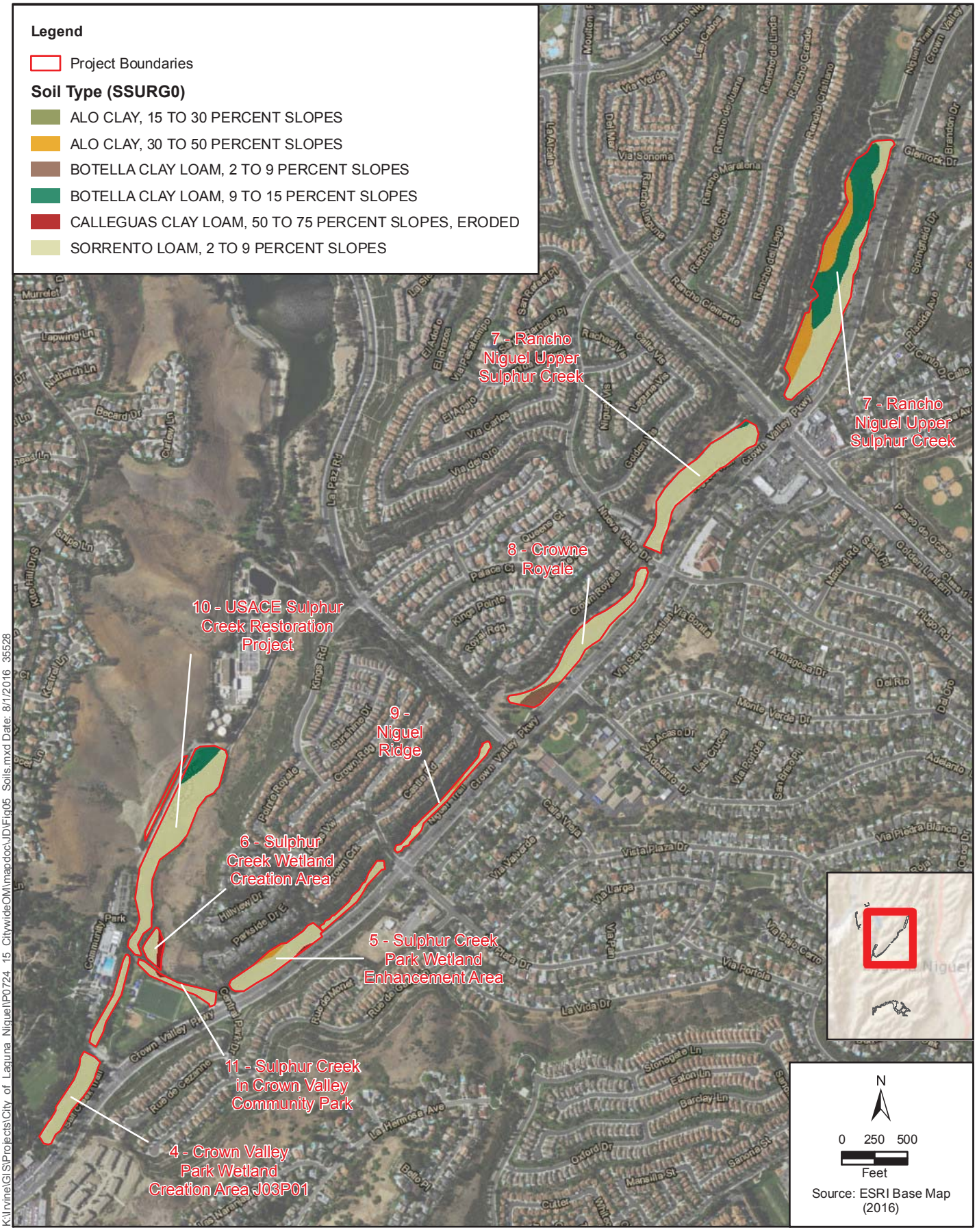


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**Figure 5 Sheet 2**
**Soils**
**Laguna Niguel Wetlands O&M Activities**

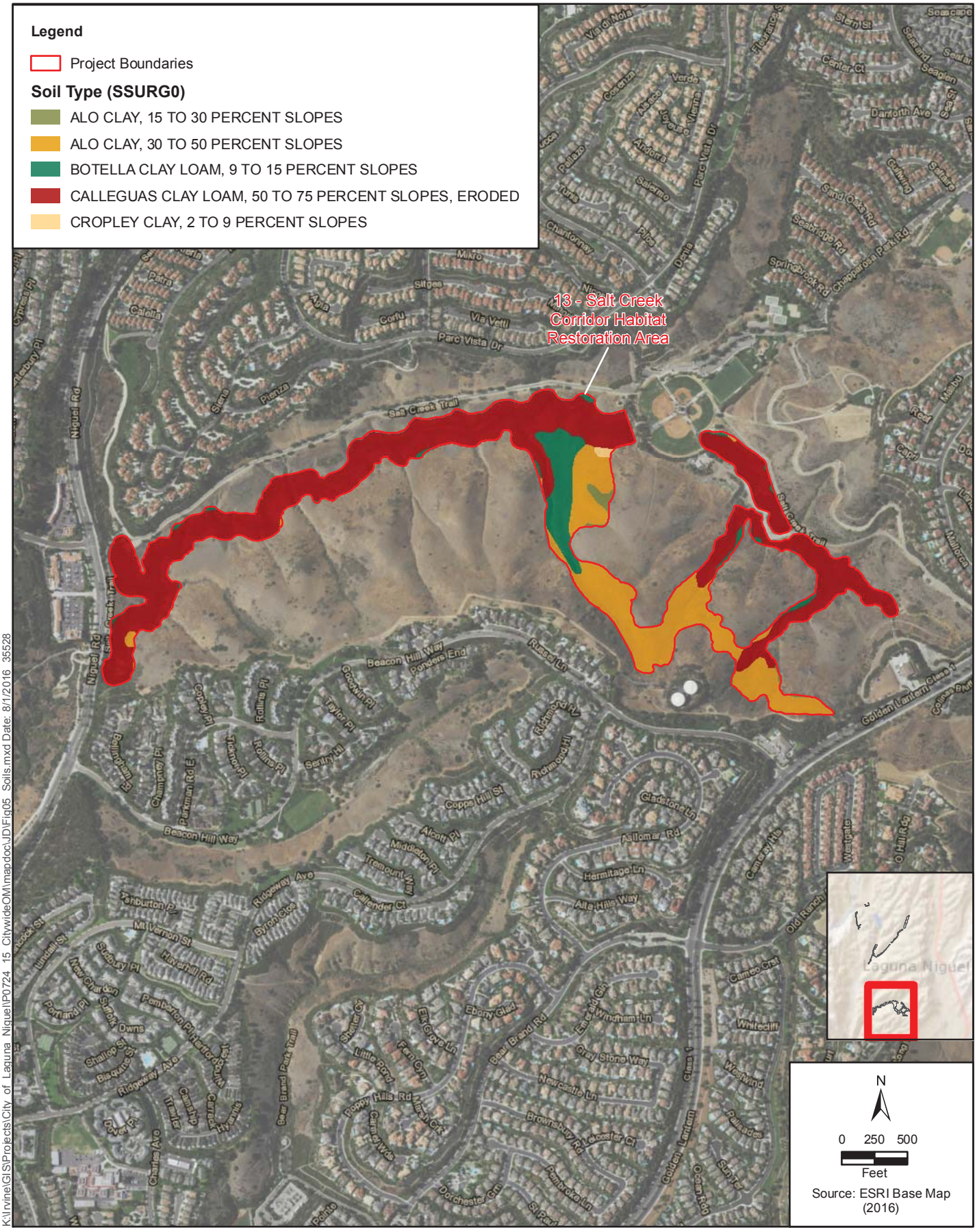


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**Figure 5 Sheet 3**
**Soils**
**Laguna Niguel Wetlands O&M Activities**

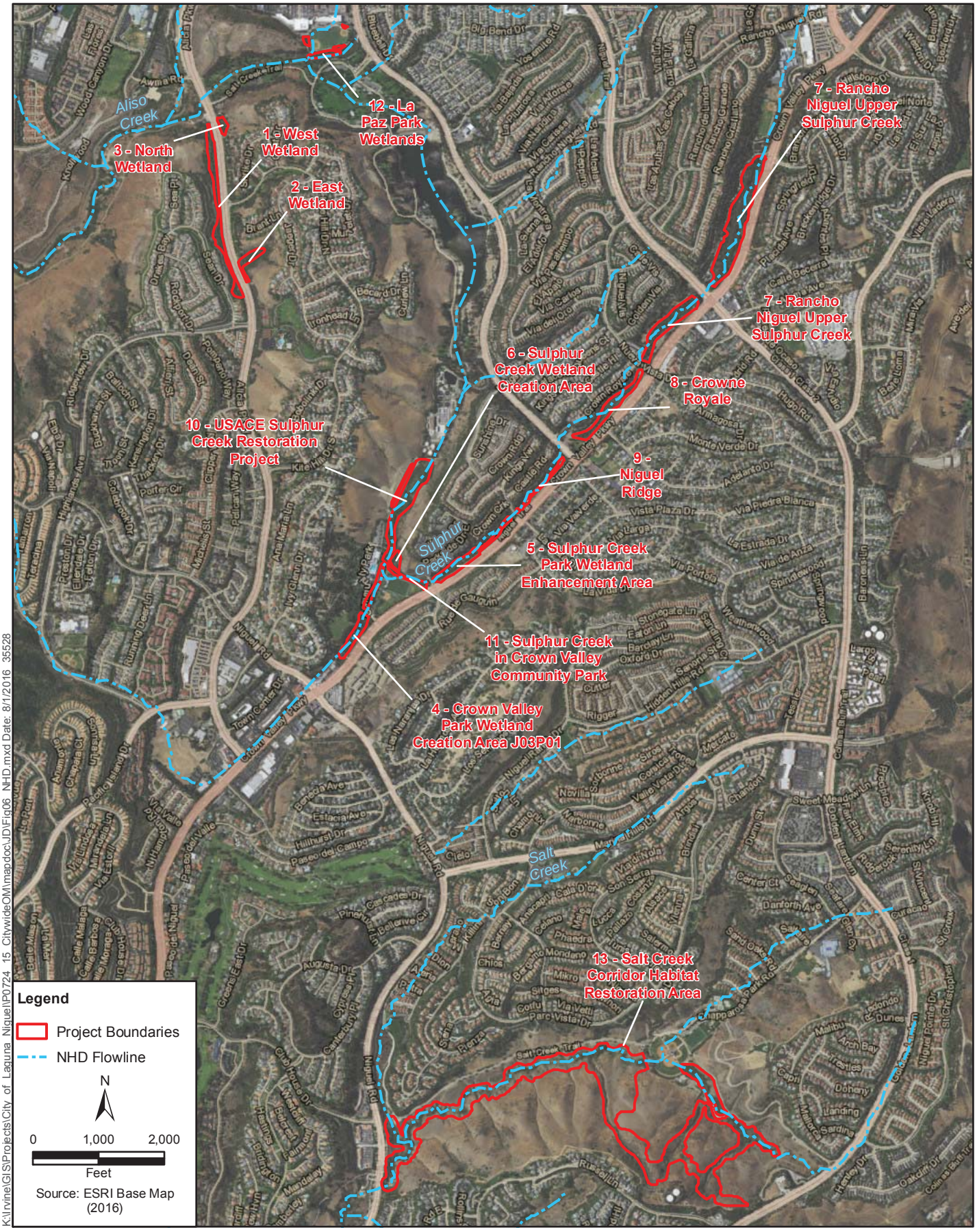


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**Figure 6**
**National Hydrologic Dataset (NHD)**
**Laguna Niguel Wetlands O&M Activities**




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**Figure 7 Sheet 1**
**National Wetlands Inventory (NWI)**
**Laguna Niguel Wetlands O&M Activities**

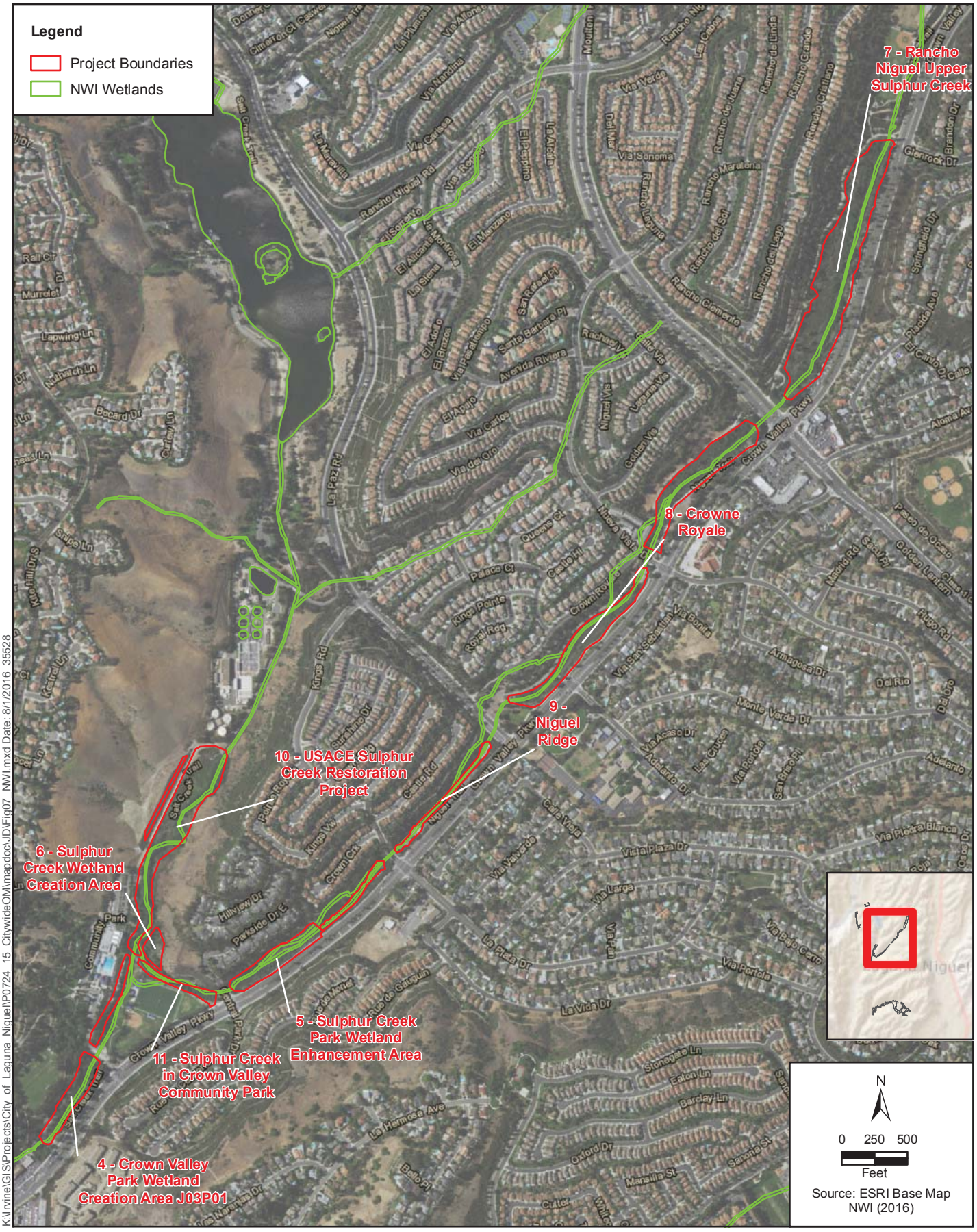


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**Figure 7 Sheet 2**
**National Wetlands Inventory (NWI)**
**Laguna Niguel Wetlands O&M Activities**




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**Figure 7 Sheet 3**
**National Wetlands Inventory (NWI)**
**Laguna Niguel Wetlands O&M Activities**

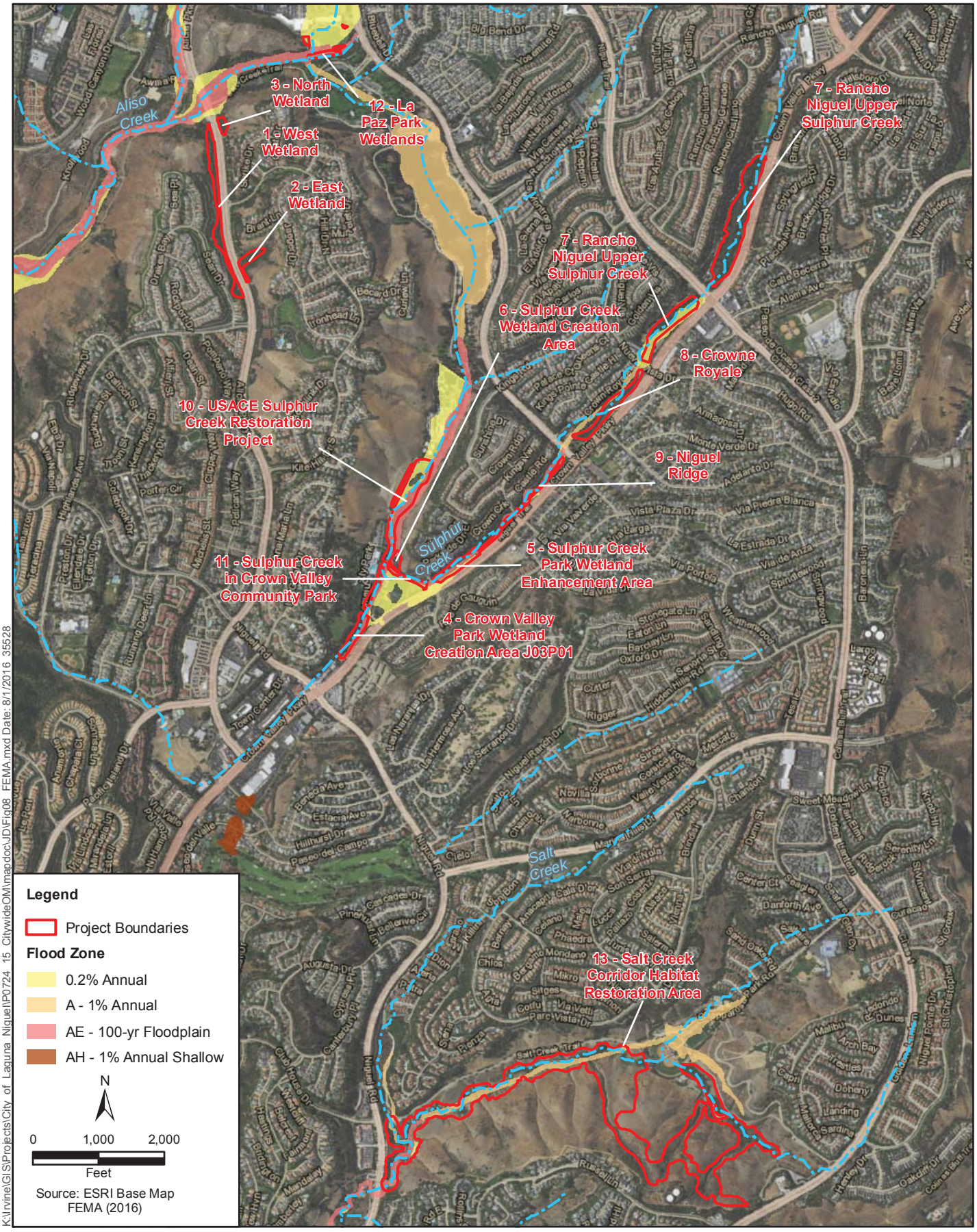


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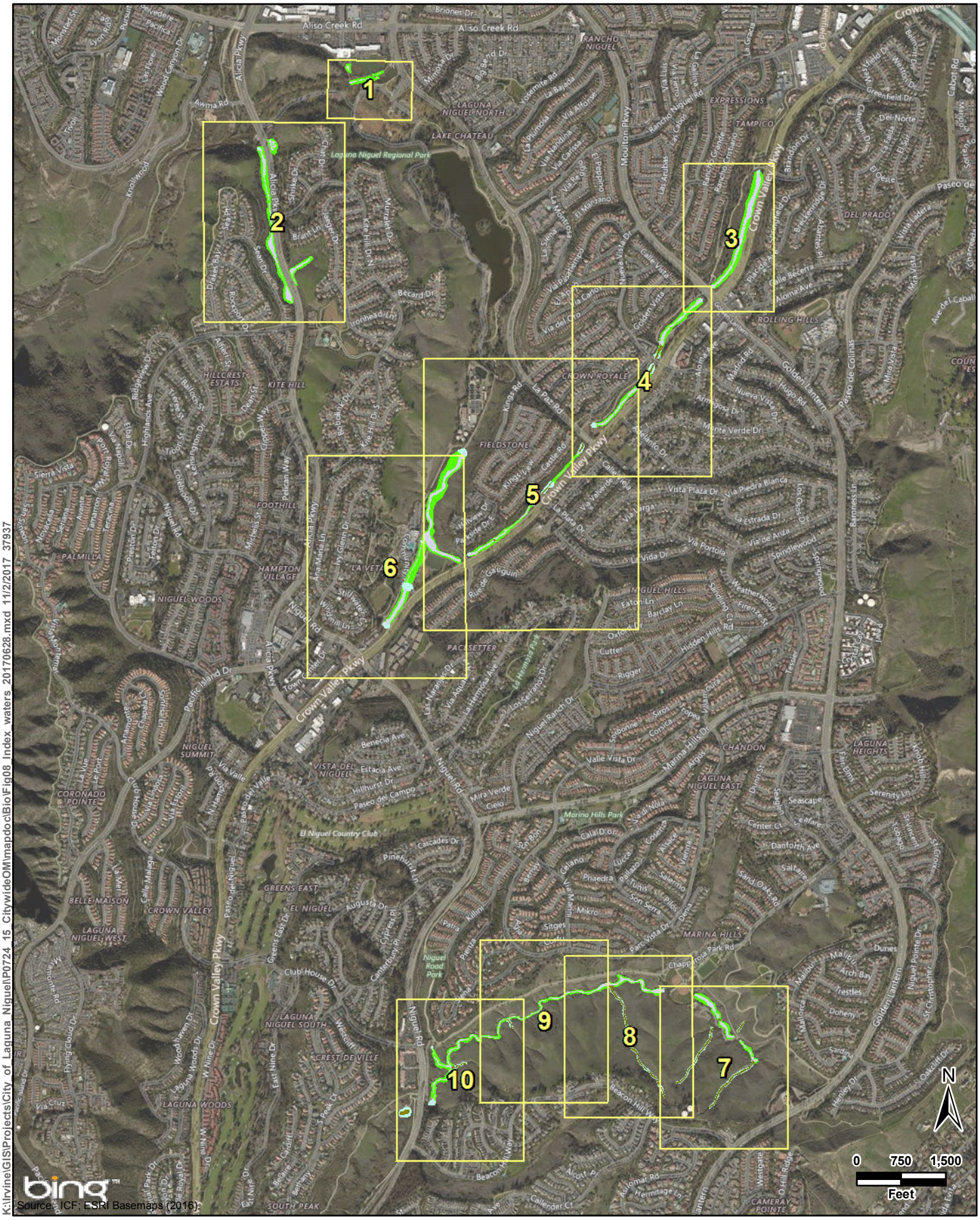
**Figure 8**
**FEMA Flood Zones**
**Laguna Niguel Wetlands O&M Activities**




ICF

**Legend**

| Waters of the U.S. and State | Waters of the State |
|---|---|
| Nonwetland | Riparian |
| Wetland | Streambed |

**Figure 9 Index Sheet**
**Jurisdictional Delineation Results**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 1**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 2**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 3**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 4**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 5**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 6**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 7**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**

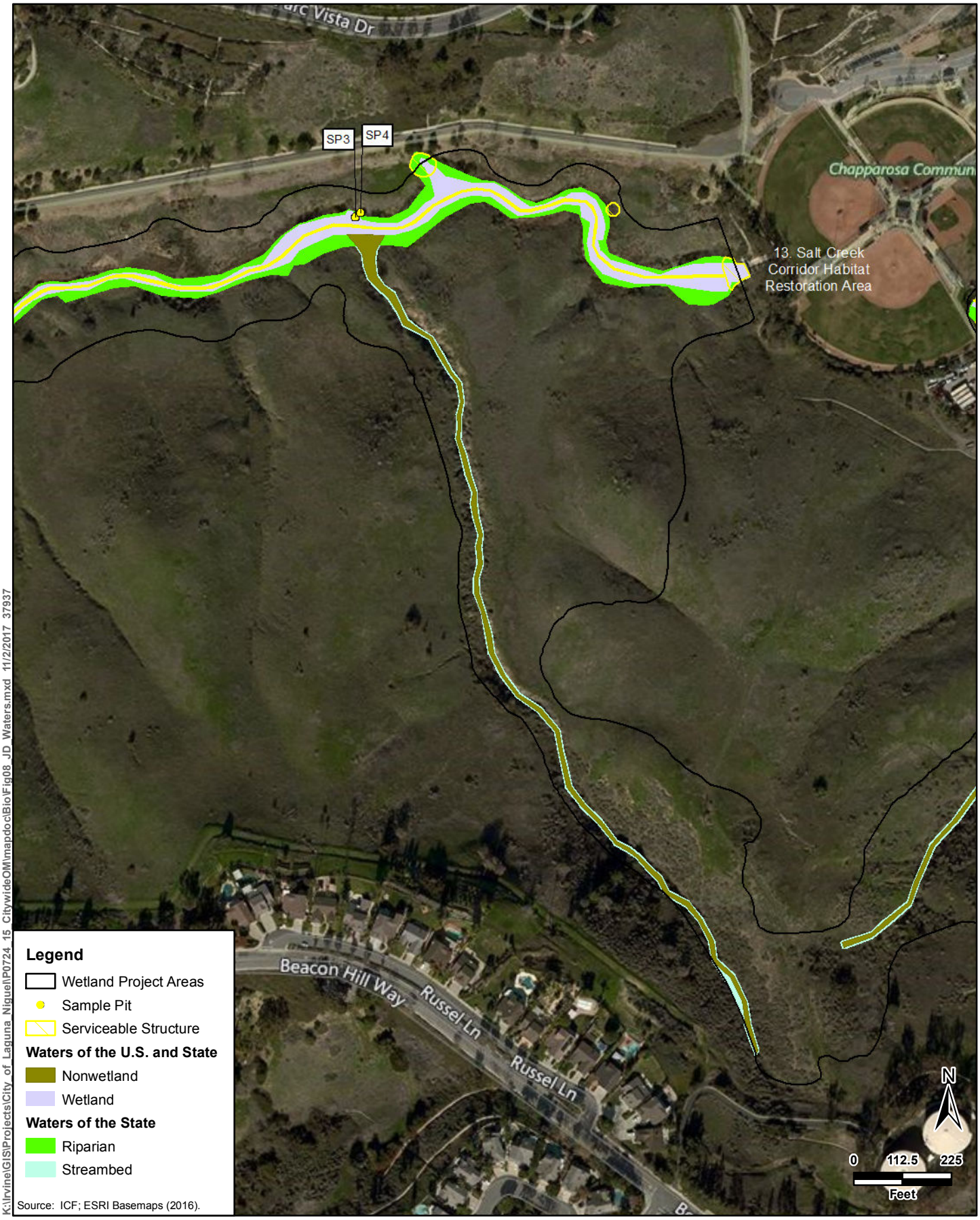



**Figure 9 Sheet 8**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 9**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**




**Figure 9 Sheet 10**
**Jurisdictional Delineation Waters**
**City of Laguna Niguel Wetlands Operations and Maintenance Activities**

Attachment 2

# Site Photographs, June and July 2016



Site 1. West Wetland. View of Sample Point 9.



Site 1. West Wetland. View of Sample Point 10, riparian habitat ends near the sidewalk.



Site 2. East Wetland. View of Sample Point 11, majority of wetland understory is freshwater marsh habitat.



Site 3. North Wetland. View of Sample Point 7 within one of the man-made basins. Basins typically have fringe wetlands with sparse vegetation within the center.



Site 3. North Wetland. View of Sample Point 8 along paths that occur in-between the basins.



Site 4. Crown Valley Park Wetland Creation Area/J03P01. View of Sample Point 30.



Site 5. Sulphur Creek Park Wetland Enhancement Area. View of Sample Point 27, site is fully vegetated area.



Site 6. Sulphur Creek Creation Area at Crown Valley. View of Sample Point 24 within the wetland floodplain.



Site 7. Rancho Niguel Upper Sulphur Creek. View of Sample Point 13 within the wetland floodplain. Area dominated by riparian/wetland canopy.



Site 7. Rancho Niguel Upper Sulphur Creek. View of Sample Point 15 near the low-flow channel.



Site 8. Crown Royale Upper Sulphur Creek. View of Sample Point 17 within the wetland floodplain.



Site 9. Niguel Ridge Upper Sulphur Creek. View of Sample Point 19 near the low-flow channel.



Site 10. USACE Sulphur Creek Restoration Area. View of Sample Point 22 taken within wetland waters.



Site 10. USACE Sulphur Creek Restoration Area. View of Sample Point 21 taken within outer floodplain CDFW riparian areas.



Site 11. Sulphur Creek in Crown Valley Park. View of Sample Point 25 taken within wetland waters.



Site 12. La Paz Park Wetlands. View of Sample Points 5 and 6 taken near edge of wetland limits.



Site 12. La Paz Park Wetlands. View of one of the fully vegetated basins.



Site 13. Salt Creek Restoration Area. View of Sample Points 1 and 2 taken near edge of wetland limits. Steep drop to drainage.




Site 13. Salt Creek Restoration Area. View of Sample Point 3. Steep hillside along northern edge. Small terrace area supporting wetlands near main channel.




Site 13. Salt Creek Restoration Area. View of non-wetland tributaries that flow directly into Salt Creek.




Site 13. Salt Creek Restoration Area. View of non-wetland tributaries that flow directly into Salt Creek.

Attachment 3

# Wetland Determination Forms

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Salt Creek City/County: Laguna Niguel/Orange County Sampling Date: 06/28/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP1

Investigator(s): Lanika Cervantes, Sarah Horwath, Lance Wood Section, Township, Range: T8S R8W

Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 33.50773 Long: -117.706471 Datum: NAD 1963

Soil Map Unit Name: Calleguas Clay Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (●) No ( ) |
| Wetland Hydrology Present? | Yes (●) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 20 | Yes | FACW |
| 2. *Ailanthus altissima* | 5 | Yes | FACU |
| 3. | | | |
| 4. | | | |
| Total Cover: | 25 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Typha domingensis* | 35 | Yes | OBL |
| 2. *Schoenoplectus californicus* | 10 | No | OBL |
| 3. *Melilotus albus* | 3 | No | FACU |
| 4. *Helminthotheca echioides* | 3 | No | FAC |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 51 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 24 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 45 | x 1 = | 45 |
| FACW species | 20 | x 2 = | 40 |
| FAC species | 3 | x 3 = | 9 |
| FACU species | 8 | x 4 = | 32 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 76 (A) | | 126 (B) |

Prevalence Index = B/A = 1.66

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP1

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| N/A | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks: No soil pit sample was taken. Soils were assumed to be hydric due to surface water present during dry season.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☒ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 4

Water Table Present? Yes ◉ No ○ Depth (inches): Surface

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): Surface

**Wetland Hydrology Present?** Yes ◉ No ○

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

Remarks:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Salt Creek | City/County: Laguna Niguel/Orange County | Sampling Date: 06/28/2016

Applicant/Owner: City of Laguna Niguel | State: CA | Sampling Point: SP2

Investigator(s): Lanika Cervantes, Sarah Horwath, Lance Wood | Section, Township, Range: T8S R8W

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 10

Subregion (LRR): C - Mediterranean California | Lat: 33.507762 | Long: -117.706501 | Datum: NAD 1963

Soil Map Unit Name: Calleguas Clay Loam | NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area within a Wetland?** Yes ( ) No (●) |
| Wetland Hydrology Present? | Yes ( ) | No (●) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Isocoma menziesii* | 5 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 5 % | | |
| **Herb Stratum** | | | |
| 1. *Distichlis spicata* | 35 | Yes | FAC |
| 2. *Frankenia salina* | 10 | Yes | FACW |
| 3. *Limonium duriusculum* | 3 | No | Not Listed |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 48 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 10 % | % 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 10 | x 2 = | 20 |
| FAC species | 40 | x 3 = | 120 |
| FACU species | | x 4 = | 0 |
| UPL species | 3 | x 5 = | 15 |
| Column Totals: | 53 (A) | | 155 (B) |

Prevalence Index = B/A = 2.92

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP2

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-18 | 10 YR 5/3 | 100 | | | | | CL | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: No redox features, does not meet criteria for soils.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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: Sample point is approximately 5 feet higher than wetland elevation, but no hydrology indicators.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Salt Creek | City/County: Laguna Niguel/Orange County | Sampling Date: 06/28/2016

Applicant/Owner: City of Laguna Niguel | State: CA | Sampling Point: SP3

Investigator(s): Lanika Cervantes, Sarah Horwath, Lance Wood | Section, Township, Range: T8S R8W

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%):

Subregion (LRR): C - Mediterranean California | Lat: 33.511573 | Long: -117.697593 | Datum: 1963 NAD

Soil Map Unit Name: Calleguas Clay Loam | NWI classification: Freshwater Forested/Shrub

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 ○ | |
| Hydric Soil Present? | Yes ◉ | No ○ | **Is the Sampled Area within a Wetland?** Yes ◉ No ○ |
| Wetland Hydrology Present? | Yes ◉ | No ○ | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Isocoma menziesii* | 5 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 5 % | | |
| **Herb Stratum** | | | |
| 1. *Frankenia salina* | 90 | Yes | FACW |
| 2. *Distichlis spicata* | 10 | No | FAC |
| 3. *Cyperus eragrostis* | 5 | No | FACW |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 105 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 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: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 95 | x 2 = | 190 |
| FAC species | 15 | x 3 = | 45 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 110 (A) | | 235 (B) |

Prevalence Index = B/A = 2.14

**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.

**Hydrophytic Vegetation Present?** Yes ◉ No ○

Remarks: Small terrace area adjacent to drainage.

## SOIL

Sampling Point: SP3

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-18 | 10YR 3/2 | 95 | 5YR 5/6 | 5 | D | PL | LC | Redox features observed |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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: Several hydrology indicators observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Salt Creek | City/County: Laguna Niguel/Orange County | Sampling Date: 06/28/2016

Applicant/Owner: City of Laguna Niguel | State: CA | Sampling Point: SP4

Investigator(s): Lanika Cervantes, Sarah Horwath, Lance Wood | Section, Township, Range: T8S R8W

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 60

Subregion (LRR): C - Mediterranean California | Lat: 33.511610 | Long: -117.697558 | Datum: NAD 1963

Soil Map Unit Name: Calleguas Clay Loam | NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area within a Wetland?** Yes ( ) No (●) |
| Wetland Hydrology Present? | Yes ( ) | No (●) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Distichlis spicata* | 40 | Yes | FAC |
| 2. *Frankenia salina* | 20 | Yes | FACW |
| 3. *Bromus madritensis* | 2 | No | UPL |
| 4. *Salsola tragus* | 1 | No | FACU |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 63 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 37 % | % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 20 | x 2 = | 40 |
| FAC species | 40 | x 3 = | 120 |
| FACU species | 1 | x 4 = | 4 |
| UPL species | 2 | x 5 = | 10 |
| Column Totals: | 63 (A) | | 174 (B) |

Prevalence Index = B/A = 2.76

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP4

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-18 | 10YR 5/3 | 100 | | | | | LC | Dry |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: No redox observed, soils are dry.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators observed. Sample point taken on hillslope.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Wetland 12 City/County: Laguna Niguel/Orange County Sampling Date: 06/28/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP5

Investigator(s): Lanika Cervantes, Sarah Horwath, Lance Wood Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 33.553149 Long: -117.711675 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (●) No ( ) |
| Wetland Hydrology Present? | Yes (●) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix gooddingii* | 25 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 25 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Rubus ursinus* | 50 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 50 % | | |
| **Herb Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 50 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 25 | x 2 = | 50 |
| FAC species | 50 | x 3 = | 150 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 75 (A) | | 200 (B) |

Prevalence Index = B/A = 2.67

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP5

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-15 | 10YR 4/2 | 100 | | | | | Sand | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks: No redox features, however met wetland plants and hydrologic indicator criteria. Hydric soils are assumed present.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Wetland 12 City/County: Laguna Niguel/Orange County Sampling Date: 06/28/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP6

Investigator(s): Lanika Cervantes, Sarah Horwath, Lance Wooll Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR): C - Mediterranean California Lat: 33.553237 Long: -117.711796 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area within a Wetland?** Yes ( ) No (●) |
| Wetland Hydrology Present? | Yes ( ) | No (●) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Platanus racemosa* | 30 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 30 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis salicifolia* | 20 | Yes | FAC |
| 2. *Rosa californica* | 10 | Yes | FAC |
| 3. *Rubus ursinus* | 5 | No | FAC |
| 4. | | | |
| 5. | | | |
| Total Cover: | 35 % | | |
| **Herb Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | | x 2 = | 0 |
| FAC species | 65 | x 3 = | 195 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 65 (A) | | 195 (B) |

Prevalence Index = B/A = 3.00

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP6

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-2 | 5YR 4/4 | 100 | | | | | Loamy/Clay | |
| 2-15 | 10YR 3/2 | 100 | | | | | Loamy/Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: Soils do not meet a hydric soil indicator. No hydrology indicators observed therefore soils not assumed hydric.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators observed. Sample point taken on bank of drainage located approximately 5 feet higher in elevation from the wetland point.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/North Wetland 3 City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP7

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Pond Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 33.550354 Long: -117.716629 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 ( ) | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (●) No ( ) |
| Wetland Hydrology Present? | Yes (●) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix gooddingii* | 30 | Yes | FACW |
| 2. *Salix lasiolepis* | 20 | Yes | FACW |
| 3. | | | |
| 4. | | | |
| Total Cover: | 50 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Schoenoplectus californicus* | 10 | Yes | OBL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 10 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 40 % % 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 10 | x 1 = | 10 |
| FACW species | 50 | x 2 = | 100 |
| FAC species | | x 3 = | 0 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 60 (A) | | 110 (B) |

Prevalence Index = B/A = 1.83

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP7

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-10 | 10YR 2/1 | 80 | 5YR 5/8 | 20 | D | M | Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☒ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): Surface

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: Some ponds with water and some are dry.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/North Wetland 3 City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP8

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 3

Subregion (LRR): C - Mediterranean California Lat: 33.550283 Long: -117.716380 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area within a Wetland?** Yes ( ) No (●) |
| Wetland Hydrology Present? | Yes ( ) | No (●) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 50 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 50 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis pilularis* | 10 | Yes | Not Listed |
| 2. *Salix exigua* | 10 | Yes | FACW |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 20 % | | |
| **Herb Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 30 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 60 | x 2 = | 120 |
| FAC species | | x 3 = | 0 |
| FACU species | | x 4 = | 0 |
| UPL species | 10 | x 5 = | 50 |
| Column Totals: | 70 (A) | | 170 (B) |

Prevalence Index = B/A = 2.43

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP8

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-5 | 2.5Y 5/3 | 100 | | | | | Sandy Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: Compacted soil at five inches.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrologic indicators.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/West Wetland 1 City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP9

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 33.549402 Long: -117.7169937 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 ( ) | |
| Hydric Soil Present? | Yes (•) | No ( ) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes (•) | No ( ) | **within a Wetland?** **Yes** (•) **No** ( ) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis salicifolia* | 5 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 5 % | | |
| **Herb Stratum** | | | |
| 1. *Juncus mexicanus* | 70 | Yes | FACW |
| 2. *Schoenoplectus americanus* | 5 | No | OBL |
| 3. *Distichlis spicata* | 5 | No | FACW |
| 4. *Anemopsis californica* | 5 | No | OBL |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 85 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 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: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 10 | x 1 = | 10 |
| FACW species | 75 | x 2 = | 150 |
| FAC species | 5 | x 3 = | 15 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 90 (A) | | 175 (B) |

Prevalence Index = B/A = 1.94

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** **Yes** (•) **No** ( )

Remarks:

## SOIL

Sampling Point: SP9

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-12 | 10YR 3/1 | 90 | 5YR 5/8 | 10 | D | PL | Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 8

**Wetland Hydrology Present?** Yes ◉ No ○

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

Remarks:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/West Wetland 1 City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP10

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 33.549493 Long: -117.716894 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 (•) | |
| Hydric Soil Present? | Yes ( ) | No (•) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes ( ) | No (•) | **within a Wetland?** Yes ( ) No (•) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Rosa californica* | 5 | Yes | FAC |
| 2. *Baccharisa pilularis* | 2 | Yes | Not Listed |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 7 % | | |
| **Herb Stratum** | | | |
| 1. *Distichlis spicata* | 45 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 45 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 50 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | | x 2 = | 0 |
| FAC species | 50 | x 3 = | 150 |
| FACU species | | x 4 = | 0 |
| UPL species | 2 | x 5 = | 10 |
| Column Totals: | 52 (A) | | 160 (B) |

Prevalence Index = B/A = 3.08

**Hydrophytic Vegetation Indicators:**

- [X] 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.

**Hydrophytic Vegetation Present?** Yes ( ) No (•)

Remarks:

## SOIL

Sampling Point: SP10

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes ○ No ◉

Remarks: Restrictive layer - sidewalk. Wetland boundary is adjacent to sidewalk therefore a soil pit could not be dug.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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: Wetlands about the sidewalk. No hydrology indicators observed in the out pit.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/East Wetland 2 City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP11

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 33.544343 Long: -117.715481 Datum: NAD 1963

Soil Map Unit Name: Alo Clay NWI classification: None

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 ( ) | |
| Hydric Soil Present? | Yes (•) | No ( ) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes (•) | No ( ) | **within a Wetland?** **Yes** (•) **No** ( ) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 20 | Yes | FAC* |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 20 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis pilularis* | 5 | Yes | Not Listed |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 5 % | | |
| **Herb Stratum** | | | |
| 1. *Schoenoplectus americanus* | 40 | Yes | OBL |
| 2. *Carpobrotus edulis* | 2 | No | Not Listed |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 42 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 25 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 40 | x 1 = | 40 |
| FACW species | | x 2 = | 0 |
| FAC species | 20 | x 3 = | 60 |
| FACU species | | x 4 = | 0 |
| UPL species | 7 | x 5 = | 35 |
| Column Totals: | 67 (A) | | 135 (B) |

Prevalence Index = B/A = 2.01

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** **Yes** (•) **No** ( )

Remarks:

## SOIL

Sampling Point: SP11

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10 YR 2/1 | 100 | | | | | Loamy/Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [x] 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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes (•) No ( )

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] 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 Plowed Soils (C6)
- [ ] 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)
- [ ] Thin Muck Surface (C7)
- [ ] 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): 8 |
| Saturation Present? (includes capillary fringe) | Yes (•) | No ( ) | Depth (inches): 0 |

**Wetland Hydrology Present?** Yes (•) No ( )

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

Remarks: Surface water present adjacent to pit.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/East Wetland 2 City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP12

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 30

Subregion (LRR): C - Mediterranean California Lat: 33.544357 Long: -117.715498 Datum: NAD 1963

Soil Map Unit Name: Alo Clay NWI classification: None

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes ( ) | No (●) | **within a Wetland?** **Yes** ( ) **No** (●) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 2 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 2 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis pilularis* | 40 | Yes | Not Listed |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 40 % | | |
| **Herb Stratum** | | | |
| 1. *Schoenoplectus americanus* | 40 | Yes | OBL |
| 2. *Carpobrotus edulis* | 5 | No | Not Listed |
| 3. *Polypogon monspeliensis* | 2 | No | FACW |
| 4. *Lysimachia arvensis* | 2 | No | FAC |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 49 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 44 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 40 | x 1 = | 40 |
| FACW species | 4 | x 2 = | 8 |
| FAC species | 2 | x 3 = | 6 |
| FACU species | | x 4 = | 0 |
| UPL species | 45 | x 5 = | 225 |
| Column Totals: | 91 (A) | | 279 (B) |

Prevalence Index = B/A = 3.07

**Hydrophytic Vegetation Indicators:**

- [X] 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.

**Hydrophytic Vegetation Present?** **Yes** (●) **No** ( )

Remarks:

## SOIL

Sampling Point: SP12

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10YR 4/1 | 100 | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: No redpx observed within soils, no hydrology indicators were observed therefore the soils were not assumed hydric.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/7 (northern) City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP13

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR): C - Mediterranean California Lat: 33.545589 Long: -117.690829 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (●) No ( ) |
| Wetland Hydrology Present? | Yes (●) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 60 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 60 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 40 % % 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 60 | x 2 = | 120 |
| FAC species | | x 3 = | 0 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 60 (A) | | 120 (B) |

Prevalence Index = B/A = 2.00

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks: No understory present at this location.

## SOIL

Sampling Point: SP13

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-2 | 10YR 5/1 | 100 | | | | | Sandy Clay | |
| 2-18 | 10YR 3/1 | 80 | 5YR 5/8 | 20 | D | | Sandy Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 18 |
| Saturation Present? (includes capillary fringe) | Yes ◉ | No ○ | Depth (inches): 18 |

**Wetland Hydrology Present?** Yes ◉ No ○

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

Remarks: Water table hit at 18 inches. Adjacent stream channel is flowing.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/7 (northern) City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP14

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 20

Subregion (LRR): C - Mediterranean California Lat: 33.545616 Long: -117.690890 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 (•) | |
| Hydric Soil Present? | Yes ( ) | No (•) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes ( ) | No (•) | **within a Wetland?** Yes ( ) No (•) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 60 | Yes | FACW |
| 2. *Plantanus racemosa* | 5 | No | FAC |
| 3. | | | |
| 4. | | | |
| Total Cover: | 65 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis pilularis* | 5 | Yes | Not Listed |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 5 % | | |
| **Herb Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 30 % % 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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 60 | x 2 = | 120 |
| FAC species | 5 | x 3 = | 15 |
| FACU species | | x 4 = | 0 |
| UPL species | 5 | x 5 = | 25 |
| Column Totals: | 70 (A) | | 160 (B) |

Prevalence Index = B/A = 2.29

**Hydrophytic Vegetation Indicators:**

[ ] Dominance Test is >50%

[X] 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.

**Hydrophytic Vegetation Present?** Yes ( ) No (•)

Remarks:

## SOIL

Sampling Point: SP14

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-12 | 10YR 4/2 | 100 | | | | | Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/7 (southern) City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP15

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 5

Subregion (LRR): C - Mediterranean California Lat: 33.541979 Long: -117.694450 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (●) No ( ) |
| Wetland Hydrology Present? | Yes (●) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 60 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 60 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Lysimachia arvensis* | 1 | Yes | FAC |
| 2. *Heliotropium curassavicum* | 2 | Yes | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 3 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 37 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 60 | x 2 = | 120 |
| FAC species | 1 | x 3 = | 3 |
| FACU species | 2 | x 4 = | 8 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 63 (A) | | 131 (B) |

Prevalence Index = B/A = 2.08

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP15

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10YR 2/1 | 100 | | | | | Sandy Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: Roots

Depth (inches): 8

**Hydric Soil Present?** Yes ◉ No ○

Remarks: No redox features, however met wetland plants and hydrologic indicator criteria. Hydric soils are assumed present. Soil is moist and water table hit below roots. Roots prevented soil extraction from deep pit.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 8 |
| Saturation Present? (includes capillary fringe) | Yes ◉ | No ○ | Depth (inches): 8 |

**Wetland Hydrology Present?** Yes ◉ No ○

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

Remarks:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/7 (southern) City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP16

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 10

Subregion (LRR): C - Mediterranean California Lat: 33.542027 Long: -117.694447 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 (●) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes ( ) | No (●) | **within a Wetland?** Yes ( ) No (●) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 60 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 60 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis pilularis* | 5 | Yes | Not Listed |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 5 % | | |
| **Herb Stratum** | | | |
| 1. *Heliotropium curassavicum* | 10 | Yes | FACU |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 10 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 25 % % 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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 60 | x 2 = | 120 |
| FAC species | | x 3 = | 0 |
| FACU species | 10 | x 4 = | 40 |
| UPL species | 5 | x 5 = | 25 |
| Column Totals: | 75 (A) | | 185 (B) |

Prevalence Index = B/A = 2.47

**Hydrophytic Vegetation Indicators:**

- [ ] Dominance Test is >50%
- [x] 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.

**Hydrophytic Vegetation Present?** Yes ( ) No (●)

Remarks:

## SOIL

Sampling Point: SP16

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-18 | 10YR 3/2 | 100 | | | | | Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 8 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP17

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): C - Mediterranean California Lat: 33.538230 Long: -117.697328 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (•) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (•) No ( ) |
| Wetland Hydrology Present? | Yes (•) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Anemopsis californica* | 40 | Yes | OBL |
| 2. *Typha domingensis* | 30 | Yes | OBL |
| 3. *Distichlis spicata* | 30 | Yes | FAC |
| 4. *Frankenia salina* | 20 | No | FACW |
| 5. *Schoenoplectus californicus* | 10 | No | OBL |
| 6. *Limonium duriusculum* | 2 | No | Not Listed |
| 7. | | | |
| 8. | | | |
| Total Cover: | 132 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 80 | x 1 = | 80 |
| FACW species | 20 | x 2 = | 40 |
| FAC species | 30 | x 3 = | 90 |
| FACU species | | x 4 = | 0 |
| UPL species | 2 | x 5 = | 10 |
| Column Totals: | 132 (A) | | 220 (B) |

Prevalence Index = B/A = 1.67

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (•) No ( )

Remarks:

## SOIL

Sampling Point: SP17

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10YR 3/1 | 100 | | | | | Sandy Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 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:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 8 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP18

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 15

Subregion (LRR): C - Mediterranean California Lat: 33.538251 Long: -117.697362 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area within a Wetland?** Yes ( ) No (●) |
| Wetland Hydrology Present? | Yes ( ) | No (●) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Isocoma menziesii* | 35 | Yes | FAC |
| 2. *Baccharis salicifolia* | 5 | No | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 40 % | | |
| **Herb Stratum** | | | |
| 1. *Frankenia salina* | 50 | | FACW |
| 2. *Distichlis spicata* | 5 | | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 55 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 50 | x 2 = | 100 |
| FAC species | 45 | x 3 = | 135 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 95 (A) | | 235 (B) |

Prevalence Index = B/A = 2.47

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP18

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10 YR 5/2 | 100 | | | | | Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: Compacted soil

Depth (inches): 8

**Hydric Soil Present?** Yes ○ No ◉

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 9 City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP19

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 10

Subregion (LRR): C - Mediterranean California Lat: 33.536000 Long: -117.699520 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (•) | No ( ) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes (•) | No ( ) | **within a Wetland?** **Yes** (•) **No** ( ) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 30 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 30 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Frankenia salina* | 50 | Yes | FACW |
| 2. *Atriplex canescens* | 5 | No | Not Listed |
| 3. *Salvia mellifera* | 5 | No | Not Listed |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 60 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

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

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 80 | x 2 = | 160 |
| FAC species | | x 3 = | 0 |
| FACU species | | x 4 = | 0 |
| UPL species | 10 | x 5 = | 50 |
| Column Totals: | 90 (A) | | 210 (B) |

Prevalence Index = B/A = 2.33

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** **Yes** (•) **No** ( )

Remarks:

## SOIL

Sampling Point: SP19

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 2.5 YR 5/3 | 100 | | | | | Sandy Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: Roots

Depth (inches): 4

**Hydric Soil Present?** Yes ◉ No ○

Remarks: No redox features - however met wetland plants and hydrologic indicator criteria. Hydric soils are assumed present.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 9 City/County: Laguna Niguel/Orange County Sampling Date: 06/30/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP20

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 10

Subregion (LRR): C - Mediterranean California Lat: 33.535981 Long: -117.699521 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 (●) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes ( ) | No (●) | **within a Wetland?** Yes ( ) No (●) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 10 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 10 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis pilularis* | 40 | Yes | Not Listed |
| 2. *Atriplex canescens* | 20 | Yes | Not Listed |
| 3. *Salvia mellifera* | 10 | No | Not Listed |
| 4. *Baccharis salicifolia* | 5 | No | FAC |
| 5. | | | |
| Total Cover: | 75 % | | |
| **Herb Stratum** | | | |
| 1. *Frankenia salina* | 5 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 5 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 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: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 15 | x 2 = | 30 |
| FAC species | 5 | x 3 = | 15 |
| FACU species | | x 4 = | 0 |
| UPL species | 70 | x 5 = | 350 |
| Column Totals: | 90 (A) | | 395 (B) |

Prevalence Index = B/A = 4.39

**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.

**Hydrophytic Vegetation Present?** Yes ( ) No (●)

Remarks:

## SOIL

Sampling Point: SP20

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 5Y 5/3 | 100 | | | | | Sandy Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: Compacted soil

Depth (inches): 6

**Hydric Soil Present?** Yes ○ No ◉

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 10 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP21

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 33.535096 Long: -117.706945 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area within a Wetland?** Yes ( ) No (●) |
| Wetland Hydrology Present? | Yes (●) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Populus fremontii* | 10 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 10 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis pilularis* | 30 | Yes | Not Listed |
| 2. *Baccharis salicifolia* | 10 | Yes | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 40 % | | |
| **Herb Stratum** | | | |
| 1. *Malvella leprosa* | 5 | Yes | FACU |
| 2. *Artemisia douglasiana* | 2 | Yes | FACW |
| 3. *Frankenia salina* | 2 | No | FACW |
| 4. *Kickxia elatine* | 2 | No | UPL |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 11 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 39 % % 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 4 | x 2 = | 8 |
| FAC species | 20 | x 3 = | 60 |
| FACU species | 5 | x 4 = | 20 |
| UPL species | 32 | x 5 = | 160 |
| Column Totals: | 61 (A) | | 248 (B) |

Prevalence Index = B/A = 4.07

**Hydrophytic Vegetation Indicators:**

- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP21

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-15 | 10YR 3/1 | 100 | | | | | Silty Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: Redox was present closer to the draiange, however was lost within the outer floodplain.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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: Although hydrology indicators were observed within this area, it is near an outfall structure and therefore indicators may be due to the outfall rather than the periodic flooding of Sulphur Creek.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 10 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP22

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): C - Mediterranean California Lat: 33.535051 Long: -117.706747 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes (●) | No ( ) | **within a Wetland?** **Yes** (●) **No** ( ) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 40 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 40 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis salicifolia* | 20 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 20 % | | |
| **Herb Stratum** | | | |
| 1. *Anemopsis californica* | 50 | Yes | OBL |
| 2. *Carex spissa* | 10 | No | |
| 3. *Schoenoplectus californicus* | 5 | No | OBL |
| 4. *Artemisia douglasiana* | 2 | No | FACW |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 67 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 55 | x 1 = | 55 |
| FACW species | 42 | x 2 = | 84 |
| FAC species | 20 | x 3 = | 60 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 117 (A) | | 199 (B) |

Prevalence Index = B/A = 1.70

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** **Yes** (●) **No** ( )

Remarks:

## SOIL

Sampling Point: SP22

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-12 | 10 YR 5/1 | 98 | 5 YR 5/6 | 2 | D | M | Sandy Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 6 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP23

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR): C - Mediterranean California Lat: 33.531835 Long: -117.707424 Datum: NAD 1963

Soil Map Unit Name: Calleguas Clay Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (•) | **Is the Sampled Area within a Wetland?** Yes ( ) No (•) |
| Wetland Hydrology Present? | Yes ( ) | No (•) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Frankenia salina* | 80 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 80 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 20 % % 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 80 | x 2 = | 160 |
| FAC species | | x 3 = | 0 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 80 (A) | | 160 (B) |

Prevalence Index = B/A = 2.00

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (•) No ( )

Remarks:

## SOIL

Sampling Point: SP23

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-12 | 10YR 4/1 | 100 | | | | | Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: No redox or other hydric soil indicators were observed.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 6 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP24

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Dry high flow channel Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): C - Mediterranean California Lat: 33.531428 Long: -117.707077 Datum: NAD 1963

Soil Map Unit Name: SorrentoLoam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (•) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (•) No ( ) |
| Wetland Hydrology Present? | Yes (•) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 50 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 50 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Schoenoplectus californicus* | 30 | Yes | OBL |
| 2. *Frankenia salina* | 5 | No | FACW |
| 3. *Polypogon monspeliensis* | 5 | No | FACW |
| 4. *Epilobium ciliatum* | 5 | No | FACW |
| 5. *Melilotus albus* | 2 | No | Not Listed |
| 6. *Lysimachia arvensis* | 2 | No | FAC |
| 7. *Pulicaria paludosa* | 2 | No | FAC |
| 8. | | | |
| Total Cover: | 51 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 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: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 30 | x 1 = | 30 |
| FACW species | 65 | x 2 = | 130 |
| FAC species | 4 | x 3 = | 12 |
| FACU species | | x 4 = | 0 |
| UPL species | 2 | x 5 = | 10 |
| Column Totals: | 101 (A) | | 182 (B) |

Prevalence Index = B/A = 1.80

**Hydrophytic Vegetation Indicators:**

- [x] Dominance Test is >50%
- [x] 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.

**Hydrophytic Vegetation Present?** Yes (•) No ( )

Remarks:

## SOIL

Sampling Point: SP24

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-12 | 10 YR 3/1 | 100 | | | | | Silty Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks: Problematic soils. Freshwater invertebrates found dessicated in soil. Soils are assumed hydric because of presence of hydrophytic vegetation and hydrology indicators. Soils may be dried out due to drought.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 11 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP25

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Channel Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): C - Mediterranean California Lat: 33.531463 Long: -117.707041 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes (●) | No ( ) | **within a Wetland?** **Yes** (●) **No** ( ) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 40 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 40 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Apium graveolens* | 5 | Yes | Not Listed |
| 2. *Plantago major* | 5 | Yes | FAC |
| 3. *Melilotus albus* | 5 | Yes | Not Listed |
| 4. *Bolboschoenus maritimus* | 5 | Yes | OBL |
| 5. *Cotula australis* | 2 | No | FAC |
| 6. *Agrostis viridus* | 2 | No | Not Listed |
| 7. *Polypogon monspeliensis* | 2 | No | FACW |
| 8. | | | |
| Total Cover: | 26 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

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

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 5 | x 1 = | 5 |
| FACW species | 42 | x 2 = | 84 |
| FAC species | 7 | x 3 = | 21 |
| FACU species | | x 4 = | 0 |
| UPL species | 12 | x 5 = | 60 |
| Column Totals: | 66 (A) | | 170 (B) |

Prevalence Index = B/A = 2.58

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** **Yes** (●) **No** ( )

Remarks:

## SOIL

Sampling Point: SP25

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 10YR 3/1 | 100 | | | | | Silty Clay | |
| 4-12 | 10YR 6/1 | 95 | 5YR 4/6 | 5 | D | M | Silty Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 11 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP26

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 5

Subregion (LRR): C - Mediterranean California Lat: 33.531454 Long: -117.707107 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes ( ) | No (•) | **Is the Sampled Area within a Wetland?** Yes ( ) No (•) |
| Wetland Hydrology Present? | Yes ( ) | No (•) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Frankenia salina* | 40 | Yes | FACW |
| 2. *Bromus madritensis* | 10 | No | UPL |
| 3. *Ambrosia psilostachya* | 5 | No | FACU |
| 4. *Distichlis spicata* | 2 | No | FAC |
| 5. *Brassica nigra* | 2 | No | Not Listed |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 59 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 41 % % 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 40 | x 2 = | 80 |
| FAC species | 2 | x 3 = | 6 |
| FACU species | 5 | x 4 = | 20 |
| UPL species | 12 | x 5 = | 60 |
| Column Totals: | 59 (A) | | 166 (B) |

Prevalence Index = B/A = 2.81

**Hydrophytic Vegetation Indicators:**

- [x] Dominance Test is >50%
- [x] 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.

**Hydrophytic Vegetation Present?** Yes (•) No ( )

Remarks:

## SOIL

Sampling Point: SP26

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-1 | 10YR 5/1 | 100 | | | | | Silty Clay | |
| 1-12 | 10YR 7/2 | 100 | | | | | Silty Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: No redox or hydric soil indicators were observed.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 5 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP27

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 33.531819 Long: -117.704329 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (●) No ( ) |
| Wetland Hydrology Present? | Yes (●) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 50 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 50 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 48 % % 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: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 50 | x 2 = | 100 |
| FAC species | | x 3 = | 0 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 50 (A) | | 100 (B) |

Prevalence Index = B/A = 2.00

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks:

## SOIL

Sampling Point: SP27

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10YR 5/2 | 75 | 5YR 5/8 | 25 | D | PL | Sandy Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 5 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP28

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR): C - Mediterranean California Lat: 33.531878 Long: -117.704316 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 (●) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes ( ) | No (●) | **within a Wetland?** Yes ( ) No (●) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis pilularis* | 40 | Yes | Not Listed |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 40 % | | |
| **Herb Stratum** | | | |
| 1. *Kickxia elatine* | 30 | Yes | UPL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 30 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 30 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | | x 2 = | 0 |
| FAC species | | x 3 = | 0 |
| FACU species | | x 4 = | 0 |
| UPL species | 70 | x 5 = | 350 |
| Column Totals: | 70 (A) | | 350 (B) |

Prevalence Index = B/A = 5.00

**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.

**Hydrophytic Vegetation Present?** Yes ( ) No (●)

Remarks:

## SOIL

Sampling Point: SP28

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-10 | 10YR 5/2 | 100 | | | | | Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: No redox or hydric soil indicators were observed.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 4 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP29

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

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

Subregion (LRR): C - Mediterranean California Lat: 33.529641 Long: -117.709010 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: None

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 (•) | |
| Hydric Soil Present? | Yes ( ) | No (•) | **Is the Sampled Area** |
| Wetland Hydrology Present? | Yes ( ) | No (•) | **within a Wetland?** **Yes** ( ) **No** (•) |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 10 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 10 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Cynodon dactylon* | 5 | Yes | FACU |
| 2. *Cyperus eragrostis* | 2 | Yes | FACW |
| 3. *Euphorbia serpens* | 2 | Yes | FACU |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 9 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 81 % % Cover of Biotic Crust %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 12 | x 2 = | 24 |
| FAC species | | x 3 = | 0 |
| FACU species | 7 | x 4 = | 28 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 19 (A) | | 52 (B) |

Prevalence Index = B/A = 2.74

**Hydrophytic Vegetation Indicators:**

- [ ] Dominance Test is >50%
- [x] 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.

**Hydrophytic Vegetation Present?** **Yes** ( ) **No** (•)

Remarks:

## SOIL

Sampling Point: SP29

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-15 | 10YR 4/1 | 100 | | | | | Silty Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: No redox or hydric soil indicators were observed.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: City of Laguna Niguel/Site 4 City/County: Laguna Niguel/Orange County Sampling Date: 07/11/2016

Applicant/Owner: City of Laguna Niguel State: CA Sampling Point: SP30

Investigator(s): Sarah Horwath, Lance Woolley Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Wetted Channel Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C - Mediterranean California Lat: 33.529694 Long: -117.709063 Datum: NAD 1963

Soil Map Unit Name: Sorrento Loam NWI classification: Freshwater Forested/Shrub

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 ( ) | |
| Hydric Soil Present? | Yes (•) | No ( ) | **Is the Sampled Area within a Wetland?** Yes (•) No ( ) |
| Wetland Hydrology Present? | Yes (•) | No ( ) | |

Remarks:

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 40 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 40 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Nasturtium officinale* | 5 | Yes | FACU |
| 2. *Euphorbia serpens* | 2 | Yes | OBL |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 7 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 53 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 2 | x 1 = | 2 |
| FACW species | 40 | x 2 = | 80 |
| FAC species | | x 3 = | 0 |
| FACU species | 5 | x 4 = | 20 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 47 (A) | | 102 (B) |

Prevalence Index = B/A = 2.17

**Hydrophytic Vegetation Indicators:**

- [x] Dominance Test is >50%
- [x] 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.

**Hydrophytic Vegetation Present?** Yes (•) No ( )

Remarks:

## SOIL

Sampling Point: SP30

**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 % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks: No pit dug, wetted channel.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☒ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 pit dug. Stream channel wetted and adjacent to USACE/OHWM boundary.

Appendix D

# Cultural Resources Survey Letter Report

October 8, 2018

Hal Ghafari
City of Laguna Niguel
30111 Crown Valley Parkway
Laguna Niguel, CA 92677

**Subject:** **Letter Report: Cultural Resources Survey for the Laguna Niguel Wetlands Operations and Maintenance Activities Project, Laguna Niguel, California**

Dear Mr. Ghafari:

This letter report prepared by ICF documents the cultural resources survey for the Laguna Niguel Wetlands Operations and Maintenance Activities Project. The project would result in direct impacts on waters of the United States and would require a permit under Section 404 of the Clean Water Act (Section 404) from the U.S. Army Corps of Engineers and would therefore need to be performed in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966 as amended, and it's implementing regulations in Code of Federal Regulations (CFR) Title 36, Part 800. In instances where project elements would not result in direct impacts on waters of the United States, the project must still comply with the California Environmental Quality Act (CEQA) of 1970 (Public Resources Code 21000 et seq.) and the State CEQA Guidelines (Title 14, California Code of Regulations, 15000 et seq.), which also require agencies to evaluate their proposed project for its potential to cause significant impacts on archaeological resources. The City plans to conduct routine operations and maintenance (O&M) activities within 13 City-owned wetland sites located in the Sulphur Creek watershed; a portion of the Salt Creek Watershed, within Chapparosa Park; and in the new construction associated with the J03P01 channel within Crown Valley Regional Park. These wetland areas constitute the APE under Section 106 and the project area under CEQA. Two resources have been previously recorded within the APE and require recommendations for eligibility for listing to the National Register of Historic Places (NRHP) and California Register of Historic Resources (CRHR). The following letter report includes the results of the record search, pedestrian survey, and archival research, review of historic aerials and maps, and recommendations for eligibility for listing to the NRHP and CRHR as well as project impacts.

## Project Description

The Project is located in the City of Laguna Niguel (City), within Orange County, California (Figure 1 and 2), west of Interstate 5 (I 5), east of Aliso Woods Regional Park, south of State Route 73, and north of the Pacific Ocean. Specifically, the Project is within the area bounded by Street of the Golden Lantern to the east, Alicia Parkway and Crown Valley Parkway to the west, Aliso Creek Road to the north, and Beacon Hill Way to the south.

The Project would include minor maintenance activities such as removing herbaceous vegetation and accumulated sediment around outfalls, risers, culverts, bridge crossings, establishing pilot channels to facilitate positive flow and maintain flood capacity (i.e., flowline maintenance), and trimming understory of riparian vegetation (i.e. below the tree canopy) to prevent obstruction of flow. Where equipment access is available, equipment will include a backhoe with extend-a-hoe, a vactor pump truck, bobcat loader, mini-excavator, and a dewatering bin. In areas where access is limited, hand tools (e.g. shovels and wheel barrels) will be used.

## Literature Review

ICF archaeologist Nara Cox, BA, conducted a record search at the South Central Coastal Information Center (SCCIC) on June 26, 2017 to identify previously documented archaeological and historic built resources within a quarter-mile radius of the APE.

The record search revealed that twelve cultural resources are located within a quarter-mile of the APE (Table 1). Of these twelve sites, two resources intersect with the APE (Figure 3). The record search also revealed that 51 studies have been conducted within a quarter-mile of the APE.

**Table 1: Cultural Resources within 0.25-mile of the APE**

| Designation | Resource Type | Description | Recorder(s) |
|---|---|---|---|
| CA-ORA-18<br>P-30-000018 | Site | Prehistoric campsite including midden and bedrock milling features | Fitzwater, 1960; Unkown, 1949 |
| CA-ORA-133<br>P-30-000133 | Site | Prehistoric artifact scatter (specifics not provided) | Hafner, 1963 |
| CA-ORA-423<br>P-30-000423 | Site | Prehistoric village site including burials | Mason, 2000; Cooley et al, 1973 |

| Designation | Resource Type | Description | Recorder(s) |
|---|---|---|---|
| CA-ORA-424<br>P-30-000424 | Site | Prehistoric groundstone and core | Cooley et al, 1973 |
| CA-ORA-493<br>P-30-000493 | Site | Prehistoric lithic scatter | Fulton, 2006; Leonard, 1974 |
| CA-ORA-509<br>P-30-000509 | Site | Prehistoric lithic scatter and groundstone | Fowler, 1975 |
| CA-ORA-540<br>P-30-000540 | Site | Prehistoric quarry and metate | Singer, 1976 |
| CA-ORA-581<br>P-30-000581 | Site | Prehistoric lithic and shell scatter | Leonard, 1975 |
| CA-ORA-606<br>P-30-000606 | Site | Prehistoric artifact scatter (destroyed) | Desautels, 1976 |
| CA-ORA-607<br>P-30-000607 | Site | Prehistoric artifact scatter | Desautels, 1976 |
| CA-ORA-1072<br>P-30-001072 | Site | Prehistoric artifact scatter including shell | Bissell, 1985 |
| CA-ORA-1113<br>P-30-001113 | Site | Prehistoric lithic scatter | Bissell, 1987 |

*shaded sites are located within project area

## Survey Results

ICF archaeologists Karolina Chmiel, MA, and Rachel Droessler, MA surveyed the APE on September 19, 2018. The survey area consisted of all proposed ground disturbance areas (access paths, footpaths, staging areas, work area impacts, flow channel improvements etc.) plus a 10-meter buffer. No cultural resources were identified during survey.

Overall, ground visibility in the APE consisted of 0-20% due to the presence of dense vegetation, standing water, pavement or gravel access routes. Below are the summaries of site conditions and brief history of each restoration area.

West Alicia Wetland (Site 1): Ground visibility was 0-5% in restoration Site 1 with the running stream at a higher elevation than the adjacent sidewalk and roadway. Review of historic aerials indicates that Alicia Parkway was constructed sometime between 1967 and 1972 in place of the natural drainage occurring in that spot (NETR 1967, 1972). The APE is located within what used to be the lower slopes of the surrounding hills and is now the flat wetland. Archaeological sensitivity is low given the extent of grading conducted during road construction and rerouting of the drainage into a new configuration.

East Alicia Wetland (Site 2): Ground visibility was 5-10% in Site 2. Review of historic aerials shows that the lower elevations of Site 2 were modified during construction of Alicia Parkway, but the drainage itself does not appear to have been heavily modified (NETR 1967, 1981). Archaeological sensitivity is low as cultural resources are generally not found within steep, sloping down drainages but rather on the terraces above them.

North Alicia Wetland (Site 3): Ground visibility was approximately 15%. Site 3 is a man-made wetlands at the base of low hills. Archaeological sensitivity is low given this is a man-made wetlands and the area has undergone extensive modification during construction.

Crown Valley Park Wetland Creation Area/S03P01 (Site 4): Ground visibility was 0-20% within Site 4. This area has undergone recent construction to create wetlands and the majority of Site 4 is within the Crown Valley Community Park. Historic aerials show the area has been graded and the natural drainage straightened from its natural course (NETR 1938, 1980). Archaeological sensitivity is low given the drastic alternation to the area due to development.

Sulphur Creek Park Wetland Enhancement Area (Site 5): Ground visibility was 0-10% within Site 5. Historic aerials reveal that the naturally meandering creek in this area was destroyed during housing and road development sometime after 1972, and the creek straightened and re-established in the 1980s with a concrete channel (NETR, 1972, 1983, 1994). Archaeological sensitivity is low given the drastic alternation to the area due to development.

Sulphur Creek Wetland Creation Area (Site 6): Ground visibility was 0-5% within Site 6. Site 6 is at the edge of Crown Valley Community Park and was created sometime after 1972 when the area was redeveloped (NETR 1972, 1980). Archaeological sensitivity is low given the drastic alternation to the area due to development.

Rancho Niguel Master Association Upper Sulphur Creek (Site 7): Ground visibility was 0-10% within Site 7. Historic aerials reveal that the naturally meandering creek in this area was destroyed during housing and road development sometime after 1980 and the

creek channelized (NETR, 1980, 1994). Archaeological sensitivity is low given the extent of grading conducted during road construction and rerouting of the drainage into a new configuration.

Crowne Royale Homeowners Association Upper Sulphur Creek (Site 8): Ground visibility was 0-10% within Site 8. Historic aerials reveal that the naturally meandering creek in this area was destroyed during housing and road development sometime after 1972, and the creek straightened and re-established in the 1980s with a concrete channel (NETR, 1972, 1980, 1994). Archaeological sensitivity is low given the extent of grading conducted during road construction and rerouting of the drainage into a new configuration.

Niguel Ridge Homeowners Association Upper Sulphur Creek (Site 9): Ground visibility was 0-10% within Site 9. Historic aerials reveal that the naturally meandering creek in this area was destroyed during housing and road development sometime after 1980 and the creek channelized (NETR, 1980, 1994). Archaeological sensitivity is low given the extent of grading conducted during urban development and rerouting of the drainage into a new configuration.

USACE Sulphur Creek Restoration Project (Site 10): Ground visibility was 0-10% within Site 10. Portions of the creek had been restored from prior concrete channelization. Historic aerials indicate some modification to the channel and development of the area (NETR, 1967, 1980, 1994). Archaeological sensitivity is moderate, the area has undergone some modification but has not been extensively graded for urban development, and therefore, potential for previously unrecorded cultural resources exists within native soil.

Sulphur Creek in Crown Valley Community Park (Site 11): Ground visibility was 0-10% within Site 11. Historic aerials reveal that a natural drainage was modified into a concrete channel sometime after 1972 (NETR 1972, 1980). Site 11 has been restored from its previous channelization. Archaeological sensitivity is low given the extent of modification that occurred when the drainage was channelized.

La Paz Park Wetlands (Site 12): Ground visibility was 0-10% within site 12. The area has been heavily modified by the construction of a shopping center, sports park, housing and road development. A tributary of Sulphur Creek was shifted 460 feet north from its natural course and channelized into its current configuration sometime after 1967 (NETR, 1967, 1972). Archaeological sensitivity is low given the drastic alternation of Site 12 during urban development.

Salt Creek Corridor Habitat Restoration Area (Site 13): Ground visibility was 0-5% within Site 13. Salt Creek has undergone minimal modification except for two large

concrete culverts at Salt Creek Bike Trail and Niguel Road. The slopes of the creek have continued to erode and show steep drop-offs. Archaeological sensitivity is low for Site 13. The area has undergone some modification but has not been extensively graded for urban development. However, the majority of the APE for Site 13 consists of the active creek channel. In general, cultural resources are not found within active creek channels as water movement destroys or moves in situ artifacts. Additionally, the majority of the previously recorded cultural resources in this project area are located on terraces or hills above streams, suggesting that the APE itself has low potential for cultural resources.

### CA-ORA-18/P-30-000018

CA-ORA-18 was recorded in 1949 as "probably very large camp" with "burial ground" and bedrock milling near two springs. In 1960, the site was updated by R.J. Fitzwater as located ¾ of a mile east of the junction of Aliso Creek and Sulphur Creek, with two tributaries of Sulphur Creek passing on either side of the site. No location map was provided. The site contained a midden deposit on the edge of an intermittent stream with perpetual spring. A hand written note on the 1960 update states "destroyed-see O-824" which refers to report OR-824 on file at the SCCIC and provides a site update by RMW Paleo Associates (discussed below).

The site was excavated in 1960 and 1961 by the Department of Anthrophony-Sociology at the University of California, Los Angeles, which was notified of proposed construction planned for the area (Lytton, 1963). In 1960, the site was relocated on a low knoll, at an elevation of 167.5 feet above sea level, with the midden area covering the top of the hill. A permanent spring was located 100 feet southeast of the site. Twenty-five 5 foot by 5 foot test pits were excavated in the site. The site averaged a depth of 24 inches below surface with the majority of artifacts observed in the first 12 inches. A total of 121 artifacts were collected from the test pits with an additional 73 artifacts collected from the surface. No human cremations or burials were identified. The study concluded that the site falls within the San Luis Rey Complex dating to approximately 1400-1850 AD based on artifact inventory. It also stated that the site was a food processing site (acorn gathering and grinding) combined with other subsistence activities such as hunting and gathering. The site might have been occupied seasonally, in autumn and winter, when acorns and grass seeds were available (Lytton, 1963). No recommendation or evaluation to the NRHP or CRHR was provided as the work was conducted prior to NHPA or CEQA.

In 1986, the site location was visited by RMW Paleo Associates conducting a site condition assessment for the landowner, S&S Construction Company (Bissell, 1986).

The report states that the site had been totally destroyed by construction of roads, housing and a shopping center and no further mitigation was necessary.

In September 2018, ICF archaeologists visited the western portion of the mapped location of CA-ORA-18. The area has been developed for the La Paz Sports Park, Laguna Niguel Regional Park, Aliso Village Shopping Center and housing. The APE within CA-ORA-18 consists of an existing access path, a staging area within a constructed path, three 10-foot radius work areas for the removal of noxious weeds and tree trimming, and sediment removal in a low flow channel (Plate 1). Review of historic aerials shows that the Sulphur Creek tributary described in the Lytton 1963 report was rerouted approximately 460 feet north from its natural course into the existing constructed channel and that the entire low knoll was graded flat for development sometime between 1967 and 1980 (NETR 1967, 1972, 1980). Based on the 1986 site assessment, review of historic aerials and survey results, it can be concluded that CA-ORA-18 no longer exists within the APE.

[redacted- CONFIDENTIAL]

**Plate 1: Overview of APE within CA-ORA-18 showing constructed channel, footpath, and La Paz Sports Park, view west.**

CA-ORA-18 has never been formally evaluated for eligibility for listing in the NRHP or CRHR. Generally, a testing program is used to establish a site's eligibility for listing in the NRHP or CRHR, however in the case of CA-OR-18, a testing program is unnecessary given the area's modification since the original recordation and excavation in 1960/1961. Plates 2 and 3 demonstrate that the stream discussed in the Lytton (1963) report and by which the midden was located at, has been shifted north and that the entire area has been heavily developed. A historic aerial image dated to 1972 and available at historicaerials.com (NETR 1972) shows the area undergoing heavy grading which has destroyed all original surface. Therefore, given the reasons stated above, and given the destruction of the site, CA-ORA-18 is recommended not eligible for listing to the NRHP or CRHR.

[redacted- CONFIDENTIAL]

**Plate 2: Overview of current conditions at CA-ORA-18, showing modern development.**

[redacted- CONFIDENTIAL]

**Plate 3: Overview of APE showing how the stream has been shifted north from its 1949 alignment.**

## CA-ORA-1113/P-30-001113

CA-ORA-1113 was recorded in 1987 as a groundstone and lithic scatter in a disturbed setting in an area measuring 20 meters by 20 meters. At the time of recordation, the site was described as highly disturbed, located on a small knoll immediately above the drainage and eroded away. "The soil movement has eroded a portion of the site into the stream channel. The area near and immediately above the stream bed were examined, but no archaeological material was found. However, during the rainy season, the stream would have sufficient capacity and force to carry such material away from the site" (Brown and Bissell, 1988). A dirt road has been graded through a portion of the site.

In 1987, CA-ORA-1113 was tested by RMW Paleo Associates with two 1-meter square test units and surface collected of all identified artifacts. The units were excavated to a depth of 20-30 centimeters (cm) at which time a shovel test pit was placed in the center of the unit to a depth of 60 cm. "After excavation units were complete, the entire surface of the site, extending from the drainage northward to the base of the hill and about 100 meters east and west of the datum was brushed and ripped to a depth of 60 centimeters" using a bulldozer to the level of bedrock (Brown and Bissell, 1988). An additional (third) test unit was placed at a concentration of water worn cobbles uncovered by the brushing and ripping. This feature appeared to have been a cache of appropriately sized cobbles and included an anvil and hammerstones (Brown and Bissell, 1988). Based on the artifacts, it was concluded that the site consisted primarily of food processing and testing/modifying of local cobbles prior to transporting them to another location. The site might have been a short term encampment seasonally occupied for the procurement of raw materials (Brown and Bissell, 1988). CA-ORA-1113 was destroyed at the time of testing and excavation, and the area slated for a housing development and park.

In September 2018, ICF archaeologists visited the mapped location of CA-ORA-1113. The area has been developed as a housing subdivision and the Salt Creek Trail in Chapparosa Park (Plate 4). Erosion has continued to wear down the lower slopes of the hills, with 10-20 foot sheer drop-offs noted during survey. No evidence of cultural resources was noted in 2018 on the lower slopes of the hills. The APE through CA-ORA-1113 consists of the creek channel itself, which will undergo sediment and vegetation

removal in an area 3 feet wide. At the time of survey, the vegetation was impenetrable and there was no ground visibility.

CA-ORA-1113 has never been formally evaluated for eligibility for listing in the NRHP or CRHR. Although not clearly stated, the assumption is that the excavation work conducted in 1987 by RMW Paleo Associates was conducted under CEQA and not Section 106 as it was for a private developer within city limits. CA-ORA-1113 was surface collected, tested via three test units, and monitored by an archaeologist during grading down to 60 centimeters and therefore presumably mitigated under CEQA. Given the destruction of the site, and the testing program, it is recommended that CA-ORA-1113 is no longer extant and is not eligible for listing to the NRHP or CRHR.

[redacted- CONFIDENTIAL]

**Plate 4: Overview of mapped location of CA-ORA-1113 showing landscaped hillsides and constructed Salt Creek Trail. View West.**

## Conclusions and Recommendations

Two previously recorded resources (CA-ORA-18 and CA-ORA-1113) have been mapped within the APE. Both resources have been destroyed by development in the area and are recommended not eligible for listing to the NRHP and CRHR. The APE was surveyed on September 19, 2018 and no cultural resources were identified. A review of historic aerials indicated that all but two of the thirteen restoration areas have undergone extensive modification. Within the two unmodified restoration areas (Site 2 and 13), most of the proposed work is shallow in nature and within active water channels where intact cultural deposits are generally not found. Cultural resources monitoring is only recommended if the proposed restoration and O&M activities reach or occur within previously undisturbed soils. .

Although there is no evidence to suggest the presence of human remains, in the unlikely event that human remains are encountered during ground disturbing activities, all work will cease and the county coroner will be contacted, per California Public Resource Code. Should the remains be identified as Native American, the Native American Heritage Commission will be contacted within 48 hours to provide a Most Likely Descendent to consult on appropriate actions. A copy of this letter report will be sent to the SCCIC.

Sincerely,



Karolina Chmiel, MA
Archaeologist
Karolina.Chmiel@icf.com

Attachments: Figures 1 to 3; Confidential DPR forms for CA-ORA-18 and CA-ORA-1113.

**References:**

Bissell, Ronald
1986 A Report on the Status of Archaeological Sites on and near Property Owned by the S&S Construction Company in Laguna Niguel, Orange County, California. On file at the South Central Coastal Information Center (OR-824).

Brown, Joan and Ronald Bissell
1988 Excavation of CA-ORA-1113, A Lithics and Seed Processing Station in Southern Orange County, California. On file at the South Central Coastal Information Center (OR-884).

Lytton, Alma C.
1963 Archaeological Investigations at Laguna Niguel, Orange County. Annual Report. Archaeological Survey. Department of Anthropology-Sociology, University of California. On file at the South Central Costal Information Center (OR-1712).

National Environmental Title Research (NETR)
1938-2012 Historic Aerials of APE. Available at historicaerials.com




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**Figure 1**
**Project Location**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**

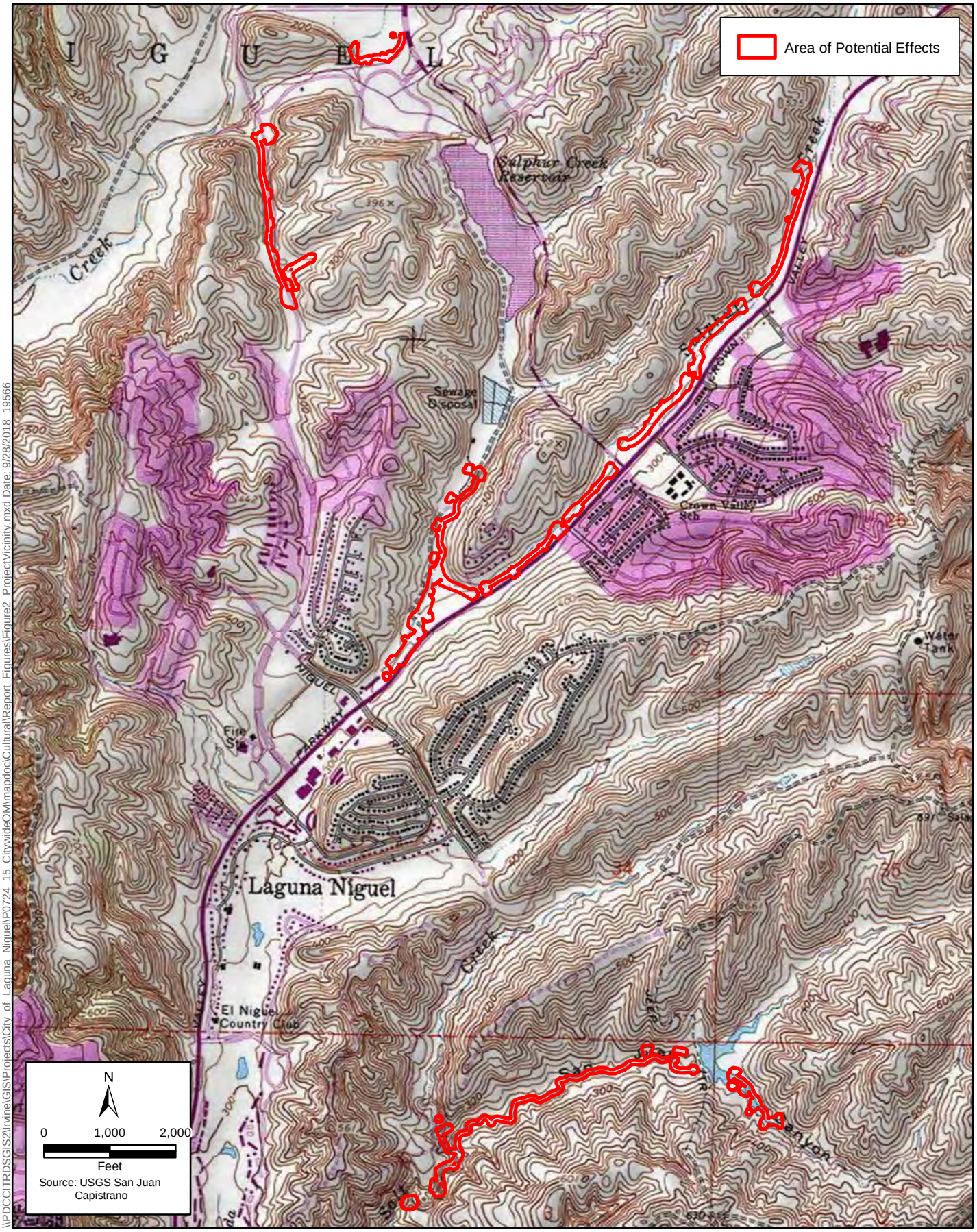


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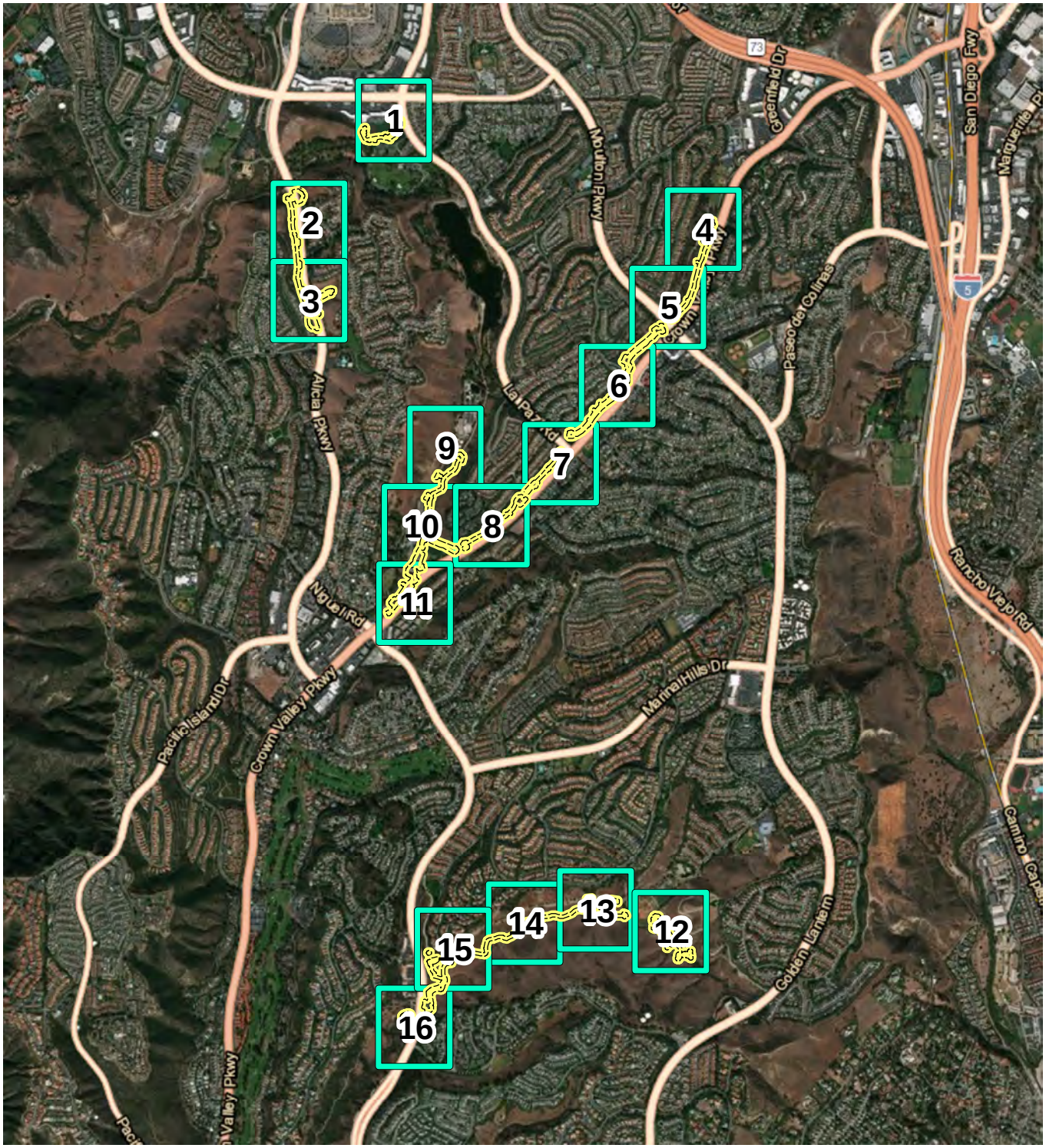
**Figure 2**
**Project Vicinity**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**




**Legend**

- Area of Potential Effects
- Map Sheets

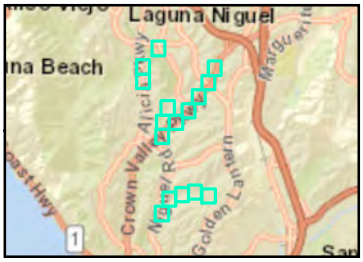



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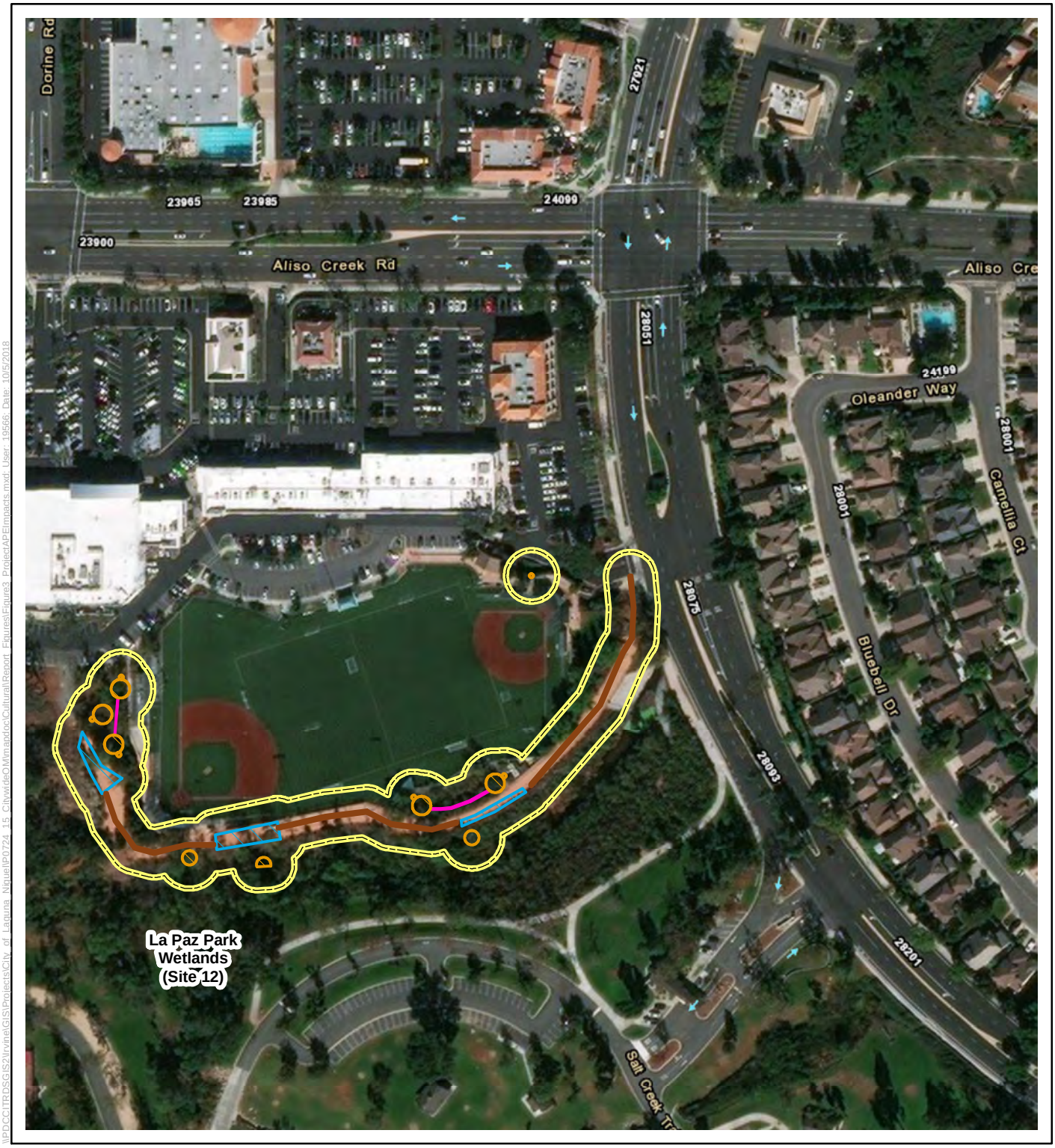
**Figure 3-Index**
**Area of Potential Effects**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**




**Legend**

- Area of Potential Effects
- Low Flow Channel
- Work Area Impacts
- Access Path
- Footpath
- Staging Area

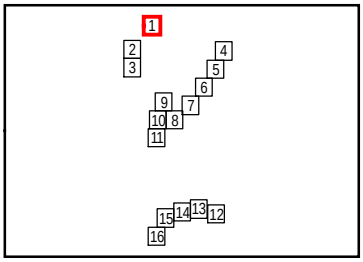



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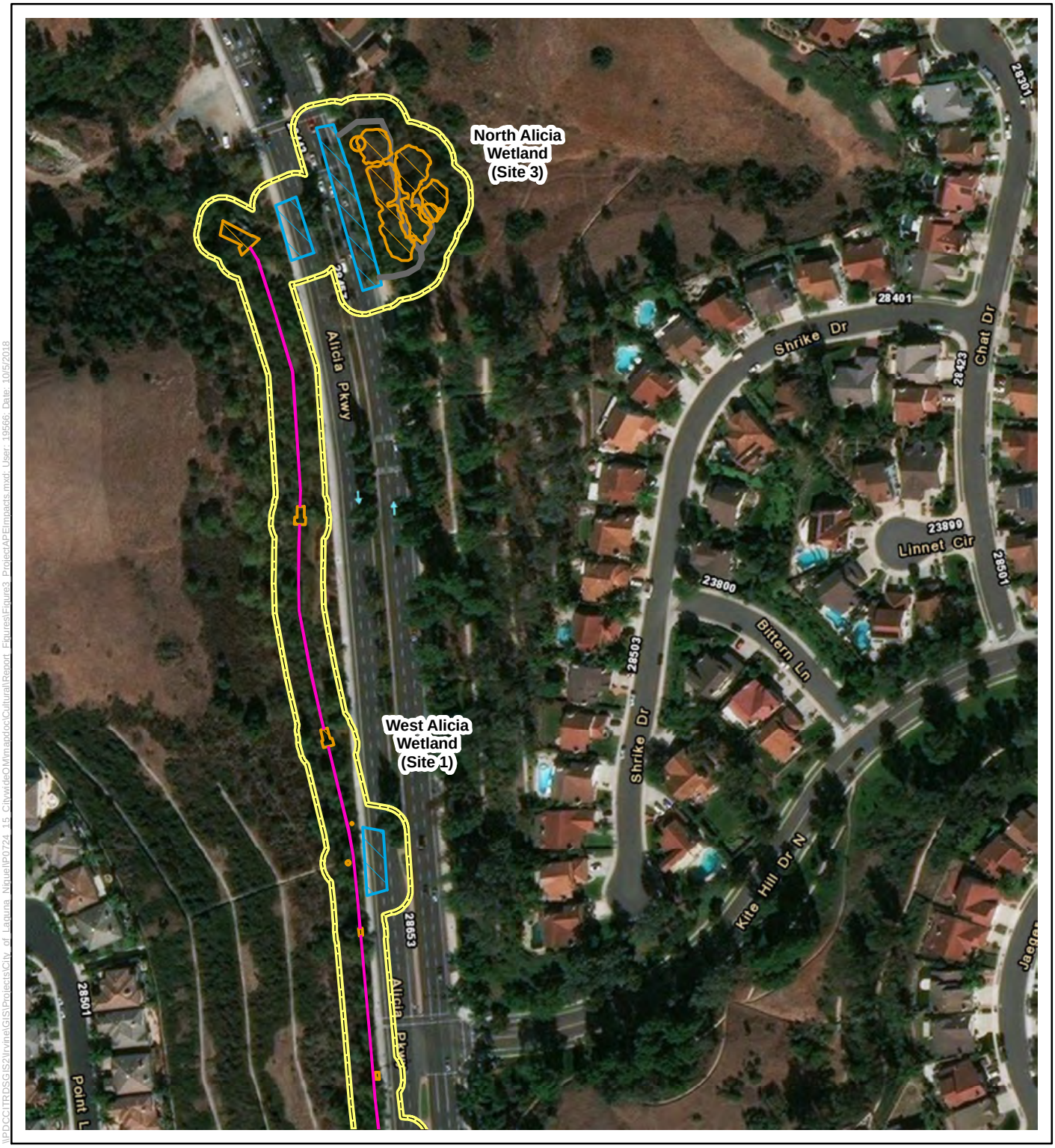
**Figure 3-1**
**Area of Potential Effects**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**




**Legend**

- Area of Potential Effects
- Low Flow Channel
- Work Area Impacts
- Access Path
- Footpath
- Staging Area

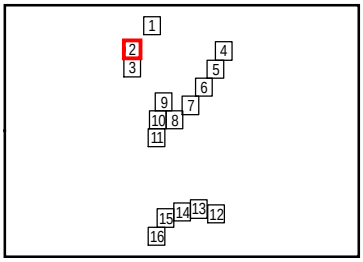



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**Figure 3-2**
**Area of Potential Effects**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**

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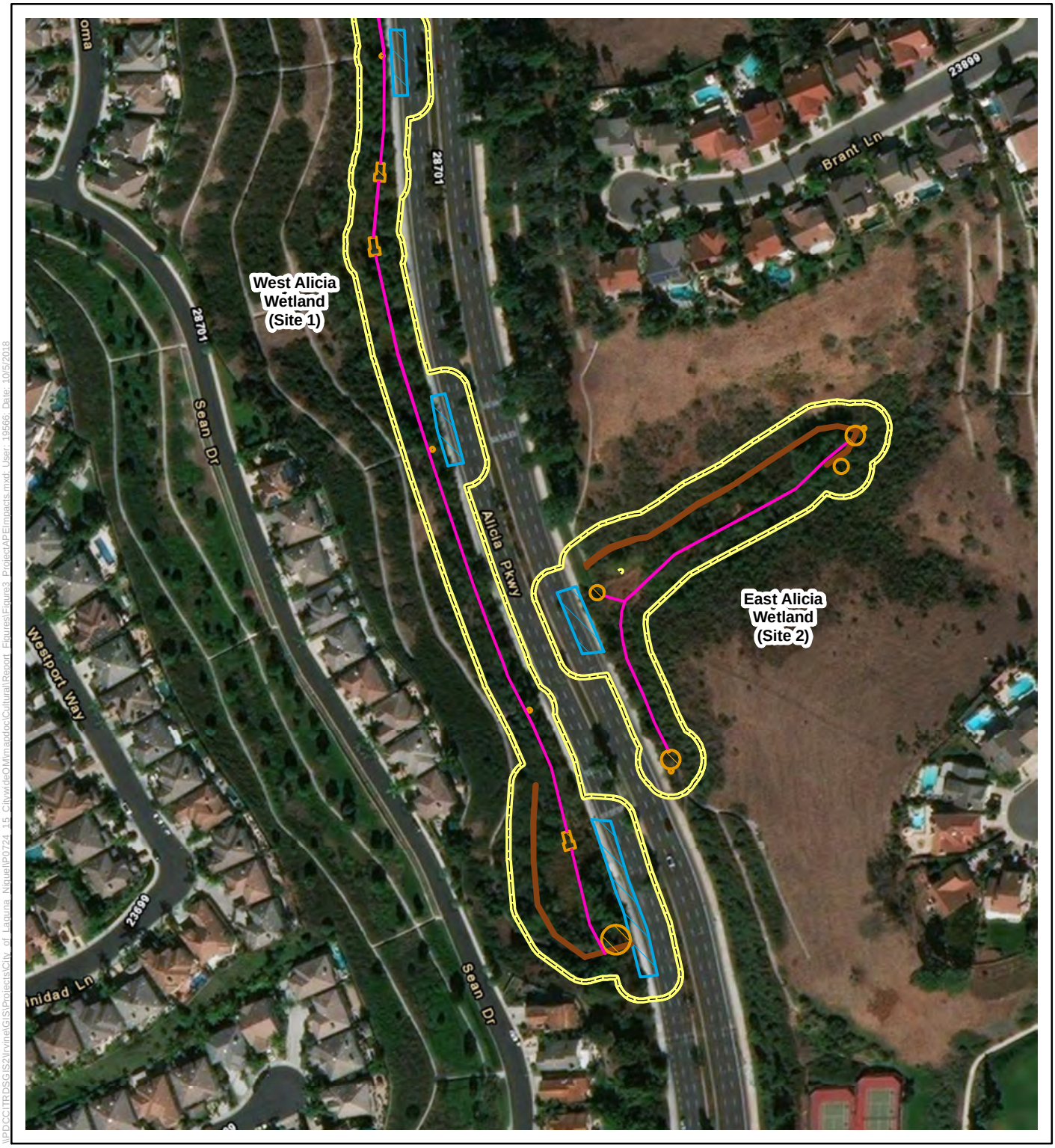


**Legend**

- Area of Potential Effects
- Low Flow Channel
- Work Area Impacts
- Access Path
- Footpath
- Staging Area

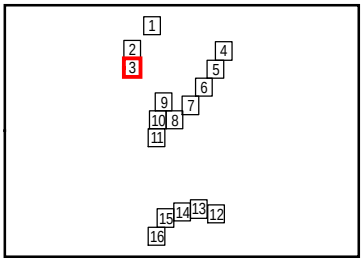


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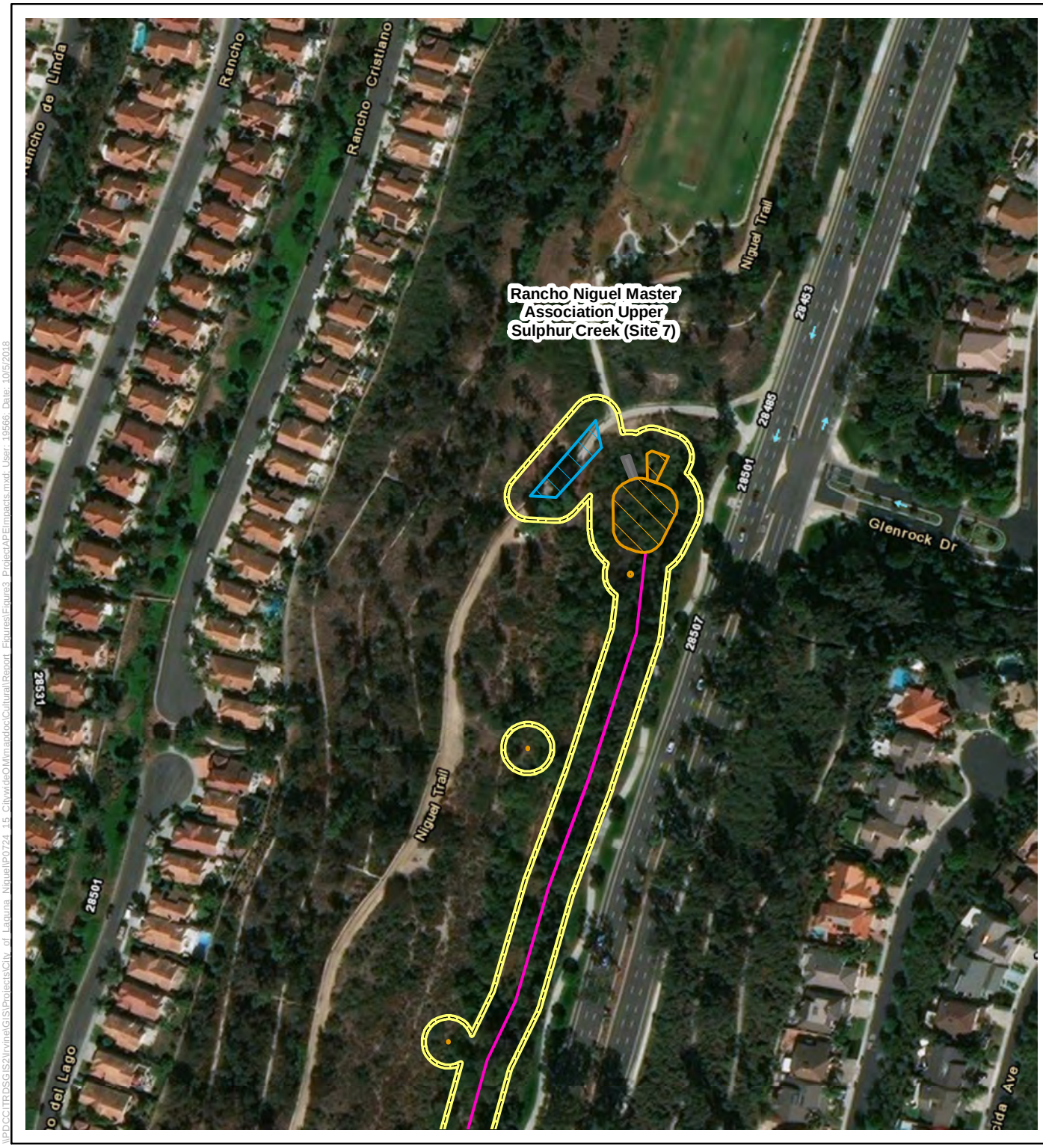
**Figure 3-3**
**Area of Potential Effects**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**




**Legend**

- Area of Potential Effects
- Low Flow Channel
- Work Area Impacts
- Access Path
- Footpath
- Staging Area

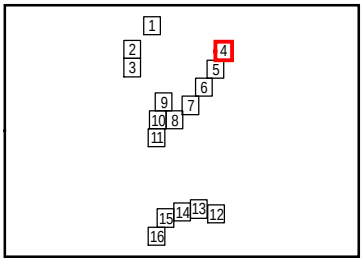



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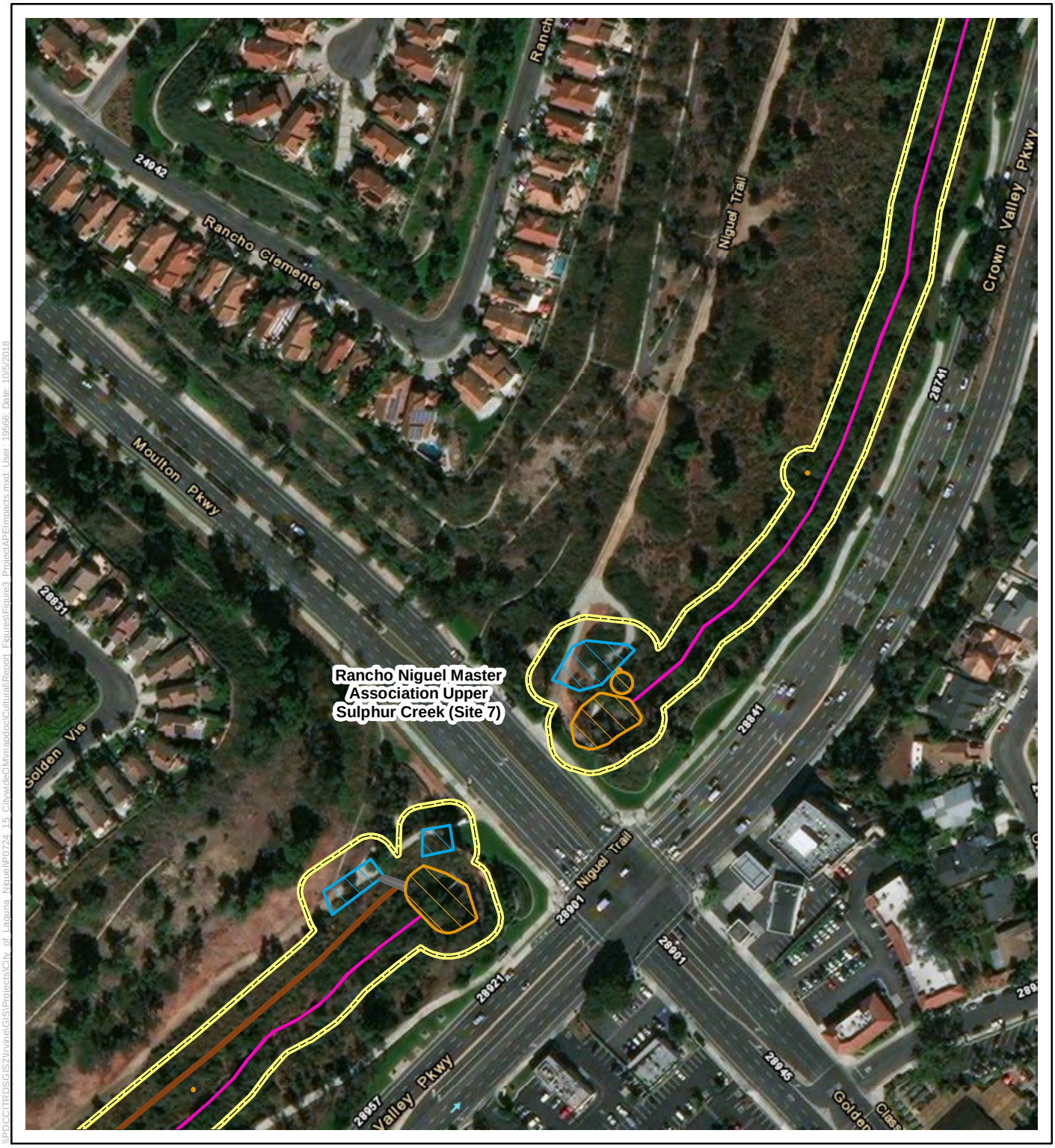
**Figure 3-4**
**Area of Potential Effects**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**




**Legend**

- Area of Potential Effects
- Low Flow Channel
- Work Area Impacts
- Access Path
- Footpath
- Staging Area

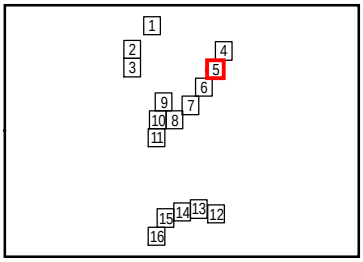



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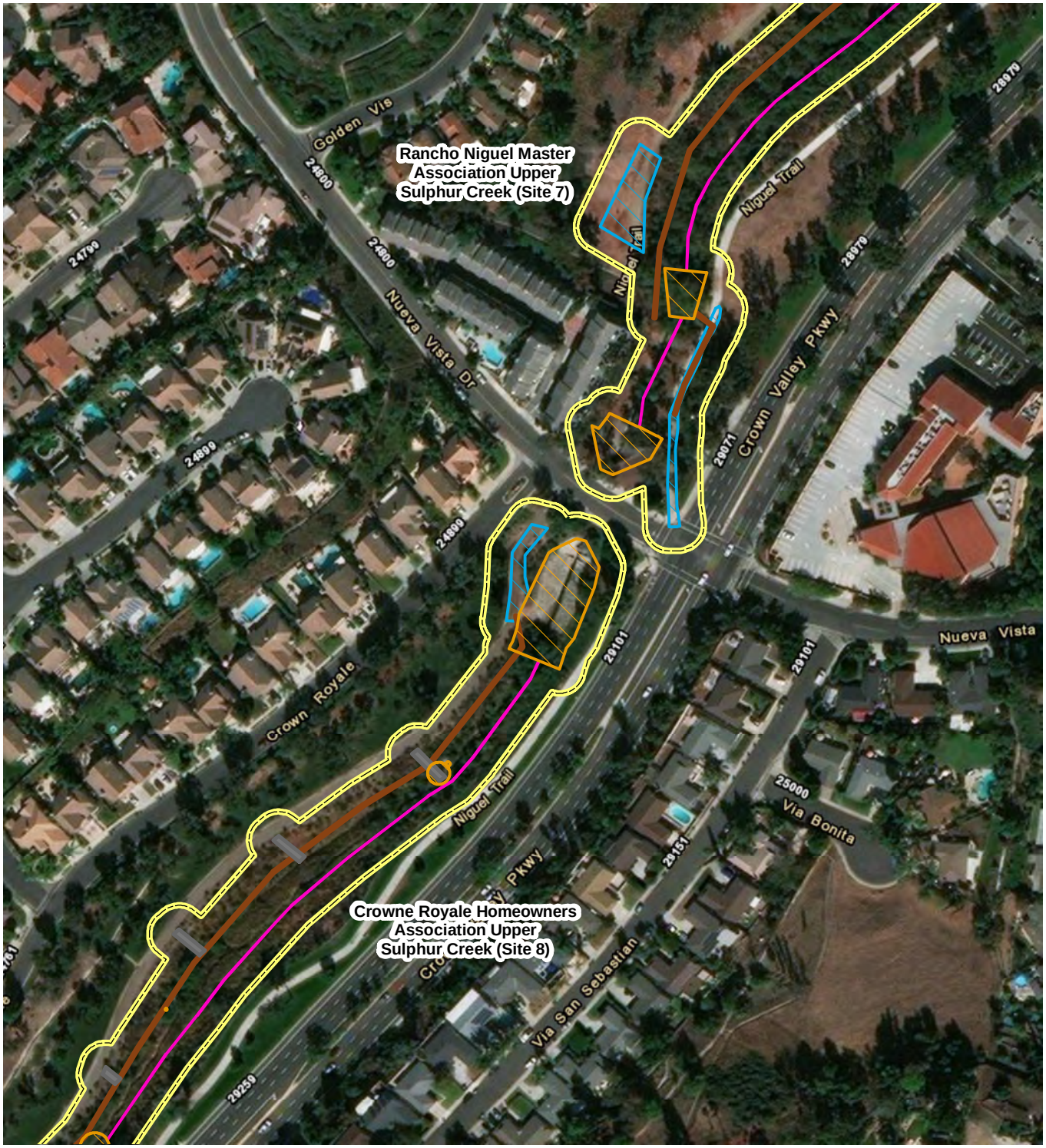
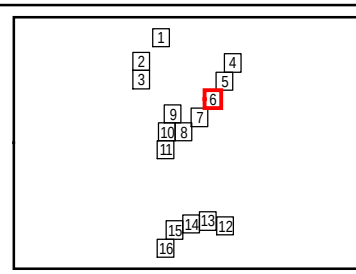
**Figure 3-5**
**Area of Potential Effects**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**




**Legend**

- Area of Potential Effects
- Low Flow Channel
- Work Area Impacts
- Access Path
- Footpath
- Staging Area




Source:

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**Figure 3-6**
**Area of Potential Effects**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**

\\PDCCITRDSGIS2\Irvine\GIS\Projects\City_of_Laguna_Niguel\P0724_15_CitywideOM\mapdoc\Cultural\Report_Figures\Figure3_ProjectAPEImpacts.mxd; User: 19566; Date: 10/5/2018




**Legend**

- Area of Potential Effects
- Low Flow Channel
- Work Area Impacts
- Access Path
- Footpath
- Staging Area

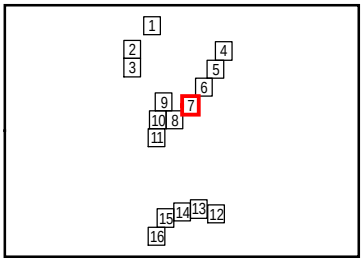


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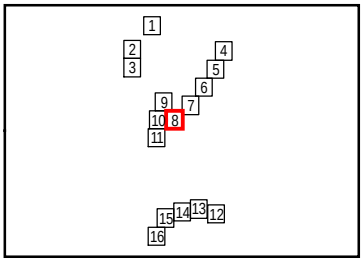
**Figure 3-7**
**Area of Potential Effects**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**




**Legend**

- Area of Potential Effects
- Low Flow Channel
- Work Area Impacts
- Access Path
- Footpath
- Staging Area




Source:

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**Figure 3-8**
**Area of Potential Effects**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**




**Legend**

- Area of Potential Effects
- Low Flow Channel
- Work Area Impacts
- Access Path
- Footpath
- Staging Area

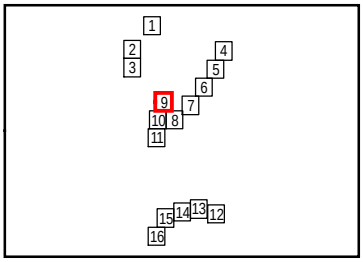


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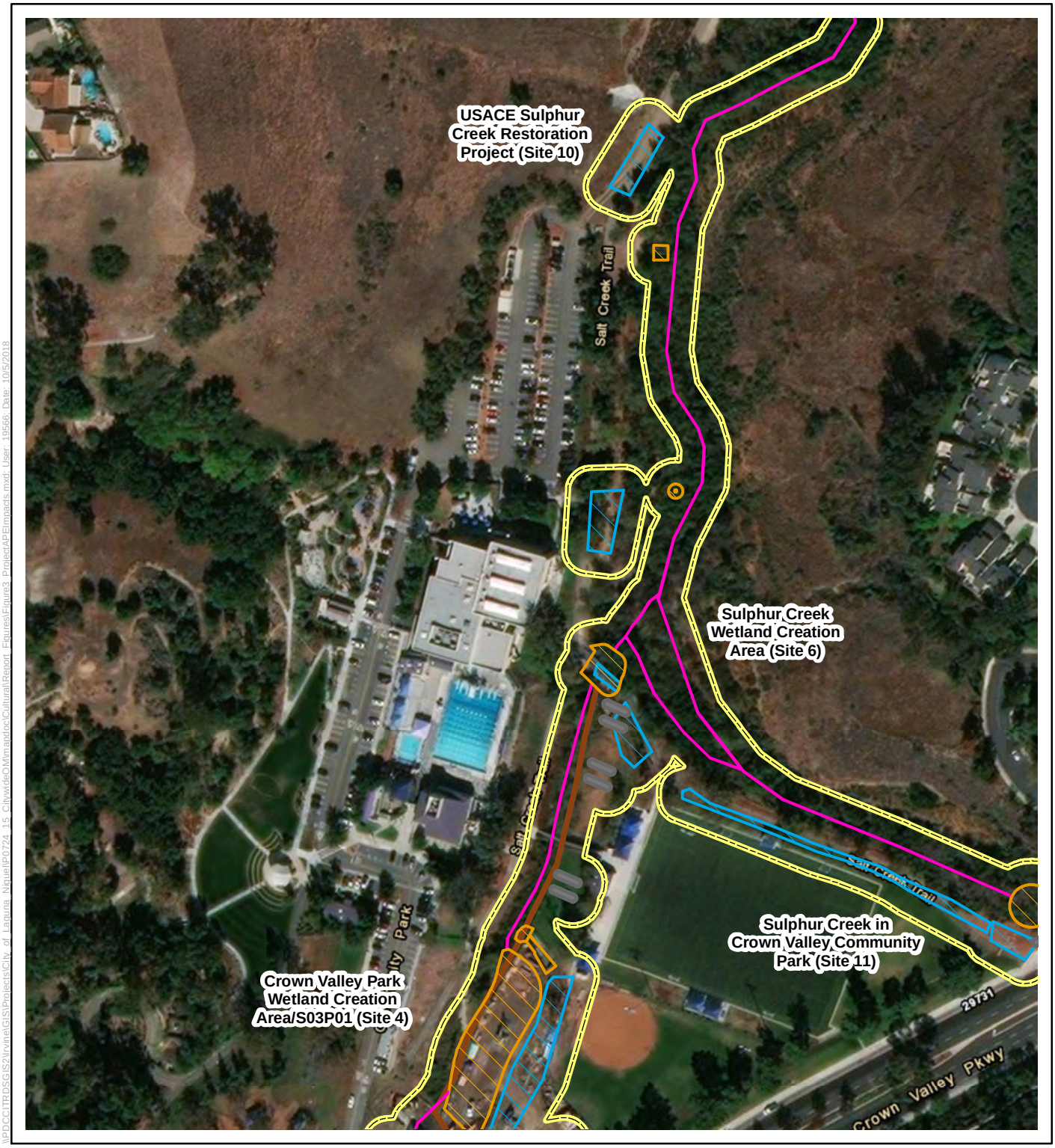
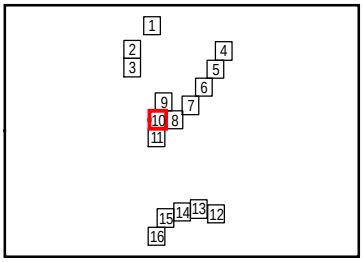
**Figure 3-9**
**Area of Potential Effects**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**

\\PROGITPDSGIS2\Irvine\GIS\Projects\City_of_Laguna_Niguel\P20724_15_CitywideOM\mapdoc\Cultural\Report_Figures\Figure3_ProjectAPEImpacts.mxd User: 18566; Date: 10/5/2018




**Legend**

- Area of Potential Effects
- Low Flow Channel
- Work Area Impacts
- Access Path
- Footpath
- Staging Area

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N

**Figure 3-10**
**Area of Potential Effects**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**




**Legend**

- Area of Potential Effects
- Low Flow Channel
- Work Area Impacts
- Access Path
- Footpath
- Staging Area

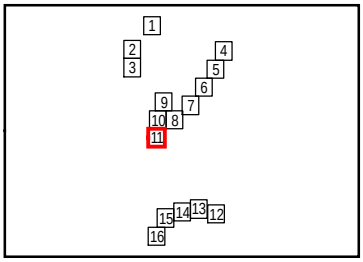


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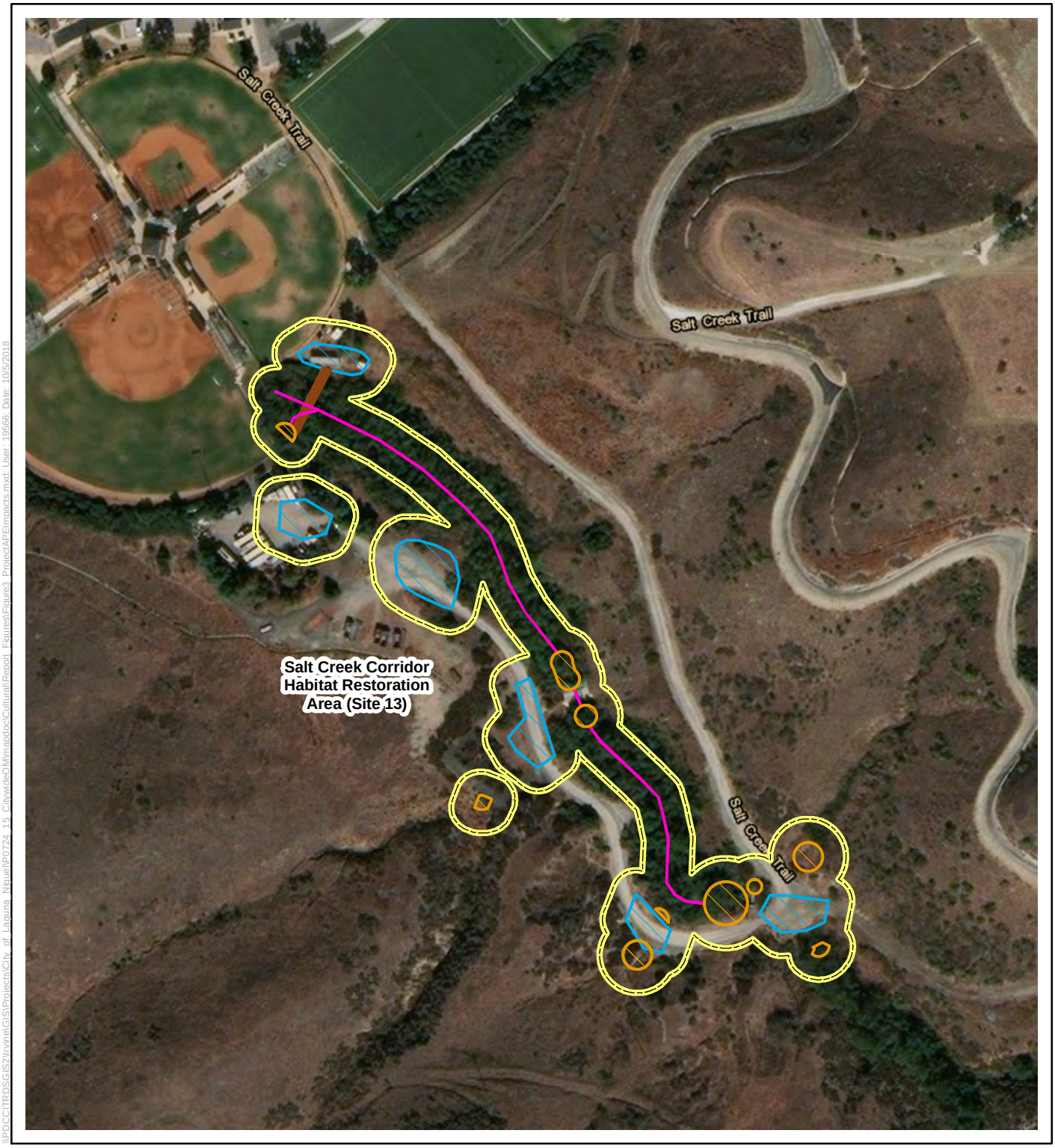
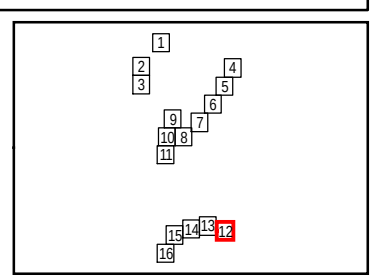
**Figure 3-11**
**Area of Potential Effects**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**




**Legend**

- Area of Potential Effects
- Low Flow Channel
- Work Area Impacts
- Access Path
- Footpath
- Staging Area

Source:

ICF

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0 100 200 Feet

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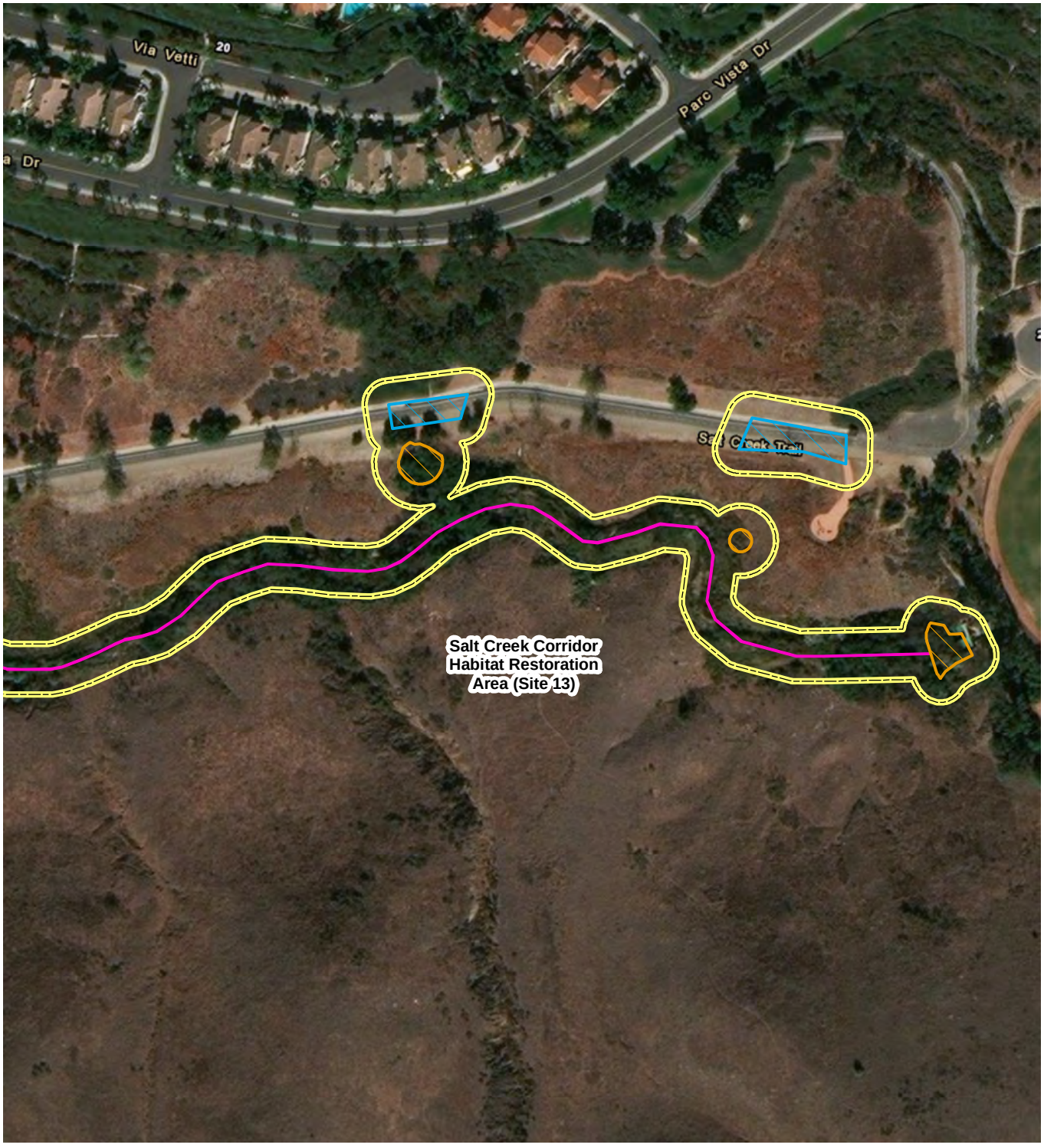
**Figure 3-12**
**Area of Potential Effects**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**

\\PDCCITRDSGIS2\Irvine\GIS\Projects\City_of_Laguna_Niguel\P0724_15_CitywideOM\mapdoc\Cultural\Report_Figures\Figure3_ProjectAPEImpacts.mxd; User: 19566; Date: 10/5/2018




**Legend**

- Area of Potential Effects
- Low Flow Channel
- Work Area Impacts
- Access Path
- Footpath
- Staging Area

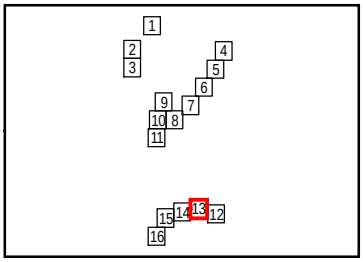



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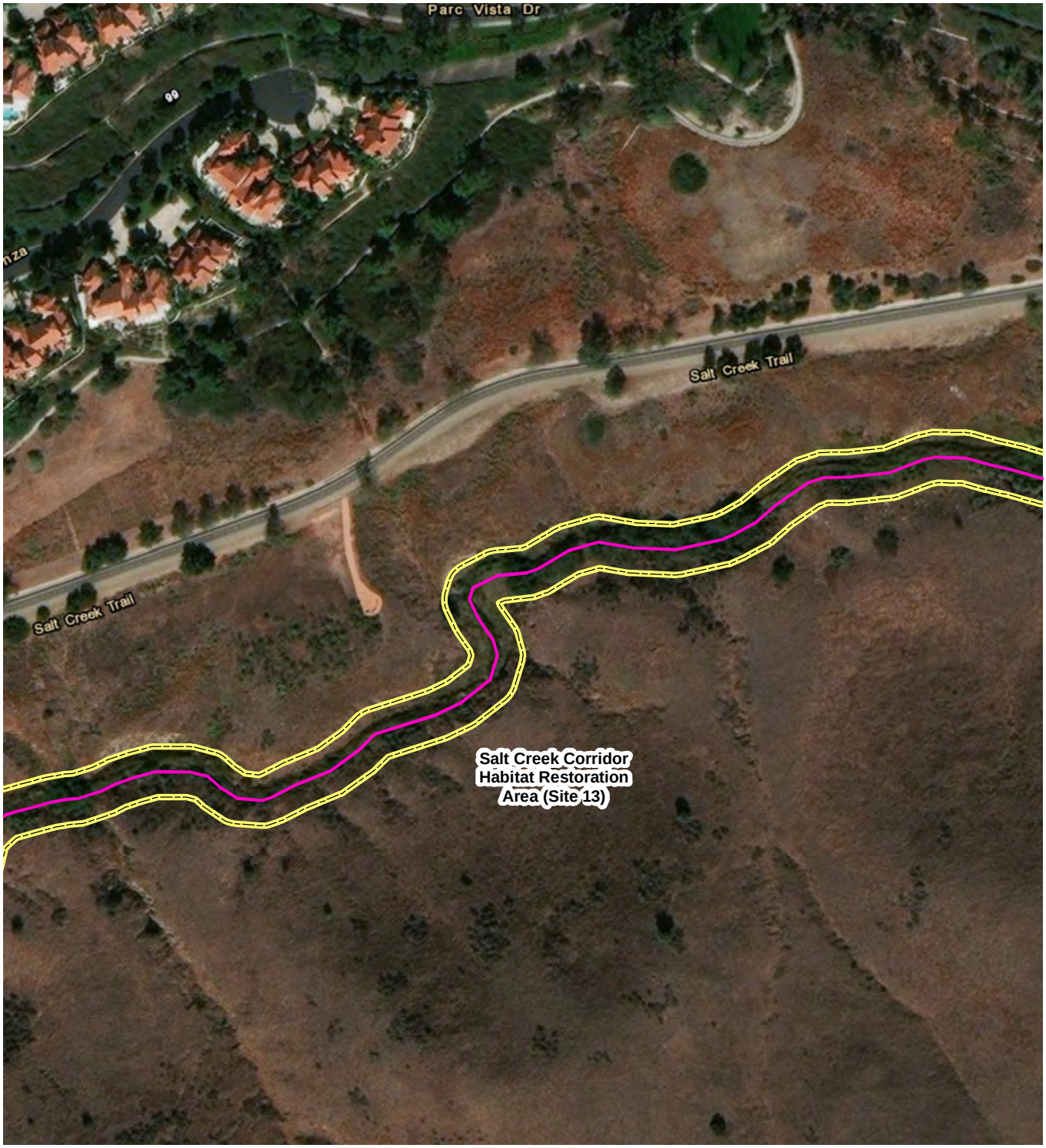
**Figure 3-13**
**Area of Potential Effects**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**




\\PDCGITPDSGIS2\Irvine\GIS\Projects\City of Laguna Niguel\P20724.15 Citywide O&M\mapdoc\Cultural\Report Figures\Figure3-ProjectAPEImpacts.mxd User: 18566; Date: 10/5/2018

**Legend**

- Area of Potential Effects
- Low Flow Channel
- Work Area Impacts
- Access Path
- Footpath
- Staging Area

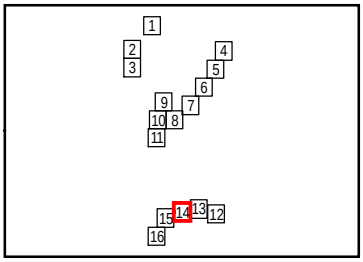



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**Figure 3-14**
**Area of Potential Effects**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**




**Legend**

- Area of Potential Effects
- Low Flow Channel
- Work Area Impacts
- Access Path
- Footpath
- Staging Area

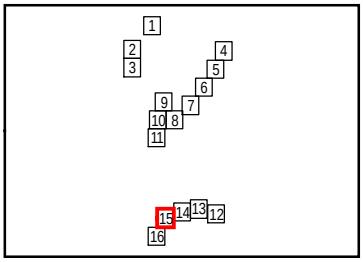


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**Figure 3-15**
**Area of Potential Effects**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**




**Legend**

- Area of Potential Effects
- Low Flow Channel
- Work Area Impacts
- Access Path
- Footpath
- Staging Area

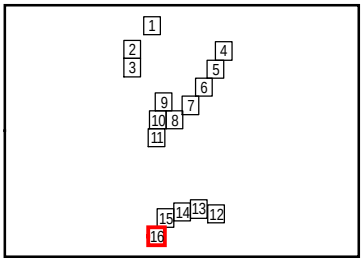

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**Figure 3-16**
**Area of Potential Effects**
**Laguna Niguel Wetlands Operations and Maintenance Activities Project**

Appendix E
# Tribal Correspondence

# Sacred Lands File & Native American Contacts List Request

**Native American Heritage Commission**
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

*Information Below is Required for a Sacred Lands File Search*

**Project:** City of Laguna Niguel Programmatic Permitting

**County:** Orange

**USGS Quadrangle Name:** San Juan Capistrano

T7S, R8W, Sections 21-23, 27; T8S R8W Sections

**Township:** _____ **Range:** _____ **Section(s):** _____

**Company/Firm/Agency:** ICF

**Street Address:** 525 B St. Suite 1700

**City:** San Diego **Zip:** 92101

**Phone:** 858-444-3936

**Fax:** _____

**Email:** karolina.chmiel@icf.com

**Project Description:**

The proposed project would involve implementation of the operation and maintenance (O&M) plan (Plan) for the Laguna Niguel Wetlands Operations and Maintenance Project (project) which proposes a systematic program for flood control maintenance in 13 wetland sites located throughout the Aliso Creek Watershed in the City of Laguna Niguel, within Orange County, California.

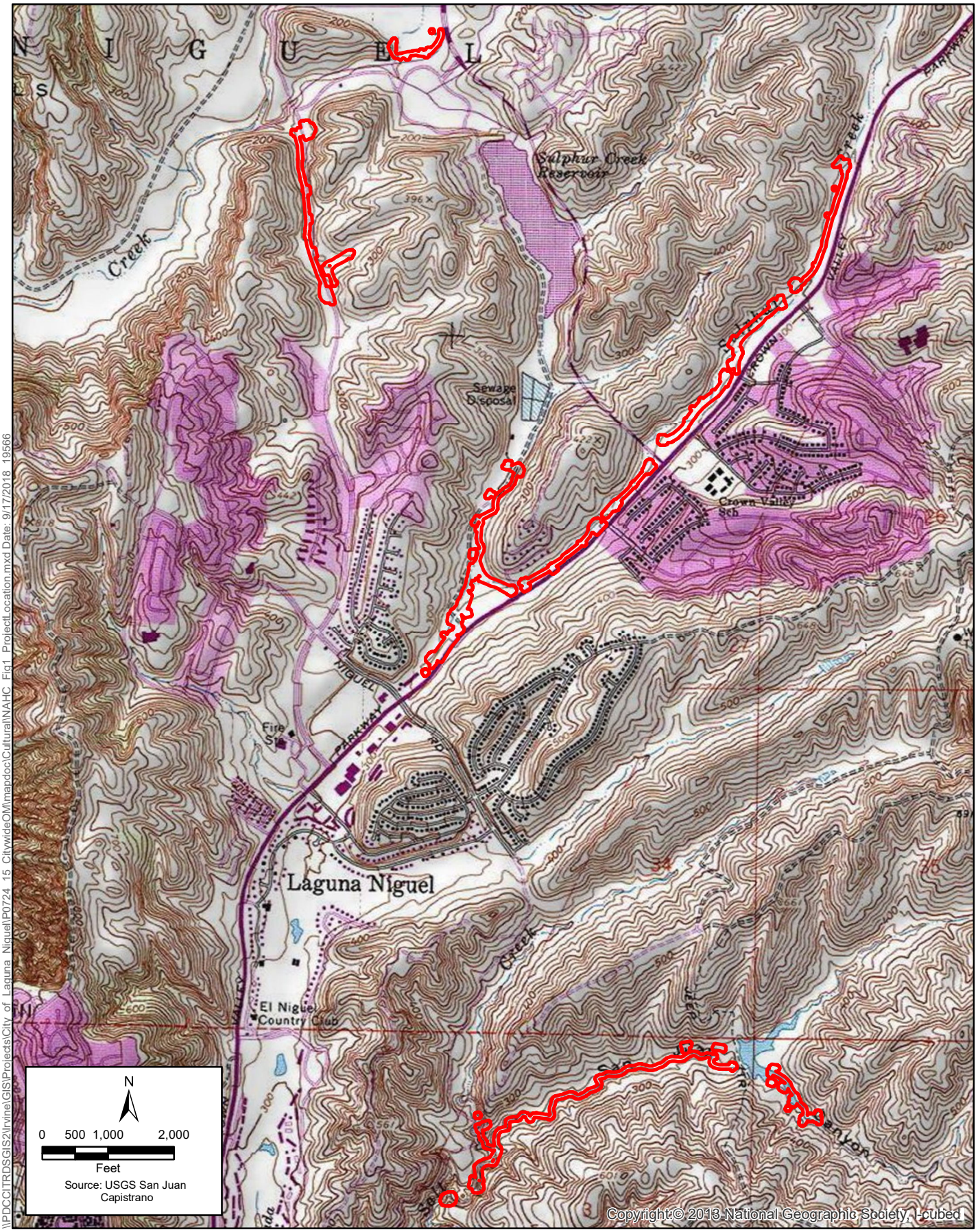


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**Figure 1**
**Project Location**
**City of Laguna Niguel Programmatic Permitting**

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

**NATIVE AMERICAN HERITAGE COMMISSION**
**Environmental and Cultural Department**
**1550 Harbor Blvd., ROOM 100**
**West SACRAMENTO, CA 95691**
**(916) 373-3710**
**Fax (916) 373-5471**

September 20, 2018

Karolina Chmiel
ICF

Sent by Email: Karolina.chmiel@icf.com

Re : City of Laguna Nigel Programmatic Permitting, Orange County

Dear Ms. Chmiel,

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results indicate Native American cultural sites are present. Please contact the Juaneno Band of Mission Indians, Raymond Belardes 949-293-8522. Other sources for cultural resources should also be contacted for information regarding known and/or recorded sites.

Enclosed is a list of Native American tribes who may also have knowledge of cultural resources in the project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these tribes, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at frank.lienert@nahc.ca.gov.

Sincerely,

Frank Lienert
Associate Governmental Program Analyst

**Native American Heritage Commission**
**Native American Contacts**
**September 20, 2018**

Juaneno Band of Mission Indians Acjachemen Nation
Matias Belardes, Chairperson
32161 Avenida Los Amigos Juaneno
San Juan Capistrano , CA 92675
kaamalam@gmail.com
(949) 444-4340 (Cell)

Juaneno Band of Mission Indians Acjachemen Nation
Teresa Romero, Chairwoman
31411-A La Matanza Street Juaneno
San Juan Capistrano , CA 92675
tromero@juaneno.com
(949) 488-3484
(530) 354-5876 Cell
(949) 488-3294 Fax

Juaneño Band of Mission Indians
Sonia Johnston, Tribal Chairperson
P.O. Box 25628 Juaneno
Santa Ana , CA 92799
sonia.johnston@sbcglobal.net

Juaneno Band of Mission Indians Acjachemen Nation
Joyce Perry, Tribal Manager
4955 Paseo Segovia Juaneno
Irvine , CA 92612
kaamalam@gmail.com
(949) 293-8522

**This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.**

**Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.**

**This list is only applicable for contacting local Native American Tribes with regard to cultural resources assessments for the proposed**
**City of Laguna Nigel Programmatic Permitting, Orange County**

# Due Diligence

| Laguna Niguel - Native American Tribes Consultation Contact Log | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Contact** | **Address** | **Title** | **Tribe** | **Date of Original Contact** | **Method of Contact** | **2nd Contact** | **Method of Contact** | **Time** | **Status** | **3rd Contact** | **Email** | **Phone #** | **Comments Received Y/N** |
| Joyce Perry | 4955 Paseo Segovia Irvine, CA 92603 | Tribal Manager | Juaneño Band of Mission Indians Acjachemen Nation | 10/3/2018 | Letter (Consultation Letter) | 10/3/2018 | spoke on the phone | | | | kaamalam@gmail.com | 949-444-4340 | 10/3/2018 Wants consultation with any changes to the project and a NAM and Arch with any disturbance below 2 ft bsl. The Aliso Creek watershed is highly sensitive to her people |
| Matias Belardes | 32161 Avenida Los Amig | Chairperson | Juaneño Band of Mission Indians Acjachemen Nation | 10/3/2018 | Letter (Consultation Letter) | | | | | | kaamalam@gmail.com | 949-444-4340 | 10/3/2018. Spoke with Joyce Perry, see her comments |
| Teresa Romero | 31411-A La Matanza Street San Juan Capistrano, CA 92675 | Chairwoman | Juaneño Band of Mission Indians Acjachemen Nation | 10/3/2018 | Letter (Consultation Letter) | | | | | | tromero@juaneno.com | 949-488-3484 | |
| Sonia Johnston | P.O. Box 25628 Santa Ana, CA 92799 | Tribal Chairperson | Juaneño Band of Mission Indians | 10/3/2018 | Letter (Consultation Letter) | | | | | | sonia.johnston@sbcglobal.net | | |
| | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

October 3, 2018

Juaneño Band of Mission Indians Acjachemen Nation
Matias Belardes
32161 Avenida Los Amigos
San Juan Capistrano, CA 92675

**Subject: Laguna Niguel Wetlands Operations and Maintenance Activities Project**

Dear Mr. Belardes:

I'm writing to inform you that the City of Laguna Niguel is proposing the implementation of a routine operations and maintenance (O&M) plan (Plan) for the Laguna Niguel Wetlands Operations and Maintenance Project (Project) which proposes a systematic program for flood control maintenance throughout the Aliso Creek Watershed. These O&M activities will occur within 13 City-owned wetland sites located in the Sulphur Creek watershed; a portion of the Salt Creek Watershed, within Chapparosa Park; and in the new construction associated with the J03P01 channel within Crown Valley Regional Park. Routine O&M activities will include sediment removal from creeks, vegetation and weeds removal and maintenance of existing access routes. The Project is within Sections 21-23 and 27 of Township 7 South, Range 8 West, and Township 8 South, Range 8 West and appears on the San Juan Capistrano, California USGS 7.5-minute series topographic map (Figure 1).

ICF has been retained to conduct an Initial Study. To accomplish this objective, ICF cultural resources personnel performed a records search, archival research, a Sacred Lands File search, and a pedestrian survey within the project area. Archival research refers to both written and oral history including record searches at the South Central Coastal Information Center (SCCIC), the Native American Heritage Commission (NAHC), as well as Native American consultation. Two prehistoric sites have been identified during the record search, however further archival research and a field survey determined both sites have been destroyed during the area's urban development.

The NAHC completed a search of the Sacred Lands File which does indicate the presence of Native American sacred lands within the project area. The NAHC identify you as a person who may have concerns or knowledge of cultural resources in the project area. Any information you might be able to share about the project area would greatly enhance the study and would be most appreciated. This letter is not part of the AB52 consultation process, but due diligence outreach.

If you would like to participate in the consultation process, or if you have any recommendations regarding the Project, please address them to me so that I can incorporate them into our draft report. As required by State law, all site data and other culturally sensitive information will not be released to the general public and will be kept strictly confidential. I can be reached at 858-444-3936, or by email at Karolina.chmiel@icf.com.

Sincerely,

Karolina Chmiel, MA
Archaeologist

**Encl. Figure 1**

October 3, 2018

Juaneño Band of Mission Indians
Sonia Johnston
P.O. Box 25628
Santa Ana, CA 92799

**Subject: Laguna Niguel Wetlands Operations and Maintenance Activities Project**

Dear Ms. Johnston:

I'm writing to inform you that the City of Laguna Niguel is proposing the implementation of a routine operations and maintenance (O&M) plan (Plan) for the Laguna Niguel Wetlands Operations and Maintenance Project (Project) which proposes a systematic program for flood control maintenance throughout the Aliso Creek Watershed. These O&M activities will occur within 13 City-owned wetland sites located in the Sulphur Creek watershed; a portion of the Salt Creek Watershed, within Chapparosa Park; and in the new construction associated with the J03P01 channel within Crown Valley Regional Park. Routine O&M activities will include sediment removal from creeks, vegetation and weeds removal and maintenance of existing access routes. The Project is within Sections 21-23 and 27 of Township 7 South, Range 8 West, and Township 8 South, Range 8 West and appears on the San Juan Capistrano, California USGS 7.5-minute series topographic map (Figure 1).

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Sincerely,

Karolina Chmiel, MA
Archaeologist

**Encl. Figure 1**

October 3, 2018

Juaneño Band of Mission Indians Acjachemen Nation
Joyce Perry
4955 Paseo Segovia
Irvine, CA 92603

**Subject: Laguna Niguel Wetlands Operations and Maintenance Activities Project**

Dear Ms. Perry:

I'm writing to inform you that the City of Laguna Niguel is proposing the implementation of a routine operations and maintenance (O&M) plan (Plan) for the Laguna Niguel Wetlands Operations and Maintenance Project (Project) which proposes a systematic program for flood control maintenance throughout the Aliso Creek Watershed. These O&M activities will occur within 13 City-owned wetland sites located in the Sulphur Creek watershed; a portion of the Salt Creek Watershed, within Chapparosa Park; and in the new construction associated with the J03P01 channel within Crown Valley Regional Park. Routine O&M activities will include sediment removal from creeks, vegetation and weeds removal and maintenance of existing access routes. The Project is within Sections 21-23 and 27 of Township 7 South, Range 8 West, and Township 8 South, Range 8 West and appears on the San Juan Capistrano, California USGS 7.5-minute series topographic map (Figure 1).

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Sincerely,

Karolina Chmiel, MA
Archaeologist

**Encl. Figure 1**

October 10, 2018

Juaneño Band of Mission Indians Acjachemen Nation
Teresa Romero
31411-A La Matanza Street
San Juan Capistrano, CA 92675

**Subject: Laguna Niguel Wetlands Operations and Maintenance Activities Project**

Dear Ms. Romero:

I'm writing to inform you that the City of Laguna Niguel is proposing the implementation of a routine operations and maintenance (O&M) plan (Plan) for the Laguna Niguel Wetlands Operations and Maintenance Project (Project) which proposes a systematic program for flood control maintenance throughout the Aliso Creek Watershed. These O&M activities will occur within 13 City-owned wetland sites located in the Sulphur Creek watershed; a portion of the Salt Creek Watershed, within Chapparosa Park; and in the new construction associated with the J03P01 channel within Crown Valley Regional Park. Routine O&M activities will include sediment removal from creeks, vegetation and weeds removal and maintenance of existing access routes. The Project is within Sections 21-23 and 27 of Township 7 South, Range 8 West, and Township 8 South, Range 8 West and appears on the San Juan Capistrano, California USGS 7.5-minute series topographic map (Figure 1).

ICF has been retained to conduct an Initial Study. To accomplish this objective, ICF cultural resources personnel performed a records search, archival research, a Sacred Lands File search, and a pedestrian survey within the project area. Archival research refers to both written and oral history including record searches at the South Central Coastal Information Center (SCCIC), the Native American Heritage Commission (NAHC), as well as Native American consultation. Two prehistoric sites have been identified during the record search, however further archival research and a field survey determined both sites have been destroyed during the area's urban development.

The NAHC completed a search of the Sacred Lands File which does indicate the presence of Native American sacred lands within the project area. The NAHC identify you as a person who may have concerns or knowledge of cultural resources in the project area. Any information you might be able to share about the project area would greatly enhance the study and would be most appreciated. This letter is not part of the AB52 consultation process, but due diligence outreach.

If you would like to participate in the consultation process, or if you have any recommendations regarding the Project, please address them to me so that I can incorporate them into our draft report. As required by State law, all site data and other culturally sensitive information will not be released to the general public and will be kept strictly confidential. I can be reached at 858-444-3936, or by email at Karolina.chmiel@icf.com.

Sincerely,

Karolina Chmiel, MA
Archaeologist

**Encl. Figure 1**

# AB 52 Consultation

| Laguna Niguel - Native American Tribes AB 52 Consultation Contact Log | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Contact | Address | Title | Tribe | Date of Original Contact | Method of Contact | 2nd Contact | Method of Contact | Time | Status | 3rd Contact | Email | Phone # | Comments Received Y/N |
| Joyce Perry | 4955 Paseo Segovia Irvine, CA 92603 | Representing Tribal Chairperson | Juaneño Band of Mission Indians Acjachemen Nation | 10/3/2018 | Letter (AB 52 Letter) | 10/3/2018 | spoke on the phone | | | | kaamalam@gmail.com | 949-444-4340 | 10/3/2018 Wants consultation with any changes to the project and a NAM and Arch with any disturbance below 2 ft bsl. The Aliso Creek watershed is highly sensitive to her people |
| David Belardes | 32161 Avenida Los Amig | Chairperson | Juaneño Band of Mission Indians Acjachemen Nation | 10/3/2018 | Letter (AB 52 Letter) | | | | | | kaamalam@gmail.com | 949-444-4340 | |
| Anthony Morales | P.O. Box 693 San Gabriel, CA 91778 | Chairperson | Gabrieleno/Tongva San Gabriel Band of Mission Indians | 10/3/2018 | Letter (AB 52 Letter) | | | | | | | | |
| Sonia Johnston | P.O. Box 25628 Santa Ana, CA 92799 | Tribal Chairperson | Juaneño Band of Mission Indians | 10/3/2018 | Letter (AB 52 Letter) | | | | | | sonia.johnston@sbcglobal.net | | |
| Sam Dunlop | P.O. Box 86908 Los An | Chairperson | Gabrielino Tongva Nati | 10/3/2018 | Letter (AB 52 Letter) | | | | | | | | |
| Anthony Rivera | 31411-A La Matanza S | Chairman | Juaneño Band of Mission Indians Acjachemen Nation | 10/3/2018 | Letter (AB 52 Letter) | | | | | | | | |
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October 3, 2018

Juaneño Band of Mission Indians Acjachemen Nation
David Belardes, Chairperson
32161 Avenida Los Amigos
San Juan Capistrano, CA 92675

**Subject:** **Notification of Laguna Niguel Wetlands Operations and Maintenance Activities Project Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (AB52)**

Dear Mr. Belardes:

This letter is formal notification of the City of Laguna Niguel's proposed Laguna Niguel Wetlands Operations and Maintenance Activates Project, which is subject to compliance with the California Environmental Quality Act (CEQA). The City of Laguna Niguel (City) is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (AB52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB52, the Juaneño Band of Mission Indians Acjachemen Nation Band of Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 5, 2018, and shall provide the name of the tribe's designated lead contact person.

**Project Description:**
The City plans to conduct routine operations and maintenance (O&M) activities within 13 City-owned wetland sites located in the Sulphur Creek watershed; a portion of the Salt Creek Watershed, within Chapparosa Park; and in the new construction associated with the J03P01 channel within Crown Valley Regional Park. The Project would include minor maintenance activities such as removing herbaceous vegetation and accumulated sediment around outfalls, risers, culverts, bridge crossings, establishing pilot channels to facilitate positive flow and maintain flood capacity (i.e., flowline maintenance), and trimming understory of riparian vegetation (i.e. below the tree canopy) to prevent obstruction of flow. Where equipment access is available, equipment will include a backhoe with extend-a-hoe, a vactor pump truck, bobcat loader, mini-excavator, and a dewatering bin. In areas where access is limited, hand tools (e.g. shovels and wheel barrels) will be used.

**Project Location:**
The Project is located in the City of Laguna Niguel (City), within Orange County, California (Figure 1 and 2), west of Interstate 5 (I-5), east of Aliso Woods Regional Park, south of State Route 73, and north of the Pacific Ocean. Specifically, the Project is within the area bounded by Street of the Golden Lantern to the east, Alicia Parkway and Crown Valley Parkway to the west, Aliso Creek Road to the north, and Beacon Hill Way to the south.

**Contact Information:**
The City lead contact for AB52 Consultation on this project is:
Hal Ghafari
City of Laguna Niguel Public Works Department
30111 Crown Valley Parkway
Laguna Niguel, CA 92677
HGhafari@cityoflagunaniguel.org | 949.362.4384

If the Juaneño Band of Mission Indians Acjachemen Nation Band of Indians wishes to consult with the City regarding the Project, please indicate in writing via letter addressed to the lead contact at the address provided above within 30 days (on or before November 5, 2018) and provide the name of the tribe's designated lead contact person.

Sincerely,

Karolina Chmiel
Archaeologist

**Encl. Figure 1**

October 3, 2018

Gabrieleño Tongva Nation
Sam Dunlop, Chairperson
P.O. Box 86908
Los Angeles, CA 90086

**Subject:** **Notification of Laguna Niguel Wetlands Operations and Maintenance Activities Project Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (AB52)**

Dear Mr. Dunlop:

This letter is formal notification of the City of Laguna Niguel's proposed Laguna Niguel Wetlands Operations and Maintenance Activates Project, which is subject to compliance with the California Environmental Quality Act (CEQA). The City of Laguna Niguel (City) is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (AB52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB52, the Gabrielino Tongva Nation has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 5, 2018, and shall provide the name of the tribe's designated lead contact person.

**Project Description:**
The City plans to conduct routine operations and maintenance (O&M) activities within 13 City-owned wetland sites located in the Sulphur Creek watershed; a portion of the Salt Creek Watershed, within Chapparosa Park; and in the new construction associated with the J03P01 channel within Crown Valley Regional Park. The Project would include minor maintenance activities such as removing herbaceous vegetation and accumulated sediment around outfalls, risers, culverts, bridge crossings, establishing pilot channels to facilitate positive flow and maintain flood capacity (i.e., flowline maintenance), and trimming understory of riparian vegetation (i.e. below the tree canopy) to prevent obstruction of flow. Where equipment access is available, equipment will include a backhoe with extend-a-hoe, a vactor pump truck, bobcat loader, mini-excavator, and a dewatering bin. In areas where access is limited, hand tools (e.g. shovels and wheel barrels) will be used.

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The Project is located in the City of Laguna Niguel (City), within Orange County, California (Figure 1 and 2), west of Interstate 5 (I-5), east of Aliso Woods Regional Park, south of State Route 73, and north of the Pacific Ocean. Specifically, the Project is within the area bounded by Street of the Golden Lantern to the east, Alicia Parkway and Crown Valley Parkway to the west, Aliso Creek Road to the north, and Beacon Hill Way to the south.

**Contact Information:**
The City lead contact for AB52 Consultation on this project is:
Hal Ghafari
City of Laguna Niguel Public Works Department
30111 Crown Valley Parkway
Laguna Niguel, CA 92677
HGhafari@cityoflagunaniguel.org | 949.362.4384

If the Gabrielino Tongva Nation wishes to consult with the City regarding the Project, please indicate in writing via letter addressed to the lead contact at the address provided above within 30 days (on or before November 5, 2018) and provide the name of the tribe's designated lead contact person.

Sincerely,

Karolina Chmiel
Archaeologist

**Encl. Figure 1**

October 3, 2018

Juaneño Band of Mission Indians
Sonia Johnston, Tribal Chairperson
P.O. Box 25628
Santa Ana, CA 92799

**Subject:** **Notification of Laguna Niguel Wetlands Operations and Maintenance Activities Project Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (AB52)**

Dear Ms. Johnston:

This letter is formal notification of the City of Laguna Niguel's proposed Laguna Niguel Wetlands Operations and Maintenance Activates Project, which is subject to compliance with the California Environmental Quality Act (CEQA). The City of Laguna Niguel (City) is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (AB52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB52, the Juaneño Band of Mission Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 5, 2018, and shall provide the name of the tribe's designated lead contact person.

**Project Description:**
The City plans to conduct routine operations and maintenance (O&M) activities within 13 City-owned wetland sites located in the Sulphur Creek watershed; a portion of the Salt Creek Watershed, within Chapparosa Park; and in the new construction associated with the J03P01 channel within Crown Valley Regional Park. The Project would include minor maintenance activities such as removing herbaceous vegetation and accumulated sediment around outfalls, risers, culverts, bridge crossings, establishing pilot channels to facilitate positive flow and maintain flood capacity (i.e., flowline maintenance), and trimming understory of riparian vegetation (i.e. below the tree canopy) to prevent obstruction of flow. Where equipment access is available, equipment will include a backhoe with extend-a-hoe, a vactor pump truck, bobcat loader, mini-excavator, and a dewatering bin. In areas where access is limited, hand tools (e.g. shovels and wheel barrels) will be used.

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Hal Ghafari
City of Laguna Niguel Public Works Department
30111 Crown Valley Parkway
Laguna Niguel, CA 92677
HGhafari@cityoflagunaniguel.org | 949.362.4384

If the Juaneño Band of Mission Indians wishes to consult with the City regarding the Project, please indicate in writing via letter addressed to the lead contact at the address provided above within 30 days (on or before November 5, 2018) and provide the name of the tribe's designated lead contact person.

Sincerely,

Karolina Chmiel
Archaeologist

**Encl. Figure 1**

October 3, 2018

Gabrieleño/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693
San Gabriel, CA 91778

**Subject:** **Notification of Laguna Niguel Wetlands Operations and Maintenance Activities Project Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (AB52)**

Dear Mr. Morales:

This letter is formal notification of the City of Laguna Niguel's proposed Laguna Niguel Wetlands Operations and Maintenance Activates Project, which is subject to compliance with the California Environmental Quality Act (CEQA). The City of Laguna Niguel (City) is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (AB52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB52, the Gabrieleño/Tongva San Gabriel Band of Mission Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 5, 2018, and shall provide the name of the tribe's designated lead contact person.

**Project Description:**
The City plans to conduct routine operations and maintenance (O&M) activities within 13 City-owned wetland sites located in the Sulphur Creek watershed; a portion of the Salt Creek Watershed, within Chapparosa Park; and in the new construction associated with the J03P01 channel within Crown Valley Regional Park. The Project would include minor maintenance activities such as removing herbaceous vegetation and accumulated sediment around outfalls, risers, culverts, bridge crossings, establishing pilot channels to facilitate positive flow and maintain flood capacity (i.e., flowline maintenance), and trimming understory of riparian vegetation (i.e. below the tree canopy) to prevent obstruction of flow. Where equipment access is available, equipment will include a backhoe with extend-a-hoe, a vactor pump truck, bobcat loader, mini-excavator, and a dewatering bin. In areas where access is limited, hand tools (e.g. shovels and wheel barrels) will be used.

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Hal Ghafari
City of Laguna Niguel Public Works Department
30111 Crown Valley Parkway
Laguna Niguel, CA 92677
HGhafari@cityoflagunaniguel.org | 949.362.4384

If the Gabrieleño/Tongva San Gabriel Band of Mission Indians wishes to consult with the City regarding the Project, please indicate in writing via letter addressed to the lead contact at the address provided above within 30 days (on or before November 5, 2018) and provide the name of the tribe's designated lead contact person.

Sincerely,

Karolina Chmiel
Archaeologist

**Encl. Figure 1**

October 3, 2018

Juaneño Band of Mission Indians Acjachemen Nation
Joyce Perry, Representing Tribal Chairperson
4955 Paseo Segovia
Irvine, CA 92603

**Subject:** **Notification of Laguna Niguel Wetlands Operations and Maintenance Activities Project Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (AB52)**

Dear Ms. Perry:

This letter is formal notification of the City of Laguna Niguel's proposed Laguna Niguel Wetlands Operations and Maintenance Activates Project, which is subject to compliance with the California Environmental Quality Act (CEQA). The City of Laguna Niguel (City) is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (AB52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB52, the Juaneño Band of Mission Indians Acjachemen Nation Band of Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 5, 2018, and shall provide the name of the tribe's designated lead contact person.

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Hal Ghafari
City of Laguna Niguel Public Works Department
30111 Crown Valley Parkway
Laguna Niguel, CA 92677
HGhafari@cityoflagunaniguel.org | 949.362.4384

If the Juaneño Band of Mission Indians Acjachemen Nation Band of Indians wishes to consult with the City regarding the Project, please indicate in writing via letter addressed to the lead contact at the address provided above within 30 days (on or before November 5, 2018) and provide the name of the tribe's designated lead contact person.

Sincerely,

Karolina Chmiel
Archaeologist

**Encl. Figure 1**

October 3, 2018

Juaneño Band of Mission Indians Acjachemen Nation
Anthony Rivera, Chairperson
31411-A La Matanza Street
San Juan Capistrano, CA 92675-2674

**Subject:** **Notification of Laguna Niguel Wetlands Operations and Maintenance Activities Project Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (AB52)**

Dear Mr. Rivera:

This letter is formal notification of the City of Laguna Niguel's proposed Laguna Niguel Wetlands Operations and Maintenance Activates Project, which is subject to compliance with the California Environmental Quality Act (CEQA). The City of Laguna Niguel (City) is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (AB52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB52, the Juaneño Band of Mission Indians Acjachemen Nation Band of Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 5, 2018, and shall provide the name of the tribe's designated lead contact person.

**Project Description:**
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Hal Ghafari
City of Laguna Niguel Public Works Department
30111 Crown Valley Parkway
Laguna Niguel, CA 92677
HGhafari@cityoflagunaniguel.org | 949.362.4384

If the Juaneño Band of Mission Indians Acjachemen Nation Band of Indians wishes to consult with the City regarding the Project, please indicate in writing via letter addressed to the lead contact at the address provided above within 30 days (on or before November 5, 2018) and provide the name of the tribe's designated lead contact person.

Sincerely,

Karolina Chmiel
Archaeologist

**Encl. Figure 1**

# Appendix F
# **Comment Letters**

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

SENT VIA E-MAIL AND USPS: May 14, 2019

hghafari@cityoflagunaniguel.org
Hal Ghafari, Environmental Programs Supervisor
City of Laguna Niguel, Public Works Department
30111 Grown Valley Parkway
Laguna Niguel, CA 92677

**Mitigated Negative Declaration (MND) for the Proposed Laguna Niguel Wetlands Operations and Maintenance Project**

The South Coast Air Quality Management District (South Coast AQMD) staff appreciates the opportunity to comment on the above-mentioned document. The following comments are meant as guidance for the Lead Agency and should be incorporated into the Final MND.

South Coast AQMD Staff's Summary of Project Description

The Lead Agency proposes to implement routine vegetation, sediment removal, and flood control maintenance activities at 13 City of Laguna Niguel-owned wetland sites in the Sulphur Creek and Salt Creek Watersheds within Chapparosa Park and Crown Valley Regional Park (Proposed Project). Maintenance activities would include, among others, removal of herbaceous vegetation and accumulated sediment around outfalls, risers, culverts, and bridge crossings. Based on Figure 2-2 and wetland sites-specific figures in the MND, South Coast AQMD staff found that existing residential uses are located in close proximity to the wetlands where maintenance activities would take place.

South Coast AQMD Staff's Summary of the Air Quality Analysis

The Lead Agency *qualitatively* analyzed the Proposed Project's air quality impacts and found that due to the duration, frequency, number of workers, and amount of equipment required, maintenance activities would be on a smaller scale such that generation of pollutants in excess of regional and localized emissions thresholds is not anticipated[1] (*emphasis added*). South Coast AQMD staff has comments on the Proposed Project's air quality analysis. Please see below for more information.

South Coast AQMD Staff's Comments

*Regional and Localized Air Quality Impact Analysis*

South Coast AQMD staff recommends that the Lead Agency include *quantitative* estimations of the Proposed Project's operational (regional and localized) emissions as substantial evidence to support a fair argument that the Proposed Project's operational air quality impacts will not be significant (*emphasis added*). One of the basic purposes of CEQA is to inform government decision makers and the public about the potential, significant environmental effects of proposed activities (CEQA Guidelines Section 15002(a)(1)). A mitigated negative declaration is appropriate when the Lead Agency finds that the project will not have a significant effect on the environment after incorporating mitigation measures (CEQA Guidelines Sections 15070 to 15075). Reasons to support this finding shall be documented in the initial study. Evaluation of air quality impacts, unlike some other impact areas, easily lends itself to quantification. Not only does quantification make it easier for the public and decision-makers to understand the breadth and depth of the potential air quality impacts, but it also facilitates the

[1] MND. Page 3-12.

identification of mitigation measures, if required, to reduce any significant adverse air quality impacts. Without quantifying emissions from the Proposed Project's operational activities, the MND has not made the documentation which serves as substantial evidence to support a fair argument that the Proposed Project would not have any adverse effects on air quality. Therefore, South Coast AQMD staff recommends that the Lead Agency quantify and disclose the Proposed Project's air quality impacts (regional and localized operational air quality impacts) in the Final MND.

Air quality impacts from implementing the Proposed Project's operations and maintenance activities should be calculated. Emissions typically include, but are not limited to, those from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips during vegetation and sediment removal activates). South Coast AQMD staff recommends that the Lead Agency quantify criteria pollutant emissions from the Proposed Project's operations and maintenance activities and anticipated equipment and compare the results to South Coast AQMD's CEQA regional pollutant emissions significance thresholds for construction[2] to determine air quality impacts.

As stated above, the Proposed Project's operations and maintenance activities will take place in close proximity to sensitive receptors (e.g., residential uses). Therefore, South Coast AQMD staff recommends that the Lead Agency quantify the Proposed Project's localized emissions and disclose the localized air quality impacts in the Final MND to ensure that any nearby sensitive receptors are not adversely affected by the vegetation and sediment removal activities and operation of diesel equipment that are occurring in close proximity. South Coast AQMD guidance for performing a localized air quality analysis is available on South Coast AQMD website[3].

*Mitigation Measures*

In the event that the Lead Agency finds, after the analysis, that emissions from the Proposed Project's operations and maintenance activities would exceed South Coast AQMD's air quality CEQA daily significance thresholds, feasible mitigation measures to minimize these impacts are required. Several resources are available to assist the Lead Agency with identifying potential mitigation measures for the Proposed Project, including:

- Chapter 11 of South Coast AQMD's CEQA Air Quality Handbook.
- South Coast AQMD's CEQA web pages available here: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies.
- South Coast AQMD's Mitigation Monitoring and Reporting Plan (MMRP) for the 2016 Air Quality Management Plan (2016 AQMP) available here (starting on page 86): http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2017/2017-mar3-035.pdf.

For more information on potential mitigation measures as guidance to the Lead Agency, please visit South Coast AQMD's CEQA Air Quality Handbook website[4].

[2]South Coast AQMD. South Coast AQMD Air Quality Significance Thresholds. Accessed at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf.
[3]South Coast AQMD. Localized Significance Thresholds. Accessed at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds.
[4] South Coast AQMD. Accessed at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook.

*South Coast AQMD Permits and Responsible Agency*

The Proposed Project includes the use of diesel-powered equipment[5]. It is important to note that generally, operation of portable engines and portable equipment units of 50 horsepower or greater that emit particulate matter require a permit from South Coast AQMD or registration with the Portable Equipment Registration Program (PERP) through the California Air Resources Board (CARB)[6]. The Lead Agency should consult with South Coast AQMD's Engineering and Permitting staff to determine if operation of diesel-powered equipment for the Proposed Project will require a South Coast AQMD permit or if the equipment will need to be registered under the PERP through CARB[7]. If an air permit from South Coast AQMD is required, South Coast AQMD should be identified as a Responsible Agency for the Proposed Project in the Final MND. Any assumptions used in the Air Quality Analysis in the Final MND will be used as the basis for permit conditions and limits for the Proposed Project. Should there be any questions on permits, please contact the South Coast AQMD's Engineering and Permitting staff at (909) 396-3385. For more general information on permits, please visit South Coast AQMD's webpage at: http://www.aqmd.gov/home/permits. For more information on the PERP Program, please contact CARB at (916) 324-5869 or visit CARB's webpage at: https://ww2.arb.ca.gov/our-work/programs/portable-equipment-registration-program-perp.

Closing

Pursuant to CEQA Guidelines Section 15074, prior to approving the Proposed Project, the Lead Agency shall consider the MND for adoption together with any comments received during the public review process. Please provide South Coast AQMD with written responses to all comments contained herein prior to the adoption of the Final MND. When responding to issues raised in the comments, response should provide sufficient details giving reasons why specific comments and suggestions are not accepted. There should be good faith, reasoned analysis in response. Conclusory statements unsupported by factual information do not facilitate the purpose and goal of CEQA on public disclosure and are not meaningful, informative, or useful to decision makers and the public who are interested in the Proposed Project.

South Coast AQMD staff is available to work with the lead agency to address these issues and any other questions that may arise. Please contact me at lsun@aqmd.gov if you have any questions regarding the enclosed comments.

Sincerely,

*Lijin Sun*

Lijin Sun, J.D.
Program Supervisor, CEQA IGR
Planning, Rule Development & Area Sources

LS
ORC190501-14
Control Number

[5]MND. Page 3-12.
[6]South Coast AQMD. *Portable Equipment Registration Program (PERP)*. Accessed at: http://www.aqmd.gov/home/permits/equipment-registration/perp.
[7]*Ibid.*

OC PublicWorks
*Integrity, Accountability, Service, Trust*
**Shane L. Silsby, Director**

May 23, 2019 NCL-19-015

Hal Ghafari, Environmental Programs Supervisor
City of Laguna Niguel, Public Works Department
30111 Crown Valley Parkway
Laguna Niguel, CA 92677

**Subject:** Notice of Availability and Intent to Adopt a Mitigated Negative Declaration for the Laguna Niguel Wetlands Operations and Maintenance Project.

Dear Mr. Hal Ghafari:

Thank you for the opportunity to comment on the Initial Study and Mitigated Negative Declaration for the Laguna Niguel Wetlands Operations and Maintenance Project. The County of Orange offers the following comments for your consideration.

**OC Infrastructure Programs /Flood Programs/Hydrology**

1. All work within or adjacent to any Orange County Flood Control District right-of-way for flood control facilities shall be conducted so as not to adversely impact channel's structural integrity, hydraulic flow conditions, access and maintainability. Furthermore, all proposed projects within OCFCD's right-of-way should be reviewed and approved by OC Public Works, and the work should be conducted only after an encroachment permit has been obtained. For information regarding the permit application process and other details please refer to the Encroachment Permits Section link on OC Public Works' website http://www.ocpublicworks.com/ds/permits/encroachment_permits. Technical reviews and approvals for the proposed work will be accomplished within the permit process.

**OC Environmental Resources**

1. For any proposed Operations and Maintenance activities that occur in OCFCD facilities, the agency will need to acquire an OCFCD Encroachment Permit. More information on the Encroachment Permit submittal process can be found at http://www.ocpublicworks.com/ds/permits/encroachment_permits.

2. The MND mentions that sediment and erosion control BMPs as well as diversion structures will be set up during O&M activities. Since the project will likely require an OCFCD Encroachment Permit, OCFCD will need more information to assess how the project will impact OCFCD facilities. A BMP plan should be appended to the MND and should be provided to OCFCD when it becomes available for review.

If you have any questions regarding these comments, please contact Sahar Parsi at (714) 647-3988, Penny Lew at (714) 647-3990 in OC Infrastructure Programs, Jacqueline Sedighi at (714) 955-0671 in OC Environmental Resources or Cindy Salazar at (714) 667-8870 in OC Development Services.

Sincerely,

Richard Vuong, Manager, Planning Division
OC Public Works Service Area/OC Development Services
300 North Flower Street
Santa Ana, California 92702-4048
Richard.Vuong@ocpw.ocgov.com

cc: Sahar Parsi, OC Flood Programs/Hydrology & Floodplain Management
Penny Lew, OC Flood Programs/Hydrology & Floodplain Management
Jacqueline Sedighi, OC Environmental Resources

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Gavin Newsom
Governor

Kate Gordon
Director

May 28, 2019

Hal Ghafari
Laguna Niguel, City of
30111 Crown Valley Parkway
Laguna Niguel, CA 92677

Subject: Laguna Niguel Wetlands Operations and Maintenance Project
SCH#: 2019049141

Dear Hal Ghafari:

The State Clearinghouse submitted the above named MND to selected state agencies for review. The review period closed on 5/24/2019, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act, please visit: https://ceqanet.opr.ca.gov/2019049141/2 , for full details about your project.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL 1-916-445-0613 state.clearinghouse@opr.ca.gov www.opr.ca.gov

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

May 31, 2019

Mr. Hal Ghafari
City of Laguna Niguel
30111 Crown Valley Parkway
Laguna Niguel, CA 92677
hghafari@cityoflagunaniguel.org

**Subject: Comments on the Notice of Intent to Adopt a Mitigated Negative Declaration for the Laguna Niguel Wetlands Operations and Maintenance Project, Laguna Niguel, CA (SCH# 2019049141)**

Dear Mr. Ghafari:

The California Department of Fish and Wildlife (Department) has reviewed the above-referenced Laguna Niguel Wetlands Operations and Maintenance Project Mitigated Negative Declaration (MND), dated April 2019.The following statements and comments have been prepared pursuant to the Department's authority as Trustee Agency with jurisdiction over natural resources affected by the project (California Environmental Quality Act [CEQA], Guidelines §15386) and pursuant to our authority as a Responsible Agency under CEQA Guidelines section 15381 over those aspects of the proposed project that come under the purview of the California Endangered Species Act (CESA; Fish and Game Code § 2050 *et seq.*) and Fish and Game Code section 1600 *et seq*. The Department also administers the Natural Community Conservation Planning program.

The project describes Operations and Maintenance (O&M) activities at 13 wetland sites within the City of Laguna Niguel (City). These activities include: removing vegetation and accumulated sediment around outfalls, risers, culverts, and bridge crossings; establishing pilot channels to facilitate positive flow and maintain flood capacity; removing non-native vegetation; and trimming the understory of riparian vegetation below the tree canopy in order to prevent obstruction of flow.

Of the 13 wetland sites, 12 are located within the Sulphur Creek sub-watershed, which is part of the larger Aliso Creek watershed system in Orange County, while one site lies within the Salt Creek watershed to the south (site 13). Aliso and Wood Canyons Wilderness Park is located less than a mile to the southwest of the project area. The majority of habitat types at the sites are riparian in nature with surrounding upland vegetation communities. Five sensitive avian species were observed within the project area: least Bell's vireo (*Vireo bellii pusillus*; CESA and Endangered Species Act [ESA]-listed endangered), southwestern willow flycatcher (*Empidonax traillii extimus*; CESA and ESA-listed endangered), yellow warbler (*Setophaga petechial*; California Species of Special Concern [SSC]), yellow-breasted chat (*Icteria virens*; SSC), and coastal California gnatcatcher (*Polioptila californica*; ESA listed-threatened). According to the Biological Technical Report, potential exists for the following sensitive plant species to occur on site: California satintail (*Imperata brevifolia*; California Rare Plant Rank [CRPR] 2B.1), mud nama (*Nama stenocarpa*; CRPR 2B.2), and

thread-leaved brodiaea (*Brodiaea filifolia*; ESA listed-threatened, CESA listed-endangered; CRPR 1B.1).

Our primary concerns regarding the proposed project are potential impacts to sensitive species, the mitigation history of the project area, and the potential use of rodenticides in O&M activities. We offer the following comments and recommendations to assist the City of Laguna Niguel (City) in avoiding or minimizing potential project impacts on biological resources.

1. The Department considers adverse impacts to a species protected by CESA, for the purposes of CEQA, to be significant without mitigation. As to CESA, take of any endangered, threatened, or candidate species that results from the proposed project is prohibited, except as authorized by state law (Fish & G. Code, §§ 2080, 2085). With respect to CESA, the MND states that the proposed project may result in permanent impacts, via vehicular collisions, with CESA-listed endangered least Bell's vireo *and* southwestern willow flycatcher: "[p]ermanent impacts on SWFLs may also occur because of vehicular collisions, which occur most frequently during the vegetation clearing and involve eggs, nestlings, and recently fledged young that cannot safely avoid equipment. Permanent impacts may also occur because of nest loss due to removal of the nesting substrate" (pp. 3-16 and 3-17).

   As described in the MND, the proposed project is likely to result in take of CESA-listed species and/or their habitat. If the proposed project, project construction, or any project-related activity during the life of the proposed project will result in take of a species designated as endangered or threatened, or a candidate for listing under CESA, the Department recommends that the project proponent seek appropriate take authorization under CESA prior to implementing the project. Appropriate authorization from the Department may include an incidental take permit (ITP) or a consistency determination in certain circumstances, among other options (Fish and G. Code §§ 2080.1, 2081, subds. (b), (c)). Early consultation is encouraged, as significant modification to a project and mitigation measures may be required in order to obtain a CESA Permit. Revisions to the Fish and Game Code, effective January 1998, may require that the Department issue a separate CEQA document for the issuance of an ITP unless the project CEQA document addresses all project impacts to CESA-listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of an ITP. For these reasons, the MND, biological mitigation monitoring, and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA ITP.

2. Appendix B of the Biological Technical Report describes southern steelhead (*Oncorhynchus mykiss irideus*; steelhead; ESA-listed endangered) as having no potential to occur within the project area because the wetland sites do not have suitable habitat for this species (Biological Technical Report, Appendix B, page B-1). On March 13, 2019, the Department and National Marine Fisheries made a probable observation of juvenile steelhead in Aliso Creek directly downstream of the Interstate 5 (I-5) bridge at Aliso Creek. They also observed suitable, restorable steelhead habitat upstream and downstream of the I-5 bridge. This is consistent with historic anecdotal evidence that previously identified steelhead presence downstream.

Given that sites 1 and 2 are unnamed tributaries to Aliso Creek, and sites 3-12 are within Sulphur Creek—also a tributary to Aliso Creek, we strongly encourage the City to revisit its analysis of steelhead's potential to occur within the project area, and request that the MND include an in-depth discussion of steelhead in the Biological Resources section of Chapter 3: Environmental Checklist.

3. According to the Section IV: Biological Resources of the draft MND, no focused sensitive plant surveys were conducted, despite suitable habitat for California satintail, mud nama, and thread-leaved brodiaea being "…present within the wetland sites, and these species have a moderate potential to occur based on distance from known population and quality of habitat (including surrounding development and disturbances)" (page 3-15). Based on the existing suitable habitat conditions and data provided from a general vegetation survey which occurred at the end of thread-leaved brodiaea's blooming period (Biological Technical Report, page 2-3), it is unclear that the project would result in less than significant impacts to sensitive plant species. In order to ensure that impacts to sensitive plant species will be less than significant, the Biological Technical Report should include recent, focused, Special Status Native Plant Populations and Natural Communities surveys (see https://www.wildlife.ca.gov/Conservation/Plants/Info), conducted at the appropriate time of year, when the species are identifiable.

   The MND should also include a mitigation measure(s) which includes pre-construction surveys for sensitive plant species, conducted within the species' blooming period and prior to beginning O&M activities, to ensure no take of CESA-listed species (i.e., thread-leaved brodiaea) or any sensitive plant species will result from the project activities, except as authorized by state law (Fish and Game Code, §2080). Appropriate authorization from the Department may include an incidental take permit or a consistency determination (in certain circumstances) among other options (Fish and Game Code §§ 2080.1, 2081, subds. (b)(c)).

4. Mitigation Measure MM-BIO-2 describes the in-perpetuity preservation of 11 of the 13 wetland sites through a permanent protection mechanism, and commits to the rehabilitation of up to 2.37 acres of wetland and riparian habitat within site 13 (page 3-21). The MND should include a discussion of these elements in relationship to Table 4.1 and Table 4.3 provided in the Biological Technical Report (pages 4-2 and 4-3), which describe permanent impacts to the 13 wetland sites. For example, the MND's analysis should demonstrate how rehabilitating 2.37 acres of wetland and riparian habitats is appropriate to mitigate 4.26 acres of permanent impacts to riparian vegetation communities. The MND should also provide an analysis concerning the mitigation of 7.02 acres of upland vegetation communities, as described in Table 4-1, to a level below significance. While the preservation and restoration efforts in MM-BIO-2 may or may not be appropriate to offset temporary and permanent impacts, the Department will evaluate the adequacy of these at the time the project applicant formally submits a streambed notification package to the Lake and Streambed Alteration Program of the Department.

5. With regard to O&M activities, the Department has the following recommendations in order to avoid and minimize impacts to biological resources:

   a. vegetation should only be removed immediately upstream and downstream of a structure and should not exceed five feet from the structure, as the presence of willows and other emergent vegetation adjacent to the openings of culverts and other structures protects banks from scour and erosion. Emergent vegetation also provides habitat and resting space for birds and aquatic animals;

   b. removal of accumulated sediment should be limited to no lower than existing streambed elevation; and,

   trees should only be trimmed up to the water surface elevation of a 2-year storm event in order for sufficient cover to remain to shade the creek and keep water temperatures down during summer months, and not all emergent vegetation should be removed under the canopy. At a minimum, vegetation along the toe of the banks should be left in place in order to prevent scour and erosion.

   We recommend these limits on O&M activities be incorporated into the O&M Plan in Appendix A in the MND, and be included as a mitigation measure or measures in the MND, if appropriate.

6. Environmental Commitment EC-BIO-11 states that, "rodents and pests will be controlled as necessary to limit excessive damage to native areas or adjacent ornamental landscaping." The environmental analysis does not disclose whether rodenticides and other chemicals will be used in this effort, nor does it analyze rodenticides as a potential significant impact to biological resources—particularly with regard to raptors and mammalian species. The Department discourages the use of rodenticides and encourages the use of non-chemical practices for rodent control, particularly given the project area is within the Aliso Creek watershed and its proximity to the Aliso and Wood Canyons Wilderness Park. We recommend that the MND identify the methods to be used to control rodents. If the project proposes to approve the use of rodenticides, the MND should also include a thorough discussion of the potential impact of rodenticides and other chemicals associated with O&M activities on biological resources, including indirect and cumulative impacts to wildlife in open space. The MND should also include a mitigation measure or measures that bring this impact below significant with mitigation (e.g., the use of non-chemical practices for rodent control), if applicable.

7. The Department thanks the City for their dedication to reestablishing historic habitat values and functions associated with riparian and wetland systems in Laguna Niguel. On page 2-7, the Project Description states that, "...the restoration project was not provided as compensatory mitigation for impacts on wetlands or riparian areas but was voluntarily undertaken." Mitigation measure MM-BIO-2, however, states that wetland sites 3 and 4 are, "...either previous mitigation sites or will be affected fully." The

Department requests clarification on the mitigation history of the 13 wetland sites within the project area in the MND, and we also request clarification on what is intended by the phrase, "affected fully." Please also describe which wetland site is a previous mitigation site (specifying which project it is mitigation for) and which wetland site will be "affected fully." Finally, the MND should clarify whether the City anticipates using the wetland sites for any advanced mitigation or for mitigation banking purposes. Any mitigation banking or advance mitigation proposals intended to meet Department mitigation goals or requirements should be discussed in advance with the Department's South Coast Region Banking Coordinator. Mitigation banking inquiries may be directed to the Department's South Coast Region Banking Coordinator at (858) 627-3997.

8. We encourage the City to analyze the potential for Polyphagous and Kuroshio shot hole borers (ISHBs) in the MND, and to require monitoring of vegetation which may be infested with ISHBs within the project area. ISHBs are invasive ambrosia beetles that introduce fungi and other pathogens into host trees. The adult female (1.8-2.5 mm long) tunnels galleries into the cambium of a wide variety of host trees, where it lays its eggs and propagates the *Fusarium* fungi species for the express purpose of feeding its young. These fungi cause *Fusarium* dieback disease, which interrupts the transport of water and nutrients in at least 58 reproductive host tree species, with impacts to other host tree species as well. With documented occurrences in nearby Aliso and Wood Canyons Wilderness Park, the spread of invasive shot hole borers (ISHBs) could have significant impacts in local ecosystems. Therefore, with regard to ISHBs, we recommend the MND include the following:

   a. a thorough discussion of the direct, indirect, and cumulative impacts that could occur from the potential spread of ISHBs as a result of proposed activities in the MND;

   b. an analysis of the likelihood of the spread of ISHBs as a result of the invasive species' proximity to above referenced activities;

   c. figures that depict potentially sensitive or susceptible vegetation communities within the project area, the known occurrences of ISHB within the project area (if any), and ISHB's proximity to above referenced activities; and

   d. a mitigation measure or measure(s) within the MND that describe Best Management Practices (BMPs) that bring impacts of the project on the spread of ISHB below a level of significance. Examples of such BMPs include:

      i. education of on-site workers regarding ISHB and its spread;
      ii. reporting sign of ISHB infestation, including sugary exudate ("weeping") on trunks or branches and ISHB entry/exit-holes (about the size of the tip of a ballpoint pen), to the Department and UCR's Eskalen Lab;
      iii. equipment disinfection;
      iv. pruning infected limbs in infested areas where project activities may occur;
      v. avoidance and minimization of transport of potential host tree materials;
      vi. chipping potential host materials to less than 1 inch and solarization, prior to delivering to a landfill;

vii. chipping potential host materials to less than 1 inch, and solarization, prior to composting on-site;
viii. solarization of cut logs; and/or
ix. burning of potential host tree materials.

Please refer to UCR's Eskalen lab website for more information regarding ISHBs: http://eskalenlab.ucr.edu/pshb.html.

We appreciate the opportunity to comment on the MND for this project and to assist the City in further minimizing and mitigating project impacts to biological resources. The Department requests an opportunity to review and comment on any response that the City has to our comments and to receive notification of the forthcoming hearing date for the project (CEQA Guidelines; §15073(e)). If you have any questions or comments regarding this letter, please contact Jennifer Turner of the Department at (858) 467-2717 or via email at jennifer.turner@wildlife.ca.gov.

Sincerely,

Gail K. Sevrens
Environmental Program Manager

ec: Christine Medak (U.S. Fish and Wildlife Service)
Scott Morgan (State Clearinghouse)

References

California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 22 May 2019].

ICF. 2019. Laguna Niguel Wetlands Operations and Maintenance Project Draft Initial Study/Mitigated Negative Declaration. April. (ICF 357.16.) Irvine, CA. Prepared for the City of Laguna Niguel, Laguna Niguel, California.

ICF. 2017. Biological Technical Report for the Laguna Niguel Wetlands Operations and Maintenance Activities Project. Draft. November. (ICF 00357.16.) San Diego, CA. Prepared for the City of Laguna Niguel, CA

Appendix G

# Air Quality Emissions Estimates

**Laguna Niguel Wetlands O&M**

*Construction Assumptions*

| | Input | Notes/Source |
|---|---|---|
| **Project Start Date** | 2019 | Current year; subsequent years involving the same equipment would have lower emissions due to the retirement of older equipment |
| **Project Type** | 4 | Other Linear Type Project |
| **Project Construction Time** | 5 | months; vegetation clearing would occur outside of breeding seasons for birds protected under the MBTA (September 15-February 15) |
| **Working Days per Month** | 22 | Default |
| **Predominant Soil/Site Type** | 1 | Sand/Gravel |
| **Project Length** | 14.2 | miles; total creek miles |
| **Total Project Area** | 57.8 | Total for all sites, as identified in the project description |
| **Maximum Area Disturbed/Day** | 0.115 | acres/day. No more than 5,000 sf/day would be disturbed on any given day. |
| **Water Trucks Used?** | No | Maintenance activities would not require |
| | | |
| **Import/Export** | | |
| **Soil Import (cy)** | | |
| *Daily* | 0 | Cut materials assumed to be re-used onsite; no import |
| **Soil Export (cy)** | | |
| *Daily* | 100.0 | cubic yards; conservative estimate assumed based on vegetation, debris, trash and sediment removal |
| **Asphalt Import (cy)** | 0.0 | No asphalt import |
| *Daily* | 0.0 | No asphalt import |
| **Asphalt Export (cy)** | 0.0 | No asphalt export |
| *Daily* | 0.0 | No asphalt export |
| | | |
| **Worker Commute Emissions** | 10.0 | workers assumed per day, with 40 mile round trip |

**Maximum Day Construction Equipment**

| **Equipment Type** | **Number of Pieces** | |
|---|---|---|
| Mini-excavator | 1 | |
| Bobcat loader | 1 | |
| Vactor pumptruck | 1 | Modeled as off-highway truck and a pump |
| Dewatering bin (emissions capture | 1 | |
| Backhoe | 1 | |
| Hand tools (no emissions) | Multiple | |

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

## Road Construction Emissions Model, Version 9.0.0

| Daily Emission Estimates for -> Laguna Niguel Wetlands O&M | | | | Total | Exhaust | Fugitive Dust | Total | Exhaust | Fugitive Dust | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Phases (Pounds)** | **ROG (lbs/day)** | **CO (lbs/day)** | **NOx (lbs/day)** | **PM10 (lbs/day)** | **PM10 (lbs/day)** | **PM10 (lbs/day)** | **PM2.5 (lbs/day)** | **PM2.5 (lbs/day)** | **PM2.5 (lbs/day)** | **SOx (lbs/day)** | **CO2 (lbs/day)** | **CH4 (lbs/day)** | **N2O (lbs/day)** | **CO2e (lbs/day)** |
| **Grubbing/Land Clearing** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Grading/Excavation** | 2.50 | 17.16 | 25.02 | 3.43 | 1.13 | 2.30 | 1.50 | 1.02 | 0.48 | 0.05 | 4,532.96 | 0.94 | 0.17 | 4,607.55 |
| **Drainage/Utilities/Sub-Grade** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Paving** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Maximum (pounds/day)** | 2.50 | 17.16 | 25.02 | 3.43 | 1.13 | 2.30 | 1.50 | 1.02 | 0.48 | 0.05 | 4,532.96 | 0.94 | 0.17 | 4,607.55 |
| **Total (tons/construction project)** | 0.14 | 0.94 | 1.38 | 0.19 | 0.06 | 0.13 | 0.08 | 0.06 | 0.03 | 0.00 | 249.31 | 0.05 | 0.01 | 253.42 |

Notes:

| | |
|---|---|
| Project Start Year -> | 2019 |
| Project Length (months) -> | 5 |
| Total Project Area (acres) -> | 58 |
| Maximum Area Disturbed/Day (acres) -> | 0 |
| Water Truck Used? -> | No |

| | Total Material Imported/Exported Volume ($yd^3$/day) | | Daily VMT (miles/day) | | | |
|---|---|---|---|---|---|---|
| Phase | Soil | Asphalt | Soil Hauling | Asphalt Hauling | Worker Commute | Water Truck |
| Grubbing/Land Clearing | 0 | 0 | 0 | 0 | 0 | 0 |
| Grading/Excavation | 100 | 0 | 200 | 0 | 400 | 0 |
| Drainage/Utilities/Sub-Grade | 0 | 0 | 0 | 0 | 0 | 0 |
| Paving | 0 | 0 | 0 | 0 | 0 | 0 |

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

| Total Emission Estimates by Phase for -> Laguna Niguel Wetlands O&M | | | | Total | Exhaust | Fugitive Dust | Total | Exhaust | Fugitive Dust | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)** | **ROG (tons/phase)** | **CO (tons/phase)** | **NOx (tons/phase)** | **PM10 (tons/phase)** | **PM10 (tons/phase)** | **PM10 (tons/phase)** | **PM2.5 (tons/phase)** | **PM2.5 (tons/phase)** | **PM2.5 (tons/phase)** | **SOx (tons/phase)** | **CO2 (tons/phase)** | **CH4 (tons/phase)** | **N2O (tons/phase)** | **CO2e (MT/phase)** |
| **Grubbing/Land Clearing** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Grading/Excavation** | 0.14 | 0.94 | 1.38 | 0.19 | 0.06 | 0.13 | 0.08 | 0.06 | 0.03 | 0.00 | 249.31 | 0.05 | 0.01 | 229.90 |
| **Drainage/Utilities/Sub-Grade** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Paving** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Maximum (tons/phase)** | 0.14 | 0.94 | 1.38 | 0.19 | 0.06 | 0.13 | 0.08 | 0.06 | 0.03 | 0.00 | 249.31 | 0.05 | 0.01 | 229.90 |
| **Total (tons/construction project)** | 0.14 | 0.94 | 1.38 | 0.19 | 0.06 | 0.13 | 0.08 | 0.06 | 0.03 | 0.00 | 249.31 | 0.05 | 0.01 | 229.90 |

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

**Laguna Niguel Wetlands O&M**

*On-Site Emisssions*

| Project Phases (Pounds) | ROG (lbs/day) | CO (lbs/day) | NOx (lbs/day) | PM10 (lbs/day) | PM2.5 (lbs/day) | SOx (lbs/day) |
|---|---|---|---|---|---|---|
| **Grading/Excavation** | | | | | | |
| Excavators | 0.26 | 3.26 | 2.68 | 0.13 | 0.12 | 0.01 |
| Off-Highway Trucks | 0.71 | 4.00 | 7.19 | 0.26 | 0.24 | 0.01 |
| Pumps | 0.47 | 3.78 | 3.83 | 0.24 | 0.24 | 0.01 |
| Rubber Tired Loaders | 0.40 | 1.68 | 4.83 | 0.16 | 0.15 | 0.01 |
| Tractors/Loaders/Backhoes | 0.23 | 2.30 | 2.34 | 0.16 | 0.14 | 0.00 |
| Fugitive Dust | | | | 2.30 | 0.48 | |
| **Phase On-Site Maximum** | **2.07** | **15.02** | **20.87** | **3.25** | **1.37** | **0.03** |
| **Drainage/Utilities/Sub-Grade** | | | | | | |
| **Totals** | | | | | | |
| Localized Significance Threshold (1-acre, 25-m receptor distance in SRA 20- Central Orange County Coastal) | n/a | 647.00 | 92.00 | 4.00 | 3.00 | n/a |

**Road Construction Emissions Model** **Version 9.0.0**
**Data Entry Worksheet**

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

## Input Type

| | | |
|---|---|---|
| Project Name | Laguna Niguel Wetlands O&M | |
| Construction Start Year | 2019 | Enter a Year between 2014 and 2040 (inclusive) |
| Project Type<br>For 4: Other Linear Project Type, please provide project specific off-road equipment population and vehicle trip data | 4 | 1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway<br>2) Road Widening : Project to add a new lane to an existing roadway<br>3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane<br>4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction |
| Project Construction Time | 5.00 | months |
| Working Days per Month | 22.00 | days (assume 22 if unknown) |
| Predominant Soil/Site Type: Enter 1, 2, or 3<br>(for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22) | 1 | 1) Sand Gravel : Use for quaternary deposits (Delta/West County)<br>2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta)<br>3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta) |
| Project Length | 14.20 | miles |
| Total Project Area | 57.77 | acres |
| Maximum Area Disturbed/Day | 0.12 | acres |
| Water Trucks Used? | 2 | 1. Yes<br>2. No |

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.

http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

## Material Hauling Quantity Input

| Material Type | Phase | Haul Truck Capacity ($yd^3$) (assume 20 if unknown) | Import Volume ($yd^3$/day) | Export Volume ($yd^3$/day) |
|---|---|---|---|---|
| Soil | Grubbing/Land Clearing | | | |
| | Grading/Excavation | 20.00 | | 100.00 |
| | Drainage/Utilities/Sub-Grade | | | |
| | Paving | | | |
| Asphalt | Grubbing/Land Clearing | | | |
| | Grading/Excavation | | | |
| | Drainage/Utilities/Sub-Grade | | | |
| | Paving | | | |

## Mitigation Options

| | | |
|---|---|---|
| On-road Fleet Emissions Mitigation | No Mitigation | Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer |
| Off-road Equipment Emissions Mitigation | No Mitigation | Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/Mitigation).<br>Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard |

**The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.**

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

| Construction Periods | User Override of Construction Months | Program Calculated Months | User Override of Phase Starting Date | Program Default Phase Starting Date |
|---|---|---|---|---|
| Grubbing/Land Clearing | 0.00 | 0.50 | | 1/1/2019 |
| Grading/Excavation | 5.00 | 2.00 | | 1/1/2019 |
| Drainage/Utilities/Sub-Grade | 0.00 | 1.75 | | 6/3/2019 |
| Paving | 0.00 | 0.75 | | 6/3/2019 |
| **Totals (Months)** | 5 | | | |

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

| Soil Hauling Emissions<br>User Input | User Override of Miles/Round Trip | Program Estimate of Miles/Round Trip | User Override of Truck Round Trips/Day | Default Values Round Trips/Day | Calculated Daily VMT |
|---|---|---|---|---|---|
| Miles/round trip: Grubbing/Land Clearing | | | | 0 | 0.00 |
| Miles/round trip: Grading/Excavation | 40.00 | | | 5 | 200.00 |
| Miles/round trip: Drainage/Utilities/Sub-Grade | | | | 0 | 0.00 |
| Miles/round trip: Paving | | | | 0 | 0.00 |

| Emission Rates | ROG | CO | NOx | PM10 | PM2.5 | SOx | CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|
| Grubbing/Land Clearing (grams/mile) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Grading/Excavation (grams/mile) | 0.79 | 1.80 | 9.06 | 0.32 | 0.25 | 0.02 | 1,910.50 | 0.04 | 0.30 | 2,000.90 |
| Draining/Utilities/Sub-Grade (grams/mile) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Paving (grams/mile) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Grubbing/Land Clearing (grams/trip) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Grading/Excavation (grams/trip) | 0.00 | 0.00 | 2.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Draining/Utilities/Sub-Grade (grams/trip) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Paving (grams/trip) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Hauling Emissions** | **ROG** | **CO** | **NOx** | **PM10** | **PM2.5** | **SOx** | **CO2** | **CH4** | **N2O** | **CO2e** |
| Pounds per day - Grubbing/Land Clearing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tons per const. Period - Grubbing/Land Clearing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pounds per day - Grading/Excavation | 0.35 | 0.79 | 4.02 | 0.14 | 0.11 | 0.01 | 842.39 | 0.02 | 0.13 | 882.25 |
| Tons per const. Period - Grading/Excavation | 0.02 | 0.04 | 0.22 | 0.01 | 0.01 | 0.00 | 46.33 | 0.00 | 0.01 | 48.52 |
| Pounds per day - Drainage/Utilities/Sub-Grade | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tons per const. Period - Drainage/Utilities/Sub-Grade | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pounds per day - Paving | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tons per const. Period - Paving | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total tons per construction project | 0.02 | 0.04 | 0.22 | 0.01 | 0.01 | 0.00 | 46.33 | 0.00 | 0.01 | 48.52 |

Note: Asphalt Hauling emission default values can be overridden in cells D91 through D94, and F91 through F94.

| Asphalt Hauling Emissions<br>User Input | User Override of Miles/Round Trip | Program Estimate of Miles/Round Trip | User Override of Truck Round Trips/Day | Default Values Round Trips/Day | Calculated Daily VMT |
|---|---|---|---|---|---|
| Miles/round trip: Grubbing/Land Clearing | | | | 0 | 0.00 |
| Miles/round trip: Grading/Excavation | | | | 0 | 0.00 |
| Miles/round trip: Drainage/Utilities/Sub-Grade | | | | 0 | 0.00 |
| Miles/round trip: Paving | | | | 0 | 0.00 |

| Emission Rates | ROG | CO | NOx | PM10 | PM2.5 | SOx | CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|
| Grubbing/Land Clearing (grams/mile) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Grading/Excavation (grams/mile) | 0.79 | 1.80 | 9.06 | 0.32 | 0.25 | 0.02 | 1,910.50 | 0.04 | 0.30 | 2,000.90 |
| Draining/Utilities/Sub-Grade (grams/mile) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Paving (grams/mile) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Grubbing/Land Clearing (grams/trip) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Grading/Excavation (grams/trip) | 0.00 | 0.00 | 2.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Draining/Utilities/Sub-Grade (grams/trip) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Paving (grams/trip) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Emissions** | **ROG** | **CO** | **NOx** | **PM10** | **PM2.5** | **SOx** | **CO2** | **CH4** | **N2O** | **CO2e** |
| Pounds per day - Grubbing/Land Clearing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tons per const. Period - Grubbing/Land Clearing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pounds per day - Grading/Excavation | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tons per const. Period - Grading/Excavation | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pounds per day - Drainage/Utilities/Sub-Grade | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tons per const. Period - Drainage/Utilities/Sub-Grade | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pounds per day - Paving | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tons per const. Period - Paving | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total tons per construction project | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Note: Worker commute default values can be overridden in cells D121 through D126.

| Worker Commute Emissions | User Override of Worker Commute Default Values | Default Values | | |
|---|---|---|---|---|
| **User Input** | | | | |
| Miles/ one-way trip | 20 | | Calculated Daily Trips | Calculated Daily VMT |
| One-way trips/day | 2 | | | |
| No. of employees: Grubbing/Land Clearing | | | 0 | 0.00 |
| No. of employees: Grading/Excavation | 10 | | 20 | 400.00 |
| No. of employees: Drainage/Utilities/Sub-Grade | | | 0 | 0.00 |
| No. of employees: Paving | | | 0 | 0.00 |

| **Emission Rates** | **ROG** | **CO** | **NOx** | **PM10** | **PM2.5** | **SOx** | **CO2** | **CH4** | **N2O** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|
| Grubbing/Land Clearing (grams/mile) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Grading/Excavation (grams/mile) | 0.03 | 1.37 | 0.13 | 0.05 | 0.02 | 0.00 | 361.65 | 0.01 | 0.01 | 364.76 |
| Draining/Utilities/Sub-Grade (grams/mile) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Paving (grams/mile) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Grubbing/Land Clearing (grams/trip) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Grading/Excavation (grams/trip) | 1.34 | 3.17 | 0.41 | 0.00 | 0.00 | 0.00 | 77.30 | 0.10 | 0.04 | 91.28 |
| Draining/Utilities/Sub-Grade (grams/trip) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Paving (grams/trip) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Emissions** | **ROG** | **CO** | **NOx** | **PM10** | **PM2.5** | **SOx** | **CO2** | **CH4** | **N2O** | **CO2e** |
| Pounds per day - Grubbing/Land Clearing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tons per const. Period - Grubbing/Land Clearing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pounds per day - Grading/Excavation | 0.08 | 1.34 | 0.13 | 0.04 | 0.02 | 0.00 | 322.33 | 0.01 | 0.01 | 325.69 |
| Tons per const. Period - Grading/Excavation | 0.00 | 0.07 | 0.01 | 0.00 | 0.00 | 0.00 | 17.73 | 0.00 | 0.00 | 17.91 |
| Pounds per day - Drainage/Utilities/Sub-Grade | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tons per const. Period - Drainage/Utilities/Sub-Grade | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pounds per day - Paving | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tons per const. Period - Paving | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total tons per construction project | 0.00 | 0.07 | 0.01 | 0.00 | 0.00 | 0.00 | 17.73 | 0.00 | 0.00 | 17.91 |

Note: Water Truck default values can be overridden in cells D153 through D156, I153 through I156, and F153 through F156.

| Water Truck Emissions | User Override of Default # Water Trucks | Program Estimate of Number of Water Trucks | User Override of Truck Round Trips/Vehicle/Day | Default Values Round Trips/Vehicle/Day | Calculated Trips/day | User Override of Miles/Round Trip | Default Values Miles/Round Trip | Calculated Daily VMT |
|---|---|---|---|---|---|---|---|---|
| **User Input** | | | | | | | | |
| Grubbing/Land Clearing - Exhaust | | | | | | | | 0.00 |
| Grading/Excavation - Exhaust | | | | | | | | 0.00 |
| Drainage/Utilities/Subgrade | | | | | | | | 0.00 |
| Paving | | | | | | | | 0.00 |

| **Emission Rates** | **ROG** | **CO** | **NOx** | **PM10** | **PM2.5** | **SOx** | **CO2** | **CH4** | **N2O** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|
| Grubbing/Land Clearing (grams/mile) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Grading/Excavation (grams/mile) | 0.79 | 1.80 | 9.06 | 0.32 | 0.25 | 0.02 | 1,910.50 | 0.04 | 0.30 | 2,000.90 |
| Draining/Utilities/Sub-Grade (grams/mile) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Paving (grams/mile) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Grubbing/Land Clearing (grams/trip) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Grading/Excavation (grams/trip) | 0.00 | 0.00 | 2.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Draining/Utilities/Sub-Grade (grams/trip) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Paving (grams/trip) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Emissions** | **ROG** | **CO** | **NOx** | **PM10** | **PM2.5** | **SOx** | **CO2** | **CH4** | **N2O** | **CO2e** |
| Pounds per day - Grubbing/Land Clearing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tons per const. Period - Grubbing/Land Clearing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pounds per day - Grading/Excavation | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tons per const. Period - Grading/Excavation | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pounds per day - Drainage/Utilities/Sub-Grade | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tons per const. Period - Drainage/Utilities/Sub-Grade | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pounds per day - Paving | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tons per const. Period - Paving | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total tons per construction project | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Note: Fugitive dust default values can be overridden in cells D183 through D185.

| Fugitive Dust | User Override of Max Acreage Disturbed/Day | Default Maximum Acreage/Day | PM10 pounds/day | PM10 tons/per period | PM2.5 pounds/day | PM2.5 tons/per period |
|---|---|---|---|---|---|---|
| Fugitive Dust - Grubbing/Land Clearing | | | 0.00 | 0.00 | 0.00 | 0.00 |
| Fugitive Dust - Grading/Excavation | | | 2.30 | 0.13 | 0.48 | 0.03 |
| Fugitive Dust - Drainage/Utilities/Subgrade | | | 0.00 | 0.00 | 0.00 | 0.00 |

Values in cells D195 through D228, D246 through D279, D297 through D330, and D348 through D381 are required when 'Other Project Type' is selected.

**Off-Road Equipment Emissions**

| **Grubbing/Land Clearing** | Default Number of Vehicles | Override of Mitigation Option | Default | | ROG | CO | NOx | PM10 | PM2.5 | SOx | CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Override of Default Number of Vehicles | *Program-estimate* | Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected) | Equipment Tier | Type | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day |
| | | | Model Default Tier | Aerial Lifts | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Air Compressors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Bore/Drill Rigs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Cement and Mortar Mixers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Concrete/Industrial Saws | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Cranes | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Crawler Tractors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Crushing/Proc. Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Excavators | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Forklifts | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Generator Sets | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Graders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Off-Highway Tractors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Off-Highway Trucks | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Other Construction Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Other General Industrial Equipm | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Other Material Handling Equipm | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Pavers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Paving Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Plate Compactors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Pressure Washers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Pumps | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Rollers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Rough Terrain Forklifts | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Rubber Tired Dozers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Rubber Tired Loaders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Scrapers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Signal Boards | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Skid Steer Loaders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Surfacing Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Sweepers/Scrubbers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Tractors/Loaders/Backhoes | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Trenchers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Welders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| **User-Defined Off-road Equipment** | If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab | | ROG | CO | NOx | PM10 | PM2.5 | SOx | CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Vehicles | Equipment Tier | Type | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day |
| 0.00 | N/A | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Grubbing/Land Clearing | pounds per day | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Grubbing/Land Clearing | tons per phase | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| Grading/Excavation | Default Number of Vehicles | Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected) | Mitigation Option Default | | ROG | CO | NOx | PM10 | PM2.5 | SOx | CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Override of Default Number of Vehicles | *Program-estimate* | | Equipment Tier | Type | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day |
| | | | Model Default Tier | Aerial Lifts | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Air Compressors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Bore/Drill Rigs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Cement and Mortar Mixers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Concrete/Industrial Saws | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Cranes | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Crawler Tractors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Crushing/Proc. Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1.00 | | | Model Default Tier | Excavators | 0.26 | 3.26 | 2.68 | 0.13 | 0.12 | 0.01 | 511.13 | 0.16 | 0.00 | 516.52 |
| | | | Model Default Tier | Forklifts | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Generator Sets | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Graders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Off-Highway Tractors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1.00 | | | Model Default Tier | Off-Highway Trucks | 0.71 | 4.00 | 7.19 | 0.26 | 0.24 | 0.01 | 1,307.73 | 0.41 | 0.01 | 1,321.51 |
| | | | Model Default Tier | Other Construction Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Other General Industrial Equipm | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Other Material Handling Equipm | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Pavers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Paving Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Plate Compactors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Pressure Washers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1.00 | | | Model Default Tier | Pumps | 0.47 | 3.78 | 3.83 | 0.24 | 0.24 | 0.01 | 623.04 | 0.04 | 0.00 | 625.47 |
| | | | Model Default Tier | Rollers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Rough Terrain Forklifts | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Rubber Tired Dozers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1.00 | | | Model Default Tier | Rubber Tired Loaders | 0.40 | 1.68 | 4.83 | 0.16 | 0.15 | 0.01 | 618.81 | 0.20 | 0.01 | 625.34 |
| | | | Model Default Tier | Scrapers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Signal Boards | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Skid Steer Loaders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Surfacing Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Sweepers/Scrubbers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1.00 | | | Model Default Tier | Tractors/Loaders/Backhoes | 0.23 | 2.30 | 2.34 | 0.16 | 0.14 | 0.00 | 307.54 | 0.10 | 0.00 | 310.78 |
| | | | Model Default Tier | Trenchers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Welders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| User-Defined Off-road Equipment | If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab | | | ROG | CO | NOx | PM10 | PM2.5 | SOx | CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Vehicles | Equipment Tier | Type | | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Grading/Excavation | pounds per day | | 2.07 | 15.02 | 20.87 | 0.95 | 0.89 | 0.03 | 3,368.24 | 0.91 | 0.03 | 3,399.62 |
| | Grading/Excavation | tons per phase | | 0.11 | 0.83 | 1.15 | 0.05 | 0.05 | 0.00 | 185.25 | 0.05 | 0.00 | 186.98 |

| Drainage/Utilities/Subgrade | Default Number of Vehicles | Mitigation Option Override of | Default | | ROG | CO | NOx | PM10 | PM2.5 | SOx | CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Override of Default Number of Vehicles | *Program-estimate* | Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected) | Equipment Tier | | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day |
| | | | Model Default Tier | Aerial Lifts | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Air Compressors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Bore/Drill Rigs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Cement and Mortar Mixers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Concrete/Industrial Saws | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Cranes | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Crawler Tractors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Crushing/Proc. Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Excavators | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Forklifts | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Generator Sets | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Graders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Off-Highway Tractors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Off-Highway Trucks | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Other Construction Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Other General Industrial Equipm | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Other Material Handling Equipm | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Pavers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Paving Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Plate Compactors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Pressure Washers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Pumps | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Rollers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Rough Terrain Forklifts | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Rubber Tired Dozers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Rubber Tired Loaders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Scrapers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Signal Boards | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Skid Steer Loaders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Surfacing Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Sweepers/Scrubbers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Tractors/Loaders/Backhoes | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Trenchers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | Model Default Tier | Welders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| User-Defined Off-road Equipment | If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab | | | ROG | CO | NOx | PM10 | PM2.5 | SOx | CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Vehicles | Equipment Tier | Type | | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Drainage/Utilities/Sub-Grade | pounds per day | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Drainage/Utilities/Sub-Grade | tons per phase | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| Paving | Default Number of Vehicles | Override of Default Number of Vehicles | Mitigation Option: Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected) | Equipment Tier | Type | ROG | CO | NOx | PM10 | PM2.5 | SOx | CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Program-estimate* | | | | | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day |
| | | | | Model Default Tier | Aerial Lifts | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Air Compressors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Bore/Drill Rigs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Cement and Mortar Mixers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Concrete/Industrial Saws | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Cranes | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Crawler Tractors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Crushing/Proc. Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Excavators | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Forklifts | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Generator Sets | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Graders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Off-Highway Tractors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Off-Highway Trucks | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Other Construction Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Other General Industrial Equipm | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Other Material Handling Equipm | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Pavers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Paving Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Plate Compactors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Pressure Washers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Pumps | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Rollers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Rough Terrain Forklifts | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Rubber Tired Dozers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Rubber Tired Loaders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Scrapers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Signal Boards | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Skid Steer Loaders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Surfacing Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Sweepers/Scrubbers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Tractors/Loaders/Backhoes | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Trenchers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | Model Default Tier | Welders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| User-Defined Off-road Equipment | If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab | | | ROG | CO | NOx | PM10 | PM2.5 | SOx | CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Vehicles | Equipment Tier | Type | | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | N/A | | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Paving | pounds per day | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Paving | tons per phase | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Total Emissions all Phases (tons per construction period) =>** | | | | 0.11 | 0.83 | 1.15 | 0.05 | 0.05 | 0.00 | 185.25 | 0.05 | 0.00 | 186.98 |

Equipment default values for horsepower and hours/day can be overridden in cells D403 through D436 and F403 through F436.

| Equipment | User Override of Horsepower | Default Values Horsepower | User Override of Hours/day | Default Values Hours/day |
|---|---|---|---|---|
| Aerial Lifts | | 63 | | 8 |
| Air Compressors | | 78 | | 8 |
| Bore/Drill Rigs | | 221 | | 8 |
| Cement and Mortar Mixers | | 9 | | 8 |
| Concrete/Industrial Saws | | 81 | | 8 |
| Cranes | | 231 | | 8 |
| Crawler Tractors | | 212 | | 8 |
| Crushing/Proc. Equipment | | 85 | | 8 |
| Excavators | | 158 | | 8 |
| Forklifts | | 89 | | 8 |
| Generator Sets | | 84 | | 8 |
| Graders | | 187 | | 8 |
| Off-Highway Tractors | | 124 | | 8 |
| Off-Highway Trucks | | 402 | | 8 |
| Other Construction Equipment | | 172 | | 8 |
| Other General Industrial Equipment | | 88 | | 8 |
| Other Material Handling Equipment | | 168 | | 8 |
| Pavers | | 130 | | 8 |
| Paving Equipment | | 132 | | 8 |
| Plate Compactors | | 8 | | 8 |
| Pressure Washers | | 13 | | 8 |
| Pumps | | 84 | | 8 |
| Rollers | | 80 | | 8 |
| Rough Terrain Forklifts | | 100 | | 8 |
| Rubber Tired Dozers | | 247 | | 8 |
| Rubber Tired Loaders | | 203 | | 8 |
| Scrapers | | 367 | | 8 |
| Signal Boards | | 6 | | 8 |
| Skid Steer Loaders | | 65 | | 8 |
| Surfacing Equipment | | 263 | | 8 |
| Sweepers/Scrubbers | | 64 | | 8 |
| Tractors/Loaders/Backhoes | | 97 | | 8 |
| Trenchers | | 78 | | 8 |
| Welders | | 46 | | 8 |

**END OF DATA ENTRY SHEET**

Appendix H

# Survey for Thread-leaved Brodiaea (Brodiaea filifolia) in Wetland Sites 10 and 13 in Support of City of Laguna Niguel Wetlands Operations and Maintenance Project

# Memorandum

| | |
|---|---|
| **To:** | Hal Ghafari; City of Laguna Niguel |
| **From:** | Bob Huttar; ICF |
| **Date:** | July 3, 2019 |
| **Re:** | Survey for Thread-leaved Brodiaea (*Brodiaea filifolia*) in Wetland Sites 10 and 13 in support of City of Laguna Niguel Wetlands Operations and Maintenance Project |

# Introduction

This focused rare plant survey was conducted to evaluate presence/absence of thread-leaved brodiaea (*Brodiaea filifolia*) and any other incidental sensitive or rare plant species for the City of Laguna Niguel Wetlands Operations and Maintenance Project.

The City plans to conduct routine O&M activities within 13 wetland sites located in the Sulphur Creek watershed; a portion of the Salt Creek Watershed, within Chapparosa Park; and in the J03P01 channel within Crown Valley Regional Park. The 13 wetland sites are located in the City of Laguna Niguel, within Orange County, California. Of the 13 wetland sites, two will have impacts to potential suitable habitat for thread-leaved brodiaea; U.S. Army Corps of Engineers Sulphur Creek Restoration Area (Site 10) and Salt Creek Corridor Habitat Restoration Area (Site 13). Therefore, focused surveys for thread-leaved brodiaea were conducted within these two wetland sites.

# Background

Thread-leaved brodiaea are perennial herbs growing from bulbs. The above ground portion has linear, strap like leaves and the violet-reddish-purple or bluish flowers sit atop a leafless stalk. It occurs in Orange County with 10 vouchered specimens (Consortium of California Herbaria 2019), 13 reported occurrences by Calflora, and in all Southern California coastal and inland empire Counties. It is listed by the State of California as Endangered, by the United States Fish and Wildlife Service (USFWS) as federally Threatened, and the California Native Plant Society (CNPS) gives it a California Rare Plant Rating (CRPR) of 1B.1, the category for the rarest living species because of its limited distribution. It is threatened by development, nonnative plant species, vehicles, road maintenance, and foot traffic. The habitat for this plant includes native grasslands on heavy clay soils that occur adjacent to and/or within flood and drainage structures in the urban and residential areas of the City of Laguna Niguel that require periodic operations and maintenance (O&M) activities.

# Methods

On June 24th, 2019, Bob Huttar, a qualified botanist with experience surveying for thread-leaved brodiaea, surveyed the two wetland sites (Site 10 and Site 13) that were identified as having impacts to potential habitat for this species. The survey areas were comprised of the maintenance impact footprints. The plant is most reliably identified while in flower, therefore the survey was conducted during its blooming season. The full maintenance impact footprint was surveyed thoroughly on foot or viewed from accessible points, where possible. The botanist documented the presence, absence, or potential for thread-leaved brodiaea, and where observed, the presence of other special-status species.

# Results

No thread-leaved brodiaea was detected within the maintenance impact footprints of Site 10 and Site 13, nor was any other sensitive plant species.

Appropriate habitat does not exist in many parts of the maintenance impact footprint based on the presence of dense riparian understory vegetation, or limited open substrate due to steep-sided earthen channel conditions. In some drier bordering areas, there was potentially suitable habitat, however no thread-leaved brodiaea were observed. The majority of the maintenance impact footprints occur within dense freshwater marsh vegetation such as cattails (*Typha domingensis*) and bulrush (*Schoenoplectus americanus*) that allowed for limited access, however the nature of the saturated soils necessary to support such vegetation at these wetland sites was sufficient to confirm the absence of suitable habitat and/or absence of thread-leaved brodiaea. A photo log is attached to this memorandum showing the habitat conditions within the wetland sites evaluated (Attachment A).

# References

Consortium of California Herbaria (CCH) 2019. Online database of *Brodiaea filifolia* distributions in Orange County. Available at http://ucjeps.berkeley.edu/cgi-bin/get_consort.pl. Accessed June 23, 2019.

Calflora Observation Hotline 2109. Online database of *Brodiaea filifolia* distributions in Orange County. Available at: https://www.calflora.org/entry/observ.html?track=m#srch=t&taxon=Brodiaea+filifolia&cols=b&lpcli=t&cc=ORA&crnx=null&chk=t&cch=t&inat=r. Accessed June 22, 2109

# Attachment A
# Photo Log – Habitat Conditions



Representative photo of maintenance area in Site 10



Representative photo of maintenance area in Site 10



Representative photo of maintenance area in Site 13



Representative photo of low flow maintenance area in Site 13