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Biological Resources Technical Report

# **El Monte Water Transmission Pipeline Rehabilitation Project**

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**APRIL 2026**

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# Acronyms and Abbreviations

Acronym/Abbreviation	Definition
BMP	best management practice
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
City	City of San Diego
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
ELMP	El Monte Water Transmission Pipeline
EPP	Essential Public Project
ESL	Environmentally Sensitive Land
FESA	federal Endangered Species Act
IPaC	Information for Planning and Consultation
LCD	Landscape Construction Document
LDC	Land Development Code
MBTA	Migratory Bird Treaty Act
MHPA	Multi-Habitat Planning Area
MM	Mitigation Measure
MSCP	Multiple Species Conservation Program
NWI	National Wetland Inventory
OHWM	ordinary high water mark
project	El Monte Water Transmission Pipeline Rehabilitation Project
RWQCB	Regional Water Quality Control Board
SDBG	San Diego Biology Guidelines
TOB	top of bank
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VPHCP	Vernal Pool Habitat Conservation Plan

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# 1 Executive Summary

The El Monte Water Transmission Pipeline Rehabilitation Project (project), implemented on behalf of the City of San Diego (City) Engineering & Capital Projects Department, involves rehabilitation and improvements to an existing 12.2-mile raw-water pipeline to enhance safe operation and reliability. The project is proposed for funding by the California State Water Resources Control Board's most recent Clean Water State Revolving Fund and Drinking Water State Revolving Fund and requires an Environmental Package per the California Environmental Quality Act to ensure project consistency with environmental compliance requirements.

The pipeline alignment is located in the cities of Santee, La Mesa, El Cajon, and San Diego and the unincorporated community of Lakeside. It includes repairs and improvements at 69 distinct locations along the alignment, which are primarily located at existing access vaults. An initial desktop review of the 69 project locations determined that the majority were in paved and/or developed areas that do not support natural vegetation. Of the proposed work locations, 28 locations were determined to require field investigations to assess their biological resources. A reasonable work area was defined around each of the 28 locations, and a 50-foot buffer was applied to define a survey area around each of the 28 locations. All the sites are in developed areas or areas already impacted by surrounding development that has occurred since the pipeline was installed in the 1940s; only six sites have remnant, suitable habitat for special-status plant or wildlife species. Of the activities that were considered necessary to conduct the improvements, direct and temporary impacts to vegetation due to excavation activities were determined to be the primary type of impact. The study area is not within or adjacent to the Multi-Habitat Planning Area (MHPA) and does not intersect designated City Open Space.

The study area contains sensitive biological resources, including potentially jurisdictional aquatic resources and suitable habitat for California gnatcatcher (*Polioptila californica californica*), burrowing owl (*Athene cunicularia*), and a number of special-status plant species. Four sites (work locations 0+00 to 4+50, 267+37, and 439+20) contain coastal sage scrub that may provide suitable habitat for coastal California gnatcatcher. Two sites (work locations 322+52 and 335+83) contain open grassland that may provide suitable habitat for burrowing owl. U.S. Fish and Wildlife Service Critical Habitat for coastal California gnatcatcher lies within and northeast of work location 0+00 to 4+50, east of work location 267+37, and within and surrounding work location 439+20. One rare plant, decumbent goldenbush (*Isocoma menziesii* var. *decumbens*), was identified at work location 439+20. Ten potentially jurisdictional aquatic resources anticipated were identified at work locations 40+29, 345+20, 380+15, 382+78, 439+20, 555+79, 632+33, and 644+21, and are anticipated to be regulated by the U.S. Army Corps of Engineers (USACE) under Clean Water Act (CWA) Section 404, the Regional Water Quality Control Board (RWQCB) under CWA Section 401, or the California Department of Fish and Wildlife (CDFW) under California Fish and Game Code Section 1600. Impacts to these potentially jurisdictional aquatic resources would require the appropriate permits from the regulating agencies.

The project was designed to avoid sensitive biological resources to the maximum extent feasible, and the design was evaluated for consistency with the City's Multiple Species Conservation Program, with no anticipated conflicts. Where impacts to sensitive biological species are unavoidable, adherence to regulations and Whitebook provisions would reduce most of these impacts to less than significant. Such regulatory and contract provisions include best management practices, pre-construction surveys for nesting birds, and the revegetation of temporary impacts to upland and wetland vegetation communities to regulatory standards.

Impacts to 0.030 acres of City wetlands (including potentially jurisdictional aquatic resources anticipated to be regulated by USACE, RWQCB, and CDFW) would be considered a significant impact requiring 0.081 acres of compensatory mitigation, per the appropriate ratios defined in the City's Biology Guidelines. Compensatory mitigation would be accomplished through the purchase of credits at the Stadium Wetland mitigation site.

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## 2 Introduction

This report presents the findings of a biological resources assessment conducted by Dudek for the proposed El Monte Water Transmission Pipeline (ELMP) Rehabilitation Project (project). The purpose of this assessment is to evaluate the existing biological conditions and potential impacts to sensitive biological resources associated with the proposed project, including a 50-foot buffer (study area). This report is prepared at a level of detail sufficient to address California Environmental Quality Act (CEQA) requirements, specifically the biological thresholds of significance included in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.), and identify the potential need for permits for sensitive resources protected under federal and state regulations.

### 2.1 Project Background

The City of San Diego (City) proposes rehabilitation and improvements to the ELMP in San Diego County, California (Figure 1, Project Location). The pipeline is a critical raw-water transmission facility, which delivers water from two reservoirs, San Vicente and El Capitan, and from the San Diego County Water Authority's first aqueduct to the Alvarado Water Treatment Plant. Originally constructed between 1942 and 1948, the pipeline plays a key role in the region's water distribution system. This report has been prepared to satisfy the California State Water Resources Control Board's most recent Clean Water State Revolving Fund and Drinking Water State Revolving Fund, as well as Environmental Package requirements of CEQA. The report addresses the potential for and, if identified during field surveys, the location of sensitive biological resources. This report was also prepared in adherence to the City's Biology Guidelines (SDBG; City of San Diego 2018), Environmentally Sensitive Lands (ESL) regulations within the SDBG, and Multiple Species Conservation Program (MSCP) policies (City of San Diego 2022a). The project does not fall within the City's Multi-Habitat Planning Area (MHPA), but much of its alignment is located within the City's MSCP Subarea Plan (City of San Diego 1997) (Figure 2A, Habitat and Conservation Areas).

Although the project crosses multiple jurisdictions (Figure 2B, City and County Jurisdictions), this report analyzes the project in its entirety for consistency with City standards and policies. This approach was taken because the City is the lead agency under CEQA and the project's primary approvals are under City jurisdiction. Therefore, the term "City" refers to the City of San Diego throughout this report.

The purpose of this report is to (1) describe the conditions of biological resources within the study area in terms of vegetation communities, plants, wildlife, wildlife habitats, and wetlands; (2) evaluate the potential for direct, indirect, and cumulative impacts to biological resources that may result from the proposed project; (3) discuss those potential impacts in terms of biological significance in view of federal, state, and local laws and policies; and (4) specify measures to mitigate any significant or potentially significant biological resource impacts.

The proposed project consists of improvements to specific pipeline structures, appurtenances, and access locations. The proposed work sites reviewed for this report consist of 69 locations along the pipeline alignment that may require ground disturbance to complete improvements (Figure 1; Tables 1 and 2).

### 2.2 Project Location

The project is located in the cities of San Diego, La Mesa, El Cajon, and Santee, and the unincorporated community of Lakeside, in central San Diego County, California. The project is approximately 12.2 miles long and extends from

near Lake Jennings in the northeast to the Alvarado Water Treatment Plant at Lake Murray in the southwest. The work areas are shown in Figure 1.

## 2.3 Project Description

The proposed project will include rehabilitation and repairs along 12.2 miles of the existing ELMP, including the Grossmont Tunnel. The purpose of the rehabilitation is to extend the pipeline's service life, enhance operational efficiency, and improve reliability. Improvements are proposed at approximately 69 locations comprising 1.35 acres along the existing pipeline, including improvements to and reconstruction of existing appurtenances, such as air valves, blowoffs, and access structures; installation of new isolation valves; and replacement of a deteriorated section of pipeline. Key activities proposed as part of the project include the following:

- Rehabilitation of Sections I, II, and IV of the ELMP
- Limited spot repairs to the interior of the pipe using existing pipeline manways for access (no ground disturbance).
- Open trench demolition and replacement of the easternmost 450 linear feet of the existing 48-inch pipeline along El Monte Road (Section I Station 0+00 to 4+50), including reconstruction of a flow meter vault. A trench width of approximately 6 feet with additional width for pavement restoration is required for the pipe replacement.
- Open trench demolition and reconstruction of existing access manways and blowoffs at various locations along 48-inch and 68-inch pipeline sections, including vault structures and a short segment of the existing pipeline. Disturbance areas are generally several feet beyond all sides of new vaults and pipe connections for excavation, shoring, materials, and equipment.
- Construction of new access manways in vaults at various locations along 48-inch and 68-inch pipeline sections, including open trench replacement of a short segment of existing pipeline where required for operation and maintenance of the pipeline. Disturbance areas are generally several feet beyond all sides of new vaults and pipe connections for excavation, shoring, materials, and equipment.
- Rehabilitation of existing access manways and blowoffs in vault structures at various locations requiring limited ground disturbance for replacement of existing hatches and improvements to piping and appurtenances within the vaults.
- Raising existing air valves above grade and demolishing existing air valve vaults at various locations requiring limited ground disturbance on top of or directly adjacent to the existing vault structure.
- Excavation and abandonment of buried pipeline access manways at various locations that are not accessible for operations and maintenance. Abandonment requires limited ground disturbance at the location of the manway for patching encasement of the outlet.
- Construction of new pipeline isolation valves in vaults, including replacement of a segment of existing pipeline at four locations along 48-inch and 68-inch pipeline sections. Vaults are located in accessible disturbed areas to facilitate use by operations personnel and will require ground disturbance several feet beyond all sides of vaults and pipe connections to accommodate excavation, shoring, materials, and equipment.
- Raising the height of three air vents required for hydraulic performance of the pipeline. One location will require demolition and construction of a new vault structure
- Replacement of an existing 6-inch buried valve at a connection to the pipeline

- Demolition of an existing abandoned valve in a vault at work location 238+48 requiring limited ground disturbance to gain access and restore the surface
- Condition Assessment and Rehabilitation of Section III (Grossmont Tunnel) of the ELMP
- Excavation and demolition of a short segment of existing 68-inch pipeline at the western tunnel portal for equipment and person access to interior of pipeline. A trench width of approximately 9 feet with additional width for surface restoration is required for the pipe access.
- Grading of a gravel access road at the eastern tunnel portal
- Internal condition assessment of tunnel pipeline (no ground disturbance)
- Internal grouting to seal infiltration along the tunnel pipeline (no ground disturbance)
- Centralized material and equipment staging and laydown areas along the pipeline to be identified by the contractor.

The pipeline consists of four distinct sections detailed in Table 1 below.

**Table 1. Pipeline Section Parameters**

Pipeline Section	Approximate Stationing	Construction Date	Pipe Materials	Pipeline Diameter (Inches)	Pipeline Length (miles)
I	0+00 to 113+00	1942-1946	Reinforced concrete steel cylinder	48	2.1
II	113+00 to 432+00	1946-1948	Reinforced concrete steel cylinder	68	6.1
III (Grossmont Tunnel)	432+00 to 513+00	1946-1948	Cast-in-place reinforced concrete	71	1.2
IV	513+00 to 654+00	1946-1947 (2004)	Reinforced concrete pressure pipe (400-linear-foot section replaced in 2004)	68	2.7

Prior to initiation of construction, the project Applicant would obtain all necessary permits for impacts to U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) jurisdictional areas. Mitigation for the permanent loss of jurisdictional resources shall be negotiated with the resource agencies during the regulatory permitting process and shall ensure that mitigation to compensate for permanent impacts on jurisdictional resources is equivalent or superior to biological functions and values impacted by the proposed project.

## 2.4 Study Area and Criteria for Analysis

Fieldwork was conducted at 28 of the 69 work locations. The locations surveyed were chosen based on the presence of native vegetation or potential habitat for special-status species, including potentially jurisdictional aquatic resources within the study area.

Sites located entirely on urban/developed lands, including ornamental vegetation and landscaping, within the study area, but which had potential habitat present within a 300-foot buffer were omitted from the survey area and assessed for indirect impacts (i.e., dust and temporary construction noise) via a desktop analysis. Sites that contained exclusively developed or ornamental vegetation land covers within both the impact footprint and a 300-foot buffer were excluded from the impact analysis.

A summary of the 69 work locations, the proposed improvements, the site conditions, and whether the site was assessed via a field visit or desktop analysis is provided in Table 2 below.

**Table 2. Work Locations**

Record Drawing Station	Improvement Type	Site Conditions and Habitat	Acres	Square Feet	Level of Analysis	Sensitive Habitat Within 50-Foot Buffer	City/County Jurisdiction
0+00 to 4+50	Replace segment with new CML&C, along with new appurtenances	Dirt shoulder of El Monte Road. Land covers include developed, disturbed habitat, coastal sage scrub, non-native grassland, and non-native woodland.  See Appendix F, Photo Log.	0.200	8,718	Field visit	Coastal sage scrub, coastal California gnatcatcher critical habitat, arroyo toad critical habitat	Lakeside – San Diego County
10+81	Demolish and replace blowoff with new blowoff and manway vault	Dirt shoulder of El Monte Road. Land covers include developed and disturbed habitat. See Appendix F, Photo Log.	0.003	126	Field visit	No	Lakeside – San Diego County
15+77	Demolish 48-inch RCSC and manway and replace with new manway vault	Dirt shoulder of El Monte Road. Land covers include developed and disturbed habitat. See Appendix F, Photo Log.	0.009	400	Field visit	No	Lakeside – San Diego County
28+42	Demolish 48-inch RCSC and manway and replace with new manway vault	Unimproved sidewalk and dirt slope. Land covers include developed and disturbed habitat. See Appendix F, Photo Log.	0.009	400	Field visit	No	Lakeside – San Diego County

**Table 2. Work Locations**

Record Drawing Station	Improvement Type	Site Conditions and Habitat	Acres	Square Feet	Level of Analysis	Sensitive Habitat Within 50-Foot Buffer	City/County Jurisdiction
31+03	Demolish and replace AVAR with City Standard	Landscaped area at corner of El Monte Road near Lakeside Christian Church. Land cover is developed. See Appendix F, Photo Log.	0.003	126	Field visit	No	Lakeside – San Diego County
40+29	Demolish 48-inch RCSC and replace with new manway vault and blowoff	Sidewalk along Julian Avenue. Land covers include developed and disturbed habitat. See Appendix F, Photo Log.	0.003	126	Field visit	Potentially jurisdictional aquatic feature	Lakeside – San Diego County
45+50	Demolish and replace AVAR with City Standard	Driveway of single-family home. Land covers are developed.	0.007	300	Desktop	No	Lakeside – San Diego County
53+85	Demolish 48-inch RCSC and manway and replace with new manway vault	Driveway of single-family home. Land covers are developed.	0.009	400	Desktop	No	Lakeside – San Diego County
67+04	Excavate and abandon manway	Unimproved sidewalk and yard. Land covers include developed, disturbed habitat, and non-native grassland. See Appendix F, Photo Log.	0.083	3,600	Field visit	No	Lakeside – San Diego County
79+47	Demolish 48-inch RCSC and manway and replace with new manway vault	Sidewalk and road along Julian Avenue. Land covers are developed.	0.009	400	Desktop	No	Lakeside – San Diego County
88+38	Demolish and replace AVAR with City Standard	Sidewalk and landscaped yard along Julian Avenue. Land covers are developed.	0.009	400	Desktop	No	Lakeside – San Diego County
91+89	Demolish 48-inch RCSC and manway and replace with new manway vault	Sidewalk and road along Julian Avenue. Land covers are developed.	0.009	400	Desktop	No	Lakeside – San Diego County

**Table 2. Work Locations**

Record Drawing Station	Improvement Type	Site Conditions and Habitat	Acres	Square Feet	Level of Analysis	Sensitive Habitat Within 50-Foot Buffer	City/County Jurisdiction
106+48	Demolish 48-inch RCSC and manway and replace with new manway vault	Sidewalk, road, and asphalt driveway along Los Coches Road. Land covers are developed.	0.018	800	Desktop	No	Lakeside – San Diego County
109+80	Entry portal for pipe repairs	Driveway along Los Coches Road. Land covers are developed.	0.005	200	Desktop	No	Lakeside – San Diego County
112+07	Demolish 48-inch RCSC and manway and replace with new manway vault	Sidewalk, road, and parking lot along Woodside Avenue. Land covers are developed.	0.009	400	Desktop	No	Lakeside – San Diego County
112+32	Demolish and replace AVAR with City Standard	Sidewalk, road, and parking lot along Woodside Avenue. Land covers are developed.	0.014	600	Desktop	No	Lakeside – San Diego County
124+38	Demolish and replace AVAR with City Standard	Sidewalk and parking lot along Woodside Avenue. Land covers are developed.	0.005	200	Desktop	No	Lakeside – San Diego County
125+48	Construct vault at existing manway	Sidewalk and parking lot along Woodside Avenue. Land covers are developed.	0.009	400	Desktop	No	Lakeside – San Diego County
138+85	Excavate and abandon manway	Intersection of Woodside Avenue and Winter Gardens Boulevard. Land covers are developed.	0.002	100	Desktop	No	Lakeside – San Diego County
148+35	Construct vault at existing manway	Parking lot along Woodside Avenue. Land covers are developed.	0.009	400	Desktop	No	Lakeside – San Diego County
177+92	Rehabilitate vault, manway, and blowoff	Ruderal vegetated area south of Woodside Avenue. Land covers include developed and disturbed habitat. See Appendix F, Photo Log.	0.005	200	Field visit	No	Lakeside – San Diego County

**Table 2. Work Locations**

Record Drawing Station	Improvement Type	Site Conditions and Habitat	Acres	Square Feet	Level of Analysis	Sensitive Habitat Within 50-Foot Buffer	City/County Jurisdiction
187+30	Demolish and replace AVAR with City Standard	Service road surrounded by coastal sage scrub. Land covers include disturbed habitat and coastal sage scrub. See Appendix F, Photo Log.	0.009	400	Field visit	Coastal sage scrub, potential for special-status plants, California gnatcatcher	Lakeside – San Diego County
194+87	Excavate and abandon manway	Parking lot east of Woodside Avenue. Land covers are developed.	0.002	100	Desktop	No	City of Santee
208+65	Construct vault at existing manway	Parking lot southeast of Woodside Avenue. Land covers are developed.	0.009	400	Desktop	No	City of Santee
220+85	Rehabilitate vault, manway, and blowoff	Landscaped area southeast of Woodside Avenue. Land covers are developed.	0.004	180	Desktop	No	City of Santee
226+29	Demolish and replace AVAR with City Standard	Landscaped slope southeast of Woodside Avenue. Land covers are developed.	0.009	400	Desktop	No.	City of Santee
238+48	Demolish valve and abandon vault	Driveway east of Woodside Avenue. Land covers are developed.	0.002	100	Desktop	No	City of Santee
239+45	Demolish and replace 68-inch RCSC, manway, and blowoff with new valve vault	Parking lot east of Woodside Avenue. Land covers are developed.	0.037	1,612	Desktop	No	City of Santee
254+20	Construct vault at existing manway	Vegetated terrace east of Woodside Avenue. Land covers include developed, disturbed habitat, non-native grassland, and coastal sage scrub. See Appendix F, Photo Log.	0.009	400	Field visit	Coastal sage scrub	City of Santee
267+37	Rehabilitate manway and replace AVARs	Vegetated slope west of Sevilla Street. Land covers include coastal	0.009	400	Field visit	Coastal sage scrub – potential	City of Santee

**Table 2. Work Locations**

Record Drawing Station	Improvement Type	Site Conditions and Habitat	Acres	Square Feet	Level of Analysis	Sensitive Habitat Within 50-Foot Buffer	City/County Jurisdiction
	with City Standard	sage scrub, developed, and disturbed habitat. See Appendix F, Photo Log.				habitat for California gnatcatcher, potential for special-status plants	
294+26	Construct vault at existing manway	Prospect Avenue at intersection with Magnolia Avenue. Land covers are developed.	0.007	300	Desktop	No	City of Santee
303+20	Demolish and replace 68-inch RCSC with new valve vault	Parking lot within industrial/commercial area. Land covers are developed	0.042	1,820	Desktop	No	City of Santee
322+52	Rehabilitate vault, manway, and blowoff	Grass field adjacent to Gillespie Field airport. Land covers include non-native grassland and developed. See Appendix F, Photo Log.	0.013	587	Field visit	Potential burrowing owl habitat	City of El Cajon and County of San Diego
335+83	Excavate and abandon manway	Grass field adjacent to Gillespie Field airport. Land cover is non-native grassland. See Appendix F, Photo Log.	0.002	100	Field visit	Potential burrowing owl habitat	City of El Cajon and County of San Diego
345+20	Demolish and replace 68-inch RCSC with new manway/blowoff vault	Dirt lot north of Bradley Avenue. Land covers include developed, disturbed habitat, and non-vegetated channel. See Appendix F, Photo Log.	0.020	853	Field visit	Potentially jurisdictional aquatic feature	City of El Cajon
349+12	Excavate and abandon manway and vault	Parking lot in industrial area. Land covers are developed.	0.002	100	Desktop	No	City of El Cajon
363+04	Demolish and replace AVAR with City Standard	Pavement on North Johnson Avenue. Land covers are developed.	0.006	245	Desktop	No	City of El Cajon
365+62	Rehabilitate vault, manway, and blowoff	Center Pointe Business Park parking lot. Land covers are developed.	0.008	358	Desktop	No	City of El Cajon

**Table 2. Work Locations**

Record Drawing Station	Improvement Type	Site Conditions and Habitat	Acres	Square Feet	Level of Analysis	Sensitive Habitat Within 50-Foot Buffer	City/County Jurisdiction
367+30	Demolish and replace 8-inch gate valve	Pavement on Vernon Way. Land covers are developed.	0.001	50	Desktop	No	City of El Cajon
380+15	Demolish and replace 68-inch RCSC and AVAR vault with new manway/ AVAR vault to with City Standard	Parking lot north of Fesler Drive. Land covers include developed and non-vegetated channel. See Appendix F, Photo Log.	0.009	400	Field visit	Potentially jurisdictional aquatic feature	City of El Cajon
382+78	Rehabilitate vault and manway	Dirt area between parking lot and Forester Creek channel. Land covers include developed, disturbed habitat, and non-vegetated channel. See Appendix F, Photo Log.	0.011	470	Field visit	Potentially jurisdictional aquatic feature	City of El Cajon
396+61	Excavate and abandon manway	Asphalt on North Marshall Avenue. Land covers are developed.	0.002	100	Desktop	No	City of El Cajon
400+64	Demolish and replace 68-inch RCSC with new manway vault	Industrial yard west of North Marshall Avenue. Land covers are developed.	0.009	405	Desktop	No	City of El Cajon
410+85	Rehabilitate vault and manway	Dirt shoulder south of Bill Beck Park. Land covers are developed.	0.005	200	Field visit	No	City of El Cajon
434+35	Demolish and replace with new vent and manway in vault	Grassy slope west of Dewane Drive. Land covers include non-native grassland, developed, and disturbed habitat. See Appendix F, Photo Log.	0.086	3,751	Field visit	No	City of El Cajon

**Table 2. Work Locations**

Record Drawing Station	Improvement Type	Site Conditions and Habitat	Acres	Square Feet	Level of Analysis	Sensitive Habitat Within 50-Foot Buffer	City/County Jurisdiction
439+20	Access to tunnel portal Rehabilitate vault, manway, and blowoff	Small canyon south of West Main Street with streams. Land covers include coastal sage scrub, coast live oak woodland, non-native woodland, non-native riparian, and southern riparian forest. See Appendix F, Photo Log.	0.149	6,484	Field visit	Coastal sage scrub – potential habitat for California gnatcatcher, and special-status plants; potentially jurisdictional aquatic resources	City of El Cajon
512+75	Raise vent pipe by 24 feet	Paved area within apartment complex north of Amaya Drive. Land covers are developed.	0.002	100	Desktop	No	City of La Mesa
515+50	Construct tunnel portal	Parking lot of Amaya Drive Trolley Station. Land covers are developed.	0.043	1,861	Desktop	No	City of La Mesa
521+52	Demolish and replace 68-inch RCP, manway, and vault with new manway vault	Apartment complex parking lot south of Fletcher Parkway. Land covers are developed.	0.009	400	Desktop	No	City of La Mesa
530+10	Rehabilitate vault, manway, and blowoff	Dirt slope south of Fletcher Parkway and beneath State Route 125 overpass. Land covers include disturbed habitat and coastal sage scrub. See Appendix F, Photo Log.	0.011	495	Field visit	Coastal sage scrub	City of La Mesa
533+04	Demolish and replace AVAR with City Standard	Medical center parking lot on Fletcher Parkway. Land covers are developed.	0.008	344	Desktop	No	City of La Mesa
542+96	Demolish and replace 68-inch RCP, manway, and	Parking lot in commercial area on Fletcher Parkway. Land covers are developed.	0.009	400	Desktop	No	City of La Mesa

**Table 2. Work Locations**

Record Drawing Station	Improvement Type	Site Conditions and Habitat	Acres	Square Feet	Level of Analysis	Sensitive Habitat Within 50-Foot Buffer	City/County Jurisdiction
	vault with new manway vault						
555+79	Demolish and replace 68-inch RCP, manway, blowoff, and vault with new manway/blowoff vault	Landscaped area with culvert outlet resulting in channel and riparian vegetation. Land covers include disturbed habitat, developed, emergent wetland, and non-native riparian. See Appendix F, Photo Log.	0.063	2,758	Field visit	Potentially jurisdictional waters and vegetation, potential for special-status plants	City of La Mesa
561+33	Demolish and replace AVAR with City Standard	Hardscaped/landscaped area on Parkway Drive. Land covers are developed. See Appendix F, Photo Log.	0.009	400	Field visit	No	City of La Mesa
565+40	Excavate and abandon manway	Hardscaped/landscaped area on Parkway Drive. Land covers are developed. See Appendix F, Photo Log.	0.004	196	Field visit	No	City of La Mesa
575+32	Demolish and replace 68-inch RCP and manway with new valve vault	Ornamental vegetation area at intersection of Fletcher Parkway and Jackson Drive. Land covers are developed.	0.117	5,102	Desktop	No	City of La Mesa
584+98	Excavate and abandon manway	Driveway on Fletcher Parkway. Land covers are developed.	0.004	196	Desktop	No	City of La Mesa
594+32	Demolish and replace 68-inch RCP, manway, blowoff, and vault with new manway/blowoff vault	Median island at Fletcher Parkway and Marengo Avenue. Land covers are developed.	0.040	1,760	Desktop	No	City of La Mesa
606+13	Demolish and replace AVAR with City Standard	Landscaped area near pool at 5333 Baltimore Drive. Land covers are developed.	0.008	353	Desktop	No	City of La Mesa
608+63	Demolish and replace 68-inch RCP, manway,	Pavement of Baltimore Drive. Land covers are developed.	0.011	499	Desktop	No	City of La Mesa

**Table 2. Work Locations**

Record Drawing Station	Improvement Type	Site Conditions and Habitat	Acres	Square Feet	Level of Analysis	Sensitive Habitat Within 50-Foot Buffer	City/County Jurisdiction
	blowoff, and vault with new manway/ blowoff vault						
612+60	Demolish and replace AVAR with City Standard	Parking lot/ornamental vegetation area on Baltimore Drive. Land covers are developed.	0.009	400	Desktop	No	City of La Mesa
617+51	Demolish and replace 68-inch RCP, manway, blowoff, and vault with new manway/ blowoff vault	Landscaped area within apartment complex. Land covers are developed.	0.039	1,696	Desktop	No	City of La Mesa
626+03	Demolish and replace AVAR with City Standard	In parking lot at 5464 Baltimore Drive. Land covers are developed.	0.002	100	Desktop	No	City of La Mesa
632+33	Demolish and replace 68-inch RCP, manway, blowoff, and vault with new manway/ blowoff vault	Landscaped slope and low area between apartment complexes south of Lake Murray Boulevard with hydrology resulting in wetland vegetation. Land covers include disturbed wetland, non-native woodland, disturbed habitat, and developed. See Appendix F, Photo Log.	0.027	1,180	Field visit	Potentially jurisdictional wetland	City of La Mesa
638+59	Demolish and replace AVAR with City Standard	Ornamental vegetation area within Sunset Park. Land covers include non-native woodland, disturbed habitat, and developed. See Appendix F, Photo Log.	0.009	400	Field visit	No	City of La Mesa
644+21	Demolish and replace 68-inch RCP, manway,	Vault situated above intermittent channel and culvert outlet on Lake Park Way. Land	0.014	600	Field visit	Potentially jurisdictional aquatic feature	City of La Mesa

**Table 2. Work Locations**

Record Drawing Station	Improvement Type	Site Conditions and Habitat	Acres	Square Feet	Level of Analysis	Sensitive Habitat Within 50-Foot Buffer	City/County Jurisdiction
	blowoff, and vault with new manway/blowoff vault	covers include developed and non-native riparian. See Appendix F, Photo Log.					
651+00	Raise vent pipe above grade with screen, enclosure, and housekeeping pad	Open space patch north of apartment buildings. Land covers include non-native grassland, non-native woodland and developed. See Appendix F, Photo Log.	0.002	100	Field visit	No	City of San Diego
653+97	Demolish and replace 68-inch RCP, manway, blowoff, and vault with new manway/blowoff vault	Ornamental vegetation area adjacent to open space patch on Kiowa Drive. Land covers include non-native grassland and developed. See Appendix F, Photo Log.	0.007	300	Field visit	No	City of San Diego
658+50	Demolish and replace valve	Paved area within water treatment plant property. Land covers are developed.	0.007	283	Desktop	No	City of San Diego

**Notes:** CML&C = cement mortar lined and coated; RCSC = reinforced concrete steel cylinder; AVAR = air vacuum and release valve; City = City of San Diego; RCP = reinforced concrete pipe.

## 2.5 Regulatory Setting

### 2.5.1 Federal Statutes, Regulations, and Executive Orders

#### Federal Endangered Species Act

The federal Endangered Species Act (FESA) of 1973 (16 USC 1531 et seq.), as amended, is administered by the U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration, and National Marine Fisheries Service. This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend and provide programs for the conservation of those species, thus preventing the extinction of plants and wildlife. Under provisions of Section 9 (16 USC 1538[a][1][B]) of the FESA, it is unlawful to “take” any listed species. “Take” is defined in Section 3 (16 USC 1532[19]) of the FESA as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”

The FESA allows for the issuance of “incidental take” permits for listed species under Section 7, which is generally available for projects that also require other federal agency permits or other approvals, and under Section 10, which

provides for the approval of habitat conservation plans on private property without any other federal agency involvement. Incidental take is defined as “take that results from, but is not the purpose of, carrying out an otherwise lawful activity” (16 USC 1531 et seq.). Upon development of a habitat conservation plan, USFWS can issue incidental take permits for listed species.

### **Migratory Bird Treaty Act**

The MBTA prohibits the take of any migratory bird or any part, nest, or eggs of any such bird. Under the MBTA, “take” is defined as pursue, hunt, shoot, wound, kill trap, capture, or collect, or any attempt to carry out these activities (16 USC 703 et seq.). The number of bird species covered by the MBTA is extensive; the species are listed in Title 50 of the CFR, Part 10.13. The regulatory definition of “migratory bird” is broad and includes any mutation or hybrid of a listed species, and also includes any part, egg, or nest of such birds (50 CFR 10.12). The MBTA, which is enforced by USFWS, makes it unlawful “by any means or in any manner, to pursue, hunt, take, capture, [or] kill” any migratory bird or attempt such actions, except as permitted by regulation. The applicable regulations prohibit the take, possession, import, export, transport, sale, purchase, barter, or offering of these activities, except under a valid permit or as permitted in the implementing regulations (50 CFR 21.11). Additionally, Executive Order 13186, “Responsibilities of Federal Agencies to Protect Migratory Birds,” requires that any component with federal involvement address impacts of federal actions on migratory birds with the purpose of promoting conservation of migratory bird populations (66 FR 3853–3856). The Executive Order requires federal agencies to work with USFWS to develop a Memorandum of Understanding. USFWS reviews actions that might affect these species.

Currently, birds are considered to be nesting under the MBTA only when there are viable eggs or chicks, which are dependent on the nest.

Local implementation of the MBTA typically involves a qualified biologist conducting a nesting bird survey prior to construction activities between February 1 and September 15. Such surveys are required in all construction areas where natural or ornamental trees, shrubs, and ground cover may provide suitable nesting habitat for protected species. A nest avoidance buffer, as determined by the qualified biologist, shall be established and serve to protect active nests from direct and indirect disturbance until breeding activities have been completed. The City would comply with the MBTA by conducting the nesting surveys required by the Whitebook (see Section 2.5.3).

### **Section 404 of the Clean Water Act**

The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation’s waters. Under Section 404 of the CWA, USACE has the authority to regulate activities that could discharge fill or dredge material or otherwise adversely modify wetlands or other waters of the United States. The USACE implements the federal policy embodied in Executive Order 11990, which, when implemented, is intended to result in no net loss of wetland values or function.

The definition of waters of the United States establishes the geographic scope for authority under Section 404 of the CWA; however, the CWA does not specifically define waters of the United States, leaving the definition open to statutory interpretation and agency rulemaking. Under the U.S. Environmental Protection Agency’s current waters of the United States definition, a “water of the United States” includes traditional navigable waters, territorial seas, interstate waters, impoundments, and certain tributaries, wetlands, and other features that meet a “relatively permanent” standard. The relatively permanent standard generally requires standing or continuously flowing water,

which may be seasonally limited. Excluded from waters of the United States are features that support surface flows only in direct response to precipitation.

The term “wetlands” (a subset of waters of the United States) is defined in 33 CFR, Section 328.3(c)(16), as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.” In the absence of wetlands, the limits of USACE jurisdiction in non-tidal waters, such as intermittent streams, extend to the “ordinary high water mark,” which is defined in 33 CFR 328.3(c)(7) as “that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.”

## 2.5.2 State Statutes

### California Environmental Quality Act

CEQA requires identification of a project’s potentially significant impacts on sensitive biological resources and feasible mitigation measures and alternatives that could avoid or reduce significant impacts. CEQA Guidelines Section 15380(b)(1) defines endangered animals or plants as species or subspecies whose “survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors.” A rare animal or plant is defined in CEQA Guidelines Section 15380(b)(2) as a species that, although not presently threatened with extinction, exists “in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or ... [t]he species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered ‘threatened’ as that term is used in the federal Endangered Species Act.” Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing, as defined further in CEQA Guidelines Section 15380(c). CEQA also requires identification of a project’s potentially significant impacts on riparian habitats (such as wetlands, bays, estuaries, and marshes) and other sensitive natural communities, including habitats occupied by endangered, rare, and threatened species.

### California Endangered Species Act

The California Department of Fish and Wildlife (CDFW) administers the California Endangered Species Act (CESA; CFGC Section 2050 et seq.), which prohibits the “take” of plant and animal species designated by the Fish and Game Commission as endangered or threatened in the State of California. Under CESA Section 86, “take” is defined as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA Section 2053 stipulates that state agencies may not approve projects that will “jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy.”

CESA Sections 2080 through 2085 address the taking of threatened, endangered, or candidate species by stating, “No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state,

any species, or any part or product thereof, that the Commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided in this chapter, the Native Plant Protection Act (CFGC, Sections 1900–1913), or the California Desert Native Plants Act (Food and Agricultural Code, Section 80001).” Take authorization for otherwise lawful activities may be obtained from CDFW under Section 2081 of the CFGC.

### California Fish and Game Code

According to Sections 3511, 4700, 5050, and 5515 of the CFGC, which regulate birds, mammals, reptiles and amphibian, and fish, respectively, a “fully protected” species may not be taken or possessed without a permit from the CFGC, and, with few exceptions, take of these species is prohibited.

According to Section 3503, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 states that it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto. Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA.

The Native Plant Protection Act of 1977 (CFGC, Section 1900 et seq.) gives CDFW authority to designate state endangered, threatened, and rare plants, and provides specific protection measures for identified populations.

### California Department of Fish and Wildlife Wetland Regulation

The CDFW exercises jurisdiction over waters of the state under Sections 1600–1616 of the CFGC based on the definition of regulated activity provided in Section 1602 of the CFGC and the definition of a stream provided in Title 14, Section 1.72, of the CCR.

Section 1602 of the CFGC states: “An entity may not 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, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake” without notifying CDFW. Title 14, Section 1.72, of the CCR defines a stream as: “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation.” This definition includes a broad range of vegetation communities, including some that do not contain wetland species but are in a riparian landscape position. CDFW jurisdiction typically extends to the outer limit of riparian vegetation, or to the top of bank of an unvegetated stream channel.

Under Section 1603 of the CFGC, upon notification, CDFW “shall determine whether the activity may substantially adversely affect an existing fish and wildlife resource.” If such a determination is made, CDFW reaches an agreement with the notifying entity (a Streambed Alteration Agreement) that includes measures to protect the resources CDFW has determined the activity may substantially adversely affect.

## Clean Water Act – Section 401

The State Water Resources Control Board has authority over wetlands through Section 401 of the CWA, as well as the Porter–Cologne Act, CCR Section 3831(k), and California Wetlands Conservation Policy. The CWA requires that an applicant for a Section 404 permit (to discharge dredge or fill material into waters of the United States) first obtain certification from the appropriate state agency stating that the fill is consistent with the state’s water quality standards and criteria. In California, the authority to either grant certification or waive the requirement for permits is delegated by the State Water Resources Control Board to the nine regional boards. The San Diego Bay RWQCB has authority for Section 401 compliance within the BSA. A request for certification is submitted to the regional board at the same time that an application is filed with the USACE.

The State Water Resources Control Board defines a water of the state as “any surface water or groundwater, including saline waters, within the boundaries of the state” (California Water Code Section 13050[e]). The State Water Resources Control Board’s definition of a water of the state includes the following (SWRCB 2021):

1. Natural wetlands.
2. Wetlands created by modification of a surface water of the state.
3. Artificial wetlands that meet any of the following criteria:
  - a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;
  - b. Specifically identified in a water quality control plan as a wetland or other water of the state;
  - c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or
  - d. Greater than or equal to one acre in size unless the artificial wetland was constructed and is currently used and maintained, primarily for one or more of the following purposes: industrial or municipal wastewater treatment or disposal; settling of sediment; detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial permitting program; treatment of surface waters; agricultural crop irrigation or stock watering; fire suppression; industrial processing or cooling water; active surface mining – even if the site is managed for interim wetlands functions and values; log storage; treatment, storage, or distribution of recycled water; maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or fields flooded for rice growing.

All waters of the United States are waters of the state. Wetlands, such as isolated seasonal wetlands, that are not generally considered waters of the United States are considered waters of the state if, “under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area’s vegetation is dominated by hydrophytes or the area lacks vegetation” (SWRCB 2021).

## 2.5.3 Local Policies

### San Diego Multiple Species Conservation Program

The City is a participant in the San Diego County MSCP, a comprehensive, regional, long-term habitat conservation program designed to provide permit issuance authority for take of covered species to the local regulatory agencies. The MSCP addresses habitat and species conservation within approximately 900 square miles in the southwestern portion of San Diego County (County of San Diego 1998). It serves as an approved habitat conservation plan pursuant to an approved natural community conservation plan in accordance with the state Natural Communities Conservation Planning Act (County of San Diego 1998).

The MSCP Subarea Plan establishes a preserve system designed to conserve large blocks of interconnected habitat having high biological value, which are delineated in the MHPA. The City's MHPA is a "hardline" preserve developed by the City in cooperation with wildlife agencies, property owners, developers, and environmental groups. The MHPA identifies biological core resource areas and corridors targeted for conservation, in which only limited development may occur (City of San Diego 1997).

The MSCP Subarea Plan identifies 85 plants and animals that are covered under the plan ("covered species"). Many of these covered species are subject to one or more protective designations under state and/or federal law, and some are endemic to San Diego. The MSCP seeks to provide adequate habitat in the preserve to maintain ecosystem functions and persistence of extant populations of the 85 covered species while also allowing participating landowners "take" of covered species on lands outside of the preserve. The purpose of the MSCP is to address species conservation on a regional level and thereby avoid project-by-project biological mitigation, which tends to fragment habitat.

### City of San Diego Multiple Species Conservation Program Subarea Plan

The MSCP Subarea Plan (City of San Diego 1997) encompasses approximately 206,124 acres within the MSCP Subregional Plan area. Urban habitat areas within the MHPA include core areas within Point Loma and existing designated open space, such as Mission Bay, Tecolote Canyon, Marian Bear Memorial Park, Rose Canyon, San Diego River, the southern slopes along Mission Valley, Carroll and Rattlesnake Canyons, Florida Canyon, Chollas Creek, and a variety of smaller canyon systems. The MHPA eastern area includes East Elliott and Mission Trails Regional Park. The southern area of the MHPA focuses on Otay Mesa, the Otay River Valley, and the Tijuana Estuary and River Valley, whereas the northern area covers the communities of Camel Valley, Sorrento Hills, Torrey Pines, Rancho Peñasquitos, and a portion of Mira Mesa. Finally, the Cornerstone Lands and San Pasqual Valley habitat areas under the MHPA include the San Pasqual Valley along the San Dieguito River and areas owned by the City's Public Utilities Department, including Marron Valley, the San Vicente Reservoir, Otay Lakes, and the Hodges Reservoir.

The MSCP Subarea Plan is characterized by urban land uses, with approximately three-quarters either built out or retained as open space/park system. As mentioned previously, the City MHPA is a hardline preserve developed by the City in cooperation with the wildlife agencies, property owners, developers, and environmental groups. The MHPA identifies biological core resource areas and corridors targeted for conservation, in which only limited development may occur (City of San Diego 1997). The MHPA is considered an urban preserve that is constrained by existing or approved development and consists of habitat linkages connecting several large core areas of habitat.

The criteria used to define core and linkage areas involves maintaining ecosystem function and processes, including large animal movement. Each core area is connected to other core areas or to habitat areas outside the MSCP either through common boundaries or through linkages. Core areas have multiple connections to help ensure that the balance in the ecosystem will be maintained (City of San Diego 1997). Critical habitat linkages between core areas are conserved in a functional manner, with a minimum of 75% of the habitat within identified linkages conserved (City of San Diego 1997).

The study area falls within the La Mesa Subarea, Santee Subarea, South San Diego County Subarea, and El Cajon Subarea. However, the cities of La Mesa, El Cajon, and Santee do not have approved Subarea Plans to implement the MSCP.

### **City of San Diego Land Development Code – Environmentally Sensitive Lands Regulation and Biology Guidelines**

The City’s Development Services Department developed the SDBG, presented in the Land Development Code (LDC) “to aid in the implementation and interpretation of the Environmentally Sensitive Lands Regulations (ESL), San Diego Land Development Code (LDC), Chapter 14, Division 1, Section 143.0101 et seq., and the Open Space Residential (OR-1-2) Zone, Chapter 13, Division 2, Section 131.0201 et seq.” (City of San Diego 2018). The SDBG also provide standards for the determination of impacts and mitigation under CEQA and the California Coastal Act. Sensitive biological resources, as defined by the City’s ESL regulations (San Diego Municipal Code Chapter 14, Article 3, Division 1), include lands within the MHPA, as previously discussed, and other lands outside of the MHPA that contain wetlands; vegetation communities classifiable as Tier I, II, IIIA, or IIIB; habitat for rare, endangered, or threatened species; and narrow endemic species. The varying mitigation ratios and requirements that mitigation be either in-tier or in-kind are based on the sensitivity of the habitat being affected. It is further intended for the ESL Regulations and accompanying Biology, Steep Hillside, and Coastal Bluffs, and Beaches Guidelines to serve as standards for the determination of impacts and mitigation under CEQA and the California Coastal Act. These standards also serve to implement the MSCP by placing priority on the preservation of biological resources within the MHPA, as identified in the City’s SAP. The habitat-based level of protection that results through implementation of the MHPA is intended to meet the mitigation obligations of the Covered Species addressed.

The City’s definition of wetlands is broader than the definition applied by USACE. According to SDBG (City of San Diego 2018), City wetlands include areas characterized by one or more of the following conditions:

1. All areas persistently or periodically containing naturally occurring wetland vegetation communities characteristically dominated by hydrophytic vegetation, including but not limited to salt marsh, brackish marsh, freshwater marsh, riparian forest, oak riparian forest, riparian woodlands, riparian scrub, and vernal pools;
2. Areas that have hydric soils or wetland hydrology and lack naturally occurring wetland vegetation communities because human activities have removed the historic wetland vegetation or catastrophic or recurring natural events or processes have acted to preclude the establishment of wetland vegetation as in the case of salt pannes and mudflats;
3. Areas lacking wetland vegetation communities, hydric soils, and wetland hydrology due to non-permitted filling of previously existing wetlands; or
4. Areas mapped as wetlands on Map C-713 as shown in Chapter 13, Article 2, Division 6 (Sensitive Coastal Overlay Zone).

The City uses the criteria listed in Section 320.4(b)(2) of the USACE General Regulatory Policies (33 CFR 320–330) to apply appropriate buffers around wetlands that serve to protect their function and value. Guidelines that supplement the development regulation requirements are provided in the SDBG (City of San Diego 2018). According to the SDBG, a wetland buffer is an area surrounding a wetland that helps protect the function and value of the wetland by reducing physical disturbance; provides a transition zone where one habitat phases into another; and acts to slow flood waters for flood and erosion control, sediment filtration, water purification, and groundwater recharge. The width of the buffer is determined by factors such as location within or outside of the Coastal Zone, type and size of development, sensitivity of the wetland resource to edge effects, topography, and the need for upland transition (City of San Diego 2018).

Impacts to wetlands and wetland buffers should be avoided according to the City’s ESL ordinance. Deviations to the wetland regulations may be granted if the development is located outside of the Coastal Overlay Zone and qualifies to be processed as an Essential Public Project (EPP). Per the SDBG, the EPP option is defined as follows (City of San Diego 2018):

- (A) A deviation may only be requested for an Essential Public Project where no feasible alternative exists that would avoid impacts to wetlands.
- (B) For the purpose of this section, Essential Public Projects shall include:
  - (i) Any public project identified in an adopted land use plan or implementing document and identified on the Essential Public Projects List adopted by Resolution No.[insert No.] as Appendix III to the Biology Guidelines; or
  - (ii) Linear infrastructure, including but not limited to major roads and land use plan circulation element roads and facilities including bike lanes, water and sewer pipelines including appurtenances, and stormwater conveyance systems including appurtenances; or
  - (iii) Maintenance of existing public infrastructure; or
  - (iv) State and federally mandated projects.

## County

The Resource Protection Ordinance (RPO), administered by the County of San Diego (County), regulates land use effects on biological and other natural resources within the County. These resources include wetlands, wetland buffers, floodways, floodplain fringe, steep slope lands, sensitive habitat lands, and significant prehistoric or historic sites. The proposed project does not require any permits or authorizations that require evaluation under the RPO, and therefore it is not discussed further herein (County of San Diego 2007).

The County’s Biological Mitigation Ordinance (BMO) (County of San Diego 2010) is the regulating tool for the MSCP (City of San Diego 1998) and also establishes guidance for determining which areas are considered Biological Resources Core Areas (BRCAs) and sets forth criteria for avoiding impacts to these areas. The BMO also provides mitigation requirements for all projects requiring a discretionary permit. The BMO is designed to provide incentives for development in areas with lower habitat value and direct conservation and open space preservation to areas of high and very high habitat value.

## County of San Diego Multiple Species Conservation Program

The study area is located within the boundaries of the County MSCP Subarea Plan within the Unincorporated Land in Metro-Lakeside-Jamul Segment. This land designation includes lands that are under the jurisdiction of the County and within the MSCP planning area but outside the Lake Hodges and South County Segments. According to the County (County of San Diego 2010), “land within this segment will be evaluated during the review of projects rather than the exact location of development and preserves being pre-determined as in the other two segments.” Within the Metro-Lakeside-Jamul Segment of the County Subarea Plan, the take of Covered Species and their habitats will be authorized for projects based on a project’s satisfaction of the requirements of the BMO and conformance with the terms of the County MSCP Subarea Plan. Conservation goals for this segment, and for which the proposed project needs to conform, involve conservation of specific habitat types and rare or special-status flora and fauna.

Four of the project’s work locations (10 + 81, 15 + 77, 28 + 42, and 31 + 03) are located within areas mapped as Pre-Approved Mitigation Area (PAMA) in the County MSCP Subarea Plan (County of San Diego 1997) These are areas which were pre-approved for mitigation by the wildlife agencies during the development of the plan, and they encompass land with the highest biological value in the plan area. The plan encourages development outside of the PAMA through varying mitigation ratios.

The direct impact footprint for these work locations is located exclusively on developed and disturbed land covers consisting of the paved El Monte Road and the unimproved right-of-way adjacent to it. There will be no impact to high value habitat at these work locations. Maintenance and replacement of existing water infrastructure is a compatible Existing Use within the PAMA as defined in Section 1.9 of the County MSCP Subarea Plan (County of San Diego 1997). As such, there is no resulting conflict with County conservation goals in areas of the project subject to the Plan.

### The “Whitebook”

The City published The “Whitebook” Standard Specifications for Public Works Construction (City of San Diego 2021a), which includes many standard practices that result in minimization of impacts to biological resources, including biological monitoring, materials suitability, safe construction methods, avian nest protection, tree protection, landscape standards, and stormwater protection measures.

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# 3 Methods

Data regarding biological resources present within the project footprints and a 50-foot buffer (study area) were obtained through a review of pertinent literature and field reconnaissance.

## 3.1 Desktop Review

Dudek conducted a database search and desktop review to determine the potential for sensitive biological resources to occur within the study area and a 1-mile buffer surrounding the linear alignment of the ELMP. The desktop review focused on special-status plant and wildlife species and sensitive habitat types identified using the CDFW's California Natural Diversity Database (CNDDDB) (Figure 3, CNDDDB Plant Occurrences, and Figure 4, CNDDDB Wildlife Occurrences), CNPS's Rare Plant Inventory, USFWS's National Wetland Inventory (NWI) and Information for Planning and Consultation (IPaC) resource report, the U.S. Geological Survey (2023) National Hydrography Database, and the U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey.

The CNDDDB (CDFW 2022, 2025a) and IPaC (Appendix A; USFWS 2025a) queries included the project footprint and a 1-mile buffer (Figures 3 and 4), and the NWI (USFWS 2025b) and Web Soil Survey (USDA 2025) search focused on the study area. The CNPS query consisted of a two-quadrangle search of the study area (CNPS 2025). The special-status taxa identified during the desktop review are included in Appendices B and C for plants and wildlife, respectively. A soils map was reviewed to provide information for assessing suitability of habitat for special-status species of plants, some of which are limited in their occurrence by soil types (USDA 2025).

The aforementioned resources and a review of both aerial imagery and street view imagery (Google Earth 2025) were used to determine the presence of potential habitat within the study area. The following criteria was used to determine the level of analysis for each work location:

- Sites containing any land cover that was not urban/developed (including ornamental vegetation and landscaping) within the study area were visited in the field.
- Sites containing exclusively urban/developed land cover (including ornamental vegetation and landscaping) within the study area but also containing potential habitat within the 300-foot buffer area were designated for a desktop analysis of indirect impacts.
- Sites containing exclusively urban/developed land cover (including ornamental vegetation and landscaping) within the study area and the 300-foot buffer area were not analyzed further. As previously mentioned, Dudek recommends that a nesting bird survey be conducted prior to initiation of construction activities at all work location.

Kleinfelder biologists conducted field surveys for habitat of special-status species in December 2022 and for aquatic resources in August 2023. In 2025, their desktop review was updated, and an assessment of recent aerial imagery concluded that the site conditions have remained largely unchanged. In October 2025, Dudek returned to survey the sites covered by Kleinfelder as well as additional sites identified from a separate desktop review (see Section 3.1, Desktop Review). Prior to conducting fieldwork, Dudek reviewed the existing BTR and Aquatic Resources Delineation Report for the project (Kleinfelder 2025a, 2025b). The previous BTR had received one round of comments from the City, which were addressed in this report. The results of the updated aquatic resources delineation are presented herein, and included as Appendix F.

## 3.2 Field Reconnaissance

Dudek biologists Anna Touchstone and Shana Carey conducted a general biological resources survey and aquatic resources delineation within the study area on October 28, 2025. Staff resumes are provided as Appendix D. The survey commenced at approximately 8:00 a.m. and concluded at 4:00 p.m. Weather conditions for the survey were warmer than normal for eastern San Diego County in late October, with temperatures during the survey ranging from 60°F to 88°F. Skies were clear, and winds ranged from 0 to 5 mph. The 28 field survey locations were evaluated for their potential to provide suitable habitat for special-status resources. Vegetation types, wildlife observations, and general site conditions were documented. Vegetation types and communities present were typed using the Draft Vegetation Communities of San Diego County (Oberbauer et al. 2008), which is based on the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986), and were assigned habitat tier according to the SDBG (City of San Diego 2018). No protocol-level surveys for special-status resources were conducted. Aquatic resources within the Survey Area were delineated in accordance with the 1987 USACE Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008). The National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Final Version (USACE 2025) was used to determine the limits of non-wetland waters.

## 3.3 Limitations

Project limits were defined by impact footprints at each of the 28 field survey locations and were intended to include access, staging of materials, temporary ground disturbance, and permanent features to be installed at each location. For the purpose of identifying environmental resources, a buffer with a radius of 50 feet was used around each impact footprint, and the biological and aquatic resources were identified to the degree that existing database information and visual inspection of the site allowed. Due to the developed nature of the study area, the small footprint of each work location, and the linear alignment of the ELMP, a 50-foot buffer was considered sufficient to identify the environmental resources that may be impacted by the project.

Within the 28 field survey locations, all areas were visited during field surveys to assess habitat and aquatic features. No protocol-level surveys for special-status species were conducted for this project. For the purposes of this project, any special-status species considered to have a moderate or higher potential to occur in the study area are assumed present, and appropriate avoidance, minimization, and mitigation measures have been incorporated. As such, updated and/or more focused surveys are not proposed at this time; however, additional surveys may be proposed if project conditions change or regulatory agencies require additional data.

# 4 Results

## 4.1 Existing Conditions and Surrounding Land Uses

The study area is located within a mix of urban, residential, and natural settings. Surrounding areas include the cities of La Mesa (to the south), El Cajon, Santee, and Lakeside and the San Diego River, which borders State Route 67. The alignment crosses the California Department of Transportation right-of-way at State Route 67/State Route 52 in Santee and State Route 125 in La Mesa. The elevations in the study area range from approximately 362 feet above mean sea level up to 583 feet above mean sea level. The study area land use and zoning has changed significantly since its inception (1942–1948) and is primarily developed (residential neighborhoods and highways) with small pockets of undeveloped open space.

### 4.1.1 Topography and Soils

Soils mapped within the study area are predominantly composed of Redding-Urban land complex, 2% to 9% slopes (RhC); Redding-Urban land complex, 9% to 30% slopes (RhE); Placentia sandy loam, thick surface, 2% to 9% slopes (PfC); Friant rocky fine sandy loam, 30% to 70% slopes (FxG); and Diablo Clay, 2% to 9% slopes (DaC). Additional notable soils include Riverwash (Rm) and Placentia sandy loam, 2% to 9% slopes (PfC) (USDA 2025). The Placentia and Redding series are primarily located in the less developed portions of the alignment. Placentia soils are moderately well-drained alluvium derived from granite, while Redding soils are well drained and formed from alluvium derived from mixed sources. Soils within the study area are displayed in Figure 7, Soils.

### 4.1.2 Field Survey Locations

Observations during the field survey for each work location are documented in Table 3 below. In addition, a detailed description of work locations containing sensitive habitat or resources is provided in Table 3. Representative photographs of the work locations are presented in Appendix F.

**Table 3. Field Survey Locations**

Record Drawing Station	Improvement Type	Vegetation Community or Land Cover Type	Sensitive Habitat and/or Resources
0+00 to 4+50	Replace pipeline	Developed, disturbed habitat, non-native woodland, coastal sage scrub	Coastal sage scrub – coastal California gnatcatcher critical habitat
10+81	Demolish and replace blowoff and new blowoff and manway vault	Developed, disturbed habitat	None
15+77	Demolish 48-inch RCSC and manway and replace with new manway vault	Developed, disturbed habitat	None
28+42	Demolish 48-inch RCSC and manway and replace with new manway vault	Developed, disturbed habitat	None

**Table 3. Field Survey Locations**

Record Drawing Station	Improvement Type	Vegetation Community or Land Cover Type	Sensitive Habitat and/or Resources
31+03	Demolish and replace AVAR with City Standard	Developed, disturbed habitat	None
40+29	Demolish 48-inch RCSC replace with new manway vault and blowoff	Developed, disturbed habitat	Potentially jurisdictional water NWW-ALT-03
67+04	Excavate and abandon manway	Developed, disturbed habitat, non-native grassland	None
177+92	Rehabilitate vault, manway, and blowoff	Developed, disturbed habitat	None
187+30	Demolish and replace AVAR with City Standard	Coastal sage scrub, disturbed habitat	Coastal sage scrub – potential habitat for coastal California gnatcatcher, potential habitat for thorn-mint, thread-leaf brodiaea, and variegated dudleya
254+20	Construct vault at existing manway	Developed, disturbed habitat, coastal sage scrub, non-native grassland	Coastal sage scrub
267+37	Rehabilitate manway and replace AVARs with City Standard	Developed, disturbed habitat, coastal sage scrub	Coastal sage scrub – potential habitat for coastal California gnatcatcher, potential habitat for thorn-mint, thread-leaf brodiaea, and variegated dudleya
322+52	Rehabilitate vault, manway, and blowoff	Developed, non-native grassland	Potential burrowing owl habitat
335+83	Excavate and abandon manway	Non-native grassland	Potential burrowing owl habitat
345+20	Demolish and replace 68-inch RCSC with new manway/blowoff vault	Developed, disturbed habitat, non-native grassland, non-vegetated channel or floodway	Potentially jurisdictional water NWW-ALT-01
380+15	Demolish and replace 68-inch RCSC and AVAR vault with new manway/AVAR vault to with City Standard	Developed	Potentially jurisdictional water Forester Creek/NWW-ALT-02
382+78	Rehabilitate vault and manway	Developed, disturbed habitat	Potentially jurisdictional water Forester Creek/NWW-ALT-02
410+85	Rehabilitate vault and manway	Developed	None
434+35	Demolish and replace with new vent and manway in vault	Developed, disturbed habitat, non-native grassland	None
439+20	Access to tunnel portal Rehabilitate vault, manway, and blowoff	Developed, disturbed habitat, coastal sage scrub, coast live oak woodland, non-native woodland, non-native riparian, non-vegetated	Coastal sage scrub – critical habitat for coastal California gnatcatcher, thorn-mint, thread-leaf brodiaea, and variegated

**Table 3. Field Survey Locations**

Record Drawing Station	Improvement Type	Vegetation Community or Land Cover Type	Sensitive Habitat and/or Resources
		channel or floodway, southern riparian forest	dudleya; potentially jurisdictional waters NWW-ALT-04 and NWW-ALT-05
530+10	Rehabilitate vault, manway, and blowoff	Disturbed habitat, coastal sage scrub	Coastal sage scrub
555+79	Demolish and replace 68-inch RCP, manway, blowoff, and vault with new manway/blowoff vault	Developed, disturbed habitat, non-native riparian, emergent wetland	Potentially jurisdictional waters NWW-ALT-06 and NWW-ALT-07
561+33	Demolish and replace AVAR with City Standard	Developed	None
565+40	Excavate and abandon manway	Developed	None
632+33	Demolish and replace 68-inch RCP, manway, blowoff, and vault with new manway/blowoff vault	Developed, disturbed wetland, non-native woodland	Potentially jurisdictional wetland WET-ALT-01
638+59	Demolish and replace AVAR with City Standard	Developed, disturbed habitat, non-native woodland	None
644+21	Demolish and replace 68-inch RCP, manway, blowoff, and vault with new manway/blowoff vault	Developed, non-native riparian	Potentially jurisdictional water NWW-ALT-08
651+00	Raise vent pipe above grade with screen, enclosure, and housekeeping pad	Developed, non-native grassland, non-native woodland	None
653+97	Demolish and replace 68-inch RCP, manway, blowoff, and vault with new manway/blowoff vault	Developed, non-native grassland	None

**Notes:** RCSC = reinforced concrete steel cylinder; AVAR = air vacuum and release valve; City = City of San Diego; RCP = reinforced concrete pipe.

**Station 0+00 to 4+50 – Replace Pipeline**

This work location is located along El Monte Road, with the improvement footprint running along the southern side of the road. While the area is largely composed of developed land cover and disturbed habitat, coastal sage scrub vegetation is located in several areas along the northern side of the road and in a patch on the southern side of the road in the northeastern corner of the work location. Species observed within the coastal sage scrub community in this work location included broom baccharis (*Baccharis sarothroides*), California buckwheat (*Eriogonum fasciculatum*), coastal sagebrush (*Artemisia californica*), and blue elderberry (*Sambucus mexicana*).

This site contains critical habitat for the federal threatened coastal California gnatcatcher (*Polioptila californica californica*) mapped both within and adjacent to the eastern portion of the work location, where coastal sage scrub habitat is present. This bird has the potential to forage and nest within the work location.

### **Station 40+29 – Demolish 48-Inch Reinforced Concrete Steel Cylinder and Replace with New Manway Vault and Blowoff**

This work location is located along Julian Avenue, is flat, and consists of developed and disturbed habitat land covers.

There is a potentially jurisdictional aquatic feature (NWW-ALT-03) present in the form of a modified channel in the eastern portion of the work location. More information on this feature is included in Section 3.2.5, Potentially Jurisdictional Aquatic Resources.

### **Station 187+30 – Demolish and Replace Air Vacuum and Release Valve with City Standard**

This work location is composed of a flat, northwest-facing terrace above a significant slope above Woodside Avenue. Coastal sage scrub is located in the work location in the eastern part of the terrace and the entirety of the slope above Woodside Avenue in the northern portion of the work location. The improvement site and remainder of the buffer area are composed of disturbed habitat. The dominant species is California buckwheat, and additional species include broom baccharis, coastal sagebrush, *Phacelia*, *Dudleya*, and *Cryptantha* species. Other species were present but were not mature enough to identify to species, including the dudleya.

The federally threatened coastal California gnatcatcher has the potential to forage and nest in the coastal sage scrub community.

### **Station 254+20 – Construct Vault at Existing Manway**

This work location is located on a terrace and an east-to-west descending slope above east of Woodside Avenue. The work location is mainly composed of non-native grassland, developed land cover, and disturbed habitat. There is a small area of coastal sage scrub habitat present within the work location in the form of a California buckwheat patch.

A non-jurisdictional stormwater control feature passes through the western portion of the study area. More information on this feature is included in Section 3.2.5.

### **Station 267+37 - Rehabilitate Manway and Replace Air Vacuum and Release Valve with City Standard**

At this location, the ground surface was gently sloped from the road to the west. The work location is located west of Sevilla Street and is composed of developed, disturbed habitat, and coastal sage scrub land covers within the western portion of the work location. The dominant species identified at this work location were broom baccharis, California buckwheat, California encelia (*Encelia californica*), ice plant (*Carpobrotus chilensis*), coastal sagebrush, and landscaping shrubs. Small mammal burrows were identified within the work location, likely belonging to California ground squirrel (*Otospermophilus beecheyi*); however, this species was not observed.

Built environment includes the concrete infrastructure related to the pipeline and a metal fence separating much of the coastal sage scrub habitat from the landscaped area next to the road.

Critical habitat for the federal-threatened coastal California gnatcatcher is located east of the site. There is a moderate potential for this species to forage and nest in the coastal sage scrub community at this site.

### **Station 322+52 – Rehabilitate Vault, Manway, and Blowoff**

At this location, the work location is level. This work location is located south of the Gillespie Field runway in an open field. Land cover within the work location is largely composed of non-native grassland, with a portion of it developed in the improvement footprint.

This open grassland, in conjunction with non-natural features that provide refuge and could serve as burrow surrogates, make this work location potential habitat for burrowing owl (*Athene cunicularia*), a state candidate for listing under the California Endangered Species Act.

### **Station 335+83 – Excavate and Abandon Manway**

At this location, the work location is level. Similar to the work location described above, this work location is located south of the Gillespie Field runway in an open field. Land cover within the work location is largely composed of non-native grassland, with a portion of it developed in the improvement footprint.

This open grassland, in conjunction with non-natural features that provide refuge and could serve as burrow surrogates, make this work location potential habitat for burrowing owl, a state candidate for listing under the California Endangered Species Act.

### **Station 345+20 – Demolish and Replace 68-Inch Reinforced Concrete Steel Cylinder with New Manway/Blowoff Vault**

At this location, the ground surface is level. This work location is largely composed of developed land cover, disturbed habitat, and non-native grassland, with the improvement area located north of Bradley Avenue.

There is a potentially jurisdictional aquatic feature (NWW-ALT-01) present in the form of a constructed canal/ditch, which passes through the eastern portion of the work location. More information on this feature is provided in Section 3.2.5.

### **Station 380+15 – Demolish and Replace 68-Inch Reinforced Concrete Steel Cylinder and Air Vacuum and Release Vault with New Manway/Air Vacuum and Release Vault**

At this location, the work location is mainly composed of parking lot with level surfaces and slopes down towards the Forester Creek Channel in the western portion of the work location. Land covers within the work location are entirely developed.

A small sliver of the western portion of the study area includes a channelized portion of Forester Creek, a potentially jurisdictional aquatic feature (NWW-ALT-02). More information on this feature is provided in Section 3.2.5.

### Station 382+78 – Rehabilitate Vault and Manway

At this location, ground surfaces are level within the central and western portions of the work location and slope down towards the Forester Creek channel within the eastern portion of the work location. Land covers within the work location are developed or composed of disturbed habitat.

The eastern portion of the study area includes a channelized portion of Forester Creek, a potentially jurisdictional aquatic feature (NWW-ALT-02). More information on this feature is provided in Section 3.2.5.

### Station 439+20 – Access to Tunnel Portal, Rehabilitate Vault, Manway, and Blowoff

At this location, the ground surface is relatively level with gentle slopes leading to a drainage feature. The site is located south of West Main Street and north of the parking lot for Kaiser Permanente and is composed of multiple vegetation communities, including southern riparian forest, non-native riparian, non-native woodland, coastal sage scrub, and coast live oak woodland. Other vegetation communities/land covers within the study area include non-native grassland, non-vegetated channel or floodway, disturbed habitat, and developed.

The southern riparian forest community is located in the central portion of the work location, south of West Main Street. This community includes the following species: western cottonwood (*Populus fremontii*), western sycamore (*Platanus racemosa*), mule-fat (*Baccharis salicifolia*), broom baccharis, sugar bush (*Rhus ovata*), ice plant, ragweed (*Ambrosia psilostachya*), and willows (*Salix* spp.).

The coastal sage scrub community is located in the western portion of the work location. California sage brush is the dominant species. Additional species include broom baccharis, California buckwheat, and sticky monkeyflower (*Diplacus aurantiacus*).

Coast live oak (*Quercus agrifolia*) is the dominant species within the coast live oak community.

One rare plant species, decumbent goldenbush, was observed at the entrance to the site by Kleinfelder in 2022 and by Dudek in 2025.

This location contains critical habitat for the federal threatened coastal California gnatcatcher. There is a moderate potential for this species to forage and nest in the coastal sage scrub community at this site.

Two potentially jurisdictional aquatic features (NWW-ALT-04 and NWW-ALT-05) pass through the study area, and riparian vegetation within the study area may also be subject to the jurisdiction of regulatory agencies. Two erosional features not anticipated to be jurisdictional are also present. More information on these features is provided in Section 3.2.5.

### Station 530+10 – Rehabilitate Vault, Manway, and Blowoff

This work location is located on a north-to-south descending slope south of Fletcher Parkway, below State Route 125. Land covers within the work location consist of disturbed habitat and a patch of coastal sage scrub. Dominant species within this coastal sage scrub vegetation include broom baccharis and castor bean (*Ricinus communis*).

A non-jurisdictional stormwater control feature passes through the southwestern corner of the work location.

### **Station 555+79 – Demolish and Replace 68-Inch Reinforced Concrete Pipe, Manway, Blowoff, and Vault with New Manway/Blowoff Vault**

This work location is located in a vegetated/landscaped slope north of Fletcher Parkway, with ground surfaces sloping from northwest to southeast and vice versa towards a channel in the center of the work location. Land covers within the work location include disturbed habitat, developed land cover, non-native riparian, and emergent wetland.

The dominant species within the emergent wetland vegetation community are cattails (*Typha* spp.).

Two potentially jurisdictional aquatic features (NWW-ALT-06 and NWW-ALT-07) pass through the work location, and riparian vegetation within the work location may also be subject to the jurisdiction of regulatory agencies. More information on these features is provided in Section 3.2.5.

### **Station 632+33 – Demolish and Replace 68-Inch Reinforced Concrete Pipe, Manway, Blowoff, and Vault with New Manway/Blowoff Vault**

This work location is located on a west-to-east descending slope in between apartment buildings, south of the intersection of Lake Murray Boulevard and Baltimore Drive. Land covers and vegetation communities within the work location include developed, non-native woodland, and disturbed wetland within the western portion of the work location.

Dominant species within the disturbed wetland vegetation community include umbrella grass (*Cyperus alternifolius*), tall flatsedge (*Cyperus eragrostis*), arroyo willow (*Salix lasiolepis*), African fountain grass (*Pennisetum setaceum*), and Mexican fan palm (*Washingtonia robusta*).

This vegetation community is a potentially jurisdictional aquatic feature (WET-ALT-01). More information on this feature is provided in Section 3.2.5.

### **Station 644+21 - Demolish and Replace 68-Inch Reinforced Concrete Pipe, Manway, Blowoff, and Vault with New Manway/Blowoff Vault**

At this location, ground surfaces are relatively level, sloping gently from west to east and vice versa towards a channel that crosses the work location. Land covers and vegetation communities within the work location include developed and non-native riparian.

One potentially jurisdictional aquatic feature, NWW-ALT-08, is present within the work location in the form of an intermittent channel. More information on this feature is provided in Section 3.2.5.

## **4.1.3 Regional Habitat Conservation Areas**

### **4.1.3.1 Multiple Species Conservation Program**

The current study area is located within the limits of the MSCP.

### 4.1.3.2 Multiple Habitat Planning Area

The current study area is not located within or adjacent to the MHPA boundary.

### 4.1.3.3 Narrow Endemic and Vernal Pool Species

Narrow endemic species are plant species identified under the City’s MSCP Subarea Plan, many of which are listed as threatened or endangered at the state or federal level and require species-specific conservation measures. Vernal pool species, as designated by the Vernal Pool Habitat Conservation Plan (VPHCP; City of San Diego 2017), are also sensitive and often listed, requiring similar focused conservation actions.

Two narrow endemics were evaluated to have a potential to occur in the study area due to general suitability of habitat. Those species are thread-leaf brodiaea (*Brodiaea filifolia*) and variegated dudleya (*Dudleya variegata*). Suitable habitat (coastal sage scrub) is found within the study area at work locations 267+37 and 439+20. These species have a moderate potential to occur, and a focused survey conducted prior to ground-disturbing work could allow avoidance of these species when encountered. Therefore, focused surveys are recommended as a pre-construction avoidance measure (see Section 7, Avoidance and Minimization Measures).

## 4.2 Biological Resources

### 4.2.1 Vegetation Communities

The study area is composed mostly of disturbed and developed land. Small portions of the study area comprise scrub and riparian vegetation. The vegetation communities in the study area were mapped during the field survey in accordance with Draft Vegetation Communities of San Diego County (Oberbauer et al. 2008), which is based on the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986). They were assigned habitat tier according to the SDBG. The vegetation communities and land cover types identified are summarized in Table 4 and shown in Figure 5, Vegetation Communities and Land Cover.

**Table 4. Vegetation Communities and Land Covers**

Vegetation Community or Land Cover Type (Holland Code) <sup>1</sup>	SDBG Vegetation Community <sup>2</sup>	Tier <sup>2</sup>	Area (Acres)
Developed (12000)	N/A	IV	17.08
Disturbed Habitat (11300)	Disturbed Land	IV	2.92
Non-Native Grassland (42200)	Non-Native Grassland	IIIB	1.46
Diegan Coastal Sage Scrub (32500)	Coastal Sage Scrub	II	0.58
Non-Native Woodland (79000)	Eucalyptus Woodland	IV	0.41
Non-Native Riparian (65000)	Riparian Woodland	Wetland	0.17
Non-Vegetated Channel or Floodway (64200)	Natural Flood Channel	Wetland	0.14

**Table 4. Vegetation Communities and Land Covers**

Vegetation Community or Land Cover Type (Holland Code) <sup>1</sup>	SDBG Vegetation Community <sup>2</sup>	Tier <sup>2</sup>	Area (Acres)
Coast Live Oak Woodland (71160)	Oak Woodland	I	0.11
Southern Riparian Forest (61300)	Riparian Woodland	Wetland	0.08
Disturbed Wetland (11200)	Disturbed Wetland	N/A	0.06
Emergent Wetland (52440)	Freshwater Marsh	Wetland	0.01
<b>Total</b>			<b>23.02</b>

**Notes:** SDBG = City of San Diego Biology Guidelines; N/A = not applicable.

- <sup>1</sup> Oberbauer et al. 2008.
- <sup>2</sup> City of San Diego 2018.

### Developed (12000)

This is the most common community throughout the study area. Developed lands refer to areas that have been constructed on or disturbed so severely that native vegetation is no longer supported. Developed land includes areas with permanent or semi-permanent structures, pavement or hardscape, landscaped areas, and areas with a large amount of debris or other materials (Oberbauer et al. 2008). Developed areas within the work locations include paved roads and walkways, driveways, and buildings.

### Disturbed Habitat (11300)

This community is common throughout the study area. Disturbed habitat refers to areas that have been physically disturbed and are no longer recognizable as any natural vegetation association, though they may have retained soil substrates and minimal presence of non-native vegetation. Areas typically described as disturbed habitat include graded landscaped areas, graded firebreaks, temporary construction staging areas, areas repeatedly cleared for fuel management, and other areas repeatedly used in a way that prevent revegetation (Oberbauer et al. 2008).

### Non-Native Grassland (42200)

This community common throughout the study area. Non-native grassland consists of sparse to dense cover of annual grasses and forbs between 0.5 to 3 feet in height (Oberbauer et al. 2008). Species characteristic of this community include wild oat (*Avena* spp.), bromes (*Bromus* spp.), storksbill (*Erodium* spp.), and mustards. The dominant species within the work locations include wild oat, bromes, red-stem storksbill (*Erodium cicutarium*), and hedge mustard (*Sisymbrium officinale*).

### Diegan Coastal Sage Scrub (32500)

This community is located in the study area at work locations 0+00 to 4+50, 187+30, 254+20, 267+37, 439+20, and 530+10. Coastal sage scrub refers to a native vegetation community composed of soft, low, and aromatic shrubs. Species characteristic of this community include coastal sagebrush, California buckwheat, sages (*Salvia* spp.), lemonade berry (*Rhus integrifolia*), and laurel sumac (*Malosma laurina*) (Oberbauer et al. 2008). Coastal sage scrub communities within the work locations are dominated by coastal sagebrush and California encelia and

additionally include California buckwheat, broom baccharis, laurel sumac, ice plant, black sage (*Salva mellifera*), and sticky monkeyflower.

### Non-Native Woodland (79000)

This community is common throughout the study area. Non-native woodland refers to stands of non-native trees that are typically intentionally planted but are not maintained or artificially irrigated. Species characteristic of this community include eucalyptus (*Eucalyptus* spp.) or tamarisk (*Tamarix* spp.), but other exotic tree species may also be representative (Oberbauer et al. 2008). Stands of this vegetation community within the work locations are generally dominated by eucalyptus species and pepper trees (*Schinus* spp.).

### Non-Native Riparian (65000)

This community is located at work locations 439+20, 555+79, and 644+21. Non-native riparian refers to habitat consisting of densely vegetated riparian thickets dominated by non-native, invasive species. Characteristic species of this community typically include giant reed (*Arundo donax*), tamarisk (*Tamarix ramosissima*), eucalyptus, palms (*Phoenix* spp. and *Washingtonia* spp.), castor bean, and pampas grass (*Cortaderia* spp.) (Oberbauer et al. 2008). The dominant species of this community within the work locations include eucalyptus species and Mexican fan palm. This community occurs within and adjacent to NWW-ALT-04, NWW-ALT-06, and NWW-ALT-08 (see Section 4.2.5 Potentially Jurisdictional Aquatic Resources).

### Coast Live Oak Woodland (71160)

This community is located at work location 439+20. Coast live oak woodland refers to a community dominated by stands of coast live oak with a canopy height between approximately 10 to 25 meters. The herbaceous cover in this community consists of a variety of introduced species, and the shrub layer is typically less developed and may include toyon (*Heteromeles arbutifolia*), gooseberry (*Ribes* spp.), laurel sumac, and blue elderberry (*Sambucus nigra*) (Oberbauer et al. 2008). The dominant species of this community within the study area includes coast live oak and various non-native grasses.

### Southern Riparian Forest (61300)

This community is located at work location 439+20. Southern riparian forests are moderately dense riparian woodlands dominated by small trees or shrubs with scattered taller riparian trees. Stands of this community occur within major river systems where flood scour occurs as well as smaller major tributaries (Oberbauer et al. 2008). Species characteristic to southern riparian forests include baccharis (*Baccharis* spp.), western sycamore, western cottonwood (*Populus* spp.), willows, and elderberry species (*Sambucus* spp.). The dominant species within the study area is western cottonwood.

### Disturbed Wetland (11200)

This community is located at work location 632+33. Disturbed wetland refers to areas that are permanently or periodically inundated by water that have been significantly modified by human activity, such as concrete-lined channels, detention basins, culverts, and ditches. These areas are often unvegetated but can contain scattered vegetation such as giant reed, tamarisk, eucalyptus, palms, Bermuda grass (*Cynodon dactylon*), willows, and

cattails (Oberbauer et al. 2008). Disturbed wetland within the study area includes umbrella plant and African fountain grass, with some tall flatsedge, Mexican fan palm, and arroyo willow.

### Emergent Wetland (52440)

This community is located at work location 555+79. Emergent wetland refers to freshwater or alkaline perpetually wet areas supporting perennial wetland plants, which are typically low-growing species. Vegetation that is characteristic of this community may include sedges (*Carex* spp.), spike rush (*Eleocharis* spp.), rushes, docks (*Rumex* spp.), and broad-fruit bur-weed (*Sparganium eurycarpum*) (Oberbauer et al. 2008). Emergent wetland present in the work location includes cattail species as the dominant species. These areas appeared to have been mowed or trimmed at the time of the field survey.

### Non-Vegetated Channel or Floodway (64200)

This community is located at work locations 439+203, 45+20, and 40+29. Non-vegetated channel or floodway refers to the sandy, gravelly, or rocky fringe of waterways or flood channels that are unvegetated on a relatively permanent basis. Minimal vegetation may be present along the outer edge of the channel (Oberbauer et al. 2008).

## 4.2.2 Flora Observed

The majority of plant species observed are non-native and disturbance-related, particularly within ruderal, developed, and non-native grassland areas. Native plants dominate scrub and riparian communities, including coastal sagebrush, California buckwheat, western cottonwood, and coast live oak. Common non-native plant species observed include wild oat, eucalyptus, ice plant, and African fountain grass. Common native plants include deerweed (*Acmispon glaber*), coastal sagebrush, and broom baccharis. A complete list of all plant species observed during the field survey, including scientific and common names and native/introduced status, is included in Appendix G.

## 4.2.3 Fauna Observed

A total of 29 vertebrate species (25 bird species 3 mammals, 1 reptile) were observed or detected during the field surveys. Observations were made using call, direct sightings, tracks, and evidence of burrows, and species occurrences were documented in relation to specific habitat types. Birds were the most frequently observed vertebrates, particularly in landscaped, scrub, and riparian areas. Urban-associated species such as house finch (*Haemorhous mexicanus*), mourning dove (*Zenaida macroura*), and American crow (*Corvus brachyrhynchos*) were common. Native scrub and riparian-associated species such as California towhee (*Melospiza crissalis*), Anna's hummingbird (*Calypte anna*), and yellow-rumped warbler (*Setophaga coronata*) were observed in undisturbed patches of habitat. Mammal detections were via indirect evidence, including burrows and tracks, indicating use of the area for foraging and shelter. Fauna observed during the field surveys of December 2022 and October 2025 are listed in Appendix G.

## 4.2.4 Sensitive Species

As part of the environmental assessment, database searches were conducted using the CNDDDB, USFWS's IPaC system, and the CNPS Rare Plant Inventory. These searches identified 38 plants occurring within the

two-quadrangle search, in addition to 5 invertebrates, 2 crustaceans, 2 amphibians, 8 reptiles, 14 birds, and 6 mammals occurring within a 1-mile buffer of the study area. The IPaC search results are presented in Appendix A.

#### 4.2.4.1 Sensitive Flora

Each of the 38 plant species was evaluated for its potential to occur within the study area based on habitat availability and species-specific ecological requirements (e.g., soil type, hydrology, elevation). A full list of species that were evaluated, including each of the federal/state listing status; MSCP, VPHCP, and narrow endemic species designations; CRPR; habitat descriptions; and potential to occur, is provided in Appendix B.

A single individual special-status species, decumbent goldenbush, was identified at work location 439+20 (Grossmont Tunnel entrance) (Figure 5-12). This species is not state- or federally listed, nor is it covered under the MSCP, but it has a CRPR of 1B.2.

Three MSCP-covered or narrow endemic species were evaluated to have a moderate potential to occur in the study area due to general suitability of habitat. Those species are San Diego goldenstar (*Bloomeria clevelandii*), thread-leaf brodiaea (*Brodiaea filifolia*), and variegated dudleya (*Dudleya variegata*). Suitable habitat (coastal sage scrub) is found within the study area at work locations 267+37 and 439+20.

One federally and state listed endangered species, Orcutt's spineflower (*Chorizanthe orcuttiana*), has a moderate potential to occur in the study area due to general suitability of habitat. Suitable habitat (coastal sage scrub) is found within the study area at work locations 267+37 and 439+20. This species is not covered by the MSCP. In addition to the species listed above, six other CRPR 1B or 2B species were identified as having moderate potential to occur in work locations 267+37 and 439+20 based on the presence of coastal sage scrub: California adolphia (*Adolphia californica*), California groundsel (*Senecio aphanactis*), Deane's milkvetch (*Astragalus deanei*), knotweed spineflower (*Chorizanthe polygonoides* var. *longispina*), Munz's sage (*Salvia munzii*), and white-head cudweed (*Pseudognaphalium leucocephalum*). None of these species are listed under the MSCP. Further information on all other species with low potential to occur or not expected to occur is provided in Appendix B.

#### 4.2.4.2 Sensitive Fauna

A total of 37 special-status wildlife species, including 5 invertebrates, 2 crustaceans, 2 amphibians, 8 reptiles, 14 birds, and 6 mammals were identified during the desktop review. These species are listed or recognized by federal and state regulatory agencies (USFWS and CDFW), the MSCP, and conservation databases such as NatureServe.

The likelihood for each species to occur in the study area was evaluated based on habitat availability and suitability. Species with any potential to occur were noted, and any indications of use (e.g., foraging, movement) were considered. A full list of evaluated species, federal/state status, MSCP and VPHCP designations, habitat requirements, and potential to occur is provided in Appendix C. Species with no potential to occur or a low potential to occur are not discussed further in this report. Species with a moderate or high potential to occur are summarized below.

Two special-status wildlife species were determined to have a moderate to high potential to occur within the study area: coastal California gnatcatcher and burrowing owl. Suitable habitat for these species was observed at six work locations within the study area.

**Coastal California gnatcatcher (*Polioptila californica*):** The coastal California gnatcatcher is listed as federally threatened and designated as a Species of Special Concern by the State of California and is covered under the MSCP. It is found most often within coastal sage scrub habitat, and coastal populations typically occur below an elevation of 820 feet. Nests are generally constructed in perennial species of coastal sage scrub at approximately 3 feet above the ground. Critical habitat is within and northeast of work location 0+00 to 4+50, east of work location 267+37, and within work location 439+20. There is a high potential for this species to forage, transit, or nest in the coastal sage scrub community at work location 0+00 to 4+50, and a moderate potential at work locations 187+30, 267+37, and 439+20. Protocol surveys were not conducted, and thus presence is assumed.

**Burrowing owl (*Athene cunicularia*):** Burrowing owl is a CDFW Species of Special Concern, a USFWS Bird of Conservation Concern, and a candidate for listing as endangered or threatened under the California Endangered Species Act. These birds nest and forage in grassland, open scrub, and agriculture, particularly in areas with ground squirrel burrows or human-made structures that provide refuge and serve as artificial burrows. Although protocol surveys for this species were not conducted, there were no individual burrowing owls or evidence of previous nesting observed during the October 2025 field survey, and there are no previously documented occurrences within or adjacent to the study area (CDFW 2025). However, two sites are situated within a large expanse of open grassland adjacent to drainage canals. Therefore, there is a moderate potential for this species to forage at work locations 322+52 and 335+83, although this species would not be anticipated to nest within the study area.

In addition, several species were identified as having a low potential to occur based on the marginal or absent habitat features and surrounding landscape context, including least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), yellow-breasted chat (*Icteria virens*), arroyo toad (*Anaxyrus californicus*), western spadefoot (*Spea hammondi*), American badger (*Taxidea taxus*), San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*), Coronado skink (*Plestiodon skiltonianus interparietalis*), orange-throated whiptail (*Aspidoscelis hyperythra*), San Diego banded gecko (*Coleonyx variegatus abbotti*) and Southern California legless lizard (*Anniella stebbinsi*) (Appendix C).

## 4.2.5 Potentially Jurisdictional Aquatic Resources

Eight aquatic features were identified during the field delineation that are anticipated to be under the jurisdiction of USACE, RWQCB, CDFW, and/or the City. OHWM transect forms were taken at eight locations to document OHWM indicators, and these datasheets are included in Appendix D. Tables 5a through 5d presents the findings of the delineation, and the features are identified in the Figure 6 series.

One drainage ditch/canal (NWW-ALT-01) was identified at work location 345+20/345+20. This intermittent feature supported disturbed, ruderal vegetation and contained areas of standing water and saturation at the time of the field survey. This feature originates at a concrete culvert under West Bradley Avenue and flows north through the site into another concrete culvert under Floyd Smith Drive and into Broadway Channel. Broadway Channel has downstream connectivity to Forester Creek and the San Diego River. Therefore, this drainage ditch/canal is anticipated to be under the jurisdiction of USACE, RWQCB, and CDFW below OHWM, and under the jurisdiction of CDFW to the TOB or edge of riparian, whichever is greater.

One modified, perennial channel (NWW-ALT-02) was identified at work locations 380+15/380+12 and 382+78/382+75. This is a channelized, concrete-lined portion of Forester Creek. There was flowing water present at the time of the survey, and vegetation within the channel was absent. Forester Creek flows north off site into the San Diego River. Therefore, this modified channel is anticipated to be under the jurisdiction of USACE, RWQCB, CDFW, and the City below OHWM, and under the jurisdiction of CDFW to the TOB.

One modified, intermittent channel (NWW-ALT-03) was identified at work location 40+29/40+29. This feature was saturated at the time of the survey and supported mostly ruderal, disturbed vegetation within a natural flood channel. Sparse arroyo willow shrubs were present within the drainage off site to the northeast. This drainage was mapped by the NWI mapper, which shows downstream connectivity to Lake Jennings approximately 0.5 miles to the east. This modified channel is anticipated to be under the jurisdiction of USACE, RWQCB, CDFW, and the City below OHWM, and under the jurisdiction of CDFW and the City to the TOB.

One intermittent drainage (NWW-ALT-04) and one tributary ephemeral drainage (NWW-ALT-05) were identified at work location 439+20/439+17. The drainages were dry at the time of the field survey, so a Stream Duration Assessment Method (SDAM) form was recorded within the main drainage, which was determined to be intermittent. The drainages contained in-stream bank stabilization features including geogrid and river rock, and the intermittent drainage supported a canopy of southern riparian forest dominated by western cottonwood and non-native riparian dominated by Mexican fan palm. The intermittent drainage originates off-site to the west and flows east along West Main Street, terminating into a concrete culvert off site. The ephemeral drainage originated off site to the north and flows through a concrete culvert under West Main Street into the intermittent drainage. Downstream connectivity of the intermittent drainage is unknown, but is it assumed to have relatively permanent, continuous downstream connectivity to a Traditional Navigable Water. Therefore, the intermittent drainage is anticipated to be under the jurisdiction of USACE, RWQCB, CDFW, and the City below OHWM, and under the jurisdiction of CDFW and the City to the TOB or edge of riparian, whichever is greater. Portions of the riparian canopy associated with NWW-ALT-04 overlap the ephemeral drainage, but the ephemeral drainage does not support a riparian canopy or other hydrophytic vegetation. The ephemeral drainage does not meet the relative permanence standard and therefore does not meet the current definition of a water of the United States. However, the ephemeral drainage is anticipated to be under the jurisdiction of RWQCB, CDFW, and the City.

One perennial drainage (NWW-ALT-06) and one tributary intermittent drainage (NWW-ALT-07) were identified at work location 555+79/555+76. The perennial drainage supported a non-native riparian corridor, and both drainages supported emergent wetland vegetation (*Typha* spp.) that appeared to have been recently mowed or trimmed. Both drainages had flowing water present at the time of the survey. There was an exposed culvert observed within the intermittent drainage that may have been originally intended to underground the drainage under an unpaved access road. However, the culvert appears to have been washed out and the drainage currently flows aboveground. The perennial drainage originates off site to the northeast and continues off site to the south via a large, concrete culvert under Fletcher Parkway. The intermittent drainage originates at a concrete culvert under Amarillo Avenue and flows southeast into the perennial drainage. Downstream connectivity of these features is unknown, but they are assumed to have relatively permanent, continuous downstream connectivity to a Traditional Navigable Water. Therefore, these features are anticipated to be under the jurisdiction of USACE, RWQCB, CDFW, and the City below OHWM, and under the jurisdiction of CDFW and the City to the TOB or edge of riparian, whichever is greater.

An intermittent drainage (NWW-ALT-08) and associated non-native riparian corridor was identified at work location 644+21/644+18. The earthen drainage originates off site to the north and flows under Lake Park Way via a concrete culvert, continuing off site to the south. The drainage was saturated at the time of the field survey, and evidence of an OHWM included bed and bank, break in slope, undercut banks, exposed roots, sediment sorting, and an absence of vegetation within the streambed. Downstream connectivity of this feature is unknown, but it is assumed to have relatively permanent, continuous downstream connectivity to the San Diego River, a Traditional Navigable Water (TNW). Therefore, this feature is anticipated to be under the jurisdiction of USACE, RWQCB, and CDFW, below OHWM, and under the jurisdiction of CDFW to the top of bank (TOB) or edge of riparian, whichever is greater. Riparian woodland associated within this feature is also anticipated to be under the jurisdiction of the City.

Three stormwater control features identified at work locations 632+33/632+30, 530+10/530+07, and 254+20/254+17 are not anticipated to be under the jurisdiction of USACE, RWQCB, CDFW, or the City, as these features are constructed in upland and do not replace or connect to another natural feature. The primary purpose of these constructed features is to channel surface runoff away from surrounding developed areas. Additionally, two erosional features were identified at work location 439+20/439+17. Neither of these erosional features are anticipated to be under the jurisdiction of USACE, RWQCB, CDFW, or the City due to their lack of defined bed and bank and other OHWM indicators.

#### 4.2.5.1 Waters of the United States (USACE)

**Table 5a. Potentially USACE Jurisdictional Aquatic Resources Within the Study Area**

Feature ID	Aquatic Resource Type	Jurisdiction (USACE)	SDBG Vegetation Community	Acres
<b>Non-Wetland Waters of the United States</b>				
NWW-ALT-01	Constructed – canal/ditch	USACE	Disturbed Land	<0.001
			Natural Flood Channel	0.007
NWW-ALT-02	Channel – natural, modified	USACE	Natural Flood Channel	0.029
NWW-ALT-03	Channel – natural, modified	USACE	Natural Flood Channel	0.003
NWW-ALT-04	Channel – natural intermittent	USACE	Oak Woodland	0.003
			Natural Flood Channel	0.008
			Riparian Woodland	0.011
NWW-ALT-06	Channel – natural, perennial	USACE	Freshwater Marsh	0.001
			Riparian Woodland	0.004
NWW-ALT-07	Channel – natural, intermittent	USACE	Freshwater Marsh	0.001
NWW-ALT-08	Channel – natural, intermittent	USACE	N/A	0.003
			Riparian Woodland	0.006
<b>Total<sup>1</sup></b>				<b>0.076</b>

**Notes:**

USACE = U.S. Army Corps of Engineers; SDBG = San Diego Biology Guidelines.

<sup>1</sup> Totals may not sum due to rounding.

### 4.2.5.2 Waters of the State (RWQCB)

All of the features identified as potentially USACE jurisdictional in Section 4.2.5.1 are anticipated to be RWQCB jurisdictional. In addition, the RWQCB takes jurisdiction over isolated surface waters under the Porter-Cologne Act.

**Table 5b. Potentially RWQCB Jurisdictional Aquatic Resources Within the Study Area**

Feature ID	Aquatic Resource Type	Jurisdiction (RWQCB)	SDBG Vegetation Community	Acres
<b>Non-Wetland Waters of the State</b>				
NWW-ALT-01	Constructed – canal/ditch	RWQCB	Disturbed Land	<0.001
			Natural Flood Channel	0.007
NWW-ALT-02	Channel – natural, modified	RWQCB	Natural Flood Channel	0.029
NWW-ALT-03	Channel – natural, modified	RWQCB	Natural Flood Channel	0.003
NWW-ALT-04	Channel – natural intermittent	RWQCB	Oak Woodland	0.003
			Natural Flood Channel	0.008
			Riparian Woodland	0.011
NWW-ALT-05	Channel – natural, ephemeral	RWQCB	Eucalyptus Woodland	<0.001
			Riparian Woodland	0.002
NWW-ALT-06	Channel – natural, perennial	RWQCB	Freshwater Marsh	0.001
			Riparian Woodland	0.004
NWW-ALT-07	Channel – natural, intermittent	RWQCB	Freshwater Marsh	0.001
NWW-ALT-08	Channel – natural, intermittent	RWQCB	N/A	0.003
			Riparian Woodland	0.006
<b>Total<sup>1</sup></b>				<b>0.078</b>

**Notes:**

RWQCB = Regional Water Quality Control Board; SDBG = San Diego Biology Guidelines; N/A = not applicable.

<sup>1</sup> Totals may not sum due to rounding.

### 4.2.5.3 CDFW Jurisdictional

All of the features identified as potentially USACE jurisdictional in Section 4.2.5.1 and RWQCB jurisdictional in Section 4.2.5.2 are anticipated to be CDFW jurisdictional. In addition, the CDFW takes jurisdiction over streambeds to the top of bank or edge of riparian, whichever is greater.

**Table 5c. Potentially CDFW Jurisdictional Aquatic Resources Within the Study Area**

Feature ID	Aquatic Resource Type	Jurisdiction (USACE/RWQCB/CDFW/City)	SDBG Vegetation Community	Acres
<b>Riparian</b>				
N/A	Riparian	CDFW	Riparian Woodland	0.206
<i>Riparian Subtotal</i>				<b>0.206</b>
<b>Streambed</b>				
NWW-ALT-01	Constructed - canal/ditch	CDFW	Disturbed Land	0.003
			Natural Flood Channel	0.015
NWW-ALT-02	Channel - natural, modified	CDFW	Natural Flood Channel	0.100
NWW-ALT-03	Channel - natural, modified	CDFW	Natural Flood Channel	0.007
NWW-ALT-04	Channel - natural intermittent	CDFW	Oak Woodland	0.004
			Eucalyptus Woodland	<0.001
			Natural Flood Channel	0.012
			Riparian Woodland	0.017
NWW-ALT-05	Channel - natural, ephemeral	CDFW	Eucalyptus Woodland	<0.001
		CDFW	Riparian Woodland	0.002
NWW-ALT-06	Channel - natural, perennial	CDFW	Freshwater Marsh	0.004
			Riparian Woodland	0.013
NWW-ALT-07	Channel - natural, intermittent	CDFW	Freshwater Marsh	0.004
NWW-ALT-08	Channel - natural, intermittent	CDFW	N/A	0.010
			Riparian Woodland	0.009
<i>Streambed Subtotal</i>				<b>0.201</b>
<b>Total<sup>1</sup></b>				<b>0.407</b>

**Notes:**

USACE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife; City = City of San Diego; SDBG = San Diego Biology Guidelines; N/A = not applicable.

<sup>1</sup> Totals may not sum due to rounding.

#### 4.2.5.4 City Wetlands

**Table 5b. Potentially City Wetlands Within the Study Area**

Feature ID	Aquatic Resource Type	Jurisdiction (USACE/RWQCB/CDFW/City)	SDBG Vegetation Community	Acres
N/A	Riparian	City	Riparian Woodland	0.206
NWW-ALT-02	Channel - natural, modified	City	Natural Flood Channel	0.100
NWW-ALT-03	Channel - natural, modified	City	Natural Flood Channel	0.007
NWW-ALT-04	Channel - natural intermittent	City	Natural Flood Channel	0.012
			Riparian Woodland	0.017
NWW-ALT-05	Channel - natural, ephemeral	City	Riparian Woodland	0.002
NWW-ALT-06	Channel - natural, perennial	City	Freshwater Marsh	0.004
			Riparian Woodland	0.013
NWW-ALT-07	Channel - natural, intermittent	City	Freshwater Marsh	0.004
NWW-ALT-08	Channel - natural, intermittent	City	Riparian Woodland	0.009
<b>Total<sup>1</sup></b>				<b>0.374</b>

**Notes:**

USACE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife; City = City of San Diego; SDBG = San Diego Biology Guidelines; N/A = not applicable.

<sup>1</sup> Totals may not sum due to rounding.

#### 4.2.6 Critical Habitat

Critical habitat for federally or state-listed species is present in the vicinity of the project, based on the latest USFWS critical habitat designations. Specifically, critical habitat for the coastal California gnatcatcher—a federally threatened and state Species of Special Concern— occurs within and northeast of work location 0+00 to 4+50, east of work location 267+37, and within work location 439+20 (Figure 2). This species is closely associated with coastal sage scrub habitat, which is present at these work locations. As discussed in Section 3.2.4, this species has a moderate to high potential to occur within these work locations. Critical habitat mapping for the arroyo toad overlaps work locations 0+00 to 4+50, 10+81, and 15+77; however, field visits determined that only developed and disturbed habitat land covers exist at work locations 10+81 and 15+77. Work location 0+00 to 4+50 contains natural land covers, but for all of these work locations, there are barriers to movement from suitable habitat to the work locations. This species has a low potential to occur within these work locations.

## 4.2.7 Wildlife Corridor

The eastern portion of the study area is located within entirely developed or disturbed areas within the County of San Diego MSCP Lake Jennings/Wildcat Canyon-El Cajon Mountain Core Biological Resource Area (BRA).

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# 5 Multiple Species Conservation Program Plan Consistency Analysis

The project is located within the MSCP Subarea Plan area but is not within or adjacent to the City's MHPA, as shown in Figure 2A. The westernmost work locations (658 + 50, 653 + 97, and 651 + 00) are located approximately 0.1-mile south of the MHPA at Lake Murray. However, the land covers within these work locations consist primarily of hardscaped surfaces or ornamental landscaping including Peruvian peppertree (*Schinus molle*) and Indian hawthorne (*Rhaphiolepis indica*), with a portions of disturbed (i.e., mowed) non-native grassland. Furthermore, the land use between the work locations and the MHPA consists of paved roads, apartment buildings, and water treatment plant facilities. Therefore, the project is not anticipated to be subject to MHPA Land Use Adjacency Guidelines. Nevertheless, the project remains consistent with MSCP conservation goals by avoiding impacts to sensitive biological resources, where feasible, and by implementing standard best management practices (BMPs) and avoidance/minimization measures (see Section 7).

The proposed land use is consistent with the intent of the MSCP, as the project is located primarily within previously developed or disturbed areas and was designed to avoid sensitive on-site biological features to the maximum extent feasible. While vernal pool habitat is considered regionally sensitive, no vernal pools were identified within the study area. Therefore, impacts to vernal pools are not anticipated, and no mitigation under the VPHCP is required. The study area is located within an area subject to Special Conditions of Coverage for vernal pool species as outlined in Appendix A of the MSCP Subarea Plan, but since no vernal pool habitat for those species of plants were identified during desktop or field surveys, those avoidance and mitigation requirements are not applicable to the project.

Although not adjacent to the MHPA, the project incorporates BMPs (see Section 2) to prevent indirect edge effects from construction work, such as erosion, and unmanaged drainage that could impact nearby resources. There are no project features that would contribute to lighting spillover on a permanent basis, and project work at work location 439+20 (Grossmont Tunnel East) would result in reduced erosion of an existing drainage feature (NWW-ALT-05). To further support resource protection, the project includes implementation of environmental awareness training for construction personnel and pre-construction nesting bird surveys, in line with management measures outlined in MSCP Section 1.5 and VPHCP Chapter 3. Species covered under the MSCP with moderate to high potential to occur on site have been evaluated and will be protected through adherence to standard mitigation protocols. Overall, the project aligns with the MSCP's objectives by concentrating development in less sensitive areas and maintaining consistency with regional conservation priorities.

## 5.1 Multiple Species Conservation Program Conditions of Coverage/Area-Specific Management Directives

The project is expected to conform with Area-Specific Management Directives (ASMDs) for all covered species through project features and mitigation measures.

Plant species covered under the MSCP SAP that have a moderate potential to occur within the Program area are listed in Table 6, along with any ASMDs listed in the Subarea Plan and applicable project features and mitigation measures to demonstrate conformance provided under the Program.

**Table 6. Conformance with MSCP Area-Specific Management Directives - Plants**

Species/Area-Specific Management Directive	Work Location Applicability	Implementation
Thread-leaved brodiaea ( <i>Brodiaea filifolia</i> ) – No ASMD’s	<ul style="list-style-type: none"> <li>▪ 267 + 37</li> <li>▪ 439 + 20</li> </ul>	None required.
Variegated dudleya ( <i>Dudleya variegata</i> ) – species-specific monitoring and specific measures to protect against detrimental edge effects to this species, including effects caused by recreational activities.	<ul style="list-style-type: none"> <li>▪ 267 + 37</li> <li>▪ 439 + 20</li> </ul>	The project does not propose impacts within known populations of this species. Focused surveys for this species would be conducted prior to construction, and any individuals or populations will be marked and avoided within or adjacent to the work locations per <b>MM-BIO-3</b> . Additionally, implementation of <b>MM-BIO-1</b> would further reduce adverse edge effects.
San Diego goldenstar ( <i>Bloomeria clevelandii</i> ) – specific measures to protect against detrimental edge effects to this species	<ul style="list-style-type: none"> <li>▪ 267 + 37</li> <li>▪ 439 + 20</li> </ul>	The project does not propose impacts within known populations of this species. Focused surveys for this species would be conducted prior to construction, and any individuals or populations will be marked and avoided within or adjacent to the work locations per <b>MM-BIO-3</b> . Additionally, implementation of <b>MM-BIO-1</b> would further reduce adverse edge effects.

**Notes:** MSCP = Multiple Species Conservation Program; ASMD = Area-Specific Management Directive; MM = Mitigation Measure.

MSCP-covered wildlife species present or with a moderate or higher potential to occur are listed below along with any ASMDs listed in the Subarea Plan are provided in Table 7.

**Table 7. Conformance with MSCP Area-Specific Management Directives - Wildlife**

Species/Area-Specific Management Directive	Work Location Applicability	Implementation
Coastal California gnatcatcher – ASMDs include reduce edge effects and minimize disturbance during the nesting period, fire protection measures to reduce the potential for habitat degradation due to unplanned fire, and management measures to maintain or improve habitat quality including vegetation structure. No clearing of occupied habitat within the MHPAs may occur between March 1 and August 15.	<ul style="list-style-type: none"> <li>▪ Potential to nest within 267+37 and 439+20</li> <li>▪ Potential to nest adjacent to 0+00 to 4+50.</li> </ul>	Implementation of MM-BIO-1 will ensure minimization of disturbance during the nesting season. Additionally, implementation of <b>MM-BIO-1</b> and <b>MM-BIO-5</b> will further reduce adverse edge effects.

**Table 7. Conformance with MSCP Area-Specific Management Directives - Wildlife**

Species/Area-Specific Management Directive	Work Location Applicability	Implementation
<p>Western burrowing owl – ASMDs include burrowing owl surveys (using appropriate protocols) must be conducted in suitable habitat to determine if this species is present and the location of active burrows. If burrowing owls are detected, the following mitigation measures must be implemented: within the MHPA, impacts must be avoided; outside of the MHPA, impacts to the species must be avoided to the maximum extent practicable; any impacted individuals must be relocated out of the impact area using passive or active methodologies approved by the wildlife agencies; mitigation for impacts to occupied habitat (at the Subarea Plan specified ratio) must be through the conservation of occupied burrowing owl habitat or conservation of lands appropriate for restoration, management and enhancement of burrowing owl nesting and foraging requirements. Management plans/directives must include: enhancement of known, historical and potential burrowing owl habitat; and management for ground squirrels (the primary excavator of burrowing owl burrows). Enhancement measures may include creation of artificial burrows and vegetation management to enhance foraging habitat. Management plans must also include monitoring of burrowing owl nest sites to determine use and nesting success; predator control; establishing a 300 foot wide impact avoidance area (within the preserve) around occupied burrows.</p>	<ul style="list-style-type: none"> <li>Although protocol surveys for this species were not conducted, this species was not observed during the October 2025 site visit. Additionally, there was no evidence of previous nesting observed during the site visit, and there are no previously documented CNDDB occurrences of this species within the study area. This species has a moderate potential to and forage within 322+52 and 335+83, but is not anticipated to nest within the study area</li> </ul>	<p>Mitigation measures required as conditions of component approval include burrowing owl surveys to ensure impact avoidance during construction (<b>MM-BIO-2</b>). Additionally, implementation of <b>MM-BIO-1</b> will further reduce adverse edge effects.</p>

**Notes:** MSCP = Multiple Species Conservation Plan; ASMD = Area-Specific Management Directive; MHPA = Multi-Habitat Planning Area; MM = Mitigation Measure; EP = Environmental Protocol.

## 5.2 Wetlands and Deviations from Environmentally Sensitive Lands

The project will result in approximately 0.023 acres of permanent impacts and 0.007 acres of temporary impacts to wetlands (see Section 6.2.2). Under the City’s LDC and ESL regulations, impacts to wetlands must be avoided where feasible. However, per the SDBG, deviations may be permitted for projects located outside the Coastal Overlay Zone if they qualify under one of the following categories: (1) EPPs, (2) Economic Viability, or (3) Biologically Superior Option. Vernal pools located outside the MHPA are the exception; impacts to such features may be mitigated in accordance with the VPHCP, which fulfills the MSCP Subarea Plan’s vernal pool conservation

requirement. As a utility infrastructure project located outside of the Coastal Overlay Zone, this work is consistent with the definition of an EPP and therefore eligible for consideration under LDC 143.0510(d)(1) based on the following criteria (City of San Diego 2018):

The project must be an EPP (i.e., circulation element road, trunk sewer, water main) that will service the community at large and not just a single development project or property. The project must meet the definition of an EPP as identified in Section IV and must be essential in both location and need. If the City has options on the location of an EPP, the City should not knowingly acquire property for an EPP which would impact wetlands.

As a utility infrastructure project serving the community at large, the El Monte Pipeline Project qualifies as an EPP.

The proposed project and all biological alternatives, both practicable and impracticable shall be fully described and analyzed in an appropriate CEQA document. Alternatives to the proposed project shall be comprehensively included in the CEQA document (e.g., Mitigated Negative Declaration) and/or the biological technical report for the CEQA document. Alternatives must include the following: 1) a no project alternative; 2) a wetlands avoidance alternative, including an analysis of alternative sites irrespective of ownership; and 3) an appropriate range of substantive wetland impact minimization alternatives. Public review of the environmental document must occur pursuant to the provisions of CEQA. Projects proposing to utilize this deviation section of the ESL after initial CEQA public review must include the new information and recirculate the CEQA document.

1. A “no project” alternative would not achieve the objective of maintaining existing, aging utility infrastructure in the City.
2. A “wetlands avoidance alternative” is not feasible, as the project is the maintenance of existing utility infrastructure, and relocation to alternative sites is not feasible. The option to avoid wetlands would include abandoning existing appurtenances in place at two sites with proposed wetland impacts, and developing new, adjacent infrastructure off-site. In general, this is economically infeasible, and could result in other, additional impacts to sensitive biological resources.
3. The project has been designed to avoid impacts to wetlands to the maximum extent feasible. Where possible, wetland buffers shall be maintained around all wetlands to protect the functions and values of the wetland. Wetland impact minimization has been incorporated into the project and during-construction measures to avoid direct and indirect impacts and post-construction measures to ensure temporary impacts are restored to pre-activity conditions (see Section 7). Unavoidable permanent impacts to wetlands will be mitigated through the purchase of off-site compensatory mitigation credits (see Section 8).

The potential impacts to wetland resources shall be minimized to the maximum extent practicable and the project shall be the least environmentally damaging practicable biological alternative considering all the technical constraints of the project (e.g., roadway geometry, slope stability, geotechnical hazards, etc.). Recognizing the wetland resources involved, minimization to the maximum extent practicable may include, but is not limited to, adequate buffers and/or designs that maintain full hydrologic function and wildlife movement (e.g., pipeline tunneling, bridging,

Arizona crossings, arch culverts). The project applicant will solicit input from the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife (e.g., Wildlife Agencies) prior to the first public hearing.

The project has been designed to avoid impacts to wetlands to the maximum extent feasible and will incorporate appropriate BMPs (see Section 2) and avoidance and minimization measures (see Section 8). All other temporary impacts are required access routes where no other access routes are feasible due to steep slopes, proximity to existing roads, development, and/or other sensitive vegetation communities. Permanent impacts are limited to existing infrastructure, and therefore no alternative exists. Permanent impacts are limited to existing infrastructure, and are therefore unavoidable. Temporary impacts to wetlands will be restored to pre-project conditions, and permanent impacts to wetlands will be mitigated through the purchase of off-site compensatory mitigation credits. The project has been designed to maintain hydrologic function of adjacent wetlands, and adjacent wetlands will continue to convey water after project completion.

All impacts shall be mitigated according to the requirements of Table 2a and the project shall not have a significant adverse impact to the MSCP or the VPHCP.

All impacts will be mitigated according to the requirements of Table 2a of the SDBG (City of San Diego 2018), and the project will not have a significant adverse impact on the MSCP.

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# 6 Project Impact Analysis

The purpose of Section 6 is to describe the direct, indirect, and cumulative impacts of the proposed project on special-status biological resources. The significance determinations for proposed or potential impacts are described in this section.

## 6.1 Definition of Impacts

Based on the project description (Section 2), direct impacts, indirect (short-term and long-term), and cumulative impacts are defined as follows.

**Direct impacts** include both the permanent loss of on-site habitat and the plant and wildlife species that it contains and the temporary loss of on-site habitat. Direct impacts were quantified by overlaying the permanent and temporary work limits on the biological resources map of the study area. Permanent impacts are impacts that would not be restored to pre-project conditions following project implementation. Temporary impacts would be restored to pre-project conditions following project construction.

**Indirect impacts** refer to off-site and on-site effects that are short-term impacts (i.e., temporary) due to the project construction or long-term (i.e., permanent) design of the project and the effects it may have to adjacent resources. For this project, indirect impacts include short-term impacts during construction, such as additional dust and noise that could temporarily disrupt wildlife activities, and construction-related soil erosion and runoff. Given that the project involves placement of underground structures, no long-term indirect impacts are anticipated with project implementation.

**Cumulative impacts** refer to the combined environmental effects of the proposed project and other relevant projects. In some cases, the impact from a single project may not be significant, but when combined with other projects, the cumulative impact may be significant.

## 6.2 Direct Impacts

Direct impacts to biological resources include temporary removal of habitat/vegetation type, loss of individuals of wildlife species, and disruption of reproduction activities. The temporary removal of habitat/vegetation types would be caused by small excavations around improvement site structures to gain access to valve, vent, or manhole locations. Loss of individuals of species or disruption of reproduction is not anticipated due to the limited impacts of the improvements and lack of habitat at the improvement sites.

### 6.2.1 Impacts to Vegetation Communities and Land Cover Types

The study area supports several sensitive upland habitats, including Tier I (e.g., maritime succulent scrub), Tier II (e.g., coastal sage scrub), and Tier IIIB (non-native grassland). Direct impacts to sensitive habitats would result from activities such as clearing of the understory, selective grading, or excavation around the improvement sites and associated ground disturbance. Direct impacts to vegetation communities and land cover types are presented in Table 8 and Figure 5 and discussed further below. Anticipated impacts to each vegetation community or land cover type are summarized below.

**Table 8. Direct Impacts to Vegetation Communities and Land Cover Types**

Vegetation Community or Land Cover Type <sup>1</sup>	Tier <sup>2</sup>	Temporary Impacts (Acres)	Permanent Impacts (Acres)
<b>Sensitive Uplands</b>			
Non-Native Grassland	IIIB	0.089	0.011
Coastal Sage Scrub	II	0.005	0.001
<i>Sensitive Uplands Subtotal</i>		<i>0.094</i>	<i>0.012</i>
<b>Other Uplands</b>			
Developed	IV	0.710	0.051
Disturbed Habitat	IV	0.345	0.067
Non-Native Woodland	IV	0.032	0.011
<i>Other Uplands Subtotal</i>		<i>1.087</i>	<i>0.129</i>
<b>Wetlands</b>			
Non-native Riparian	Wetland	0.002	<0.001
Emergent Wetland	Wetland	0.002	0
Southern Riparian Forest	Wetland	0.002	0.023
<i>Wetlands Subtotal</i>		<i>0.007</i>	<i>0.023</i>
<b>Total<sup>3</sup></b>		<b>1.188</b>	<b>0.164</b>

**Notes:**

- <sup>1</sup> Oberbauer et al. 2008.
- <sup>2</sup> City of San Diego 2018.
- <sup>3</sup> Some numbers may not sum due to rounding.

Permanent and temporary impacts to developed, disturbed habitat, and non-native woodland are considered less than significant and do not require mitigation. According to the City’s Significance Determination Thresholds, temporary or permanent impacts to sensitive upland habitats less than 0.1 acres are not significant and do not require mitigation (City of San Diego 2022b). The total area of direct impacts to sensitive upland habitats is approximately 0.106 acres, which is above the City’s 0.1-acre significance threshold. Therefore, direct impacts to sensitive uplands would be considered significant and require compensatory mitigation. Additionally, impacts to these land covers would require compliance with the LDC—Landscape Standards (City of San Diego 2016), which would require erosion control and return to pre-impact conditions for temporary impacts (See Section 2).

According to the City’s Significance Determination Thresholds, direct impacts to wetlands less than 0.01 acres are not considered significant and do not require compensatory mitigation (City of San Diego 2022b). However, the project will result in temporary impacts to 0.007 acres and permanent impacts to 0.023 acres of City wetlands, which exceeds the significance threshold. Therefore, these impacts would be considered significant and require compensatory mitigation (see Section 7).

## 6.2.2 Impacts to Potentially Jurisdictional Aquatic Resources

The study area supports a number of potentially jurisdictional aquatic resources that may be regulated by USACE, RWQCB, CDFW, and/or the City. Direct impacts to potentially jurisdictional aquatic resources include ground disturbance associated with the replacement or maintenance of existing infrastructure and construction access.

Direct impacts to potentially jurisdictional aquatic resources are presented in Table 9 and Figure 6 and discussed further below.

**Table 9. Direct Impacts to Potentially Jurisdictional Aquatic Resources**

SDBG Vegetation Community <sup>1</sup>	Jurisdiction (USACE/RWQCB/CDFW/City)	Temporary Impacts (Acres)	Permanent Impacts (Acres)
<b>USACE</b>			
Freshwater Marsh	USACE/RWQCB/CDFW/City	0.001	0
<b>USACE Total<sup>2</sup></b>		<b>0.001</b>	<b>0</b>
<b>RWQCB</b>			
Freshwater Marsh	USACE/RWQCB/CDFW/City	0.001	0
Eucalyptus Woodland	RWQCB/CDFW	<0.001	0
Riparian Woodland	RWQCB/CDFW/City	<0.001	0.001
<b>RWQCB Total<sup>2</sup></b>		<b>0.001</b>	<b>0.001</b>
<b>CDFW</b>			
Freshwater Marsh	USACE/RWQCB/CDFW/City	0.001	0
	CDFW/City	0.002	0
Riparian Woodland (Non-Native Riparian)	CDFW/City	0.002	<0.001
Eucalyptus Woodland	RWQCB/CDFW	<0.001	0
	CDFW	<0.001	<0.001
Riparian Woodland (Southern Riparian Forest)	RWQCB/CDFW/City	<0.001	0.001
	CDFW/City	0.002	0.022
<b>CDFW Total<sup>2</sup></b>		<b>0.007</b>	<b>0.023</b>
<b>City</b>			
Freshwater Marsh	USACE/RWQCB/CDFW/City	0.001	0
	CDFW/City	0.002	0
Riparian Woodland (Non-Native Riparian)	CDFW/City	0.002	<0.001
Riparian Woodland (Southern Riparian Forest)	CDFW/City	0.002	0.022
<b>City Total<sup>2</sup></b>		<b>0.007</b>	<b>0.023</b>

**Notes:** USACE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife; City = City of San Diego.

<sup>1</sup> City of San Diego 2018.

<sup>2</sup> Some numbers may not sum due to rounding.

Direct temporary and permanent impacts to potentially jurisdictional aquatic resources would require the appropriate permits from USACE, RWQCB, and CDFW. Temporary impacts will be restored in-place in accordance with the LDC—Landscape Standards (City of San Diego 2016), which would require erosion control and return to pre-impact conditions for temporary impacts (See Section 2). However, direct impacts would require compensatory mitigation in accordance with Table 2A of the SDBG (see Section 8).

### 6.2.3 Impacts to Sensitive Plants

Direct impacts to special-status plant species could occur from ground disturbance and construction access. The project has the potential to directly impact one CRPR 1B.2 species observed at work location 439+20, decumbent goldenbush. In addition, the project has the potential to directly impact potentially suitable habitat for 10 other special-status species with a moderate potential to occur within the study area: San Diego goldenstar, thread-leaf brodiaea, and variegated dudleya (all MSCP-covered or narrow endemic), and California adolphia, California groundsel, Deane's milkvetch, knotweed spineflower, Munz's sage, and white-head cudweed (all CRPR 1B or 2B species). Impacts to these species would be considered significant, absent mitigation. Focused rare plant surveys will be conducted for these species during the appropriate blooming period prior to construction, and any individuals or populations will be marked and avoided per MM-BIO-3. The project will result in direct temporary impacts to 0.003 acres and direct permanent impacts to 0.001 acres of potentially suitable coastal sage scrub habitat. Direct permanent impacts are anticipated to be limited to existing infrastructure (i.e., the built environment) which would not support suitable habitat for sensitive rare plants. Direct impacts to these land covers would require compliance with the LDC—Landscape Standards (City of San Diego 2016), which would require erosion control and return to pre-impact conditions for temporary impacts (See Section 2). Therefore, compensatory mitigation is not anticipated to be required and impacts to sensitive plant species will be less than significant.

### 6.2.4 Impacts to Sensitive Animals

Direct impacts to nesting birds including two special-status wildlife species, coastal California gnatcatcher and burrowing owl, could occur from project implementation. Nesting birds have the potential to occur at all work sites, including those entirely developed or disturbed. Impacts to nests, eggs, or nestlings could result from directly dislodging nests or by behavioral disturbance of adult birds that are caring for eggs or nestlings. To avoid such impacts, pre-construction nesting bird surveys and appropriate buffers will be implemented, in accordance with City and regulatory agency requirements (see Section 2).

Coastal California gnatcatcher has a moderate to high potential to nest within coastal sage scrub habitat occurring within three work locations, 187+30, 267+37, and 439+20. Burrowing owl has a high potential to nest and forage within open grassland habitat at two work locations, 322+52 and 335+83. Impacts to coastal California gnatcatcher and burrowing owl nesting within the study area would be significant absent mitigation.

Implementation of MM-BIO-1 and MM-BIO-2 will ensure minimization of disturbance to avian species, including coastal California gnatcatcher, Bell's sparrow, and burrowing owl, during the nesting season. The project will result in direct temporary impacts to 0.003 acres and direct permanent impacts to 0.001 acres of potentially suitable coastal California gnatcatcher and Bell's sparrow habitat. The project will also result in direct temporary impacts to 0.011 acres and direct permanent impacts to 0.003 acres of potentially suitable burrowing owl habitat. In both cases, direct permanent impacts are anticipated to be limited to existing infrastructure (i.e., the built environment), which would not be expected to support habitat for these species. Direct impacts to these land covers would require compliance with the LDC—Landscape Standards (City of San Diego 2016), which would require erosion control and return to pre-impact conditions for temporary impacts (See Section 2). Therefore, compensatory mitigation is not anticipated to be required and impacts to coastal California gnatcatcher, Bell's sparrow, and burrowing owl will be less than significant with implementation of MM-BIO-1, MM-BIO-2, and MM-BIO-5.

## 6.2.5 Impacts to Wildlife Corridors

The eastern portion of the study area is located within the County of San Diego's MSCP Lake Jennings/Wildcat Canyon-El Cajon Mountain Core BLA. However, the work locations are entirely developed or disturbed and would impact native habitat within the BLA. In general, the study area is located within a matrix of surrounding urban development, infrastructure, and roadways, and impacts would be limited to existing infrastructure within work locations. The project may result in the temporary, short-term interference with wildlife movement between areas of more suitable habitat off site but would not result in any long-term barriers to regional wildlife movement. The project is not anticipated to disrupt the integrity or continuity of an adjacent, off-site important habitat. Therefore, direct impacts to wildlife corridors are less than significant.

## 6.3 Indirect Impacts

Indirect impacts are reasonably foreseeable effects caused by project implementation on remaining or adjacent biological resources outside the direct component footprint area, such as downstream effects. Indirect impacts include short-term effects immediately related to Program activities and long-term or chronic effects occurring after implementation as a result of new land uses or conditions. Indirect impacts that would result in loss of area or function of wetlands, Tier I-III uplands, or sensitive species may be considered significant.

### 6.3.1 Impacts to Sensitive Vegetation Communities and Plant Species Occurrences

Implementation of the project may indirectly affect wetland and sensitive upland vegetation communities and sensitive plant species occurrences located adjacent to the work locations. Indirect impacts to these vegetation communities could include fugitive dust, hydrologic changes (e.g., overspray, erosion), pollutant discharges or water quality degradation (e.g., turbidity, vehicle oil), and trampling from increased human presence in the area during the construction and restoration phases. Long-term operational indirect impacts to sensitive vegetation communities and plant species may result from rehabilitated adjacent infrastructure or even maintenance of restored habitats. These long-term indirect impacts may include introduction of chemicals (e.g., fertilizers) and human encroachment (e.g., trampling). As detailed in Section 2, all construction will be subject to regulatory compliance and the Whitebook, which ensures project features such as dust control, stormwater BMPs, and landscape standards would reduce the potential for indirect adverse impacts to less than significant. In addition, the project's conformance with the MSCP is detailed in Sections 2 and 5 and includes measures to minimize indirect impacts to sensitive vegetation communities and plant species occurrences.

### 6.3.2 Impacts to Potentially Jurisdictional Aquatic Resources

Temporary indirect impacts on potentially jurisdictional aquatic resources may result from the degradation of waterways through the accidental discharge of oil, grease, and/or chemicals that may temporarily impound and/or degrade the volume, character, and/or quality of flows within the work locations during construction. Furthermore, potentially significant permanent indirect impacts that may result from project development include downstream habitat loss, alteration, or conversion resulting from the alteration of the flow regime within the work locations. Additionally, the work locations are host to invasive species, which, if transported or otherwise dispersed off site, may result in long-term conversion or degradation of additional jurisdictional aquatic resources.

As detailed in Section 2, all construction will be subject to implementation of Environmental Protocols, which include elements such as dust control, stormwater BMPs, and landscape standards that would reduce the potential for indirect adverse impacts to less than significant. The Program does not include planting of native invasive species and standard City construction monitoring requirements will minimize the potential that existing invasive species are transported or otherwise dispersed off site by having a qualified biological monitor present and coordinating with construction crews. Given these design and construction parameters, potential indirect impacts to jurisdictional resources are less than significant.

### 6.3.3 Impacts to Sensitive Animals

As a result of project implementation, sensitive wildlife species may be indirectly impacted by short-term impacts during construction and restoration activities and by long-term impacts that could occur as a result of construction. Potential indirect impacts can affect special-status wildlife species through habitat degradation and/or loss of or harm to individuals.

Potential short-term indirect impacts that could impact special-status wildlife species generally include increased noise and vibration; construction-related fugitive dust; accidental clearing/grading; litter; increased human presence; and pollutant discharges or water quality degradation due to accidental spills and/or increased erosion or sedimentation. These short-term impacts could remove or degrade wildlife habitats or result in the death or injury of special-status wildlife species present in areas adjacent to project activities.

The proposed project also has the potential to cause habitat loss, alteration, and/or conversion due to the introduction or spread of non-native, invasive plant species, and in areas downstream of or adjacent to individual component footprints as a result of altered hydrologic regimes within the work locations area.

Nesting birds, including special-status species, have the potential to nest within native habitat adjacent to the work locations. California gnatcatcher has the potential to nest within coastal sage scrub habitat adjacent to work locations 0+00 to 4+50, and burrowing owl has the potential to nest adjacent to open grasslands at work locations 322+52 and 335+83. Indirect impacts from temporary construction noise which exceeds 75 dB (A) Leq at a sensitive receptor would be considered significant absent mitigation. Noise mitigation may be required for significant noise impacts to certain avian species during their breeding season depending upon the location of the slope (such as adjacent to an MHPA) and what birds may be present in the area such as the California gnatcatcher or burrowing owl. If these avian species (except for the California gnatcatcher) are present, then mitigation will be required if construction or operational noise levels would exceed 60 db(A), or the existing ambient noise level if already above 60dB(A) during the breeding season. There are no restrictions for the gnatcatcher outside the MHPA anytime of the year. With implementation of noise mitigation, indirect impacts to avian species, including coastal California gnatcatcher, Bell's sparrow, and burrowing owl are anticipated to be less than significant.

As discussed previously, the proposed project has the potential to cause habitat loss, alteration, and/or conversion due to the introduction or spread of non-native, invasive plant species, and in areas downstream of or adjacent to work locations as a result of altered hydrologic regimes. The project does not include planting of native invasive species and standard City construction monitoring requirements will minimize the potential that existing invasive species are transported or otherwise dispersed off site. In addition, the Program's conformance with the MSCP is detailed in Section 2 and 5 and includes measures to minimize indirect impacts to special-status wildlife. Therefore, long-term indirect impacts related to habitat degradation and loss would be less than significant.

### 6.3.4 Impacts to Wildlife Corridors

As discussed in Section 6.2.5, the project is limited to existing infrastructure and will not result in any new construction that would adversely affect wildlife corridor and habitat linkage functions within and adjacent to the work locations. Similarly, indirect effects (e.g., edge effects) are expected to be minimized through the implementation of standard construction measures identified in Section 2. As discussed in Section 5, the project is consistent with the MSCP. As such, the project would have no indirect impact to wildlife corridors or habitat linkages.

## 6.4 Cumulative Impacts

The project complies with the City's MSCP Subarea Plan, Biology Guidelines, and ESL regulations. As such, it is not expected to result in significant cumulative impacts to sensitive vegetation communities or MSCP-covered species. Overall cumulative biological impacts from the project are expected to be minimal due to the project being situated in a largely urban/developed setting and occurring within existing infrastructure.

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# 7 Mitigation and Monitoring Reporting Program

Mitigation measures are proposed below to reduce significant impacts identified in Section 6, to the extent feasible.

MM-BIO-1 Biological Resource Protection During Construction.

## I. Prior to Construction

- A. **Biologist Verification** – The Permittee shall submit a letter to the City of San Diego (City) Environmental Designee (ED) stating that a Project Biologist (Qualified Biologist), as defined in the City of San Diego’s Biological Guidelines (2018), has been retained to implement the project’s biological monitoring program. The letter shall include the names, resumes, and contact information of all persons involved in the biological monitoring of the project.
- B. **Preconstruction Meeting** – The Qualified Biologist shall attend the preconstruction meeting, discuss the project’s biological monitoring program, and arrange to perform any follow up mitigation measures and reporting including site-specific monitoring, restoration or revegetation, and additional fauna/flora surveys/salvage.
- C. **Biological Documents** –The Qualified Biologist shall submit all required documentation to the ED verifying that any special mitigation reports, including, but not limited to, maps, plans, surveys, survey timelines, or buffers, are completed or scheduled per City Biology Guidelines, Multiple Species Conservation Program (MSCP), Environmentally Sensitive Lands (ESL) Ordinance, project permit conditions; California Environmental Quality Act (CEQA); endangered species acts (ESAs); and/or other local, state, or federal requirements.
- D. **BCME** –The Qualified Biologist shall present a Biological Construction Mitigation/Monitoring Exhibit (BCME), which includes the biological documents in C above. In addition, include: restoration/revegetation plans, plant salvage/relocation requirements (e.g., coastal cactus wren plant salvage, burrowing owl exclusions, etc.), avian or other wildlife surveys/survey schedules (including general avian nesting and USFWS protocol), timing of surveys, wetland buffers, avian construction avoidance areas/noise buffers/ barriers, other impact avoidance areas, and any subsequent requirements determined by the Qualified Biologist and the ED. The BCME shall include a site plan, written and graphic depiction of the project’s biological mitigation/monitoring program, and a schedule. The BCME shall be approved by the City’s Environmental Designee (ED) and referenced in the construction documents.
- E. **Avian Protection Requirements** – To avoid any direct impacts to any species identified as a listed, candidate, sensitive, or special-status species in the MSCP (California gnatcatcher and burrowing owl), removal of habitat that supports active nests of native species in the proposed area of disturbance shall occur outside of the breeding season for these species (February 1 to September 15). If removal of habitat in the proposed area of disturbance must occur during the breeding season, the Qualified Biologist shall conduct a pre-construction survey to determine the presence or absence of nesting birds on the proposed area of disturbance. The pre-construction survey shall be conducted within three calendar days prior to the start of construction activities (including removal of vegetation). The applicant shall submit the results

of the pre-construction survey to the City ED for review and approval prior to initiating any construction activities. If nesting bird activities are detected, a letter report in conformance with the City's Biology Guidelines and applicable State and Federal Law (i.e., appropriate follow-up surveys, monitoring schedules, construction and noise barriers/buffers, etc.) shall be prepared and include proposed measures to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided. The report shall be submitted to the City for review and approval and implemented to the satisfaction of the City. The City's ED and Environmental Biologist shall verify and approve that all measures identified in the report or are in place prior to and/or during construction.

**Resource Delineation** – Prior to construction activities, the Qualified Biologist shall supervise the placement of orange construction fencing or equivalent along the limits of disturbance adjacent to sensitive biological habitats and verify compliance with any other project conditions as shown on the BCME. This phase shall include flagging plant specimens and delimiting buffers to protect sensitive biological resources (e.g., habitats/flora and fauna species, including nesting birds) during construction. Appropriate steps/care shall be taken to minimize attraction of nest predators to the site.

- F. **Education** – Prior to commencement of construction activities, the Qualified Biologist shall meet with the owner/permittee or designee and the construction crew and conduct an on-site educational session regarding the need to avoid impacts outside of the approved work area and to protect sensitive flora and fauna (e.g., explain the avian and wetland buffers, flag system for removal of invasive species or retention of sensitive plants, and clarify acceptable access routes/methods and staging areas, etc.).

## II. During Construction

- A. **Monitoring** – All construction (including access/staging areas) shall be restricted to areas previously identified, proposed for development/staging, or previously disturbed as shown on “Exhibit A” and/or the BCME. The Qualified Biologist shall monitor construction activities as needed to ensure that construction activities do not encroach into biologically sensitive areas, or cause other similar damage, and that the work plan has been amended to accommodate any sensitive species located during the pre-construction surveys. In addition, the Qualified Biologist shall document field activity via the Consultant Site Visit Record (CSV). The CSV shall be e-mailed to the ED on the 1st day of monitoring, the 1st week of each month, the last day of monitoring, and immediately in the case of any undocumented condition or discovery.
- B. **Subsequent Resource Identification** – The Qualified Biologist shall note/act to prevent any new disturbances to habitat, flora, and/or fauna on site (e.g., flag plant specimens for avoidance during access, etc). If active nests or other previously unknown sensitive resources are detected, all project activities that directly impact the resource shall be delayed until species-specific local, state, or federal regulations have been determined and applied by the Qualified Biologist.

## III. Post Construction Measures

- A. In the event that impacts exceed previously allowed amounts, additional impacts shall be mitigated in accordance with City Biology Guidelines, ESL and MSCP, State CEQA, and other

applicable local, state, and federal law. The Qualified Biologist shall submit a final BCME/report to the satisfaction of the City ED within 30 days of construction completion.

MM-BIO-2 Burrowing Owl Pre-Construction Surveys. Prior to Permit or Notice to Proceed Issuance:

1. As this project has been determined to be BUOW occupied or to have BUOW occupation potential, the Applicant Department or Permit Holder shall submit evidence to the ADD of Entitlements and Multiple Species Conservation Program (MSCP) staff verifying that a Biologist possessing qualifications pursuant “Staff Report on Burrowing Owl Mitigation, State of California Natural Resources Agency Department of Fish and Game. March 7, 2012 (hereafter referred as CDFG 2012, Staff Report), has been retained to implement a burrowing owl construction impact avoidance program.
2. The qualified BUOW biologist (or their designated biological representative) shall attend the pre-construction meeting to inform construction personnel about the City’s BUOW requirements and subsequent survey schedule.

**Prior to Start of Construction:**

1. The Applicant Department or Permit Holder and Qualified Biologist must ensure that initial pre-construction/take avoidance surveys of the project "site" are completed between 14 and 30 days before initial construction activities, including brushing, clearing, grubbing, or grading of the project site; regardless of the time of the year. "Site" means the project site and the area within a radius of 450 feet of the project site. The report shall be submitted and approved by the Wildlife Agencies and/or City MSCP staff prior to construction or BUOW eviction(s) and shall include maps of the project site and BUOW locations on aerial photos.
2. The pre-construction survey shall follow the methods described in CDFG 2012, Staff Report - Appendix D
3. 24 hours prior to commencement of ground disturbing activities, the Qualified Biologist shall verify results of preconstruction/take avoidance surveys. Verification shall be provided to the City’s Mitigation Monitoring and Coordination (MMC) and MSCP Sections. If results of the preconstruction surveys have changed and BUOW are present in areas not previously identified, immediate notification to the City and WA’s shall be provided prior to ground disturbing activities.

**During Construction:**

1. Best Management Practices shall be employed as BUOWs are known to use open pipes, culverts, excavated holes, and other burrow-like structures at construction sites. Legally permitted active construction projects which are BUOW occupied and have followed all protocol in this mitigation section, or sites within 450 feet of occupied BUOW areas, should undertake measures to discourage BUOWs from recolonizing previously occupied areas or colonizing new portions of the site. Such measures include, but are not limited to, ensuring that the ends of all pipes and culverts are covered when they are not being worked on, and covering rubble piles, dirt piles, ditches, and berms.

2. On-going BUOW Detection - If BUOWs or active burrows are not detected during the pre-construction surveys, Section "A" below shall be followed. If BUOWs or burrows are detected during the pre-construction surveys, Section "B" shall be followed. NEITHER THE MSCP SUBAREA PLAN NOR THIS MITIGATION SECTION ALLOWS FOR ANY BUOWs TO BE INJURED OR KILLED OUTSIDE OR WITHIN THE MHPA; in addition, IMPACTS TO BUOWs WITHIN THE MHPA MUST BE AVOIDED.
  - A. **Post Survey Follow Up if Burrowing Owls and/or Signs of Active Natural or Artificial Burrows Are Not Detected During the Initial Pre-Construction Survey** - Monitoring the site for new burrows is required using CDFW Staff Report 2012 Appendix D methods for the period following the initial pre-construction survey, until construction is scheduled to be complete and is complete (NOTE - Using a projected completion date (that is amended if needed) will allow development of a monitoring schedule).
    - 1) If no active burrows are found but BUOWs are observed to occasionally (1-3 sightings) use the site for roosting or foraging, they should be allowed to do so with no changes in the construction or construction schedule.
    - 2) If no active burrows are found but BUOWs are observed during follow up monitoring to repeatedly (4 or more sightings) use the site for roosting or foraging, the City's MMC and MSCP Sections shall be notified and any portion of the site where owls have been sites and that has not been graded or otherwise disturbed shall be avoided until further notice.
    - 3) If a BUOW begins using a burrow on the site at any time after the initial pre-construction survey, procedures described in Section B must be followed.
    - 4) Any actions other than these require the approval of the City and the Wildlife Agencies.
  - B. **Post Survey Follow Up if Burrowing Owls and/or Active Natural or Artificial Burrows are detected during the Initial Pre-Construction Survey** - Monitoring the site for new burrows is required using Appendix D CDFG 2012, Staff Report for the period following the initial pre-construction survey, until construction is scheduled to be complete and is complete (NOTE - Using a projected completion date (that is amended if needed) will allow development of a monitoring schedule which adheres to the required number of surveys in the detection protocol).
    - 1) This section (B) applies only to sites (including biologically defined territory) wholly outside of the MHPA – all direct and indirect impacts to BUOWs within the MHPA SHALL be avoided.
    - 2) If one or more BUOWs are using any burrows (including pipes, culverts, debris piles etc.) on or within 300 feet of the proposed construction area, the City Environmental Designee (ED) shall be contacted. The City ED shall contact the Wildlife Agencies regarding eviction/collapsing burrows and enlist appropriate City biologist for on-going coordination with the Wildlife Agencies and the qualified consulting BUOW biologist. No construction shall occur within 300 feet of an active burrow without written concurrence from the Wildlife Agencies. This distance may increase or decrease, depending on the burrow's location in relation to the site's topography, and other physical and biological characteristics.
      - a) Outside the Breeding Season - If the BUOW is using a burrow on site outside the breeding season (i.e., September 1 – January 31), the BUOW may be evicted after

- the qualified BUOW biologist has determined via fiber optic camera or other appropriate device, that no eggs, young, or adults are in the burrow. Eviction requires preparation of an Exclusion Plan prepared in accordance with CDFW Staff Report 2012, Appendix F (or most recent guidance available) for review and submittal to Wildlife Agencies. Written concurrence from the Wildlife Agencies is required prior to Exclusion Plan implementation.
- b) During Breeding Season - If a BUOW is using a burrow on-site during the breeding season (Feb 1-Aug 31), construction shall not occur within 300 feet of the burrow until the young have fledged and are no longer dependent on the burrow, at which time the BUOWs can be evicted. Eviction requires preparation of an Exclusion Plan prepared in accordance with CDFW Staff Report 2012, Appendix F (or most recent guidance available) for review and submittal to Wildlife Agencies. Written concurrence from the Wildlife Agencies is required prior to Exclusion Plan implementation.
  - 3) Survey Reporting During Construction - Details of construction surveys and evictions (if applicable) carried out shall be immediately (within 5 working days or sooner) reported to the City ED and the Wildlife Agencies and must be provided in writing (as by e-mail) and acknowledged to have been received by the required Agencies and DSD Staff member(s).

#### Post Construction:

- 1) Details of the all surveys and actions undertaken on-site with respect to BUOWs (i.e., occupation, eviction, locations etc.) shall be reported to the City's MMC Section and the Wildlife Agencies within 21 days post-construction and prior to the release of any grading bonds. This report must include summaries off all previous reports for the site; and maps of the project site and BUOW locations on aerial photos.

MM-BIO-3 **Species-Specific Sensitive Plant Surveys.** Focused surveys shall be conducted within work locations identified as supporting potentially suitable habitat (work locations 267+37 and 439+20) to determine presence/absence for Multiple Species Conservation Program (MSCP) Narrow Endemic plant species, non-MSCP covered federally and/or state listed plant species, or non-MSCP covered California Rare Plant Rank 1B or 2B species previously observed or with moderate potential to occur within the study area. For species that can only be reliably detected during specific blooming periods, focus surveys may need to be conducted during those periods to determine presence/absence. If these species are detected during focused surveys, limits of work shall be modified to avoid direct impacts to mapped sensitive plant species.

MM-BIO-4A **Compensatory Upland Mitigation.** To compensate for the loss of 0.106 acres of coastal sage scrub and non-native grassland habitats located outside of the MHPA, mitigation would be provided through allocation of credits from the Marron Valley Cornerstone Land Bank, which occurs inside the MHPA. Payment and credit allocation shall be provided for a total of 0.056 acres to achieve the required mitigation ratios prior to the start of construction. The City of San Diego Engineering and Capital Projects Department (ECP) shall be required to contribute the estimated average per acre land cost, multiplied by the mitigation ratio plus any required amount for administration. The ED shall be provided with evidence of credit deduction prior to construction.

Vegetation Community or Land Cover Type <sup>1</sup>	Temporary Impacts (Acres)	Permanent Impacts (Acres)	Mitigation Ratio <sup>3</sup>	Mitigation Required (Acres)
Non-Native Grassland (IIIB)	0.089	0.011	0.5:1	0.050
Coastal Sage Scrub (II)	0.005	0.001	1:1	0.006
<b>Total<sup>2</sup></b>	<b>0.094</b>	<b>0.012</b>		<b>0.056</b>

**Notes:**

- <sup>1</sup> Oberbauer et al. 2008.
- <sup>2</sup> Some numbers may not sum due to rounding.
- <sup>3</sup> Mitigation in the MHPA, impacts outside of the MHPA

MM-BIO-4B **Compensatory Wetland Mitigation.** Prior to initiation of construction, the project Applicant would obtain all necessary permits for impacts to U.S. Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife jurisdictional areas. Mitigation for the permanent loss of jurisdictional resources shall be negotiated with the resource agencies during the regulatory permitting process and shall ensure that mitigation to compensate for permanent impacts on jurisdictional resources is equivalent or superior to biological functions and values impacted by the proposed project.

Direct impacts to potentially jurisdictional aquatic resources, including City of San Diego (City) wetlands, would require mitigation to comply with City, state, and/or federal authorizations, in accordance with the City’s Biology Guidelines. Mitigation required by the City is anticipated to satisfy federal (Clean Water Act Section 404) and state (California Fish and Game Code Sections 1601 and 1603) permit compensatory mitigation requirements, and additional mitigation is not anticipated to be identified in the California Environmental Quality Act document for impacts to potentially jurisdictional aquatic resources covered by any federal or state permits. Impacts to 0.030 acres of City wetlands (including potentially jurisdictional aquatic resources) shall be mitigated through the purchase of 0.081 acres of credits at the Stadium Wetland mitigation site.

**Table 10. Compensatory Mitigation for Impacts to City Wetlands**

SDBG Vegetation Communities <sup>1</sup>	Jurisdiction (USACE/RWQCB/CDFW/City)	Temporary Impacts (Acres)	Permanent Impacts (Acres)	Mitigation Ratio	Mitigation Required (Acres)
Freshwater Marsh	USACE/RWQCB/CDFW/City	0.001	0	2:1	0.002
	CDFW/City	0.002	0	2:1	0.003
Riparian Woodland (Non-Native Riparian)	CDFW/City	0.002	<0.001	0:1 <sup>3</sup>	0
Riparian Woodland (Southern Riparian Forest)	RWQCB/CDFW/City	<0.001	0.001	3:1	0.004
	CDFW/City	0.002	0.022	3:1	0.073
<b>Total<sup>2</sup></b>		<b>0.007</b>	<b>0.023</b>	<b>N/A</b>	<b>0.081</b>

**Notes:** USACE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife; City = City of San Diego.

- <sup>1</sup> City of San Diego 2018
- <sup>2</sup> Some numbers may not sum due to rounding.
- <sup>3</sup> Compensatory mitigation not required for impacts to non-native riparian.

MM-BIO-5 Avoidance of Occupied California Gnatcatcher Habitat. Prior to the issuance of any grading permit or prior to the preconstruction meeting if a grading permit is not required, the City Environmental Designee (ED) shall verify that the Multi-Habitat Planning Area (MHPA) boundaries and the following project requirements regarding the coastal California gnatcatcher are shown on the construction plans:

No clearing, grubbing, grading, or other construction activities shall occur between March 1 and August 15, the breeding season of the coastal California gnatcatcher, until the following requirements have been met to the satisfaction of the ed:

- A. A qualified biologist (possessing a valid endangered species act section 10(a)(1)(A) recovery permit) shall survey those habitat areas within the MHPA that would be subject to construction noise levels exceeding 60 decibels [db(a)] hourly average for the presence of the Coastal California gnatcatcher. Surveys for the Coastal California gnatcatcher shall be conducted pursuant to the protocol survey guidelines established by the U.S. Fish and Wildlife service within the breeding season prior to the commencement of any construction. If gnatcatchers are present, then the following conditions must be met:
  - I. Between March 1 and August 15, no clearing, grubbing, or grading of occupied gnatcatcher habitat shall be permitted. Areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist; and
  - II. Between March 1 and August 15, no construction activities shall occur within any portion of the site where construction activities would result in noise levels exceeding 60 db (A) hourly average at the edge of occupied gnatcatcher habitat. An analysis showing that noise generated by construction activities would not exceed 60 db (A) hourly average at the edge of occupied habitat must be completed by a qualified acoustician (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the ed at least two weeks prior to the commencement of construction activities. Prior to the commencement of construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist; or
  - III. At least two weeks prior to the commencement of construction activities, under the direction of a qualified acoustician, noise attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 db(A) hourly average at the edge of habitat occupied by the Coastal California gnatcatcher. Concurrent with the commencement of construction activities and the construction of necessary noise attenuation facilities, noise monitoring\* shall be conducted at the edge of the occupied habitat area to ensure that noise levels do not exceed 60 db (A) hourly average. If the noise attenuation techniques implemented are determined to be inadequate by the qualified acoustician or biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season (August 16).

\* Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify

that noise levels at the edge of occupied habitat are maintained below 60 dB (A) hourly average or to the ambient noise level if it already exceeds 60 dB (A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the ED, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

If Coastal California gnatcatchers are not detected during the protocol survey, the qualified biologist shall submit substantial evidence to the ed and applicable resource agencies which demonstrates whether or not mitigation measures such as noise walls are necessary between March 1 and August 15 as follows:

- I. If this evidence indicates the potential is high for Coastal California gnatcatcher to be present based on historical records or site conditions, then condition a.iii shall be adhered to as specified above.
- II. If this evidence concludes that no impacts to this species are anticipated, no mitigation measures would be necessary.

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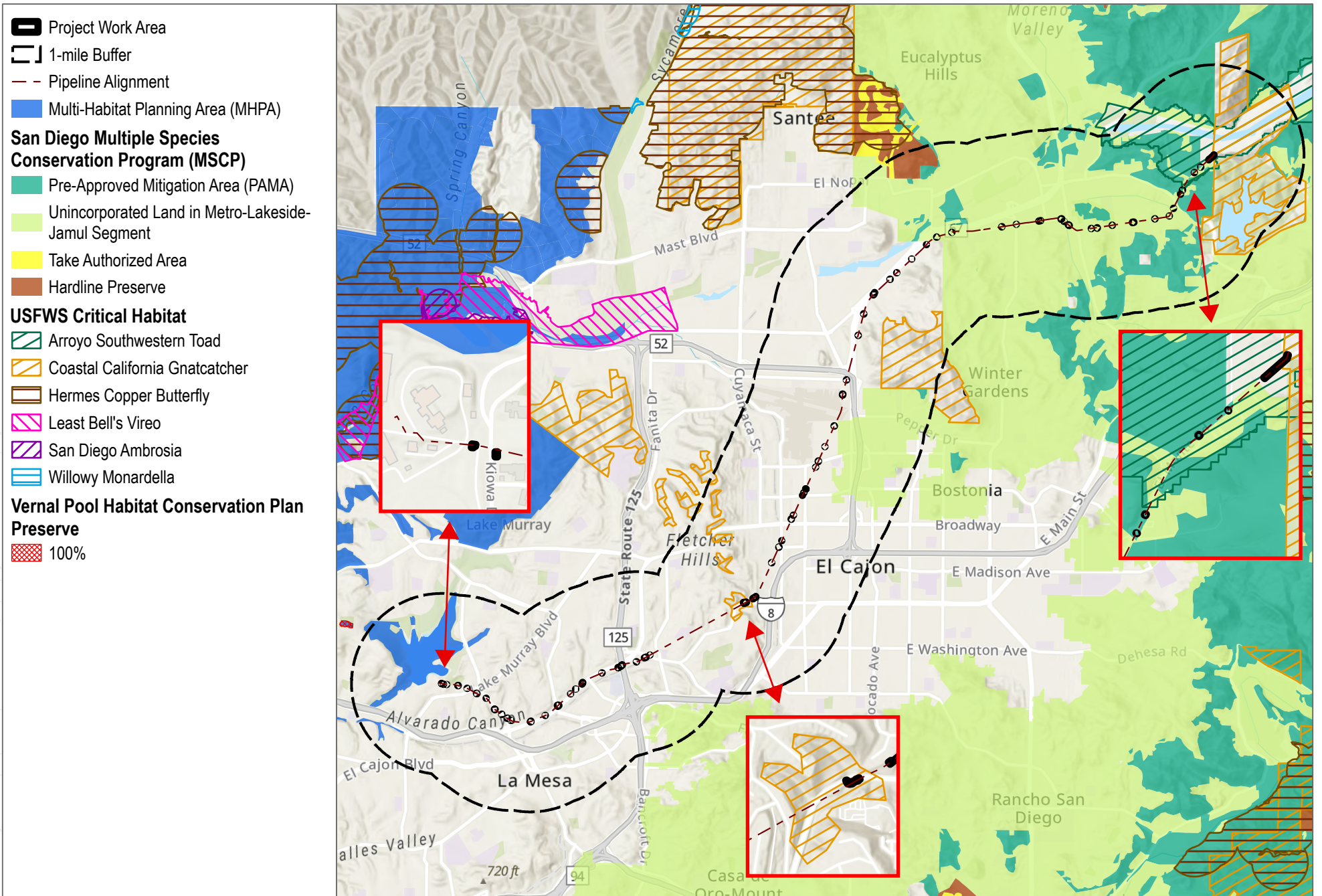
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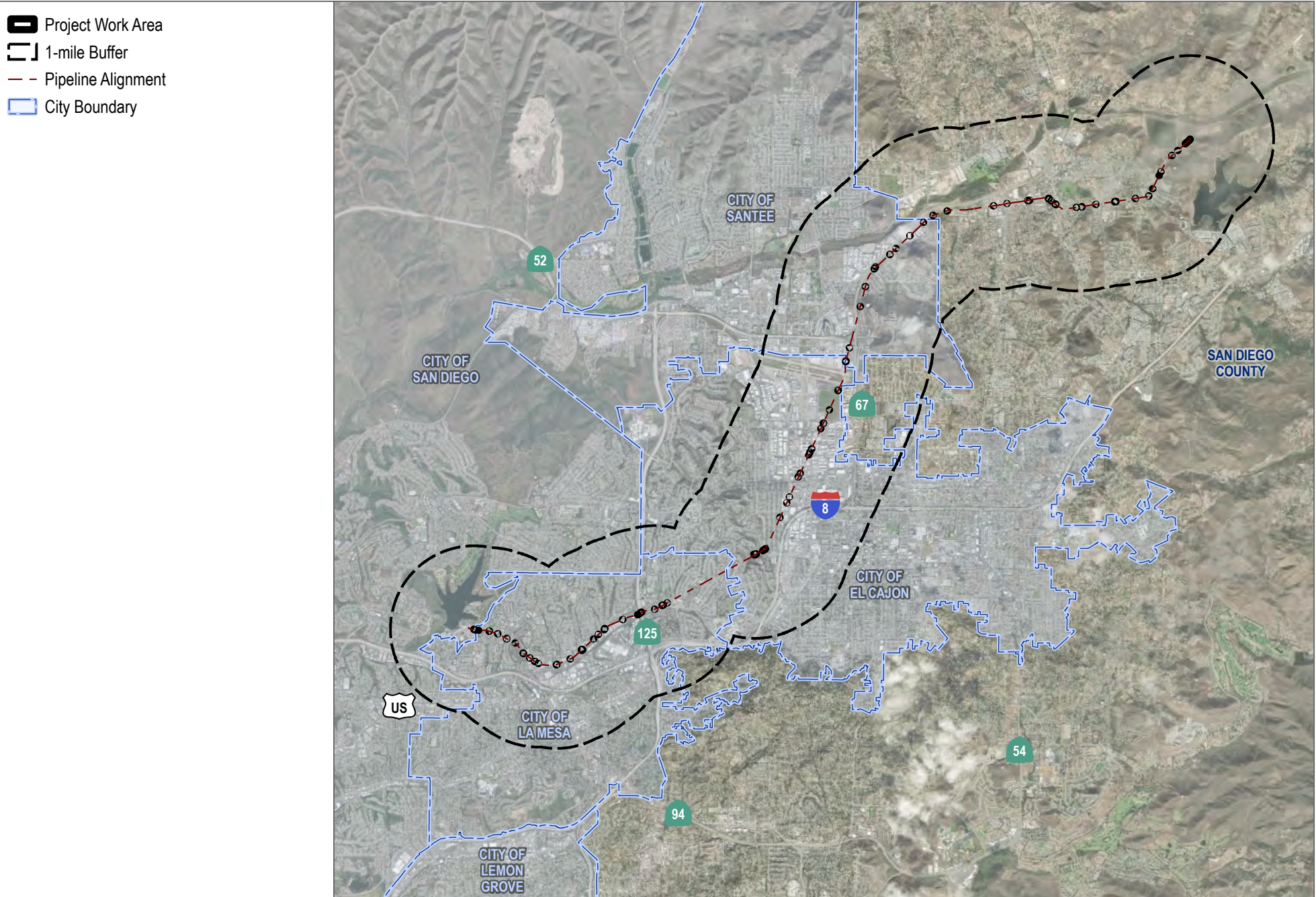


SOURCE: Esri Basemap; SANDAG 2025; USFWS 2023; City of SD 2025



**FIGURE 2A**  
**Habitat and Conservation Areas**  
 El Monte Water Transmission Pipeline Rehabilitation Project

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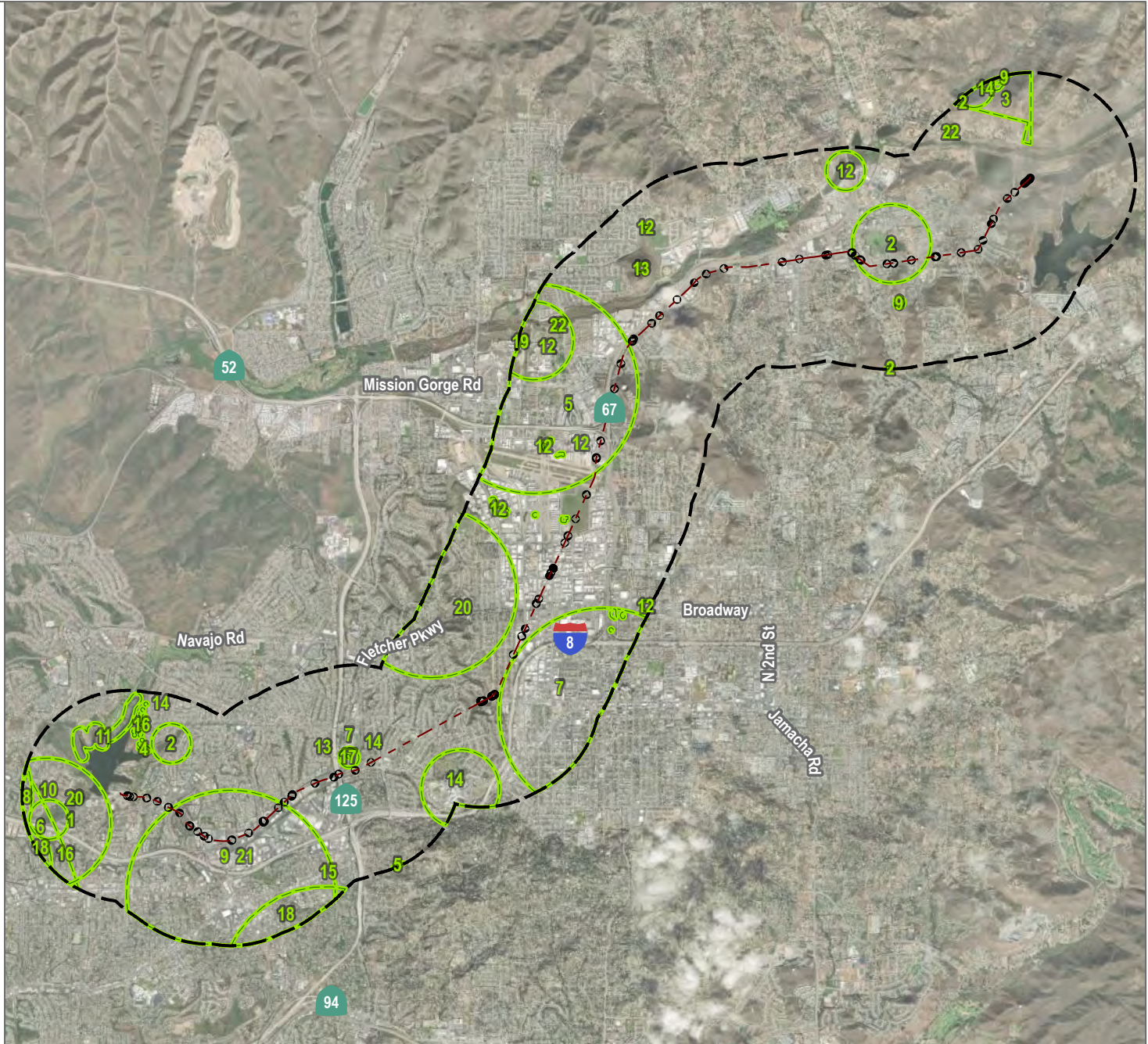
SOURCE: Esri Basemap; SANDAG 2025; USFWS 2023; City of SD 2025



**FIGURE 2B**  
**City and County Jurisdiction**  
 El Monte Water Transmission Pipeline Rehabilitation Project

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-  Project Work Area
  -  1-mile Buffer
  -  Pipeline Alignment
  -  **CNDDDB Plant Occurrences**
1. California adolphia (*Adolphia californica*)
  2. decumbent goldenbush (*Isocoma menziesii* var. *decumbens*)
  3. delicate clarkia (*Clarkia delicata*)
  4. long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*)
  5. Nuttall's scrub oak (*Quercus dumosa*)
  6. oil neststraw (*Stylocline citroleum*)
  7. Orcutt's brodiaea (*Brodiaea orcuttii*)
  8. Otay Mesa mint (*Pogogyne nudiuscula*)
  9. Palmer's goldenbush (*Ericameria palmeri* var. *palmeri*)
  10. purple stemodia (*Stemodia durantifolia*)
  11. Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)
  12. San Diego ambrosia (*Ambrosia pumila*)
  13. San Diego barrel cactus (*Ferocactus viridescens*)
  14. San Diego goldenstar (*Bloomeria clevelandii*)
  15. San Diego gumplant (*Grindelia hallii*)
  16. San Diego marsh-elder (*Iva hayesiana*)
  17. San Diego mesa mint (*Pogogyne abramsii*)
  18. San Diego thorn-mint (*Acanthomintha ilicifolia*)
  19. smooth tarplant (*Centromadia pungens* ssp. *laevis*)
  20. variegated dudleya (*Dudleya variegata*)
  21. wart-stemmed ceanothus (*Ceanothus verrucosus*)
  22. white rabbit-tobacco (*Pseudognaphalium leucocephalum*)



SOURCE: Esri Basemap; Open Street Maps 2023; CDFW 2024







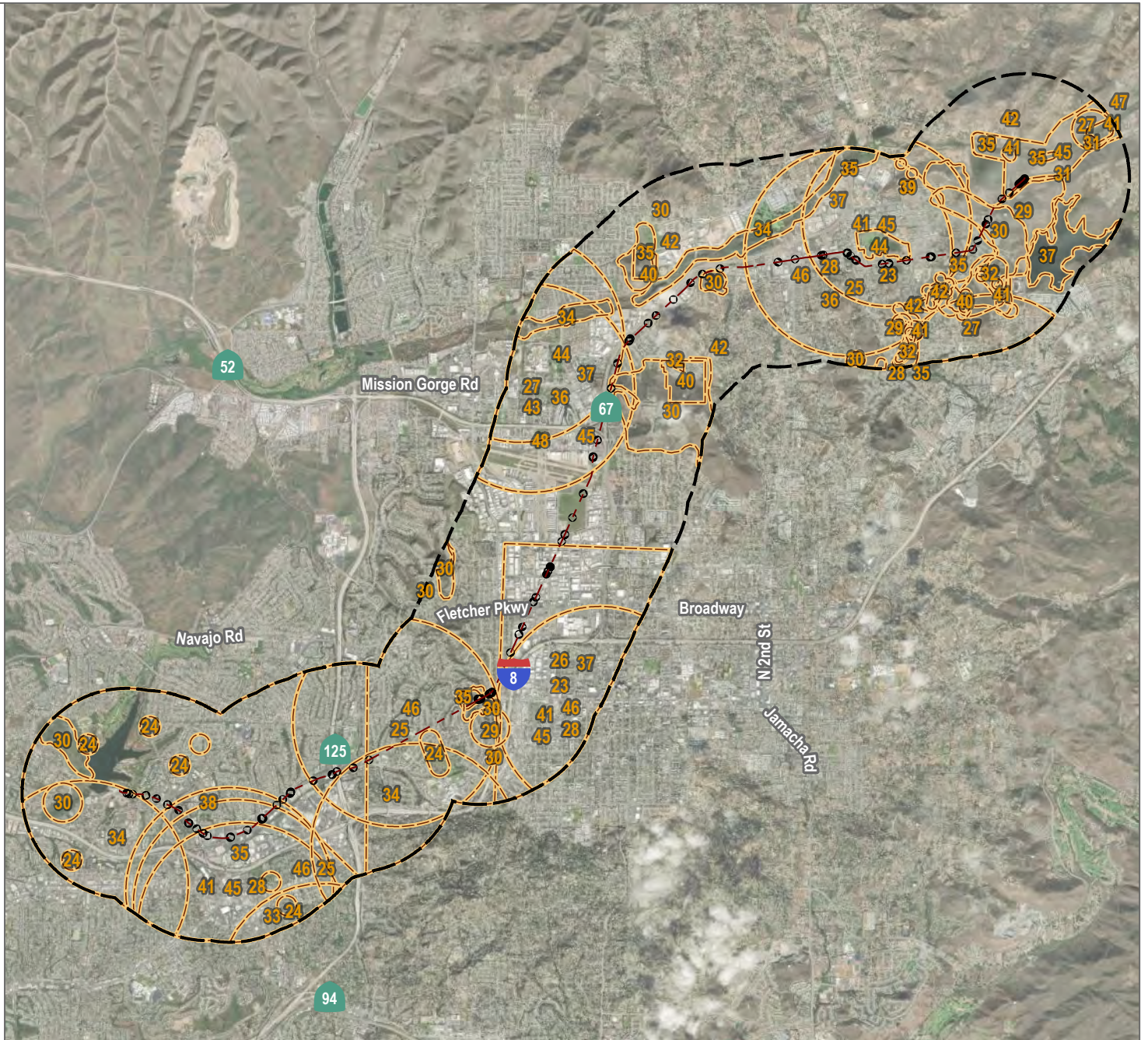
FIGURE 3

CNDDDB Plant Occurrences

El Monte Water Transmission Pipeline Rehabilitation Project

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-  Project Work Area
  -  1-mile Buffer
  -  Pipeline Alignment
  -  **CNDDB Wildlife Occurrences**
23. American badger (*Taxidea taxus*)
  24. American bumble bee (*Bombus pensylvanicus*)
  25. big free-tailed bat (*Nyctinomops macrotis*)
  26. burrowing owl (*Athene cunicularia*)
  27. California glossy snake (*Arizona elegans occidentalis*)
  28. coast horned lizard (*Phrynosoma blainvillii*)
  29. coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*)
  30. coastal California gnatcatcher (*Poliopitila californica californica*)
  31. coastal whiptail (*Aspidoscelis tigris stejnegeri*)
  32. Coronado skink (*Plestiodon skiltonianus interparietalis*)
  33. Crotch's bumble bee (*Bombus crotchii*)
  34. least Bell's vireo (*Vireo bellii pusillus*)
  35. orange-throated whiptail (*Aspidoscelis hyperythra*)
  36. pallid bat (*Antrozous pallidus*)
  37. pocketed free-tailed bat (*Nyctinomops femorosaccus*)
  38. prairie falcon (*Falco mexicanus*)
  39. San Diego banded gecko (*Coleonyx variegatus abbotti*)
  40. San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)
  41. Southern California legless lizard (*Anniella stebbinsi*)
  42. southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)
  43. Swainson's hawk (*Buteo swainsoni*)
  44. tricolored blackbird (*Agelaius tricolor*)
  45. western spadefoot (*Spea hammondi*)
  46. western yellow bat (*Lasiurus xanthinus*)
  47. yellow-breasted chat (*Icteria virens*)
  48. yellow rail (*Coturnicops noveboracensis*)



SOURCE: Esri Basemap; Open Street Maps 2023; CDFW 2024

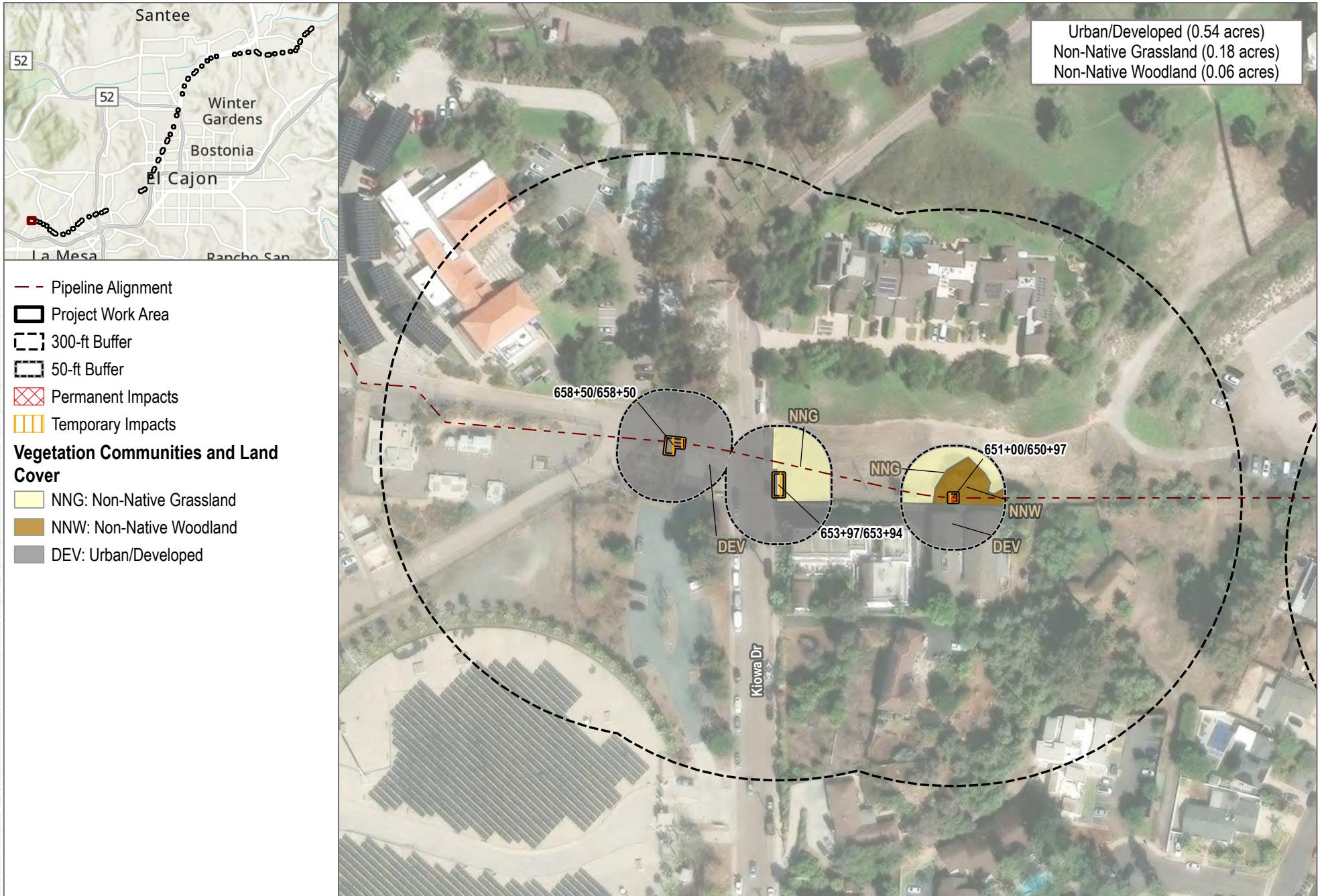


FIGURE 4

CNDDB Wildlife Occurrences

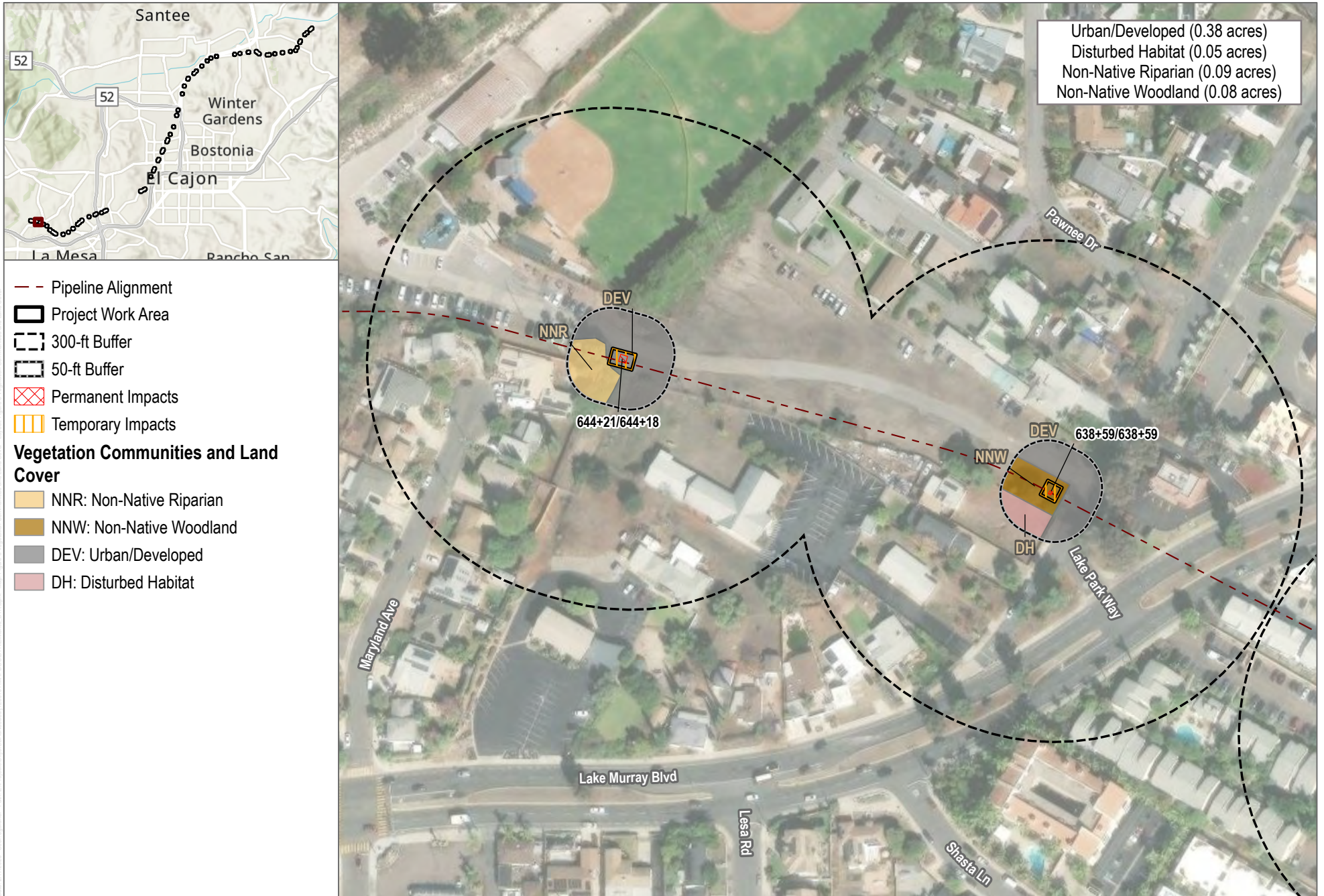
El Monte Water Transmission Pipeline Rehabilitation Project

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SOURCE: Esri World Imagery; Open Street Map 2023

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SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 5-2**  
Vegetation Communities and Land Cover  
El Monte Water Transmission Pipeline Rehabilitation Project

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SOURCE: Esri World Imagery; Open Street Map 2023

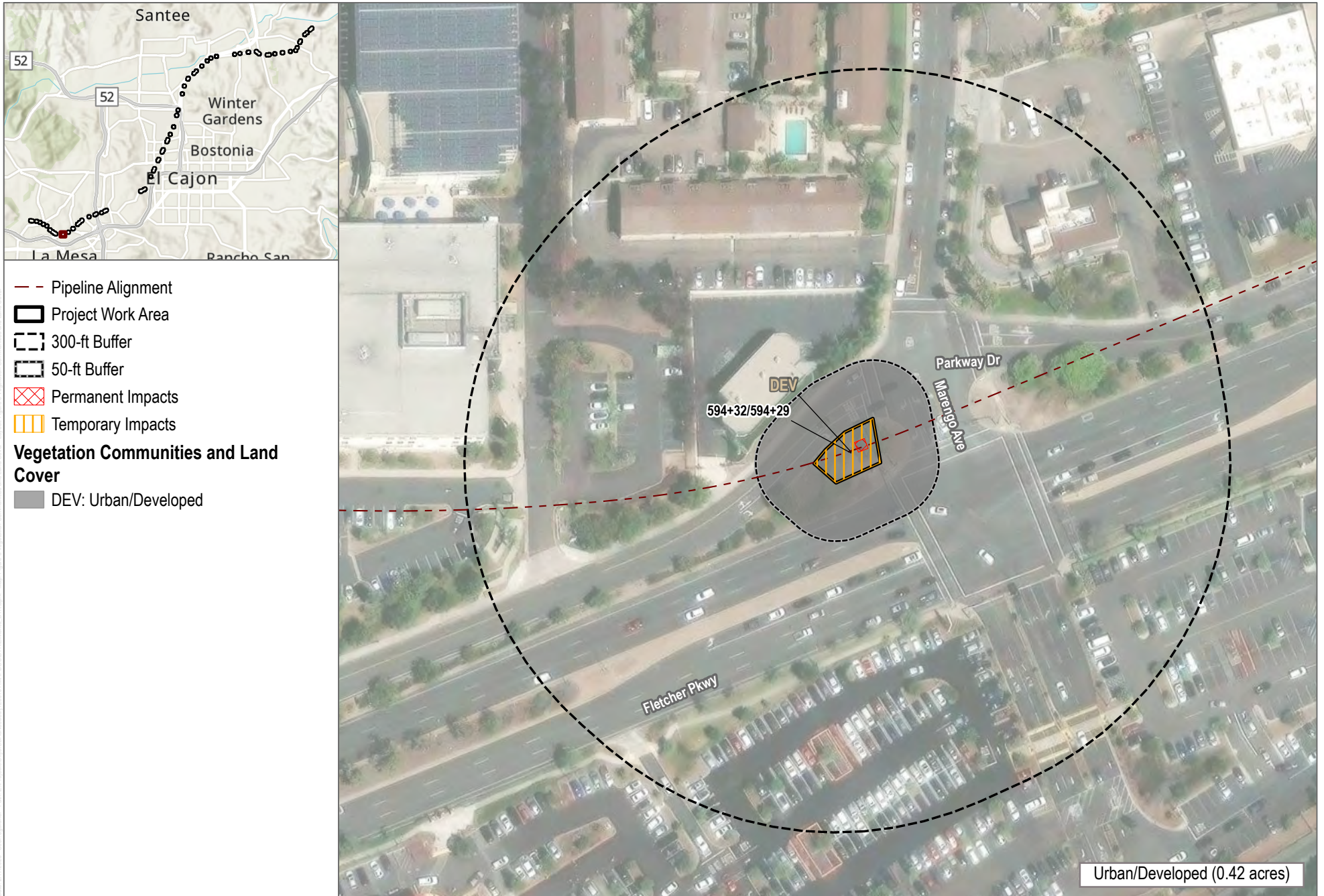
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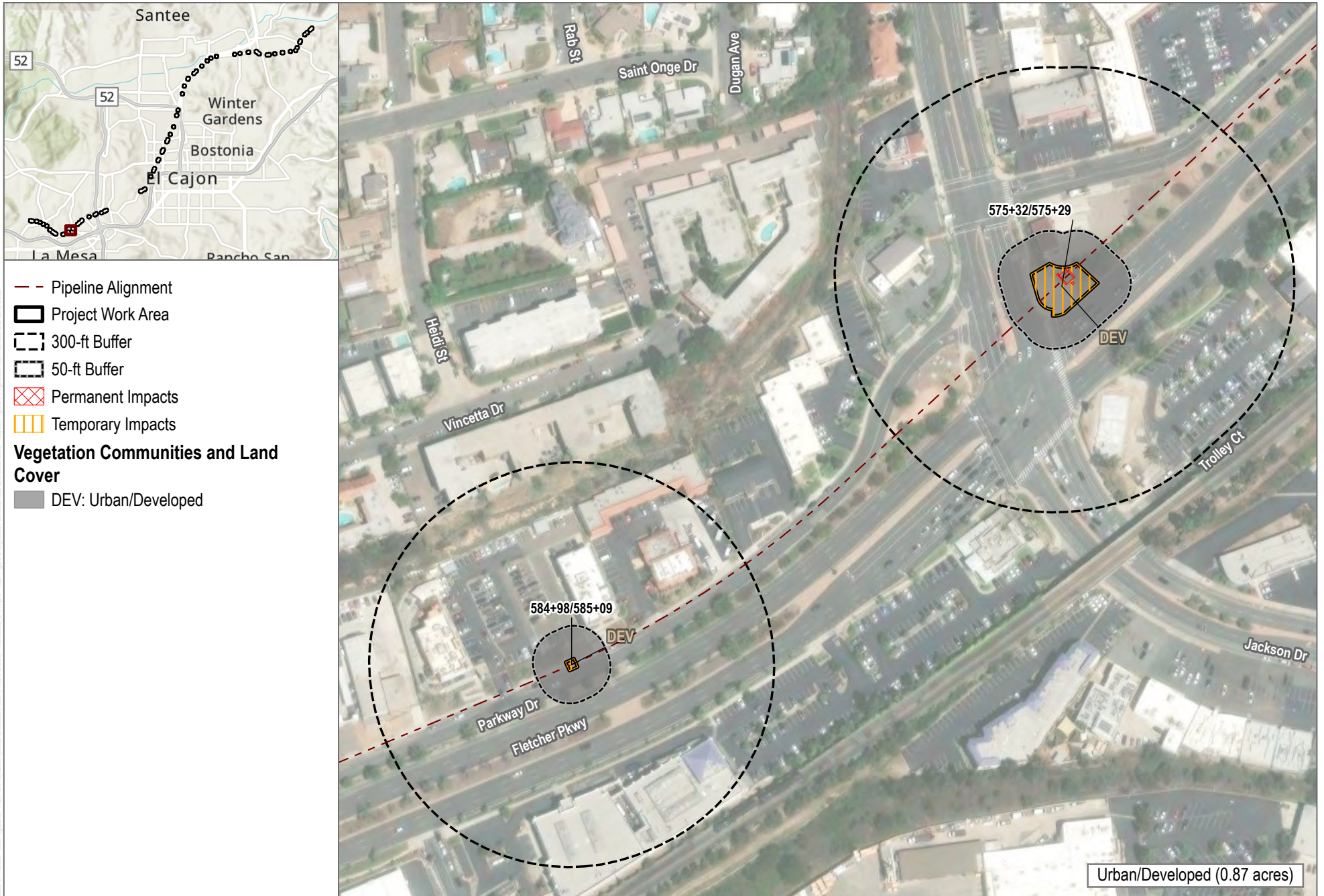
**FIGURE 5-4**  
Vegetation Communities and Land Cover  
El Monte Water Transmission Pipeline Rehabilitation Project

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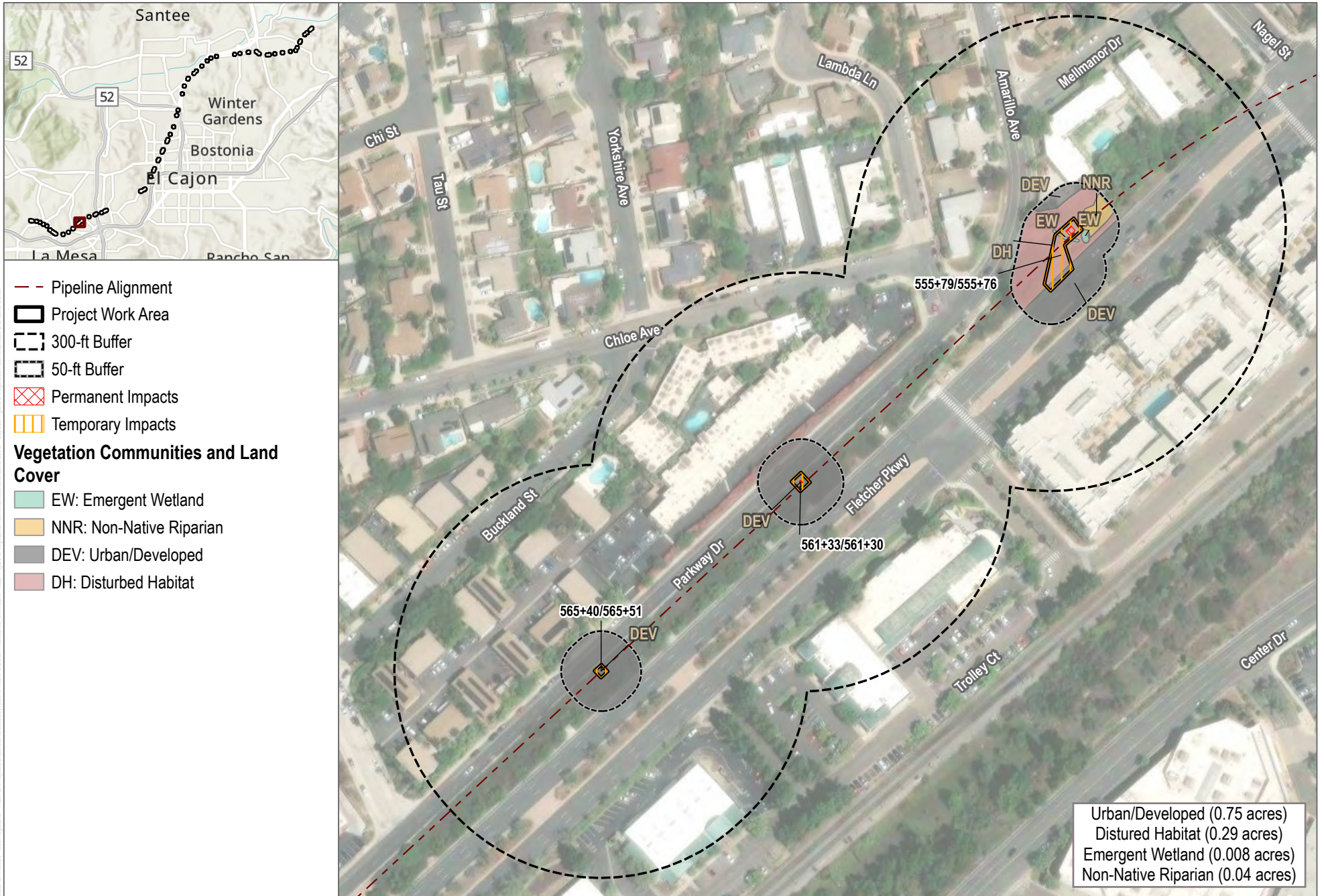
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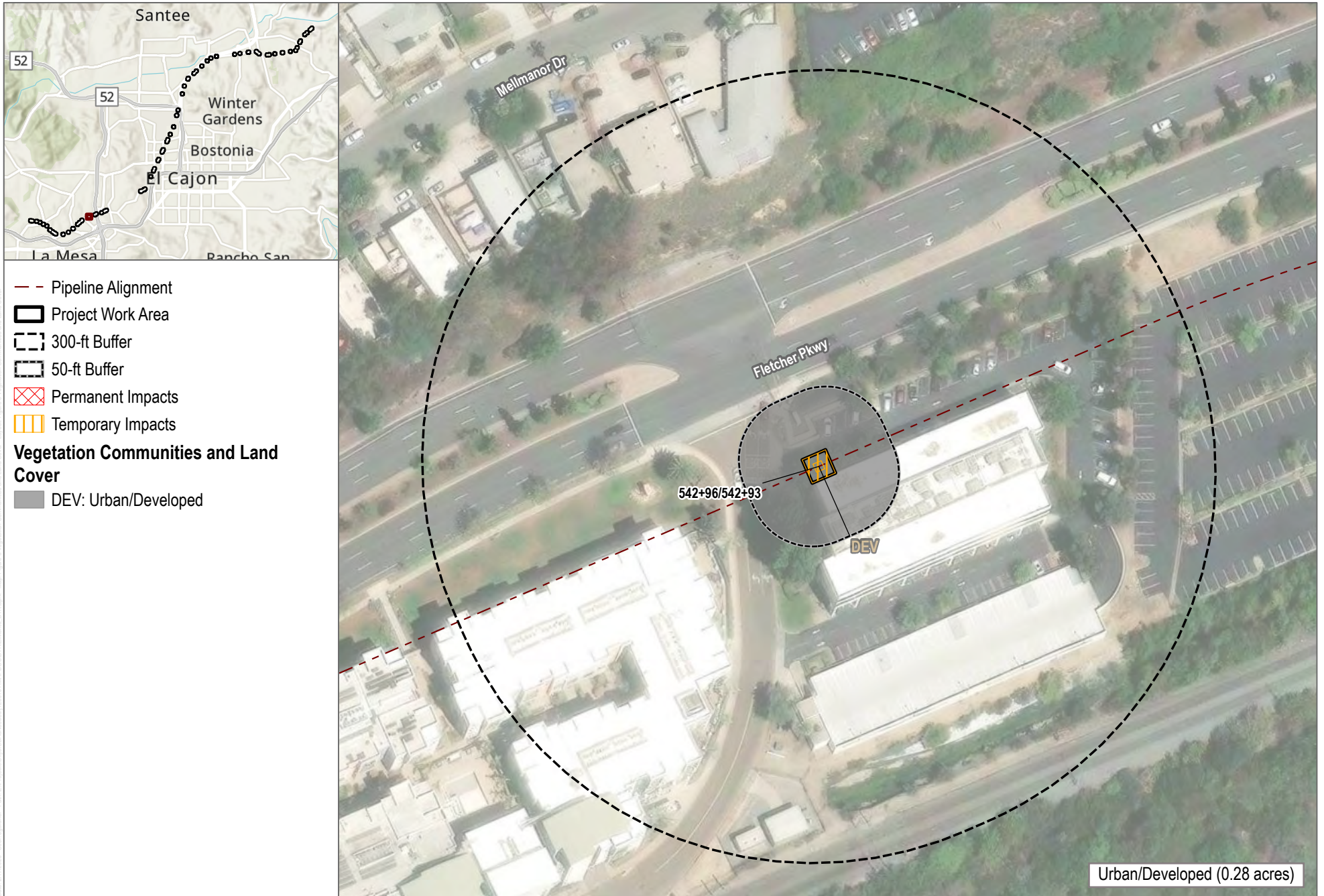


SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 5-7**  
 Vegetation Communities and Land Cover  
 El Monte Water Transmission Pipeline Rehabilitation Project

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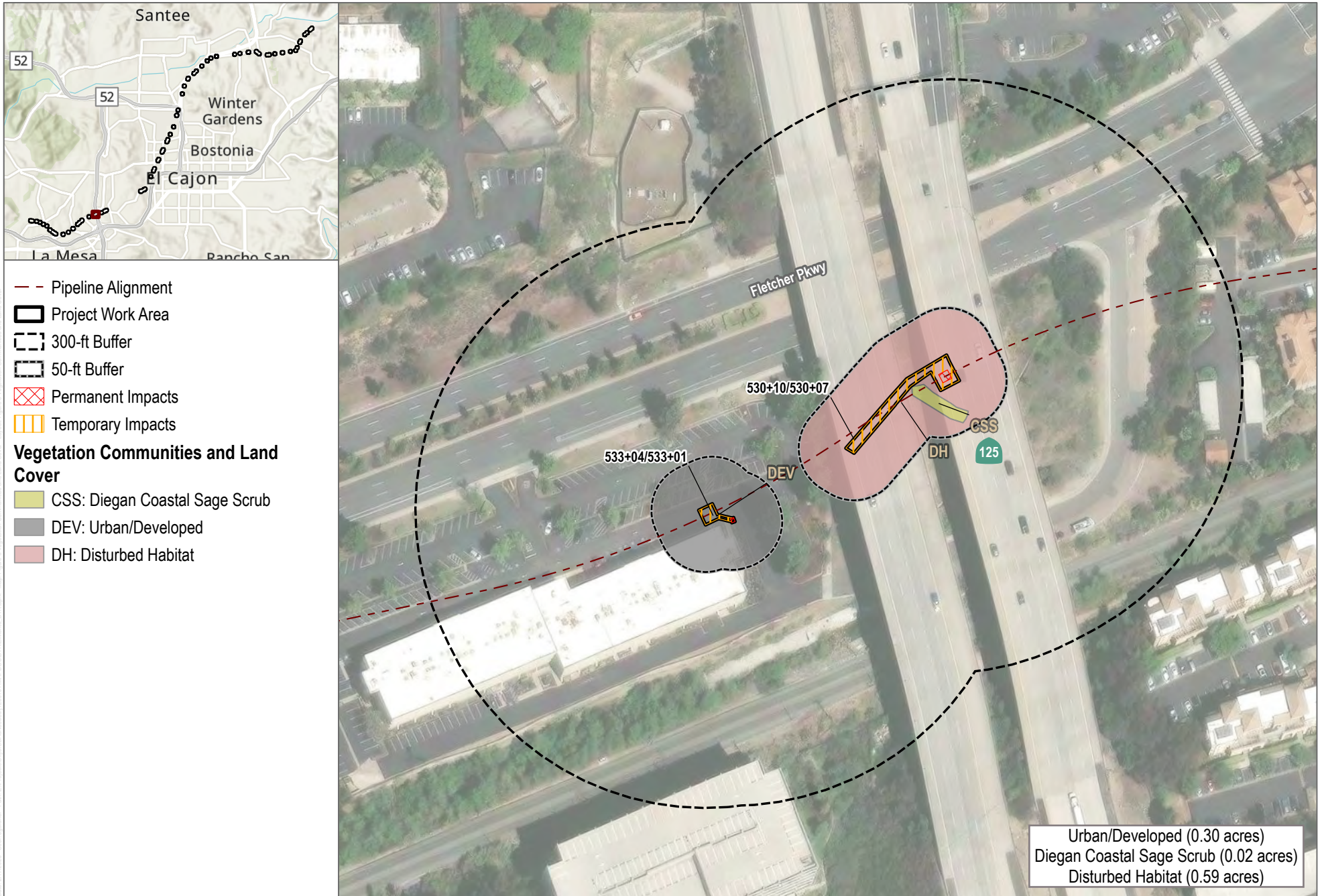


SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 5-8**  
 Vegetation Communities and Land Cover  
 El Monte Water Transmission Pipeline Rehabilitation Project

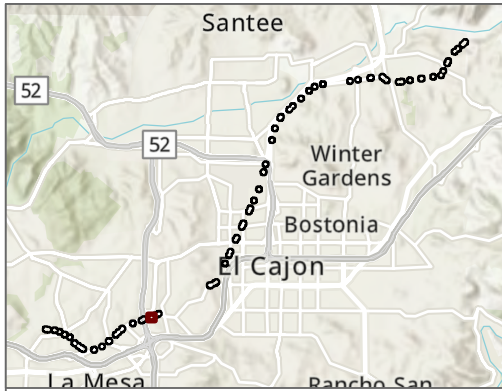
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SOURCE: Esri World Imagery; Open Street Map 2023

**FIGURE 5-9**  
Vegetation Communities and Land Cover  
El Monte Water Transmission Pipeline Rehabilitation Project

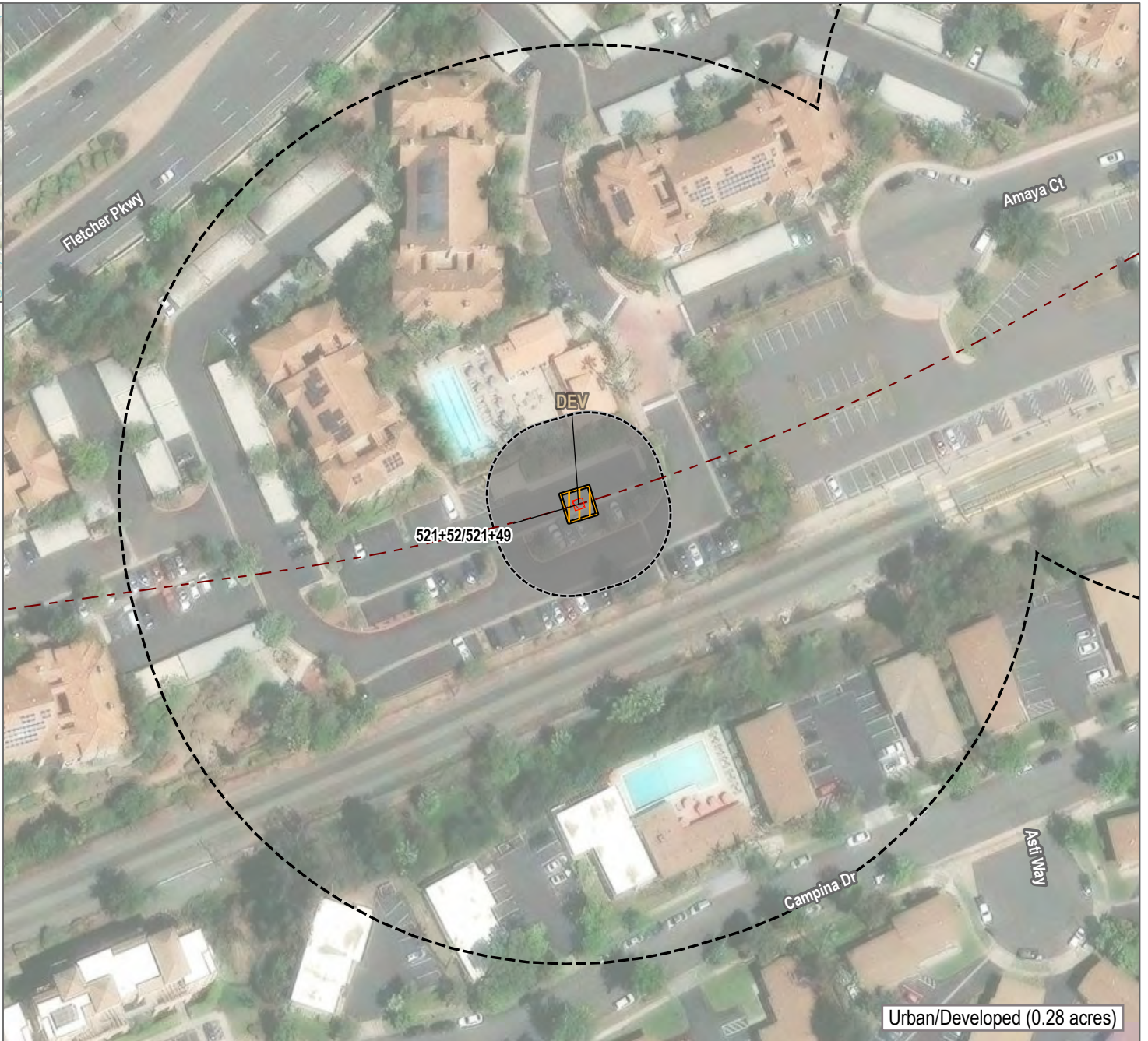
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- Pipeline Alignment
- ▭ Project Work Area
- ⋯ 300-ft Buffer
- ⋯ 50-ft Buffer
- ⊠ Permanent Impacts
- ▨ Temporary Impacts

**Vegetation Communities and Land Cover**

■ DEV: Urban/Developed

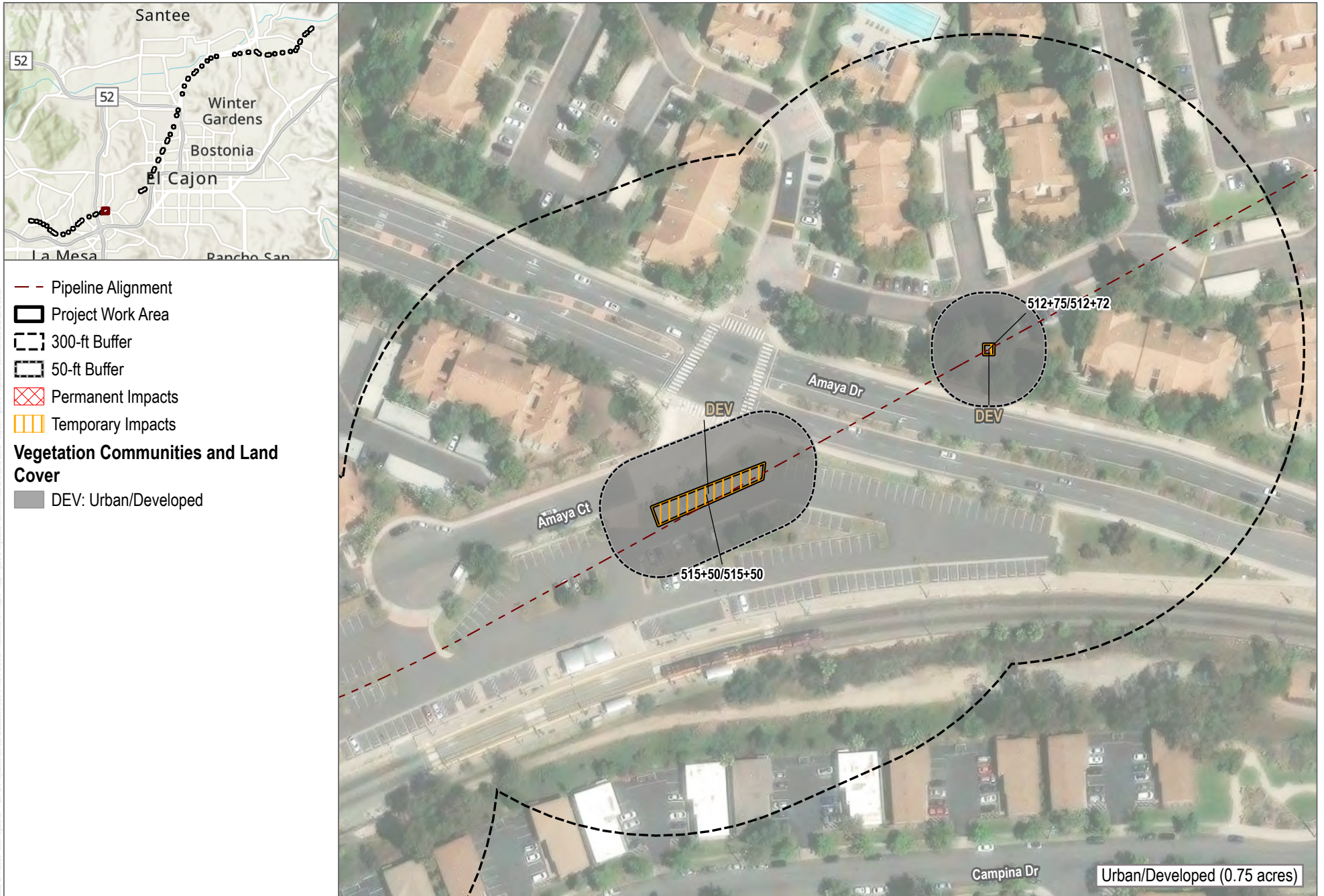


SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 5-10**  
**Vegetation Communities and Land Cover**  
 El Monte Water Transmission Pipeline Rehabilitation Project

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SOURCE: Esri World Imagery; Open Street Map 2023

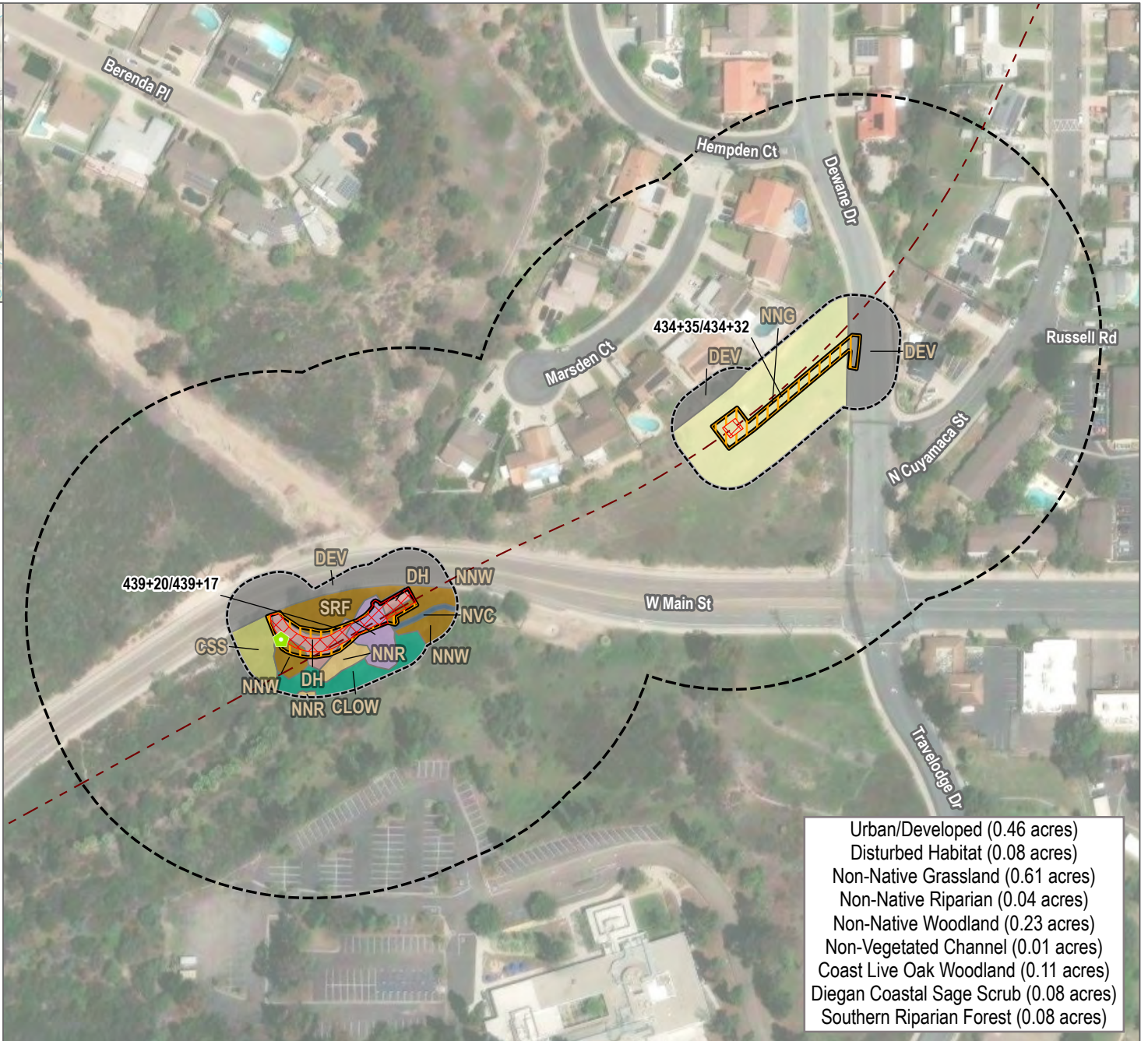
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- Pipeline Alignment
- Project Work Area
- 300-ft Buffer
- 50-ft Buffer
- Permanent Impacts
- Temporary Impacts
- ◆ Decumbent goldenbush, *Isocoma menziesii* var. *decumbens*

**Vegetation Communities and Land Cover**

- CLOW: Coast Live Oak Woodland
- CSS: Diegan Coastal Sage Scrub
- NNG: Non-Native Grassland
- NNR: Non-Native Riparian
- NNW: Non-Native Woodland
- NVC: Non-Vegetated Channel or Floodway
- SRF: Southern Riparian Forest
- DEV: Urban/Developed
- DH: Disturbed Habitat



SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 5-12**  
Vegetation Communities and Land Cover  
El Monte Water Transmission Pipeline Rehabilitation Project

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SOURCE: Esri World Imagery; Open Street Map 2023

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SOURCE: Esri World Imagery; Open Street Map 2023

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SOURCE: Esri World Imagery; Open Street Map 2023

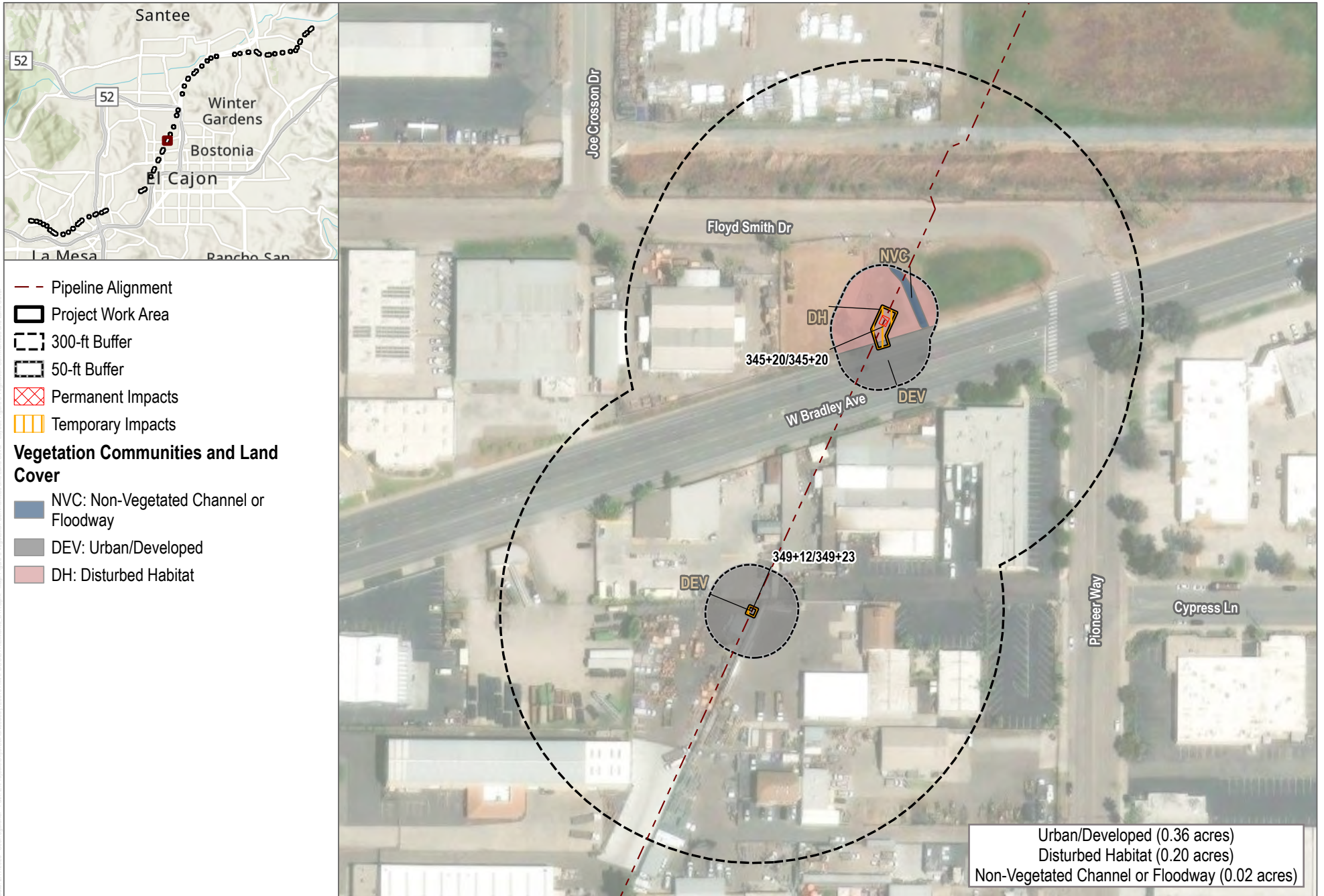
**FIGURE 5-15**  
Vegetation Communities and Land Cover  
El Monte Water Transmission Pipeline Rehabilitation Project

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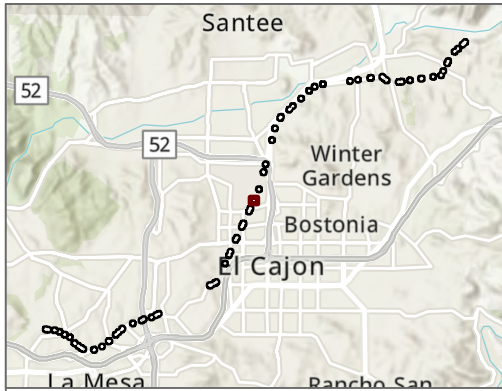
SOURCE: Esri World Imagery; Open Street Map 2023

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SOURCE: Esri World Imagery; Open Street Map 2023

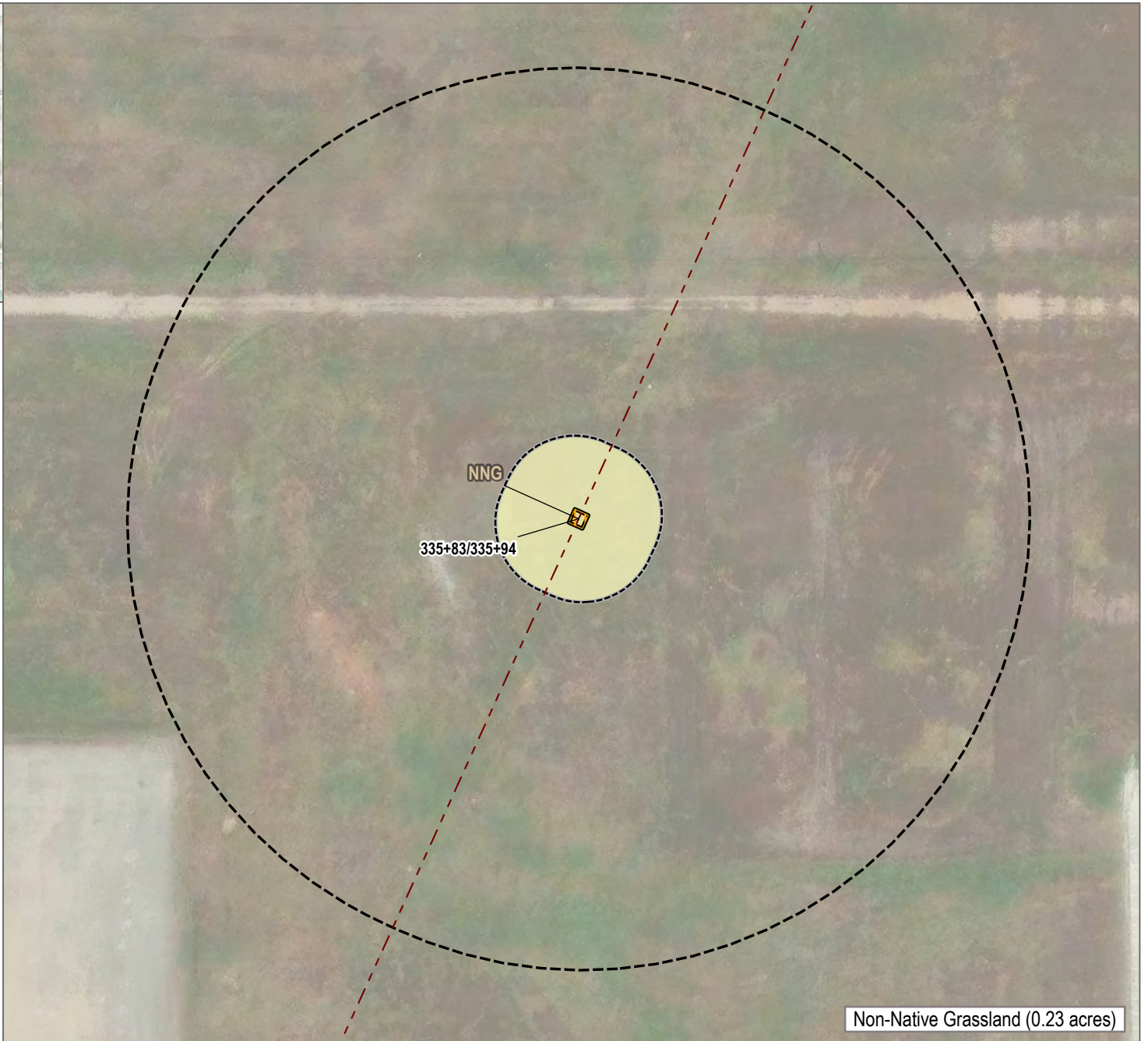
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- Pipeline Alignment
- ▭ Project Work Area
- ⋯ 300-ft Buffer
- ⋯ 50-ft Buffer
- ⊠ Permanent Impacts
- ▨ Temporary Impacts

**Vegetation Communities and Land Cover**

- NNG: Non-Native Grassland

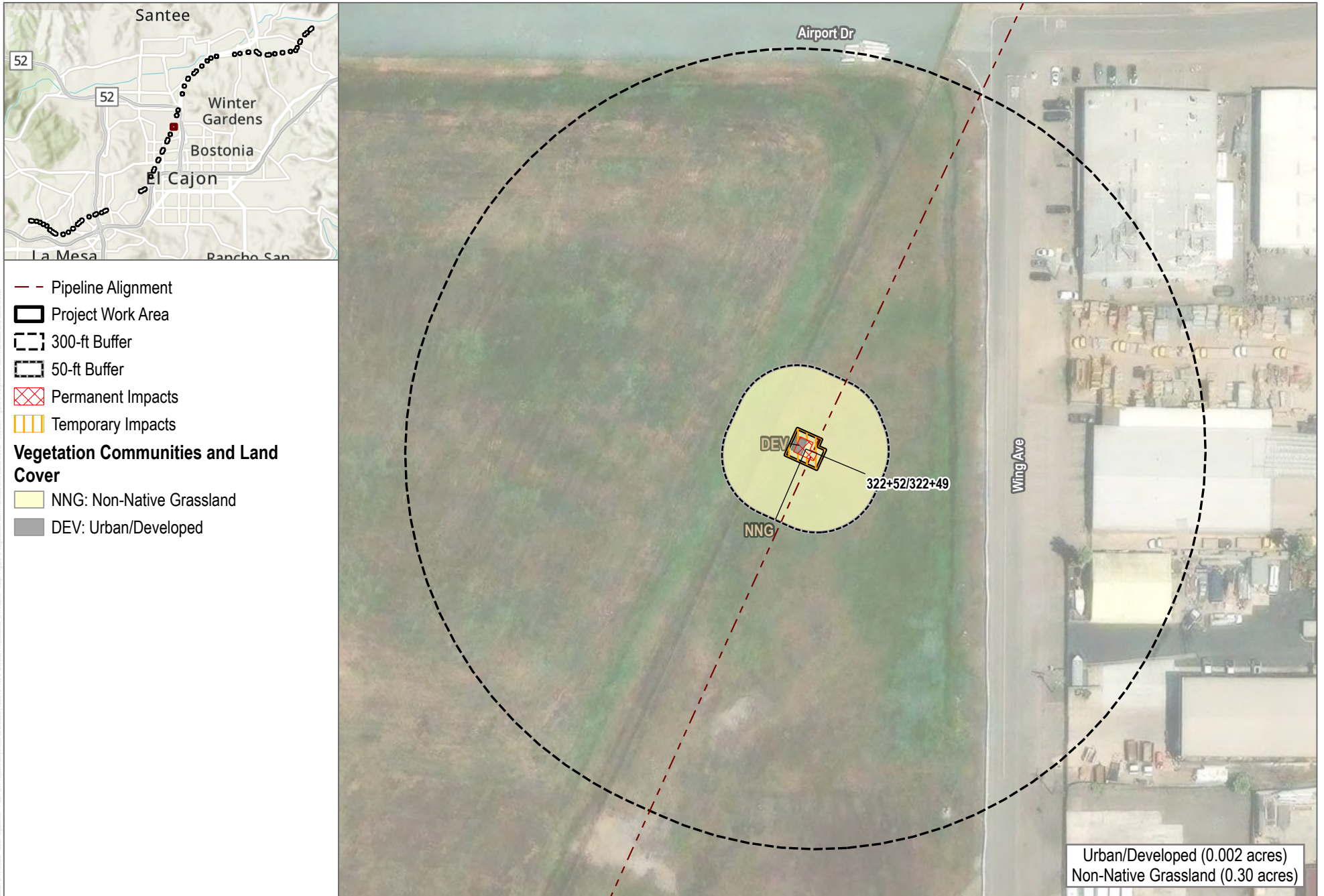


SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 5-18**  
**Vegetation Communities and Land Cover**  
 El Monte Water Transmission Pipeline Rehabilitation Project

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SOURCE: Esri World Imagery; Open Street Map 2023

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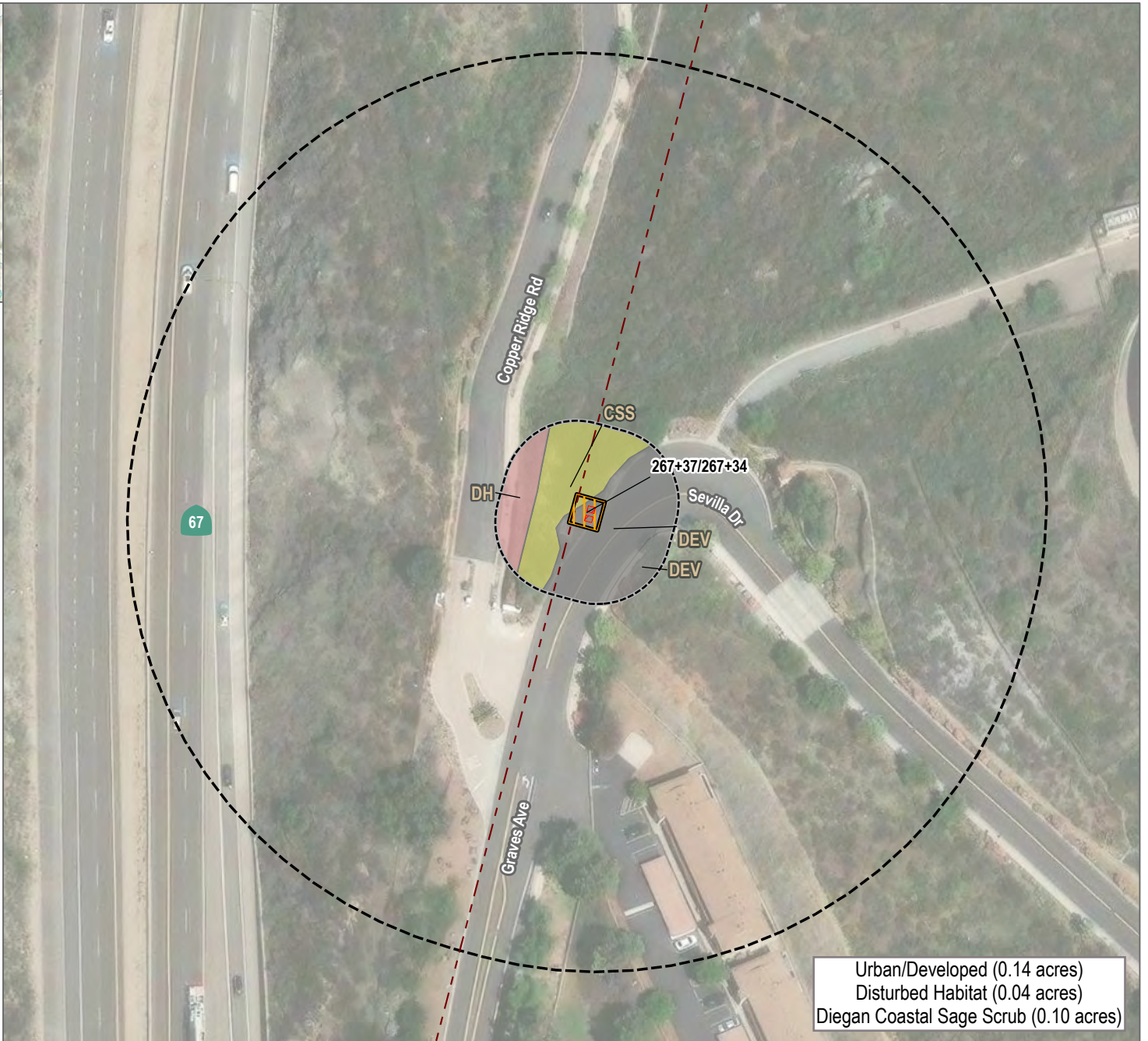
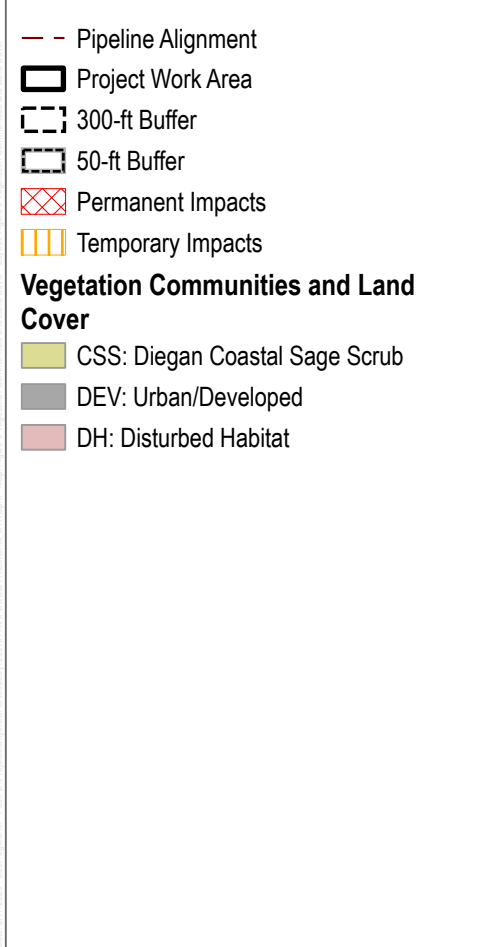
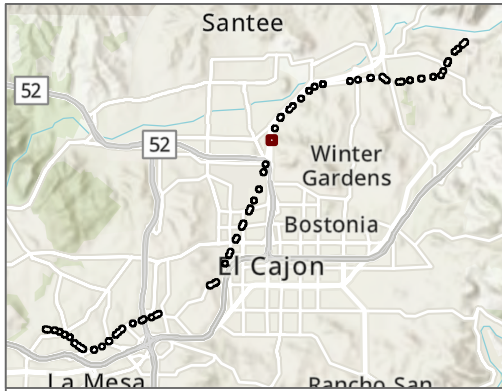


SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 5-20**  
**Vegetation Communities and Land Cover**  
 El Monte Water Transmission Pipeline Rehabilitation Project

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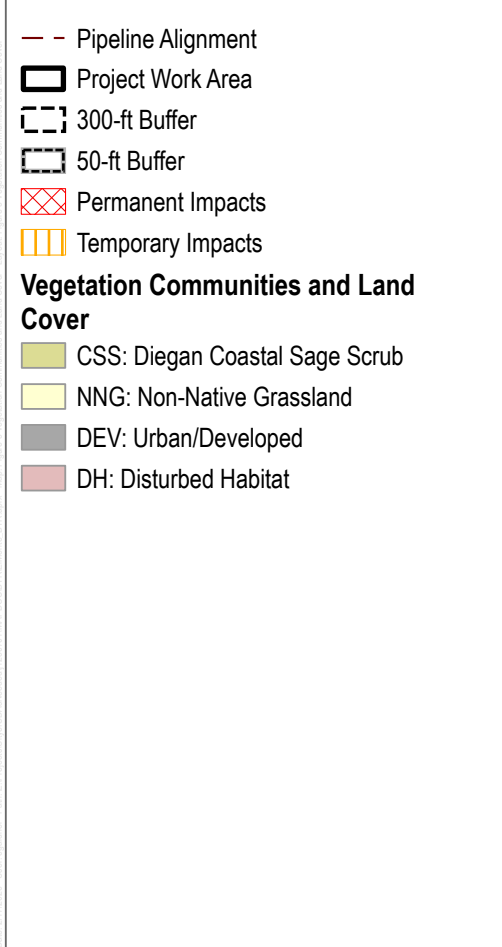
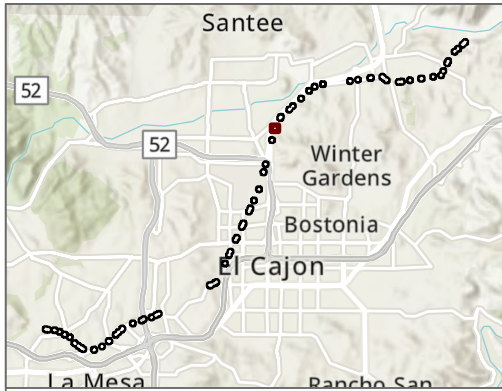
Urban/Developed (0.14 acres)  
 Disturbed Habitat (0.04 acres)  
 Diegan Coastal Sage Scrub (0.10 acres)

SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 5-21**  
 Vegetation Communities and Land Cover  
 El Monte Water Transmission Pipeline Rehabilitation Project

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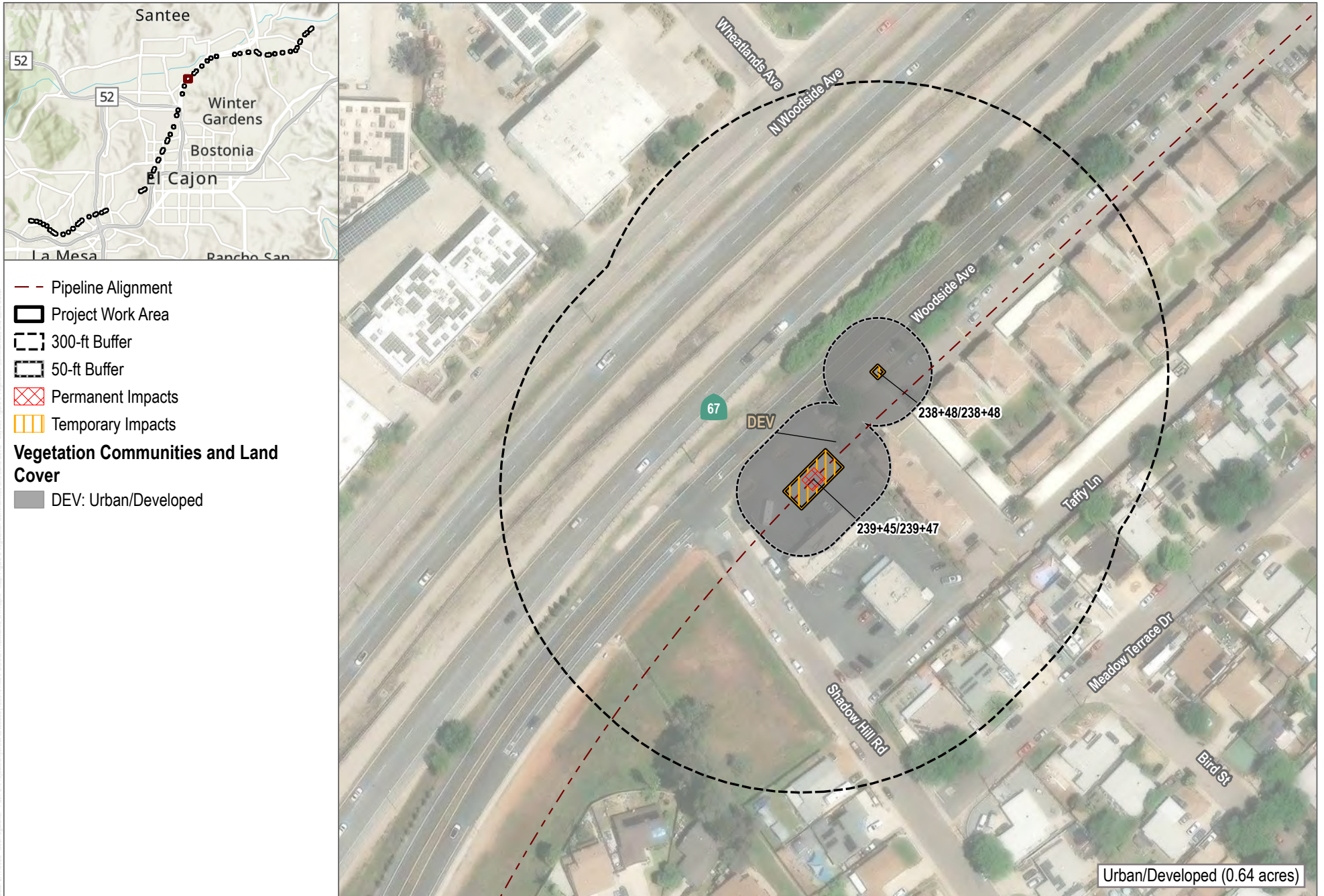
Urban/Developed (0.09 acres)  
 Non-Native Grassland (0.14 acres)  
 Disturbed Habitat (0.04 acres)  
 Diegan Coastal Sage Scrub (0.005 acres)

SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 5-22**  
 Vegetation Communities and Land Cover  
 El Monte Water Transmission Pipeline Rehabilitation Project

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SOURCE: Esri World Imagery; Open Street Map 2023



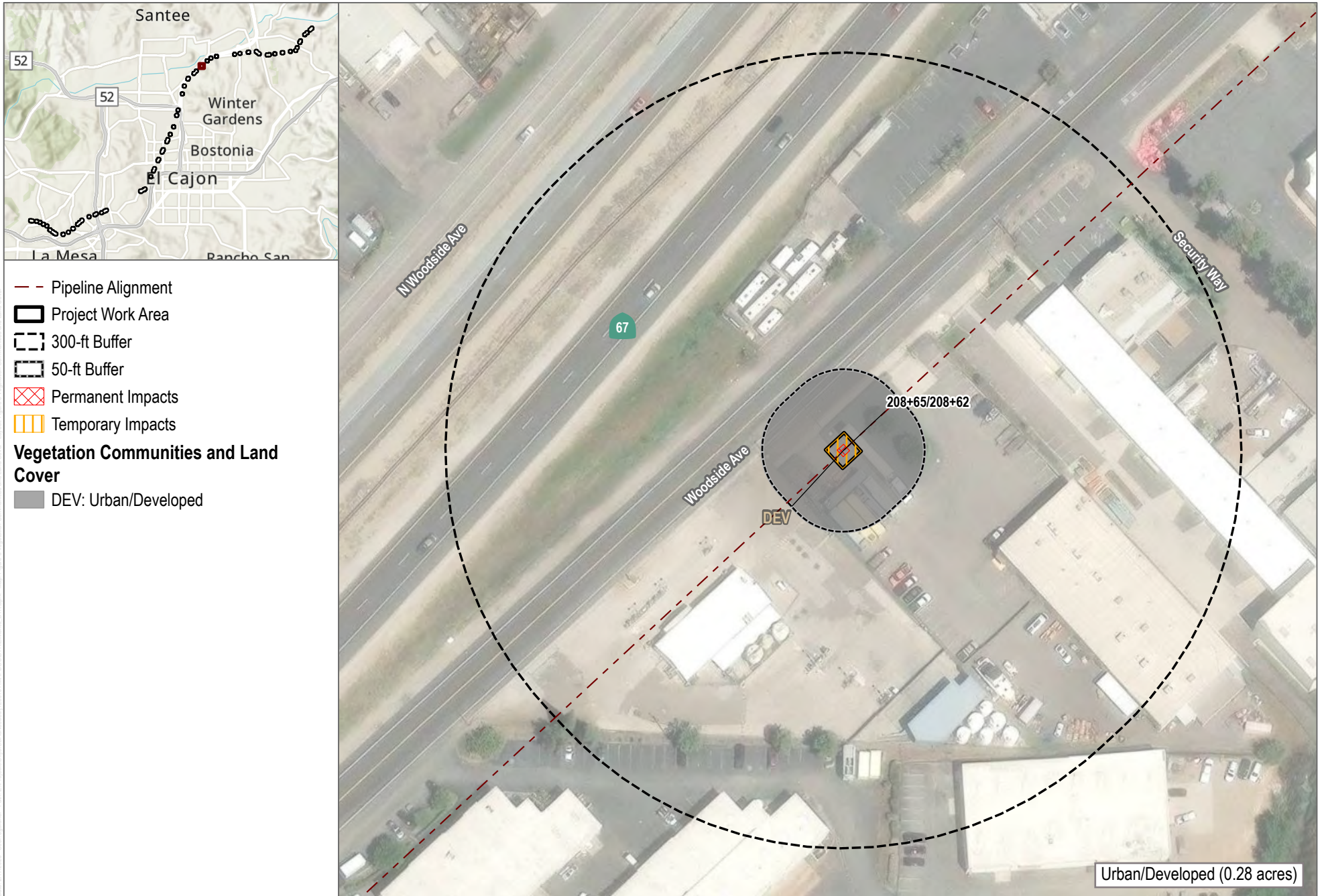
**FIGURE 5-23**  
**Vegetation Communities and Land Cover**  
 El Monte Water Transmission Pipeline Rehabilitation Project

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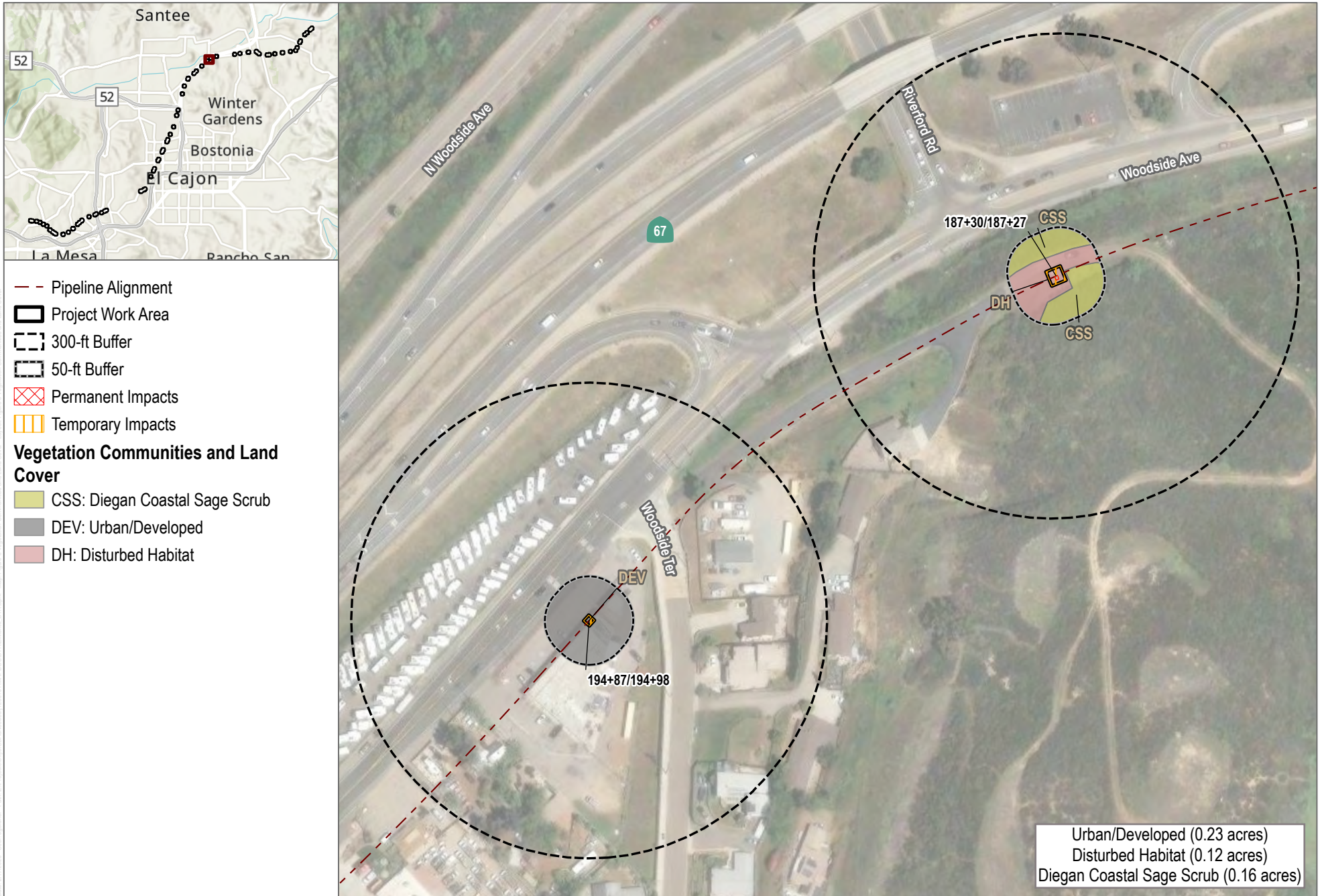
SOURCE: Esri World Imagery; Open Street Map 2023

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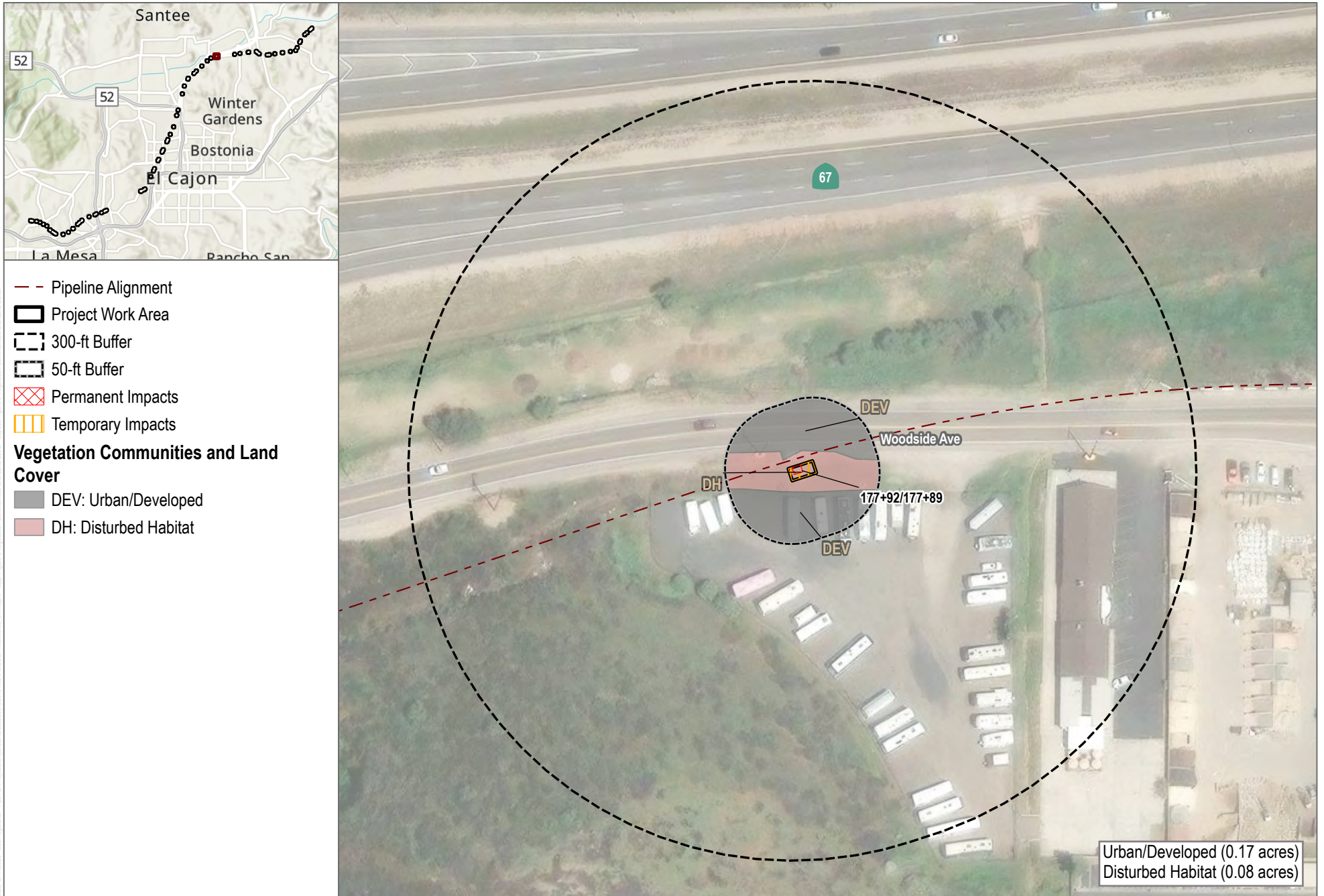
SOURCE: Esri World Imagery; Open Street Map 2023

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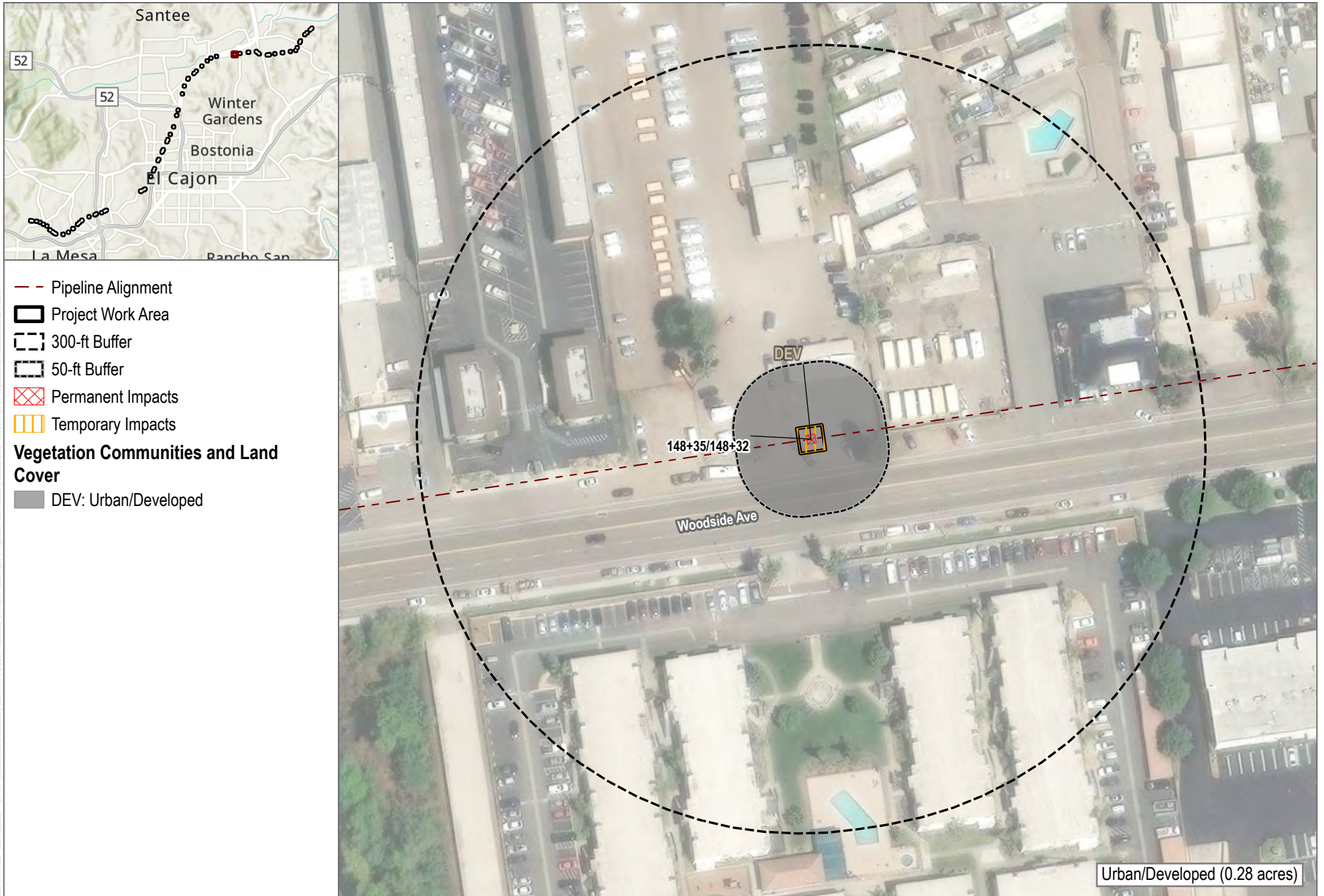
SOURCE: Esri World Imagery; Open Street Map 2023

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SOURCE: Esri World Imagery; Open Street Map 2023

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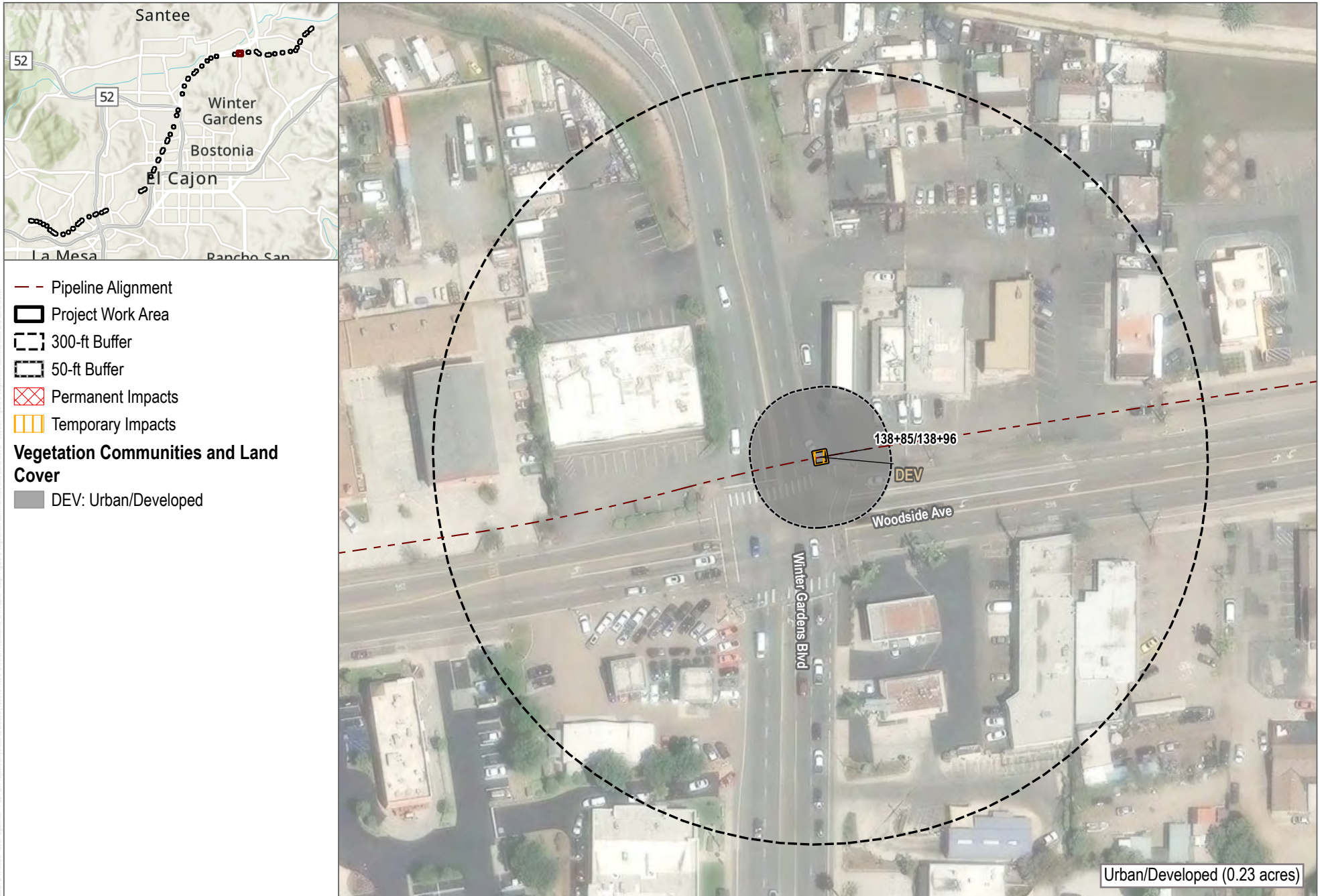


**FIGURE 5-28**

**Vegetation Communities and Land Cover**

El Monte Water Transmission Pipeline Rehabilitation Project

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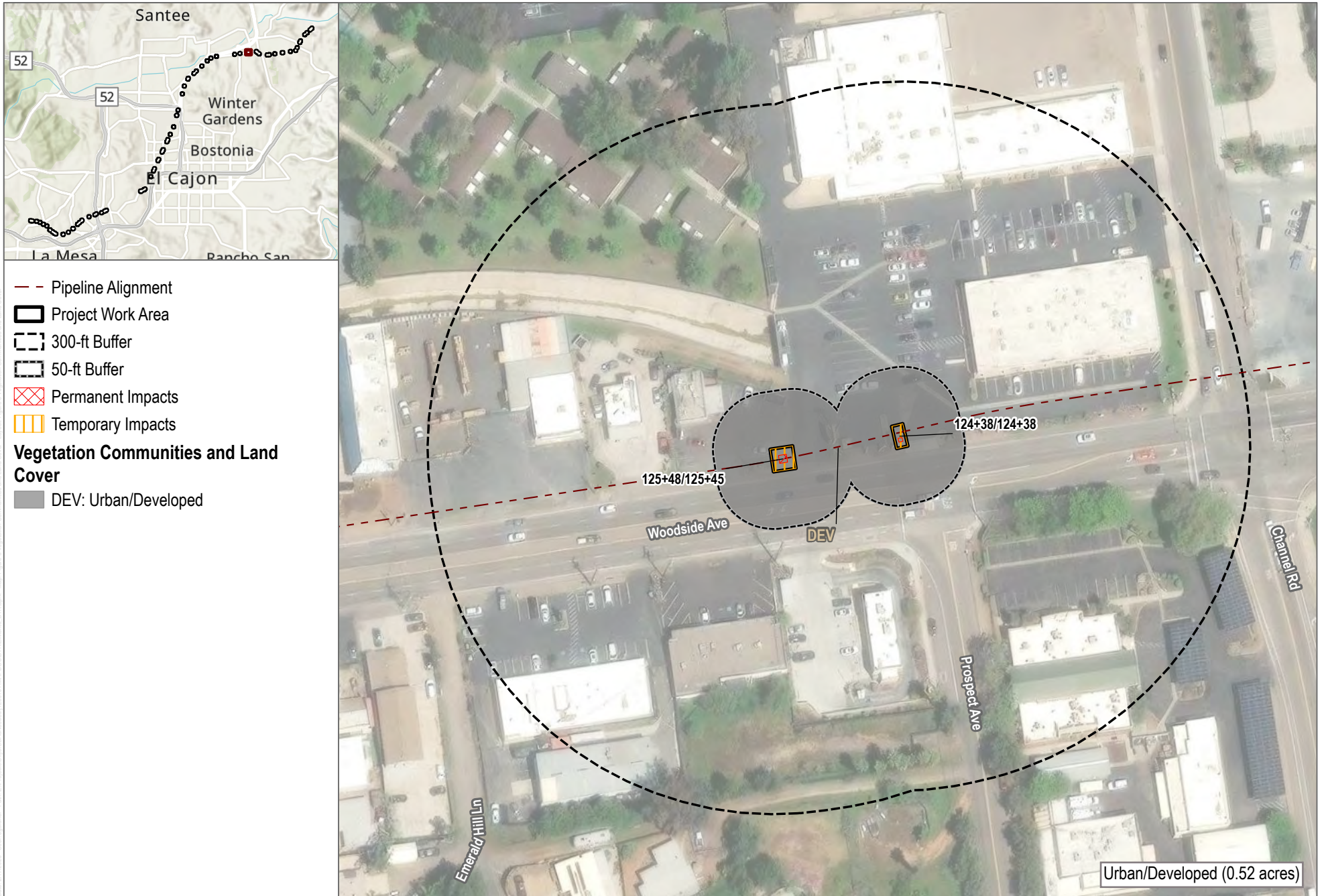


SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 5-29**  
**Vegetation Communities and Land Cover**  
 El Monte Water Transmission Pipeline Rehabilitation Project

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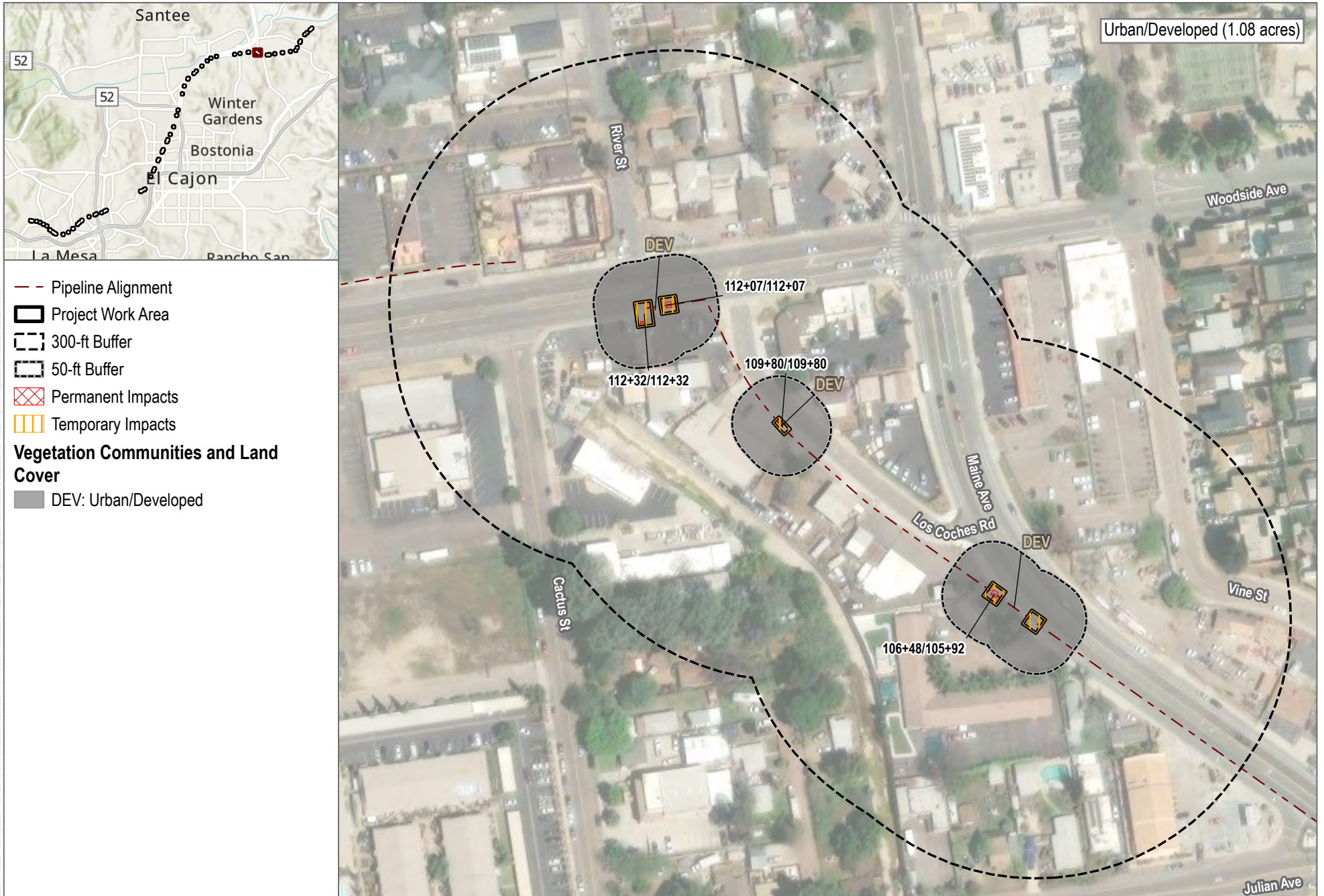


SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 5-30**  
**Vegetation Communities and Land Cover**  
 El Monte Water Transmission Pipeline Rehabilitation Project

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Urban/Developed (1.08 acres)

- Pipeline Alignment
- ▭ Project Work Area
- - - 300-ft Buffer
- - - 50-ft Buffer
- ⊠ Permanent Impacts
- ▨ Temporary Impacts

**Vegetation Communities and Land Cover**

■ DEV: Urban/Developed

SOURCE: Esri World Imagery; Open Street Map 2023

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SOURCE: Esri World Imagery; Open Street Map 2023



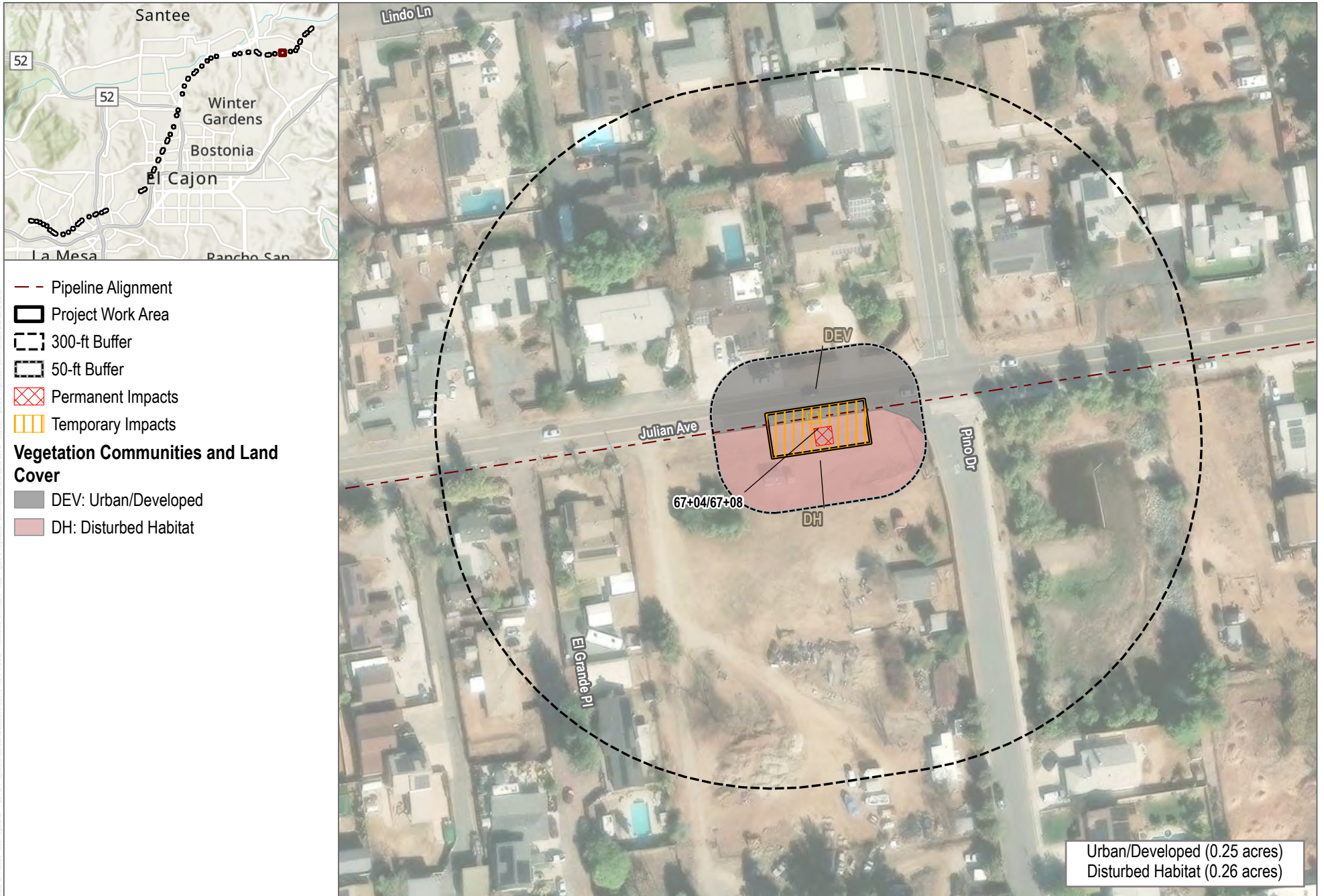
**FIGURE 5-32**  
**Vegetation Communities and Land Cover**  
 El Monte Water Transmission Pipeline Rehabilitation Project

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SOURCE: Esri World Imagery; Open Street Map 2023

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SOURCE: Esri World Imagery; Open Street Map 2023

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SOURCE: Esri World Imagery; Open Street Map 2023

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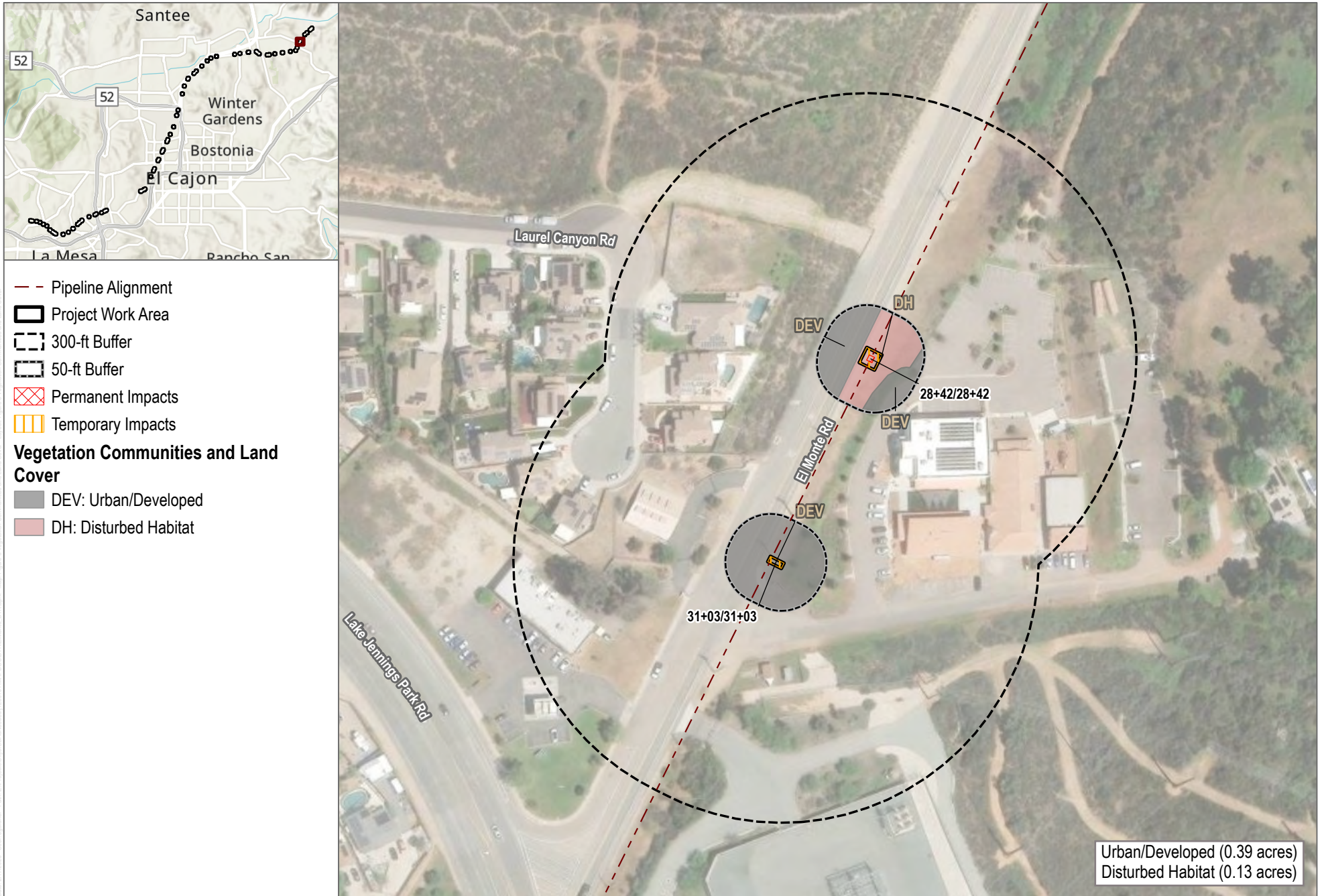


SOURCE: Esri World Imagery; Open Street Map 2023



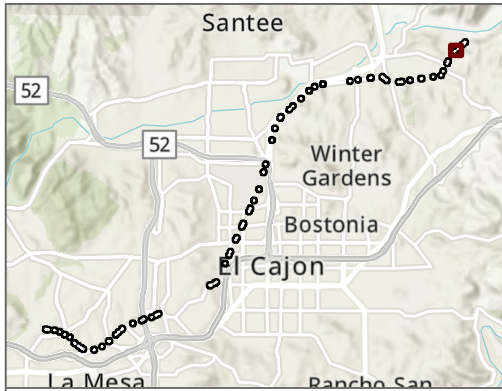
**FIGURE 5-36**  
**Vegetation Communities and Land Cover**  
 El Monte Water Transmission Pipeline Rehabilitation Project

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SOURCE: Esri World Imagery; Open Street Map 2023

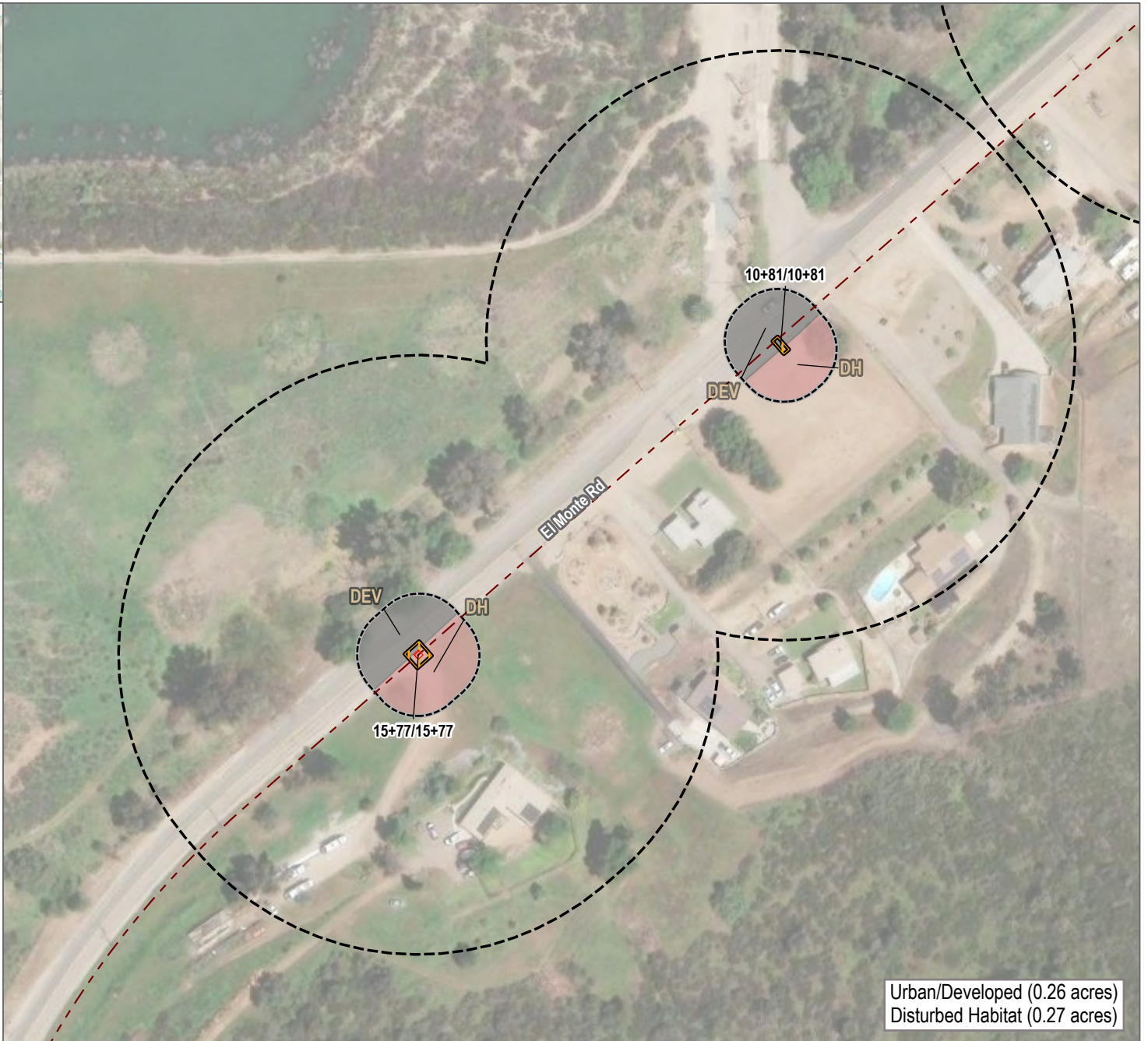
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- Pipeline Alignment
- Project Work Area
- 300-ft Buffer
- 50-ft Buffer
- Permanent Impacts
- Temporary Impacts

**Vegetation Communities and Land Cover**

- DEV: Urban/Developed
- DH: Disturbed Habitat



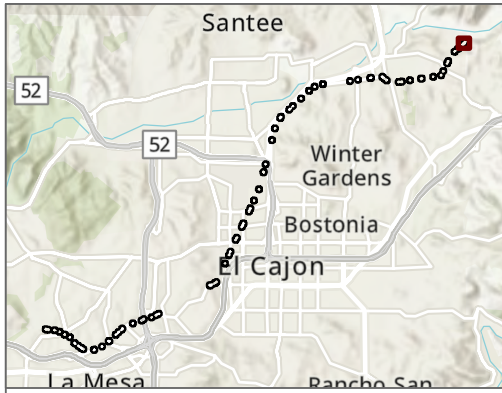
Urban/Developed (0.26 acres)  
Disturbed Habitat (0.27 acres)

SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 5-38**  
**Vegetation Communities and Land Cover**  
El Monte Water Transmission Pipeline Rehabilitation Project

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--- Pipeline Alignment

▭ Project Work Area

⋯ 300-ft Buffer

⋯ 50-ft Buffer

⊠ Permanent Impacts

▨ Temporary Impacts

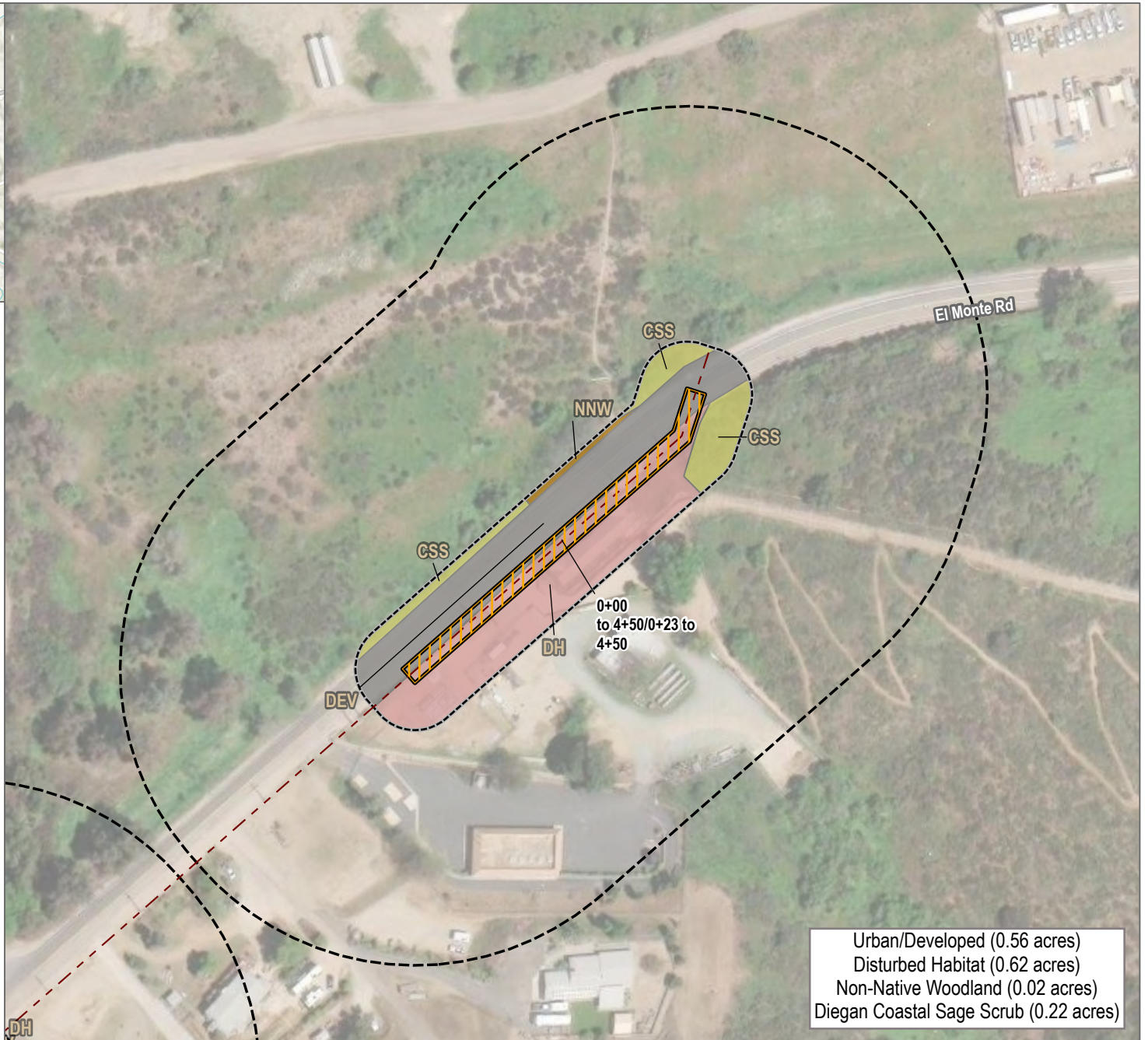
**Vegetation Communities and Land Cover**

■ CSS: Diegan Coastal Sage Scrub

■ NNW: Non-Native Woodland

■ DEV: Urban/Developed

■ DH: Disturbed Habitat



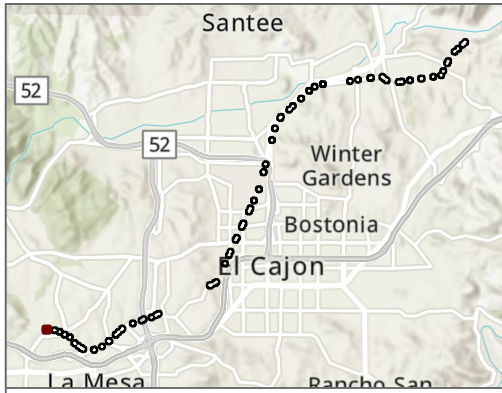
Urban/Developed (0.56 acres)  
 Disturbed Habitat (0.62 acres)  
 Non-Native Woodland (0.02 acres)  
 Diegan Coastal Sage Scrub (0.22 acres)

SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 5-39**  
 Vegetation Communities and Land Cover  
 El Monte Water Transmission Pipeline Rehabilitation Project

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- - Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Permanent Impacts
- Temporary Impacts



SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-1**

**Aquatic Resources**

El Monte Water Transmission Pipeline Rehabilitation Project

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SOURCE: Esri World Imagery; Open Street Map 2023

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- - Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Permanent Impacts
- Temporary Impacts

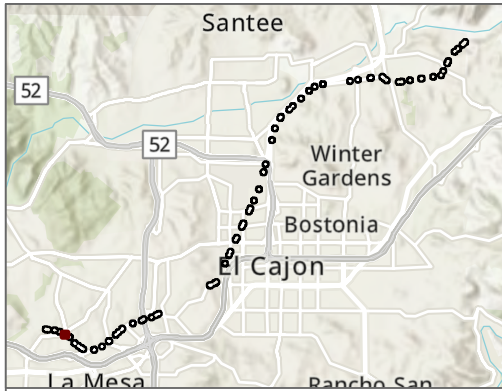


SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-3**  
**Aquatic Resources**  
 El Monte Water Transmission Pipeline Rehabilitation Project

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- Pipeline Alignment
- ▭ Project Work Area
- ⊞ 50-ft Buffer
- ⊞ Permanent Impacts
- ⊞ Temporary Impacts
- Non-Jurisdictional Resources**
- Stormwater Control Feature

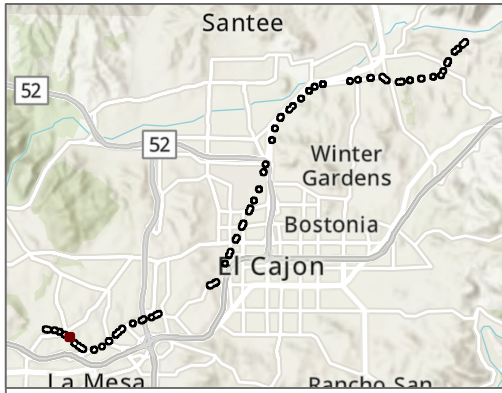


SOURCE: Esri World Imagery; Open Street Map 2023

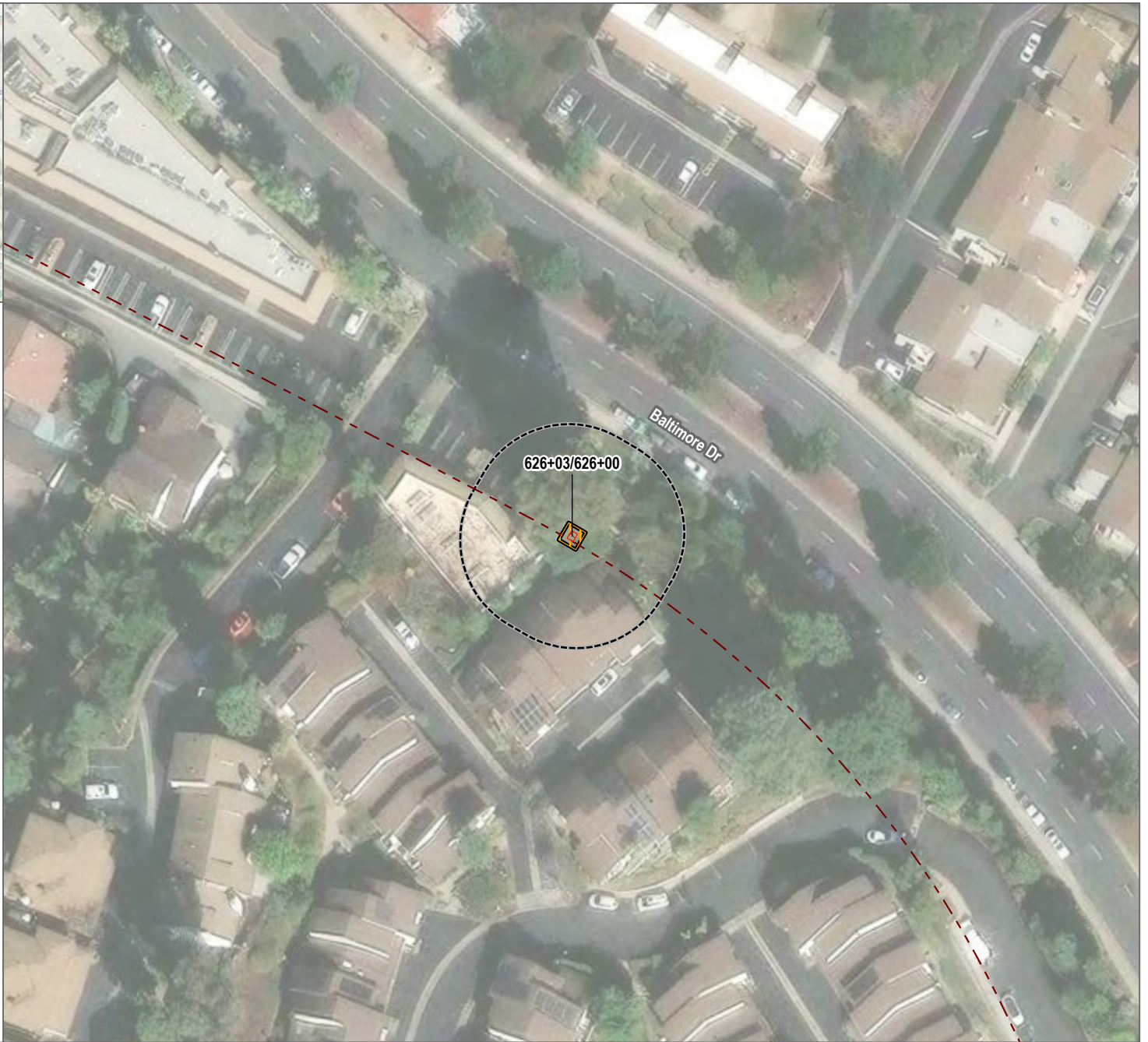


**FIGURE 6-4**  
Aquatic Resources  
El Monte Water Transmission Pipeline Rehabilitation Project

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- Pipeline Alignment
- ▭ Project Work Area
- ▭ 50-ft Buffer
- ▣ Permanent Impacts
- ▣ Temporary Impacts

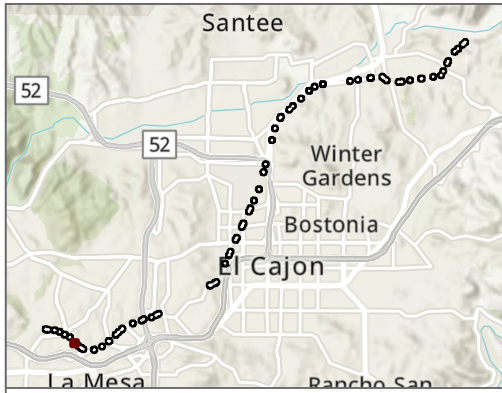


SOURCE: Esri World Imagery; Open Street Map 2023

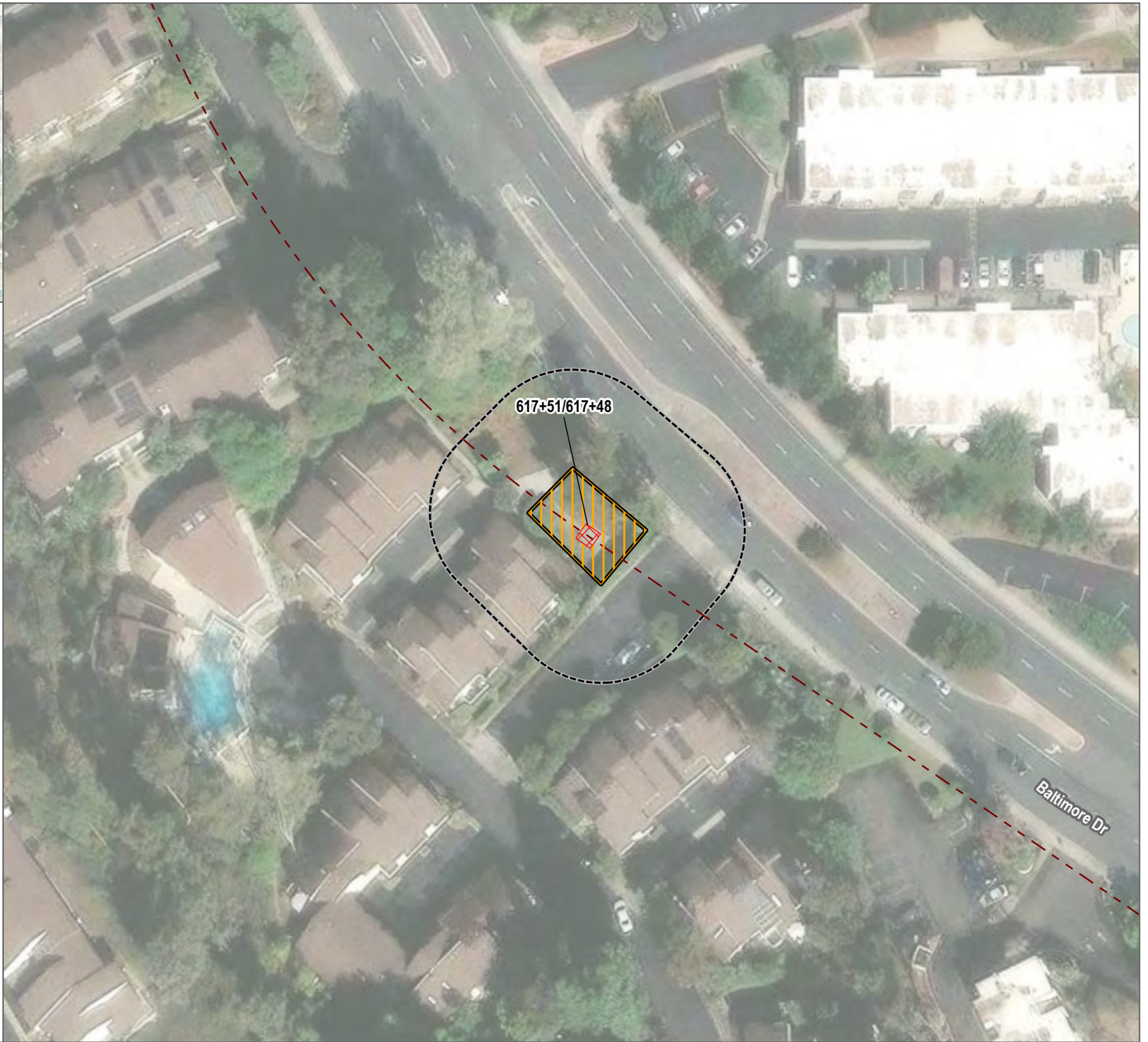


**FIGURE 6-5**  
**Aquatic Resources**  
 El Monte Water Transmission Pipeline Rehabilitation Project

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- - Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Permanent Impacts
- Temporary Impacts

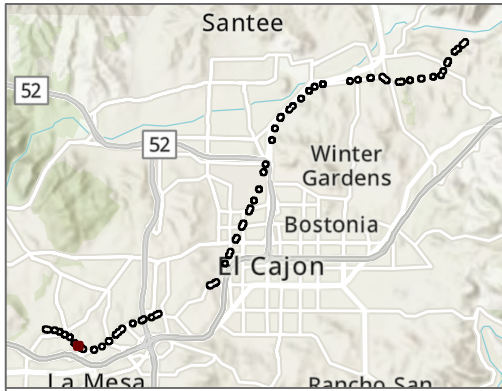


SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-6**  
**Aquatic Resources**  
 El Monte Water Transmission Pipeline Rehabilitation Project

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- Pipeline Alignment
- ▭ Project Work Area
- ▭ 50-ft Buffer
- ▣ Permanent Impacts
- ▣ Temporary Impacts



SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-7**  
**Aquatic Resources**  
 El Monte Water Transmission Pipeline Rehabilitation Project

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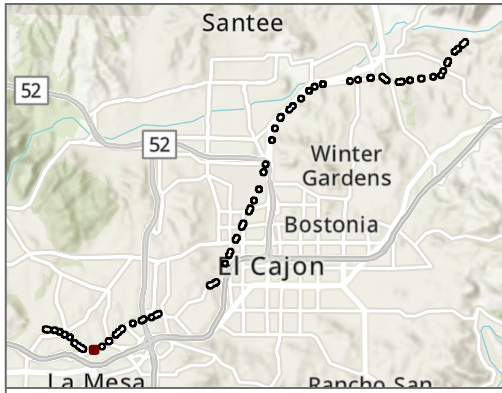


SOURCE: Esri World Imagery; Open Street Map 2023

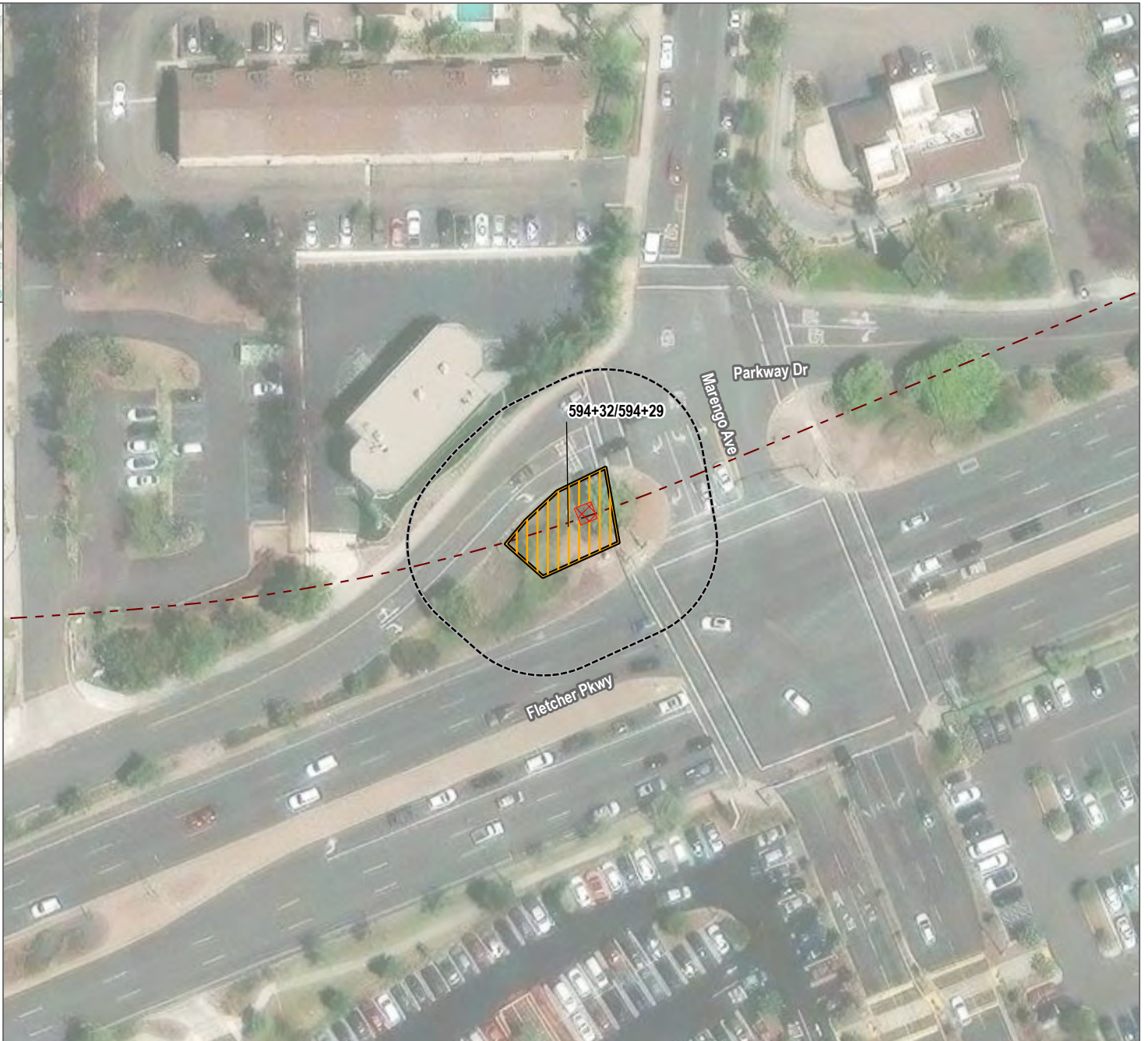


**FIGURE 6-8**  
**Aquatic Resources**  
 El Monte Water Transmission Pipeline Rehabilitation Project

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- - Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Permanent Impacts
- Temporary Impacts



SOURCE: Esri World Imagery; Open Street Map 2023

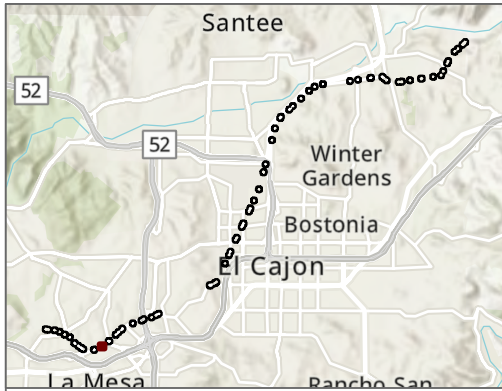


**FIGURE 6-9**

**Aquatic Resources**

El Monte Water Transmission Pipeline Rehabilitation Project

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- - Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Permanent Impacts
- Temporary Impacts



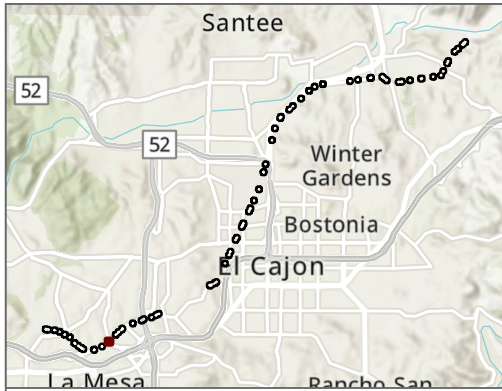
SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-10**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

INTENTIONALLY LEFT BLANK



- Pipeline Alignment
- ▭ Project Work Area
- ▭ 50-ft Buffer
- ▨ Permanent Impacts
- ▨ Temporary Impacts

SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-11**

**Aquatic Resources**

El Monte Water Transmission Pipeline Rehabilitation Project

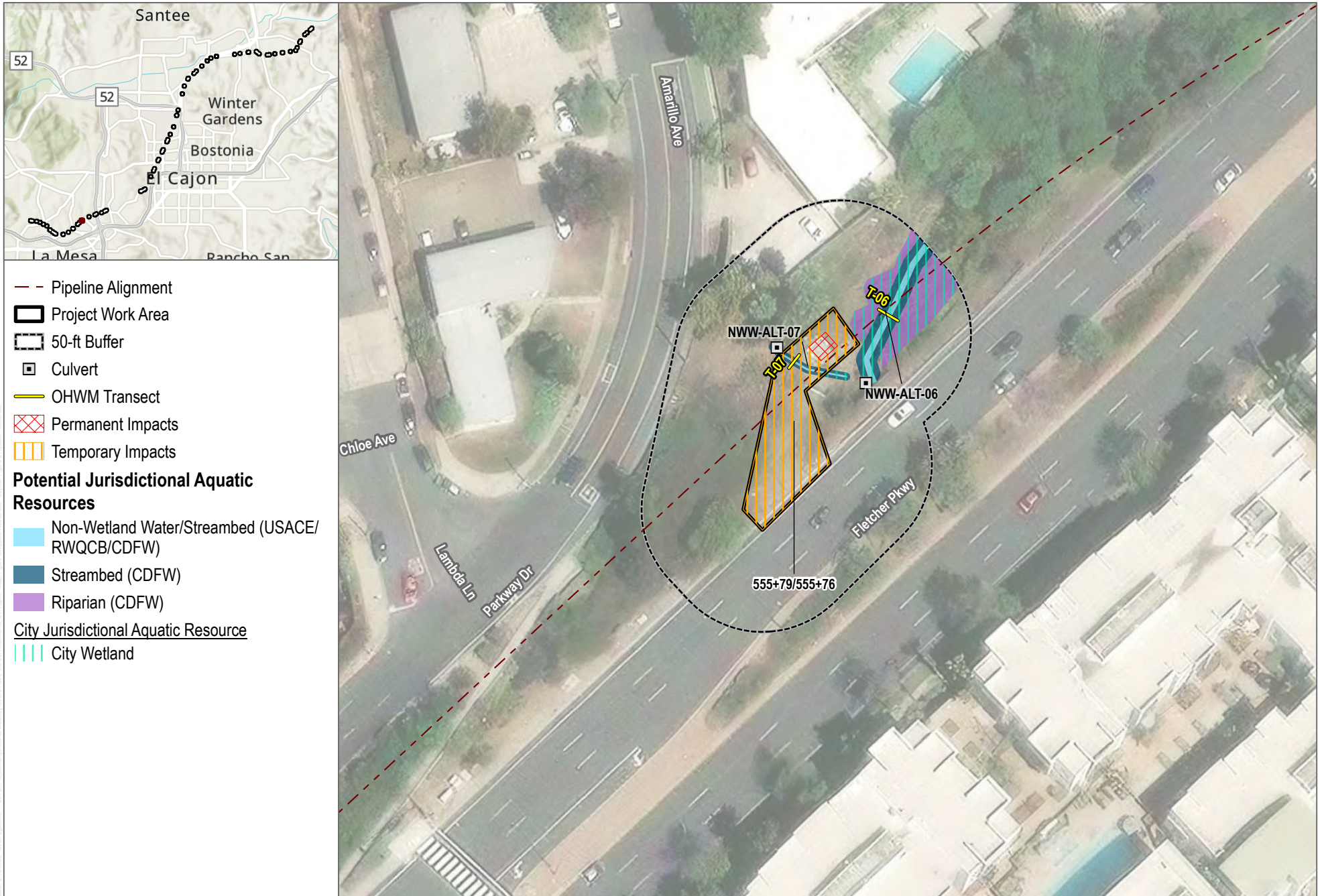
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SOURCE: Esri World Imagery; Open Street Map 2023

**FIGURE 6-12**  
Aquatic Resources

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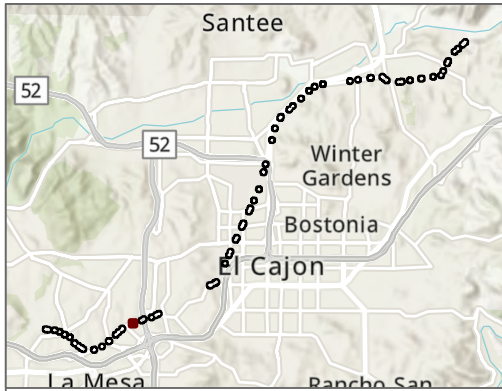
SOURCE: Esri World Imagery; Open Street Map 2023



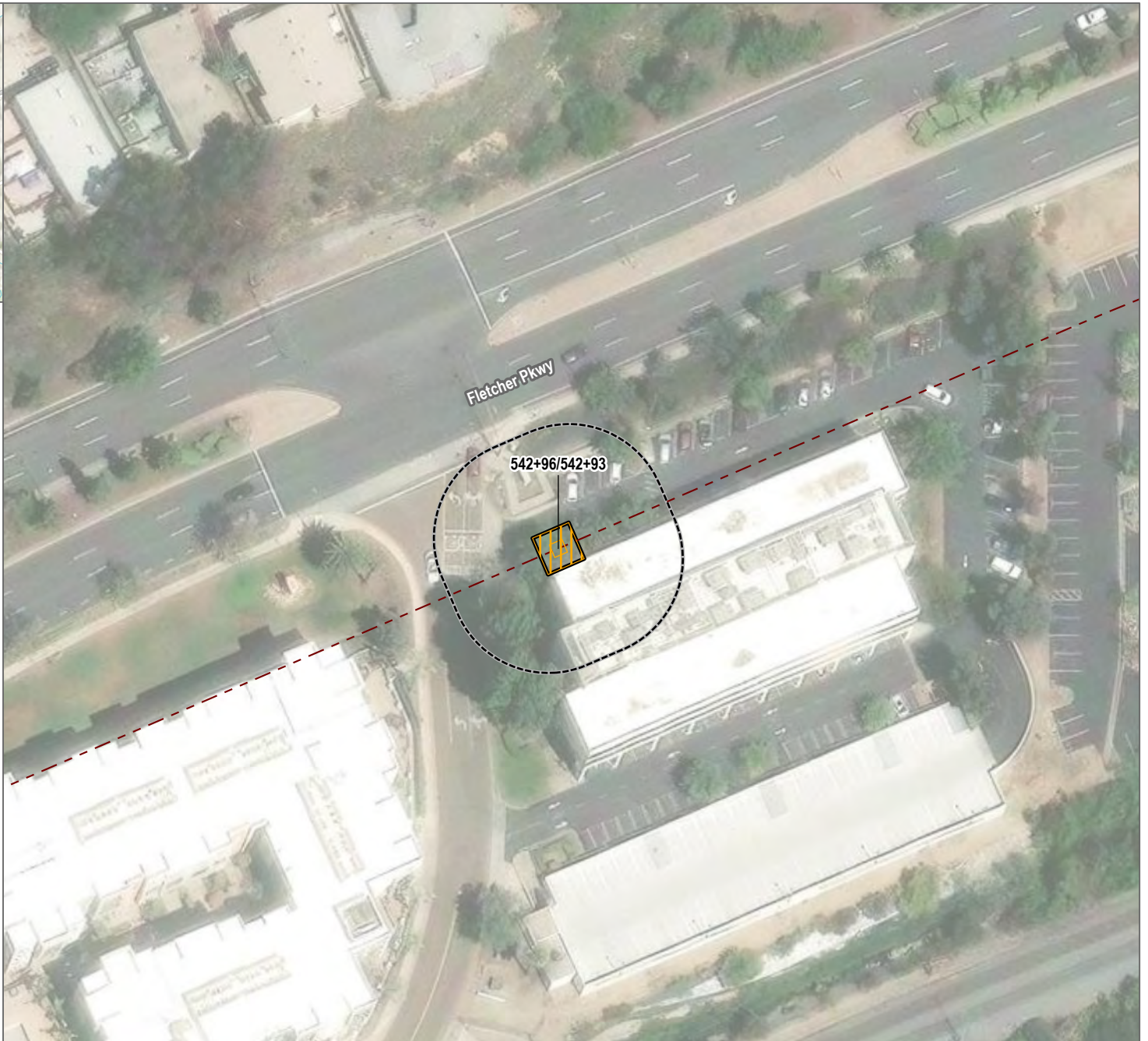
**FIGURE 6-13**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

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- Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Permanent Impacts
- Temporary Impacts



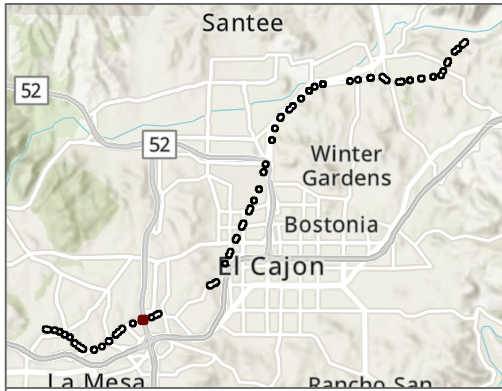
SOURCE: Esri World Imagery; Open Street Map 2023



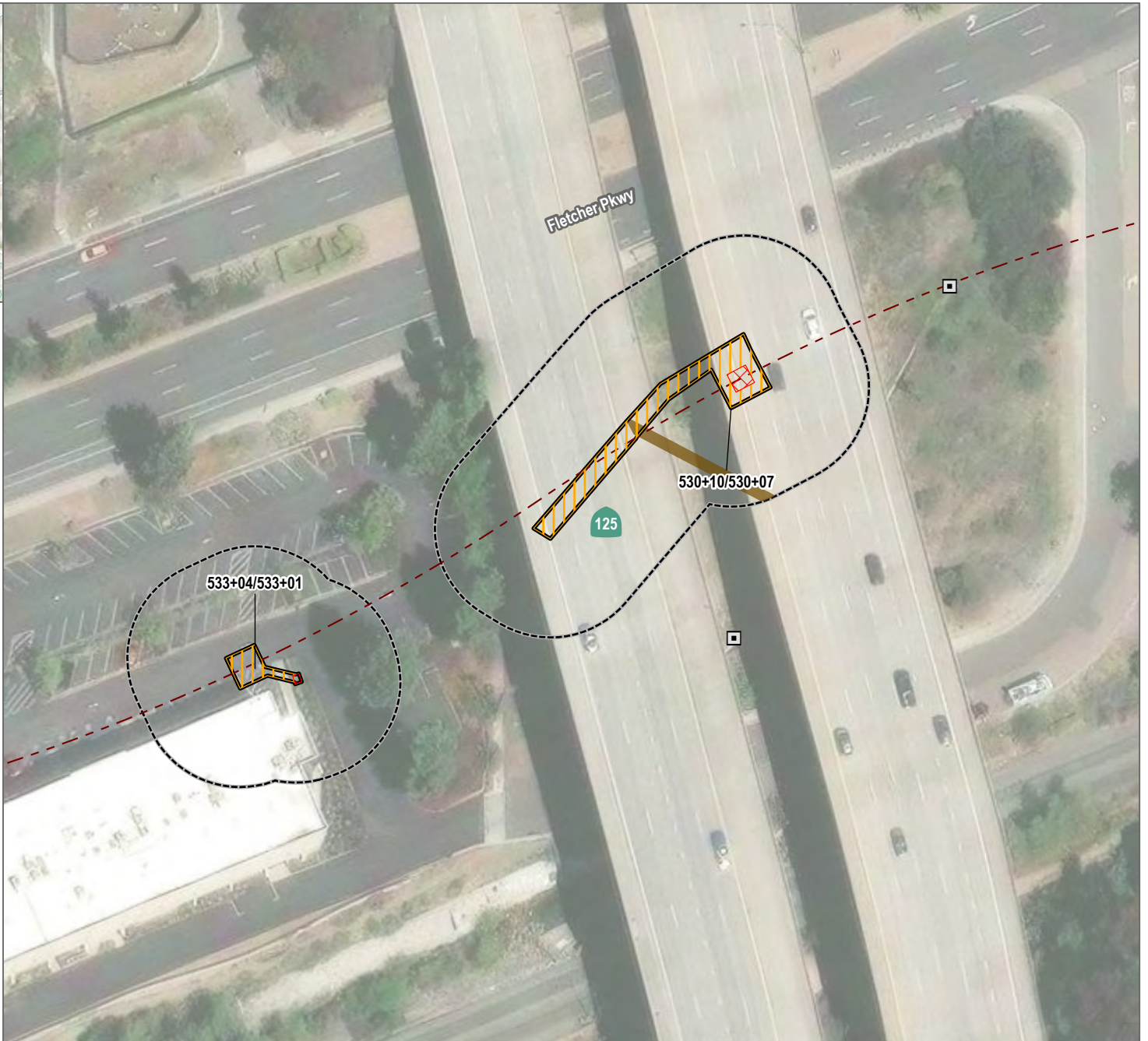
**FIGURE 6-14**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

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- Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Culvert
- Permanent Impacts
- Temporary Impacts
- Non-Jurisdictional Resources**
- Stormwater Control Feature



SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-15**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

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- - Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Permanent Impacts
- Temporary Impacts



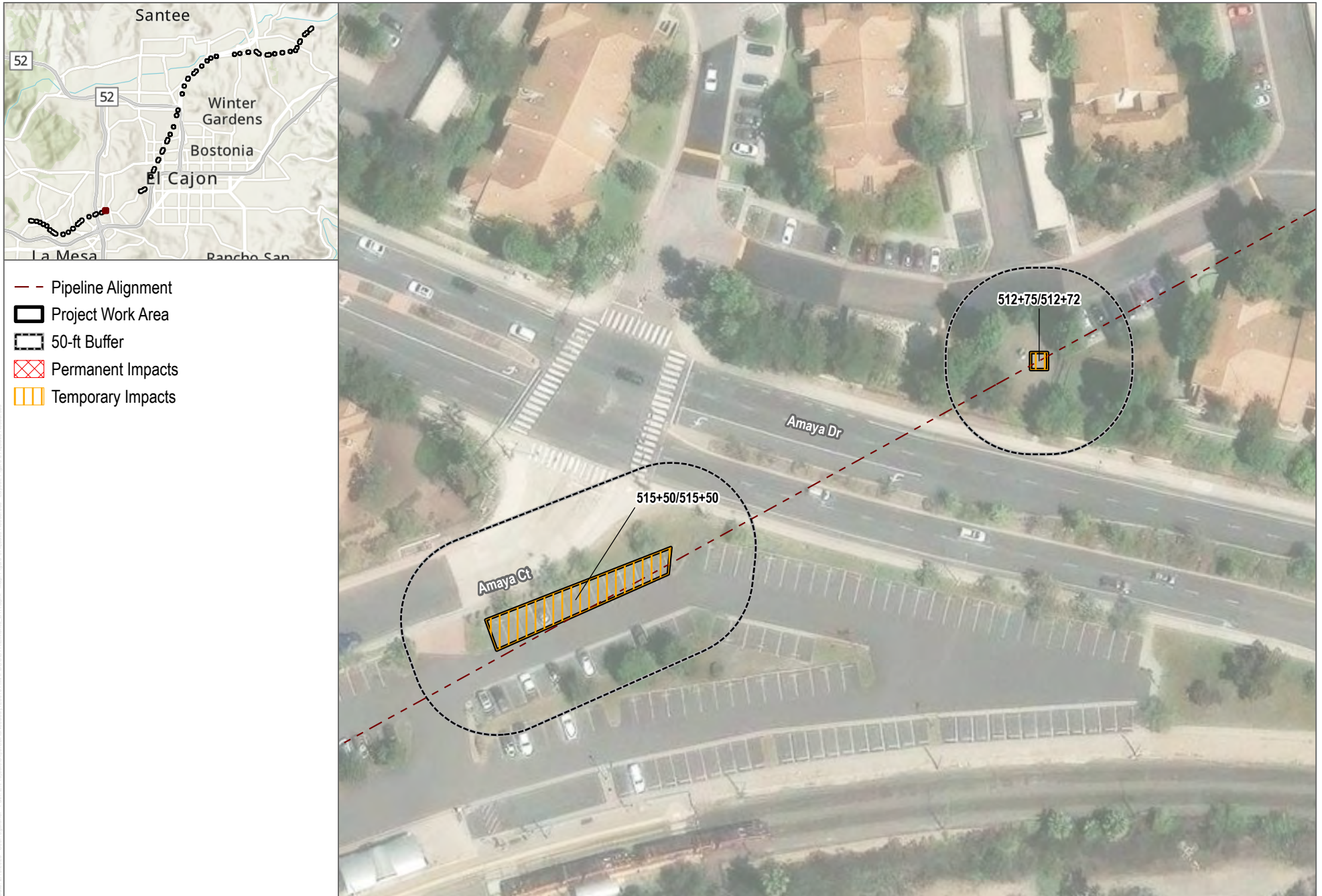
SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-16**  
Aquatic Resources

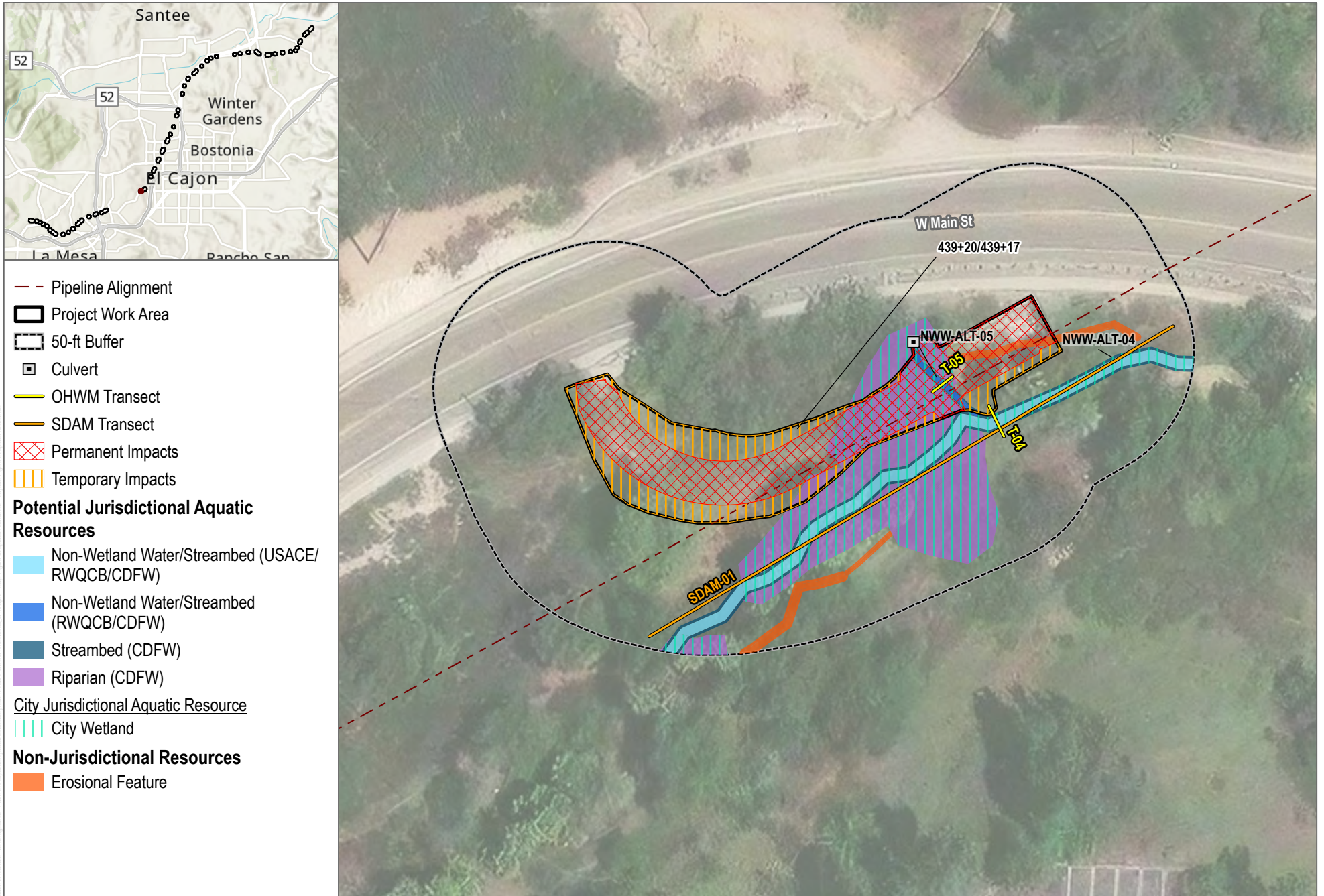
El Monte Water Transmission Pipeline Rehabilitation Project

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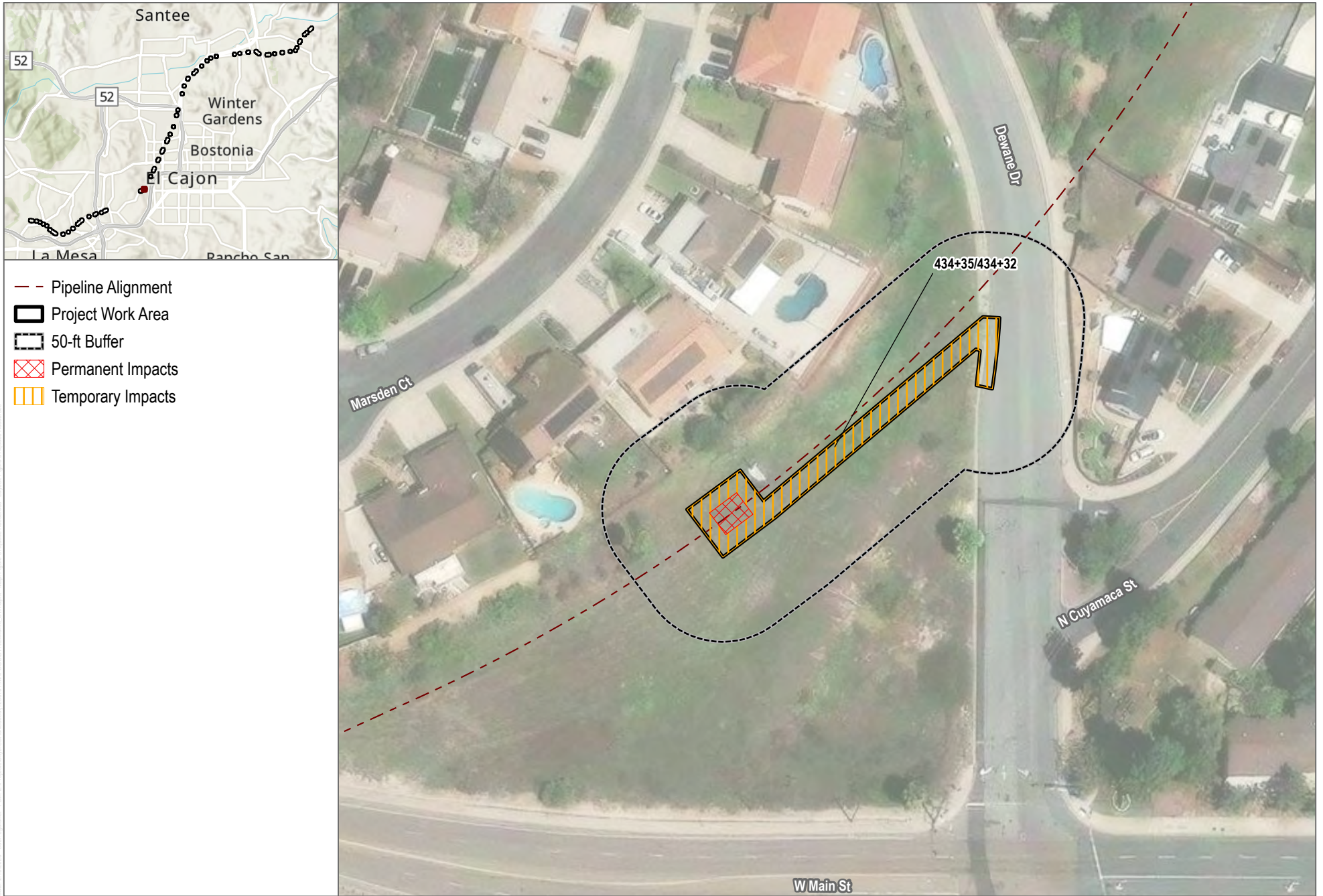
SOURCE: Esri World Imagery; Open Street Map 2023

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SOURCE: Esri World Imagery; Open Street Map 2023

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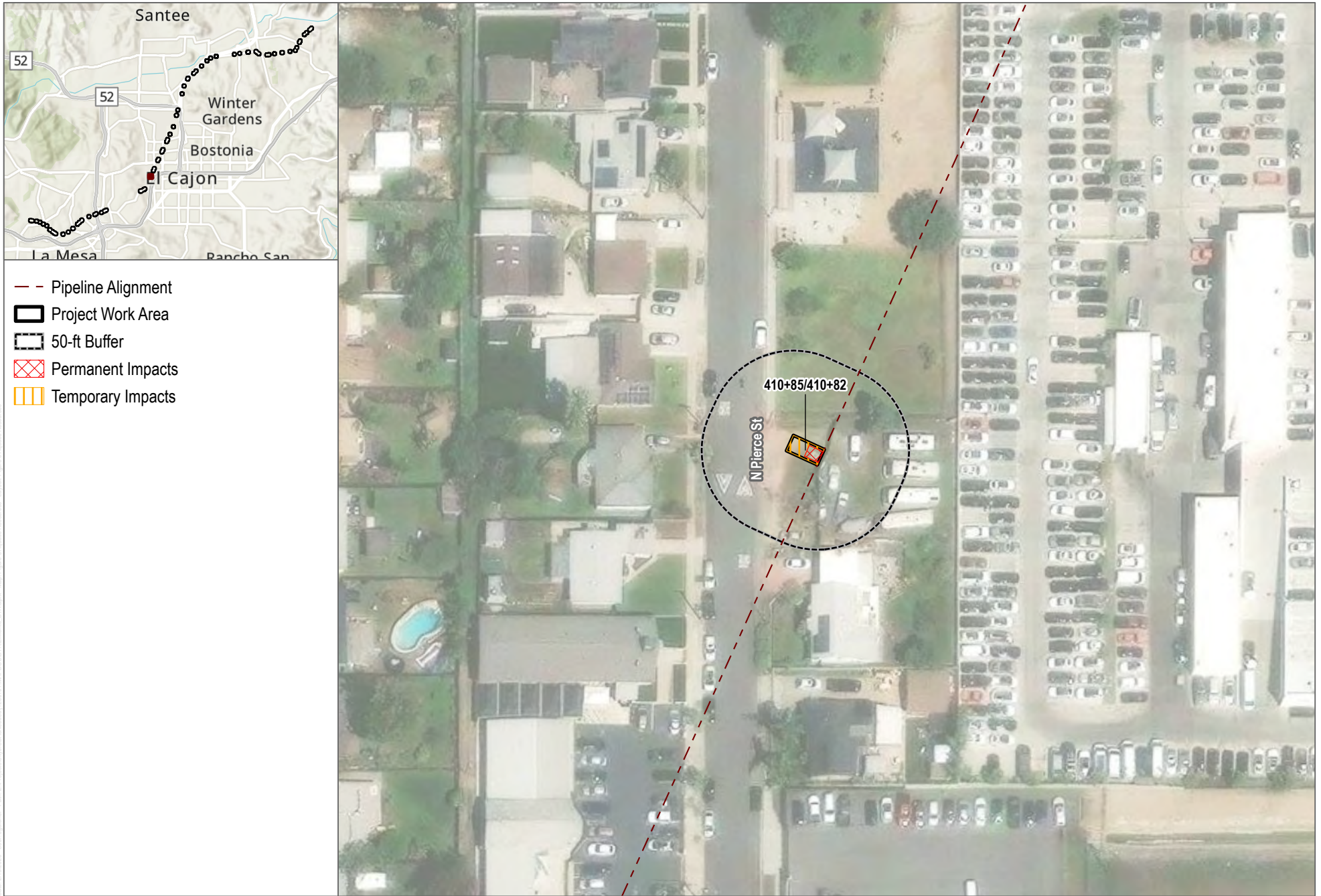
SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-19**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

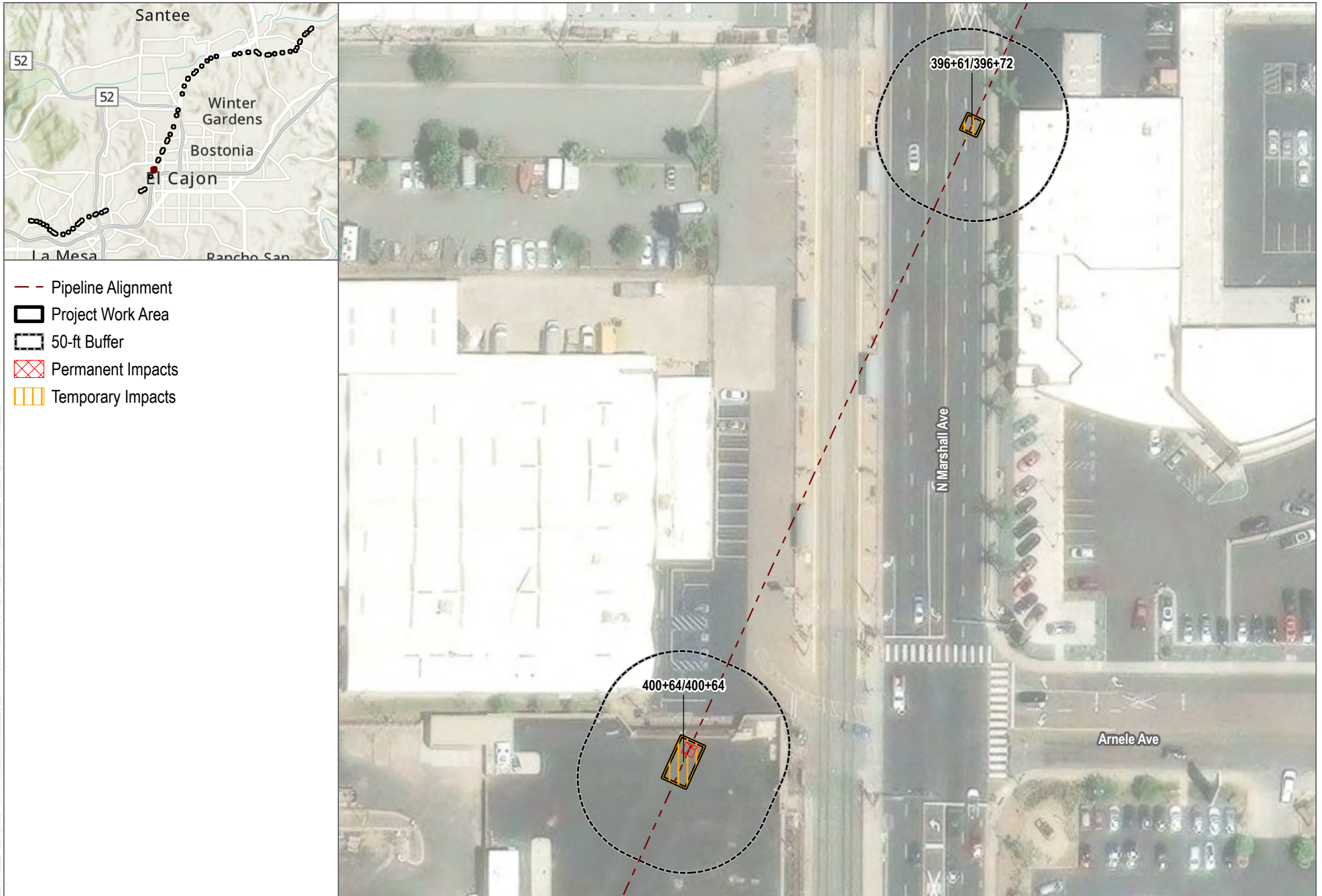
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SOURCE: Esri World Imagery; Open Street Map 2023

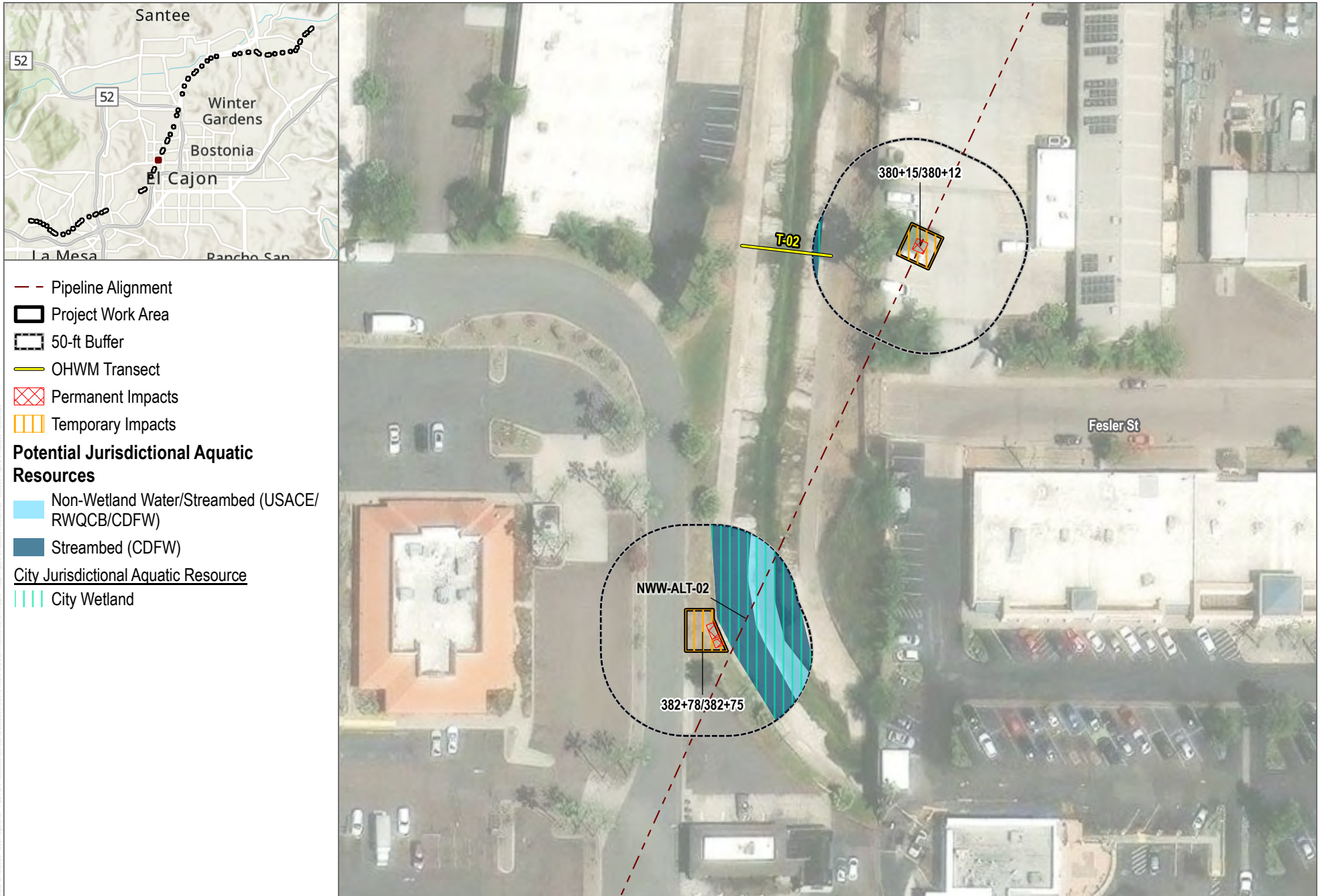
**FIGURE 6-20**  
Aquatic Resources

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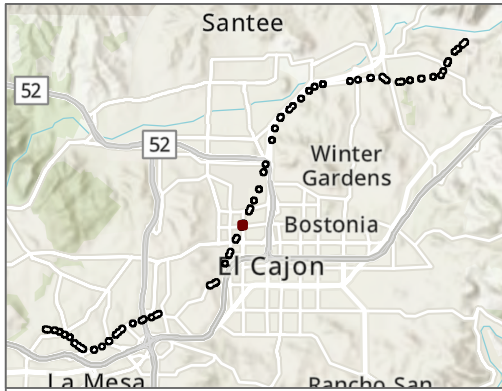
SOURCE: Esri World Imagery; Open Street Map 2023

INTENTIONALLY LEFT BLANK



SOURCE: Esri World Imagery; Open Street Map 2023

INTENTIONALLY LEFT BLANK



- Pipeline Alignment
- ▭ Project Work Area
- ▭ 50-ft Buffer
- ▨ Permanent Impacts
- ▨ Temporary Impacts



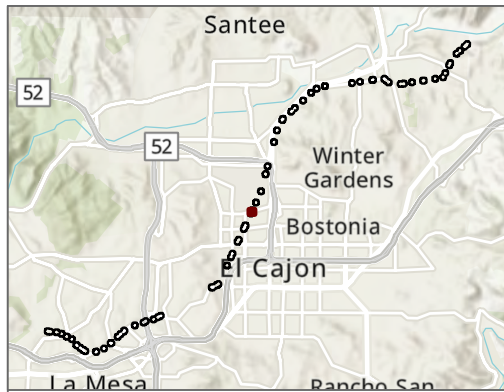
SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-23**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

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- Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- OHWM Transect
- Permanent Impacts
- Temporary Impacts

**Potential Jurisdictional Aquatic Resources**

- Non-Wetland Water/Streambed (USACE/RWQCB/CDFW)
- Streambed (CDFW)



SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-24**

**Aquatic Resources**

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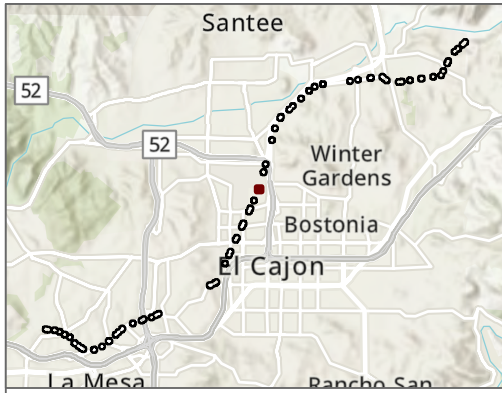
- - Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Permanent Impacts
- Temporary Impacts



SOURCE: Esri World Imagery; Open Street Map 2023

**FIGURE 6-25**  
Aquatic Resources

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- Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Permanent Impacts
- Temporary Impacts



SOURCE: Esri World Imagery; Open Street Map 2023

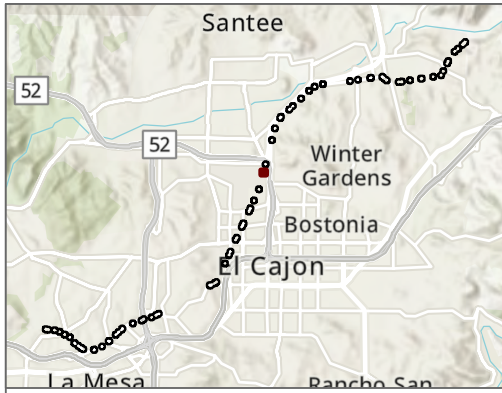


**FIGURE 6-26**

**Aquatic Resources**

El Monte Water Transmission Pipeline Rehabilitation Project

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- Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Permanent Impacts
- Temporary Impacts



SOURCE: Esri World Imagery; Open Street Map 2023



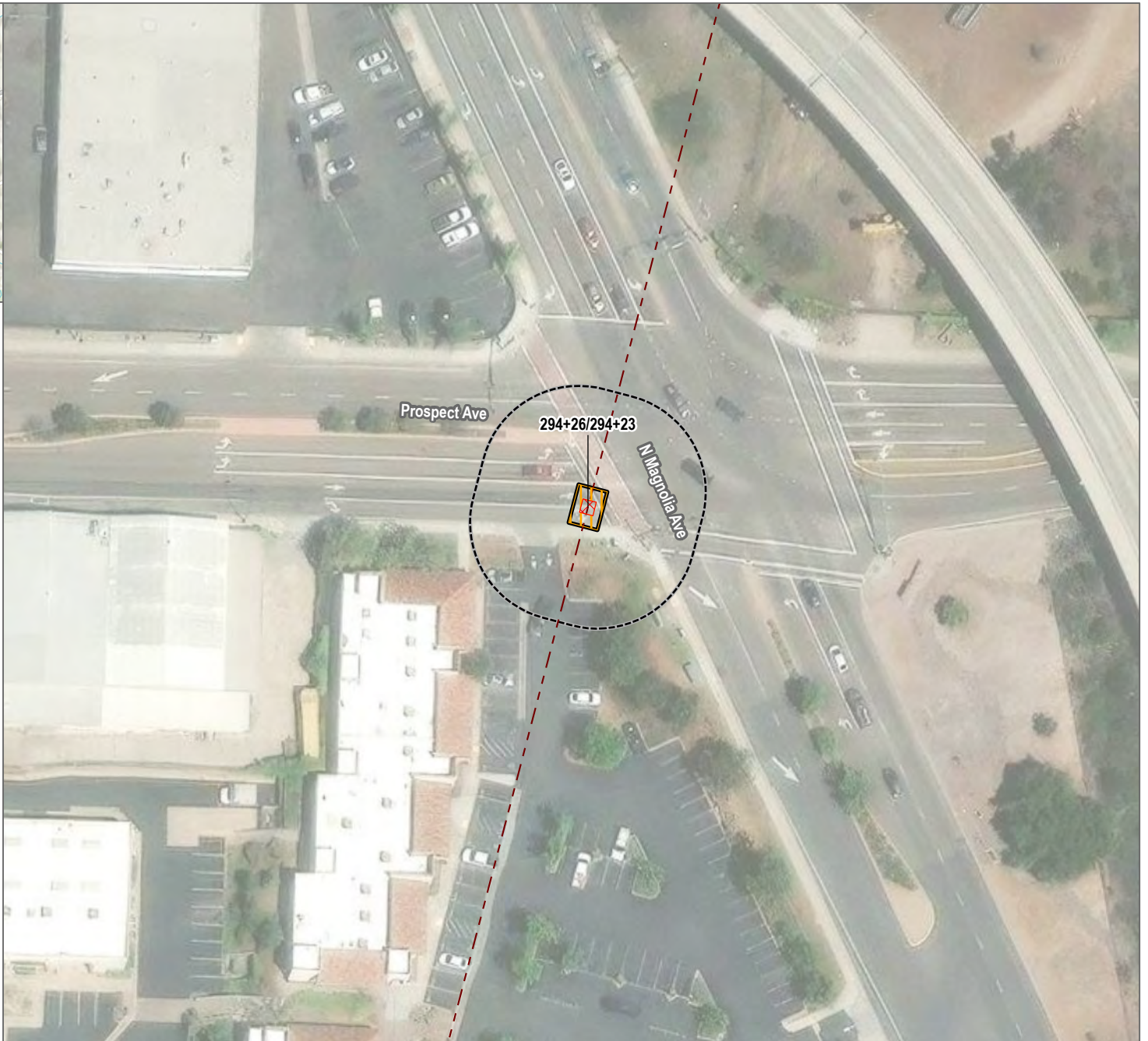
**FIGURE 6-27**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

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- Pipeline Alignment
- ▭ Project Work Area
- ⊞ 50-ft Buffer
- ⊞ Permanent Impacts
- ⊞ Temporary Impacts



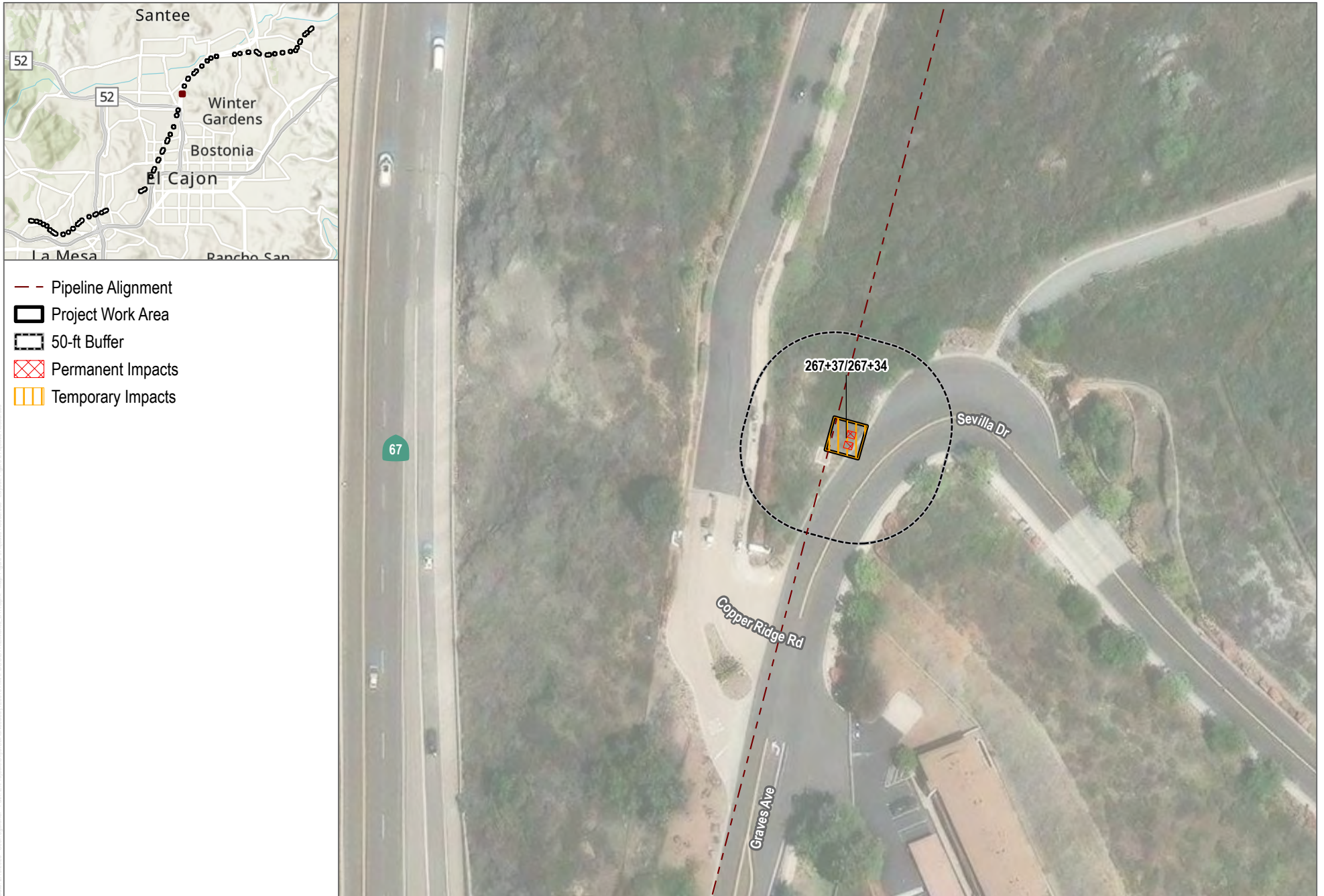
SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-28**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

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SOURCE: Esri World Imagery; Open Street Map 2023

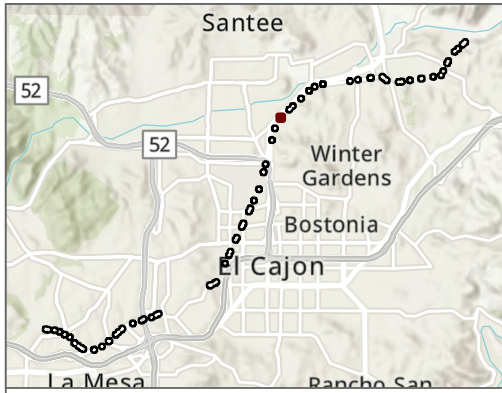
**FIGURE 6-29**  
Aquatic Resources

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SOURCE: Esri World Imagery; Open Street Map 2023

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- Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Permanent Impacts
- Temporary Impacts



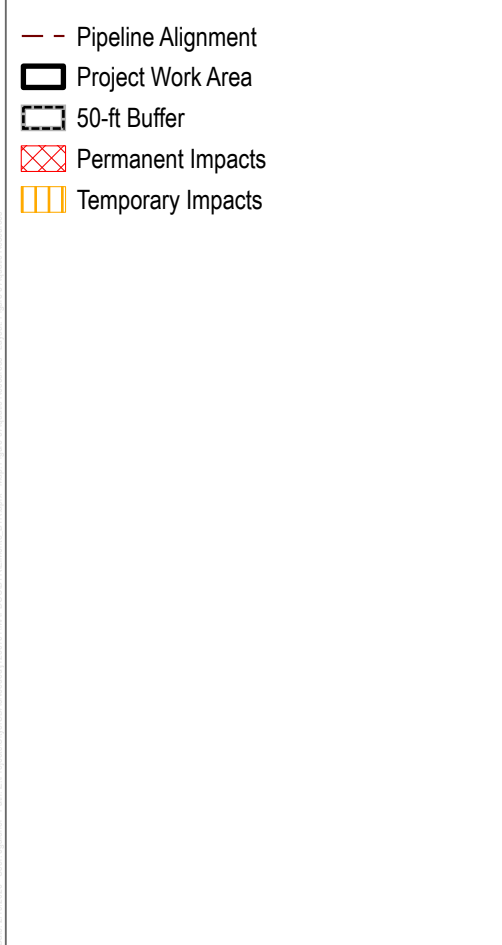
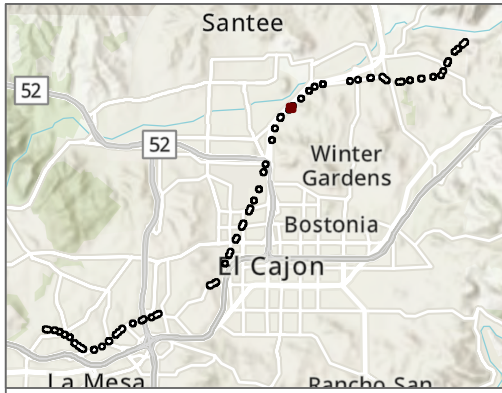
SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-31**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

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SOURCE: Esri World Imagery; Open Street Map 2023



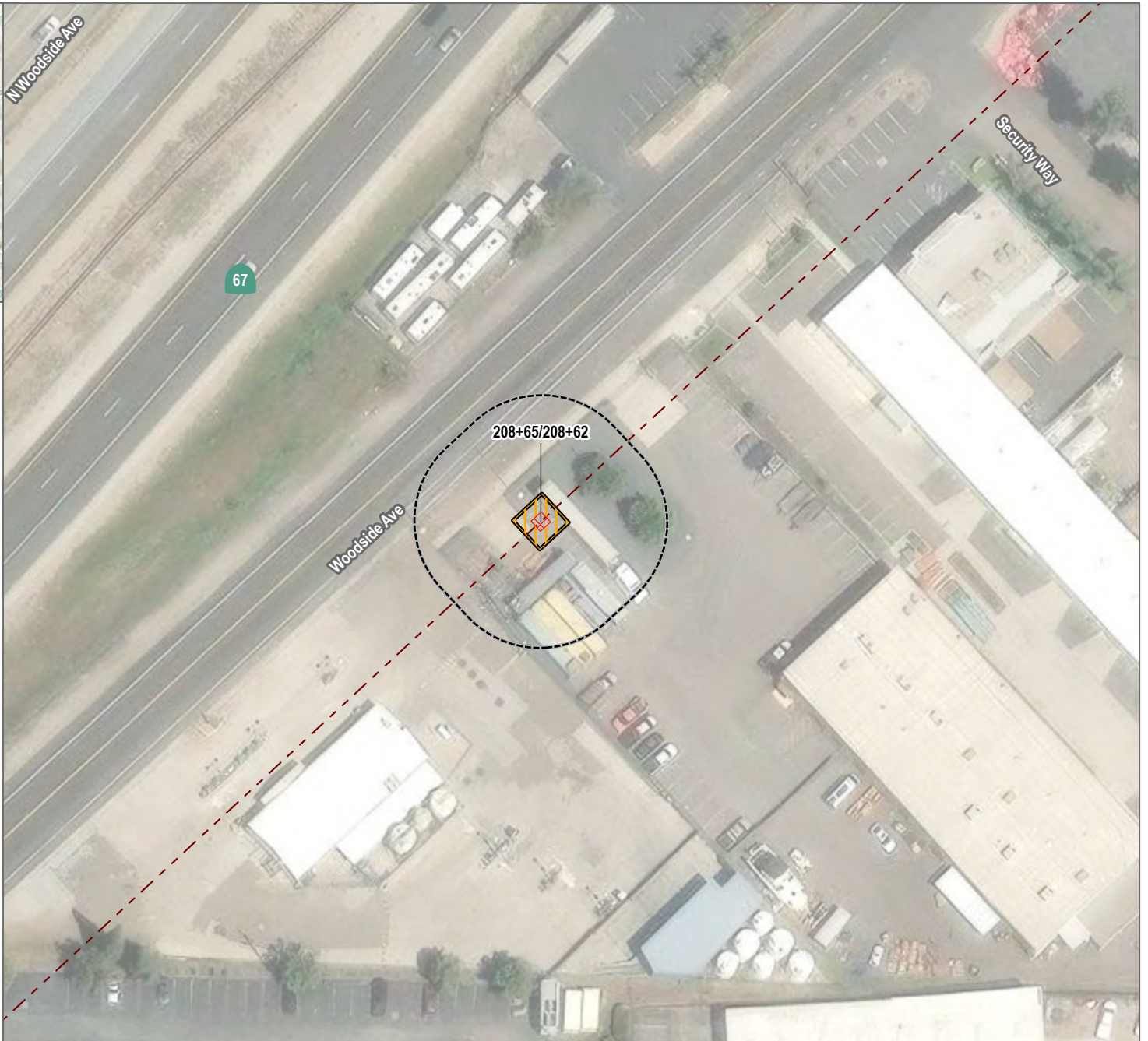
**FIGURE 6-32**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

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- Pipeline Alignment
- ▭ Project Work Area
- ▭ 50-ft Buffer
- ⊠ Permanent Impacts
- ▨ Temporary Impacts



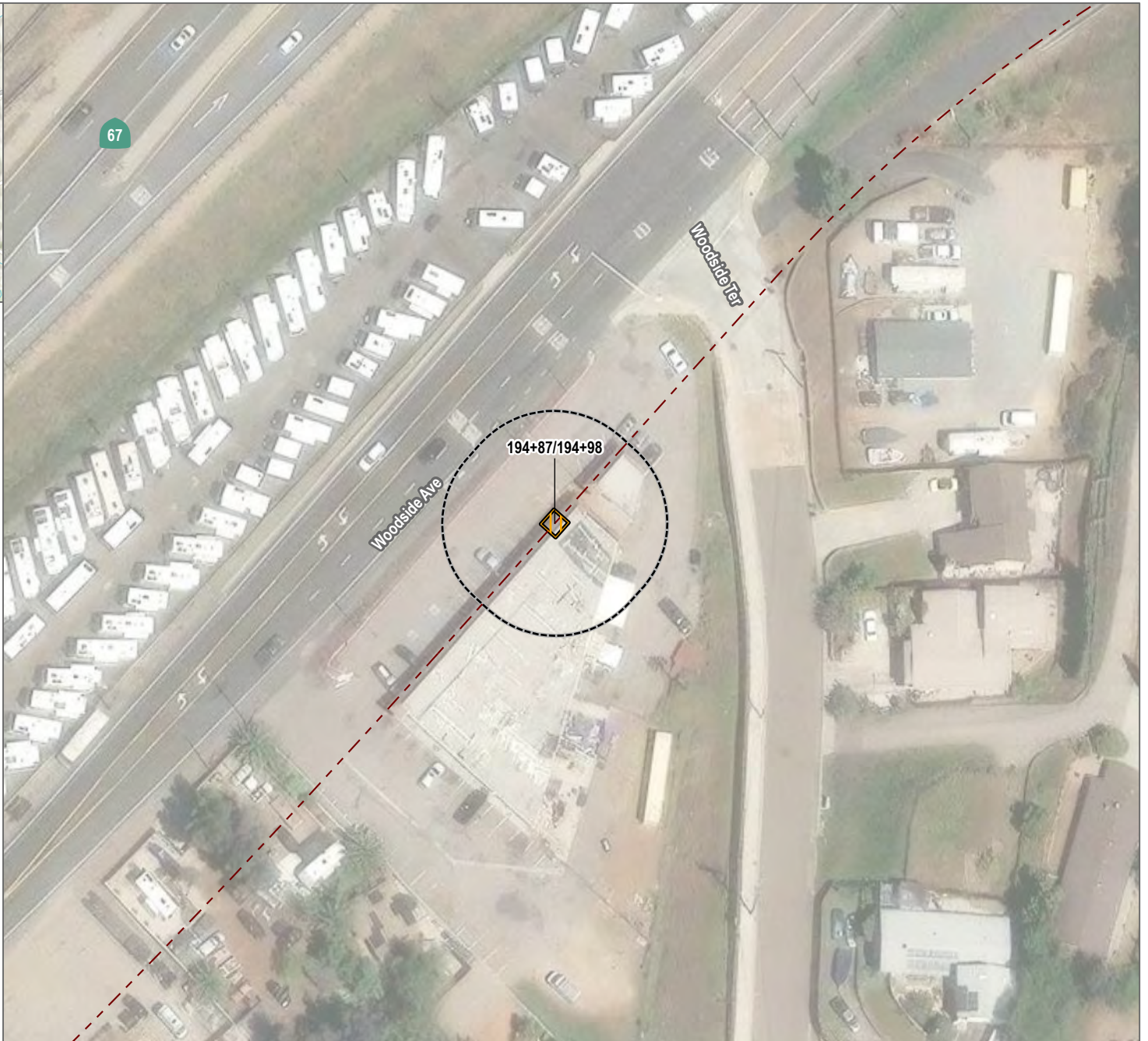
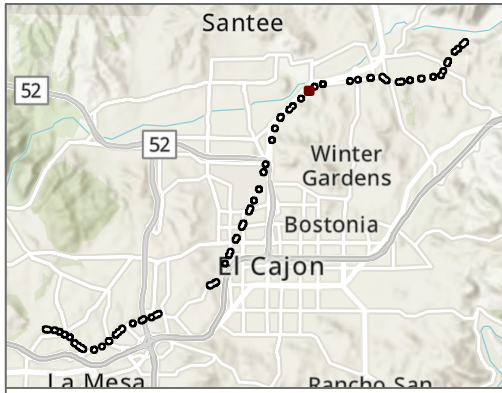
SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-33**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

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SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-34**  
Aquatic Resources

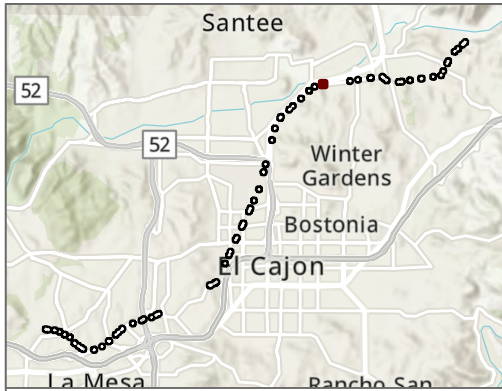
El Monte Water Transmission Pipeline Rehabilitation Project

INTENTIONALLY LEFT BLANK

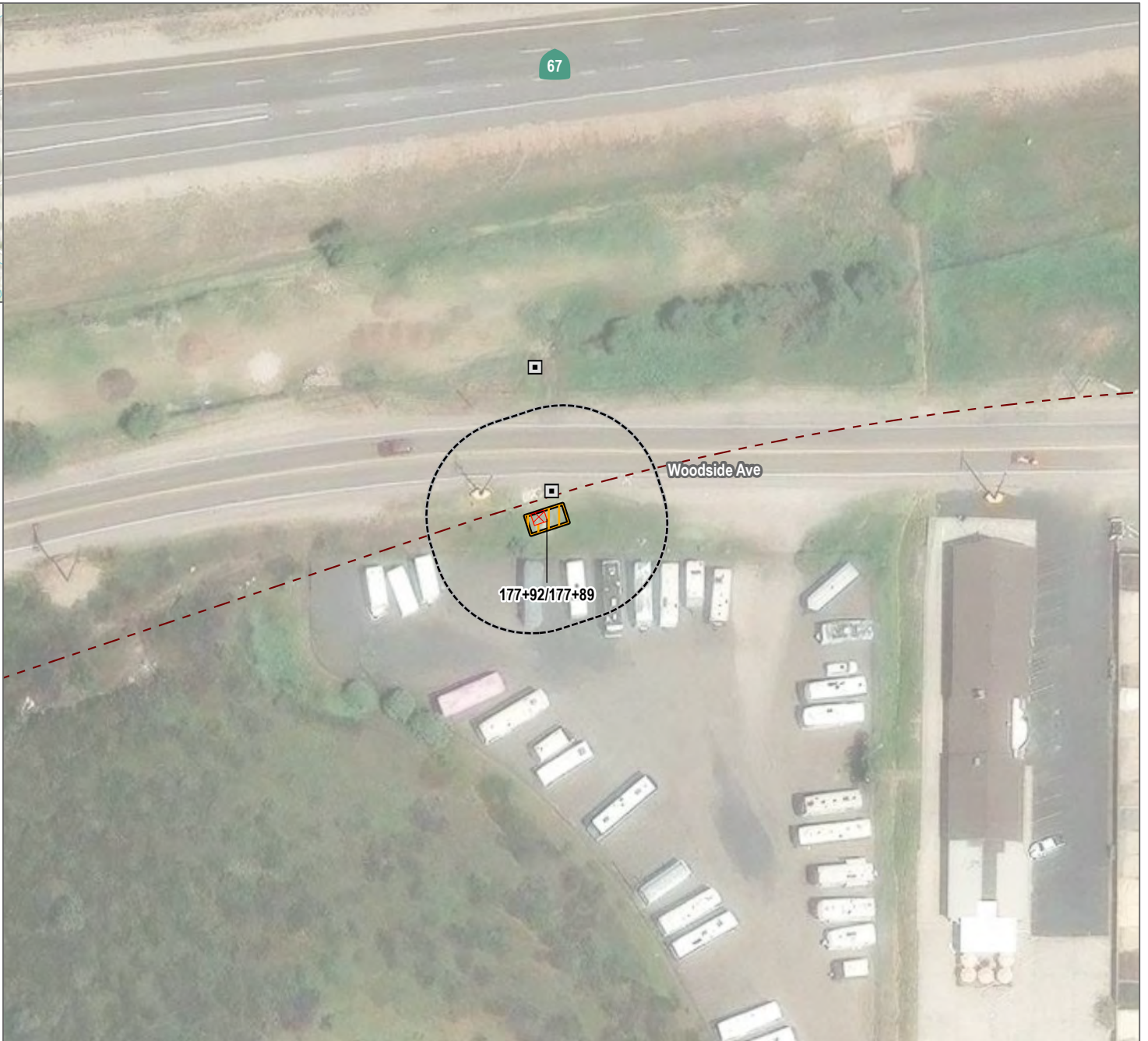


SOURCE: Esri World Imagery; Open Street Map 2023

INTENTIONALLY LEFT BLANK



- - Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Culvert
- Permanent Impacts
- Temporary Impacts



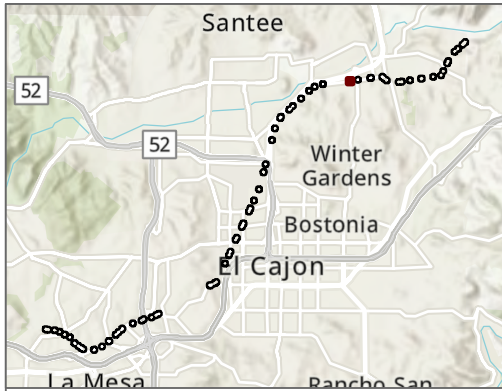
SOURCE: Esri World Imagery; Open Street Map 2023



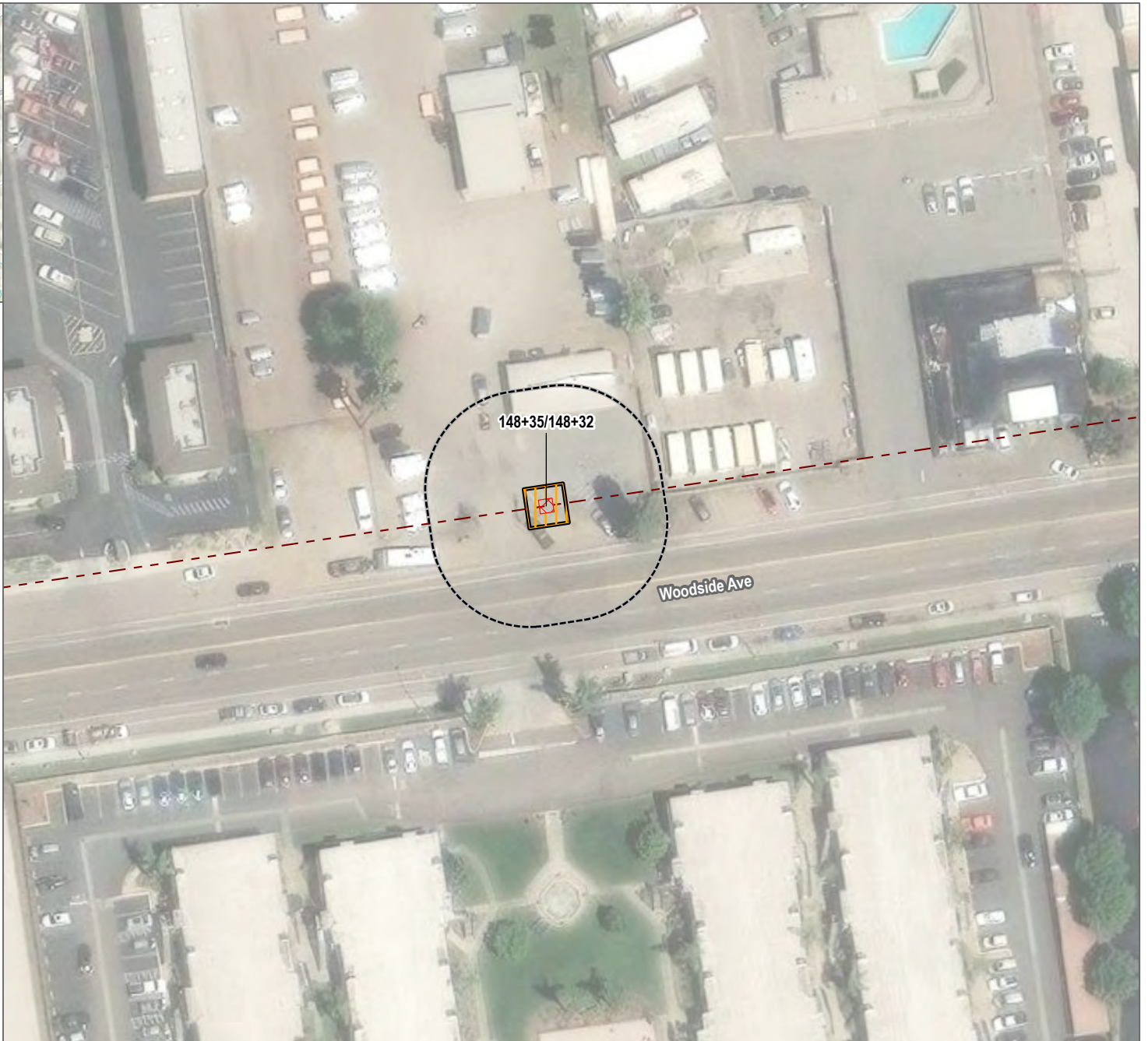
**FIGURE 6-36**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

INTENTIONALLY LEFT BLANK



- Pipeline Alignment
- ▭ Project Work Area
- ▭ 50-ft Buffer
- ⊠ Permanent Impacts
- ▨ Temporary Impacts



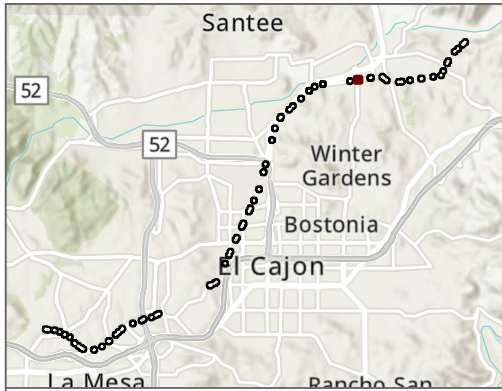
SOURCE: Esri World Imagery; Open Street Map 2023



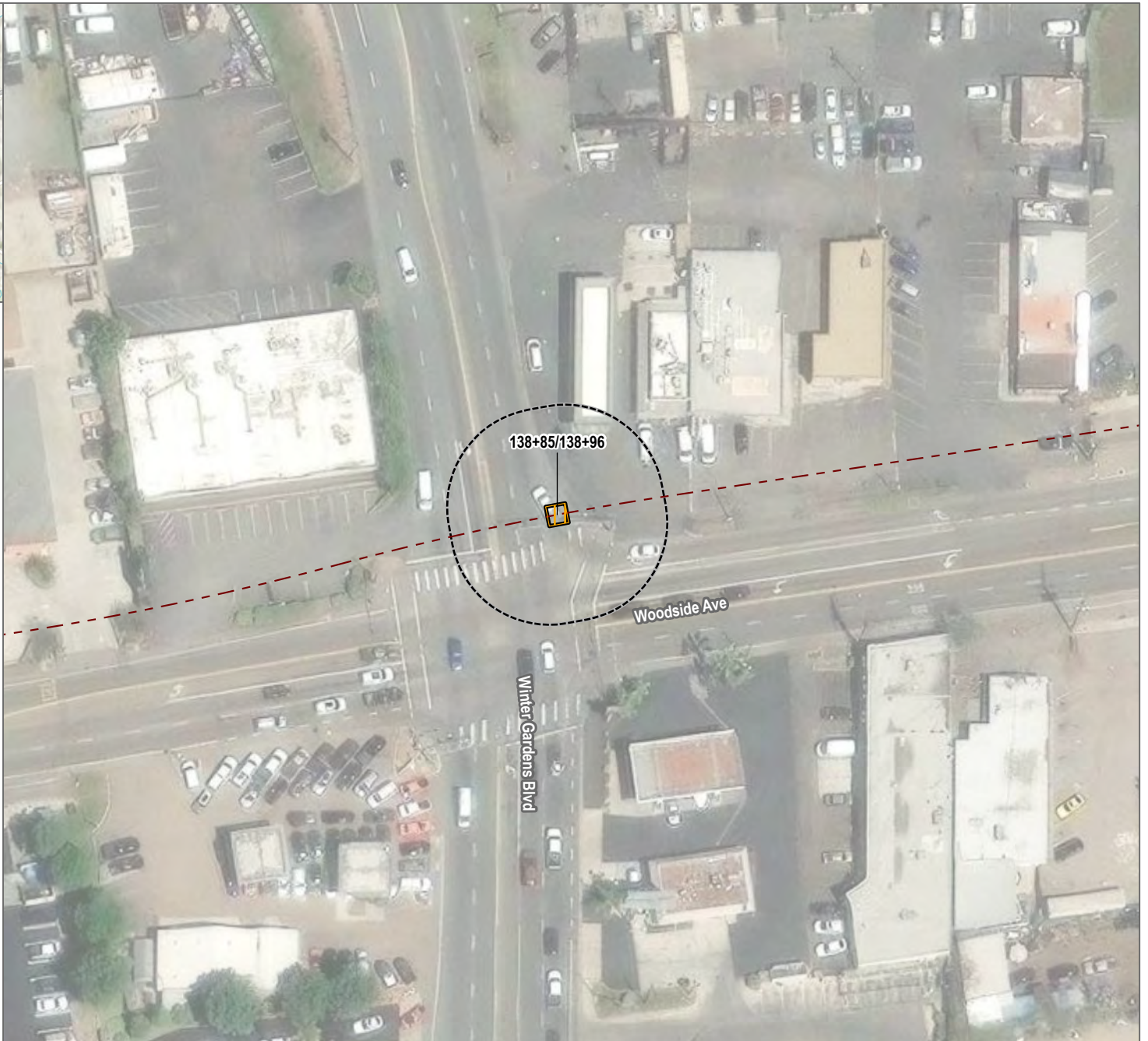
**FIGURE 6-37**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

INTENTIONALLY LEFT BLANK



- - Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Permanent Impacts
- Temporary Impacts



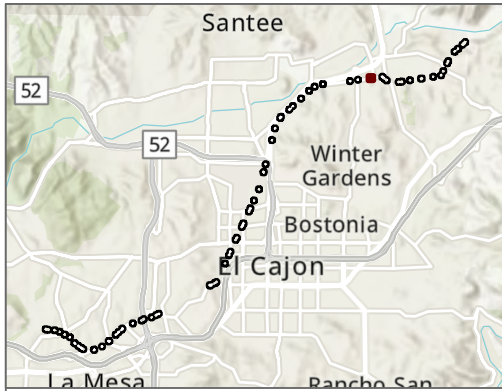
SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-38**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

INTENTIONALLY LEFT BLANK



- - Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Permanent Impacts
- Temporary Impacts



SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-39**

**Aquatic Resources**

El Monte Water Transmission Pipeline Rehabilitation Project

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- Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Permanent Impacts
- Temporary Impacts



SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-40**

**Aquatic Resources**

El Monte Water Transmission Pipeline Rehabilitation Project

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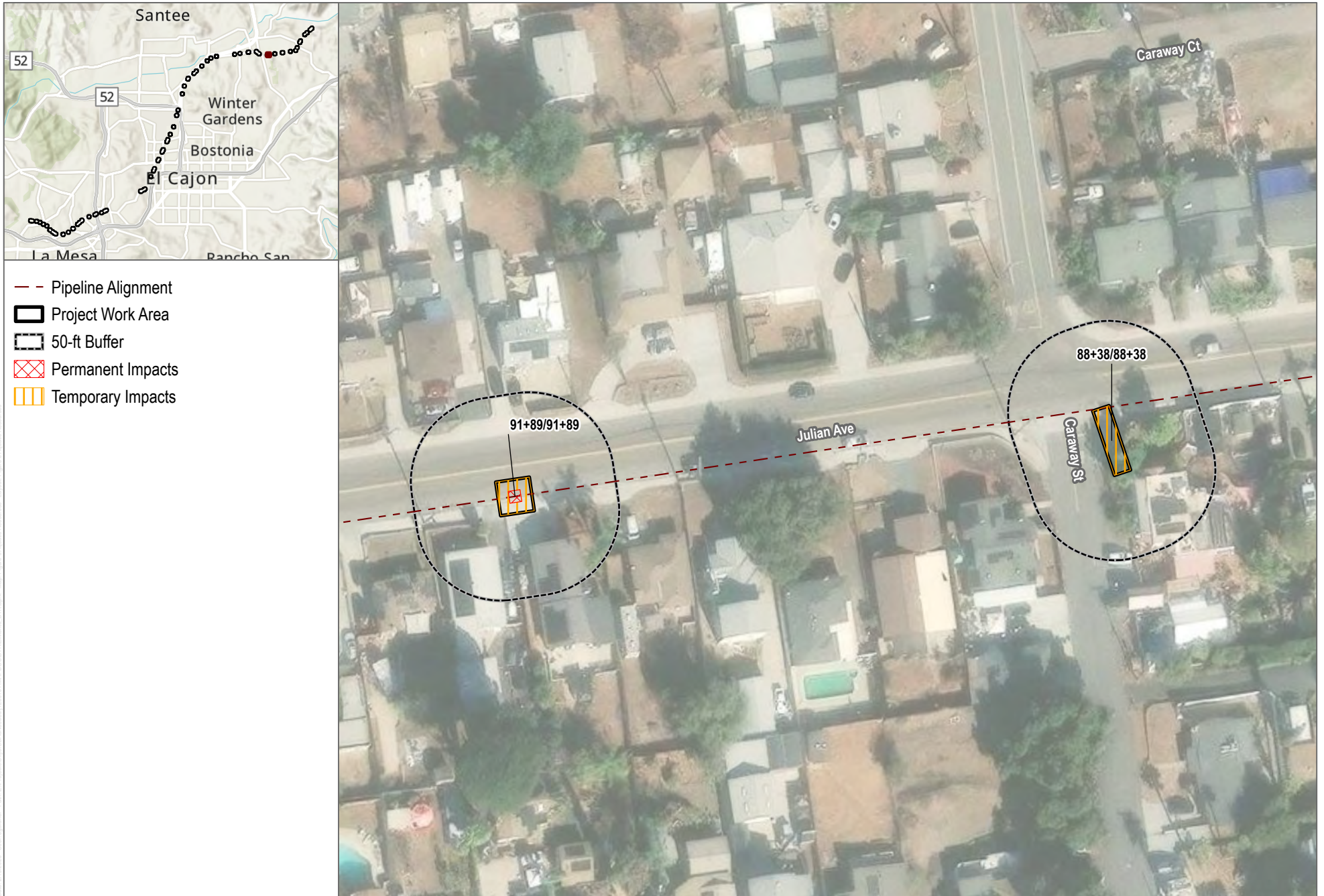
SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-41**  
Aquatic Resources

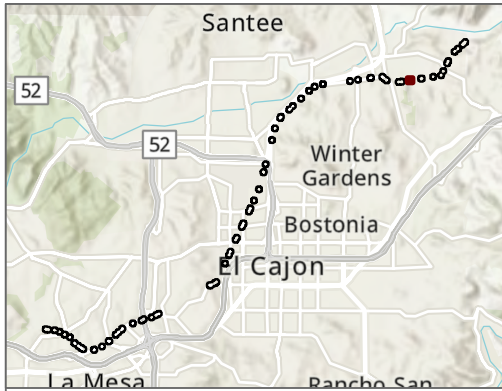
El Monte Water Transmission Pipeline Rehabilitation Project

INTENTIONALLY LEFT BLANK

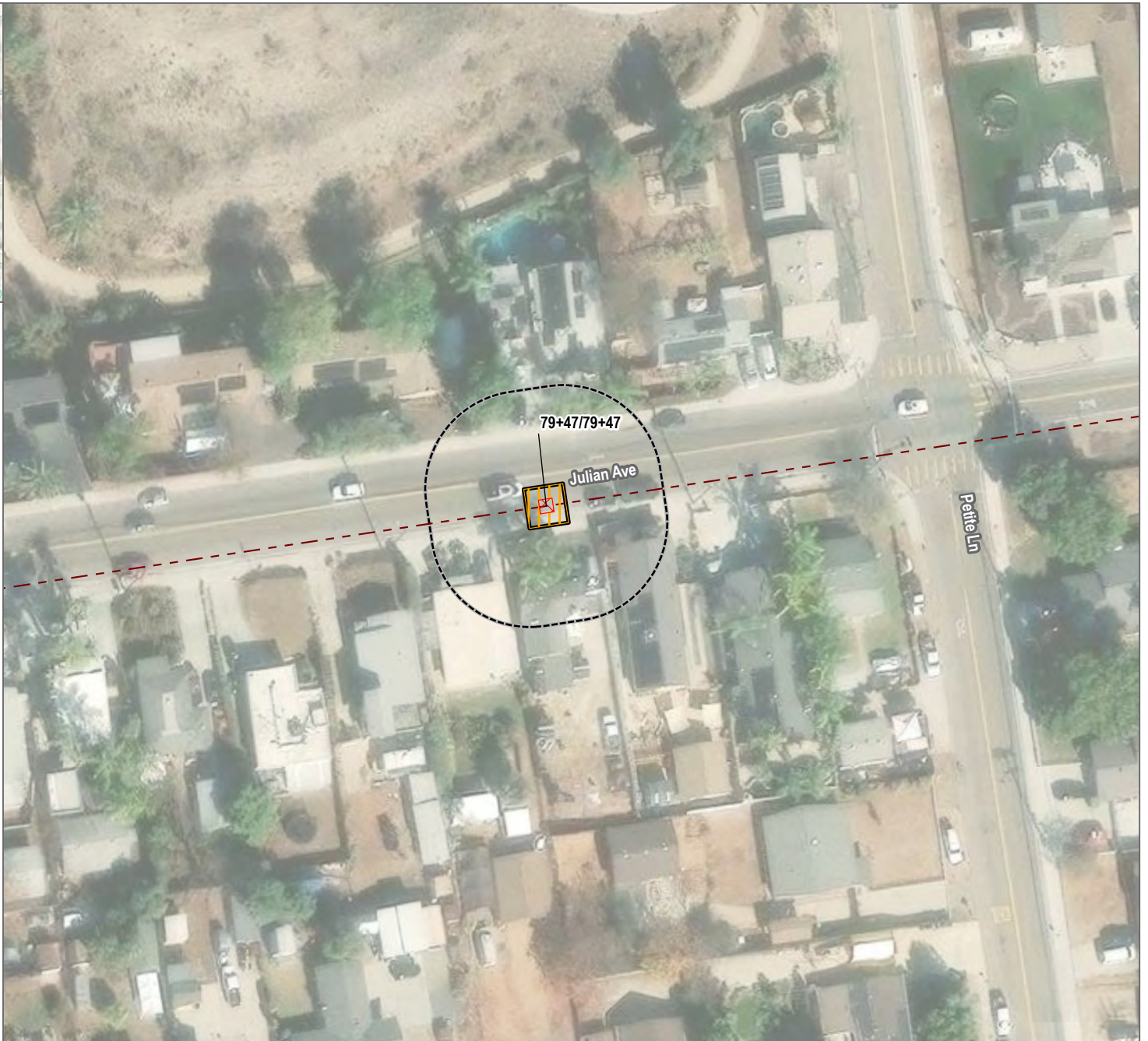


SOURCE: Esri World Imagery; Open Street Map 2023

INTENTIONALLY LEFT BLANK



- Pipeline Alignment
- ▭ Project Work Area
- ▭ 50-ft Buffer
- ▣ Permanent Impacts
- ▣ Temporary Impacts



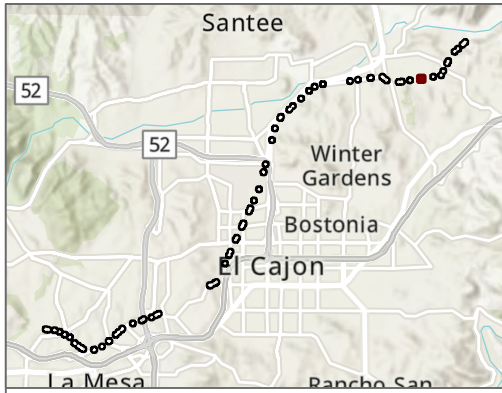
SOURCE: Esri World Imagery; Open Street Map 2023



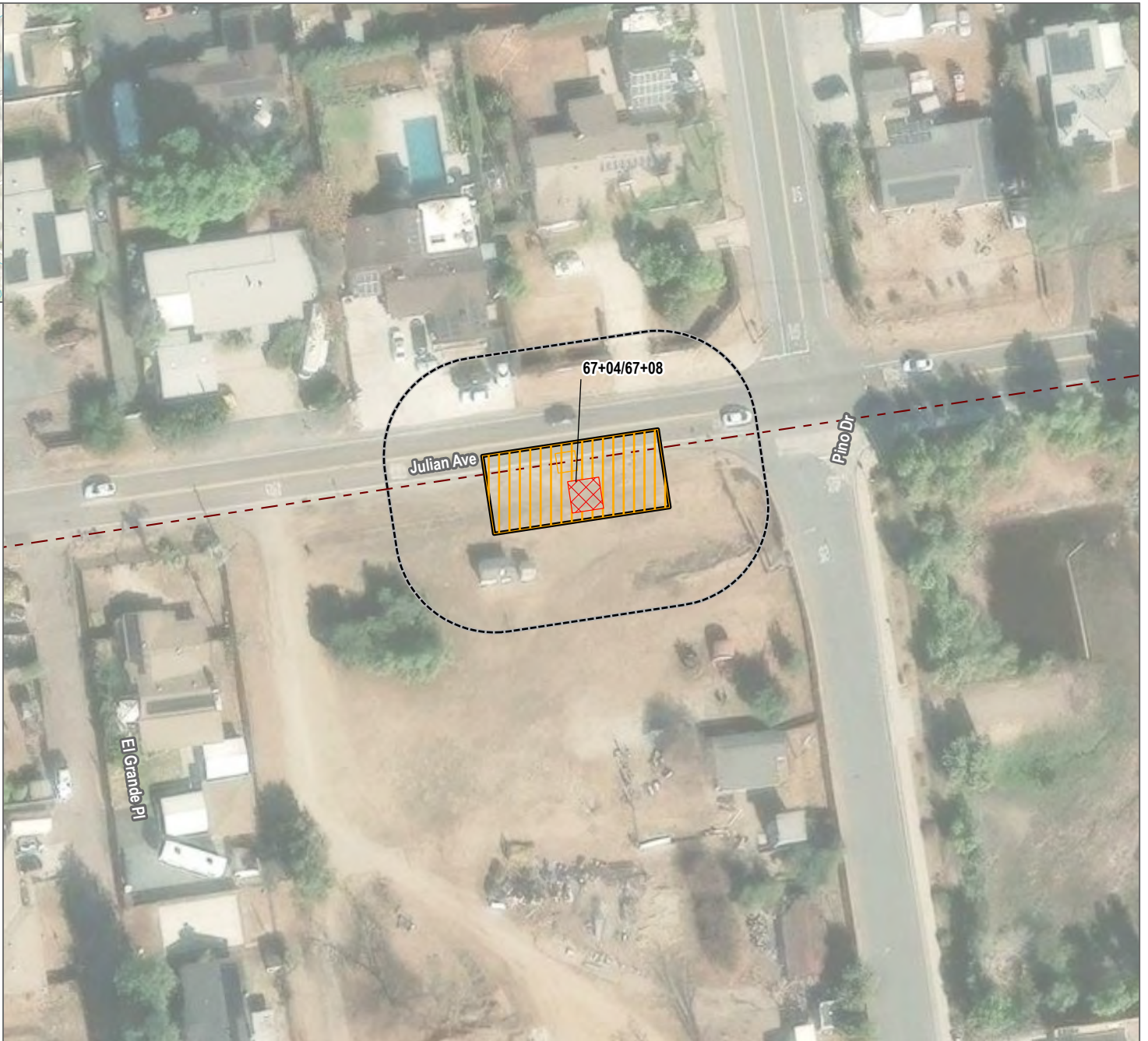
**FIGURE 6-43**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

INTENTIONALLY LEFT BLANK



- - Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Permanent Impacts
- Temporary Impacts



SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-44**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

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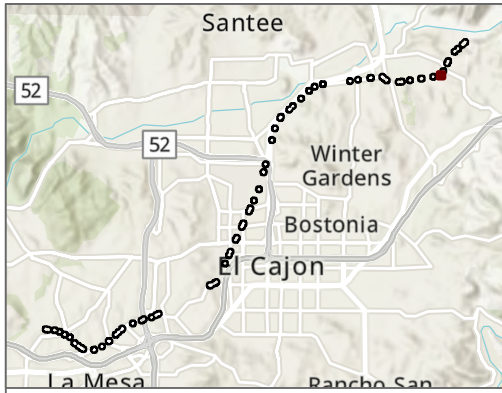
SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-45**  
 Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

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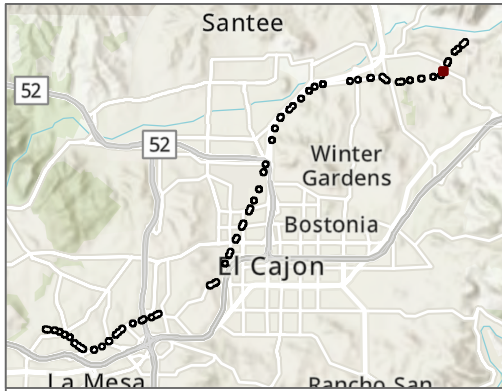
SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-46**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

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- Pipeline Alignment
- Project Work Area
- 50-ft Buffer
- Culvert
- OHWM Transect
- Permanent Impacts
- Temporary Impacts

**Potential Jurisdictional Aquatic Resources**

- Non-Wetland Water/Streambed (USACE/RWQCB/CDFW)
- Streambed (CDFW)
- City Jurisdictional Aquatic Resource
- City Wetland



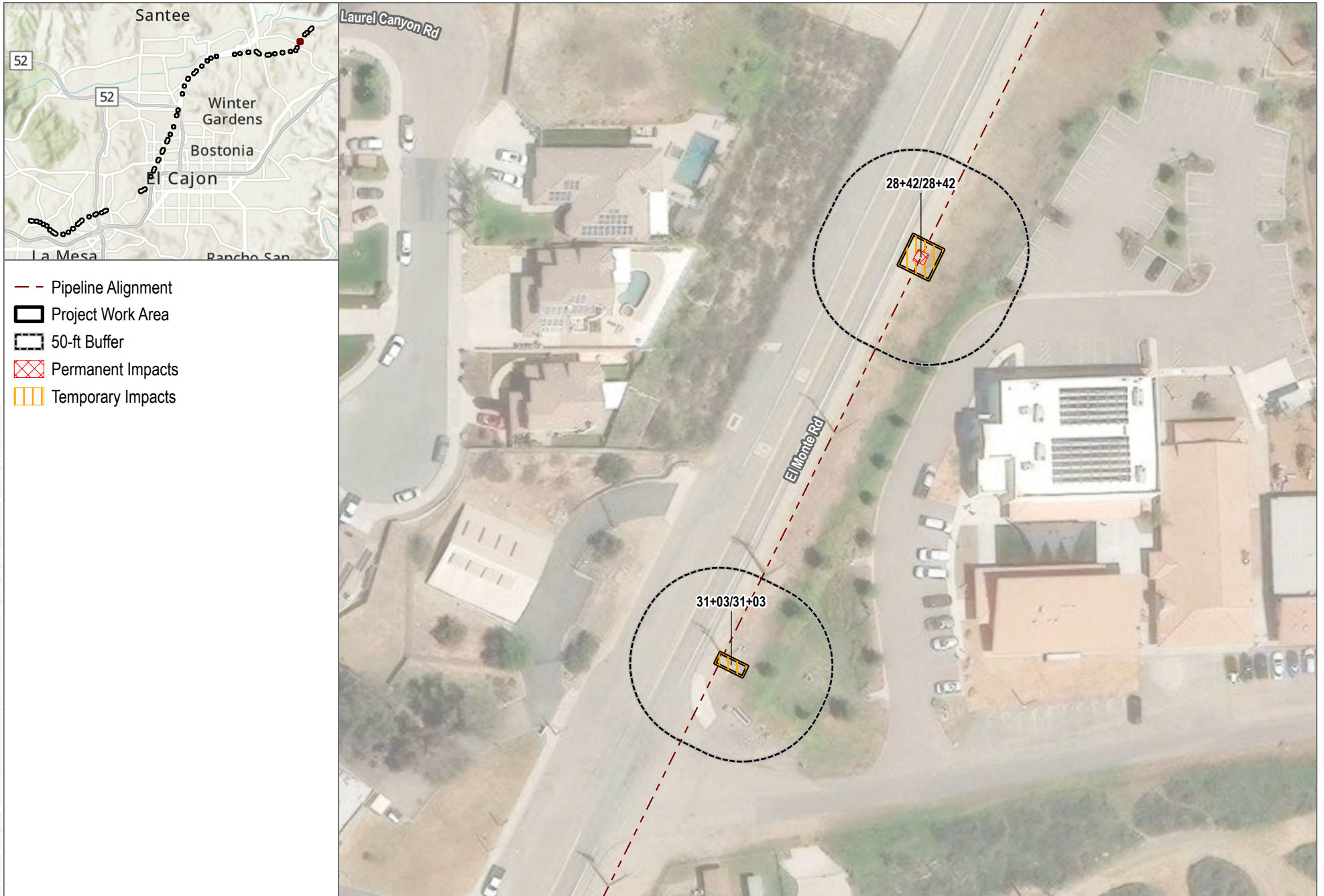
SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-47**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

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SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-48**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

INTENTIONALLY LEFT BLANK



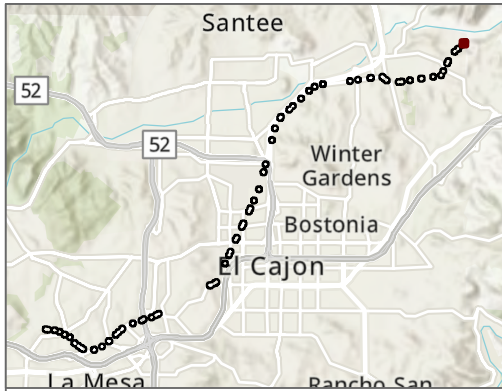
SOURCE: Esri World Imagery; Open Street Map 2023



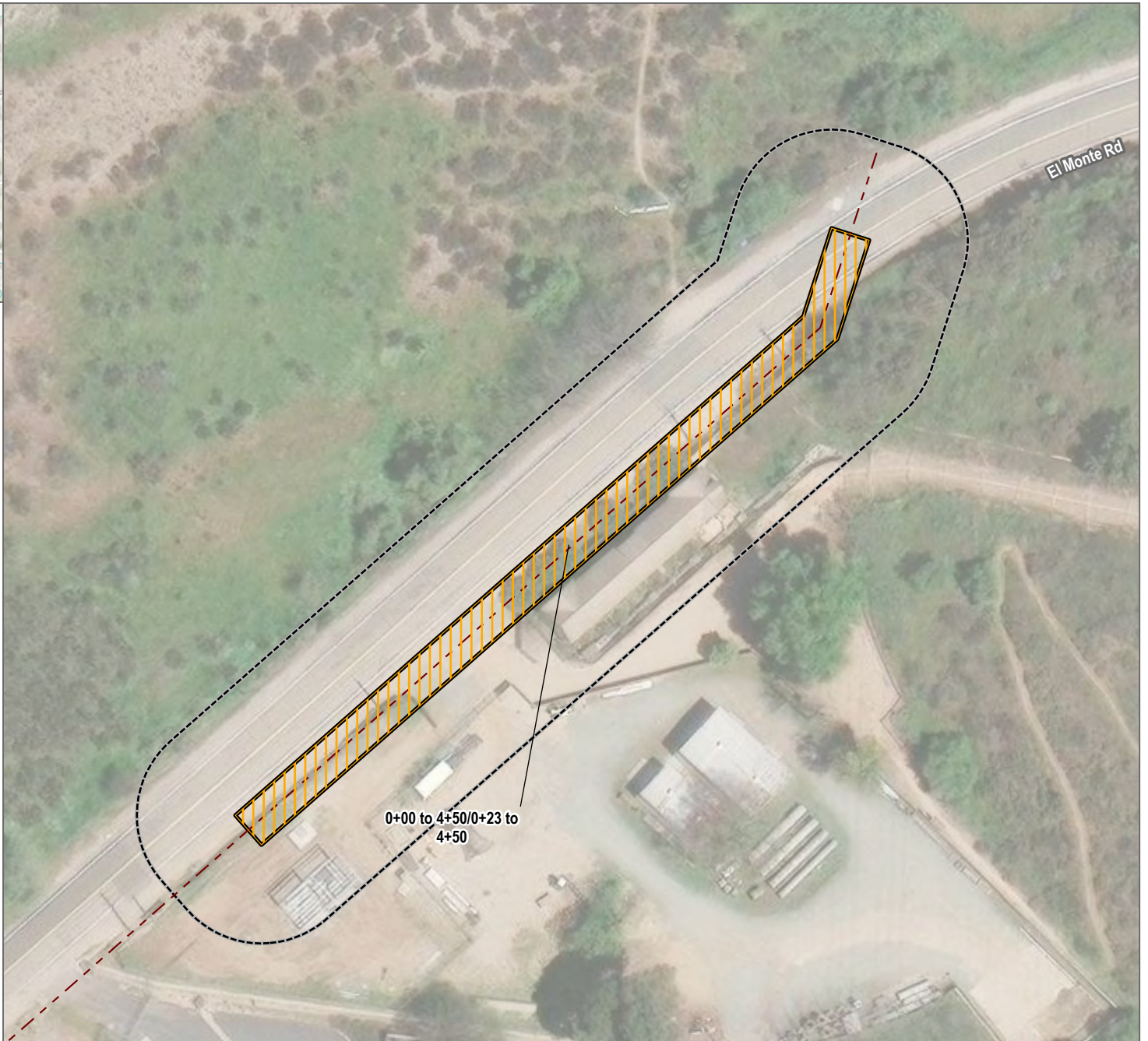
**FIGURE 6-49**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

INTENTIONALLY LEFT BLANK



- Pipeline Alignment
- ▭ Project Work Area
- ▭ 50-ft Buffer
- ▨ Permanent Impacts
- ▨ Temporary Impacts



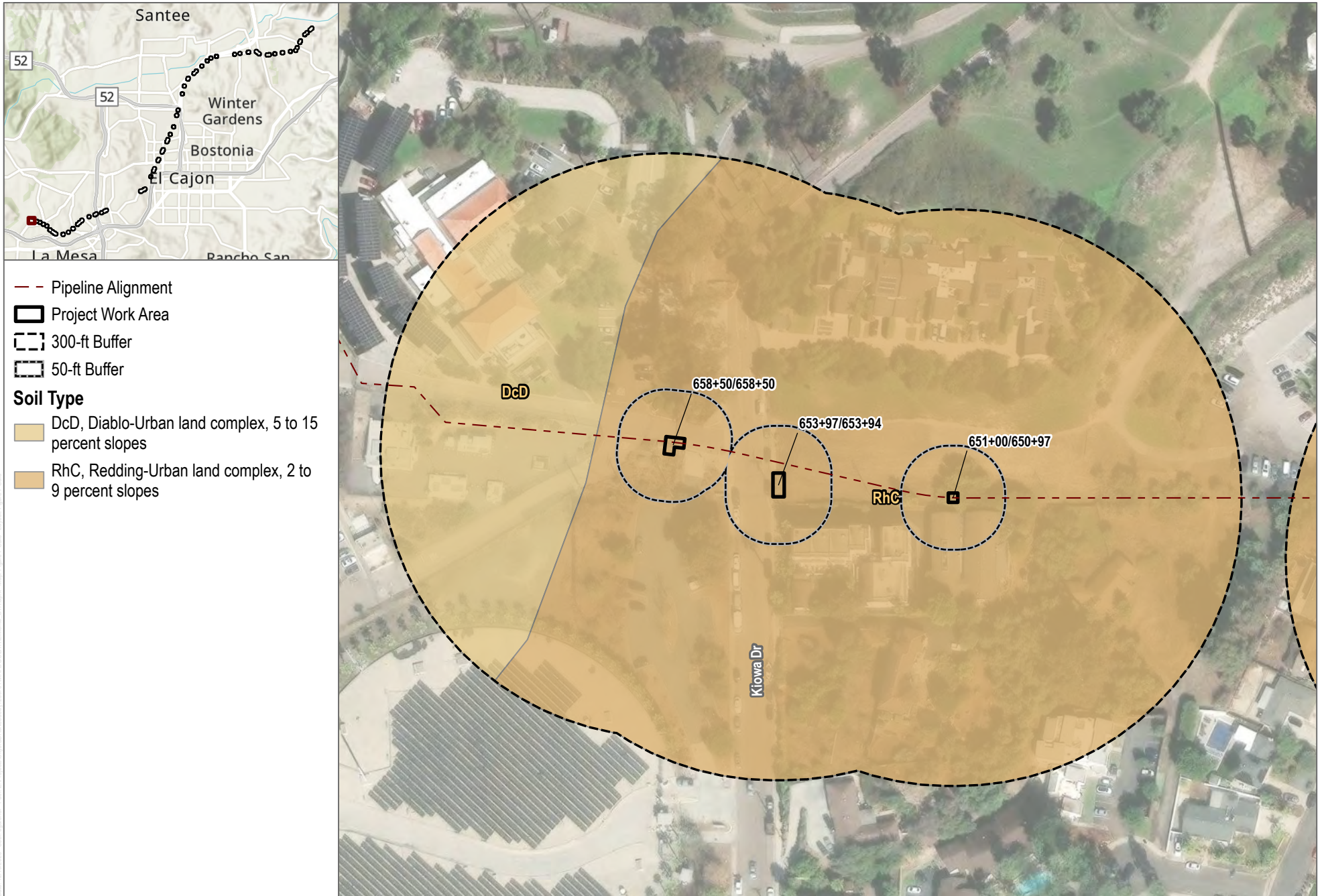
SOURCE: Esri World Imagery; Open Street Map 2023



**FIGURE 6-50**  
Aquatic Resources

El Monte Water Transmission Pipeline Rehabilitation Project

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SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

**FIGURE 7-1**  
Soils

INTENTIONALLY LEFT BLANK



- Pipeline Alignment
- Project Work Area
- 300-ft Buffer
- 50-ft Buffer

**Soil Type**

- DcD, Diablo-Urban land complex, 5 to 15 percent slopes
- RhC, Redding-Urban land complex, 2 to 9 percent slopes

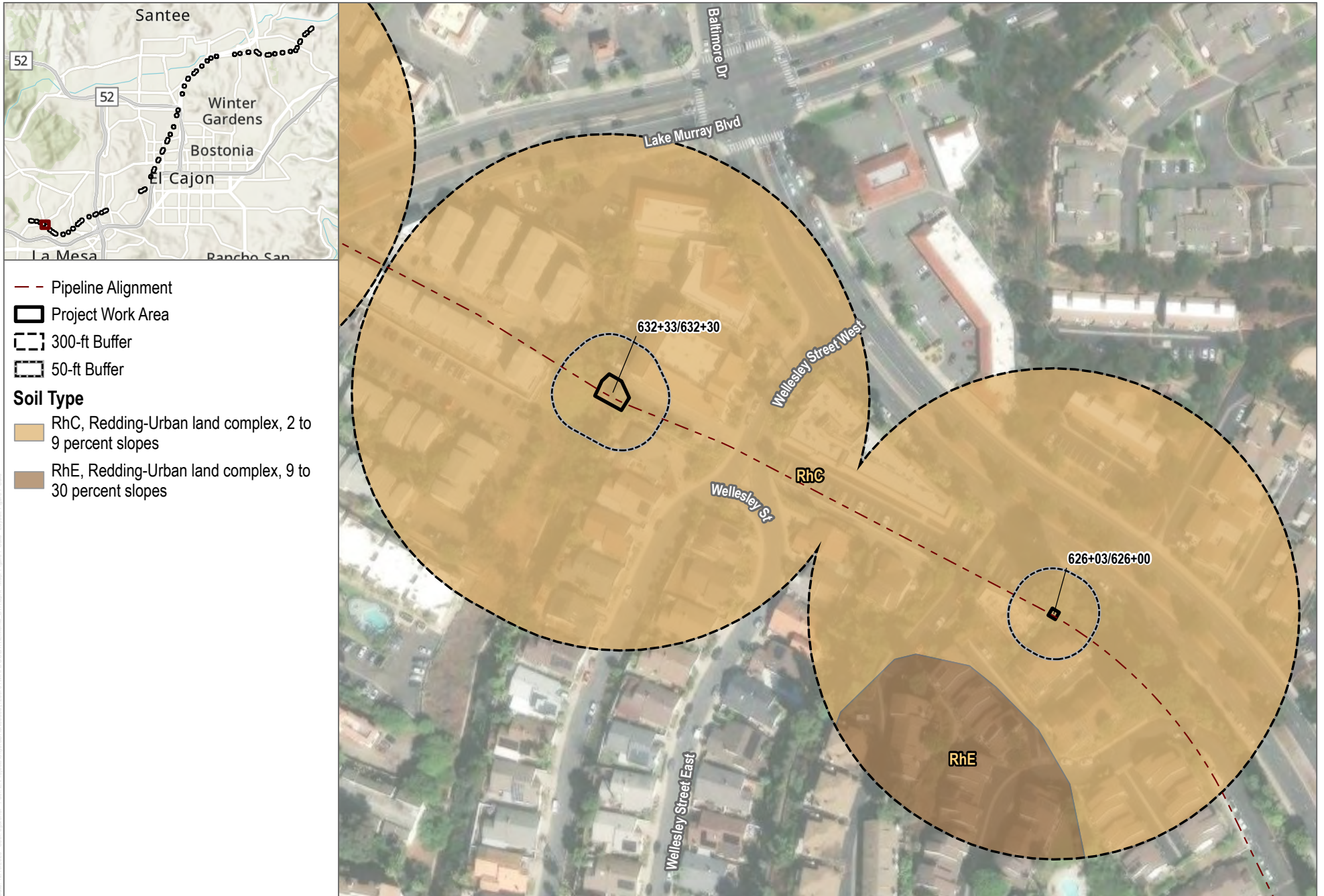


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024



**FIGURE 7-2**  
Soils

INTENTIONALLY LEFT BLANK



SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

**FIGURE 7-3**

**Soils**

INTENTIONALLY LEFT BLANK

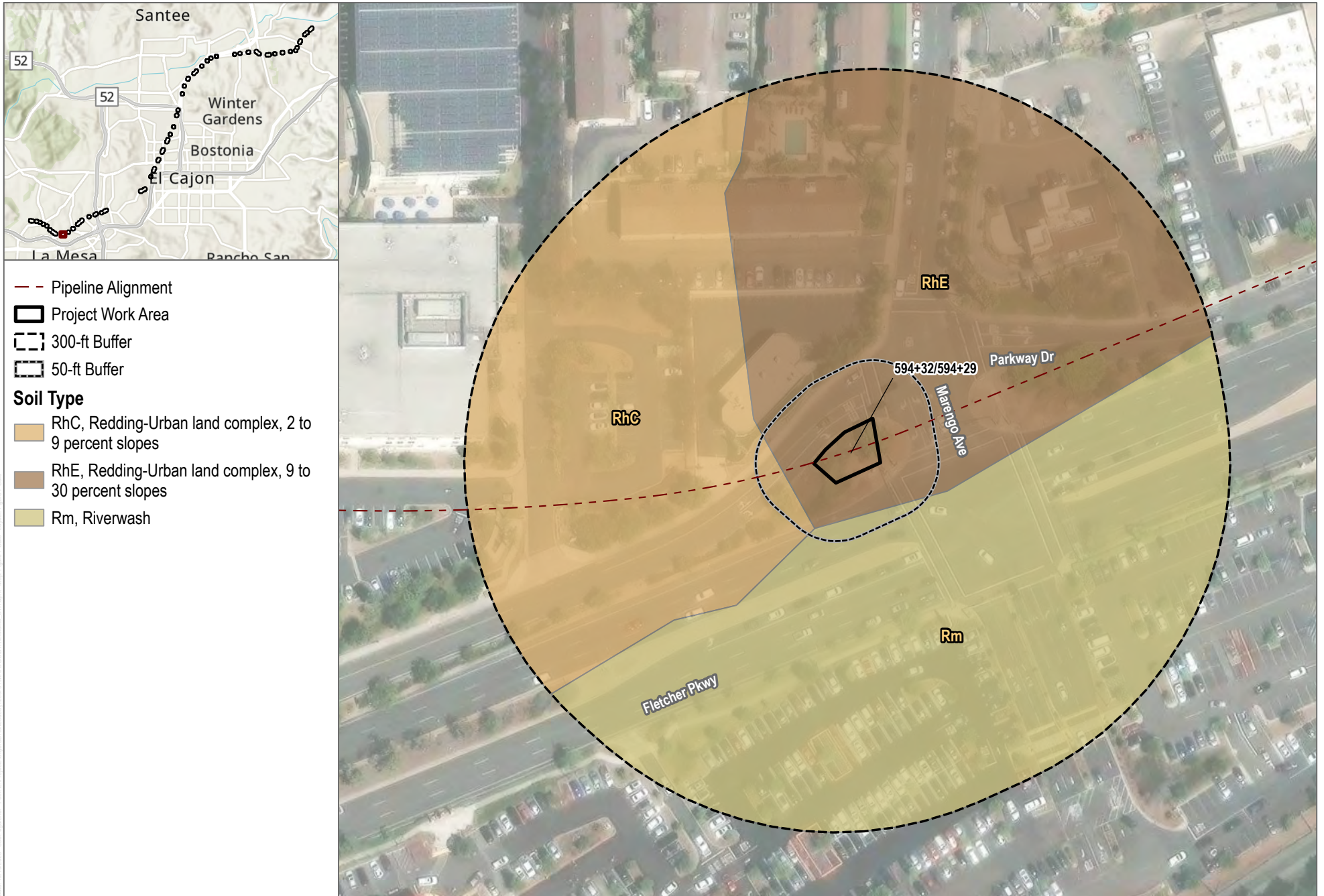


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

FIGURE 7-4

Soils

INTENTIONALLY LEFT BLANK



SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

**FIGURE 7-5**

**Soils**

INTENTIONALLY LEFT BLANK

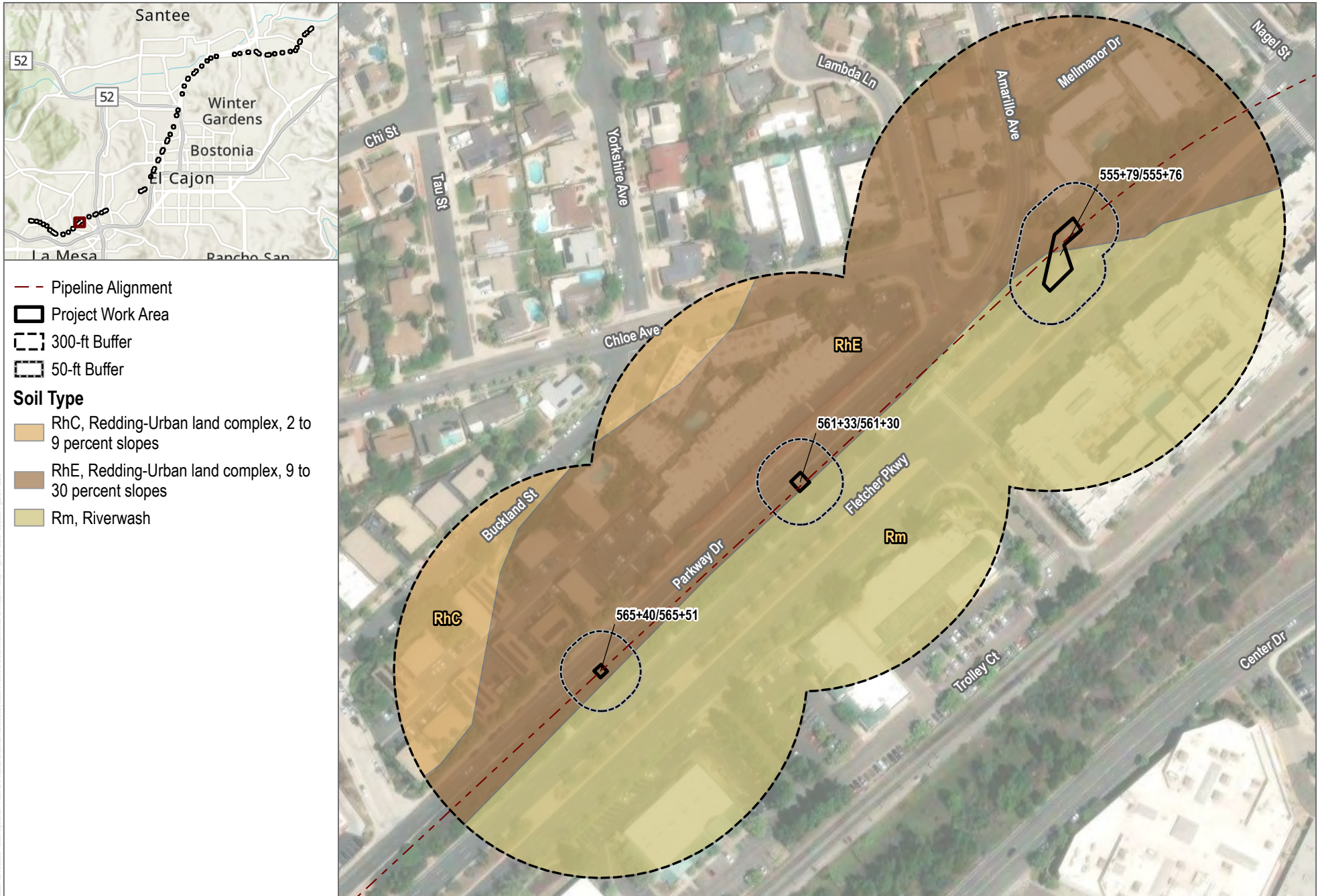


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

**FIGURE 7-6**

Soils

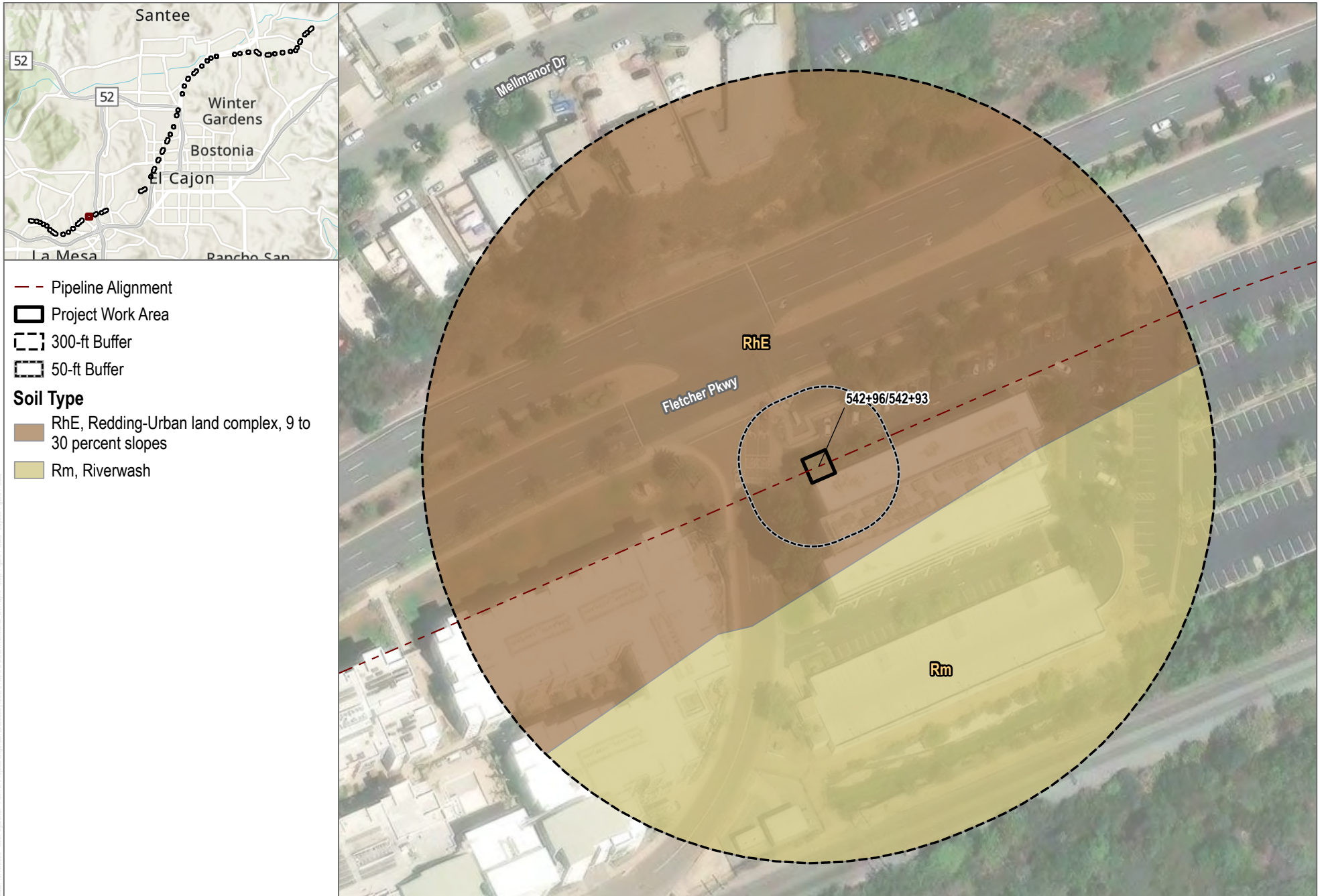
INTENTIONALLY LEFT BLANK



SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

**FIGURE 7-7**  
Soils

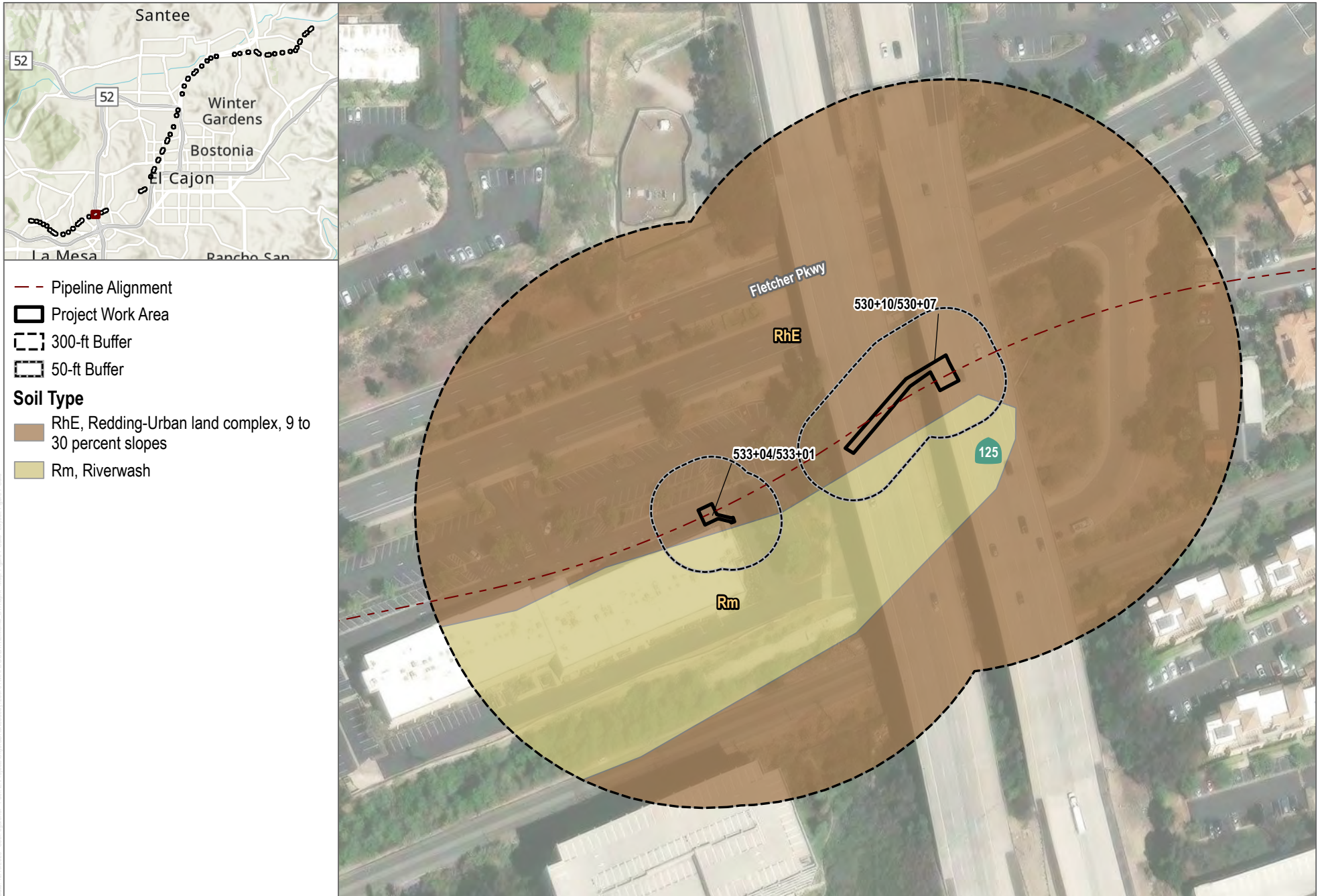
INTENTIONALLY LEFT BLANK



SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

**FIGURE 7-8**  
Soils

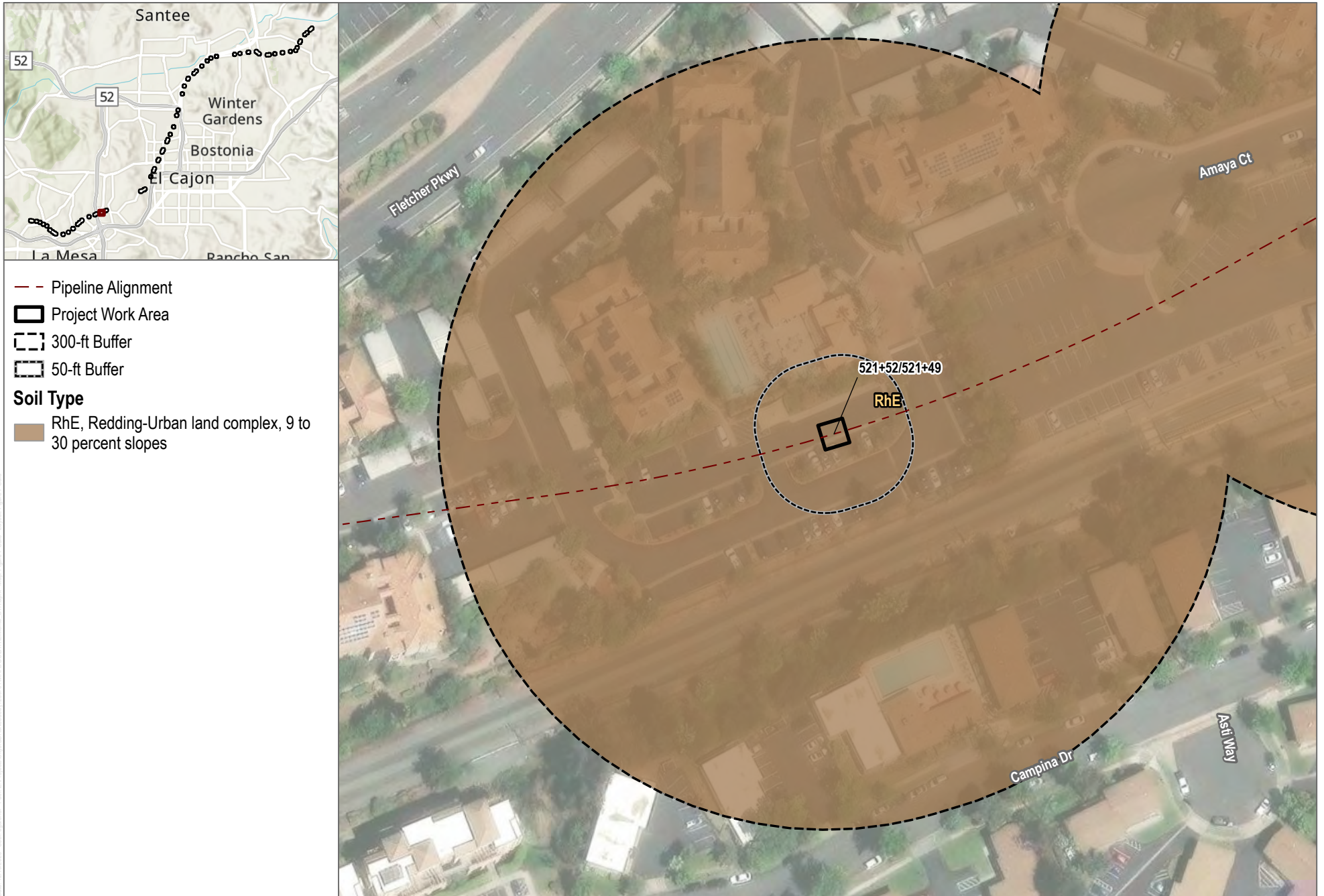
INTENTIONALLY LEFT BLANK



SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

**FIGURE 7-9**  
Soils

INTENTIONALLY LEFT BLANK

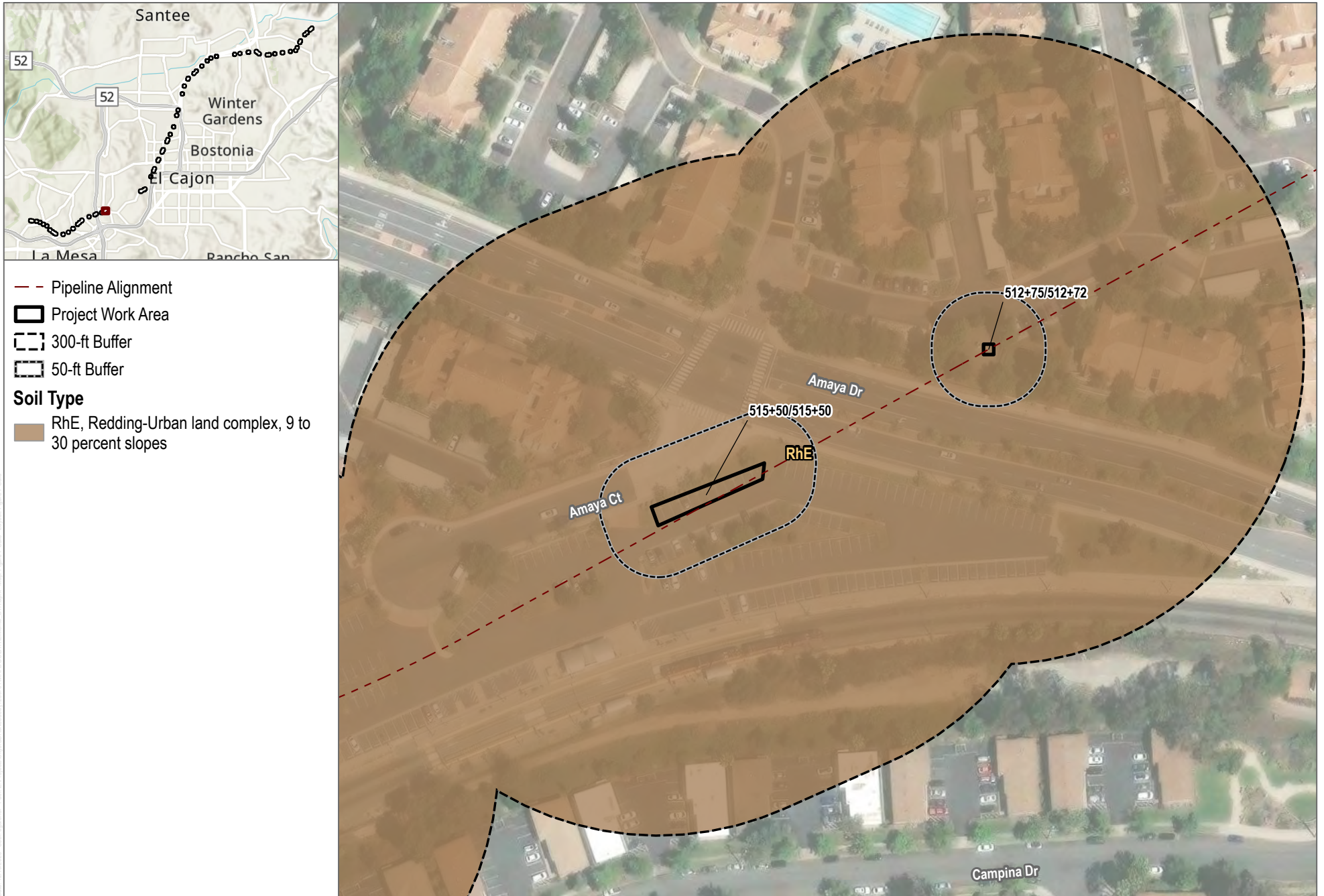


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

**FIGURE 7-10**

**Soils**

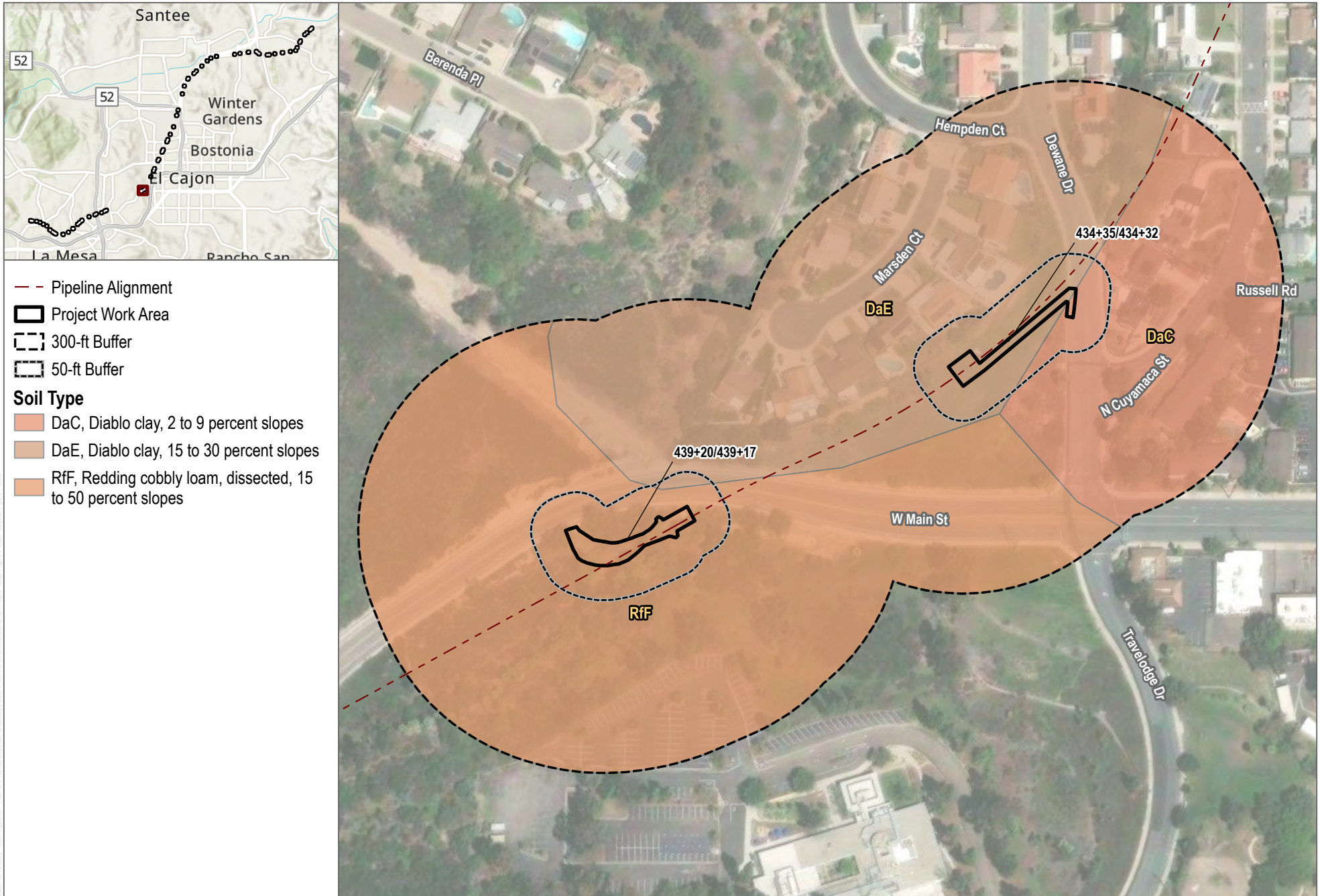
INTENTIONALLY LEFT BLANK



SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

**FIGURE 7-11**  
Soils

INTENTIONALLY LEFT BLANK

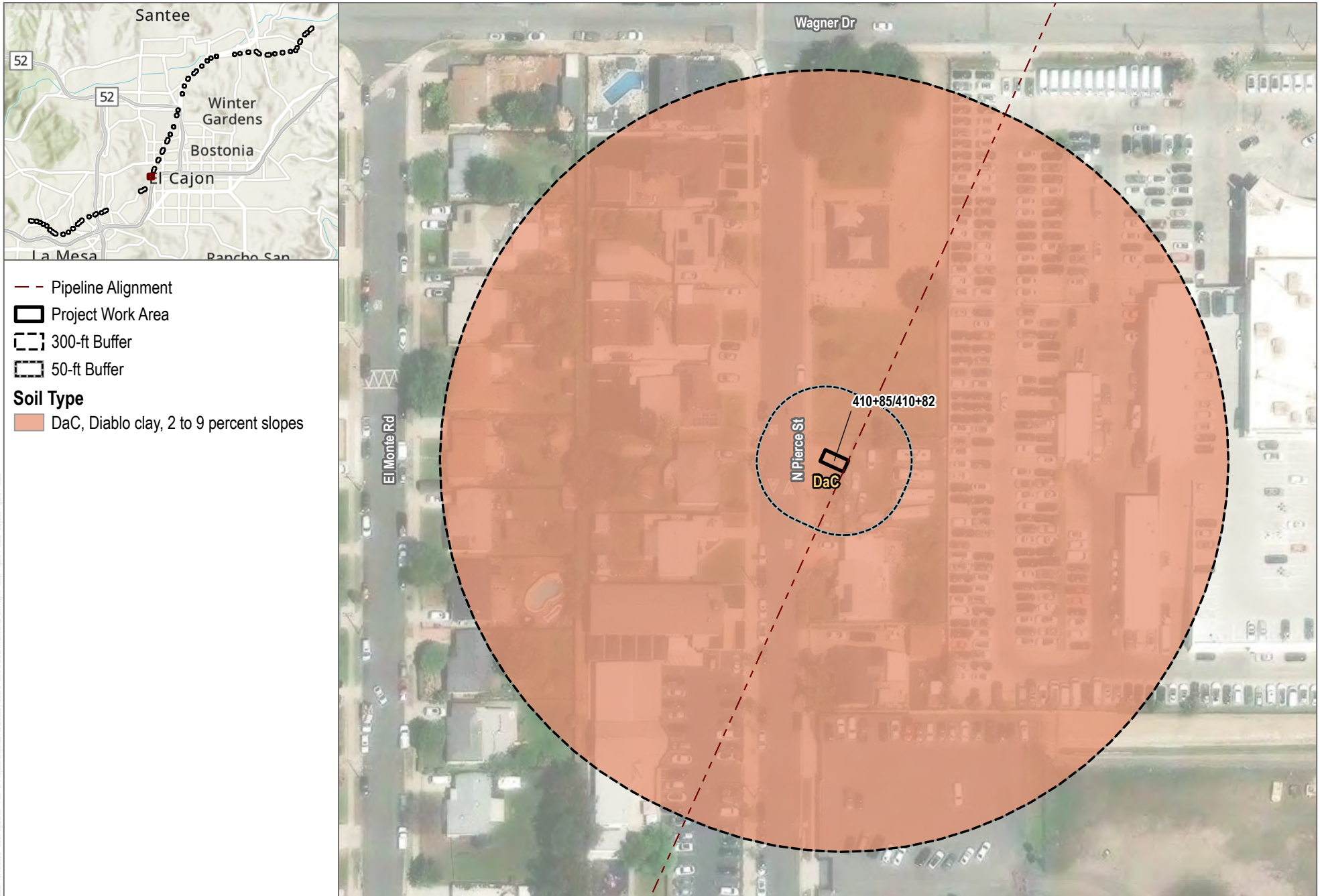


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

FIGURE 7-12

Soils

INTENTIONALLY LEFT BLANK

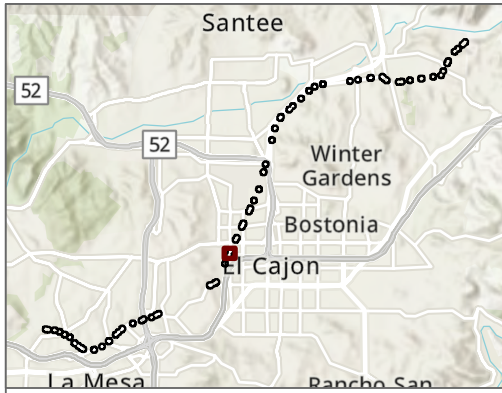


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

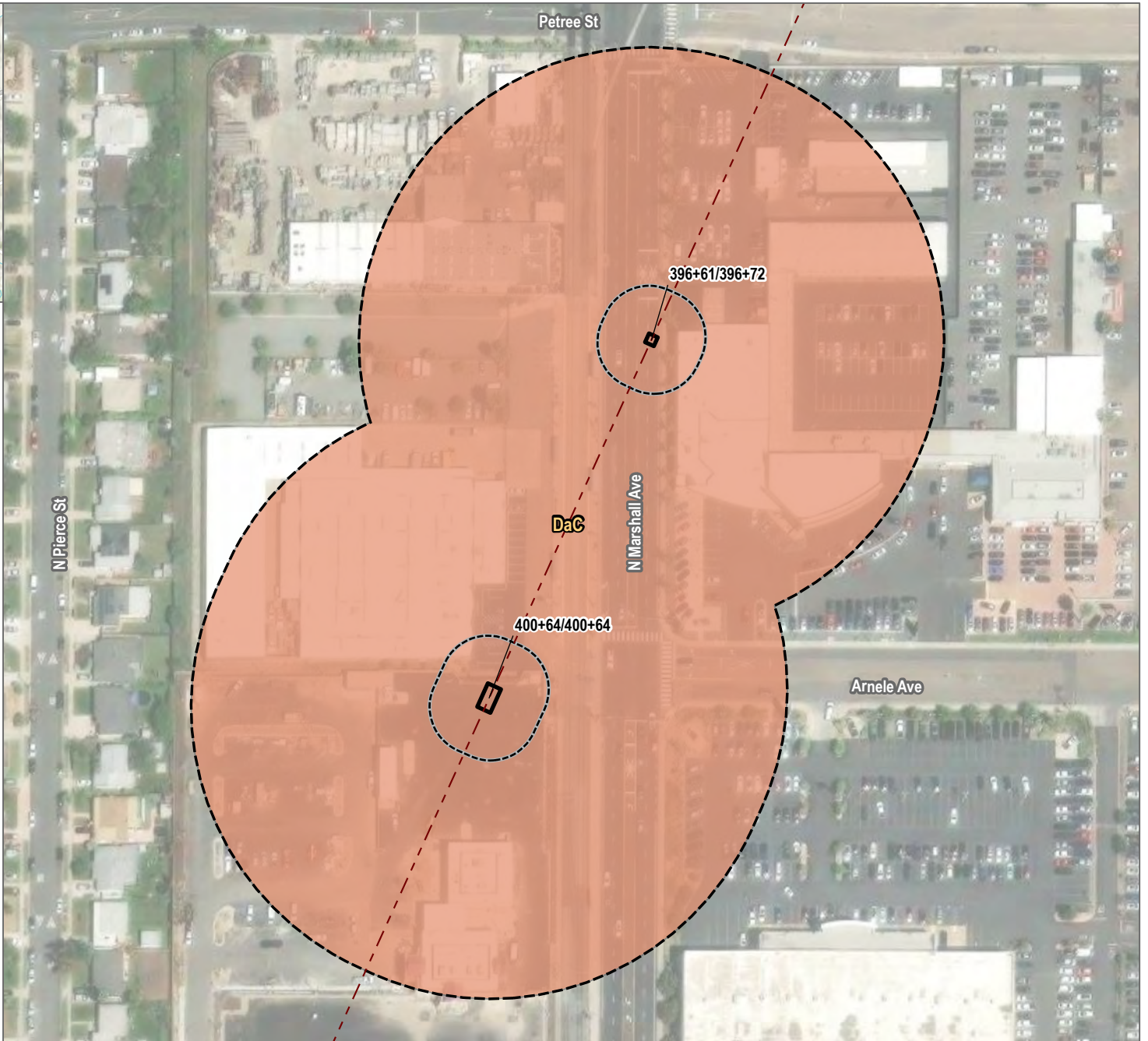
FIGURE 7-13

Soils

INTENTIONALLY LEFT BLANK



- Pipeline Alignment
  - Project Work Area
  - 300-ft Buffer
  - 50-ft Buffer
- Soil Type**
- DaC, Diablo clay, 2 to 9 percent slopes

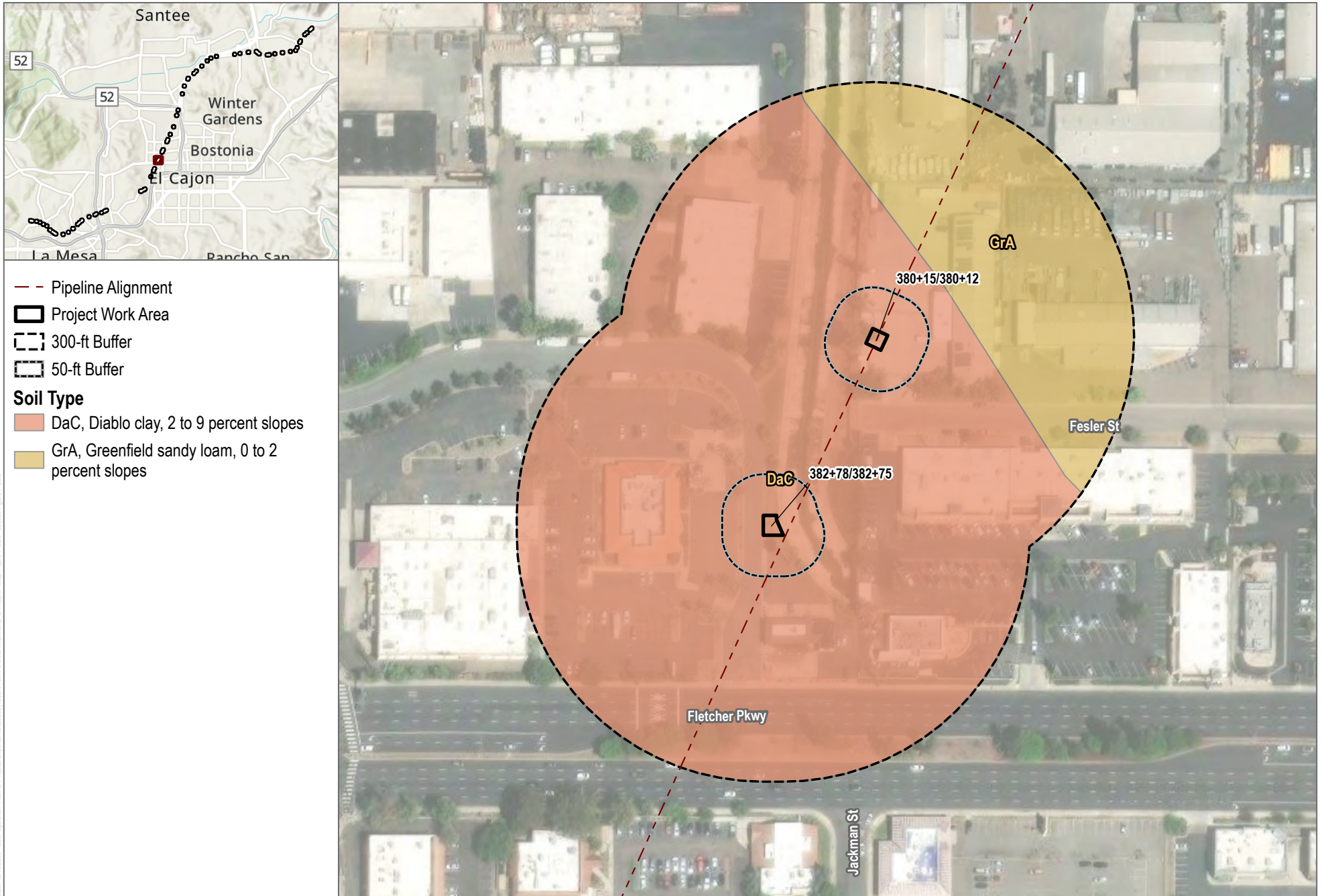


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

**FIGURE 7-14**

**Soils**

INTENTIONALLY LEFT BLANK

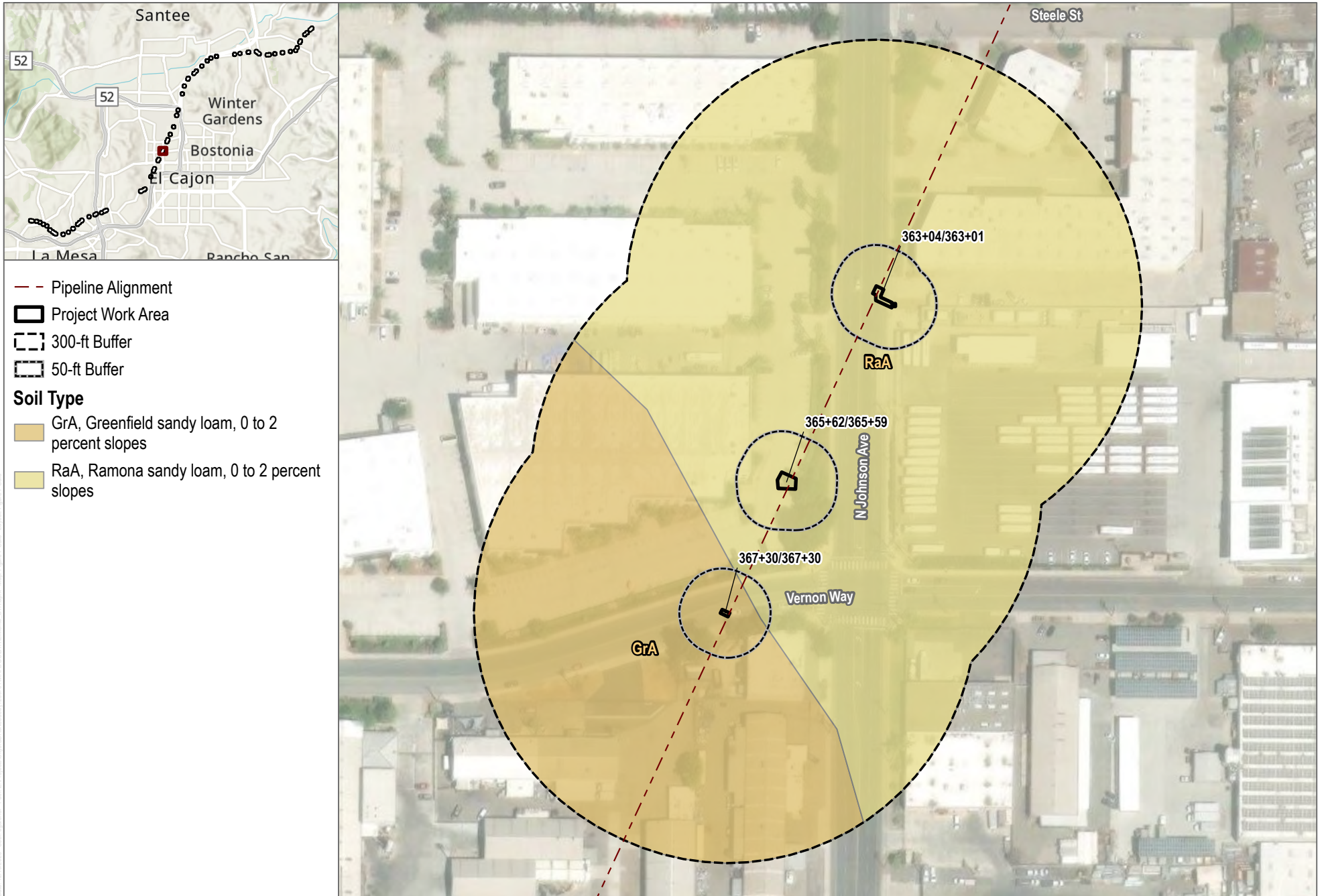


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

FIGURE 7-15

Soils

INTENTIONALLY LEFT BLANK

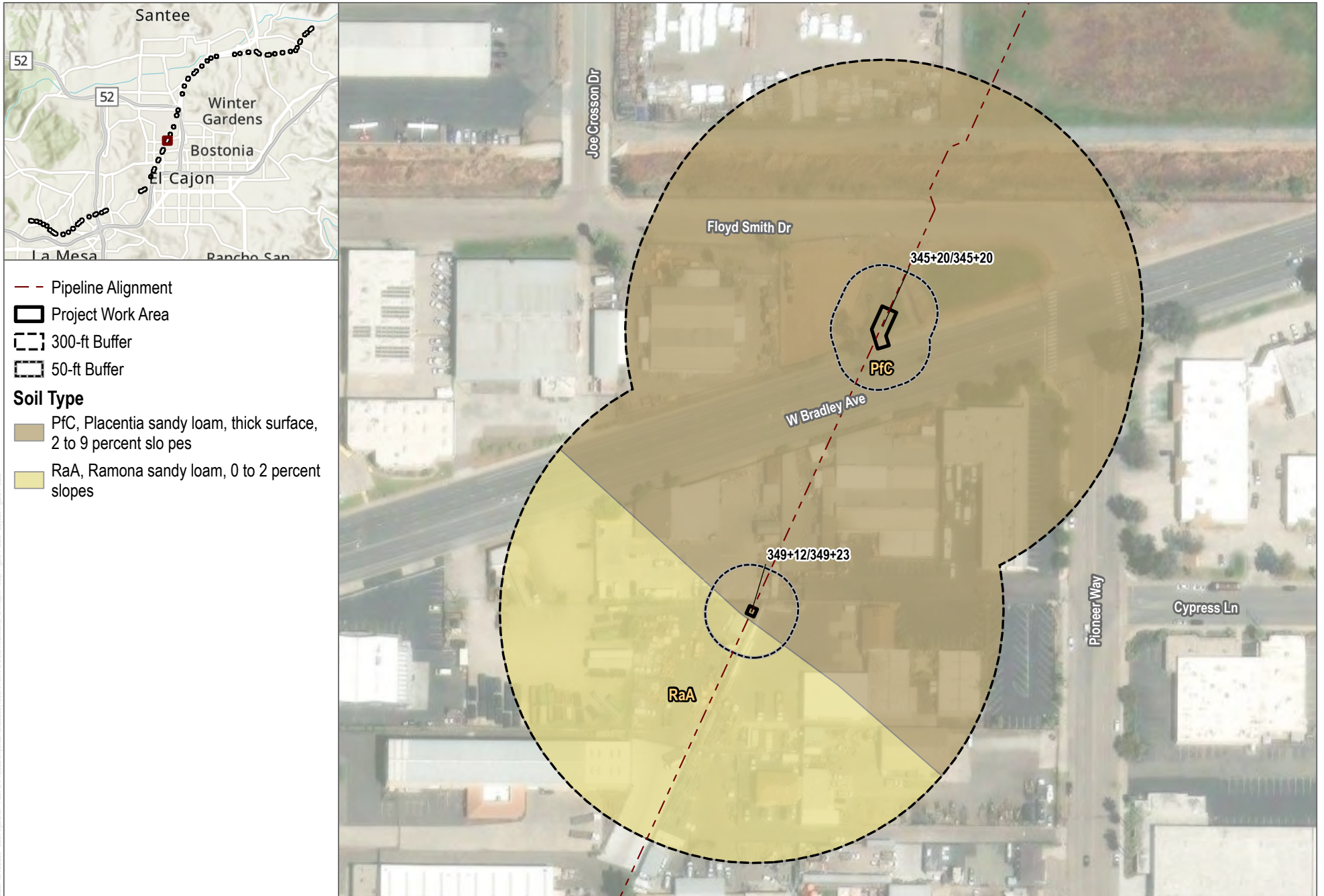


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

FIGURE 7-16

Soils

INTENTIONALLY LEFT BLANK



SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

FIGURE 7-17

Soils

INTENTIONALLY LEFT BLANK



— Pipeline Alignment

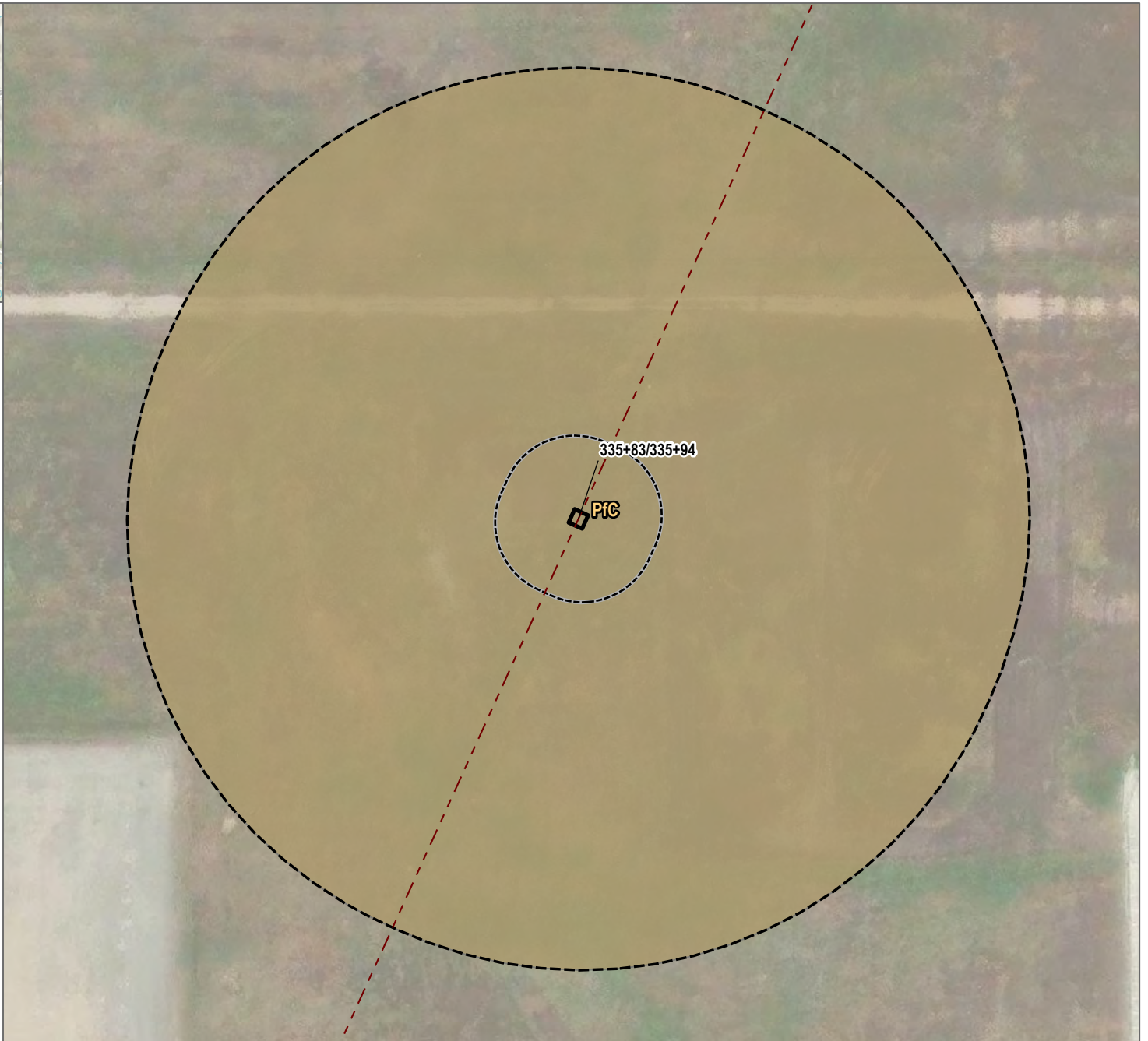
▭ Project Work Area

⊞ 300-ft Buffer

⊞ 50-ft Buffer

**Soil Type**

■ PfC, Placentia sandy loam, thick surface,  
2 to 9 percent slopes

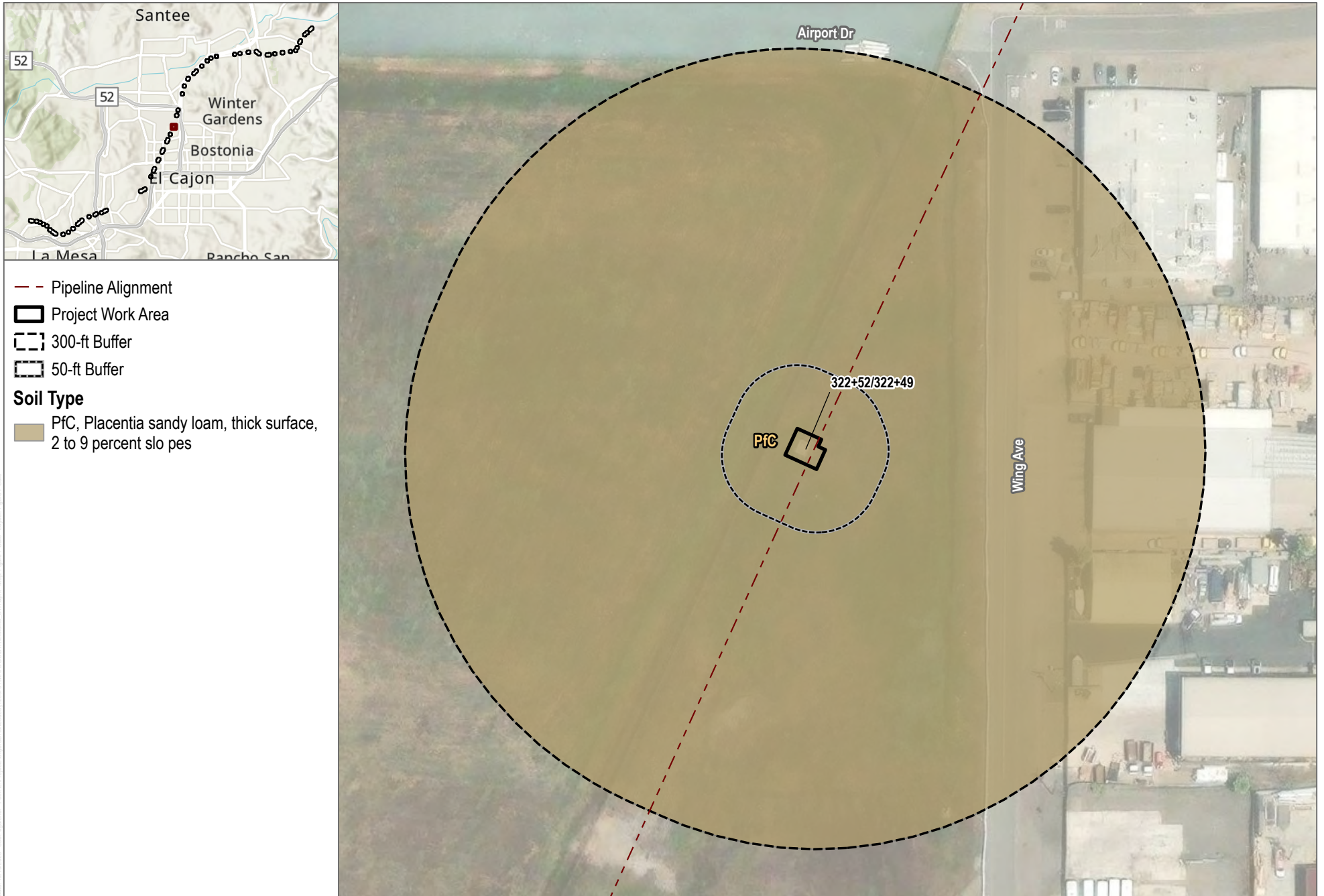


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

**FIGURE 7-18**

**Soils**

INTENTIONALLY LEFT BLANK

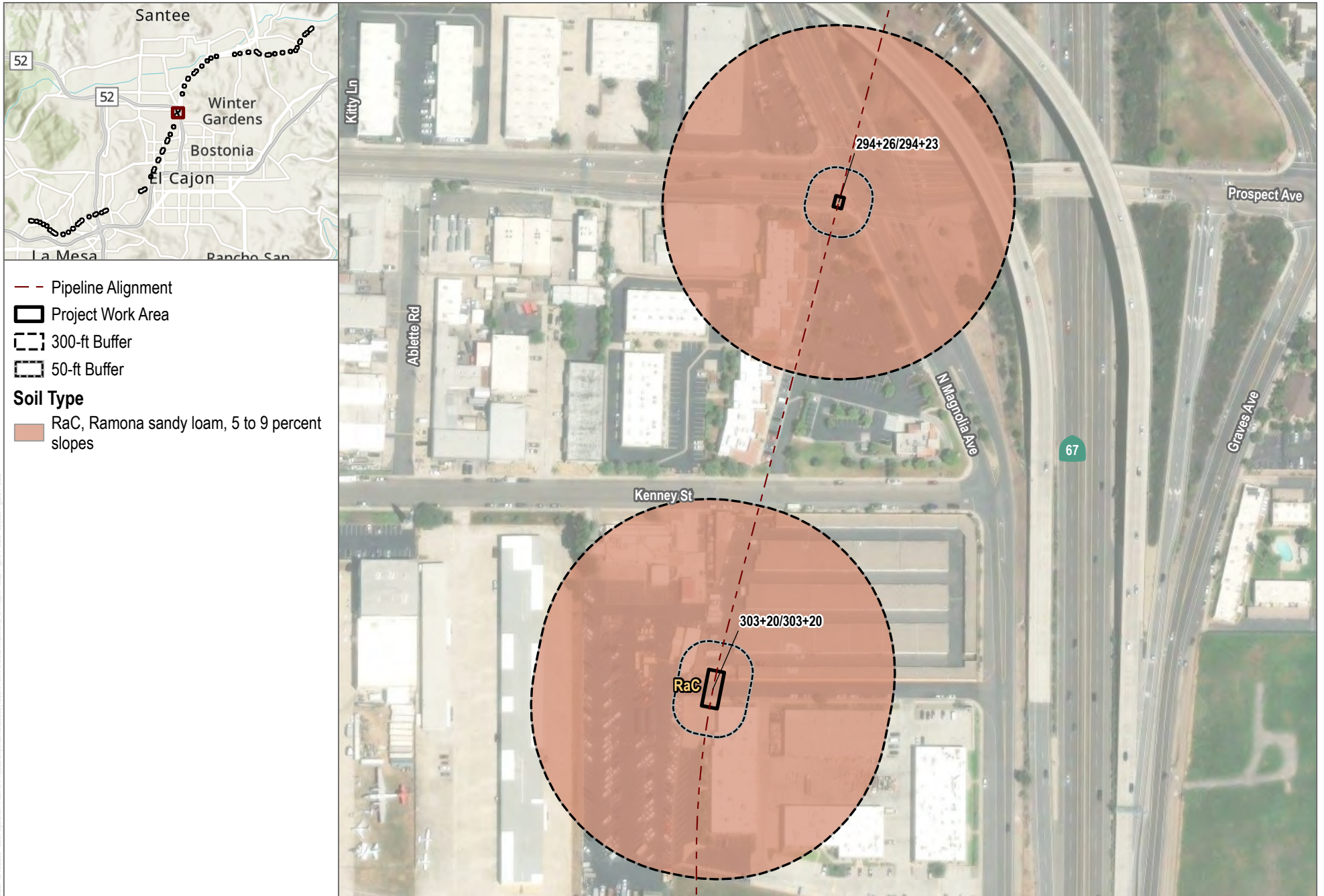


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

FIGURE 7-19

Soils

INTENTIONALLY LEFT BLANK

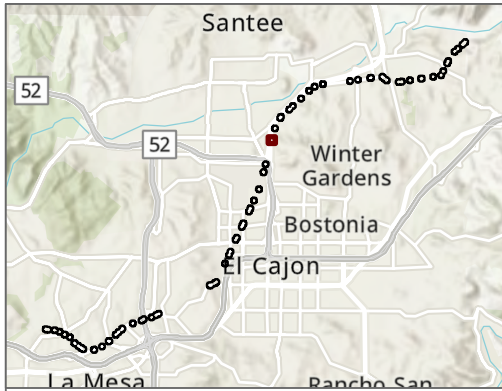


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

FIGURE 7-20

Soils

INTENTIONALLY LEFT BLANK



--- Pipeline Alignment

▭ Project Work Area

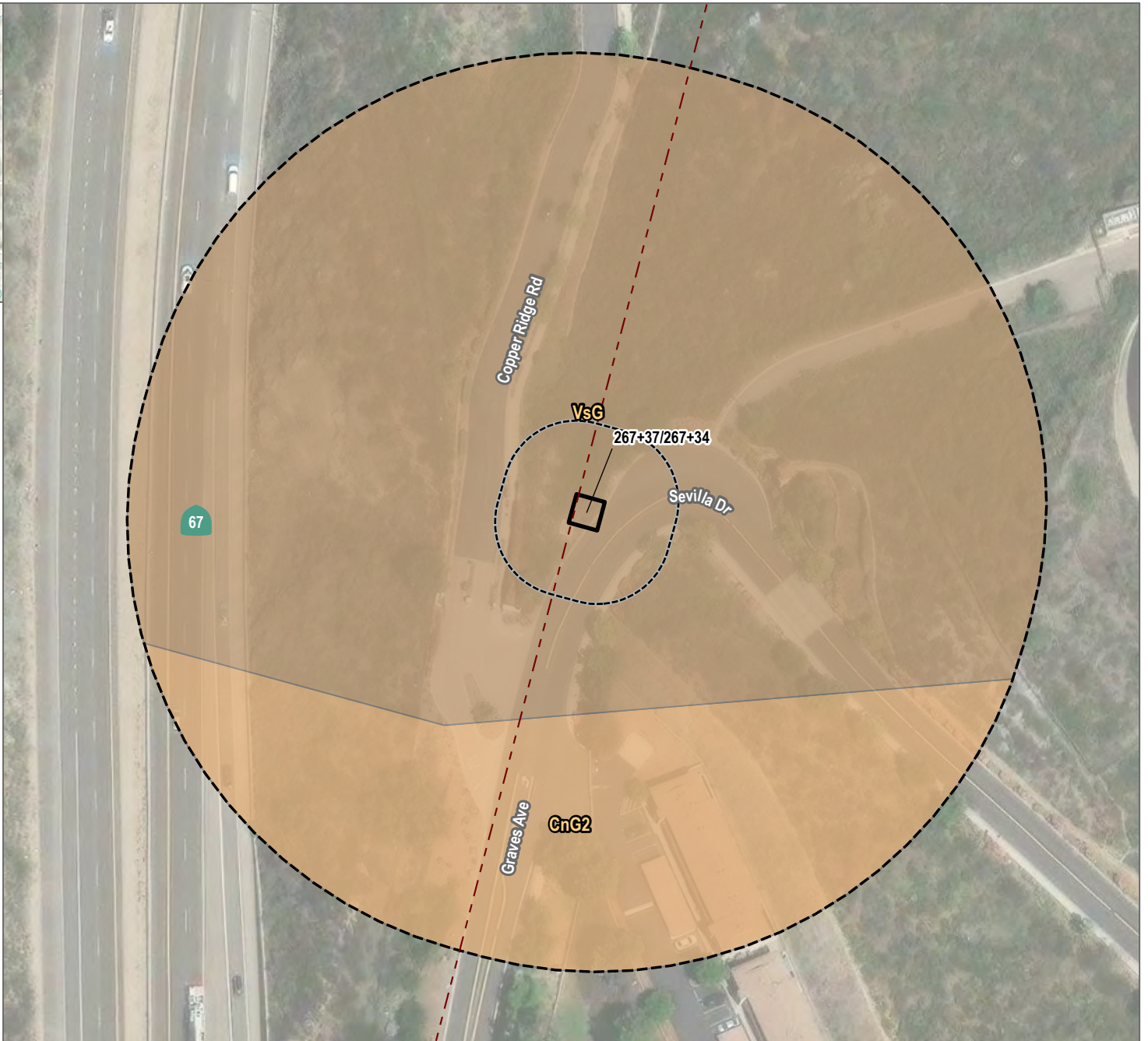
⊞ 300-ft Buffer

⊞ 50-ft Buffer

**Soil Type**

■ CnG2, Cieneba-Fallbrook rocky sandy loams, 30 to 65 percent slopes, eroded

■ VsG, Vista coarse sandy loam, 30 to 65 percent slopes



SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

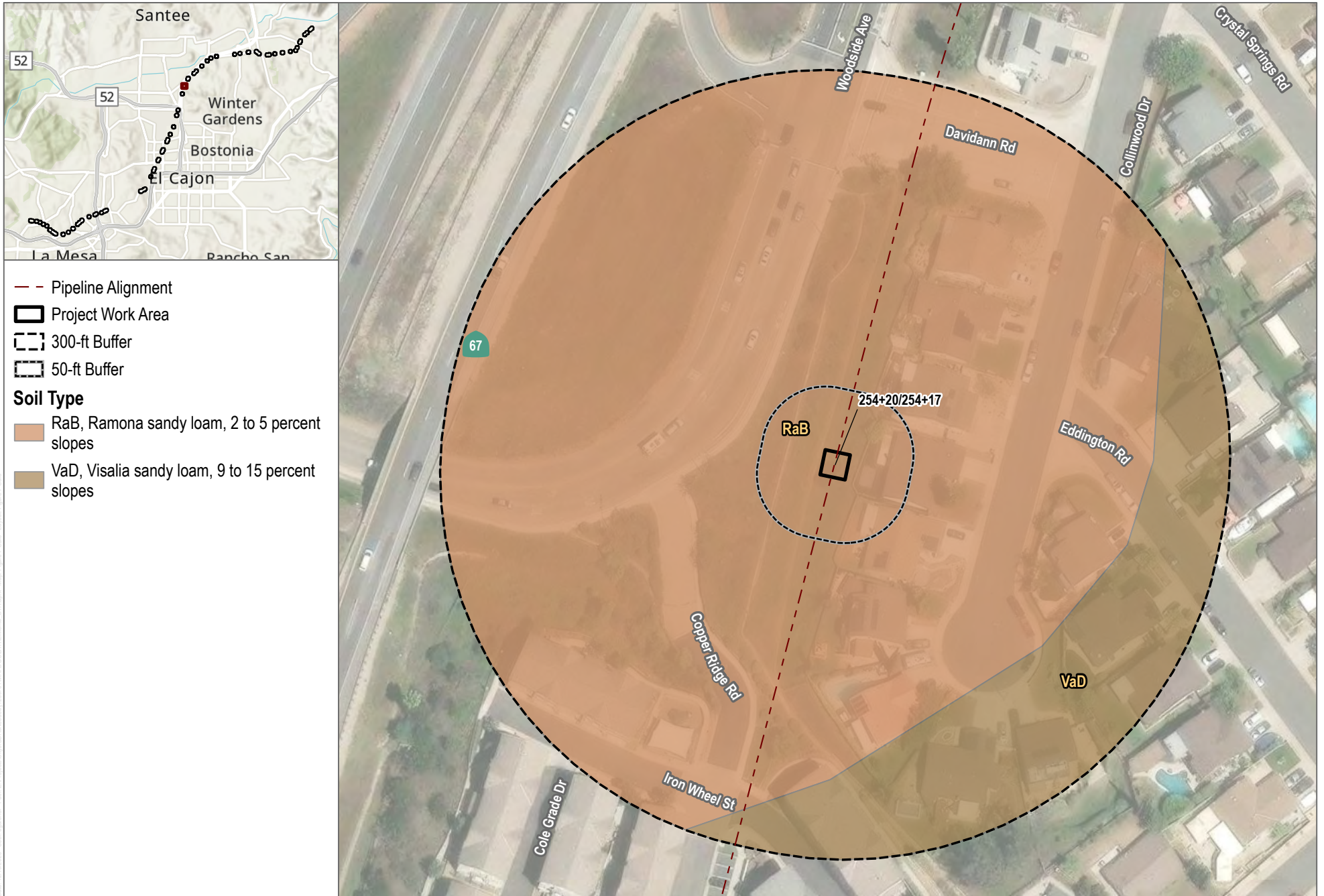


**FIGURE 7-21**

**Soils**

El Monte Water Transmission Pipeline Rehabilitation Project

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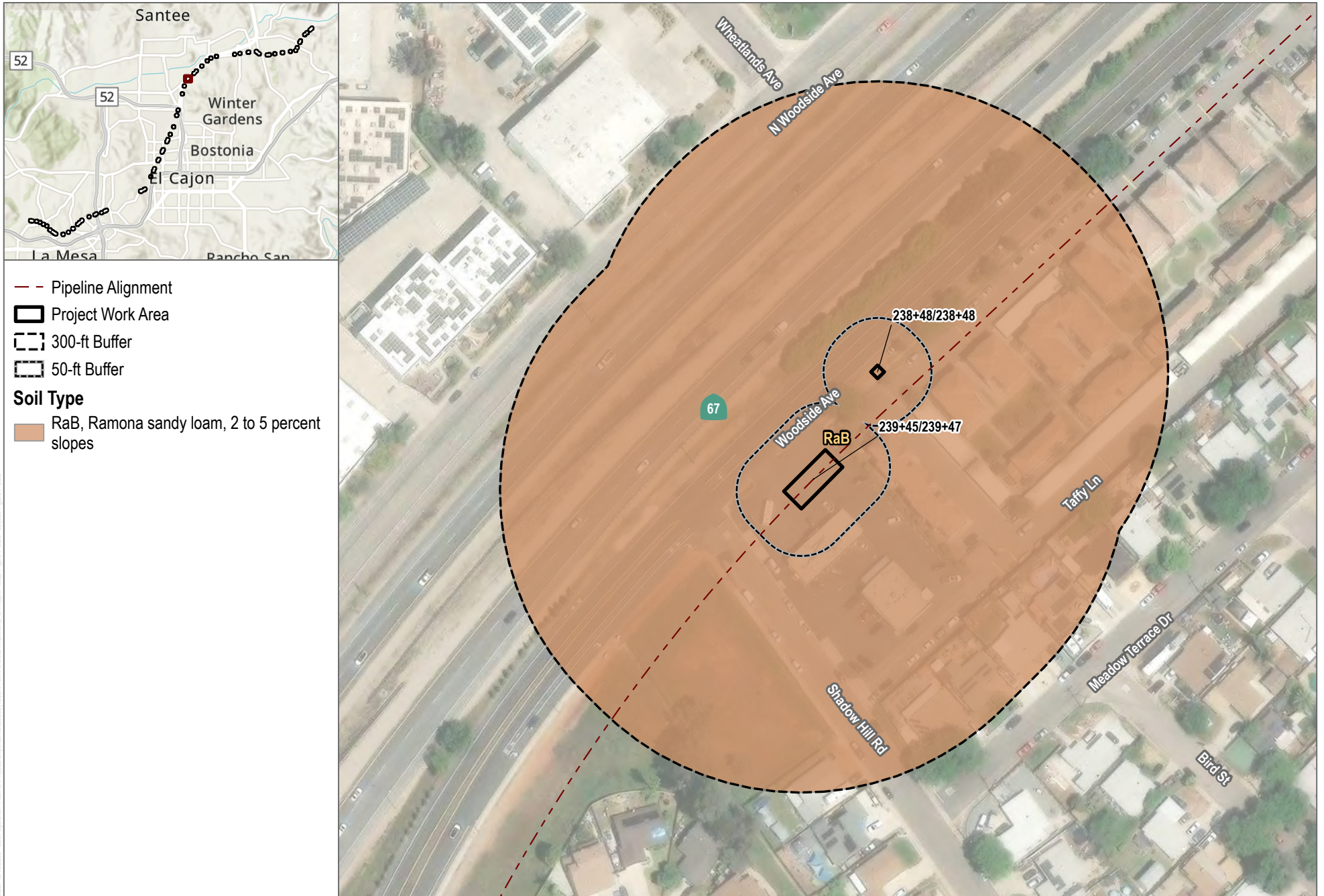


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

FIGURE 7-22

Soils

INTENTIONALLY LEFT BLANK



SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

FIGURE 7-23

Soils

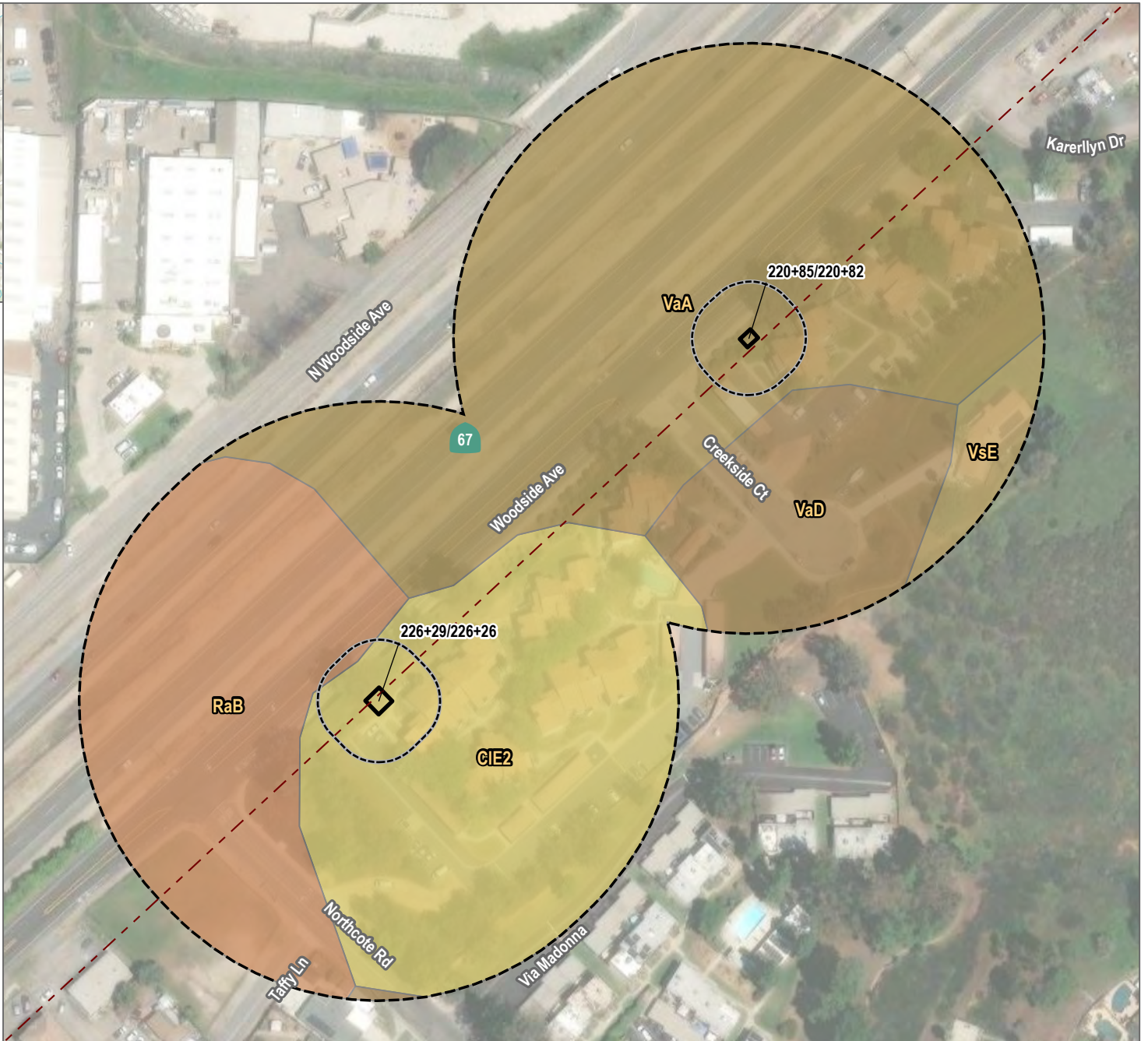
INTENTIONALLY LEFT BLANK



- Pipeline Alignment
- Project Work Area
- 300-ft Buffer
- 50-ft Buffer

**Soil Type**

- CIE2, Cieneba coarse sandy loam, 15 to 30 percent slopes, ero ded
- RaB, Ramona sandy loam, 2 to 5 percent slopes
- VaA, Visalia sandy loam, 0 to 2 percent slopes
- VaD, Visalia sandy loam, 9 to 15 percent slopes
- VsE, Vista coarse sandy loam, 15 to 30 percent slopes



SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

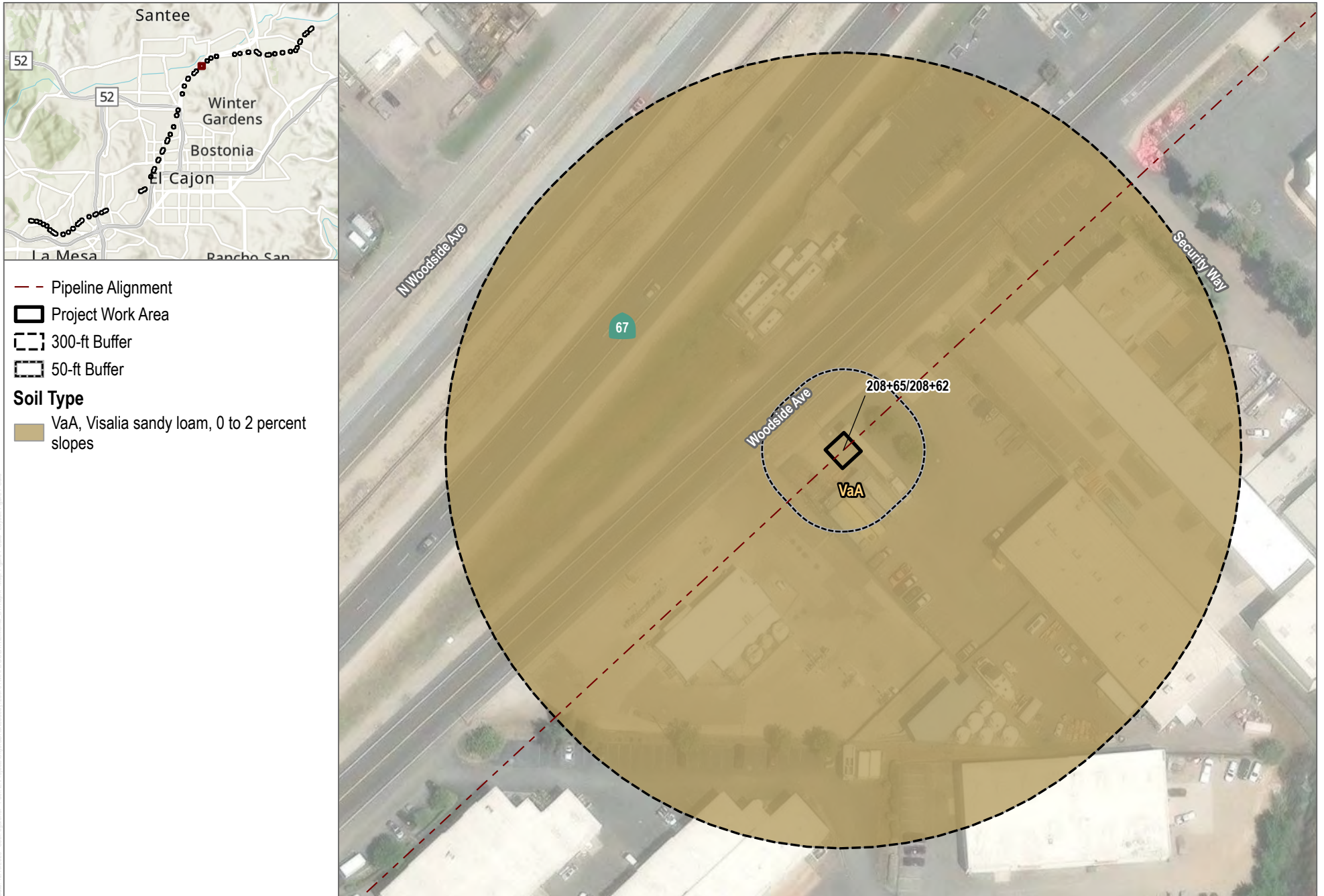


**FIGURE 7-24**

**Soils**

El Monte Water Transmission Pipeline Rehabilitation Project

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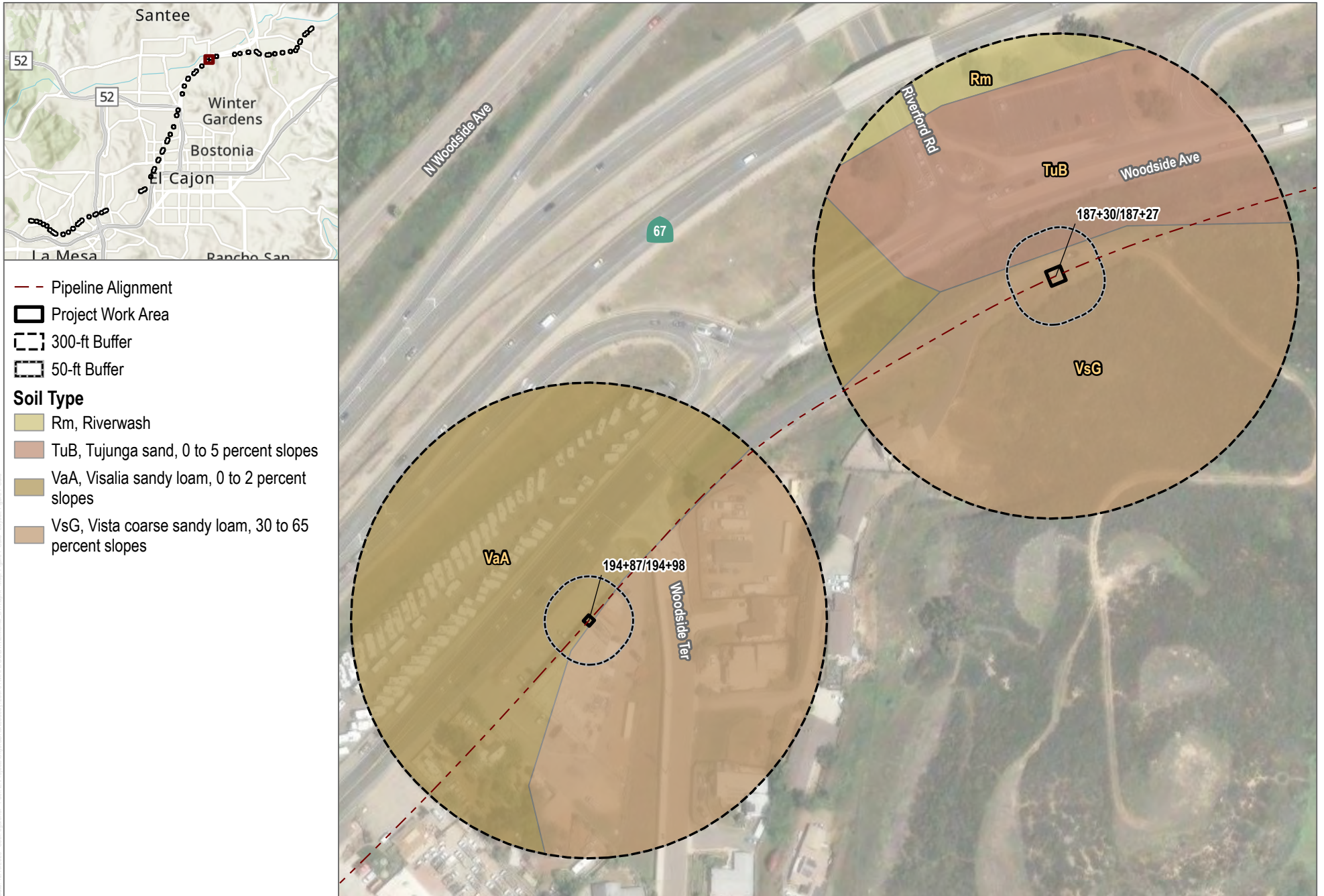


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

FIGURE 7-25

Soils

INTENTIONALLY LEFT BLANK

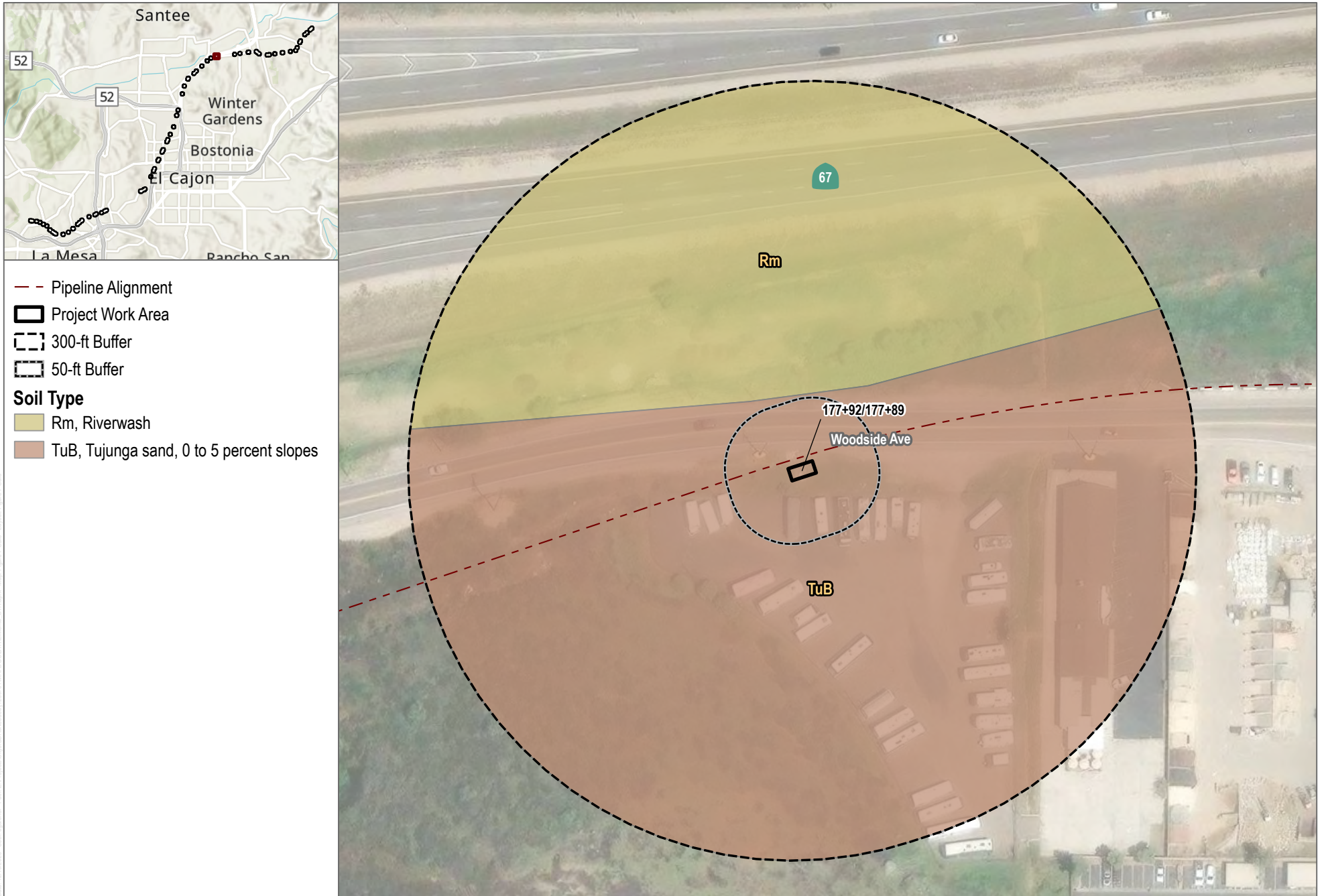


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

FIGURE 7-26

Soils

INTENTIONALLY LEFT BLANK

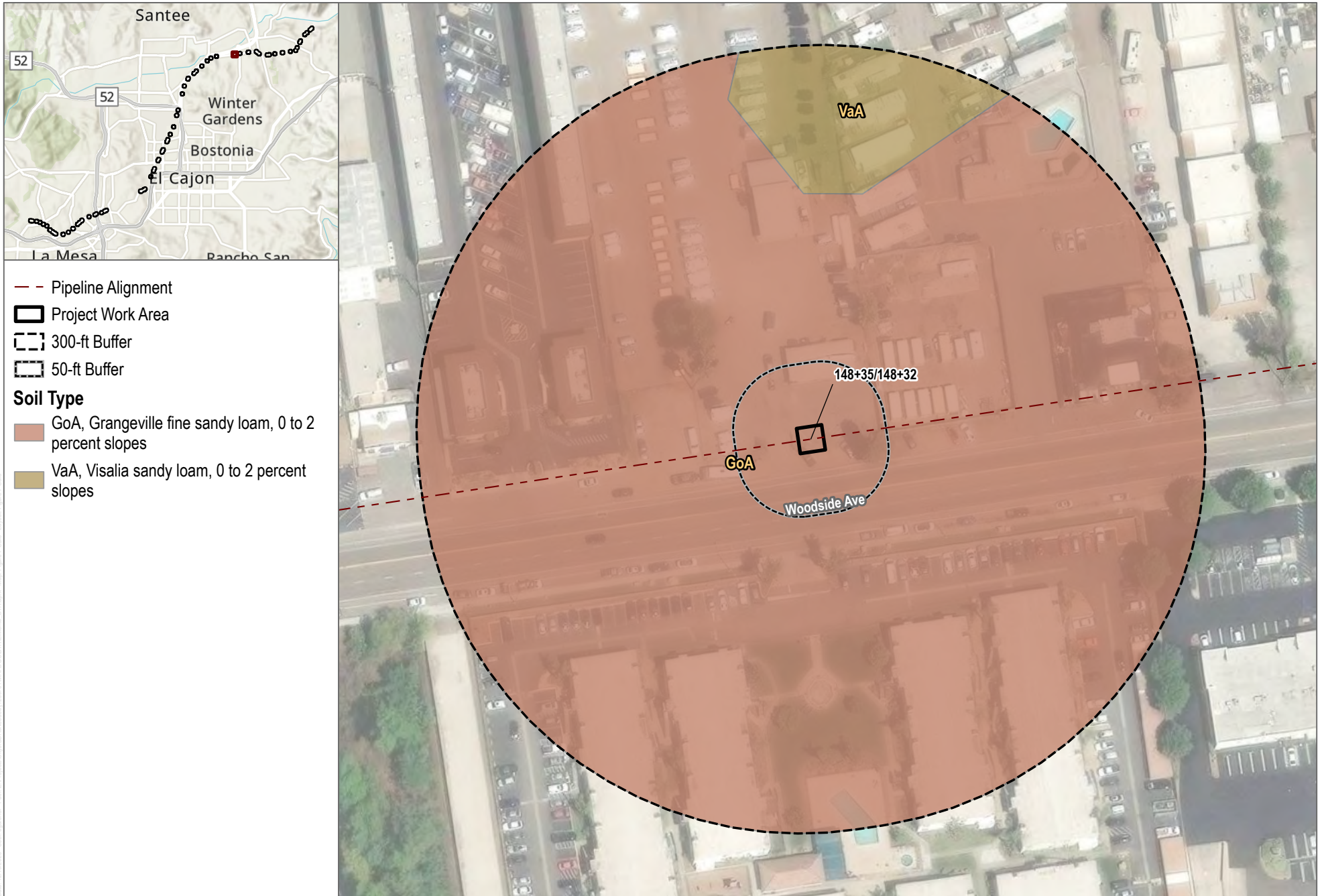


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

FIGURE 7-27

Soils

INTENTIONALLY LEFT BLANK

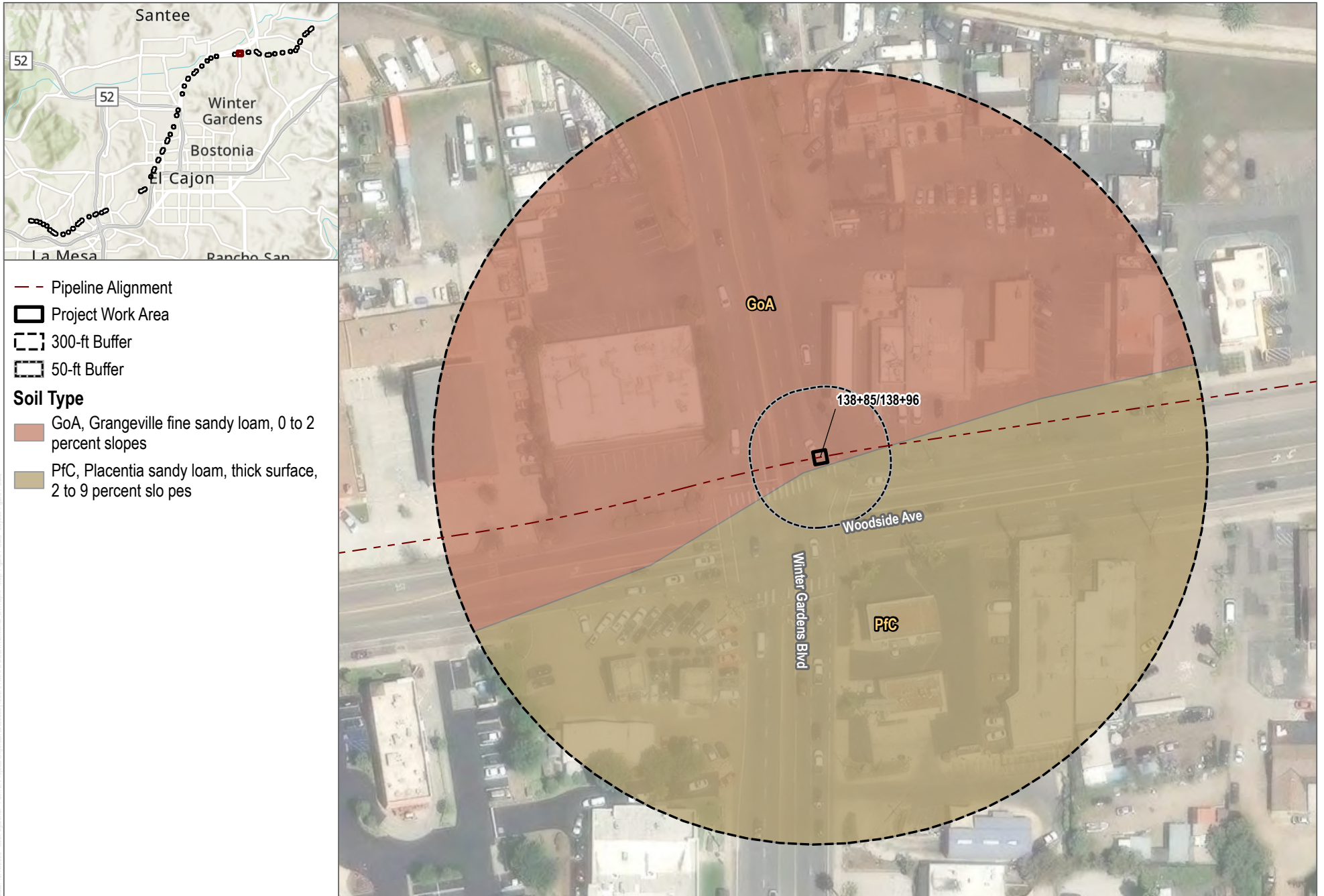


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

FIGURE 7-28

Soils

INTENTIONALLY LEFT BLANK

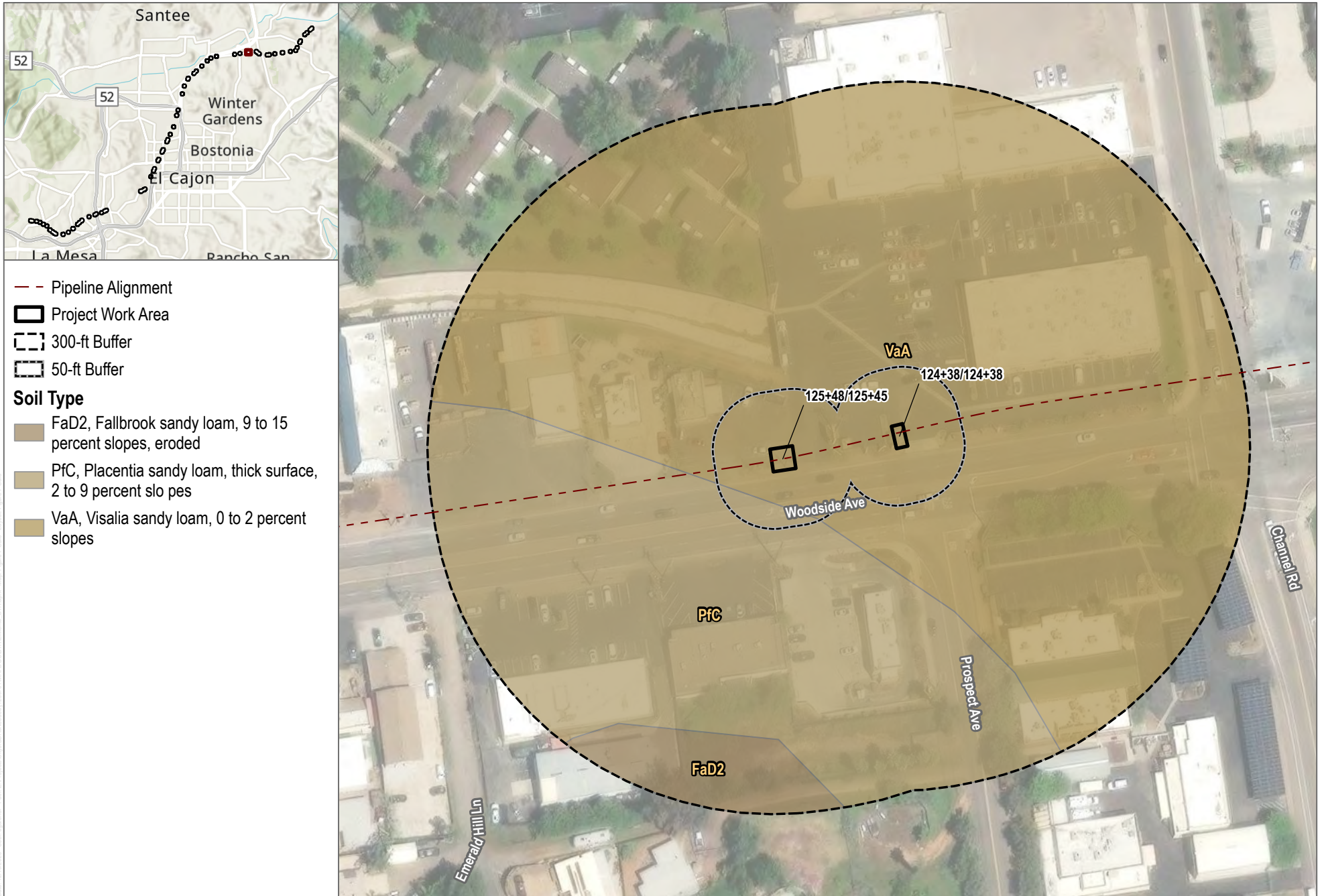


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

**FIGURE 7-29**

**Soils**

INTENTIONALLY LEFT BLANK

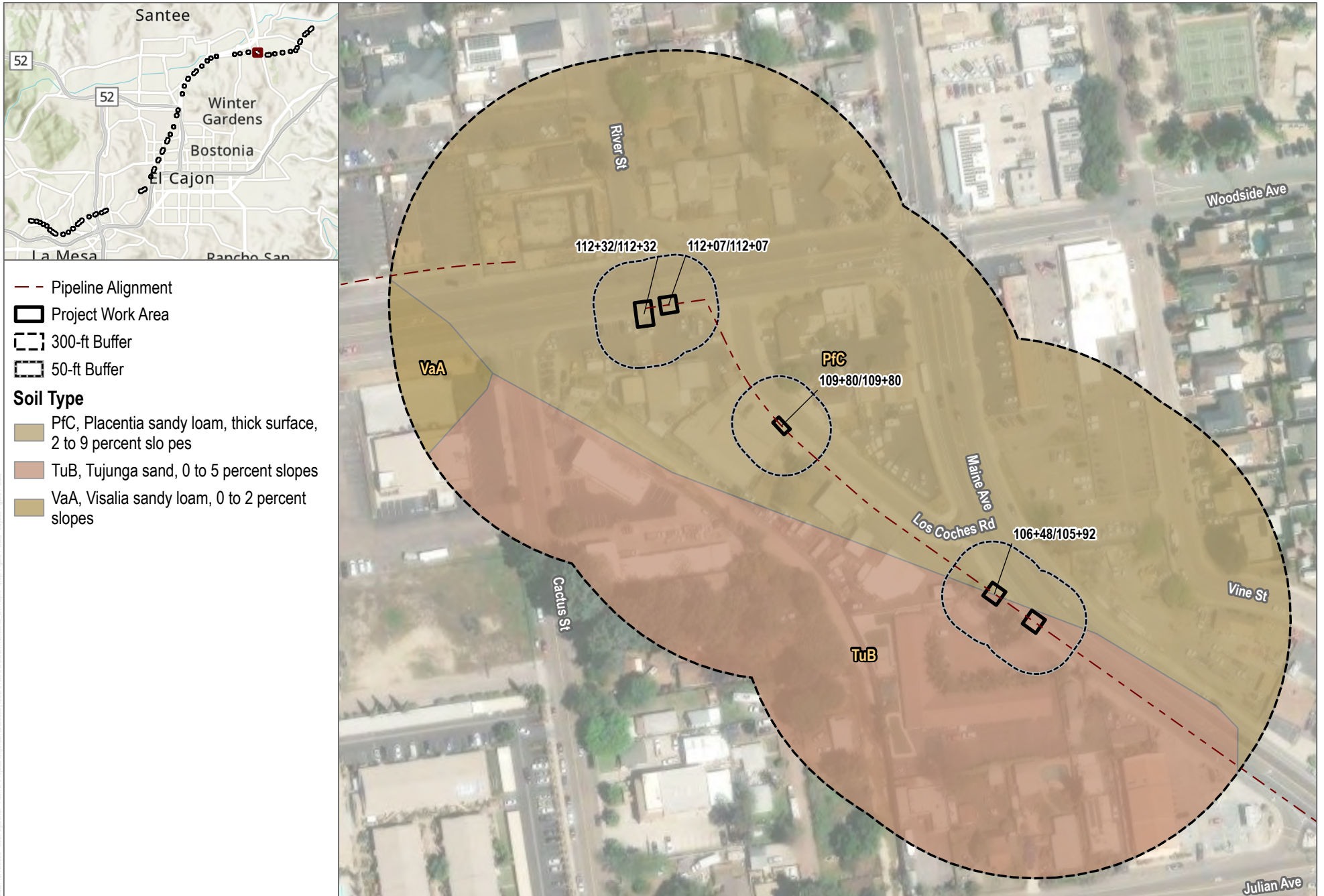


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

FIGURE 7-30

Soils

INTENTIONALLY LEFT BLANK

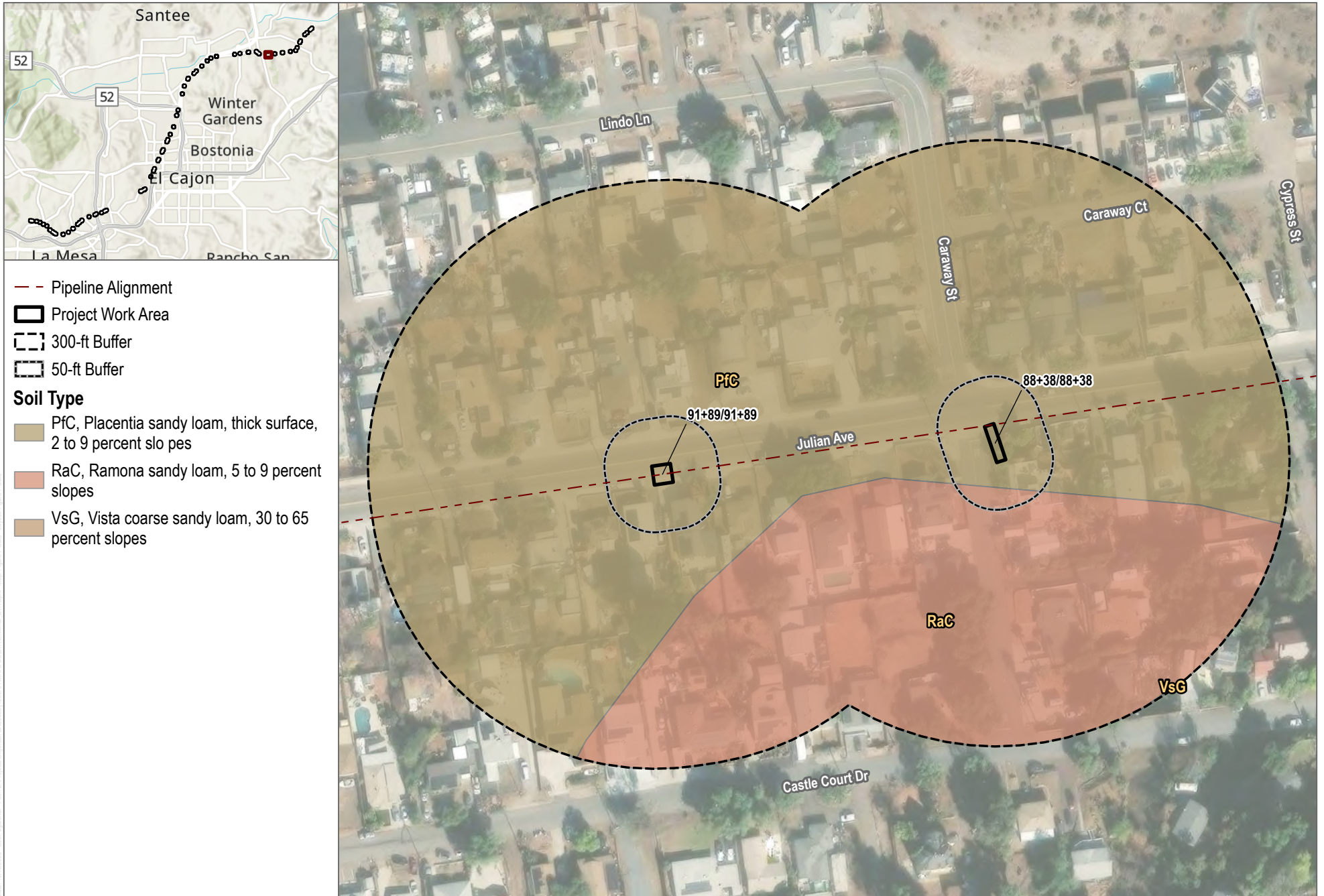


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

**FIGURE 7-31**

**Soils**

INTENTIONALLY LEFT BLANK

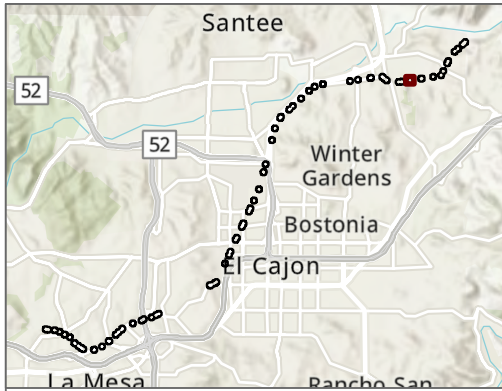


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

FIGURE 7-32

Soils

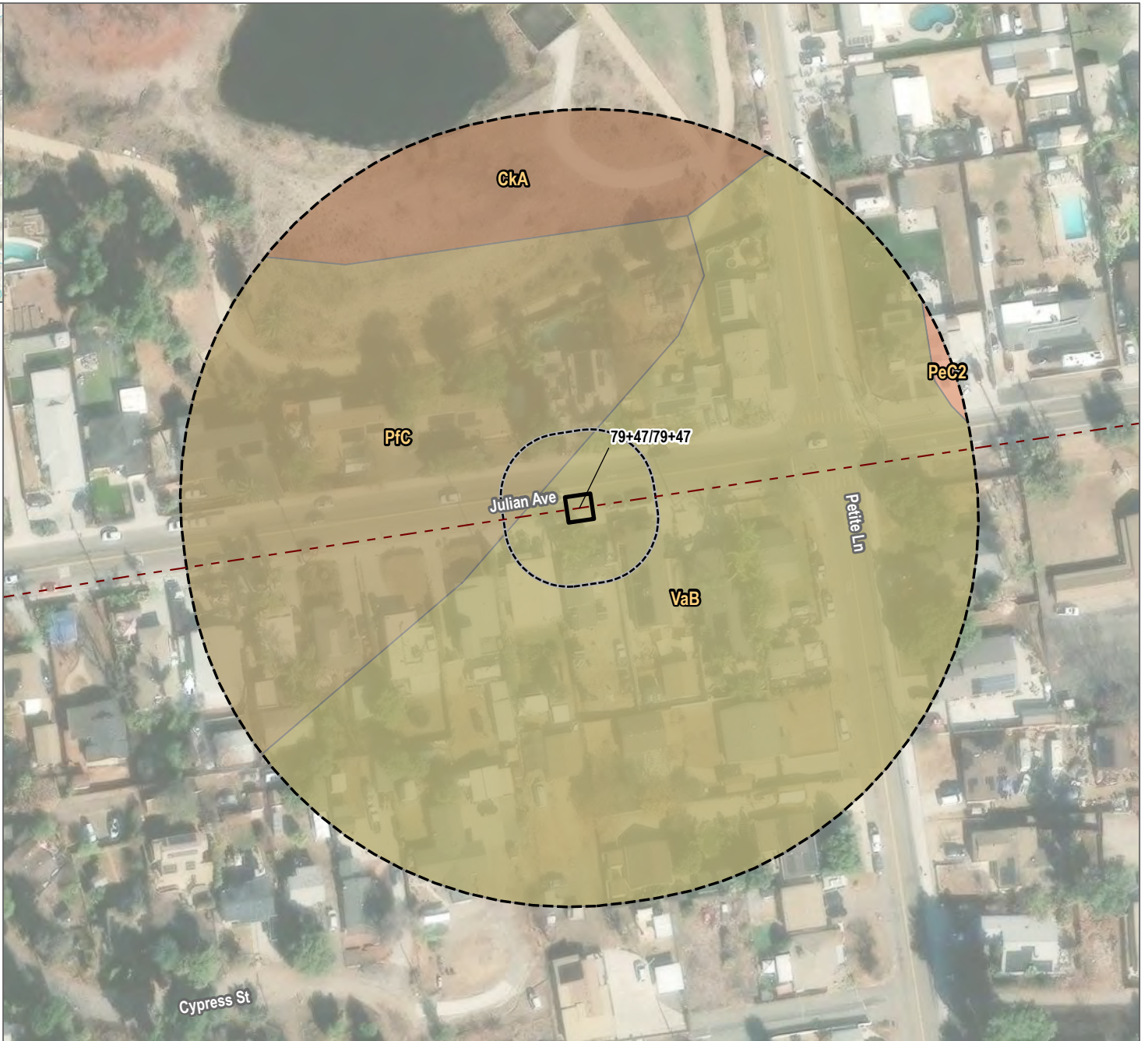
INTENTIONALLY LEFT BLANK



- Pipeline Alignment
- ▭ Project Work Area
- ⊞ 300-ft Buffer
- ⊞ 50-ft Buffer

**Soil Type**

- CkA, Chino silt loam, saline, 0 to 2 percent slopes
- PeC2, Placentia sandy loam, 5 to 9 percent slopes, eroded
- PfC, Placentia sandy loam, thick surface, 2 to 9 percent slopes
- VaB, Visalia sandy loam, 2 to 5 percent slopes

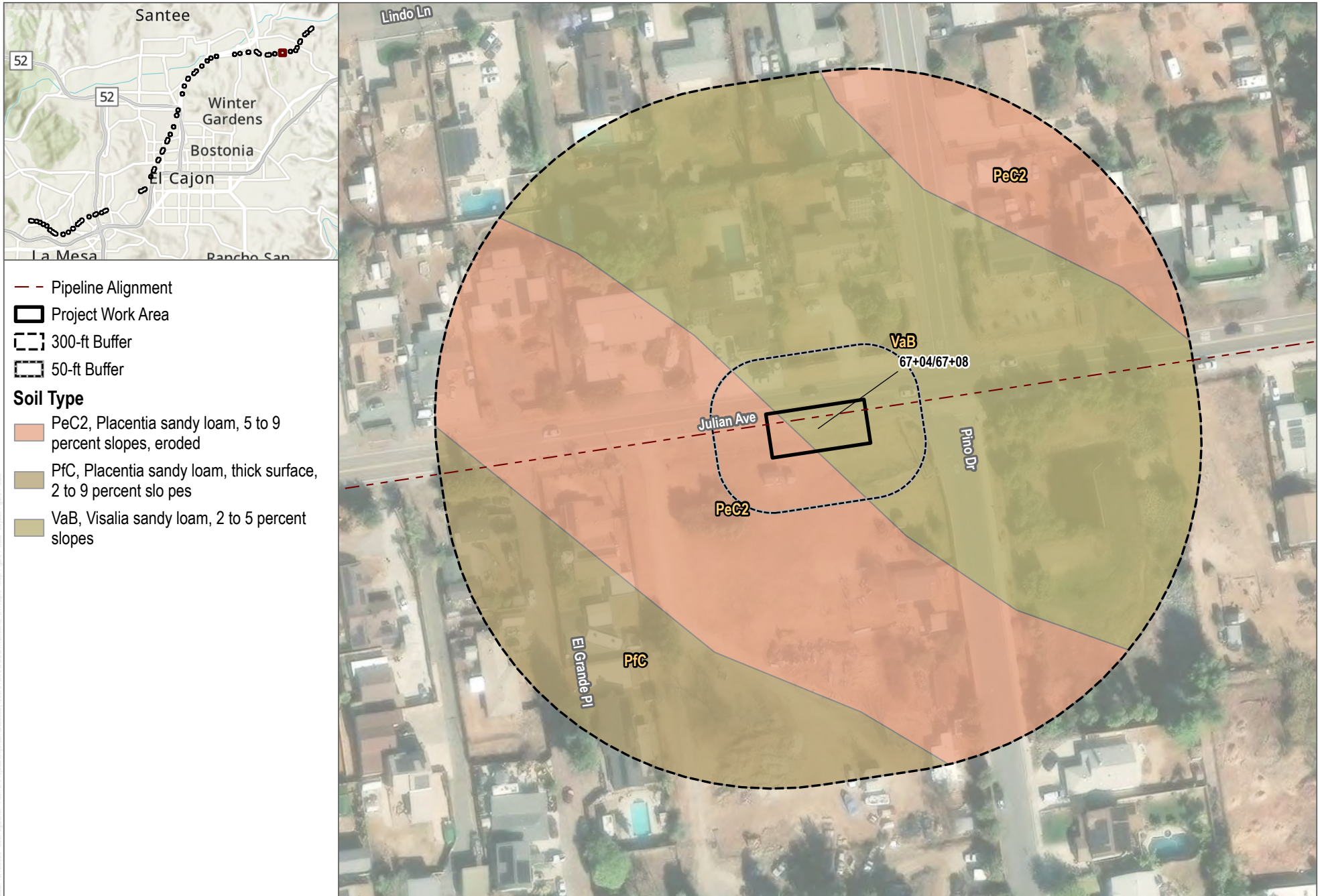


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

**FIGURE 7-33**

**Soils**

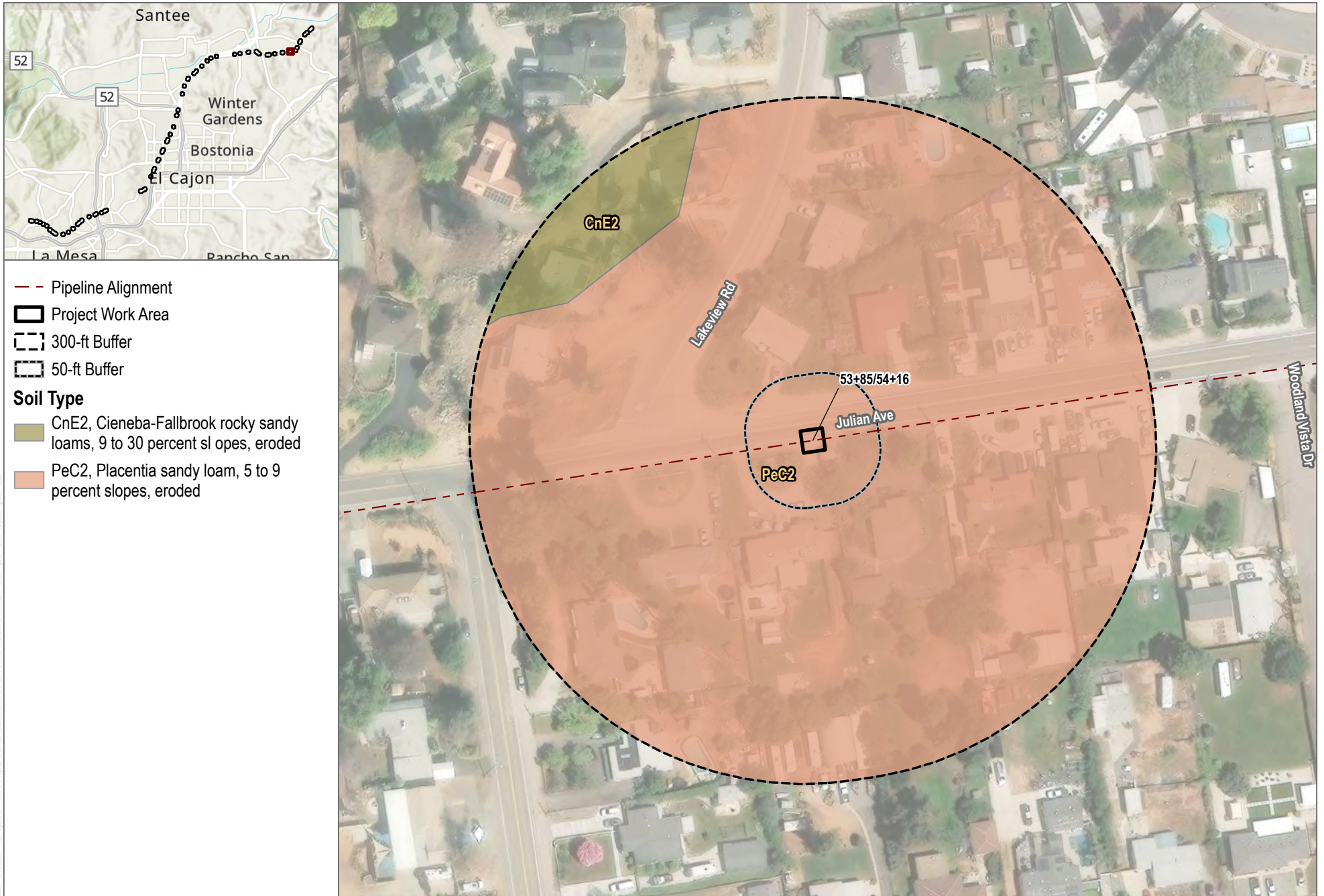
INTENTIONALLY LEFT BLANK



SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

**FIGURE 7-34**  
Soils

INTENTIONALLY LEFT BLANK

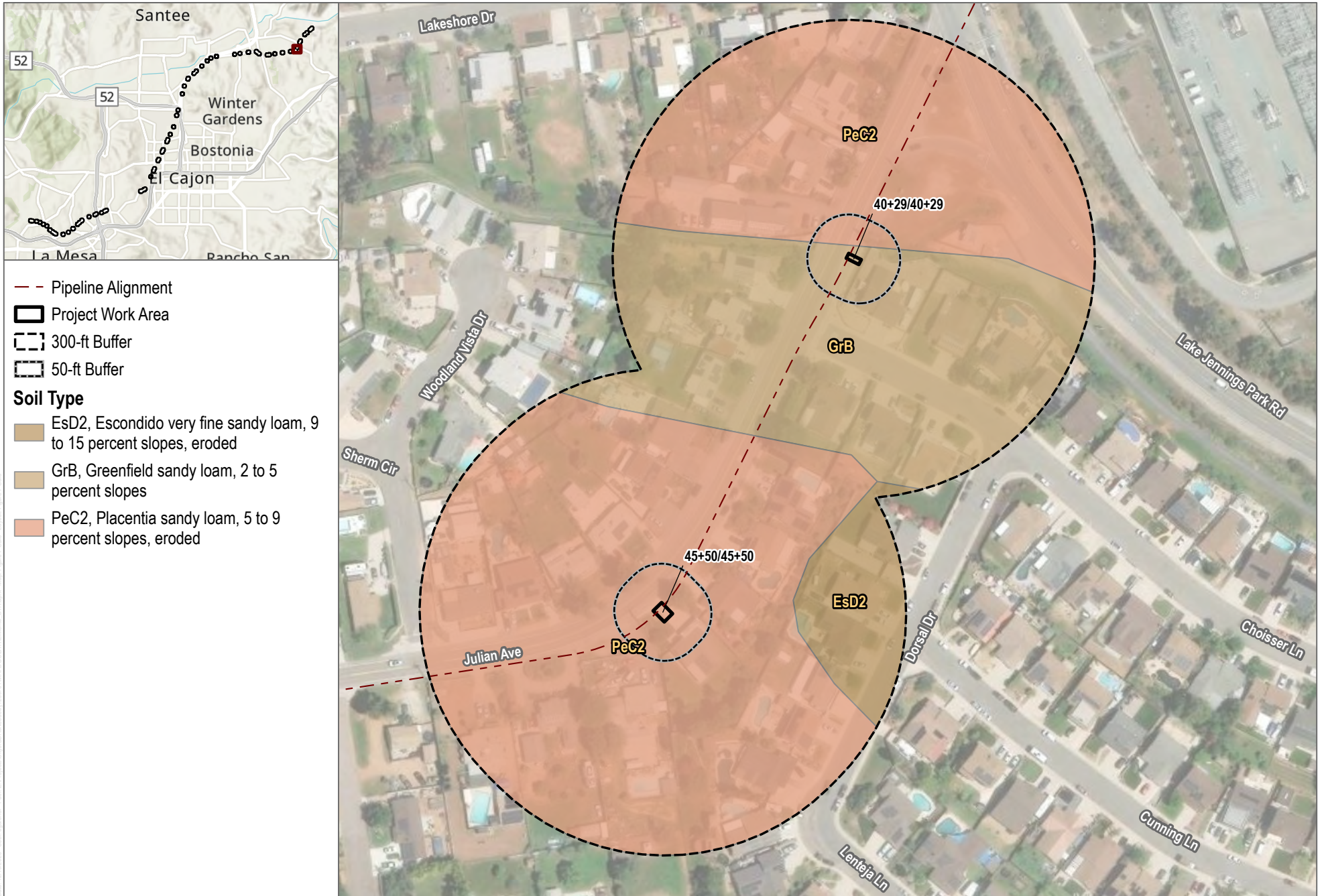


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

FIGURE 7-35

Soils

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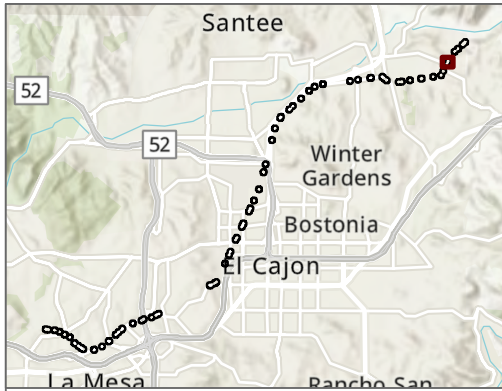


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

**FIGURE 7-36**

Soils

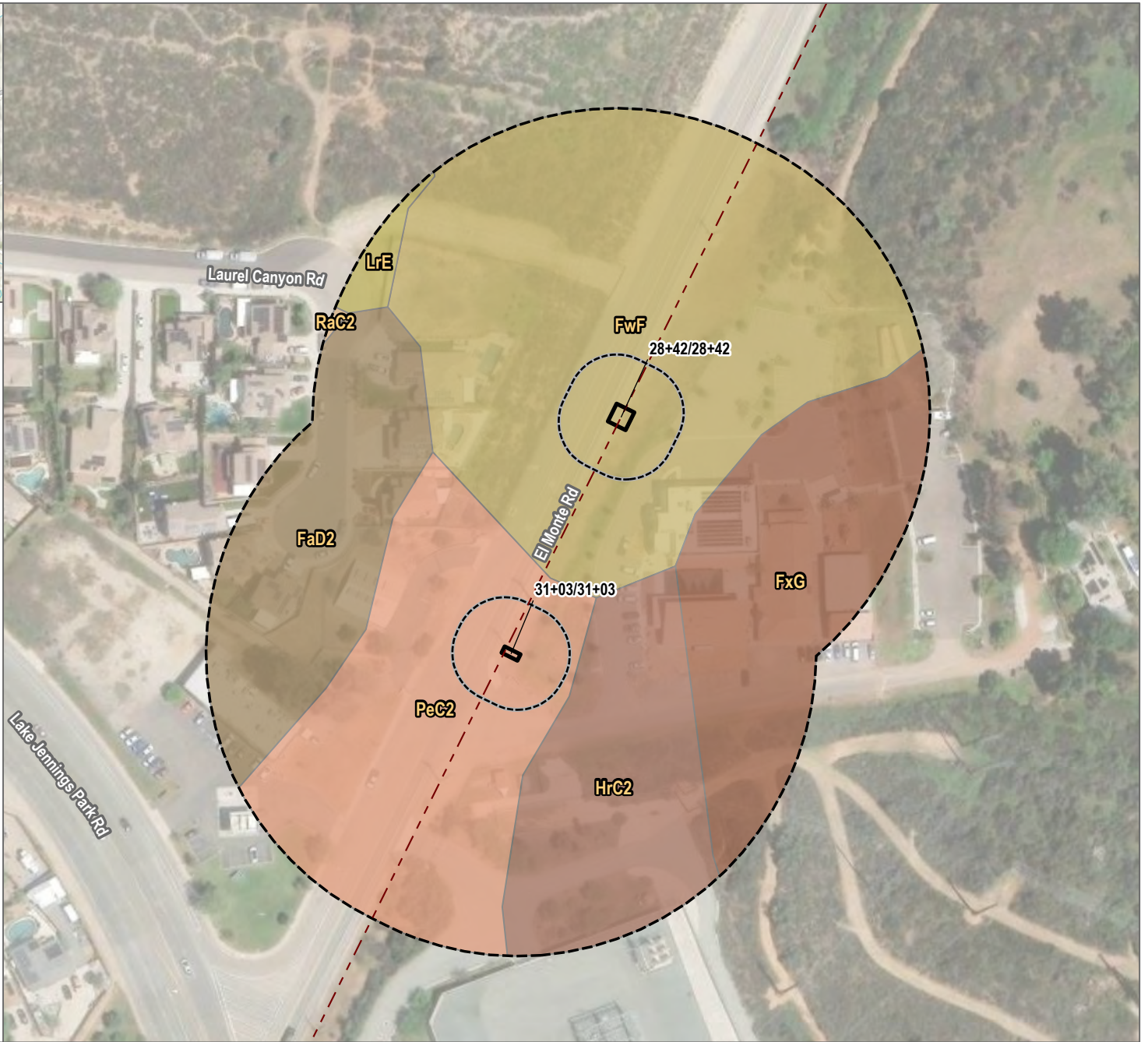
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- Pipeline Alignment
- Project Work Area
- 300-ft Buffer
- 50-ft Buffer

**Soil Type**

- FaD2, Fallbrook sandy loam, 9 to 15 percent slopes, eroded
- FwF, Friant fine sandy loam, 30 to 50 percent slopes
- FxG, Friant rocky fine sandy loam, 30 to 70 percent slopes
- Hrc2, Huerhuero loam, 5 to 9 percent slopes, eroded
- LrE, Las Posas stony fine sandy loam, 9 to 30 percent slopes
- PeC2, Placentia sandy loam, 5 to 9 percent slopes, eroded
- RaC2, Ramona sandy loam, 5 to 9 percent slopes, eroded



SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024



**FIGURE 7-37**  
Soils

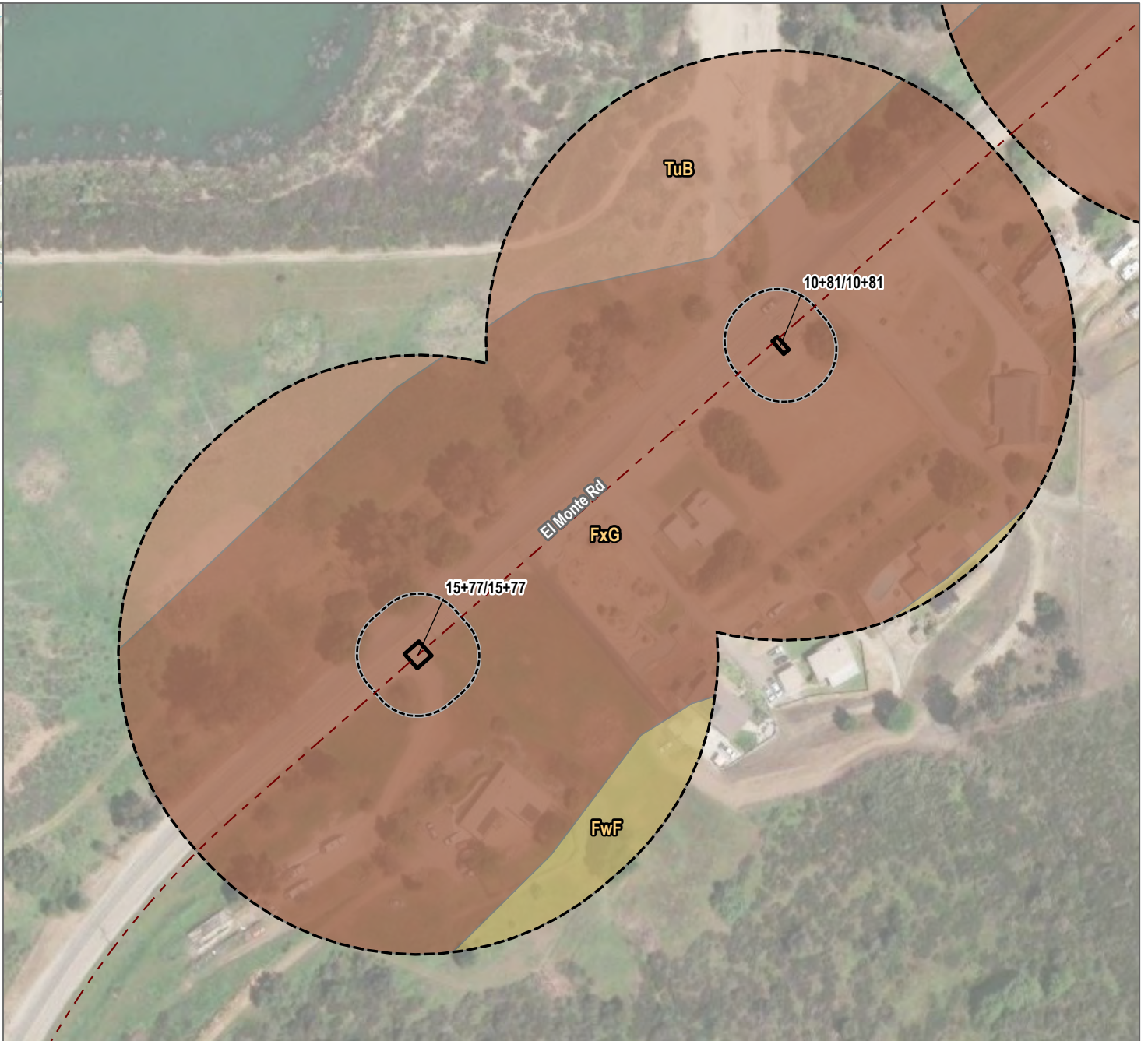
INTENTIONALLY LEFT BLANK



- Pipeline Alignment
- Project Work Area
- 300-ft Buffer
- 50-ft Buffer

**Soil Type**

- FwF, Friant fine sandy loam, 30 to 50 percent slopes
- FxG, Friant rocky fine sandy loam, 30 to 70 percent slopes
- TuB, Tujunga sand, 0 to 5 percent slopes

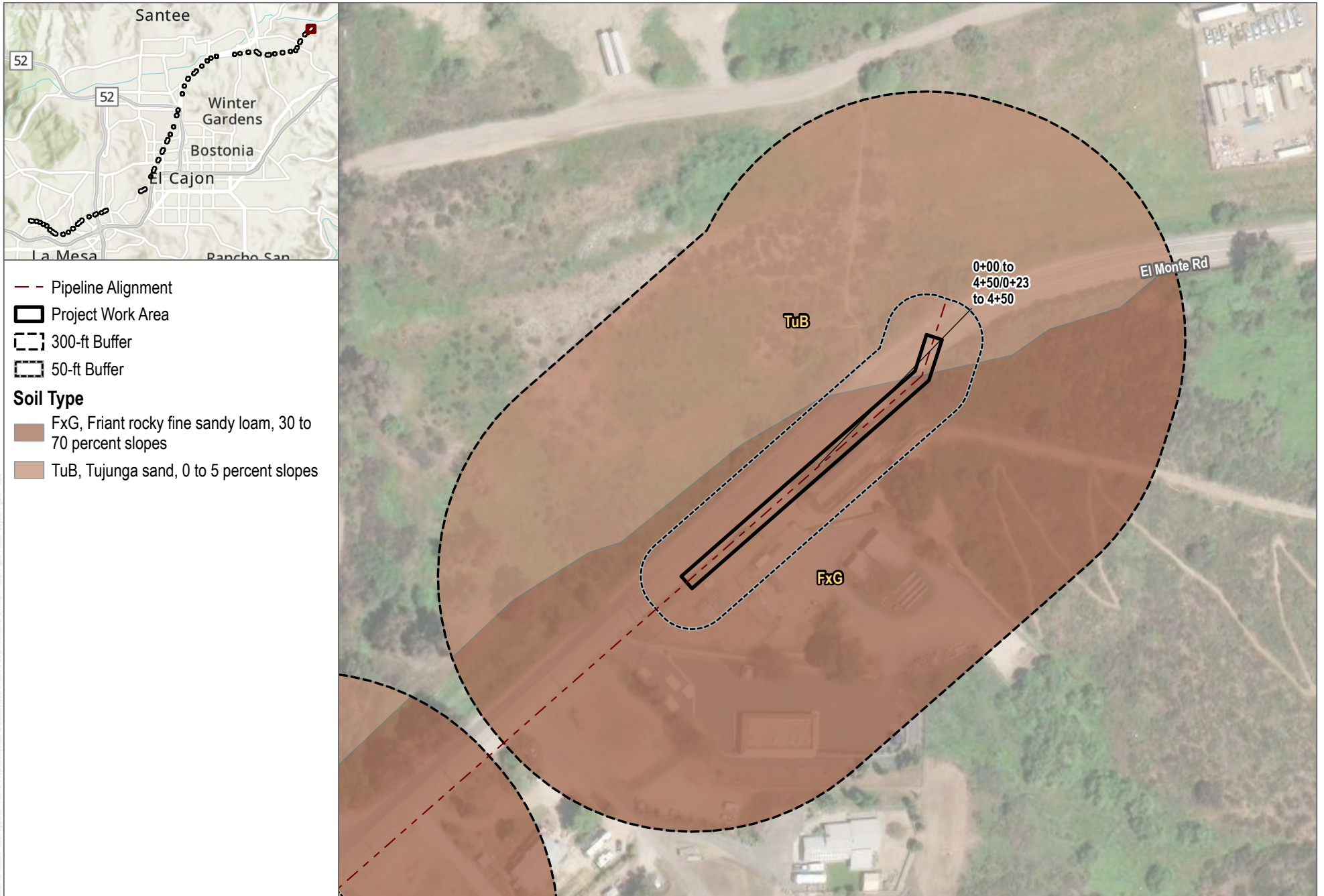


SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

**FIGURE 7-38**

Soils

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SOURCE: Esri World Imagery; Open Street Map 2023; USDA 2024

FIGURE 7-39

Soils

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# **Appendix A**

## USFWS IPaC Search Results



# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

San Diego County, California



## Local office

Carlsbad Fish And Wildlife Office

☎ (760) 431-9440

📠 (760) 431-5901

2177 Salk Avenue - Suite 250

Carlsbad, CA 92008-7385

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Birds

NAME	STATUS
California Least Tern <i>Sternula antillarum browni</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/8104">https://ecos.fws.gov/ecp/species/8104</a>	Endangered
Coastal California Gnatcatcher <i>Poliophtila californica californica</i> Wherever found There is <b>final</b> critical habitat for this species. Your location overlaps the critical habitat. <a href="https://ecos.fws.gov/ecp/species/8178">https://ecos.fws.gov/ecp/species/8178</a>	Threatened
Least Bell's Vireo <i>Vireo bellii pusillus</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/5945">https://ecos.fws.gov/ecp/species/5945</a>	Endangered
Light-footed Ridgway's Rail <i>Rallus obsoletus levipes</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/6035">https://ecos.fws.gov/ecp/species/6035</a>	Endangered
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/6749">https://ecos.fws.gov/ecp/species/6749</a>	Endangered

## Reptiles

NAME	STATUS
Southwestern Pond Turtle <i>Actinemys pallida</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/4768">https://ecos.fws.gov/ecp/species/4768</a>	Proposed Threatened

## Amphibians

NAME	STATUS
Arroyo (=arroyo Southwestern) Toad <i>Anaxyrus californicus</i> Wherever found There is <b>final</b> critical habitat for this species. Your location overlaps the critical habitat. <a href="https://ecos.fws.gov/ecp/species/3762">https://ecos.fws.gov/ecp/species/3762</a>	Endangered
Western Spadefoot <i>Spea hammondi</i> No critical habitat has been designated for this species.	Proposed Threatened

## Insects

NAME	STATUS
Hermes Copper Butterfly <i>Lycaena hermes</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/4379">https://ecos.fws.gov/ecp/species/4379</a>	Threatened
Monarch Butterfly <i>Danaus plexippus</i> Wherever found There is <b>proposed</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Proposed Threatened
Quino Checkerspot Butterfly <i>Euphydryas editha quino</i> (=E. e. wrighti) Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/5900">https://ecos.fws.gov/ecp/species/5900</a>	Endangered

## Crustaceans

NAME	STATUS
Riverside Fairy Shrimp <i>Streptocephalus woottoni</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/8148">https://ecos.fws.gov/ecp/species/8148</a>	Endangered
San Diego Fairy Shrimp <i>Branchinecta sandiegonensis</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/6945">https://ecos.fws.gov/ecp/species/6945</a>	Endangered

## Flowering Plants

NAME	STATUS
California Orcutt Grass <i>Orcuttia californica</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/4923">https://ecos.fws.gov/ecp/species/4923</a>	Endangered
Del Mar Manzanita <i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/7673">https://ecos.fws.gov/ecp/species/7673</a>	Endangered

Encinitas Baccharis <i>Baccharis vanessae</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/3343">https://ecos.fws.gov/ecp/species/3343</a>	Threatened
Nevin's Barberry <i>Berberis nevinii</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/8025">https://ecos.fws.gov/ecp/species/8025</a>	Endangered
Orcutt's Spineflower <i>Chorizanthe orcuttiana</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/7573">https://ecos.fws.gov/ecp/species/7573</a>	Endangered
San Diego Ambrosia <i>Ambrosia pumila</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/8287">https://ecos.fws.gov/ecp/species/8287</a>	Endangered
San Diego Button-celery <i>Eryngium aristulatum</i> var. <i>parishii</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/5937">https://ecos.fws.gov/ecp/species/5937</a>	Endangered
San Diego Mesa-mint <i>Pogogyne abramsii</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/5971">https://ecos.fws.gov/ecp/species/5971</a>	Endangered
San Diego Thornmint <i>Acanthomintha ilicifolia</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/351">https://ecos.fws.gov/ecp/species/351</a>	Threatened
Spreading Navarretia <i>Navarretia fossalis</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/1334">https://ecos.fws.gov/ecp/species/1334</a>	Threatened
Thread-leaved Brodiaea <i>Brodiaea filifolia</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/6087">https://ecos.fws.gov/ecp/species/6087</a>	Threatened
Willow Monardella <i>Monardella viminea</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/250">https://ecos.fws.gov/ecp/species/250</a>	Endangered

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Arroyo (=arroyo Southwestern) Toad <i>Anaxyrus californicus</i> <a href="https://ecos.fws.gov/ecp/species/3762#crithab">https://ecos.fws.gov/ecp/species/3762#crithab</a>	Final
Coastal California Gnatcatcher <i>Poliophtila californica californica</i> <a href="https://ecos.fws.gov/ecp/species/8178#crithab">https://ecos.fws.gov/ecp/species/8178#crithab</a>	Final

# Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act <sup>2</sup> and the Migratory Bird Treaty Act (MBTA) <sup>1</sup>. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their nests, should follow appropriate regulations and implement required avoidance and minimization measures, as described in the various links on this page.

The [data](#) in this location indicates that no eagles have been observed in this area. This does not mean eagles are not present in your project area, especially if the area is difficult to survey. Please review the 'Steps to Take When No Results Are Returned' section of the [Supplemental Information on Migratory Birds and Eagles document](#) to determine if your project is in a poorly surveyed area. If it is, you may need to rely on other resources to determine if eagles may be present (e.g. your local FWS field office, state surveys, your own surveys).

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

Bald and Golden Eagle information is not available at this time

## Bald & Golden Eagles FAQs

### What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle ([Bald and Golden Eagle Protection Act](#) requirements may apply).

### Proper interpretation and use of your eagle report

On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

### How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the [RAIL Tool](#) and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

#### How is the probability of presence score calculated? The calculation is done in three steps:

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

### Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

#### No Data ()

A week is marked as having no data if there were no survey events for that week.

#### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

## Migratory birds

The Migratory Bird Treaty Act (MBTA) <sup>1</sup> prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior [authorization](#) by the Department of Interior U.S. Fish and Wildlife Service (FWS).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

Migratory bird information is not available at this time

### Migratory Bird FAQs

**Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Avoidance & Minimization Measures for Birds](#) describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?**

The Migratory Bird Resource List is comprised of [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the [Bald and Golden Eagle Protection Act](#) and those species marked as "Vulnerable". See the FAQ "What are the levels of concern for migratory birds?" for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle ([Bald and Golden Eagle Protection Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

**Why are subspecies showing up on my list?**

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

**What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

**How do I know if a bird is breeding, wintering, or migrating in my area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the [RAIL Tool](#) and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Bald and Golden Eagle Protection Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ "Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

### Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

### Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

### Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

#### *How is the probability of presence score calculated? The calculation is done in three steps:*

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

### Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

### No Data ()

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

# Facilities

## National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

## Fish hatcheries

There are no fish hatcheries at this location.

## Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

### FRESHWATER EMERGENT WETLAND

[PEM1A](#)  
[PEM1Cx](#)  
[PEM1C](#)  
[PEM1Ch](#)  
[PEM1Fx](#)  
[PEM1/SSCh](#)

### FRESHWATER FORESTED/SHRUB WETLAND

[PSSC](#)  
[PSSA](#)  
[PSSCx](#)  
[PFOA](#)  
[PFOC](#)  
[PFOAh](#)  
[PFOCh](#)  
[PFOCx](#)  
[PFO/SSC](#)  
[PSSCh](#)

### FRESHWATER POND

[PUBHx](#)  
[PUSAx](#)  
[PUBFx](#)  
[PUSCx](#)

### LAKE

[L1UBHh](#)  
[L2USCh](#)

### RIVERINE

[R4SBC](#)  
[R4SBAx](#)  
[R4SBCx](#)  
[R5UBF](#)  
[R5UBFx](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

**NOTE:** This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

**Data limitations**

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

**Data exclusions**

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

**Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION



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# **Appendix B**

## Special-Status Plant Species Potential to Occur



APPENDIX B / SPECIAL-STATUS PLANT SPECIES POTENTIAL TO OCCUR

Common Name Scientific Name	Status (Federal/State/City)	CRPR	General Habitat Description	Potential to Occur
California adolphia <i>Adolphia californica</i>	None/None/None	2B.1	Chaparral, coastal scrub, valley and foothill grassland.	<i>Moderate</i> potential to occur in coastal sage scrub (work locations 267+37 and 439+20).
California Orcutt's grass <i>Orcuttia californica</i>	FE/SE/MSCP, VPHCP	1B.1	Freshwater wetlands, valley grassland, wetland-riparian.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
California groundsel <i>Senecio aphanactis</i>	None/None/None	2B.2	Chaparral, cismontane woodland, coastal scrub.	<i>Moderate</i> potential to occur in coastal sage scrub (work locations 267+37 and 439+20).
Deane's milkvetch <i>Astragalus deanei</i>	None/None/None	1B.1	Chaparral, cismontane woodland, coastal scrub, riparian forest.	<i>Moderate</i> potential to occur in coastal sage scrub (work locations 267+37 and 439+20).
decumbent goldenbush <i>Isocoma menziesii</i> var. <i>decumbens</i>	None/None/None	1B.2	Chaparral, coastal scrub.	<i>Known</i> to occur. Identified at work location 439+20. A pre-construction survey will identify and mark any populations of this plant for avoidance.
Del Mar manzanita <i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i>	FE/None/MSCP	1B.1	Chaparral.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
delicate clarkia <i>Clarkia delicata</i>	None/None/None	1B.2	Chaparral, cismontane woodland.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
Encinitas baccharis <i>Baccharis vanessae</i>	FT/SE/MSCP, NE	1B.1	Chaparral.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
heart-leaf pitcher sage <i>Lepechinia cardiophylla</i>	None/None/None	1B.2	Chaparral, cismontane woodland, closed-cone coniferous forest.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
knotweed spineflower <i>Chorizanthe polygonoides</i> var. <i>longispina</i>	None/None/None	1B.2	Chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools.	<i>Moderate</i> potential to occur in coastal sage scrub (work locations 267+37 and 439+20).
Munz's sage <i>Salvia munzii</i>	None/None/None	2B.2	Chaparral, coastal scrub.	<i>Moderate</i> potential to occur in coastal sage scrub (work locations 267+37 and 439+20).
Nevin's barberry <i>Berberis nevinii</i>	FE/SE/MSCP	1B.1	Chaparral, coastal scrub, riparian areas.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.

APPENDIX B / SPECIAL-STATUS PLANT SPECIES POTENTIAL TO OCCUR

Common Name Scientific Name	Status (Federal/State/City)	CRPR	General Habitat Description	Potential to Occur
Nuttall's scrub oak <i>Quercus dumosa</i>	None/None/None	1B.1	Chaparral, closed-cone coniferous forest, coastal scrub.	<i>Not expected</i> to occur. Suitable scrub oak habitat is not present for this species. This species was not observed during surveys.
oil neststraw <i>Stylocline citroleum</i>	None/None/None	1B.1	Chenopod scrub, coastal scrub, valley and foothill grassland.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
Orcutt's brodiaea <i>Brodiaea orcuttii</i>	None/None/MSCP	1B.1	Chaparral, cismontane woodland, closed-cone coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
Orcutt's spineflower <i>Chorizanthe orcuttiana</i>	FE/SE/None	1B.1	Coastal sage scrub, closed-cone pine forest, chaparral.	<i>Moderate</i> potential to occur in coastal sage scrub (work locations 267+37 and 439+20).
Otay Mesa mint <i>Pogogyne nudiuscula</i>	FE/SE/MSCP, VPHCP	1B.1	Vernal pools.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
Otay-lilac <i>Ceanothus otayensis</i>	None/None/None	1B.2	Chaparral.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
Palmer's goldenbush <i>Ericameria palmeri</i> var. <i>palmeri</i>	None/None/MSCP	1B.1	Chaparral, coastal scrub.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
flat navarretia <i>Navarretia prostrata</i>	None/None/None	1B.2	Coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
purple stemodia <i>Stemodia durantifolia</i>	None/None/None	2B.1	Sonoran desert scrub.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
San Diego ambrosia <i>Ambrosia pumila</i>	FE/None/MSCP, NE	1B.1	Chaparral, coastal scrub, valley and foothill grassland, vernal pools.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
San Diego barrel cactus <i>Ferocactus viridescens</i>	None/None/MSCP	2B.1	Chaparral, coastal scrub, valley and foothill grassland, vernal pools.	<i>Low</i> potential to occur in coastal sage scrub (work locations 267+37 and 439+20). This species was not observed during surveys.
San Diego button-celery <i>Eryngium aristulatum</i> var. <i>parishii</i>	FE/SE/MSCP, VPHCP	1B.1	Coastal scrub, valley and foothill grassland, vernal pools.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.

APPENDIX B / SPECIAL-STATUS PLANT SPECIES POTENTIAL TO OCCUR

Common Name Scientific Name	Status (Federal/State/City)	CRPR	General Habitat Description	Potential to Occur
San Diego goldenstar <i>Bloomeria clevelandii</i>	None/None/MSCP	1B.1	Chaparral, coastal scrub, valley and foothill grassland, vernal pools.	<i>Moderate</i> potential to occur in coastal sage scrub (work locations 267+37 and 439+20).
San Diego gumplant <i>Grindelia hallii</i>	None/None/None	1B.2	Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
San Diego marsh-elder <i>Iva hayesiana</i>	None/None/None	2B.2	Marshes and swamps, playas.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
San Diego mesa mint <i>Pogogyne abramsii</i>	FE/SE/MSCP, VPHCP	1B.1	Vernal pools.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
San Diego thornmint <i>Acanthomintha ilicifolia</i>	FT/SE/MSCP, NE	1B.1	Chaparral, coastal scrub, valley and foothill grassland, vernal pools.	<i>Not expected</i> to occur. Suitable vernal pool habitat is not present for this species.
leafy burrobush <i>Ambrosia monogyra</i>	None/None/None	2B.2	Chaparral, Sonoran desert scrub.	<i>Not expected to occur.</i> Suitable habitat is not present for this species.
smooth tarplant <i>Centromadia pungens</i> ssp. <i>laevis</i>	None/None/None	1B.1	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland.	<i>Not expected to occur.</i> Suitable habitat is not present for this species.
spreading navarretia <i>Navarretia fossalis</i>	FT/None/MSCP, VPHCP	1B.1	Freshwater wetlands, shadscale scrub, wetland-riparian.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
summer-holly <i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>	None/None/None	1B.2	Chaparral, cismontane woodland.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
thread-leaf brodiaea <i>Brodiaea filifolia</i>	FT/SE/MSCP, NE	1B.1	Freshwater wetlands, coastal sage scrub, foothill woodland, valley grassland, wetland-riparian.	<i>Moderate</i> potential to occur in coastal sage scrub (work locations 267+37 and 439+20).
variegated dudleya <i>Dudleya variegata</i>	None/None/MSCP, NE	1B.2	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools.	<i>Moderate</i> potential to occur in coastal sage scrub (work locations 267+37 and 439+20). Unidentified <i>Dudleya</i> sp. observed by Kleinfelder at work location 187+30.
wart-stem-lilac <i>Ceanothus verrucosus</i>	None/None/MSCP	2B.2	Chaparral.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.

Common Name <i>Scientific Name</i>	Status (Federal/State/City)	CRPR	General Habitat Description	Potential to Occur
white-head cudweed <i>Pseudognaphalium leucocephalum</i>	None/None/None	2B.2	Chaparral, cismontane woodland, coastal scrub, riparian woodland.	<i>Moderate</i> potential to occur in coastal sage scrub (work locations 267+37 and 439+20).
willowy monardella <i>Monardella viminea</i>	FE/SE/MSCP	1B.1	Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland.	<i>Low potential</i> to occur. Marginally suitable habitat is present for this species in the study area (work locations 267+37 and 439+20).

**Status Legend**

**Federal**

FE: Federally listed as endangered

FT: Federally listed as threatened

**State**

SE: State listed as endangered

**City**

MSCP: Multiple Species Conservation Program Covered Species

NE: Narrow Endemic

VPHCP: Vernal Pool Habitat Conservation Plan Covered Species

**CRPR: California Rare Plant Rank**

1B: Plants rare, threatened, or endangered in California and elsewhere

2B: Plants rare, threatened, or endangered in California, but more common elsewhere

**Threat Rank**

0.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)

0.2 – Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)

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# **Appendix C**

## Special-Status Wildlife Species Potential to Occur



Common Name <i>Scientific Name</i>	Status Federal/State/City/ NatureServe	General Habitat Description	Potential to Occur
<b>Invertebrates</b>			
Quino checkerspot butterfly <i>Euphydryas editha quino</i>	FE/None/None/None	Patchy shrub or small tree landscapes with openings of several meters between large plants, or a landscape of open swales alternating with dense patches of shrubs, “scrublands.”	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
monarch butterfly <i>Danaus plexippus</i>	FC/None/None/None	Grasslands, wetlands, deciduous forest, and shrub-steppe supporting large, contiguous, and high-density milkweed stands.	<i>Not expected</i> to occur. Suitable habitat is not present for this species. No sites were reported in the Western Monarch Count of the Xerces Society.
Hermes copper butterfly <i>Lycaena hermes</i>	FT/None/None/None	Lay eggs only on spiny redberry bushes located in coastal sage scrub and chaparral.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
Crotch’s bumble bee <i>Bombus crotchii</i>	None/SC/None/S1S2	Coastal sage scrub, grasslands, desert scrub, and areas with flowering plants, including landscaped areas.	<i>Low potential</i> to occur. Suitable nesting habitat and extensive floral resources are not present for this species at the work locations.
American bumble bee <i>Bombus pensylvanicus</i>	None/None/None/S2	Grasslands, prairies, open woodlands, agricultural areas.	<i>Low potential</i> to occur. While species can forage in open habitats, the study area lacks suitable nesting sites and extensive floral resources needed to support this species.
<b>Crustaceans</b>			
Riverside fairy shrimp <i>Streptocephalus woottoni</i>	FE/None/MSCP, VPHCP/S1S2	Vernal pools.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
San Diego fairy shrimp <i>Branchinecta sandiegonensis</i>	FE/None/MSCP, VPHCP/S2	Vernal pools.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
<b>Amphibians</b>			
western spadefoot <i>Spea hammondi</i>	FC/SSC/None/None	Breeds in vernal pools, ponds; uses burrows as upland habitat.	<i>Low potential</i> to occur in upland habitats adjacent to work locations 0+00 to 4+50 and 267+37. Not expected to breed in the Survey Area because there are no aquatic

Common Name <i>Scientific Name</i>	Status Federal/State/City/ NatureServe	General Habitat Description	Potential to Occur
			<p>features within the work areas that are near suitable habitat.</p> <p>A record from 2017 occurs in suitable habitat northeast of work location 0+00 to 4+50, but limited natural vegetation that could support this species is present within the study area for this work location.</p> <p>A record from 2003 is within 1 mile of work location 267+37, but location is poorly defined, and extensive urban development limits habitat connectivity.</p>
arroyo toad <i>Anaxyrus californicus</i>	FE/SSC/MSCP/None	Semi-arid regions near washes or intermittent streams.	<p><i>Low potential</i> to occur. Limited suitable habitat is present for this species in the study area. USFWS Critical Habitat for this species overlaps work locations 0+00 to 4+50, 10+81, and 15+77; however, field visits determined that only developed and disturbed habitat land covers exist at work locations 10+81 and 15+77. Work location 0+00 to 4+50 contains natural land covers, but for all of these work sites there are barriers to movement from suitable habitat to the work locations.</p> <p>Furthermore, there are no documented occurrences of this species within 5 miles of the study areas (CDFW 2025).</p>
<b>Reptiles</b>			
California glossy snake <i>Arizona elegans occidentalis</i>	None/SSC/None/None	Deserts, grassland, chaparral.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
San Diegan tiger whiptail <i>Aspidoscelis tigris stejnegeri</i>	None/SSC/None/None	Hot and dry open areas with little foliage; chaparral, woodland, riparian.	<i>Low potential</i> to occur at work locations 187+30, 267+37 due to the presence of sparsely vegetated coastal sage scrub

Common Name <i>Scientific Name</i>	Status Federal/State/City/ NatureServe	General Habitat Description	Potential to Occur
			habitat adjacent to larger blocks of contiguous habitat.
Coronado skink <i>Plestiodon skiltonianus interparietalis</i>	None/WL/None/ None	Grasslands, woodlands, pine forests, chaparral, often in sunny areas such as clearings near edges of creeks and rivers.	<i>Low potential</i> to occur at work locations 187+30 and 267+37 due to the presence of coastal sage scrub habitat adjacent to larger blocks of contiguous habitat.
orange-throated whiptail <i>Aspidoscelis hyperythra</i>	None WL/MSCP/ None	Bushy areas with loose soil and rocks such as washes, stream sides, rocky hillsides, coastal chaparral.	<i>Low potential</i> to occur at work locations 187+30 and 267+37 due to the presence of coastal sage scrub habitat adjacent to larger blocks of contiguous habitat.
San Diego banded gecko <i>Coleonyx variegatus abbotti</i>	None/SSC/None/ None	Preference for rocky areas in coastal sage and chaparral.	<i>Low potential</i> to occur at work locations 187+30 and 267+37 due to the presence of coastal sage scrub habitat adjacent to larger blocks of contiguous habitat.
Southern California legless lizard <i>Anniella stebbinsi</i>	None/SSC/None/ None	Requires moist areas; sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces.	<i>Low potential</i> to occur at work locations 187+30 and 267+37 due to the presence of coastal sage scrub habitat adjacent to larger blocks of contiguous habitat.
southwestern pond turtle <i>Actinemys pallida</i>	FC/SSC/MSCP/None	Slow-moving streams, ponds, marshes, and wetlands with ample basking sites.	<i>Not expected</i> to occur. Suitable aquatic habitat is not present for this species.
coast horned lizard = Blainville's horned lizard <i>Phrynosoma blainvillii</i>	None/SSC/MSCP/ None	Often found in sandy lowlands and open areas with loose soils.	<i>Not expected</i> to occur. Suitable open sandy habitat is not present for this species.
<b>Birds</b>			
Bald eagle <i>Haliaeetus leucocephalus</i>	BGEPA, FDR/SE/ MSCP/None	Large water bodies, lakes, rivers, and coastal areas with tall trees for nesting.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.
Bell's sage sparrow <i>Artemisiospiza belli belli</i>	None/WL/None/ None	Nests and forages in coastal scrub and dry chaparral; typically in large, unfragmented patches dominated by chamise; nests in more dense patches but uses more open habitat in winter.	<i>Moderate potential</i> to occur. Suitable coastal sage scrub habitat is present for this species at work locations 187+30, 267+37, and 439+20.

Common Name <i>Scientific Name</i>	Status Federal/State/City/ NatureServe	General Habitat Description	Potential to Occur
burrowing owl <i>Athene cunicularia</i>	None/SC, SSC/None/ None	Open grasslands, scrublands, agricultural fields, open areas with low vegetation and suitable burrows.	<i>High potential</i> to occur within areas of non-native grassland adjacent to Gillespie Airport, including work locations 322+52 and 335+83. This area contains open areas with low vegetation, as well as drainage culverts and other features that may serve as artificial burrows for this species. The nearest CNDDDB occurrence is approximately 4 miles northeast from 2024, in grassland adjacent to Mission Trails Regional Park and the San Diego River.
least Bell's vireo <i>Vireo bellii pusillus</i>	FE/SE/MSCP/None	Nests in a variety of plants that provide concealment in the form of dense foliage; most frequently used are mulefat, willows, California wild rose, poison oak, mugwort, and cottonwood.	<i>Low potential</i> to occur due to low quality riparian vegetation adjacent to work sites. This species may forage in the vicinity.
coastal California gnatcatcher <i>Polioptila californica californica</i>	FT/SSC/MSCP/None	Coastal sage scrub.	<i>High potential</i> to occur in certain work sites that contain coastal sage scrub vegetation communities. Critical habitat for this species is mapped within work location 0+00 to 4+50, and a CNDDDB occurrence from 2002 occurs approximately 0.33 to 1.25 miles south (location imprecise). As such, there is high potential for this species to occur at this work location.  <i>Moderate potential</i> to occur in work locations 187+30, 267+37, and 439+20, which contain coastal sage scrub habitat.  Work locations 254+20 and 530+10 contain isolated patches of coastal sage scrub habitat, which is very small in scale, and as such, this species would not be expected to occur in these locations.

APPENDIX C / SPECIAL-STATUS WILDLIFE SPECIES POTENTIAL TO OCCUR

Common Name <i>Scientific Name</i>	Status Federal/State/City/ NatureServe	General Habitat Description	Potential to Occur
California least tern <i>Sterna antillarum browni</i>	FE/SE/MSCP/None	Historically frequented sandy beaches close to estuaries and coastal embayments, now suitable nesting severely reduced.	<i>Not expected</i> to occur. Suitable habitat is not present for this species on or adjacent to the site.
golden eagle <i>Aquila chrysaetos</i>	BGEPA, FP/None/ MSCP/None	Open country, mountainous regions, cliffs, grasslands, and deserts.	<i>Not expected</i> to occur. Suitable habitat is not present for this species on or adjacent to the site.
yellow rail <i>Coturnicops noveboracensis</i>	None/SSC/None/ None	Grassy marshes, meadows.	<i>Not expected</i> to occur. Suitable habitat is not present for this species on or adjacent to the site.
yellow-breasted chat <i>Icteria virens</i>	None/SSC/None/ None	Thickets, dense areas such as bramble bushes, clearcuts, powerline corridors, and shrubs along streams.	Low potential to occur adjacent to sites near streams with dense vegetation. This species may forage in the vicinity.
light-footed Ridgway's rail <i>Rallus obsoletus levipes</i>	FE/SE/MSCP/None	Marshes, lagoons, and some freshwater habitats.	<i>Not expected</i> to occur. Suitable habitat is not present for this species on or adjacent to the site.
southwestern willow flycatcher <i>Empidonax traillii extimus</i>	FE/SE/MSCP/None	Dense riparian habitats with cottonwood/willow and tamarisk vegetation and microclimatic conditions; saturated soils, standing water or nearby streams, pools.	Low potential to occur due to low quality riparian vegetation adjacent to work sites. This species may forage in the vicinity.
coastal cactus wren <i>Campylorhynchus brunneicapillus sandiegensis</i>	None/SSC/MSCP/ None	Nests in thickets of cholla or prickly pear cactus.	<i>Not expected</i> to occur. Suitable habitat is not present for this species on or adjacent to the site.
prairie falcon <i>Falco mexicanus</i>	None/WL/None/ None	Breeding habitats include grasslands, shrub steppe desert, areas of mixed shrubs and grasslands, or alpine tundra with bluffs and cliffs to nest upon.	<i>Not expected</i> to occur. Suitable habitat is not present for this species on or adjacent to the site.
Southern California rufous-crowned sparrow <i>Aimophila ruficeps canescens</i>	None/WL/MSCP/ None	Steep, dry, rocky hillsides with plenty of grasses and a scattering of shrubs and small trees, including sagebrush or scrub oaks.	<i>Not expected</i> to occur. Suitable habitat is not present for this species.

Common Name <i>Scientific Name</i>	Status Federal/State/City/ NatureServe	General Habitat Description	Potential to Occur
Swainson's hawk <i>Buteo swainsoni</i>	None/ST/MSCP/ None	Open areas, grasslands, crop and grazing lands.	<i>Not expected to occur.</i> Suitable habitat is not present for this species on or adjacent to the site.
tricolored blackbird <i>Agelaius tricolor</i>	None/ST, SSC/MSCP/None	Historically wetlands with cattails, bulrushes, and willows; currently nest in agricultural fields.	<i>Not expected to occur.</i> Suitable habitat is not present for this species on or adjacent to the site.
<b>Mammals</b>			
American badger <i>Taxidea taxus</i>	None/SSC/MSCP/ None	Grassland, oak savanna, coastal scrub.	<i>Not expected to breed in study area.</i> Low potential to forage in the study area. No suitable badger burrows or sign found during the site visit.
big free-tailed bat <i>Nyctinomops macrotis</i>	None/SSC/None/ None	Rugged, rocky habitats in arid landscapes, also desert shrub, woodlands, and evergreen forests.	<i>Not expected to occur.</i> Suitable habitat is not present for this species.
pallid bat <i>Antrozous pallidus</i>	None/SSC/None/ None	Grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests.	<i>Not expected to occur.</i> Suitable habitat is not present for this species.
pocketed free-tailed bat <i>Nyctinomops femorosaccus</i>	None/SSC/None/ None	Roosts mainly in rugged cliffs, high rocky outcrops, and slopes.	<i>Not expected to occur.</i> Suitable habitat is not present for this species.
San Diego black-tailed jackrabbit <i>Lepus californicus bennettii</i>	None/SSC/None/ None	Open grasslands, agricultural fields, and sparse coastal scrub.	<i>Not expected to occur.</i> Suitable habitat is not present for this species.
western yellow bat <i>Lasiurus xanthinus</i>	None/SSC/None/ None	Valley foothill riparian, desert riparian, desert wash, and palm oasis habitats.	<i>Not expected to occur.</i> Suitable habitat is not present for this species.

**Notes:** USFWS = U.S. Fish and Wildlife Service; CNDDDB = California Natural Diversity Database.

**Status Legend**

**Federal**

- BGEPA: Bald and Golden Eagle Protection Act
- FC: Candidate for federal listing as threatened or endangered
- FDR: Federally delisted (recovered)
- FE: Federally listed as endangered
- FP: Federally protected species
- FT: Federally listed as threatened

**State**

- SC: State candidate for listing as threatened or endangered

SE: State listed as endangered

SSC: California Species of Special Concern

ST: State listed as threatened

WL: CDFW Watch List species

**City**

MSCP: Multiple Species Conservation Program Cover Species

VPHCP: Vernal Pool Habitat Conservation Plan Covered Species

**NatureServe Conservation Status Assessments**

S1: Critically imperiled

S2: Imperiled

## References

CDFW (California Department of Fish and Wildlife). 2025. California Natural Diversity Database (CNDDDB). RareFind 5.0 (Commercial Subscription). Sacramento, California: CDFW, Biogeographic Data Branch. Accessed November 2025. <https://nrmsecure.dfg.ca.gov/cnddb/Default.aspx>.

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# **Appendix D**

## Staff Resumes



# Shana Carey

## ASSOCIATE BIOLOGIST

Shana Carey is a biologist with 4 years' experience in biological research, conservation, and environmental consulting throughout Southern and Central California and Nevada. Ms. Carey's work in California's Central Valley allowed her the opportunity to study and have hands-on experience with many threatened and endangered species, including blunt-nosed leopard lizard (*Gambelia sila*), Blainville's horned lizard (*Phrynosoma blainvillii*), San Joaquin kit fox (*Vulpes macrotis mutica*), Tipton kangaroo rat (*Dipodomys nitratooides nitratooides*), and a variety of birds of prey, including Swainson's hawk (*Buteo swainsoni*) and Golden eagle (*Aquila chrysaetos*). She has worked on a variety of projects in both the private and public sectors including wildlife and botanical surveys, avian mortality research, construction and stormwater channel monitoring, technical report and proposal writing, vegetation identification and mapping, and jurisdictional delineations.

## Project Experience

### Development

**Stadium Wetlands Mitigation Project, City of San Diego Public Utilities Department, California.** Monitored the vegetation removal of both native and non-native vegetation in preparation for planned wetlands restoration just south of SDCCU stadium along the San Diego River. Also conducted nesting bird and raptor surveys and aided crew in invasive species identification and removal.

**Jacumba Valley Ranch, Baywa Solar Projects LLC, San Diego County, California.**

Performed a habitat assessment and associated protocol surveys for burrowing owl, as well as conducted spring season rare plant surveys at the proposed solar site.

**Avian Bridge Mortality Study, City of San Diego Public Utilities Department, San Diego, California.** Conducted avian bridge avoidance surveys at Sunset Cliffs Blvd. and West Mission Bay Dr. bridges, both of which span the San Diego River within a very urban area. Surveys were done to help determine the current impact of vehicle traffic on birds which pass over and under, as well as vehicle-strike rate, and collision avoidance measures of birds. Data was used to help inform and plan the future bridge design and renovations.

**Del Dios Ranch, Rancho Santa Fe, San Diego County, California.** Conducted focused California Gnatcatcher (*Polioptila californica*) surveys under guidance of permitted biologist to determine presence/absence and number of individuals and pairs on project site, as well breeding and nesting status, and mapping home range sizes.



### Education

California State University,  
Bakersfield  
BS, Biology, 2015

### Professional Affiliations

American Ornithologists'  
Union

Center for Biological  
Diversity

National Audubon Society  
Society for Conservation  
Biology

The Wildlife Society -  
Western Section,  
Southern California  
Chapter

**Mid-Coast Corridor Transit Project, Mid-Coast Transit Constructors, San Diego Association of Governments, San Diego, California.** Conducted biological construction monitoring along the construction corridor throughout the project site to ensure compliance with stormwater BMPs), ensure boundaries and limits of work are abided and Environmental Studies Areas are maintained. Also monitored vegetation removal and perform nesting bird and raptor surveys.

**Elvira to Morena Double Track and San Diego River Bridge Double Track, North County Transit District, San Diego, California.** Performed biological construction monitoring along the construction corridors and conduct daily Ridgway's rail surveys in the project impact footprint.

**Pala Mesa Project, Beazer Homes Holding Corporation. Fallbrook, California.** Conducted biological and construction monitoring across several years from project inception through the present for a planned residential housing development in the community of Pala Mesa in northern San Diego County. Responsibilities include communicating with the county and agencies regarding protocol compliance, ensuring Best Management Practices (BMPs) are followed, and ensure that no unauthorized biological impacts are made to the environmentally sensitive area around the perimeter of the site which support breeding pairs of California gnatcatchers (*Polioptila californica*) as well as other wildlife. Also conducted surveys for and nest monitoring of California gnatcatchers within an active construction buffer zone.

**Laurel Creek, Encore Housing Opportunity Fund, Vista, California.** Conducted biological construction monitoring for a housing development at the Laurel Creek construction site, inspection of native plant restoration areas, stormwater BMP spot checks, and review of construction activities along a jurisdictional stream channel and associated riparian corridor that bisects the project site.

**Proctor Valley Village 14, Jackson Pendo Development, Chula Vista, California.** Conducted Hermes copper butterfly (*Lycaena hermes*) surveys as well as host plant habitat mapping.

**Otay Ranch Village Resort Project, Baldwin & Sons LLC/Otay Lakes LP, Otay Ranch, California.** Served as a field biologist and conducted a field survey for various species of butterfly adults and larvae, most notably the endangered Quino checkerspot butterfly (*Euphydryas editha quino*) and its host plant (*Plantago erecta*) under the supervision of permitted biologists in preparation for ongoing host plant mapping.

**Buena Vista Lagoon Ridgway's Rail Monitoring, Aquatic Environments, Inc., Carlsbad, California.** Conducted daily Ridgway's rail surveys (both on foot and using an aquatic vehicle) within the project area, east and west of the I-5 freeway, in preparation for vegetation removal maintenance. The adjacent staging area was also surveyed. Several rails were detected on multiple occasions within the lagoon over the course of the project. .

**Fanita Ranch Wildlife Usage/Corridor Study, Santee, California.** Installed and monitored wildlife camera stations throughout Fanita Ranch in order to determine frequently used wildlife routes. Cameras were located in various habitats and locations in order to determine and better understand how and where wildlife was traversing territories and environment. Cameras were maintained and checked on a regular basis.

**Fanita Ranch Coastal Cactus Wren Nesting Survey, Santee, California.** Conducted nesting survey to map areas of suitable habitat (cactus patches) for coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), as well as mapped all nests found on site.

**Stormwater Division Emergency Channel Maintenance Biological Monitoring, Michael Baker International, San Diego, California.** Responsible for monitoring the removal of vegetation (both native and non-native), sediment, and other materials from city stormwater channels to help prevent flooding. Communicated with city and contractor crews so that they understand the limits of work, boundaries of channels, and ensure compliance with California Department of Fish and Wildlife (CDFW), U.S. Army Corps of Engineers, and Regional Water Quality Control Board permits and conditions. Ensured that BMPs are upheld and coordinated with engineers and supervisors on site to anticipate and swiftly resolve concerns. Wrote site observation reports and assisted with follow up reporting and document preparation after completion of maintenance in each channel.

## Specialized Training

- Arroyo Toad Workshop, The Wildlife Society Southern California Chapter, April 2019. Potrero Creek, California.
- Southwestern Desert Bat Class, Dr. Patricia Brown, October 2018, Desert Studies Center (DSC) at Soda Springs (Zzyzx), California.
- Wetland/Riparian Plant Identification, California Native Plant Society, August 2018, Tijuana River National Estuarine Research Reserve, Imperial Beach, California
- Basic Wildlife Rehabilitation Course, International Wildlife Rehabilitation Council, February 2018. Anaheim, California.
- Worker Environmental Awareness Program training, First Solar Inc., January 2018. Seeley, California.
- West Coast Sea Turtle Workshop, January 2018, Aquarium of the Pacific, Long Beach, California.
- Mid-Coast Annual Environmental Review training, Mid-Coast Transit Constructors, January 2017–2019. San Diego, California.
- Advanced Camera Trapping Workshop, The Wildlife Society Western Section, November 2017. San Rafael, California.
- CNPS Vegetation Mapping Workshop, California Native Plant Society, March 2017. Redlands, California.
- Introduction to Desert Tortoises and Field Techniques Workshop, November 2016. Ridgecrest, California.
- The Wildlife Society Conference, Western Section Annual Conference, February 2016. Pomona, California.
- Mid-Coast Corridor Transit Project Training, February 2016. San Diego, California.
- North County Transportation District, Right-of-Way Training, January 2016. Oceanside, California.

# Josh Elson

**BIOLOGIST**

Josh Elson is a biologist with 5 years' professional experience specializing in wildlife and nesting bird surveys, biological construction monitoring, permitting, and report preparation.

In addition, Josh has worked as a planner with the East Contra Costa County Habitat Conservancy and has experience permitting and implementing land management and habitat restoration projects in parks, preserves, and grazing lands.



**Education**

*Cal Poly San Luis Obispo  
BS, Environmental  
Management and  
Protection, Minor in  
Spanish, 2017*

## Project Experience Development

**Tijuana River Trash Booms, Rural Community Assistance Corporation, San Diego County, California.** Prepared regulatory and permitting documents to acquire Clean Water Act Section 401 Water Quality Certification/Waste Discharge Requirement from the Regional Water Quality Control Board and a Streambed Alteration Agreement from the California Department of Fish and Wildlife for a garbage remediation project in the Tijuana River. Prepared aquatic resources delineation report update. (2024)

**Municipal Waterways Maintenance Plan, City of San Diego Transportation & Stormwater Department, San Diego, California.** As part of Dudek's as-needed environmental services contract with the City of San Diego Stormwater Department, drafted various documents to ensure maintenance and repair activities of Municipal Waterways Maintenance Plan flood control facilities. Tasks include drafting aquatic resource delineation reports, agency notifications, and final monitoring reports in conformance with the U.S. Army Corps of Engineers, State Water Resources Control Board/Regional Water Quality Control Board, California Department of Fish and Wildlife, California Coastal Commission, and City of San Diego regulatory requirements, as applicable. (2024-2025)

**North River Road and Sleeping Indian Road Storm Drain Improvements, City of Oceanside, Oceanside, California.** Conducted a biological reconnaissance survey, vegetation mapping, and aquatic resource delineation for culvert replacement project adjacent to the San Luis Rey River in eastern Oceanside. Prepared associated biological resources technical report and aquatic resources delineation report. (2025).

**Angeleno Development Project, Los Angeles County, California.** Conducted focused Crotch's bumble bee (*Bombus crotchii*) surveys for a housing development in northern Los Angeles County. (2024)

**HCC2 Project, Main Hesperia LLC, San Bernardino County, California.** Conducted focused survey for American badger (*Taxidea taxus*) and desert kit fox (*Vulpes macrotis arsipus*) for a development project in Hesperia, California. (2024)

**Double Springs Battery Energy Storage Project, Calaveras County, California.** Prepared aquatic resources delineation report for battery energy storage project near Valley Springs, California. (2024)

**Solstice Solar Project, Fresno County, California.** Conducted mapping of burrows potentially suitable for burrowing owl (*Athene cunicularia*), San Joaquin kit fox (*Vulpes macrotis mutica*), and giant kangaroo rat (*Dipodomys ingens*). Conducted rare plant surveys for species including palmate-bracted bird's beak (*Chloropyron palmatum*), recurved larkspur (*Delphinium recurvatum*), and San Joaquin spearscale (*Atriplex joaquinana*). (2024)

**Spikes Peak Renewable Energy Project, EDF Renewables, Merced County, California.** Assisted in preparation of biological technical report for a solar development project in San Joaquin valley. Special-status species for which impacts were assessed included American badger, burrowing owl, San Joaquin kit fox, Crotch's bumble bee, Swainson's hawk (*Buteo swainsoni*), California tiger salamander (*Ambystoma californiense* pop. 1), and California red-legged frog (*Rana draytonii*). (2024)

**Belcaro Sand Canyon Project, New Urban Wests Inc., Santa Clarita, California.** Conducted focused native and rare plant surveys for a housing development in Santa Clarita. Target species included Plummer's mariposa-lily (*Calochortus plummerae*), Peirson's morning-glory (*Calystegia peirsonii*), island mountain-mahogany (*Cercocarpus betuloides* var. *blancheae*) and hollyleaf cherry (*Prunus ilicifolia* ssp. *ilicifolia*). Assisted in conducting focused coastal California gnatcatcher (*Polioptila californica californica*) surveys. (2024)

**Hidalgo Solar Project, San Bernardino County, California.** Conducted burrowing owl and desert tortoise (*Gopherus agassizii*) presence/absence surveys for solar development project. (2024)

**Newhall Ranch Project, Newhall Land and Farming Company, Santa Clarita, California.** Participated in conducting continued vegetation mapping and focused native and rare plant surveys for a large-scale housing development in Los Angeles County. Species surveyed for included slender mariposa-lily (*Calochortus clavatus* var. *gracilis*), island mountain mahogany, and hollyleaf cherry. Participated in conducting aquatic resources delineation for potentially jurisdictional water features on site. Participated in focused American badger and burrowing owl surveys. Assisted in preparation of rare plant survey reports, vegetation mapping reports, and aquatic resources delineation reports. (2024)

**Transmission Right-of-Way Emergency Service Road Repairs, Southern California Edison, Various Locations, California.** Served as biologist responsible for conducting pre-construction nesting bird surveys and biological/waters construction monitoring of crews conducting road maintenance activities on Southern California Edison right-of-way access roads. Construction-monitoring activities included conducting morning and evening sweeps of the construction areas and monitoring crews for compliance during vegetation removal, grading, and slope repair activities. Other activities included establishing environmentally sensitive areas for active nests and monitoring and updating active nests. Reported new nests observed. Field Reporting Environmental Database reports were completed each day to discuss daily monitoring activities and nest updates. Work locations included Ventura County, San Bernardino County, and Fresno County. (2023)

**Routine Line Clearing, Southern California Edison, Various Locations, California.** Served as biological/waters monitor and conducted pre-construction surveys for tree trimming activities along transmission lines in biologically sensitive areas. Ensured avoidance of impacts to special-status plant species and jurisdictional waters. Work locations included Santa Barbara County and Los Angeles County. (2023)

## Specialized Training

- Basic Wetland Delineation, Wetland Training Institute Inc. 2023.
- Birds of Southern California, Sea and Sage Audubon Society. 2024.

# Vipul Joshi

## SENIOR PROJECT MANAGER, ECOLOGIST

Vipul Joshi is a senior project manager and ecologist with 22 years' experience in natural resources management planning. Mr. Joshi focuses on providing ecological and management solutions to clients responsible for sustaining multiple natural resources on lands throughout California. He has a background and training in botanical surveying, permit acquisition, permit compliance, and project management. Mr. Joshi is experienced with Southern California flora and environmental regulations. He also has extensive experience managing constraints analysis, entitlement processing, permit acquisition, and biological construction monitoring for a variety of public and private projects.

Mr. Joshi has specific experience with California Environmental Quality Act (CEQA) processing with a variety of local jurisdictions; state and federal Endangered Species Act permit processing; wetlands permitting, including nationwide and individual permits from the U.S. Army Corps of Engineers (ACOE); and management of permit compliance. Specific biological survey skills include rare plant surveys, focused presence/absence surveys for the state-listed and federally listed Quino checkerspot butterfly (*Euphydryas editha quino*) and vernal pool fairy shrimp (*Branchinecta lynchi*), project-level vegetation mapping, wetlands delineation, vernal pool identification, vernal pool watershed mapping, and general biological assessment of functions and values.

## Project Experience

**Tijuana River Valley Emergency Channel Maintenance Project, City of San Diego, California.** Served as project manager for implementation of emergency maintenance activities within 1.5 miles of drainage channels within the Tijuana River Valley. Services included processing of Section 404 Individual Permit, issued within 3 weeks of Notice to Proceed on the project, compliance monitoring for a 7-day-per-week construction schedule, and after-the-fact negotiations with USFWS regarding avoidance of light-footed clapper rail.

**Emergency Channel Maintenance, City of San Diego, California.** Served as project manager for as-needed biological services contract. Arranged staffing and implemented biological assessment of emergency channel and storm drain maintenance activities. Assessed and recommended impact minimization and avoidance measures including implementation of best management practices to reduce stormwater runoff pollution. Provided on-call, 24/7 service. Provided wetlands delineation and impact assessment documentation in support of emergency permit applications to the ACOE, CDFW, RWQCB, and California Coastal Commission. Provided monitoring reports to document permit compliance.

**R Revegetation Monitoring, City of San Diego, California.** Assisted in the collection of data within revegetated wetlands in accordance with monitoring criteria of the City of San Diego and wetlands resource agencies.



### Education

University of California,  
San Diego  
BS, Evolution, Behavior,  
and Ecology, 1997

### Certifications

Quino Checkerspot  
Butterfly and Vernal Pool  
Branchiopods (Fairy  
Shrimp) Surveys, USFWS  
Federal Permit  
No. TE-019949-2

### Professional Affiliations

California Native Plant  
Society  
Ecological Society of  
America  
U.S. Green Building  
Council

**Roselle Street Technology Center, CLL-Roselle LLC, San Diego, California.** Provided project management for entitlement processing on a 15-acre site adjacent to Soledad Canyon Creek. Tasks included negotiation with wetlands resource agencies to allow encroachment into required coastal wetlands buffer.

**Our Lady of Mount Carmel Catholic Church, Catholic Diocese of San Diego, San Diego, California.** Conducted baseline vegetation surveys, wetlands delineation, rare plants survey, vernal pool identification, and vernal pool watershed mapping. Drafted a biological resources technical report for a mitigated negative declaration (MND) and participated in community meetings and response to comments. Drafted resource management plan for on-site open space management and avoidance of long-term impacts to adjacent U.S. Fish and Wildlife Service (USFWS) National Wildlife Refuge property. Prepared and processed wetlands permit applications with ACOE, California Department of Fish and Wildlife (CDFW), and Regional Water Quality Control Board (RWQCB), including locating appropriate mitigation and acquiring permits.

**Lux Art Institute, Carlitas Company, Encinitas, California.** Provided biological resource mapping, including vegetation mapping, wetlands delineation, and rare plant survey for 20-acre property. Provided constraints analysis, evaluation of project impacts pursuant to a habitat loss permit under Section 4(d) of the federal Endangered Species Act, and management of permit compliance.

**Fry's Electronics, San Marcos, California.** Provided initial vernal pool identification and mapping utilizing portable GPS and conducted wetlands delineation and rare plant mapping. Rare plant mapping included pool-by-pool floral inventory and mapping of state- and federally listed endemic vernal pool plant species.

**Eastlake Village Center North, Eastlake LLC, Chula Vista, California.** Provided wetlands delineation, wetlands avoidance recommendations, and resource agency confirmation for 100-acre commercial center.

**Otay Ranch, Otay Ranch Company, Chula Vista, California.** Provided biological resource surveys and documentation for various developments covering over 4,000 acres of vacant land. Tasks included vegetation mapping, rare plant surveys, wetlands delineations, fairy shrimp surveys, and Quino checkerspot butterfly surveys. Provided biological resources technical report pursuant to CEQA documentation and assisted in preparation of second-tier environmental impact report (EIR), development of wetlands and endangered species permitting strategies, and preparation and processing of Section 404 Nationwide Permits 14 and 39, Section 401 Water Quality Certification, Section 1601 Streambed Alteration Agreement, and Section 7 Biological Opinion. Managed compliance with various permit conditions.

**University Commons, Brookfield Homes, San Marcos, California.** Provided project management of environmental permit compliance for mixed-use development. Managed ongoing biological construction monitoring for compliance with Section 401 Water Quality Certification, Section 404 Nationwide Permit 39, Section 1603 Streambed Alteration Agreement, and Section 7 Biological Opinion.

**Midbayfront Development Project, City of Chula Vista, California.** Provided biological resource mapping review for 4 million square feet of commercial and residential development on San Diego Bay.

**Cielo del Norte, Cielo del Norte LLC, San Diego County, California.** Served as project manager for 500-acre development in a critical preserve planning area. Provided baseline vegetation and rare plant surveys, biological technical report, EIR biological sections, Section 404, 401, and 1602 wetlands permits, and Section 4(d) Habitat Loss Permit. Participated in multiple screencheck EIR processing with the County of San Diego. Evaluated and negotiated off-site mitigation on six parcels throughout San Diego County. Prepared habitat management plans and property analysis records for three mitigation parcels totaling over 500 acres of biological open space.

# Anna Touchstone

## BIOLOGIST

Anna Touchstone (*AN-nuh TUCH-stohn; she/her*) is a biologist with over 8 years' consulting experience specializing in aquatic resource delineations, vegetation mapping, botanical surveys, and general biological resource surveys throughout California. She has extensive experience conducting and leading large-scale aquatic resource delineation efforts and preparing aquatic resources delineation reports (ARDRs) and U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) permit application packages in support of the regulatory permitting process. Anna has also conducted tree inventories and benthic macroinvertebrate monitoring. She regularly researches and prepares biological sections for environmental impact reports (EIRs), baseline studies, habitat conservation plans (HCPs), and other technical documents in support of the California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) process.

In addition to botanical and wetland expertise, Anna has training and experience conducting small mammal trapping and focused surveys for large listed branchiopods, Tipton kangaroo rat (*Dipodomys nitroides nitroides*), burrowing owl (*Athene cunicularia*), San Joaquin kit fox (*Vulpes macrotis*), Swainson's hawk (*Buteo swainsonii*), California spotted owl (*Strix occidentalis*), fisher (*Pekania pennanti*), California tiger salamander (*Ambystoma californiense*), and blunt-nosed leopard lizard (*Gambelia sila*). Anna has also provided biological monitoring on construction projects to ensure permit compliance throughout project implementation.

## Project Experience

**Mission Bay Improvements Program, City of San Diego, San Diego County, California.** The project is an improvement program with specific elements to be implemented throughout 4,387 acres within Mission Bay Park, including discrete wetland, upland, and shoreline restoration projects and bicycle and pedestrian path improvements. Assisted with the preparation of a BTR in accordance with the City of San Diego's Biology Guidelines in support of the CEQA process. (2025)

**Pioneer Sports Park Project, City of San Diego, California.** The project is the proposed development of a sports park complex and associated on-site mitigation in the community of Del Mar. Conducted a general biological resources survey, vegetation mapping, and an aquatic resources delineation on approximately 21 acres. Assisted in the preparation of a Biological Technical Report (BTR) in accordance with the City of San Diego's Biology Guidelines. (2023)



### Education

University of California,  
Santa Cruz  
BS, Plant Sciences, 2013  
BA, Environmental  
Studies (Restoration  
Ecology), 2013

### Certifications

CDFW Plant Voucher  
Collecting Permit  
No. 2081(a)-20-064-V  
International Society of  
Arboriculture (ISA),  
Certified Arborist  
WE-12688A

USFWS Section  
10(a)(1)(A) Native  
Endangered and  
Threatened Species  
Recovery Permit  
No. ES02481D-1:

San Joaquin kangaroo rat  
and large-listed  
branchiopods

CDFW Scientific Collecting  
Permit, Specific Use  
No. S-192170001-  
19217-001

CDFW Memorandum of  
Understanding  
SC-192170001

**Smythe Channel and Via de la Bandola Channel Permittee Responsible Mitigation Project, City of San Diego Stormwater Department, San Diego County, California.** The project is habitat enhancement of 6 acres within the Tijuana River Valley for the 2015–2016 emergency channel maintenance of two Municipal Waterways Maintenance Plan channel facilities. Prepared the CDFW Streambed and Alteration Agreement Notification for the project. (2022)

**Beyer Mitigation Site, City of San Diego, San Diego County, California.** Conducted a biological reconnaissance survey within a 27-acre mitigation site near the City of Chula Vista. Prepared a BTR in accordance with the City of San Diego’s Biology Guidelines. (2025)

**Municipal Waterways Maintenance Plan, City of San Diego, San Diego County, California.** Conducts vegetation mapping, aquatic resources delineations, and prepares ARDR’s and BTR’s in support of regulatory permitting for priority maintenance activities within stormwater channels, consistent with the City of San Diego’s MWMP. (2023)

**Pacific Center Boulevard, Oxford Properties Group, San Diego County, California.** The project is the proposed development of four acres of urban land adjacent to the City of San Diego’s Multi-Habitat Planning Area in the community of Kearny Mesa. Conducted a due diligence biological reconnaissance survey within the 12-acre Biological Study Area (BSA) and provided senior review on the preparation of a supporting memorandum in accordance with the City of San Diego’s land use adjacency guidelines. (2024)

**14717 East Vista Housing Project; True Life Companies, LLC; San Diego County; California.** The project is a proposed residential development within 4 acres in the City of Vista. Conducted a biological reconnaissance survey and prepared a memorandum in support of CEQA Categorical Exclusion. (2023)

**Chula Vista Entertainment and Sports Park Complex; Flat Rock Land Company, LLC; San Diego County; California.** Conducted a rare plant survey and aquatic resources delineation. Prepared an Existing Conditions Report in support of the CEQA process. (2023)

**Valley Center Indian Creek; TK Consulting, Inc; San Diego County; California.** The project is the proposed development of approximately 731 residential units, retail uses, and parks and open spaces to be located along Rough Creek in the City of Valley Center. Conducted an aquatic resources delineation within the 150-acre BSA in support of the CEQA process. (2023)

**Vista Old Taylor Residential Project; TTL Management, Inc; San Diego County; California.** The project is the proposed development of single-family homes and associated structures within 7 acres in the City of Vista. Conducted an aquatic resources delineation and prepared an ARDR in support of regulatory permitting. (2023)

**Vista Foothill Residential Project; TTL Vista Foothill, LLC; San Diego County; California.** The project is the proposed development of 24 single-family homes on 13 acres in the City of Vista. Conducted an aquatic resources delineation and prepared a supporting memorandum that documented project avoidance of jurisdictional resources. (2023)

**San Diego State University Mission Valley Campus, San Diego State University, San Diego County, California.** Conducted benthic macroinvertebrate sampling within Murphy Canyon Creek per the Surface Water Ambient Monitoring Program (SWAMP) protocol in accordance with sampling requirements outlined in the Water Quality Certification for the San Diego State University (SDSU) Mission Valley Campus Master Plan Phase 2 Project. (2023)

## Specialized Trainings

- Overview of Final Ordinary High Water Mark (OHWM) Field Delineation Manual for Rivers and Streams. Webinar. Society of Wetland Scientists. March 2025.
- The Fab Four: A11, S5, F3, and F6 – The Hydric Soil Hit List, Phil Scoles. Webinar. March 2025.
- Overview of the Major Changes Incorporated in Revision 13 of the Jepson eFlora, Jepson Interchange. Webinar. March 2025.
- California Anostraca and Notostraca Identification Class, Mary Belk. San Diego, California. December 2024.
- Clarity or Chaos? Unpacking the Impact of Sackett and the Uncertain OHWM, Wildnote. Webinar. March 2024.
- Overview of the Major Changes Incorporated in Revision 12 of the Jepson eFlora, Jepson Interchange. Webinar. March 2024.
- Introduction to the Interim Draft of the National OHWM Manual, USACE. Webinar. January 2024.
- 30th Annual California Aquatic Bioassessment Workgroup Meeting & 11th Annual California Chapter Society for Freshwater Science Meeting, State Water Resources Control Board. Costa Mesa, California. November 2023.
- Get Prepared! New OHWM Requirements from the USACE, Wildnote. Webinar. May 2023.
- Field Botany of San Diego, San Diego State University. Spring 2023.
- Hydric and Problem Area Soils Class, Phil Scoles. San Diego, California. February 2023.
- Charting a Path Through the Cloudy Waters of WOTUS, Wildnote. Webinar. November 2022.
- California Tiger Salamander Terrestrial Ecology/Rare Pond Species Workshops, Laguna de Santa Rosa Foundation. Santa Rosa, California. March 2022.
- California Anostraca and Notostraca Identification Class, Mary Belk. Rocklin, California. December 2021.
- SWAMP Bioassessment Procedures: Benthic Macroinvertebrate, Algae and Physical Habitat Field Training. Dudek. Auburn, California. September 2021.
- California Nation Grassland Association’s Virtual Field Day. June 2021.
- The Western Section of the Wildlife Society Annual Meeting, Virtual. February 2021.
- The Western Section of the Wildlife Society Annual Meeting, Fish Camp, California. February 2019.
- Wetlands Regulation and Mitigation, University of California Davis Extension. Sacramento, California. October 2018.
- CEQA Essentials Workshop, Association of Environmental Professionals. Tulare, California. November 2017.
- 40-Hour Basic Wetland Delineation Training, Wetland Training Institute. Rocklin, California. April 2017.

## Publications

- Beechan, A., and A. Godinho. 2015. “Into the Bulrush: Protecting the Amargosa Vole.” *Desert Report* June 2015 pp. 18–19.
- Ray, C., J. Sherman, A. Godinho, N. Hanson, and I. Parker. 2018. “Impacts and Best Management Practices for Erect Veldtgrass (*Ehrharta erecta*).” *Invasive Plant Science and Management* 11(1): 40–48. doi:10.1017/inp.2018.2

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# **Appendix E**

## Aquatic Resources Delineation Report





**AQUATIC RESOURCES DELINEATION REPORT FOR  
EL MONTE WATER TRANSMISSION PIPELINE  
REHABILITATION PROJECT  
CITY OF SAN DIEGO, CALIFORNIA**

**PROJECT NO.: 20203585.001A**

**NOVEMBER 2025**

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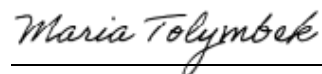
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**AQUATIC RESOURCES DELINEATION REPORT  
EL MONTE WATER TRANSMISSION PIPELINE REHABILITATION PROJECT  
CITY OF SAN DIEGO, CALIFORNIA**

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November 2025  
Project No.: 20203585.001A

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**AQUATIC RESOURCES DELINEATION REPORT  
EL MONTE WATER TRANSMISSION PIPELINE REHABILITATION PROJECT  
SAN DIEGO, CALIFORNIA**

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## **1.0 INTRODUCTION**

The City of San Diego proposes rehabilitation and improvements to the El Monte Water Transmission Pipeline, an existing 12.2-mile raw-water pipeline in San Diego County, California (Figure 1). The pipeline is a critical raw water transmission facility, which delivers water from two reservoirs, San Vicente and El Capitan; it is also the San Diego County Water Authority's first aqueduct to the Alvarado Water Treatment Plant. Originally constructed between 1942 and 1948, the pipeline plays a key role in the region's water distribution system. The Project includes excavation, vault access, and infrastructure repairs at various locations within the pipeline alignment and will involve temporary disturbance within areas that may contain waters potentially subject to federal or state jurisdiction.

To support regulatory compliance, this Aquatic Resources Delineation Report (ARDR) was prepared to characterize and map potentially jurisdictional waters of the U.S. within the study areas. Specifically, the delineation identifies aquatic features that may fall under U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to the Clean Water Act (CWA) Section 404, and Regional Water Quality Control Board (RWQCB) jurisdiction under Section 401. USACE, RWQCB, and CDFW permits may be required for any temporary or permanent impacts to jurisdictional aquatic resources identified within the project area.

Recent field investigations conducted across the distributed work areas along the pipeline alignment identified a total of ten aquatic features across eight work sites within the project corridor. These features occur at Stations 40+29, 345+20, 380+15, 382+78, 439+20, 555+79, 632+33, and 644+21, and include a combination of ephemeral, intermittent, and perennial drainages. Collectively, the features represent a mix of naturalized drainages, stormwater conveyance channels, and modified or partially engineered waterways exhibiting defined beds, banks, and Ordinary High-Water Mark (OHWM) indicators.

This investigation followed the routine wetland delineation methods described in the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987), supplemented with guidance as directed by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a), *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), and *Regulatory Guidance Letter No. 05-05 Ordinary High Water Mark Identification* (USACE 2005).

Dudek biologists Anna Touchstone and Shana Carey conducted a formal aquatic resources delineation on October 28, 2025, during which OHWM, top-of-bank, and representative data points were mapped using Field Maps with sub-meter GPS accuracy across 28 field survey locations, eight of which contained aquatic features. A preliminary assessment of potential jurisdiction was completed in accordance with Sections 404 and 401 of the Clean Water Act (CWA).

Based on current federal guidance and hydrologic evaluation, four of the ten aquatic features do not meet the criteria for jurisdictional waters of the United States under section 404 of the CWA. These features either lack a relatively permanent hydrologic connection or do not satisfy three-parameter wetland criteria. While these features may remain subject to State (RWQCB, CDFW) or local (City of San Diego)

jurisdiction, the scope of this ARDR focuses on aquatic features with the potential to fall under USACE jurisdiction. Therefore, only the six potentially jurisdictional features within five delineated sites, located at Stations 345+20, 382+78, 439+20, 555+79, and 644+21, are carried forward and described in the Results section, while the four non-jurisdictional features are identified but not discussed further.

OHWL transect forms were taken at six locations to document OHWL indicators and were verified using aerial imagery and site topography. The delineated aquatic features are illustrated in Appendix A and summarized in Table 2. Supporting documentation, including OHWL data sheets, Streamflow Duration Assessment Method (SDAM) Field Forms, photographs, and the aquatic resources summary spreadsheet are provided in Appendices C, D, and E, respectively.

## 2.0 ENVIRONMENTAL SETTING

### 2.1 Location and Study Area

The delineation study area includes multiple discrete work locations along the El Monte Water Transmission Pipeline in the City of El Cajon, San Diego County, California. The five delineation sites occur at Stations 345+20, 382+78, 439+20, 555+79, and 644+21, spanning a mixture of developed, landscaped, disturbed, and naturalized areas within the pipeline corridor. The project alignment lies within the El Cajon and San Diego 7.5-minute USGS topographic quadrangles.

Access to the six delineated aquatic resource locations, each classified as a Non-Wetland Water (NWW) for the purposes of this ARDR, is gained via a combination of public roadways and existing unpaved maintenance roads used for pipeline operations. One of the primary access points is located near the Grossmont Tunnel entrance along West Main Street, adjacent to the Kaiser Permanente El Cajon Medical Offices (approx. 32.79496°, -116.98219°). The nearest physical address is 1425 W. Main Street, El Cajon, CA 92020. City staff and/or representatives will accompany agency staff for a site visit upon request.

Access to each of the six delineated aquatic features in the five delineated locations is as follows:

- Work Location 345+20 (NWW-ALT-01):
  - From I-8, exit at Fletcher Parkway and travel east. Turn right onto West Bradley Avenue. Continue to Floyd Smith Drive, where the pipeline maintenance access road is located. The constructed canal/ditch is situated immediately north of the roadway.
- Work Location 382+78/382+75 (NWW-ALT-02):
  - From I-8, exit at Magnolia Avenue and travel north. Turn right onto Broadway and proceed east. Turn left onto Forester Creek Road. Access the concrete-lined Forester Creek segment via the adjacent maintenance path paralleling the channel.
- Work Location 439+20/439+17 (NWW-ALT-04):
  - From I-8 westbound, exit at West Main Street. Travel west for 0.3 mile. The Grossmont Tunnel access road is located on the south side of West Main Street, opposite the Kaiser Permanente facility. The intermittent and ephemeral drainages occur along the unpaved access road leading to the tunnel.
- Work Location 555+79/555+76 (NWW-ALT-06 & NWW-ALT-07):
  - From I-8, exit at Fletcher Parkway and travel east. Turn left onto Amarillo Avenue. The intermittent and perennial drainages are located near the culvert crossing beneath Amarillo Avenue and continue downstream toward Fletcher Parkway.

- Work Location 644+21/644+18 (NWW-ALT-08):
  - From I-8, exit at Lake Murray Boulevard and travel north. Turn right onto Lake Park Way. The intermittent drainage is located immediately south of 5540 Lake Park Way, accessed via a short unpaved pull-off and maintenance path adjacent to the culvert inlet.

The survey areas consist of gently sloping to level terrain bordered by developed, landscaped, and disturbed habitats. Several work locations contain drainage features that exhibit evidence of episodic or sustained surface flow, including ephemeral, intermittent, and perennial channels. These drainages occur adjacent to or within the maintenance access routes and, in some locations, support riparian vegetation. Field surveys were conducted within and adjacent to these features to assess aquatic resource boundaries and hydrologic characteristics.

## 2.2 Vegetation and Land Cover Types

The study area lies within the South Coast Subregion of the California Floristic Province. Vegetation communities are assemblages of plant species that occur together in similar environmental conditions and are defined by species composition and relative abundance. Based on field assessments, the study area is composed mostly of disturbed and developed land. Small portions of the study area comprise scrub and riparian vegetation. The vegetation communities in the study area were mapped during the field survey in accordance with *Draft Vegetation Communities of San Diego County* (Oberbauer et al. 2008), which is based on the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986).

### ***Developed***

This community/land cover type is common throughout the study area. Developed lands refer to areas that have been constructed on or disturbed so severely that native vegetation is no longer supported. Developed land includes areas with permanent or semi-permanent structures, pavement or hardscape, landscaped areas, and areas with a large amount of debris or other materials (Oberbauer et al. 2008). Developed areas within the work locations include paved roads and walkways, driveways, and buildings.

### ***Disturbed Habitat***

This community is also common throughout the study area. Disturbed habitat refers to areas that have been physically disturbed and are no longer recognizable as any natural vegetation association, though they may have retained soil substrates and minimal presence of non-native vegetation. Areas typically described as disturbed habitat include graded landscaped areas, graded firebreaks, temporary construction staging areas, areas repeatedly cleared for fuel management, and other areas repeatedly used in way that prevent revegetation (Oberbauer et al. 2008).

### ***Non-Native Riparian***

This community is located at work locations 439+20, 555+79, and 644+21. Non-native riparian refers to habitat consisting of densely vegetated riparian thickets dominated by non-native, invasive species. Characteristic species of this community typically include giant reed (*Arundo donax*; FACW), tamarisk (*Tamarix ramosissima*; FACW), eucalyptus (*Eucalyptus spp.*; UPL), palms (*Phoenix spp.* and *Washingtonia spp.*; FACW), castor bean, and pampas grass (*Cortaderia spp.*; UPL) (Oberbauer et al. 2008). The dominant species of this community within the work locations include eucalyptus species and Mexican fan palm (*Washingtonia robusta*; UPL).

### **Coast Live Oak Woodland**

This community is located at work location 439+20. Coast live oak woodland refers to a community dominated by stands of coast live oak (*Quercus agrifolia*, FACU) with a canopy height between approximately 10 to 25 meters. The herbaceous cover in this community consists of a variety of introduced species, and the shrub layer is typically less developed and may include toyon (*Heteromeles arbutifolia*; FACU), gooseberry (*Ribes spp.*; FACU), laurel sumac (*Malosma laurina*, UPL), and blue elderberry (*Sambucus nigra*; FAC) (Oberbauer et al. 2008). The dominant species of this community within the study area includes coast live oak and various non-native grasses.

### **Southern Riparian Forest**

This community is located at work location 439+20. Southern riparian forests are moderately dense riparian woodlands dominated by small trees or shrubs with scattered taller riparian trees. Stands of this community occur within major river systems where flood scour occurs as well as smaller major tributaries (Oberbauer et al. 2008). Species characteristic to southern riparian forests include baccharis (*Baccharis spp.*; FAC), western sycamore (*Platanus racemosa*, FACW), western cottonwood (*Populus spp.*; FACW), willows (*Salix spp.*, FACW), and elderberry species (*Sambucus spp.*; FAC). The dominant species within the study area is western cottonwood.

### **Emergent Wetland**

This community is located at work location 555+79. Emergent wetland refers to freshwater or alkaline perpetually wet areas supporting perennial wetland plants, which are typically low-growing species. Vegetation that is characteristic of this community may include sedges (*Carex spp.*; FACW-OBL), spike rush (*Eleocharis spp.*; OBL), rushes (*Juncus spp.*, FACW), docks (*Rumex spp.*; FAC-FACW), and broad-fruit burweed (*Sparganium eurycarpum*; OBL) (Oberbauer et al. 2008). Emergent wetland present in the work location includes cattail species as the dominant species. These areas appeared to have been mowed or trimmed at the time of the field survey.

### **Non-Vegetated Channel or Floodway**

This community is located at work locations 345+20, 382+78, and 439+20. Non-vegetated channel or floodway refers to the sandy, gravelly, or rocky fringe of waterways or flood channels that are unvegetated on a relatively permanent basis. Minimal vegetation may be present along the outer edge of the channel (Oberbauer et al. 2008).

## **2.3 Hydrology**

The Study Area lies within the Lower San Diego River watershed (907.10) (HUC 1807030407), which encompasses approximately 162 square miles in central San Diego County and supports two reservoirs, Lake Murray and Lake Jennings. The San Diego River flows approximately 52 miles from its headwaters in the Cuyamaca Mountains westward through El Cajon, Mission Valley, and ultimately into the Pacific Ocean at Mission Bay. Numerous tributaries—ranging from perennial and intermittent channels to ephemeral stormwater conveyance features—drain toward the San Diego River throughout the watershed, several of which occur within the delineation work locations evaluated for this Project.

Drainage features mapped during the delineation displayed evidence of surface flow and OHWM indicators to varying degrees, including bed and bank formation, scour, sediment sorting, litter and debris deposition, and vegetation transitions. Portions of certain channels also exhibited stabilization measures such as geogrid, riprap, or concrete lining, reflecting past erosion control or flood infrastructure

improvements. These observations are consistent with the mixed hydrologic conditions typical of the Lower San Diego River watershed, where surface flows occur in response to precipitation, urban runoff, and upstream hydrology conveyed through culverts and roadside drainage networks.

## 2.4 Soils

Soil types in the study area were identified using the Web Soil Survey, a resource provided by the USDA Natural Resources Conservation Service (NRCS 2025). The following soil units were identified within the delineation areas:

- Diablo-Urban land complex, 5 to 15 percent slopes (DcD)
- Diablo clay, 2 to 9 percent slopes
- Placentia sandy loam, thick surface, 2 to 9 percent slopes
- Redding-Urban land complex, 9 to 30 percent slopes (RhE)
- Redding cobbly loam, dissected, 15 to 50 percent slopes (RfF)
- Riverwash (Rm)

Diablo soil series are well drained and have slow runoff when the soils are dry, medium to rapid when soils are moist with slow permeability. The soils occur on complex undulating, rolling to steep uplands with slopes of 5 to 50 percent and elevations from 25 to 3,000 feet. They are extensive in central and southern Coast Ranges of California. These soils form in residuum weathered from shale, sandstone, and consolidated sediments with minor areas of tuffaceous material. The climate is dry, subhumid mesothermal with warm, dry summers and cool, moist winters. The mean annual precipitation is 10 to 35 inches. The soils are used for grazing and for production of dry farmed grain and uncultivated areas have a cover of annual grasses and forbs.

Placentia sandy loam is a soil type found in coastal southern California that is well-drained with slow to rapid run-off with very slow permeability. Placentia soils are nearly level to moderately sloping and are on fans and terraces at elevations of 50 to 2,500 feet. They form in alluvium from granite and other rocks of similar composition and texture. The climate is dry, subhumid mesothermal with long, dry, and warm summers and cool moist winters. The mean annual precipitation is about 12 to 18 inches. It is suitable for agriculture, including citrus, small grains, and truck crops, and its thick surface layer indicates a significant amount of topsoil. The soils are used to produce citrus, truck crops, small grains, hay, and forage, and uncultivated areas have a cover of annual grasses and forbs.

Redding soil series are well-drained, with very high runoff potential and very low to moderately low permeability. These soils occur on dissected terrace backslopes at elevations ranging from approximately 130 to 1,000 feet, with mean annual precipitation between 14 and 25 inches, and an average frost-free period of 260 to 280 days. The parent material is alluvium derived from mixed sources, and the profile includes cobbly loam and cobbly clay layers underlain by an indurated duripan (see Appendix B for soil reports, soil descriptions, and mapping). The Redding series is classified as non-hydric and is not considered prime farmland. Vegetation within areas mapped as Redding cobbly loam typically includes annual grasses, forbs, and sparse shrub or woodland species.

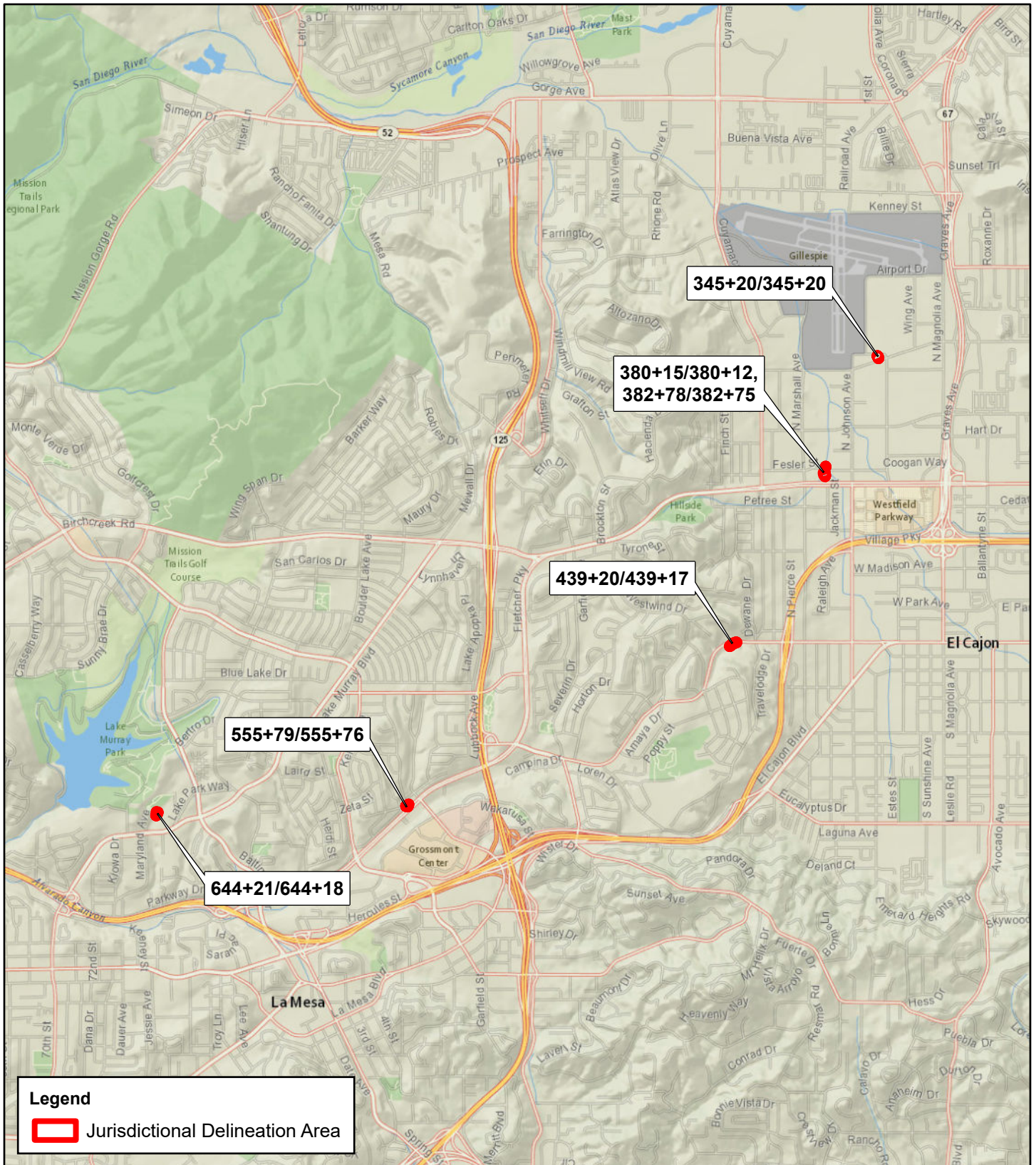
Riverwash soil series are not a single, officially recognized soil series but are used in some informal contexts to describe soils found in areas often inundated by rivers including floodplains.

## 2.5 Climate and Precipitation Data

The project area has a semi-arid Mediterranean climate, characterized by hot, dry summers and mild, wetter winters. Average annual precipitation at the nearby El Cajon rain station is 12.40 inches (Western Regional Climate Center [WRCC] for El Cajon 2025), with most rainfall occurring between November and March. The average maximum annual temperature is approximately 78 degrees Fahrenheit, while the average minimum is approximately 52 degrees Fahrenheit. During summer months, daytime temperatures can reach up to 89 degrees Fahrenheit, while winters in the area can be as low as 41 degrees Fahrenheit.

Precipitation and drought data are necessary components in establishing baseline hydrology conditions for the study area, including whether conditions during the delineation field survey were within the normal precipitation range. The Antecedent Precipitation Tool (APT) is a tool that the USACE developed to facilitate comparison of recent precipitation conditions for a given location to the range of normal precipitation conditions that occurred during the preceding 30 years (U.S. Environmental Protection Agency [EPA] 2025). In addition to evaluating normal precipitation conditions, the APT can assess the presence of drought conditions and the approximate dates of the wet and dry seasons for a given location (EPA 2025).

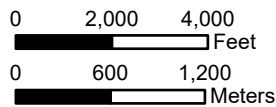
Figure 3 depicts the single point summary output provided by the APT for October 28, 2025, the date of the field visit. The Field Palmer Drought Index indicated moderate drought at the time of the survey during the dry season, and the Antecedent Precipitation Condition was classified as Wetter than Normal due to notable late October 2025 Pacific storms with heavy rains.



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USGS 7.5' Quad: El Cajon (1975) and La Mesa (1994)  
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 T16S, R02W Section 13

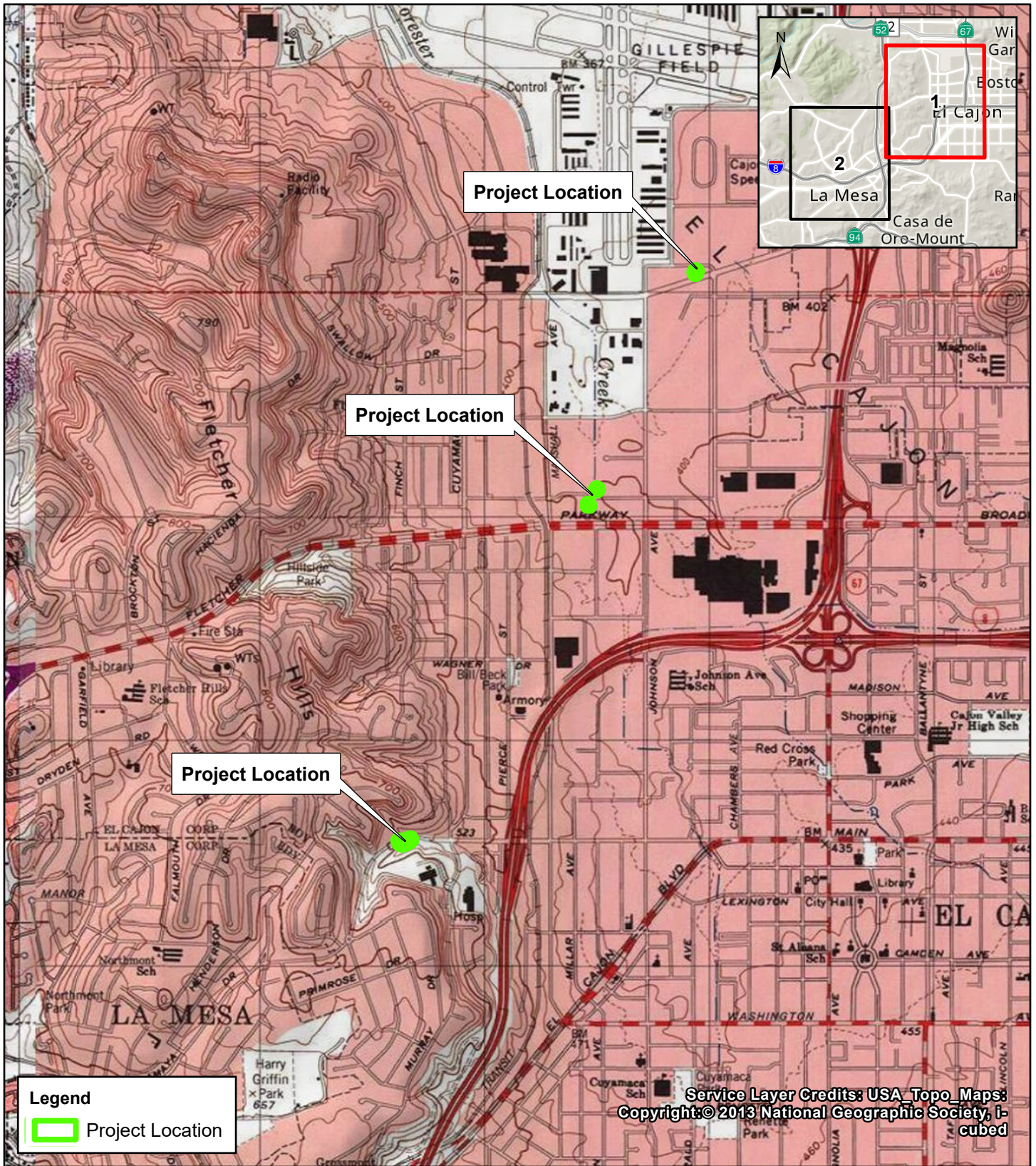


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 1 inch = 4,000 feet

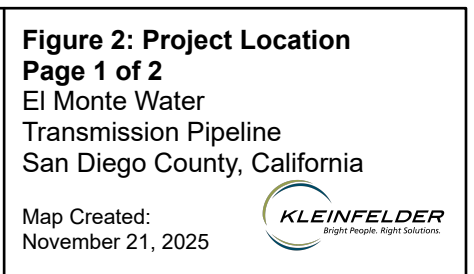
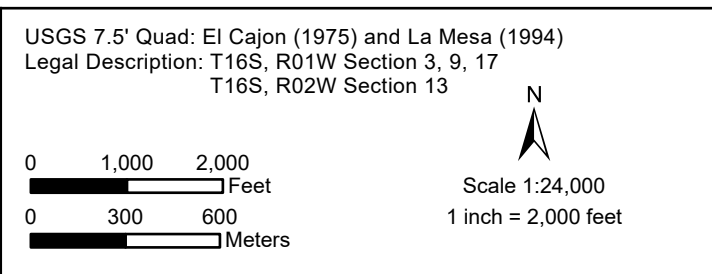
**Figure 1: Project Locality**  
 El Monte Water  
 Transmission Pipeline  
 San Diego County, California

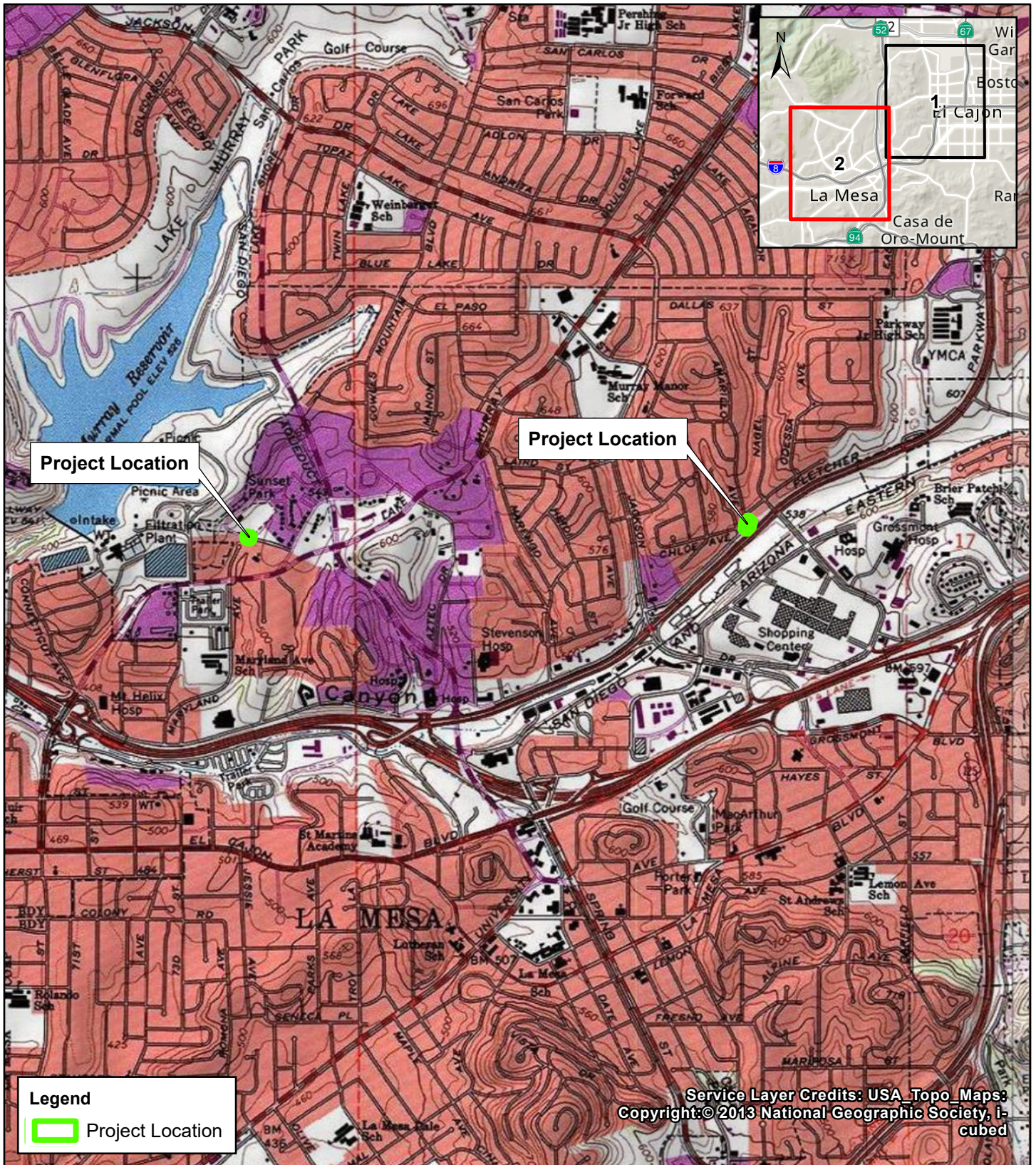
Map Created:  
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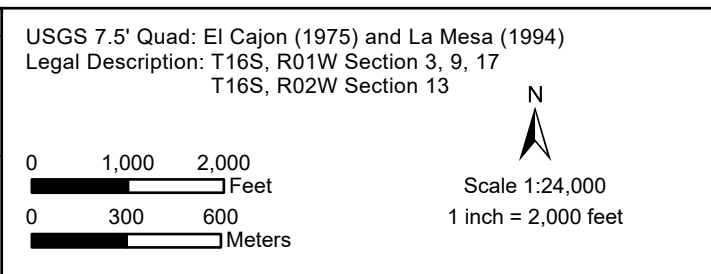


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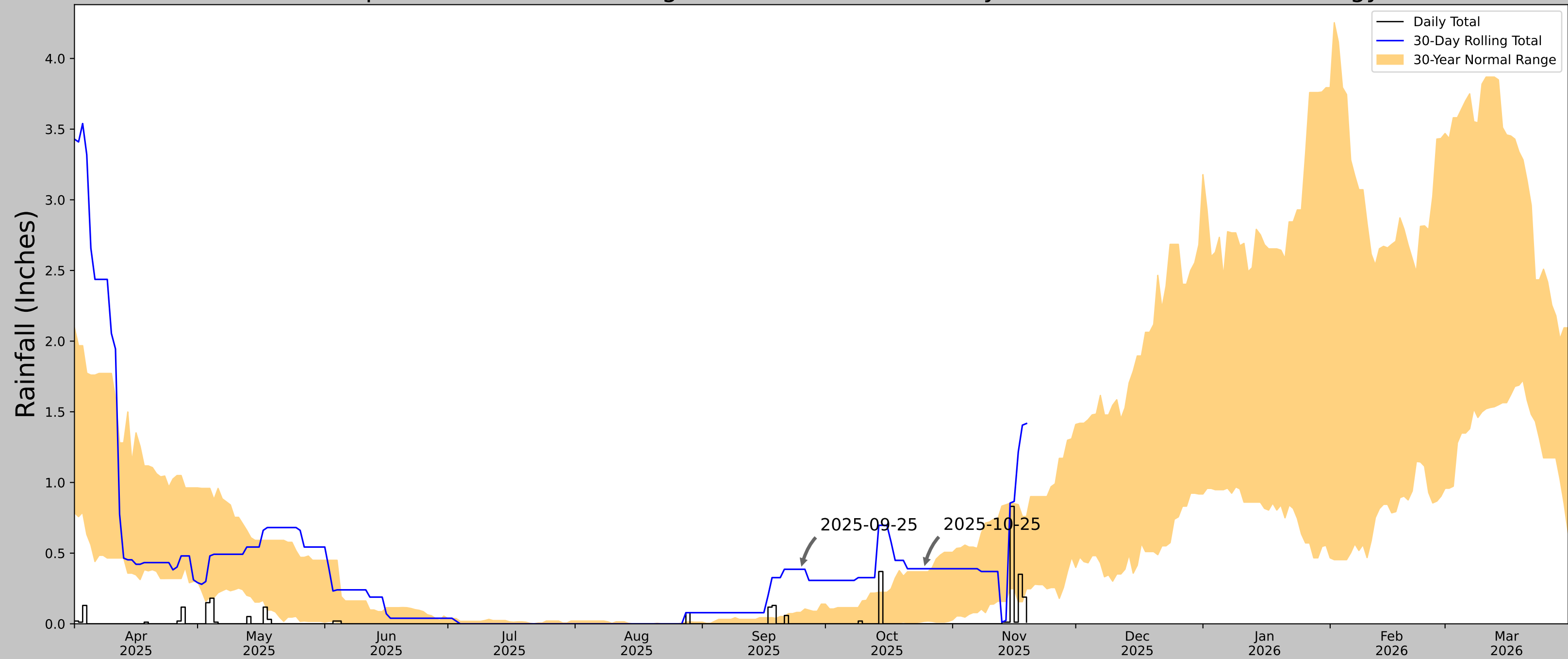
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**Figure 2: Project Location**  
**Page 2 of 2**  
 El Monte Water  
 Transmission Pipeline  
 San Diego County, California

Map Created:  
 November 21, 2025

# Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network




Coordinates	32.79492, -116.98205
Observation Date	2025-10-25
Elevation (ft)	549.805
Drought Index (PDSI)	Moderate drought
WebWIMP H <sub>2</sub> O Balance	Dry Season


30 Days Ending	30 <sup>th</sup> %ile (in)	70 <sup>th</sup> %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2025-10-25	0.017323	0.36811	0.389764	Wet	3	3	9
2025-09-25	0.0	0.080709	0.385827	Wet	3	2	6
2025-08-26	0.0	0.0	0.0	Normal	2	1	2
Result							<b>Wetter than Normal - 17</b>

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
EL CAJON 1.5WSW	32.7907, -116.987	727.034	0.409	177.229	0.257	6117	90
LA MESA 1.2 E	32.7722, -116.998	674.869	1.429	52.165	0.718	36	0
EL CAJON 2.3 S	32.7698, -116.9593	737.861	2.162	10.827	0.996	14	0
LA MESA 2.6E	32.7698, -116.9788	1014.108	1.521	287.074	1.121	10	0
LA MESA	32.7675, -117.0233	529.856	2.649	197.178	1.714	3763	0
EL CAJON 2.3ENE	32.8112, -116.9254	609.908	3.848	117.126	2.182	9	0
EL CAJON	32.8006, -116.9281	495.079	3.489	231.955	2.379	986	0
LAKESIDE 2 E	32.8536, -116.8947	689.961	6.9	37.073	3.361	387	0
SAN DIEGO MONTGOMERY FLD	32.8144, -117.1375	417.979	8.893	309.055	6.75	31	0

Figures and tables made by the  
Antecedent Precipitation Tool  
Version 3.0



US Army Corps  
of Engineers.



Developed by:  
U.S. Army Corps of Engineers and  
U.S. Army Engineer Research and  
Development Center

### 3.0 APPLIED METHODS

This investigation followed the methods described in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (USACE 1987), supplemented with guidance as directed by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a), *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), and *Regulatory Guidance Letter No. 05-05 Ordinary High Water Mark Identification* (USACE 2005).

These methods included a preliminary review of available information and on-site field inspections of the delineation areas to determine the presence or absence of 1) hydrophytic vegetation, 2) hydric soils, and/or 3) wetland hydrology. Sample points are assessed at paired plots on the lateral edge of sampled wetlands to record the vegetation, soils, and hydrology present. Areas with a dominance or prevalence of hydric vegetation, hydric soil, and/or wetland hydrology indicators are mapped as wetlands. The following discussion describes how these methods and related reference materials were applied to the on-site features.

#### 3.1 Preliminary Data Gathering and Review of Existing Materials

Prior to field investigations, available aerial imagery, topographical maps, and soil maps of the study area were reviewed to characterize the vegetation, soils, topography, and hydrology in the area. Existing materials reviewed included geospatial wetlands information provided online by the U.S. Fish and Wildlife Service (USFWS) [National Wetlands Inventory \(NWI\)](#) (USFWS 2024) and aerial photography of the study areas and vicinity. The USGS 7.5-minute San Diego and El Cajon topographic quad was also reviewed (USGS 2025).

#### 3.2 Field Investigation

A formal aquatic resources delineation was conducted on October 28, 2025 by Dudek biologists Anna Touchstone and Shana Carey. The survey commenced at approximately 8:00 a.m. and concluded at 4:00 p.m. Weather conditions for the survey were warmer than normal for eastern San Diego County in late October, with temperatures during the survey ranging from 60°F to 88 °F. Skies were clear, and winds ranged from 0 to 5 mph. The delineation focused on identifying the extent and characteristics of aquatic features across the project's 28 field survey locations. Surveyors examined vegetation, soils, and hydrology for wetland indicators and assessed channel morphology, geomorphic features, and hydrologic signatures to identify Ordinary High-Water Mark (OHWM) boundaries.

Transect locations, OHWM, and top-of-bank were mapped in the field using Field Maps on an Apple iPad with sub-meter GPS accuracy. The biologists walked transects along and across each drainage feature to document indicators such as bed and bank formation, scour, sediment sorting, debris deposition, and vegetation transitions. These indicators were used to classify each feature as ephemeral, intermittent, perennial, or wetland. Eight of the 28 field survey locations contained aquatic features that met the criteria for potential jurisdiction under USACE, RWQCB, CDFW, and/or the City.

##### 3.3.1 Vegetation

Hydrophytic vegetation is identified based on corresponding wetland indicator status. The size of the sample plots represents the vegetation community and size in the feature and excludes sampling vegetation from adjacent communities.

The percent cover of each plant species in the field is visually estimated. The “50/20” rule is used to select dominant species from each stratum (tree, shrub, and herb) of the community, as defined in the *Arid West Regional Supplement* (USACE 2008a). Plants are identified according to *Jepson eFlora* (Jepson Flora Project 2025). The indicator status of each species is determined based on *The National Wetland Plant List: 2020 wetland ratings* (USACE 2025).

Wetland indicator species include those listed as obligate (OBL), facultative wetland (FACW), or facultative (FAC) in the *National List for the Arid West Region*. Upland indicator categories include facultative upland (FACU), or upland (UPL). Species not listed in the *National List* are designated as Upland (UPL). Wetland indicator status categories are described in Table 1.

**Table 1:** Wetland Indicator Categories

Indicator Category	Wetland Occurrence
Obligate wetland plants (OBL)	Almost always occur in wetlands. With few exceptions, these plants (herbaceous or woody) are found in standing water or seasonally saturated soils (14 or more consecutive days) near the surface.
Facultative wetland plants (FACW)	Usually occur in a wetland but may occur in non-wetlands. These plants predominantly occur with hydric soils, often in geomorphic settings where water saturates the soils or floods the soil surface at least seasonally.
Facultative plants (FAC)	Occur in wetlands and non-wetlands. These plants can grow in hydric, mesic, or xeric habitat. The occurrence of these plants in different habitats represents responses to a variety of environmental variables other than just hydrology, such as shade tolerance, soil pH, and they have a wide tolerance of soil moisture conditions.
Facultative upland plants (FACU)	Usually occur in non-wetlands but may occur in wetlands. These plants predominantly occur on drier or more mesic sites in geomorphic settings where water rarely saturates the soils or floods the soil surface at least seasonally
Upland plants (UPL)	Almost never occur in wetlands. These plants occupy mesic to xeric non-wetland habitats. They almost never occur in standing water or saturated soils. Typical growth includes herbaceous, shrubs, woody vines, and trees.
Source: Lichvar et al. 2012	

### 3.3.2 Hydrology

Hydrology is characterized in the field using the methods provided in the *Arid West Supplement* (USACE 2008a).

### 3.3.3 Soils

Soils are characterized in the field using the methods provided in the *Arid West Supplement* (USACE 2008a).

## 3.4 Mapping of Other Waters

### 3.4.1 Delineating Section 404 Jurisdiction

If adjacent or bordering, neighboring, or contiguous “waters” are present above the OHWM, then USACE jurisdiction extends to the limit of the adjacent feature. Potential wetlands must meet the three parameter criteria as outlined in the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987). Areas that support more than five percent cover of vegetation are classified as wetlands, and areas that have standing water and/or support less than five percent vegetation cover are classified as waters (USACE 1987).

The lateral edges of the nontidal creek within the delineation area were mapped at the locations of the OHWM. The OHWM is defined as “[...]the line on the [watercourse banks] established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas” (33 Code of Federal Regulations [CFR] 328). The location of the OHWM for non-tidal water bodies under the Clean Water Act (CWA) includes evaluating physical characteristics of the area that are determined to be reliable indications of the OHWM (USACE 2005). Physical evidence to be evaluated includes those items listed in 33 CFR 329.11 (a)(1) including, but not limited to:

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

## 4.0 RESULTS

Ten aquatic features were identified during the field delineation, including ephemeral, intermittent, and perennial drainages, as well as wetlands, that are anticipated to be under the jurisdiction of the USACE, RWQCB, CDFW, and/or the City. Four of these features do not meet the federal criteria for waters of the United States due to the absence of a relatively permanent hydrologic connection or lack of three-parameter wetland characteristics. However, they still exhibit bed and bank morphology, OHWM indicators, riparian vegetation, and/or hydrologic function that qualify them as Waters of the State and/or City wetlands and are therefore regulated by RWQCB, CDFW, and/or the City. The six aquatic features that are considered to be potential Waters of the U.S. are described below and included on Table 2.

### ***NWW-ALT-01 (Work Location 345+20/345+20)***

One drainage ditch/canal (NWW-ALT-01) was identified at work location 345+20/345+20. This intermittent feature supported disturbed, ruderal vegetation and contained areas of standing water and saturation at the time of the field survey. This feature originates at a concrete culvert under West Bradley Avenue and flows north through the site into another concrete culvert under Floyd Smith Drive and into Broadway Channel. Broadway Channel has downstream connectivity to Forester Creek and the San Diego River. Therefore, this drainage ditch/canal is anticipated to be under the jurisdiction of USACE, RWQCB, CDFW, and the City below OHWM, and under the jurisdiction of CDFW and the City to the TOB or edge of riparian, whichever is greater

### ***NWW-ALT-02 (Work Location 382+78/382+75)***

One modified, perennial channel (NWW-ALT-02) was identified at work locations 380+15/380+12 and 382+78/382+75. This is a channelized, concrete-lined portion of Forester Creek. There was flowing water present at the time of the survey, and vegetation within the channel was absent. Forester Creek flows north off site into the San Diego River. Therefore, this modified channel is anticipated to be under the jurisdiction of USACE, RWQCB, CDFW, and the City below OHWM, and under the jurisdiction of CDFW and the City to the TOB or edge of riparian, whichever is greater.

### ***NWW-ALT-04 (Work Location 439+20/439+17)***

One intermittent drainage (NWW-ALT-04) was identified at work location 439+20/439+17. The drainage was dry at the time of the field survey, so a Stream Duration Assessment Method (SDAM) form was recorded within the main drainage, which was determined to be intermittent. The drainage contained in-stream bank stabilization features including geogrid and river rock, and supported a canopy of southern riparian forest dominated by western cottonwood and non-native riparian dominated by Mexican fan palm. The drainage originates off-site to the west and flows east along West Main Street, terminating into a concrete culvert off site. The ephemeral drainage originated off site to the north and flows through a concrete culvert under West Main Street into the intermittent drainage. Downstream connectivity of the intermittent drainage is unknown, but is it assumed to have relatively permanent, continuous downstream connectivity to a Traditional Navigable Water. Therefore, the intermittent drainage is anticipated to be under the jurisdiction of USACE, RWQCB, CDFW, and the City below OHWM, and under the jurisdiction of CDFW and the City to the TOB or edge of riparian, whichever is greater. A small ephemeral tributary (NWW-ALT-05) occurs north of the work area and enters the intermittent drainage through a culvert beneath West Main Street; however, this tributary does not meet the relative permanence standard and does not meet the current definition of a water of the United States though it is anticipated under the jurisdiction of RWQCB, CDFW, and the City.

### ***NWW-ALT-06 and NWW-ALT-07 (Work Location 555+79/555+76)***

One perennial drainage (NWW-ALT-06) and one tributary intermittent drainage (NWW-ALT-07) were identified at work location 555+79/555+76. The perennial drainage supported a non-native riparian corridor, and both drainages supported emergent wetland vegetation (*Typha spp.*) that appeared to have been recently mowed or trimmed. Both drainages had flowing water present at the time of the survey. There was an exposed culvert observed within the intermittent drainage that may have been originally intended to underground the drainage under an unpaved access road. However, the culvert appears to have been washed out and the drainage currently flows aboveground. The perennial drainage originates off site to the northeast and continues off site to the south via a large, concrete culvert under Fletcher Parkway. The intermittent drainage originates at a concrete culvert under Amarillo Avenue and flows southeast into the perennial drainage. Downstream connectivity of these features is unknown, but they are assumed to have relatively permanent, continuous downstream connectivity to a Traditional Navigable Water. Therefore, these features are anticipated to be under the jurisdiction of USACE, RWQCB, CDFW, and the City below OHWM, and under the jurisdiction of CDFW and the City to the TOB or edge of riparian, whichever is greater.

### ***NWW-ALT-08 (Work Location 644+21/644+18)***

An intermittent drainage (NWW-ALT-08) and associated non-native riparian corridor was identified at work location 644+21/644+18. The earthen drainage originates off site to the north and flows under Lake Park Way via a concrete culvert, continuing off site to the south. The drainage was saturated at the time of the field survey, and evidence of an OHWM included bed and bank, break in slope, undercut banks, exposed roots, sediment sorting, and an absence of vegetation within the streambed. Downstream connectivity of this feature is unknown, but it is assumed to have relatively permanent, continuous downstream connectivity to the San Diego River, a Traditional Navigable Water (TNW). Therefore, this feature is anticipated to be under the jurisdiction of USACE, RWQCB, CDFW, and the City below OHWM, and under the jurisdiction of CDFW and the City to the top of bank (TOB) or edge of riparian, whichever is greater.

### ***Non-Jurisdictional Aquatic Features***

Four stormwater control features were identified at work locations 632+33/632+30 (surface flow to storm drain inlet; possible City defined wetland; WET-ALT-01), 530+10/530+07 (concrete ditch), 254+20/254+17 (concrete ditch), and 40+29 (a depression formed by road and residential embankments, without hydrophytic vegetation; NWW-ALT-03) are not anticipated to be under the jurisdiction of USACE, RWQCB, CDFW, or the City, as these features are constructed in upland and do not replace or connect to another natural feature. The primary purpose of these constructed features is to channel surface runoff away from surrounding developed areas. Additionally, two erosional features were identified at work location 439+20/439+17. Neither of these erosional features are anticipated to be under the jurisdiction of USACE, RWQCB, CDFW, or the City due to their lack of defined bed and bank and other OHWM indicators.

Table 2 summarizes each aquatic feature evaluated as potentially jurisdictional under USACE, including the aquatic resource type, Cowardin classification, applicable jurisdiction, geographic coordinates, dominant vegetation community, total area (in acres) of waters of the US (WOTUS), linear extent (feet), and representative channel width.

**Table 2: Potentially Jurisdictional Aquatic Resources Within the Study Area.**

Feature ID	Aquatic Resource Type	Cowardin Type	Jurisdiction (USACE/RWQCB/C DFW/City)	Latitude/ Longitude	Dominant Community Types	Acres WOTUS	Linear Feet	Channel Width (Feet)
NWW-ALT-01	Constructed canal/ditch	R4	USACE/RWQCB/C DFW/City	32.817895°, -116.968495°	<i>Disturbed Habitat</i>	0.007	80	4
					<i>Non-Vegetated Channel or Floodway</i>			
NWW-ALT-02	Channel – natural, modified	R5	USACE/RWQCB/C DFW/City	32.808428°, - 116.973703°	<i>Disturbed Habitat</i>	0.029	89	15
NWW-ALT-04	Channel – natural, intermittent	R4	USACE/RWQCB/C DFW/City	32.794786°, - 116.982317°	<i>Coast Live Oak Woodland</i>	0.021	240	4
					<i>Non-Native Riparian</i>			
					<i>Non-Vegetated Channel or Floodway</i>			
					<i>Southern Riparian Forest</i>			
NWW-ALT-06	Channel – natural, perennial	R5	USACE/RWQCB/C DFW/City	32.781856°, -117.013361°	<i>Emergent Wetland</i>	0.005	75	3
					<i>Non-Native Riparian</i>			
NWW-ALT-07	Channel – natural, intermittent	R4	USACE/RWQCB/C DFW/City	32.781767°, - 116.9820468°	<i>Emergent Wetland</i>	0.003	41	4
NWW-ALT-08	Channel – natural, intermittent	R4	USACE/RWQCB/C DFW/City	32.781086°, -117.037164°	<i>Non-Native Riparian</i>	0.0096	61	2
					<i>Urban/Developed</i>			
<i>Total</i>						0.0746	586	32

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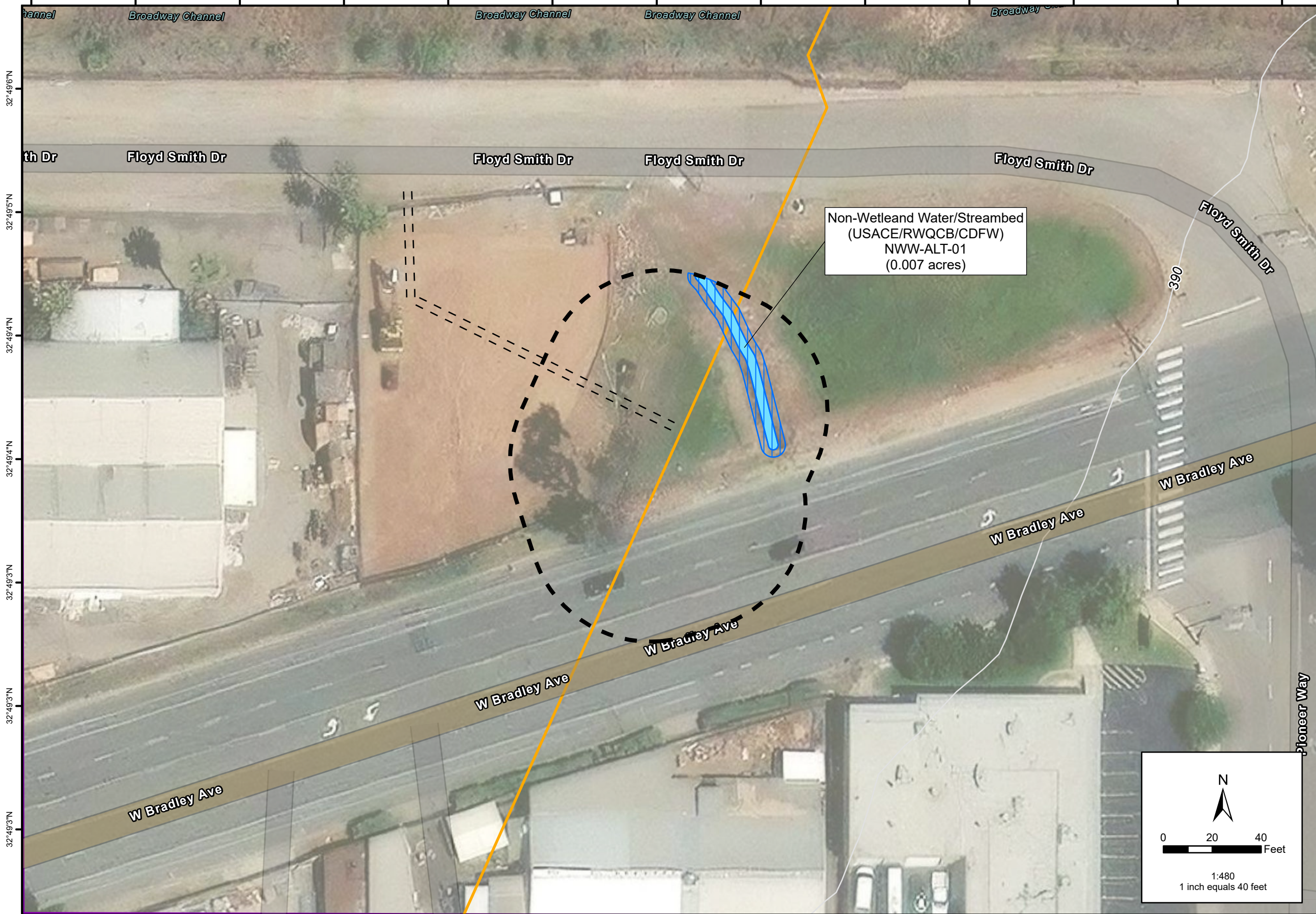
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**APPENDIX A**

**AQUATIC RESOURCES DELINEATION MAP**

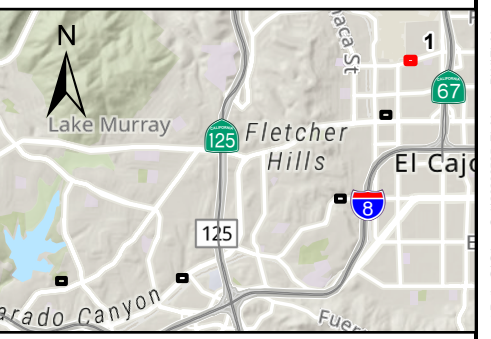


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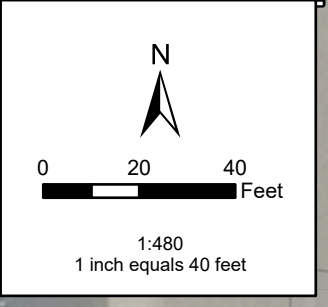


Non-Wetland Water/Streambed  
(USACE/RWQCB/CDFW)  
NWW-ALT-01  
(0.007 acres)

- Work Area 50-foot Buffer
- Jurisdictional Delineation
- Non-Wetland Water/Streambed (USACE/RWQCB/CDFW)
- Access Path
- Pipeline
- 10-foot Contour



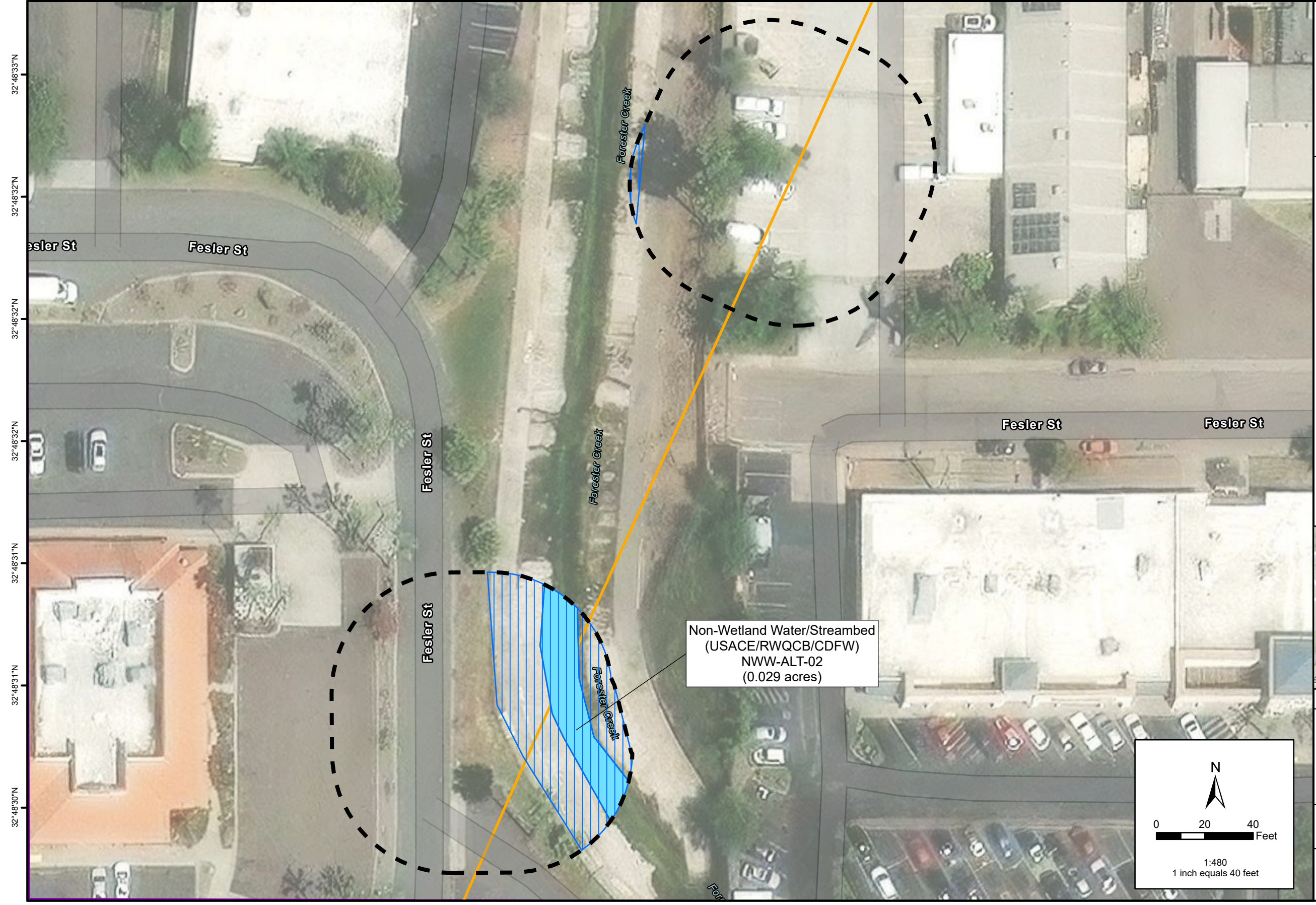
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1. ESRI World Imagery (4/12/2025)  
2. Projection: UTM NAD 83 Z11N  
3. Vertical datum NAVD 88  
4. Topographic elevation in feet



**KLEINFELDER**  
Bright People. Right Solutions.  
  
Prepared by: Kleinfelder Group  
Delineated by: DUDEK  
Delineation Survey Date: 10/28/2025  
Drawn By: Dominika Moore

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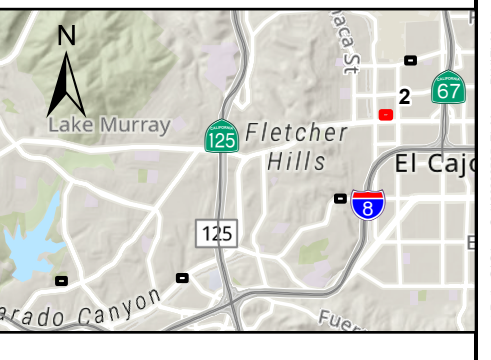
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**Appendix A:  
Aquatic Resources  
El Monte Water Transmission Pipeline**

Page 2 of 5  
380+15/380+12, 382+78/382+75  
San Diego County, California  
November 2025

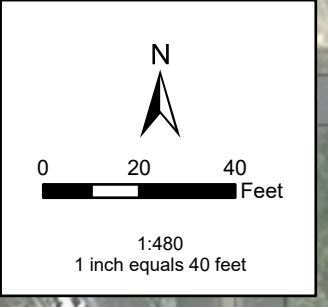
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- Jurisdictional Delineation
- Non-Wetland Water/Streambed (USACE/RWQCB/CDFW)
- Access Path
- Pipeline
- 10-foot Contour



Notes:  
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3. Vertical datum NAVD 88  
4. Topographic elevation in feet

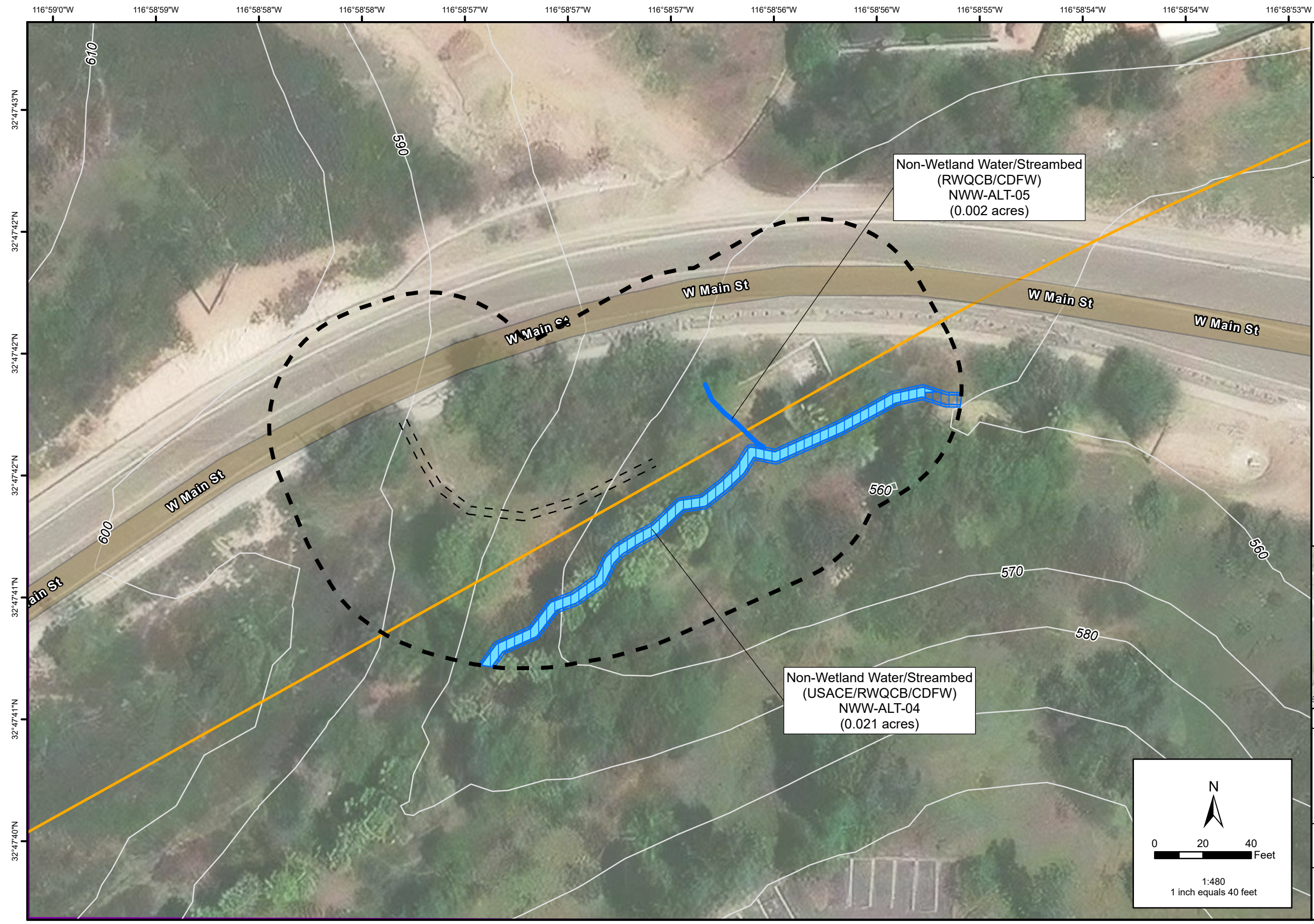








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Delineated by: DUDEK  
Delineation Survey Date: 10/28/2025  
Drawn By: Dominika Moore

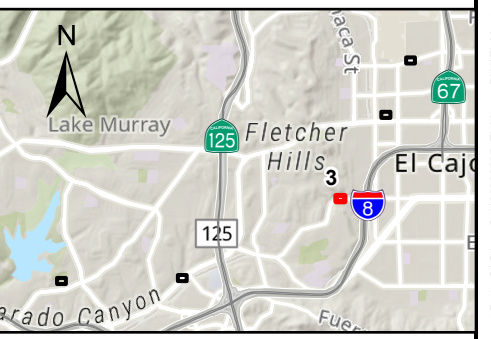


Non-Wetland Water/Streambed  
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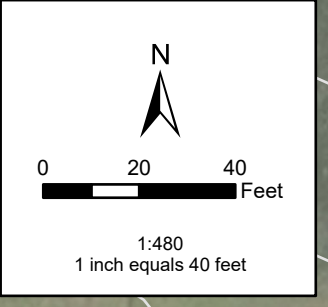
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-  Non-Wetland Water/Streambed (USACE/RWQCB/CDFW)
-  Access Path
-  Pipeline
-  10-foot Contour



- Notes:
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  4. Topographic elevation in feet



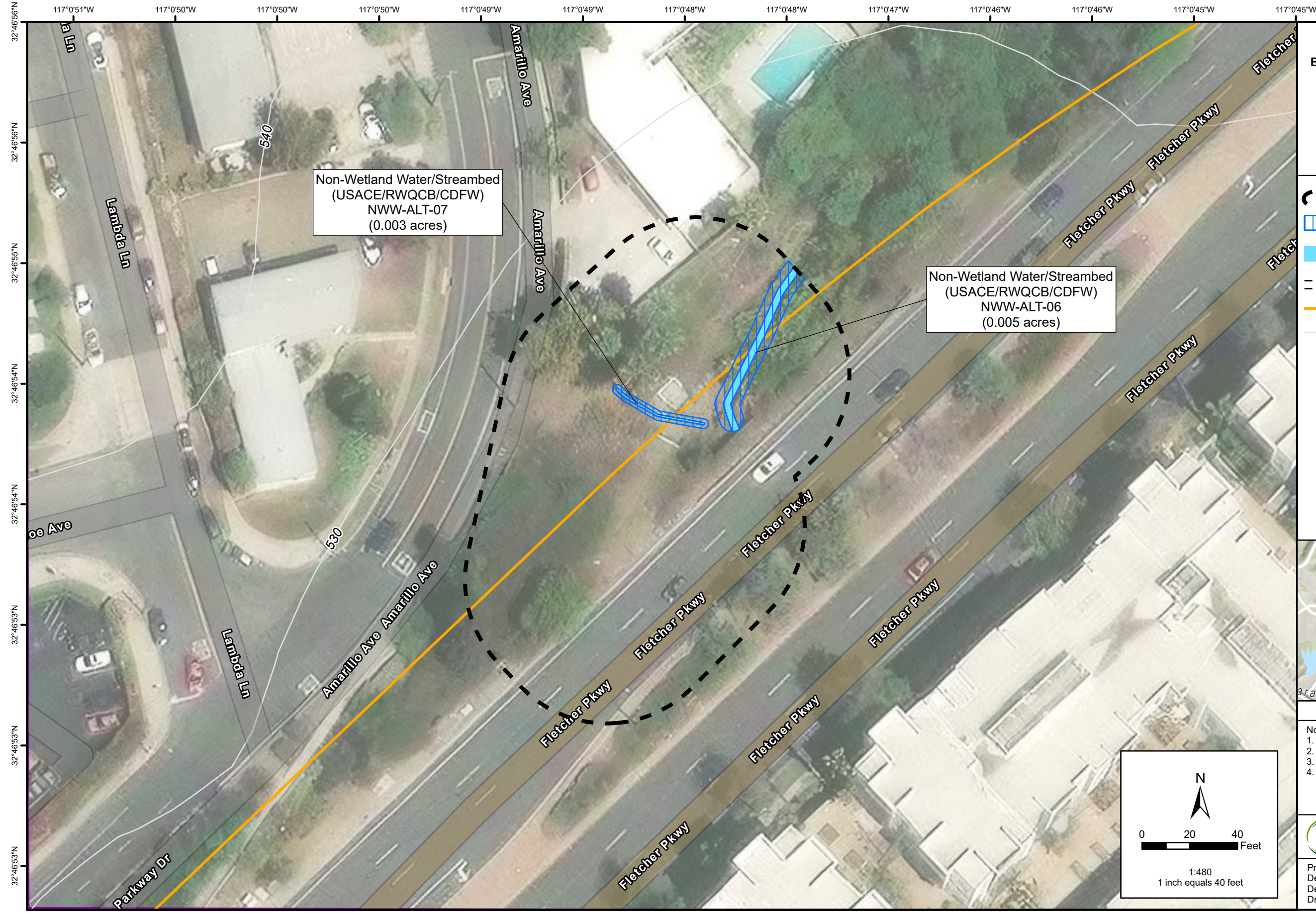
Prepared by: Kleinfelder Group  
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Non-Wetland Water/Streambed  
(RWQCB/CDFW)  
NWW-ALT-05  
(0.002 acres)

Non-Wetland Water/Streambed  
(USACE/RWQCB/CDFW)  
NWW-ALT-04  
(0.021 acres)

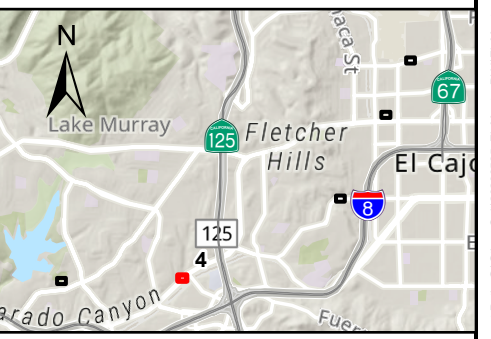
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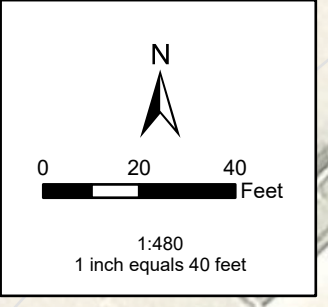
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NWW-ALT-07  
(0.003 acres)

Non-Wetland Water/Streambed  
(USACE/RWQCB/CDFW)  
NWW-ALT-06  
(0.005 acres)

- Work Area 50-foot Buffer
- Jurisdictional Delineation
- Non-Wetland Water/Streambed (USACE/RWQCB/CDFW)
- Access Path
- Pipeline
- 10-foot Contour



- Notes:
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



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Delineation Survey Date: 10/28/2025  
Drawn By: Dominika Moore

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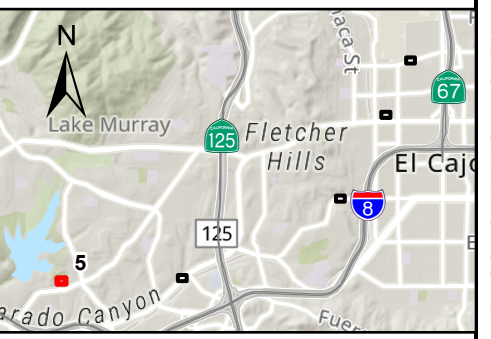
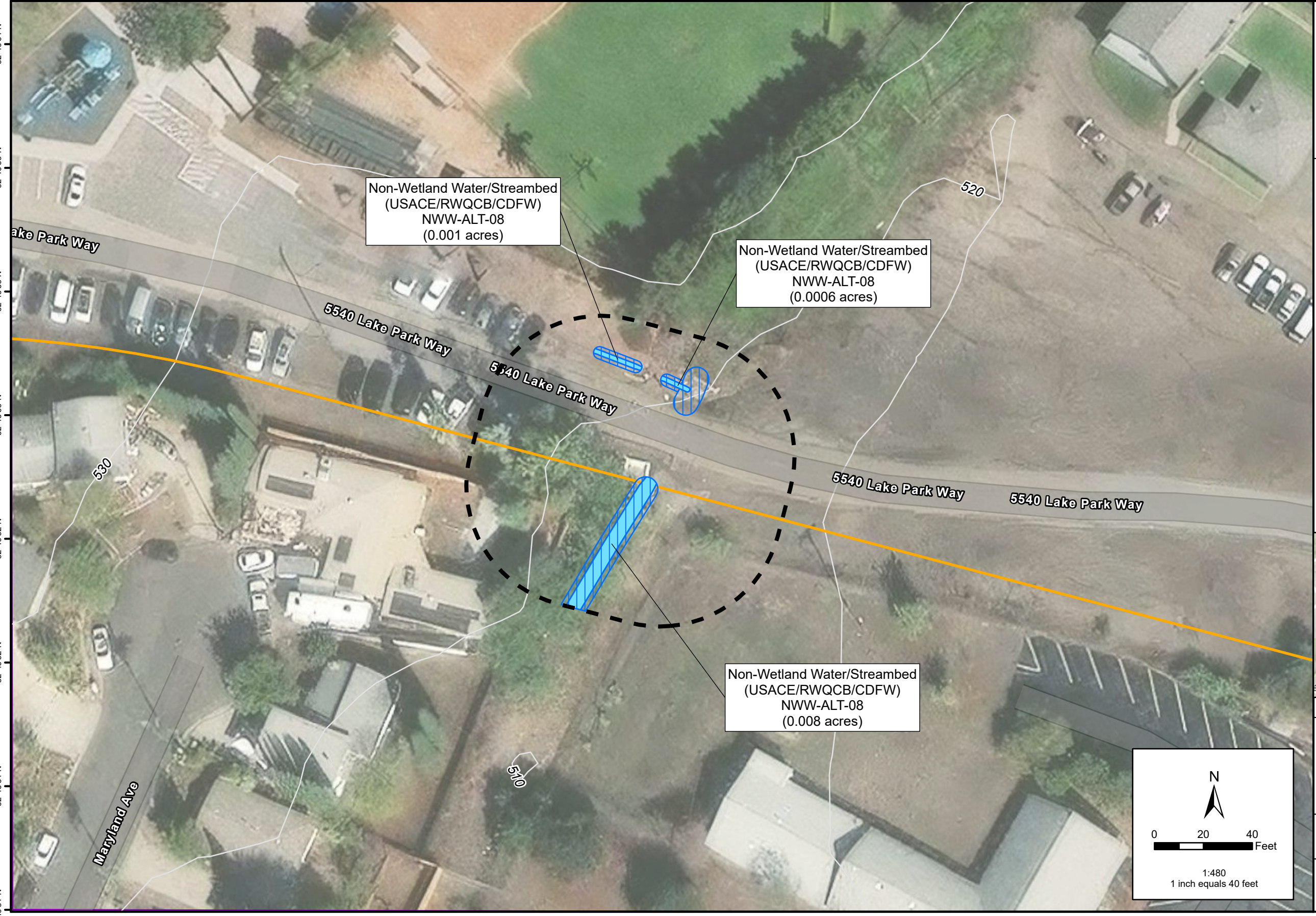
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-  Work Area 50-foot Buffer
-  Jurisdictional Delineation
-  Non-Wetland Water/Streambed (USACE/RWQCB/CDFW)
-  Access Path
-  Pipeline
-  10-foot Contour

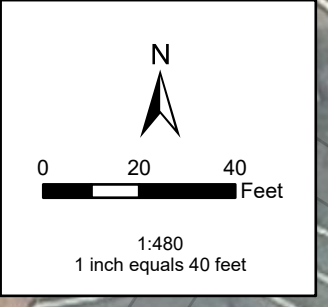
Non-Wetland Water/Streambed  
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NWW-ALT-08  
(0.001 acres)

Non-Wetland Water/Streambed  
(USACE/RWQCB/CDFW)  
NWW-ALT-08  
(0.0006 acres)

Non-Wetland Water/Streambed  
(USACE/RWQCB/CDFW)  
NWW-ALT-08  
(0.008 acres)



- Notes:
1. ESRI World Imagery (4/12/2025)
  2. Projection: UTM NAD 83 Z11N
  3. Vertical datum NAVD 88
  4. Topographic elevation in feet



**KLEINFELDER**  
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Prepared by: Kleinfelder Group  
Delineated by: DUDEK  
Delineation Survey Date: 10/28/2025  
Drawn By: Dominika Moore

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**APPENDIX B**  
**SOILS REPORT**

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United States  
Department of  
Agriculture

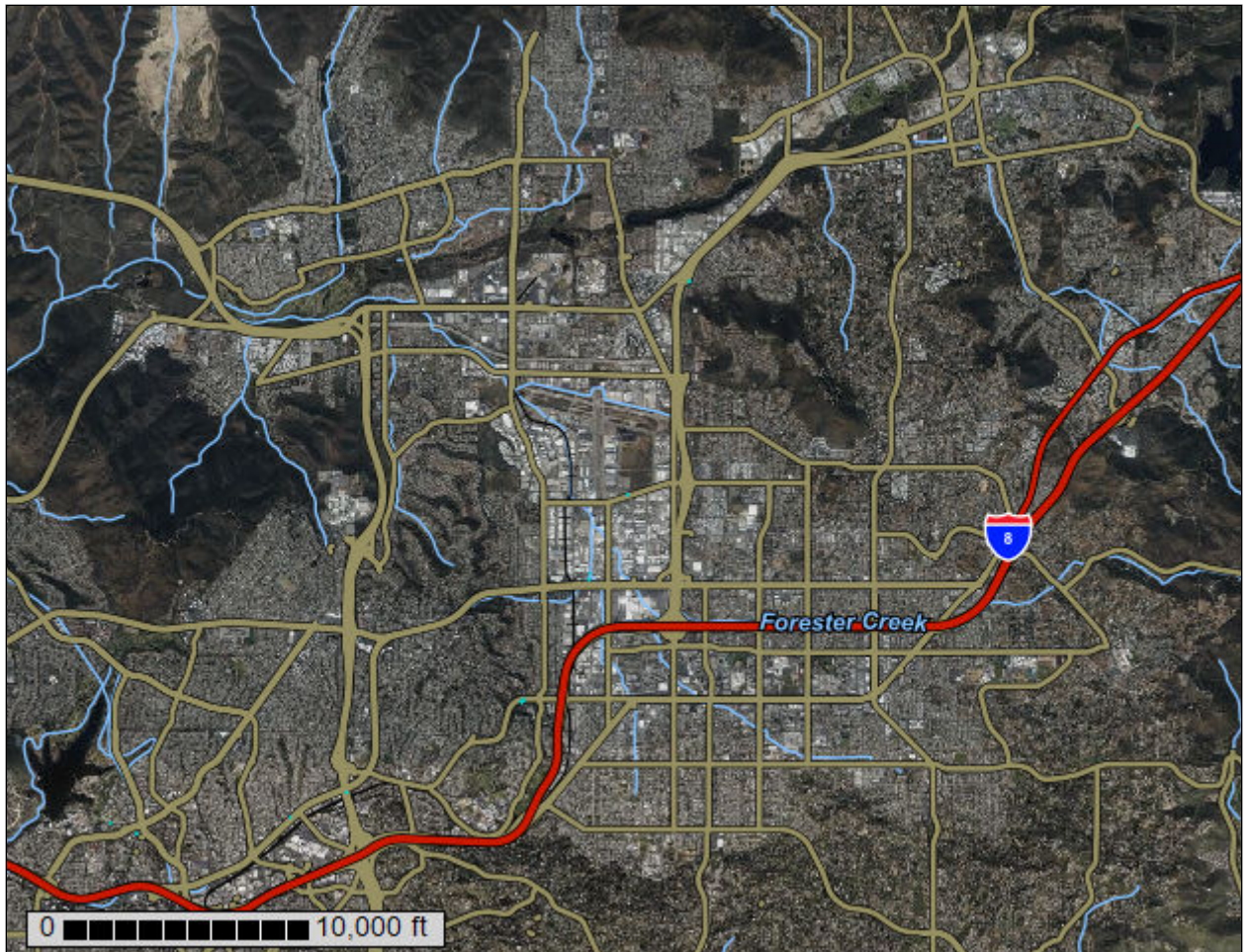
**NRCS**

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for San Diego County Area, California

## El Monte Water Transmission Pipeline Rehabilitation Project



# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

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Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

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scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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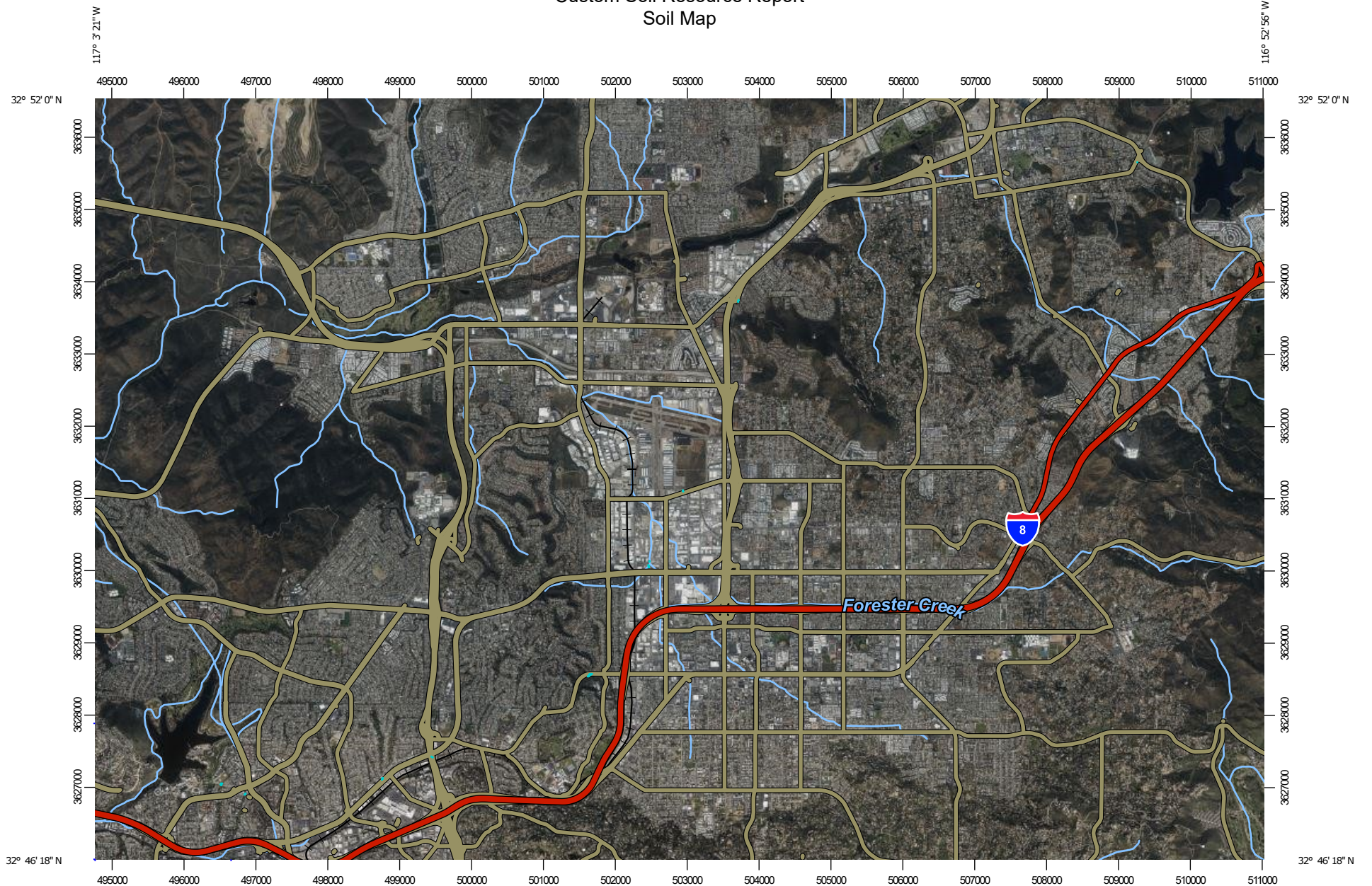
identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

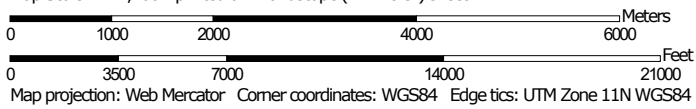
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The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

# Custom Soil Resource Report Soil Map




Map Scale: 1:74,400 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84


### MAP LEGEND


**Area of Interest (AOI)**

 Area of Interest (AOI)




















**Soils**







 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

**Special Point Features**






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


**Water Features**

 Streams and Canals

**Transportation**

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

**Background**

 Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California  
 Survey Area Data: Version 21, Sep 8, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 24, 2022—Sep 1, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DaC	Diablo clay, 2 to 9 percent slopes	0.1	20.9%
DcD	Diablo-Urban land complex, 5 to 15 percent slopes	0.1	18.7%
GrB	Greenfield sandy loam, 2 to 5 percent slopes	0.0	1.0%
PeC2	Placentia sandy loam, 5 to 9 percent slopes, eroded	0.0	0.3%
PfC	Placentia sandy loam, thick surface, 2 to 9 percent slopes	0.0	3.8%
RaB	Ramona sandy loam, 2 to 5 percent slopes	0.0	1.4%
RfF	Redding cobbly loam, dissected, 15 to 50 percent slopes	0.1	27.7%
RhC	Redding-Urban land complex, 2 to 9 percent slopes	0.1	14.0%
RhE	Redding-Urban land complex, 9 to 30 percent slopes	0.1	11.1%
Rm	Riverwash	0.0	0.9%
<b>Totals for Area of Interest</b>		<b>0.5</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a

## Custom Soil Resource Report

particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

## Custom Soil Resource Report

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## San Diego County Area, California

### DaC—Diablo clay, 2 to 9 percent slopes

#### Map Unit Setting

*National map unit symbol:* hbb8

*Elevation:* 30 to 3,000 feet

*Mean annual precipitation:* 12 to 35 inches

*Mean annual air temperature:* 57 to 61 degrees F

*Frost-free period:* 200 to 320 days

*Farmland classification:* Farmland of statewide importance

#### Map Unit Composition

*Diablo and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Diablo

##### Setting

*Landform:* Hillslopes

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Calcareous sandstone and shale

##### Typical profile

*H1 - 0 to 15 inches:* clay

*H2 - 15 to 32 inches:* clay

*H3 - 32 to 36 inches:* weathered bedrock

##### Properties and qualities

*Slope:* 2 to 9 percent

*Depth to restrictive feature:* 24 to 40 inches to paralithic bedrock

*Drainage class:* Well drained

*Runoff class:* Very high

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 10 percent

*Available water supply, 0 to 60 inches:* Low (about 5.0 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 3e

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* D

*Ecological site:* F019XG913CA - Loamy Hills <30"ppt

*Hydric soil rating:* No

#### Minor Components

##### Altamont

*Percent of map unit:* 10 percent

## Custom Soil Resource Report

*Hydric soil rating:* No

### **Linne**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

### **Olivenhain**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

## **DcD—Diablo-Urban land complex, 5 to 15 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* hbbf

*Elevation:* 30 to 3,000 feet

*Mean annual precipitation:* 12 to 35 inches

*Mean annual air temperature:* 57 to 61 degrees F

*Frost-free period:* 200 to 320 days

*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Diablo and similar soils:* 50 percent

*Urban land:* 30 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Diablo**

#### **Setting**

*Landform:* Hillslopes

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Calcareous sandstone and shale

#### **Typical profile**

*H1 - 0 to 15 inches:* clay

*H2 - 15 to 32 inches:* clay

*H3 - 32 to 36 inches:* weathered bedrock

#### **Properties and qualities**

*Slope:* 5 to 15 percent

*Depth to restrictive feature:* 24 to 40 inches to paralithic bedrock

*Drainage class:* Well drained

*Runoff class:* Very high

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 10 percent

## Custom Soil Resource Report

*Available water supply, 0 to 60 inches:* Low (about 5.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* D

*Ecological site:* F019XG913CA - Loamy Hills <30"ppt

*Hydric soil rating:* No

### Description of Urban Land

#### Typical profile

*H1 - 0 to 6 inches:* variable

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 8

*Hydrologic Soil Group:* D

*Hydric soil rating:* No

## GrB—Greenfield sandy loam, 2 to 5 percent slopes

### Map Unit Setting

*National map unit symbol:* hbcb

*Elevation:* 100 to 1,500 feet

*Mean annual precipitation:* 10 to 16 inches

*Mean annual air temperature:* 63 degrees F

*Frost-free period:* 200 to 300 days

*Farmland classification:* Prime farmland if irrigated

### Map Unit Composition

*Greenfield and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Greenfield

#### Setting

*Landform:* Alluvial fans

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Riser

*Down-slope shape:* Linear

*Across-slope shape:* Convex

*Parent material:* Alluvium derived from granite

#### Typical profile

*H1 - 0 to 6 inches:* sandy loam

*H2 - 6 to 34 inches:* sandy loam

*H3 - 34 to 66 inches:* stratified loamy coarse sand to sandy loam

#### Properties and qualities

*Slope:* 2 to 5 percent

## Custom Soil Resource Report

*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Very low  
*Capacity of the most limiting layer to transmit water (Ksat):* High (1.98 to 5.95 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Moderate (about 6.7 inches)

### Interpretive groups

*Land capability classification (irrigated):* 2e  
*Land capability classification (nonirrigated):* 3e  
*Hydrologic Soil Group:* A  
*Ecological site:* R019XG911CA - Loamy Fan  
*Hydric soil rating:* No

### Minor Components

#### Visalia

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Ramona

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Tujunga

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

## PeC2—Placentia sandy loam, 5 to 9 percent slopes, eroded

### Map Unit Setting

*National map unit symbol:* hbfk  
*Elevation:* 50 to 2,500 feet  
*Mean annual precipitation:* 12 to 18 inches  
*Mean annual air temperature:* 63 to 64 degrees F  
*Frost-free period:* 200 to 300 days  
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Placentia and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Placentia

#### Setting

*Landform:* Alluvial fans  
*Landform position (two-dimensional):* Toeslope

## Custom Soil Resource Report

*Landform position (three-dimensional):* Base slope, rise  
*Down-slope shape:* Linear  
*Across-slope shape:* Convex  
*Parent material:* Alluvium derived from granite

### Typical profile

*H1 - 0 to 10 inches:* sandy loam  
*H2 - 10 to 32 inches:* sandy clay  
*H3 - 32 to 63 inches:* clay loam

### Properties and qualities

*Slope:* 5 to 9 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Moderately well drained  
*Runoff class:* Very high  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)  
*Sodium adsorption ratio, maximum:* 25.0  
*Available water supply, 0 to 60 inches:* Low (about 4.9 inches)

### Interpretive groups

*Land capability classification (irrigated):* 4e  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* D  
*Ecological site:* R019XD061CA - CLAYPAN  
*Hydric soil rating:* No

### Minor Components

#### Bonsall

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Fallbrook

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Ramona

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Unnamed, ponded

*Percent of map unit:* 1 percent  
*Landform:* Depressions  
*Hydric soil rating:* Yes

## **PfC—Placentia sandy loam, thick surface, 2 to 9 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* hbfn

*Elevation:* 50 to 2,500 feet

*Mean annual precipitation:* 12 to 18 inches

*Mean annual air temperature:* 61 to 63 degrees F

*Frost-free period:* 200 to 300 days

*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Placentia and similar soils:* 85 percent

*Minor components:* 11 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Placentia**

#### **Setting**

*Landform:* Alluvial fans

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Base slope, rise

*Down-slope shape:* Linear

*Across-slope shape:* Convex

*Parent material:* Alluvium derived from granite

#### **Typical profile**

*H1 - 0 to 13 inches:* sandy loam

*H2 - 13 to 34 inches:* clay

#### **Properties and qualities**

*Slope:* 2 to 9 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Runoff class:* Very high

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)

*Sodium adsorption ratio, maximum:* 25.0

*Available water supply, 0 to 60 inches:* Very low (about 2.7 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* 3e

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* D

*Ecological site:* R019XD061CA - CLAYPAN

*Hydric soil rating:* No

**Minor Components**

**Bonsall**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

**Ramona**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

**Unnamed, ponded**

*Percent of map unit: 1 percent*  
*Landform: Depressions*  
*Hydric soil rating: Yes*

**RaB—Ramona sandy loam, 2 to 5 percent slopes**

**Map Unit Setting**

*National map unit symbol: hbfr*  
*Elevation: 250 to 3,500 feet*  
*Mean annual precipitation: 10 to 20 inches*  
*Mean annual air temperature: 63 degrees F*  
*Frost-free period: 230 to 320 days*  
*Farmland classification: Prime farmland if irrigated*

**Map Unit Composition**

*Ramona and similar soils: 85 percent*  
*Minor components: 15 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Ramona**

**Setting**

*Landform: Alluvial fans*  
*Landform position (two-dimensional): Toeslope*  
*Landform position (three-dimensional): Base slope, rise*  
*Down-slope shape: Linear*  
*Across-slope shape: Convex*  
*Parent material: Alluvium derived from granite*

**Typical profile**

*H1 - 0 to 17 inches: sandy loam*  
*H2 - 17 to 60 inches: sandy clay loam*  
*H3 - 60 to 74 inches: fine sandy loam*

**Properties and qualities**

*Slope: 2 to 5 percent*  
*Depth to restrictive feature: More than 80 inches*  
*Drainage class: Well drained*  
*Runoff class: Medium*

## Custom Soil Resource Report

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Moderate (about 8.5 inches)

### Interpretive groups

*Land capability classification (irrigated):* 2e

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* C

*Ecological site:* R019XG911CA - Loamy Fan

*Hydric soil rating:* No

### Minor Components

#### Greenfield

*Percent of map unit:* 10 percent

*Hydric soil rating:* No

#### Plecentia

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

## RfF—Redding cobbly loam, dissected, 15 to 50 percent slopes

### Map Unit Setting

*National map unit symbol:* hbg0

*Elevation:* 130 to 1,000 feet

*Mean annual precipitation:* 14 to 25 inches

*Mean annual air temperature:* 61 to 63 degrees F

*Frost-free period:* 260 to 280 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Redding and similar soils:* 85 percent

*Minor components:* 10 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Redding

#### Setting

*Landform:* Terraces

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Riser

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Alluvium derived from mixed sources

#### Typical profile

*H1 - 0 to 10 inches:* cobbly loam

## Custom Soil Resource Report

*H2 - 10 to 20 inches: cobbly clay*

*H3 - 20 to 30 inches: indurated*

### Properties and qualities

*Slope: 15 to 50 percent*

*Depth to restrictive feature: More than 80 inches; 20 to 40 inches to duripan*

*Drainage class: Well drained*

*Runoff class: Very high*

*Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Available water supply, 0 to 60 inches: Very low (about 1.2 inches)*

### Interpretive groups

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 7e*

*Hydrologic Soil Group: D*

*Ecological site: R019XD062CA - ACID CLAYPAN*

*Hydric soil rating: No*

### Minor Components

#### Oliventain

*Percent of map unit: 10 percent*

*Hydric soil rating: No*

## RhC—Redding-Urban land complex, 2 to 9 percent slopes

### Map Unit Setting

*National map unit symbol: hbg1*

*Elevation: 100 to 1,500 feet*

*Mean annual precipitation: 14 to 25 inches*

*Mean annual air temperature: 61 to 63 degrees F*

*Frost-free period: 230 to 320 days*

*Farmland classification: Not prime farmland*

### Map Unit Composition

*Redding and similar soils: 50 percent*

*Urban land: 30 percent*

*Minor components: 5 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Redding

#### Setting

*Landform: Marine terraces*

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Parent material: Alluvium derived from mixed sources*

## Custom Soil Resource Report

### Typical profile

*H1 - 0 to 15 inches:* gravelly loam  
*H2 - 15 to 30 inches:* gravelly clay  
*H3 - 30 to 45 inches:* indurated

### Properties and qualities

*Slope:* 2 to 9 percent  
*Depth to restrictive feature:* More than 80 inches; 20 to 45 inches to duripan  
*Drainage class:* Well drained  
*Runoff class:* Very high  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Very low (about 1.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* 6e  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* D  
*Ecological site:* R019XG909CA - Terrace  
*Hydric soil rating:* No

## Description of Urban Land

### Typical profile

*H1 - 0 to 6 inches:* variable

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8  
*Hydrologic Soil Group:* D  
*Hydric soil rating:* No

## Minor Components

### Oliventain

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

## RhE—Redding-Urban land complex, 9 to 30 percent slopes

### Map Unit Setting

*National map unit symbol:* hbg2  
*Elevation:* 100 to 1,500 feet  
*Mean annual precipitation:* 14 to 25 inches  
*Mean annual air temperature:* 61 to 63 degrees F  
*Frost-free period:* 230 to 320 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Redding and similar soils: 50 percent*

*Urban land: 30 percent*

*Minor components: 5 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Redding**

**Setting**

*Landform: Marine terraces*

*Down-slope shape: Concave*

*Across-slope shape: Linear*

*Parent material: Alluvium derived from mixed sources*

**Typical profile**

*H1 - 0 to 15 inches: gravelly loam*

*H2 - 15 to 30 inches: gravelly clay*

*H3 - 30 to 45 inches: indurated*

**Properties and qualities**

*Slope: 9 to 30 percent*

*Depth to restrictive feature: More than 80 inches; 20 to 40 inches to duripan*

*Drainage class: Well drained*

*Runoff class: Very high*

*Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Available water supply, 0 to 60 inches: Very low (about 1.8 inches)*

**Interpretive groups**

*Land capability classification (irrigated): 6e*

*Land capability classification (nonirrigated): 6e*

*Hydrologic Soil Group: D*

*Ecological site: R019XG909CA - Terrace*

*Hydric soil rating: No*

**Description of Urban Land**

**Typical profile**

*H1 - 0 to 6 inches: variable*

**Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 8*

*Hydrologic Soil Group: D*

*Hydric soil rating: No*

**Minor Components**

**Oliventain**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

## Rm—Riverwash

### Map Unit Setting

*National map unit symbol:* 2zwsk  
*Elevation:* 700 to 2,900 feet  
*Mean annual precipitation:* 8 to 15 inches  
*Mean annual air temperature:* 46 to 52 degrees F  
*Frost-free period:* 110 to 180 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Riverwash:* 100 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Riverwash

#### Setting

*Landform:* Drainageways  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Parent material:* Sandy, gravelly, or cobbly alluvium derived from mixed sources

#### Typical profile

*A - 0 to 6 inches:* gravelly coarse sand  
*C - 6 to 60 inches:* stratified very gravelly coarse sand to gravelly sand

#### Properties and qualities

*Slope:* 0 to 4 percent  
*Drainage class:* Excessively drained  
*Runoff class:* Negligible  
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (5.95 to 19.98 in/hr)  
*Depth to water table:* About 60 to 72 inches  
*Frequency of flooding:* Occasional  
*Available water supply, 0 to 60 inches:* Very low (about 1.9 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8  
*Ecological site:* R019XG905CA - Riparian

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## Custom Soil Resource Report

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United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053624](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624)

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**APPENDIX C**

**AQUATIC RESOURCES DELINEATION FIELD DATA FORMS**

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U.S. Army Corps of Engineers (USACE)

**RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET**

OMB Control No. 0710-XXXX

Approval Expires:

The proponent agency is Headquarters USACE CECW-CO-R.

Project ID #:

Site Name:

NWW-ALT-01

Date and Time:

Location (lat/long):

345+20/345+20

Investigator(s):

**Step 1** Site overview from remote and online resources  
Check boxes for online resources used to evaluate site:

- gage data     LiDAR     geologic maps  
 climatic data     satellite imagery     land use maps  
 aerial photos     topographic maps     Other: \_\_\_\_\_

**Describe land use and flow conditions from online resources.**  
Were there any recent extreme events (floods or drought)?

Ditch/canal w/ standing water + saturation

**Step 2** Site conditions during field assessment

First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

Appears to be constructed in upland. Water source unknown  
Earthen w/ disturbed natural veg**Step 3** Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below 'b', at 'x', or just above 'a' the OHWM.

OHWM. Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

**Geomorphic indicators**

- Break in slope:     
 on the bank:     
 undercut bank:     
 valley bottom:     
 Other: \_\_\_\_\_

 **Shelving:**

- shelf at top of bank:  
 natural levee:  
 man-made berms or levees:  
 other berms: \_\_\_\_\_

 **Channel bar:**

- shelving (berms) on bar:  
 unvegetated:  
 vegetation transition (go to veg. indicators)  
 sediment transition (go to sed. indicators)  
 upper limit of deposition on bar:

 **Instream bedforms and other bedload transport evidence:**

- deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)  
 bedforms (e.g., poofs, riffles, steps, etc.):  
 erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)

 **Secondary channels:****Sediment indicators**

- Soil development:  
 Changes in character of soil:  
 Mudcracks:  
 Changes in particle-sized distribution:  
 transition from \_\_\_\_\_ to \_\_\_\_\_  
 upper limit of sand-sized particles  
 silt deposits:

**Vegetation Indicators**

- Change in vegetation type and/or density:  
 Check the appropriate boxes and select the general vegetation change (e.g., graminoids to woody shrubs). Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.  
 vegetation absent to: *graminoids/forbs*  
 moss to:  
 forbs to:  
 graminoids to:  
 woody shrubs to:  
 deciduous trees to:  
 coniferous trees to:  
 Vegetation matted down and/or bent:  
 Exposed roots below intact soil layer:

**Ancillary indicators**

- Wracking/presence of organic litter:  
 Presence of large wood:  
 Leaf litter disturbed or washed away:  
 Water staining:  
 Weathered clasts or bedrock:

**Other observed indicators?**

Describe:

**Step 4** Is additional information needed to support this determination? Yes  No

If yes, describe and attach information to datasheet:

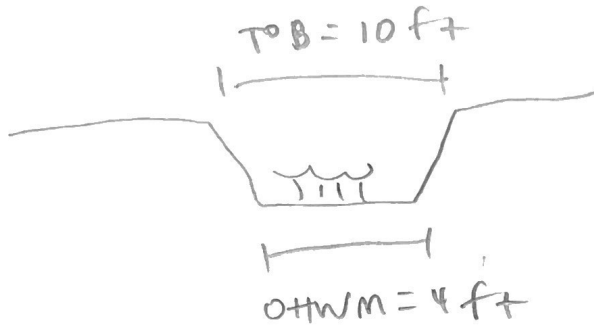
Project ID #: \_\_\_\_\_

Step 5 Describe rationale for location of OHWM

clearly defined bed + bank, change in veg, saturation.

Additional observations or notes

disturbed/  
NNG



Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached?  Yes  No If no, explain why not: \_\_\_\_\_

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
	see photo appendix T-01

U.S. Army Corps of Engineers (USACE)
RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

OMB Control No. 0710-XXXX
Approval Expires:

The proponent agency is Headquarters USACE CECW-CO-R.

Project ID #: El Monte Pipeline

Site Name: NWW-ALT-02

Date and Time: 10/28/25

Location (lat/long): 345+20/345+20

Investigator(s):

- Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:
gage data, climatic data, aerial photos, LIDAR, satellite imagery, topographic maps, geologic maps, land use maps, Other:

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?
concrete-lined channel w/ flowing water. Surrounded by urban/dev. R45BCx

Step 2 Site conditions during field assessment
First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.
channelized portion of forester creek

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below 'b', at 'x', or just above 'a' the OHWM.
OHWM. Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

- Geomorphic indicators
Break in slope: on the bank, undercut bank, valley bottom, Other:
Shelving: shelf at top of bank, natural levee, man-made berms or levees, other berms:
Channel bar: shelving (berms) on bar, unvegetated, vegetation transition, sediment transition, upper limit of deposition on bar:
Instream bedforms and other bedload transport evidence: deposition bedload indicators, bedforms, erosional bedload indicators
Secondary channels:

- Sediment indicators
Soil development:
Changes in character of soil:
Mudcracks:
Changes in particle-sized distribution: transition from to, upper limit of sand-sized particles, silt deposits:

- Vegetation Indicators
Change in vegetation type and/or density: Check the appropriate boxes and select the general vegetation change (e.g., graminoids to woody shrubs). Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.
vegetation absent to: moss to: forbs to: graminoids to: woody shrubs to: deciduous trees to: coniferous trees to:
Vegetation matted down and/or bent:
Exposed roots below intact soil layer:

- Ancillary indicators
Wracking/presence of organic litter:
Presence of large wood:
Leaf litter disturbed or washed away:
Water staining:
Weathered clasts or bedrock:

Other observed indicators?
Describe:

Step 4 Is additional information needed to support this determination?
Yes No
If yes, describe and attach information to datasheet:



# U.S. Army Corps of Engineers (USACE) RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

OMB Control No. 0710-XXXX  
Approval Expires:

The proponent agency is Headquarters USACE CECW-CO-R.

Project ID #:

Site Name: **NWW-ALT-03**

Date and Time:

Location (lat/long):

**40+29 / 40+29**

Investigator(s):

### Step 1 Site overview from remote and online resources Check boxes for online resources used to evaluate site:

- gage data
- LiDAR
- geologic maps
- climatic data
- satellite imagery
- land use maps
- aerial photos
- topographic maps
- Other: \_\_\_\_\_

### Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

**ditch/canal**  
**R4SBC**

### Step 2 Site conditions during field assessment

First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

**Appears to be constructed in upland but mapped by NWI as natural drainage flowing east into Lake Jennings. Farther**

### Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

**OHWM is at a transition point**, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below 'b', at 'x', or just above 'a' the OHWM.

**OHWM.** Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

#### Geomorphic indicators

- Break in slope: ▼
- on the bank: X ▼
- undercut bank: ▼
- valley bottom: ▼
- Other: \_\_\_\_\_
- Shelving:
  - shelf at top of bank:
  - natural levee:
  - man-made berms or levees:
  - other berms: \_\_\_\_\_
- Channel bar:
  - shelving (berms) on bar:
  - unvegetated:
  - vegetation transition (go to veg. indicators)
  - sediment transition (go to sed. indicators)
  - upper limit of deposition on bar:
- Instream bedforms and other bedload transport evidence:
  - deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)
  - bedforms (e.g., poofs, riffles, steps, etc.):
  - erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)
- Secondary channels:

#### Sediment indicators

- Soil development:
- Changes in character of soil:
- Mudcracks:
- Changes in particle-sized distribution:
  - transition from \_\_\_\_\_ to \_\_\_\_\_
  - upper limit of sand-sized particles
  - silt deposits:

#### Vegetation Indicators

- Change in vegetation type and/or density:
 

Check the appropriate boxes and select the general vegetation change (e.g., graminoids to woody shrubs). Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.

  - vegetation absent to: **graminoids/forbs**
  - moss to:
  - forbs to:
  - graminoids to:
  - woody shrubs to:
  - deciduous trees to:
  - coniferous trees to:
  - Vegetation matted down and/or bent:
  - Exposed roots below intact soil layer:

#### Ancillary indicators

- Wracking/presence of organic litter:
- Presence of large wood:
- Leaf litter disturbed or washed away:
- Water staining:
- Weathered clasts or bedrock:

#### Other observed indicators?

Describe:

### Step 4 Is additional information needed to support this determination?

Yes  No

If yes, describe and attach information to datasheet:



**U.S. Army Corps of Engineers (USACE)**  
**RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET**  
 The proponent agency is Headquarters USACE CECW-CO-R.

OMB Control No. 0710-XXXX  
 Approval Expires:

Project ID #: \_\_\_\_\_ Site Name: NWW-ALT-04 Date and Time: \_\_\_\_\_

Location (lat/long): 439+20/439+17 Investigator(s): \_\_\_\_\_

- Step 1** Site overview from remote and online resources  
**Check boxes for online resources used to evaluate site:**
- gage data     LiDAR     geologic maps  
 climatic data     satellite imagery     land use maps  
 aerial photos     topographic maps     Other: \_\_\_\_\_

**Describe land use and flow conditions from online resources.**  
 Were there any recent extreme events (floods or drought)?

*Dry at time of survey  
 SDAM = intermittent*

**Step 2** Site conditions during field assessment  
 First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

*Drainage has in-stream bank stabilization grids for erosion control.  
 Receives flows from 2 erosional features and ephemeral channel.*

**Step 3** Check the boxes next to the indicators used to identify the location of the OHWM.  
**OHWM is at a transition point**, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below 'b', at 'x', or just above 'a' the OHWM.  
**OHWM.** Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators	Sediment indicators	Ancillary indicators
<input checked="" type="checkbox"/> Break in slope: <span style="float:right">▼</span> <input checked="" type="checkbox"/> on the bank: <span style="float:right">X ▼</span> <input type="checkbox"/> undercut bank: <span style="float:right">▼</span> <input type="checkbox"/> valley bottom: <span style="float:right">▼</span> <input type="checkbox"/> Other: _____  <input checked="" type="checkbox"/> Shelving: <input checked="" type="checkbox"/> shelf at top of bank: <input type="checkbox"/> natural levee: <input type="checkbox"/> man-made berms or levees: <input type="checkbox"/> other berms: _____  <input checked="" type="checkbox"/> Channel bar: <input checked="" type="checkbox"/> shelving (berms) on bar: <input type="checkbox"/> unvegetated: <input type="checkbox"/> vegetation transition (go to veg. indicators) <input type="checkbox"/> sediment transition (go to sed. indicators) <input type="checkbox"/> upper limit of deposition on bar:  <input type="checkbox"/> Instream bedforms and other bedload transport evidence: deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.) <input type="checkbox"/> <input type="checkbox"/> bedforms (e.g., poofs, riffles, steps, etc.): <input type="checkbox"/> <input checked="" type="checkbox"/> erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)  <input type="checkbox"/> Secondary channels:	<input type="checkbox"/> Soil development: <input type="checkbox"/> Changes in character of soil: <input type="checkbox"/> Mudcracks: <input checked="" type="checkbox"/> Changes in particle-sized distribution: <input type="checkbox"/> transition from <u>silt</u> to <u>cobble</u> <input type="checkbox"/> upper limit of sand-sized particles <input type="checkbox"/> silt deposits:  <b>Vegetation Indicators</b> <input checked="" type="checkbox"/> Change in vegetation type and/or density: Check the appropriate boxes and select the general vegetation change (e.g., graminoids to woody shrubs). Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.  <input checked="" type="checkbox"/> vegetation absent to: <u>riparian</u> <input type="checkbox"/> moss to: <input type="checkbox"/> forbs to: <input type="checkbox"/> graminoids to: <input type="checkbox"/> woody shrubs to: <input type="checkbox"/> deciduous trees to: <input type="checkbox"/> coniferous trees to: <input type="checkbox"/> Vegetation matted down and/or bent: <input type="checkbox"/> Exposed roots below intact soil layer:	<input type="checkbox"/> Wracking/presence of organic litter: <input type="checkbox"/> Presence of large wood: <input type="checkbox"/> Leaf litter disturbed or washed away: <input type="checkbox"/> Water staining: <input type="checkbox"/> Weathered clasts or bedrock:  <b>Other observed indicators?</b>  <b>Describe:</b>          <b>Step 4</b> Is additional information needed to support this determination? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  If yes, describe and attach information to datasheet:



**U.S. Army Corps of Engineers (USACE)**  
**RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET**

OMB Control No. 0710-XXXX

Approval Expires:

The proponent agency is Headquarters USACE CECW-CO-R.

Project ID #: \_\_\_\_\_ Site Name: NW W-ALT-06 Date and Time: \_\_\_\_\_

Location (lat/long): 555+79 / 555+76 Investigator(s): \_\_\_\_\_

**Step 1** Site overview from remote and online resources  
**Check boxes for online resources used to evaluate site:**

gage data     LiDAR     geologic maps  
 climatic data     satellite imagery     land use maps  
 aerial photos     topographic maps     Other: \_\_\_\_\_

**Describe land use and flow conditions from online resources.**  
 Were there any recent extreme events (floods or drought)?  
flowing water at time of survey

**Step 2** Site conditions during field assessment  
 First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.  
perennial channel flows from NE to SW across site. supports non-native riparian corridor and emergent vegetation

**Step 3** Check the boxes next to the indicators used to identify the location of the OHWM.  
**OHWM is at a transition point**, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below 'b', at 'x', or just above 'a' the OHWM.  
**OHWM.** Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators	Sediment indicators	Ancillary indicators
<input checked="" type="checkbox"/> Break in slope: <input type="checkbox"/> <input checked="" type="checkbox"/> on the bank: <input checked="" type="checkbox"/> <input type="checkbox"/> undercut bank: <input type="checkbox"/> <input type="checkbox"/> valley bottom: <input type="checkbox"/> <input type="checkbox"/> Other: _____	<input type="checkbox"/> Soil development: _____ <input type="checkbox"/> Changes in character of soil: _____ <input type="checkbox"/> Mudcracks: _____ <input checked="" type="checkbox"/> Changes in particle-sized distribution: <u>silt to cobble</u> <input type="checkbox"/> transition from _____ to _____ <input type="checkbox"/> upper limit of sand-sized particles _____ <input type="checkbox"/> silt deposits: _____	<input type="checkbox"/> Wracking/presence of organic litter: _____ <input type="checkbox"/> Presence of large wood: _____ <input type="checkbox"/> Leaf litter disturbed or washed away: _____ <input type="checkbox"/> Water staining: _____ <input type="checkbox"/> Weathered clasts or bedrock: _____
<input checked="" type="checkbox"/> Shelving: <input type="checkbox"/> <input checked="" type="checkbox"/> shelf at top of bank: _____ <input type="checkbox"/> natural levee: _____ <input type="checkbox"/> man-made berms or levees: _____ <input type="checkbox"/> other berms: _____	<b>Vegetation Indicators</b> <input checked="" type="checkbox"/> Change in vegetation type and/or density: Check the appropriate boxes and select the general vegetation change (e.g., <i>graminoids to woody shrubs</i> ). <b>Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.</b> <input checked="" type="checkbox"/> vegetation absent to: <u>non-native riparian</u> <input type="checkbox"/> moss to: _____ <input type="checkbox"/> forbs to: _____ <input type="checkbox"/> graminoids to: _____ <input type="checkbox"/> woody shrubs to: _____ <input type="checkbox"/> deciduous trees to: _____ <input type="checkbox"/> coniferous trees to: _____	<b>Other observed indicators?</b> Describe: _____
<input type="checkbox"/> Channel bar: <input type="checkbox"/> <input type="checkbox"/> shelving (berms) on bar: _____ <input type="checkbox"/> unvegetated: _____ <input type="checkbox"/> vegetation transition (go to veg. indicators) <input type="checkbox"/> sediment transition (go to sed. indicators) <input type="checkbox"/> upper limit of deposition on bar: _____	<input type="checkbox"/> Vegetation matted down and/or bent: _____ <input checked="" type="checkbox"/> Exposed roots below intact soil layer: _____	<b>Step 4</b> Is additional information needed to support this determination? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe and attach information to datasheet: _____
<input checked="" type="checkbox"/> Instream bedforms and other bedload transport evidence: <input checked="" type="checkbox"/> deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.) <input type="checkbox"/> bedforms (e.g., poofs, riffles, steps, etc.): _____ <input type="checkbox"/> erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)		
<input type="checkbox"/> Secondary channels: _____		



## U.S. Army Corps of Engineers (USACE)

## RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

OMB Control No. 0710-XXXX

Approval Expires:

The proponent agency is Headquarters USACE CECW-CO-R.

Project ID #: E Monte Pipeline Site Name: NWW-ALT-08 Date and Time: 10/28/25Location (lat/long): 644+21/644+18 Investigator(s): Anna Touchstone**Step 1** Site overview from remote and online resources**Check boxes for online resources used to evaluate site:**

- gage data     LiDAR     geologic maps  
 climatic data     satellite imagery     land use maps  
 aerial photos     topographic maps     Other: \_\_\_\_\_

**Describe land use and flow conditions from online resources.**

Were there any recent extreme events (floods or drought)?

intermittent channel**Step 2** Site conditions during field assessment

First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

channel originates off-site to the north and flows through concrete culverts. Some standing water and saturation.

**Step 3** Check the boxes next to the indicators used to identify the location of the OHWM.

**OHWM is at a transition point**, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below 'b', at 'x', or just above 'a' the OHWM.

**OHWM.** Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

**Geomorphic indicators**

- Break in slope:**     
 on the bank:   
 undercut bank:    
 valley bottom:   
 Other: \_\_\_\_\_

 **Shelving:**

- shelf at top of bank:  
 natural levee:  
 man-made berms or levees:  
 other  
berms: \_\_\_\_\_

 **Channel bar:**

- shelving (berms) on bar:  
 unvegetated:  
 vegetation transition  
(go to veg. indicators)  
 sediment transition  
(go to sed. indicators)  
 upper limit of deposition  
on bar:

 **Instream bedforms and other bedload transport evidence:**

- deposition bedload indicators  
(e.g., imbricated clasts,  
gravel sheets, etc.)  
 bedforms (e.g., poofs,  
riffls, steps, etc.):  
 erosional bedload indicators  
(e.g., obstacle marks, scour,  
smoothing, etc.)

 **Secondary channels:****Sediment indicators**

- Soil development:  
 Changes in character of soil:  
 Mudcracks:  
 Changes in particle-sized  
distribution:  
 transition from silt to cobble  
 upper limit of sand-sized particles  
 silt deposits:

**Vegetation Indicators**

- Change in vegetation type  
and/or density:**  
Check the appropriate boxes and select  
the general vegetation change (e.g.,  
graminoids to woody shrubs). **Describe  
the vegetation transition looking from  
the middle of the channel, up the  
banks, and into the floodplain.**
- vegetation absent to: disturbed riparian  
 moss to:  
 forbs to:  
 graminoids to:  
 woody  
shrubs to:  
 deciduous  
trees to:  
 coniferous  
trees to:  
 Vegetation matted down  
and/or bent:  
 Exposed roots below  
intact soil layer:

**Ancillary indicators**

- Wracking/presence of  
organic litter:  
 Presence of large wood:  
 Leaf litter disturbed or  
washed away:  
 Water staining:  
 Weathered clasts or bedrock:

**Other observed indicators?****Describe:****Step 4** Is additional information needed to support this determination?

Yes     No

If yes, describe and attach information to datasheet:



# Web application for the Regional Streamflow Duration Assessment Methods (SDAMs)

Version 3.0.1<<https://github.com/usepa/sdam-web-app>> Release date: October 2025

**Supporting SDAM materials including user manuals, field assessment forms, training videos and more**

<<https://www.epa.gov/streamflow-duration-assessment/materials-support-application-regional-sdams>>

**This web application is an analysis tool; it does not store data. After 60 minutes, the tool will timeout and all data will have to be re-entered.**

## Step 1 Step 1 Document reach location and select regional SDAM

***Enter coordinates in decimal degrees to determine if the site is in a SDAM study area***

**Latitude**

**Longitude**



**Assess reach location**

## **SDAM Region: Arid West**

**Enter Model Data**

### **Step 2 Enter field measurements for all indicators**

## **Arid West SDAM**

### **Indicators**

#### ***Perennial indicator taxa***

- No perennial indicator taxa detected
- 1 to 4 perennial indicator individuals
- 5 to 9 perennial indicator individuals
- 10 to 19 perennial indicator individuals
- 20 or more perennial indicator individuals

#### ***Slope (to the nearest half-percent)***

%

**Number of hydrophytic plant species**

- 0
- 1
- 2
- 3
- 4
- Greater than or equal to 5

**Prevalence of upland rooted plants in streambed**

**Upland rooted plants include FAC, FACU, UPL, NI, or not listed in the regionally appropriate National Wetland Plant List.**

- 0 (Poor) Rooted upland plants are prevalent within the streambed/thalweg.
- 0.5
- 1 (Weak) Rooted upland plants are consistently dispersed throughout the streambed/thalweg.
- 1.5
- 2 (Moderate) There are a few rooted upland plants present within the streambed/thalweg.
- 2.5
- 3 (Strong) Rooted upland plants are absent from the streambed/thalweg.

**Algal cover**

- Not detected
- <2%
- 2-10%
- 10-40%
- >40%

- Check here if algae exclusively appears to have been deposited from an upstream source, and no local growth is evident.**

### ***Differences in vegetation***

- 0 (Poor) No compositional or density differences in vegetation are present between the banks and the adjacent uplands.
- 0.5
- 1 (Weak) Vegetation growing along the reach may occur in greater densities or grow more vigorously than vegetation in the adjacent uplands, but there are no dramatic compositional differences between the two.
- 1.5
- 2 (Moderate) A distinct riparian corridor exists along part of the reach. Riparian vegetation is interspersed with upland vegetation along the length of the reach.
- 2.5
- 3 (Strong) Dramatic compositional differences in vegetation are present between the banks and the adjacent uplands. A distinct riparian vegetation corridor exists along the entire reach. Riparian, aquatic, or wetland species dominate the length of the reach.

### ***Riffle-pool sequence score***

- 0 (Poor) No riffle-pool sequences observed.
- 0.5
- 1 (Weak) Mostly has areas of pools or riffles.
- 1.5
- 2 (Moderate) Represented by a less frequent number of riffles and pools. Distinguishing the transition between riffles and pools is difficult to observe.
- 2.5

- 3 (Strong) Demonstrated by a frequent number of structural transitions (e.g., riffles followed by pools) along the entire reach. There is an obvious transition between riffles and pools.

**Enter the number of bankfull width measurements (m) (min. 1, max. 3) and associated measurement values to the nearest 0.1 m**

# 1

**bankfull width measurement 1**

1.5

**Mean bankfull width (m): 1.5**

**Run model**

**This reach is classified as:  
INTERMITTENT**

### Step 3 (optional) Enter additional information and generate a report (no information saved or stored)

## Arid West SDAM Report

\* Maximum file upload size is 30MB

Enter information about the assessment. Indicators required for classification are filled in from entries above

### General information



**Project Name or Number:**

**Site Code or Identifier:**

**Assessor(s):**

**Waterway Name:**

**Visit Date:**

**Current Weather Conditions (check one):**

- Storm/Heavy Rain
- Steady Rain
- Intermittent Rain
- Snowing

- Cloudy
- Clear/Sunny

**Notes on current or recent weather conditions:****Surrounding land-use within 100 m****(check one or two):**

- Urban, industrial, or residential
- Agricultural
- Developed open-space (e.g., golf course, parks, lawn grasses)
- Forested
- Other Natural
- Other

**Comments on observed land-use:****Assessment reach length (m):****Describe reach boundaries:****Disturbed or difficult conditions (check all that apply):**

- Recent flood or debris flow

- Stream modifications (e.g., channelization)
- Diversions
- Water discharges
- Drought
- Vegetation removal/limitations
- Other (explain in notes)
- None

**Site disturbances/difficulties:**

## Observed hydrology

**Percent of reach with surface flows:****Percent of reach with surface and sub-surface flows:****Number of isolated pools:****Comments on observed hydrology:**

---

## Site photos

**Top of reach looking downstream:**

Browse...	No file selected
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**Middle of reach looking upstream:**

Browse...	No file selected
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**Middle of reach looking downstream:**

Browse...	No file selected
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**Bottom of reach looking upstream:**

Browse...	No file selected
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## Site sketch

**Site Sketch:**

Browse...	No file selected
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# Indicators

## Mean bankfull channel width

### Notes on mean bankfull channel width:

### Mean bankfull width photo #1

Upload photo file here:

Browse...	No file selected
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Mean bankfull width photo #1 caption:

### Mean bankfull width photo #2

Upload photo file here:

Browse...	No file selected
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Mean bankfull width photo #2 caption:

### Mean bankfull width photo #3

Upload photo file here:

Browse...	No file selected
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Mean bankfull width photo #3 caption:

**Aquatic macroinvertebrates**

Check if applicable:

No aquatic macroinvertebrates in assessment area

**Notes about aquatic macroinvertebrates:**

**Macroinvertebrate photo #1**

Upload photo file here:

Browse...	No file selected
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Macroinvertebrate photo #1 caption:

**Macroinvertebrate photo #2**

Upload photo file here:

Browse...	No file selected
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Macroinvertebrate photo #2 caption:

**Macroinvertebrate photo #3**

Upload photo file here:

Browse...	No file selected
-----------	------------------

Macroinvertebrate photo #3 caption:

**Macroinvertebrate photo #4**

Upload photo file here:

Browse...	No file selected
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Macroinvertebrate photo #4 caption:

**Macroinvertebrate photo #5**

Upload photo file here:

Browse...	No file selected
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Macroinvertebrate photo #5 caption:

**Macroinvertebrate photo #6**

Upload photo file here:

Browse...	No file selected
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Macroinvertebrate photo #6 caption:

**Slope**

**Notes about slope:**

**Slope photo #1**

Upload photo file here:

Browse...	No file selected
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Slope photo #1 caption:

**Slope photo #2**

Upload photo file here:

Browse...	No file selected
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Slope photo #2 caption:

**Slope photo #3**

Upload photo file here:

Browse...	No file selected
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Slope photo #3 caption:

**Hydrophytic plants**

Check if applicable:

 No vegetation in assessment area**Notes about hydrophytic vegetation (e.g., list species here or in photo captions and note odd distributions):**

**Hydrophyte photo #1**

Upload photo file here:

Browse...	No file selected
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Hydrophyte photo #1 caption:

**Hydrophyte photo #2**

Upload photo file here:

Browse...	No file selected
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Hydrophyte photo #2 caption:

**Hydrophyte photo #3**

Upload photo file here:

Browse...	No file selected
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Hydrophyte photo #3 caption:

**Hydrophyte photo #4**

Upload photo file here:

Browse...	No file selected
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Hydrophyte photo #4 caption:

**Hydrophyte photo #5**

Upload photo file here:

Browse...	No file selected
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Hydrophyte photo #5 caption:

**Hydrophyte photo #6**

Upload photo file here:

Browse...	No file selected
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Hydrophyte photo #6 caption:

**Prevalence of upland rooted plants in streambed**

**Notes about upland rooted plants:**

**Upland rooted plant photo #1**

Upload photo file here:

Browse...	No file selected
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Upland rooted plant photo #1 caption:

**Upland rooted plant photo #2**

Upload photo file here:

Browse...	No file selected
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Upland rooted plant photo #2 caption:

**Upland rooted plant photo #3**

Upload photo file here:

Browse...	No file selected
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Upland rooted plant photo #3 caption:

**Algal cover**

**Notes about algal cover:**

**Algae photo #1**

Upload photo file here:

Browse...	No file selected
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Algae photo #1 caption:

**Algae photo #2**

Upload photo file here:

Browse...	No file selected
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Algae photo #2 caption:

**Algae photo #3**

Upload photo file here:

Browse...	No file selected
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Algae photo #3 caption:

**Differences in vegetation**

**Notes about differences in vegetation:**

**Vegetation difference photo #1**

Upload photo file here:

Browse...	No file selected
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Vegetation difference photo #1 caption:

**Vegetation difference photo #2**

Upload photo file here:

Browse...	No file selected
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Vegetation difference photo #2 caption:

**Vegetation difference photo #3**

Upload photo file here:

Browse...	No file selected
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Vegetation difference photo #3 caption:

**Riffle-pool sequence**

**Notes about the riffle-pool sequence:**

**Riffle-pool photo #1**

Upload photo file here:

Browse...	No file selected
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Riffle-pool photo #1 caption:

**Riffle-pool photo #2**

Upload photo file here:

Browse...	No file selected
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Riffle-pool photo #2 caption:

**Riffle-pool photo #3**

Upload photo file here:

Browse...	No file selected
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Riffle-pool photo #3 caption:

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## Supplemental information

Note if assessment was also conducted on different dates, historical photo interpretation, etc

**Additional notes about the assessment:**

---

### Additional photos

**Additional photo #1**

Upload photo file here:

Browse...	No file selected
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Additional photo #1 caption:

**Additional photo #2**

Upload photo file here:

Browse...	No file selected
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Additional photo #2 caption:

**Additional photo #3**

Upload photo file here:

Browse...	No file selected
-----------	------------------

Additional photo #3 caption:

**Additional photo #4**

Upload photo file here:

Browse...	No file selected
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Additional photo #4 caption:

 <b>Generate report</b>
--

Contact Us <<https://www.epa.gov/home/forms/send-request-technical-support>> to ask a question, provide feedback, or report a problem.



# Arid West Streamflow Duration Assessment Method

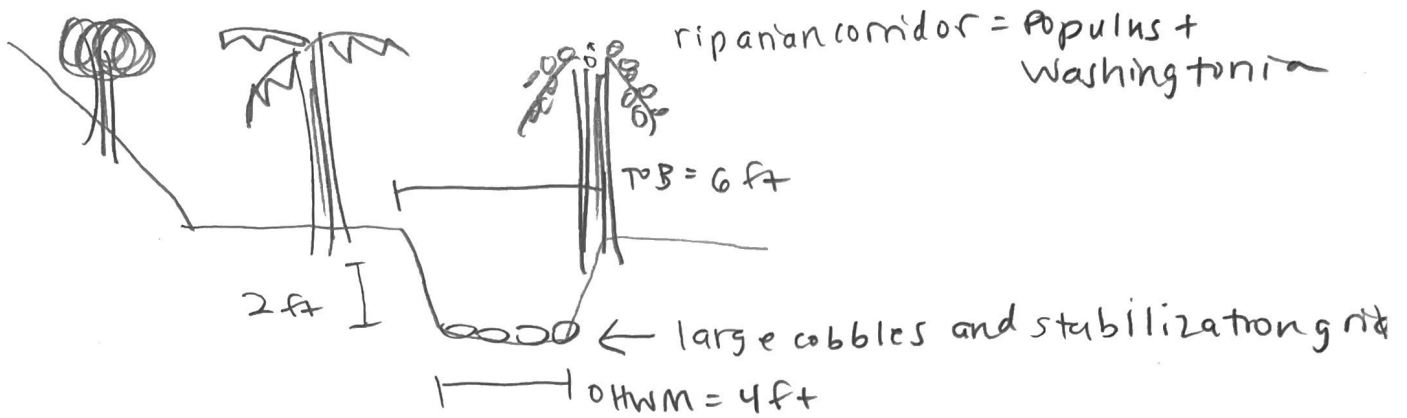
## General site information

Project name or number: El Monte Pipeline		
Site code or identifier: 439+20/439+17	Assessor(s): Anna Touchstone	
Waterway name: NWW-ALT-07	Visit date: 10/28/25	
Current weather conditions (check one): <input type="checkbox"/> Storm/heavy rain <input type="checkbox"/> Steady rain <input type="checkbox"/> Intermittent rain <input type="checkbox"/> Snowing <input type="checkbox"/> Cloudy (___ % cover) <input checked="" type="checkbox"/> Clear/sunny	Notes on current or recent weather conditions (e.g., precipitation in prior week):	Coordinates at downstream end (decimal degrees): Lat (N): 32.7949173 Long (E): -116.9820468 Datum: WGS 84
Surrounding land-use within 100 m (check one or two): <input checked="" type="checkbox"/> Urban/industrial/residential <input type="checkbox"/> Agricultural (farmland, crops, vineyards, pasture) <input type="checkbox"/> Developed open-space (e.g., golf course) <input type="checkbox"/> Forested <input checked="" type="checkbox"/> Other natural <input type="checkbox"/> Other: _____	Describe reach boundaries: Reach is dry within renew area. Recieves stormwater flows from side channel and erosional feature	
Mean bankfull channel width (m): <u>1.5</u> (Indicator 1)	Reach length (m): <u>70m</u> 40x width min 40 m max 200 m	Site photographs: Enter photo ID or check if completed. Top down: <input checked="" type="checkbox"/> Mid down: <input checked="" type="checkbox"/> Mid up: <input checked="" type="checkbox"/> Bottom up: <input checked="" type="checkbox"/>
Disturbed or difficult conditions (check all that apply): <input type="checkbox"/> Recent flood or debris flow <input type="checkbox"/> Stream modifications (e.g., channelization) <input type="checkbox"/> Diversions <input type="checkbox"/> Discharges <input type="checkbox"/> Drought <input type="checkbox"/> Vegetation removal/limitations <input type="checkbox"/> Other (explain in notes) <input type="checkbox"/> None Notes on disturbances or difficult site conditions: . in-stream bank stabilization grids . unhoused encampment		
Observed hydrology: <input type="radio"/> % of reach with surface flow <input type="radio"/> % of reach with sub-surface or surface flow <input type="radio"/> # of isolated pools	Comments on observed hydrology: OHWM indicators included shelving, sediment sorting, exposed roots, bed+bank, break in slope, change in veg cover/composition	



Site sketch:

Looking west



1. Mean bankfull channel width (m) (nearest 0.1 m, copy from first page of field form)

1.5

Notes about mean bankfull channel width:

TOB = ~ 3 m

2. Aquatic macroinvertebrates: Abundance of perennial indicator taxa

Collect aquatic macroinvertebrates from at least 6 locations in the assessment reach, searching all suitable habitats on the streambed (including dry habitats, if present). Determine total abundance of individuals in perennial indicator families listed below, such that no one family counts for more than 11 individuals in the total.

Ephemeroptera	Plecoptera	Trichoptera	Coleoptera
Ephemerellidae (spiny crawler mayflies)	Chloroperlidae (green stoneflies)	Brachycentridae (humpless casemakers)	Elmidae (riffle beetles)
Heptageniidae (flathead mayflies)	Perlidae (common stoneflies)	Glossosomatidae (saddle casemakers)	
Leptohyphidae (little stout crawler mayflies)		Hydropsychidae (common net-spinners)	
Leptophlebiidae (prong-gilled mayflies)		Rhyacophilidae (free-living caddisflies)	

Mark the appropriate box for the number of perennial indicator individuals observed.

- No perennial indicator taxa detected
- 1 to 4 perennial indicator individuals
- 5 to 9 perennial indicator individuals
- 10 to 19 perennial indicator individuals
- 20 or more perennial indicator individuals

Check if applicable:  No aquatic macroinvertebrates in assessment area

Notes on perennial indicator taxa:

**3. Slope**

Using a clinometer or other device, record the slope as a percent, up to the nearest half-percent.

approx 1.5 %

Notes about slope:

**4. Number of hydrophytic plant species**

Record up to 6 hydrophytic plant species (FACW or OBL in the appropriate regional wetland plant list, depending on location) within the assessment area: **within the channel or up to one half-channel width outside the channel**. Explain in notes if species has an odd distribution (e.g., one individual or small patch, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID or check if photos are taken.

2 Number of hydrophytic plant species identified from the assessment reach without odd distribution. Enter zero if none were found.

Check if applicable:  No vegetation in assessment area

Species	Odd distribution?	Notes	Photo ID
Populus fremontii			
Washingtonia filifera			

Notes on hydrophytic vegetation:

**5. Prevalence of rooted upland plants in the streambed**

<p><u>2.5</u> (0-3)</p> <p>Half-scores (0.5, 1.5, and 2.5) are allowed.</p>	<p>Evaluate the prevalence of rooted upland plants (i.e., plants rated as FAC, FACU, UPL, NI, or not listed in the regionally appropriate National Wetland Plant List) in the streambed.</p> <p>0 (Poor) Rooted upland plants are <i>prevalent</i> within the streambed/thalweg.                  1 (Weak) Rooted upland plants are <i>consistently dispersed</i> throughout the streambed/thalweg.                  2 (Moderate) There are <i>a few</i> rooted upland plants present within the streambed/thalweg.                  3 (Strong) Rooted upland plants are <i>absent</i> from the streambed/thalweg.</p>	
<b>Upland Species</b>	<b>Notes</b>	<b>Photo ID</b>
Schinus terebinthifolia		
Quercus agrifolia		
Acacia spp.		
Notes on rooted upland plants:		

**6. Algal cover**

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed.


- Not detected
- ≤2% cover
- 2 to 10% cover
- 10 to 40% cover
- >40% cover
- Check here if algae *exclusively* appears to have been deposited from an upstream source, and *no* local growth is evident.

Notes on algal cover on the streambed:

**7. Differences in vegetation**

<p><u>2</u> (0-3)</p> <p>Half-scores (0.5, 1.5, 2.5) are allowed.</p>	<p>Compare the composition and density of plants growing on the banks and riparian areas to plants in the adjacent uplands. For this indicator, an upland species is not defined by its wetland indicator status, but rather by its location relative to the channel.</p> <ul style="list-style-type: none"><li>0 (Poor) No compositional or density differences in vegetation are present between the banks and the adjacent uplands.</li><li>1 (Weak) Vegetation growing along the reach may occur in greater densities or grow more vigorously than vegetation in the adjacent uplands, but there are no dramatic compositional differences between the two.</li><li>2 (Moderate) A distinct riparian corridor exists along part of the reach. Riparian vegetation is interspersed with upland vegetation along the length of the reach.</li><li>3 (Strong) Dramatic compositional differences in vegetation are present between the banks and the adjacent uplands. A distinct riparian vegetation corridor exists along the entire reach. Riparian, aquatic, or wetland species dominate the length of the reach.</li></ul>
<p>Notes on differences in vegetation:</p>	

**8. Riffle-pool sequence**

 <b>Ω (0-3)</b>  <i>Half-scores (0.5, 1.5, 2.5) are allowed.</i>	Evaluate the prevalence of riffles, pools, and other microhabitats in the streambed.
	0 (Poor) No riffle-pool sequences observed. 1 (Weak) Mostly has areas of pools or riffles. 2 (Moderate) Represented by a less frequent number of riffles and pools. Distinguishing the transition between riffles and pools is difficult to observe. 3 (Strong) Demonstrated by a frequent number of structural transitions (e.g., riffles followed by pools) along the entire reach. There is an obvious transition between riffles and pools.
Notes about riffle-pool sequence:	

**Photo log**

Indicate if any other photographs taken during the assessment:

Photo ID	Description
	see photo appendix

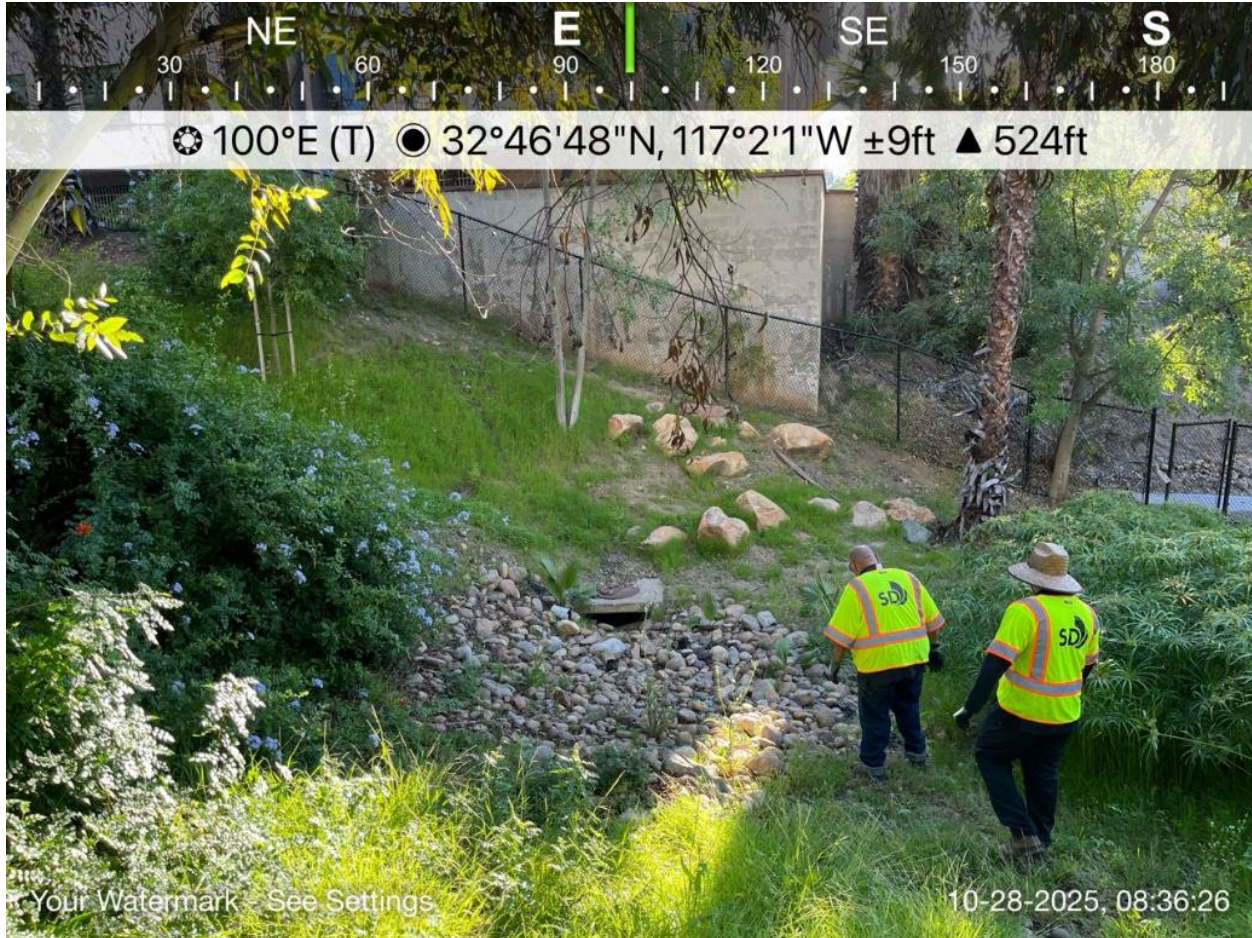
**Additional notes about the assessment:**

**Model classification:**

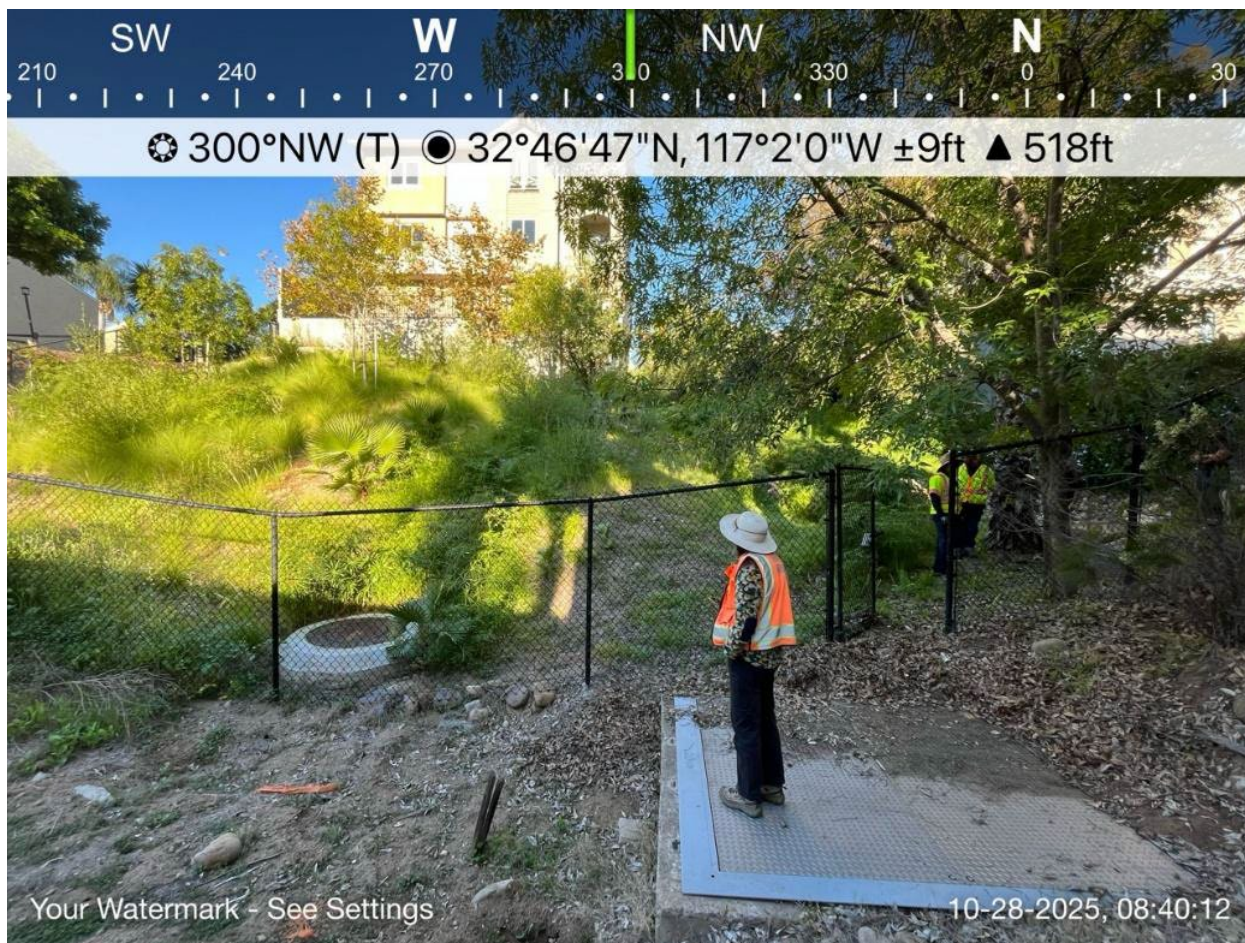
- |  |   |
|--|---|
| <input type="checkbox"/> Ephemeral               | <input type="checkbox"/> Less than perennial    |
| <input type="checkbox"/> At least intermittent   | <input type="checkbox"/> Perennial              |
| <input checked="" type="checkbox"/> Intermittent | <input type="checkbox"/> Needs more information |

**APPENDIX D**  
**PHOTOGRAPHS**

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**Photo 1.** Work Location 632+33 near WET-ALT-01, in a ravine between residential developments, which includes rock apparently installed to reduce erosion or to enhance aesthetics; facing east. October 28, 2025.



**Photo 2.** Work Location 632+33; showing improvement area and WET-ALT-01 in the background, facing west. October 28, 2025.



**Photo 3.** Work Location 345+20 and a view of NWW-ALT-01, a canal constructed between W Bradley Avenue and Floyd Smith Drive; facing southeast. October 28, 2025.



**Photo 4.** Work Location 380+15 and a view of NWW-ALT-02, a channelized waterway; facing west. October 28, 2025.



**Photo 5.** Work Location 380+15, facing south, away from NWW-ALT-02. October 28, 2025.



**Photo 6.** Work Location 382+78 and a view of NWW-ALT-02; facing north. October 28, 2025.



**Photo 7.** Work Location 382+78 and a view of NWW-ALT-02; facing east. October 28, 2025.



**Photo 8.** Adjacent to work location at 40+29, NWW-ALT-03 is a drainage feature with soil substrate. View facing southwest. October 28, 2025



**Photo 9.** Work Location 40+29, with NWW-ALT-03 behind the photographer. View facing west. October 28, 2025.



**Photo 10.** Work Location 439+20, NWW-ALT-04; view of culvert inlet that directs water from both NWW-ALT-04 and -05 into an underground stormwater system of pipes that are assumed to flow 0.75-miles to a channelized reach of Forester Creek; View facing east. October 28, 2025.



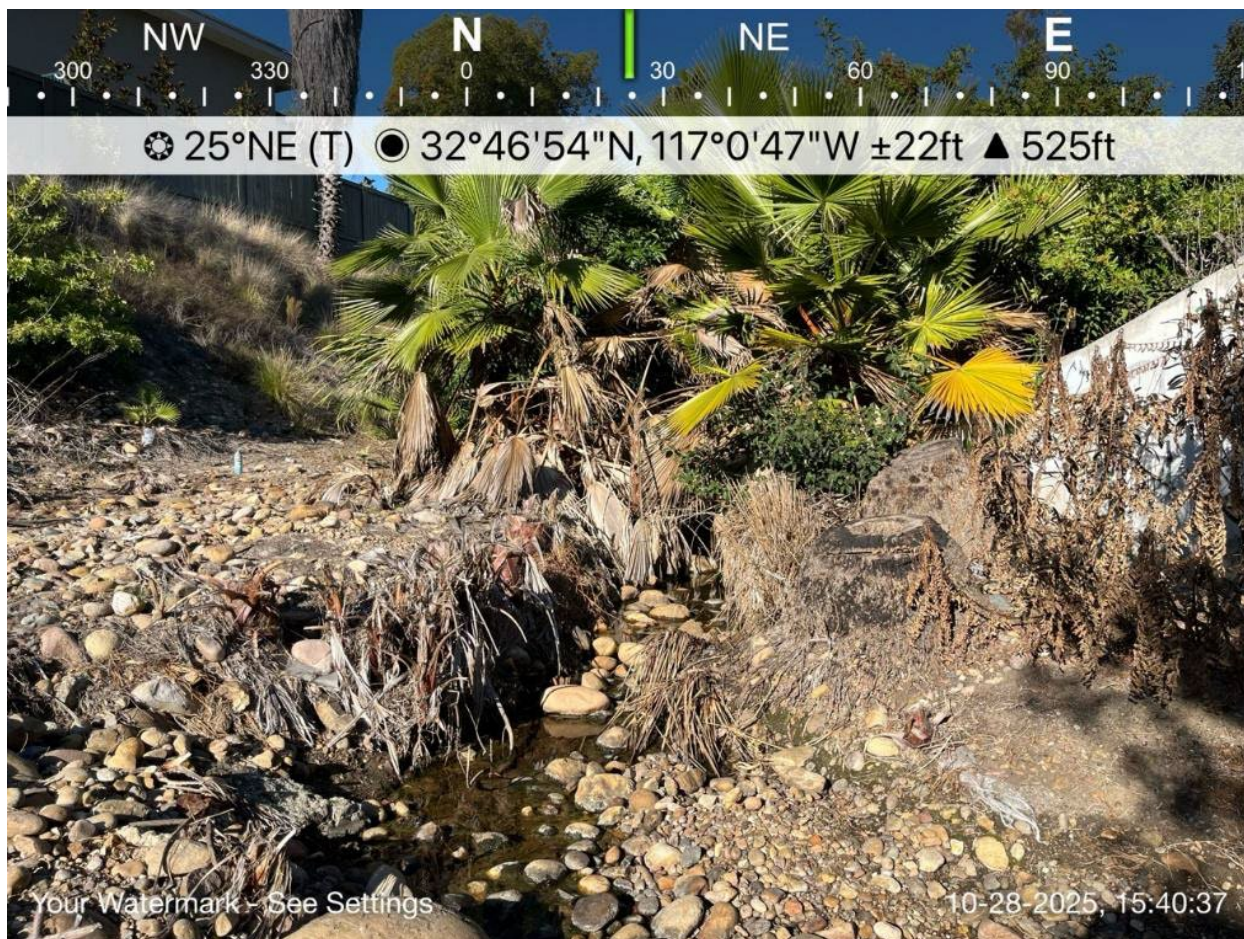
**Photo 11.** Work Location 439+20. Convergence of ephemeral channel NWW-ALT-04 and intermittent channel NWW-ALT-05; both provide surface flow connections to stormwater culverts. Note existing geogrid and rock installed to reduce erosion. View facing west. October 28, 2025.



**Photo 12.** Work Location 439+20. NWW-ALT-04 is an intermittent channel aligned along a hillside between a culvert outfall under West Main Street and another stormwater culvert (Photo 9). View facing west by southwest. October 28, 2025.



**Photo 13.** Work Location 439+20, NWW-ALT-05, an ephemeral channel aligned between culvert outfall under West Main Street and flowing toward NWW-ALT-04; facing north. October 28, 2025.



**Photo 14.** Work Location 555+79 is to the left of the photo of NWW-ALT-06, a channel associated with a culvert under Fletcher Parkway. View facing north. October 28, 2025.



**Photo 15.** Work Location 555+79 and NWW-ALT-07, an intermittent channel providing stormwater drainage from Parkway Drive toward Fletcher Parkway. View toward Fletcher Parkway of the headwall for culvert associated with features NWW-ALT-06 and -07 (Photo 13); facing east. October 28, 2025.



**Photo 16.** Work Location 644+21 and view of NWW-ALT-08; facing southeast. October 28, 2025.



**Photo 17.** Work Location 644+21 and view downstream of NWW-ALT-08, facing southwest. October 28, 2025.

**APPENDIX E**  
**AQUATIC RESOURCES DATA SPREADSHEET**

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Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
NWW-ALT-01	CALIFORNIA	R4	RIVERINE	Area	0.007	ACRE	DELIN.PJD-404	32.81789500	-116.96849500	
NWW-ALT-02	CALIFORNIA	R5	RIVERINE	Area	0.029	ACRE	DELIN.PJD-404	32.80842800	-116.97370300	
NWW-ALT-04	CALIFORNIA	R4	RIVERINE	Area	0.021	ACRE	DELIN.PJD-404	32.79478600	-116.98231700	
NWW-ALT-06	CALIFORNIA	R5	RIVERINE	Area	0.005	ACRE	DELIN.PJD-404	32.78185600	-117.01336100	
NWW-ALT-07	CALIFORNIA	R4	RIVERINE	Area	0.003	ACRE	DELIN.PJD-404	32.78176700	116.98204680	
NWW-ALT-08	CALIFORNIA	R4	RIVERINE	Area	0.0096	ACRE	DELIN.PJD-404	32.78108600	117.03716400	

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# **Appendix F**

## Photo Log





Photo 1. Work Location 0+00 to 4+50; facing north. October 28, 2025.



Photo 2. Work Location 0+00 to 4+50; facing east. October 28, 2025.



Photo 3. Work Location 0+00 to 4+50; facing south. October 28, 2025.



Photo 4. Work Location 0+00 to 4+50; facing west. October 28, 2025



Photo 5. Work Location 10+81, culvert; facing northwest. October 28, 2025.



Photo 6. Work Location 10+81; facing southeast. October 28, 2025.



Photo 7. Work Location 15+77; facing southeast. October 28, 2025.



Photo 8. Work Location 15+77; facing southwest. October 28, 2025.

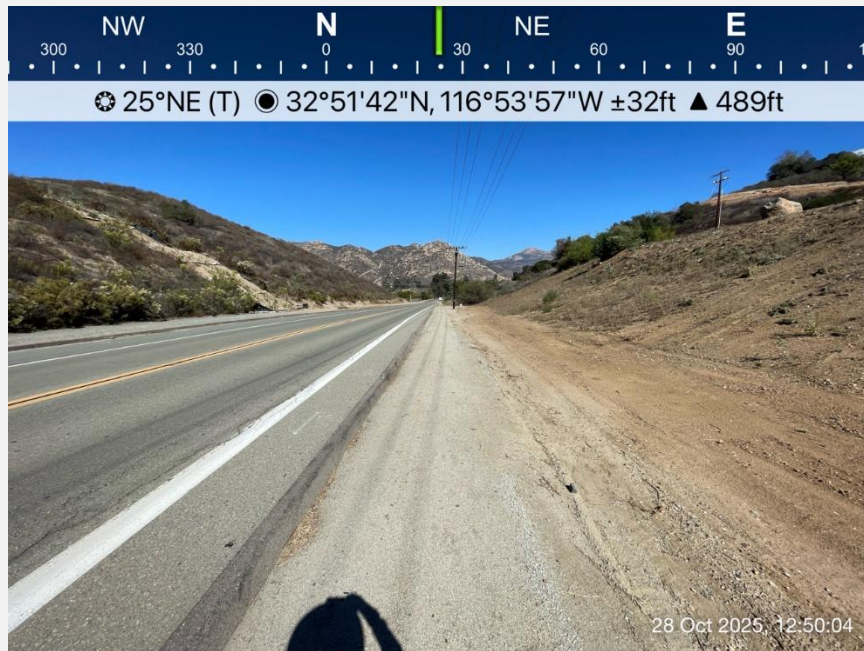


Photo 9. Work Location 28+42; facing north. October 28, 2025.



Photo 10. Work Location 28+42; facing east. October 28, 2025.



Photo 11. Work Location 31+03; facing south. October 28, 2025.



Photo 12. Work Location 40+29; facing east. October 28, 2025.



Photo 13. Work Location 40+29; facing west. October 28, 2025.



Photo 14. Work Location 40+29, view of T-03, taken across NWW-ALT-03, facing southwest. October 28, 2025.



Photo 15. Work Location 67+04; facing east. October 28, 2025.



Photo 16. Work Location 67+04; facing west. October 28, 2025.



Photo 17. Work Location 177+92, culvert; facing northwest. October 28, 2025.



Photo 18. Work Location 177+92, culvert; facing northeast. October 28, 2025.



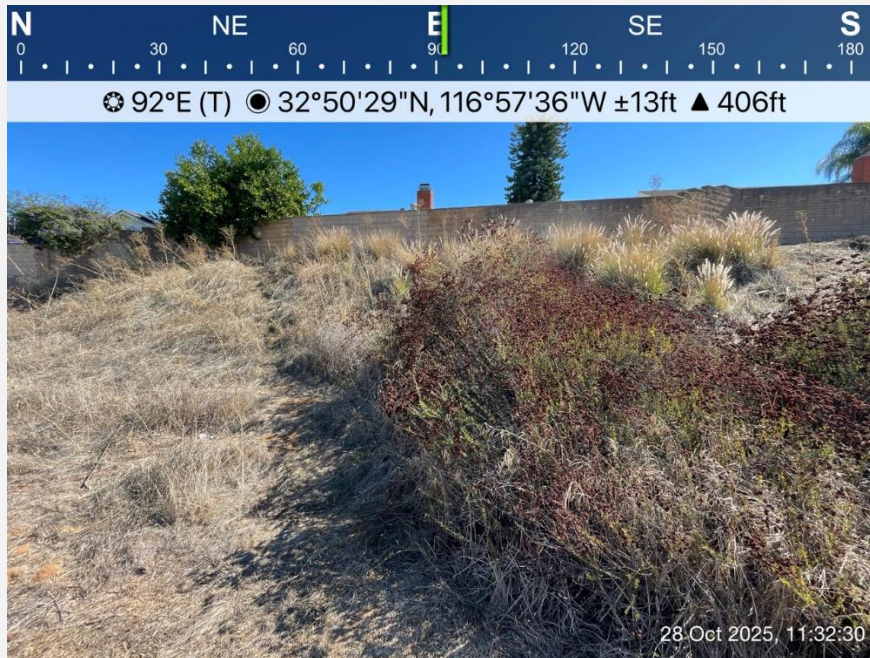
Photo 19. Work Location 187+30; facing east. October 28, 2025.



Photo 20. Work Location 187+30; facing southwest. October 28, 2025.



**Photo 21.** Work Location 254+20, view shows non-jurisdictional stormwater feature, facing north. October 28, 2025.



**Photo 22.** Work Location 254+20; facing east. October 28, 2025.



Photo 23. Work Location 254+20; facing west. October 28, 2025.



Photo 24. Work Location 267+37; facing west. October 28, 2025.



Photo 25. Work Location 267+37; facing north. October 28, 2025.



Photo 26. Work Location 322+52; facing north. October 28, 2025.



Photo 27. Work Location 322+52; facing south. October 28, 2025.



Photo 28. Work Location 335+83; facing north. October 28, 2025.



Photo 29. Work Location 335+83; facing south. October 28, 2025.



Photo 30. Work Location 345+20; facing east. October 28, 2025.



Photo 31. Work Location 345+20; facing west. October 28, 2025.



Photo 32. Work Location 345+20 view of T-01, taken across NWW-ALT-01; facing southeast. October 28, 2025.



Photo 33. Work Location 345+20, NWW-ALT-01; facing southeast. October 28, 2025.



Photo 34. Work Location 380+15, facing north. October 28, 2025.



Photo 35. Work Location 380+15, facing south. October 28, 2025.



Photo 36. Work Location 380+15, view of T-02, taken cross NWW-ALT-02; facing west. October 28, 2025.



Photo 37. Work Location 382+78, NWW-ALT-02; facing north. October 28, 2025.



Photo 38. Work Location 382+78, NWW-ALT-02; facing east. October 28, 2025.



Photo 39. Work Location 410+85; facing northeast. October 28, 2025.



Photo 40. Work Location 434+35; facing south. October 28, 2025.



**Photo 41.** Work Location 434+35; facing north. October 28, 2025.



**Photo 42.** Work Location 439+20; facing south. October 28, 2025.



**Photo 43.** Work Location 439+20; facing north. October 28, 2025.



**Photo 44.** Work Location 439+20, NWW-ALT-04; facing east. October 28, 2025.



**Photo 45.** Work Location 439+20, view of T-04, taken across NWW-ALT-04; facing west. October 28, 2025.



**Photo 46.** Work Location 439+20, view of T-04, taken across NWW-ALT-04, facing west by southwest. October 28, 2025.



Photo 47. Work Location 439+20, NWW-ALT-05; facing north. October 28, 2025.



Photo 48. Work Location 530+10; facing north. October 28, 2025.



Photo 49. Work Location 530+10; facing south. October 28, 2025,



Photo 50. Work Location 530+10, non-jurisdictional storm water control rip rap; facing west. October 28, 2025.



**Photo 51.** Work Location 530+10, view shows constructed canal/ditch located outside of the study area; facing northeast.



**Photo 52.** Work Location 555+79; facing south. October 28, 2025.



Photo 53. Work Location 555+79, NWW-ALT-07; facing east. October 28, 2025.



Photo 54. Work Location 555+79, view of T-06, taken across NWW-ALT-06; facing north. October 28, 2025.



Photo 55. Work Location 561+33; facing southeast. October 28, 2025.



Photo 56. Work Location 632+33; facing north. October 28, 2025.



Photo 57. Work Location 632+33; view of WET-ALT-01, facing southwest. October 28, 2025.

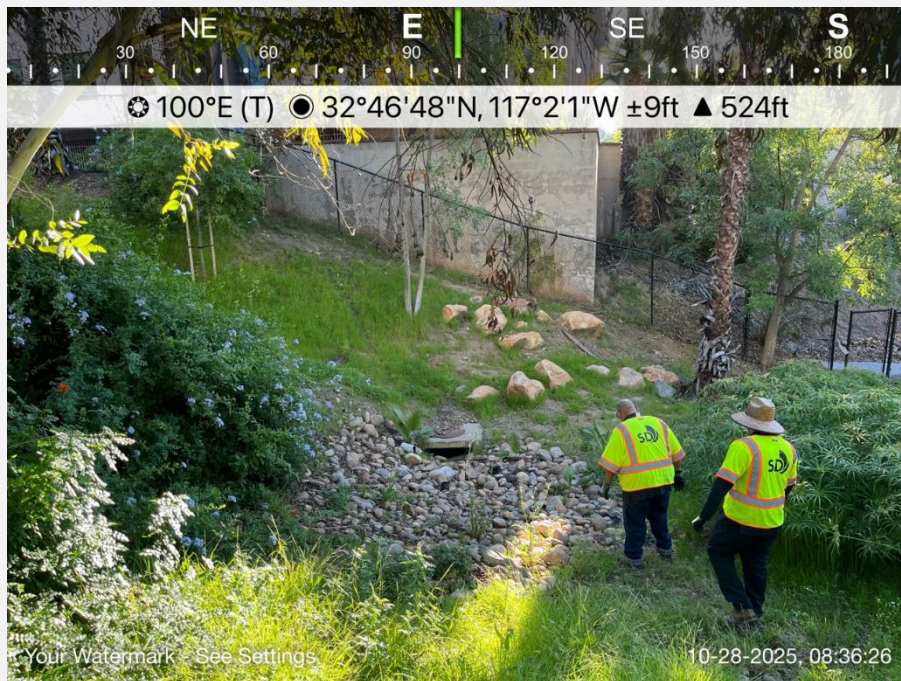


Photo 58. Work Location 632+33, storm drain; facing east. October 28, 2025.



**Photo 59.** Work Location 632+33; showing improvement area and WET-ALT-01 in the background, facing west. October 28, 2025.



**Photo 60.** Work Location 638+59; facing west. October 28, 2025.



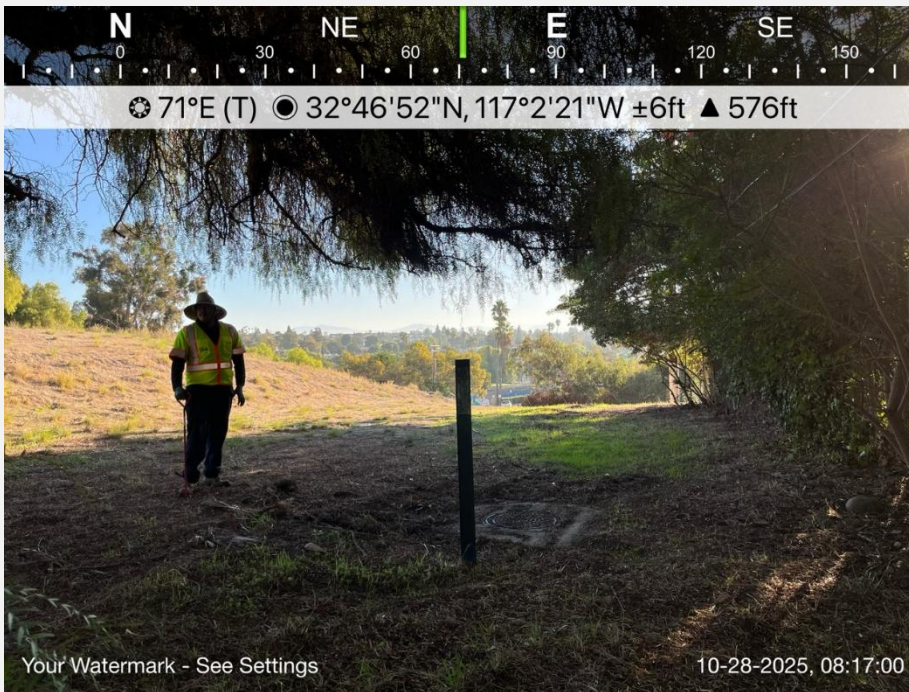
Photo 61. Work Location 638+59; facing east. October 28, 2025.



Photo 62. Work Location 644+21, view of NWW-ALT-08; facing southeast. October 28, 2025.



**Photo 63.** Work Location 644+21, View of T-08, taken across NWW-ALT-08, facing southwest. October 28, 2025.



**Photo 64.** Work Location 651+00; facing east. October 28, 2025.

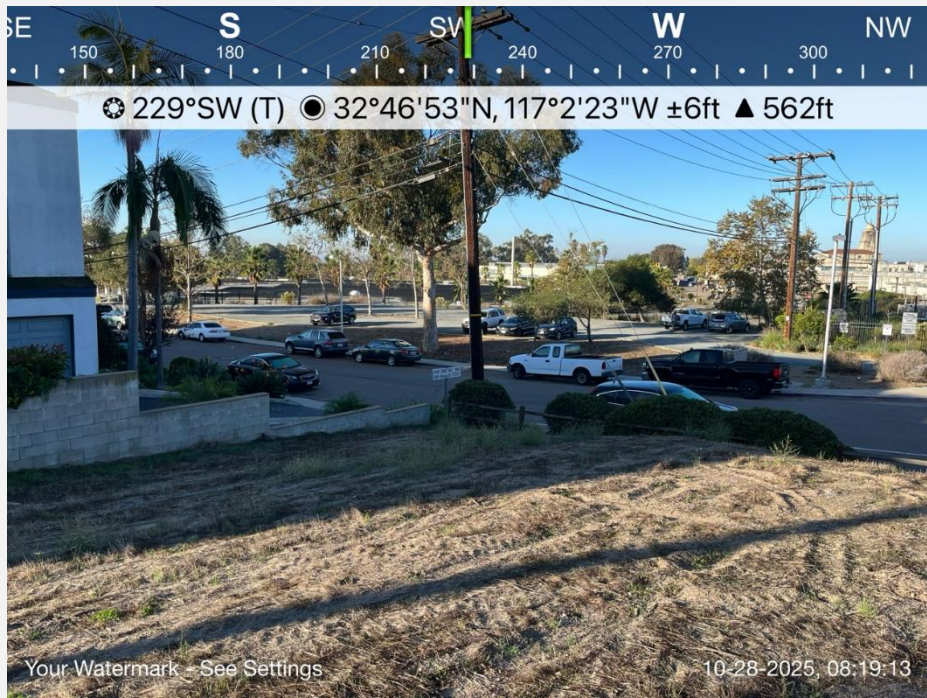


Photo 65. Work Location 653+97; facing southwest. October 28, 2025.



Photo 66. Work Location 653+97; facing east. October 28, 2025.

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# **Appendix G**

## Species Compendium



# Plant Species

## Eudicots

### AIZOACEAE—FIG-MARIGOLD FAMILY

- \* *Carpobrotus chilensis*—sea fig

### AMARANTHACEAE—AMARANTH FAMILY

- \* *Amaranthus albus*—white tumbleweed

### ANACARDIACEAE—SUMAC OR CASHEW FAMILY

*Malosma laurina*—laurel sumac

*Rhus ovata*—sugar bush

- \* *Schinus molle*—Peruvian pepper tree
- \* *Schinus terebinthifolius*—Brazilian pepper tree

### APIACEAE—CARROT FAMILY

- \* *Foeniculum vulgare*—sweet fennel

### ASTERACEAE—SUNFLOWER FAMILY

*Ambrosia psilostachya*—western ragweed

*Artemisia californica*—coastal sagebrush

*Baccharis salicifolia*—mule-fat

*Baccharis sarothroides*—broom baccharis

- \* *Centaurea melitensis*—tocalote
- Encelia californica*—California encelia
- Erigeron canadensis*—horseweed
- Isocoma menziesii* var. *decumbens*—decumbent goldenbush
- \* *Sonchus* sp.—sow-thistle
- Xanthium orientale*—cocklebur

### BORAGINACEAE—BORAGE FAMILY

*Amsinckia* sp.—fiddleneck

*Cryptantha* sp.—cryptantha

### BRASSICACEAE—MUSTARD FAMILY

- \* *Raphanus sativus*—wild radish
- \* *Sisymbrium* sp.—hedge mustard

### CACTACEAE—CACTUS FAMILY

*Opuntia* sp.—prickly-pear

**CHENOPODIACEAE—GOOSEFOOT FAMILY**

- \* *Chenopodium murale*—nettle-leaf goosefoot
- \* *Salsola tragus*—prickly Russian-thistle

**CRASSULACEAE—STONECROP FAMILY**

*Dudleya* sp.—dudleya

**EUPHORBIACEAE**

*Ricinus communis*—castor bean

**FABACEAE—LEGUME FAMILY**

*Acacia* spp.—wattle

*Acmispon glaber*—deerweed

- \* *Mellilotus albus*—white sweetclover
- \* *Senna didymobotrya*—African senna

**FAGACEAE—OAK FAMILY**

*Quercus agrifolia*—coast live oak

**GERANIACEAE—GERANIUM FAMILY**

- \* *Erodium cicutarium*—red-stem storksbill

**HYDROPHYLLACEAE—WATERLEAF FAMILY**

*Phacelia* sp.—phacelia

**LAMIACEAE—MINT FAMILY**

- \* *Marrubium vulgare*—horehound
- Salvia mellifera*—black sage

**MALVACEAE—MALLOW FAMILY**

- \* *Malva parviflora*—cheeseweed

**MYRTACEAE—MYRTLE FAMILY**

- \* *Eucalyptus* sp.—gum

**OXALIDACEAE—OXALIS FAMILY**

- \* *Oxalis pes-caprae*—Bermuda-buttercup

**PHRYMACEAE—LOPSEED FAMILY**

*Diplacus aurantiacus*—bush monkeyflower

**PLATANACEAE—PLANE TREE, SYCAMORE FAMILY**

*Platanus racemosa*—western sycamore

**POLYGONACEAE—BUCKWHEAT FAMILY**

*Eriogonum fasciculatum*—California buckwheat

**ROSACEAE—ROSE FAMILY**

*Heteromeles arbutifolia*—toyon

**SALICACEAE—WILLOW FAMILY**

*Populus fremontii*—western cottonwood

*Salix lasiolepis*—arroyo willow

**SCROPHULARIACEAE—FIGWORT FAMILY**

*Myoporum laetum*—ngaoi

**SIMAROUBACEAE—QUASSIA OR SIMAROUBA FAMILY**

\* *Ailanthus altissima*—tree-of-heaven

**SOLANACEAE—NIGHTSHADE FAMILY**

\* *Nicotiana glauca*—tree tobacco

**URTICACEAE—NETTLE FAMILY**

\* *Urtica urens*—dwarf nettle

**VIBURNACEAE—MUSKROOT FAMILY**

*Sambucus mexicana*—blue elderberry

**ZYGOPHYLLACEAE—CALTROP FAMILY**

\* *Tribulus terrestris*—puncture vine

## Monocots

**ARECACEAE—PALM FAMILY**

\* *Washingtonia robusta*—Mexican fan palm

**CYPERACEAE—SEDGE FAMILY**

\* *Cyperus alternifolius*—umbrella plant

*Cyperus eragrostis*—tall flatsedge

**POACEAE—GRASS FAMILY**

\* *Avena* sp.—wild oat

\* *Bromus diandrus*—ripgut brome

\* *Bromus rubens*—red grass

\* *Bromus tectorum*—cheat grass

\* *Cenchrus echinatus*—southern sandbur

- \* *Cynodon dactylon*—Bermuda grass
- \* *Hordeum murinum*—wall barley
- \* *Pennisetum setaceum*—African fountain grass

**TYPHACEAE—CATTAIL FAMILY**

*Typha* sp.—cattail

# Wildlife Species

## Vertebrates

### Birds

#### FALCONIDAE—CARACARAS AND FALCONS

*Falco sparverius*—American kestrel

#### FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

*Haemorhous mexicanus*—house finch

*Spinus psaltria*—lesser goldfinch

#### TYRANNIDAE—TYRANT FLYCATCHERS

*Sayornis nigricans*—black phoebe

#### ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

*Buteo jamaicensis*—red-tailed hawk

#### TROCHILIDAE—HUMMINGBIRDS

*Selasphorus sasin*—Allen's hummingbird

#### CORVIDAE—CROWS AND JAYS

*Aphelocoma californica*—California scrub-jay

*Corvus brachyrhynchos*—American crow

*Corvus corax*—common raven

#### MIMIDAE—MOCKINGBIRDS AND THRASHERS

*Mimus polyglottos*—northern mockingbird

#### PASSERIDAE—OLD WORLD SPARROWS

\* *Passer domesticus*—house sparrow

#### POLIOPTILIDAE—GNATCATCHERS

*Polioptila caerulea*—blue-gray gnatcatcher

#### COLUMBIDAE—PIGEONS AND DOVES

*Zenaida macroura*—mourning dove

#### STURNIDAE—STARLINGS

\* *Sturnus vulgaris*—European starling

### HIRUNDINIDAE—SWALLOWS

*Tachycineta bicolor*—tree swallow

### TURDIDAE—THRUSHES

*Sialia mexicana*—western bluebird

### BOMBYCILLIDAE—WAXWINGS

*Bombycilla cedrorum*—cedar waxwing

### PARULIDAE—WOOD-WARBLERS

*Geothlypis trichas*—common yellowthroat

*Setophaga coronata*—yellow-rumped warbler

### ESTRILDIDAE—WAXBILLS

\* *Lonchura punctulata*—scaly-breasted munia

### PASSERELLIDAE—NEW WORLD SPARROWS

*Melospiza melodia*—song sparrow

*Melospiza crissalis*—California towhee

*Passerculus sandwichensis*—savannah sparrow

*Pipilo maculatus*—spotted towhee

*Zonotrichia leucophrys*—white-crowned sparrow

## Mammals

### GEOMYIDAE—POCKET GOPHERS

*Megascapheus bottae*—Botta's pocket gopher (burrows and sign)

### SCIURIDAE—SQUIRRELS

*Otospermophilus beecheyi*—California ground squirrel (burrows)

### PROCYONIDAE—RACCOONS AND RELATIVES

*Procyon lotor*—northern raccoon (tracks)

## Reptiles

### PHRYNOSOMATIDAE—IGUANID LIZARDS

*Sceloporus occidentalis*—western fence lizard

\* signifies introduced (non-native) species

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# **Appendix H**

## Aquatic Resources Delineation Field Data Forms



**U.S. Army Corps of Engineers (USACE)**  
**RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET**

OMB Control No. 0710-XXXX

Approval Expires:

The proponent agency is Headquarters USACE CECW-CO-R.

Project ID #: \_\_\_\_\_ Site Name: NWW-ALT-01 Date and Time: \_\_\_\_\_

Location (lat/long): 34S+20/34S+20 Investigator(s): \_\_\_\_\_

**Step 1 Site overview from remote and online resources**  
**Check boxes for online resources used to evaluate site:**

gage data     LiDAR     geologic maps  
 climatic data     satellite imagery     land use maps  
 aerial photos     topographic maps     Other: \_\_\_\_\_

**Describe land use and flow conditions from online resources.**  
**Were there any recent extreme events (floods or drought)?**

Ditch/canal w/ standing water + saturation

**Step 2 Site conditions during field assessment**  
 First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

Appears to be constructed in upland. Water source unknown  
Earthen w/ disturbed natural veg

**Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.**  
**OHWM is at a transition point**, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below 'b', at 'x', or just above 'a' the OHWM.  
**OHWM.** Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

**Geomorphic indicators**

Break in slope:     
 on the bank:     
 undercut bank:     
 valley bottom:     
 Other: \_\_\_\_\_

Shelving:  
 shelf at top of bank:  
 natural levee:  
 man-made berms or levees:  
 other berms: \_\_\_\_\_

Channel bar:  
 shelving (berms) on bar:  
 unvegetated:  
 vegetation transition (go to veg. indicators)  
 sediment transition (go to sed. indicators)  
 upper limit of deposition on bar:

Instream bedforms and other bedload transport evidence:  
 deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)  
 bedforms (e.g., poofs, riffles, steps, etc.):  
 erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)

Secondary channels:

**Sediment indicators**

Soil development:  
 Changes in character of soil:  
 Mudcracks:  
 Changes in particle-sized distribution:  
 transition from \_\_\_\_\_ to \_\_\_\_\_  
 upper limit of sand-sized particles  
 silt deposits:

**Vegetation Indicators**

Change in vegetation type and/or density:  
 Check the appropriate boxes and select the general vegetation change (e.g., graminoids to woody shrubs). Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.

vegetation absent to: graminoids/forbs  
 moss to:  
 forbs to:  
 graminoids to:  
 woody shrubs to:  
 deciduous trees to:  
 coniferous trees to:

Vegetation matted down and/or bent:  
 Exposed roots below intact soil layer:

**Ancillary indicators**

Wracking/presence of organic litter:  
 Presence of large wood:  
 Leaf litter disturbed or washed away:  
 Water staining:  
 Weathered clasts or bedrock:

**Other observed indicators?**

Describe:

**Step 4** Is additional information needed to support this determination?  
 Yes     No

If yes, describe and attach information to datasheet:







U.S. Army Corps of Engineers (USACE)
RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

OMB Control No. 0710-XXXX
Approval Expires:

The proponent agency is Headquarters USACE CECW-CO-R.

Project ID #:

Site Name: NWW-ALT-03

Date and Time:

Location (lat/long):

40+29 / 40+29

Investigator(s):

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- gage data, LiDAR, geologic maps, climatic data, satellite imagery, land use maps, aerial photos, topographic maps, Other:

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

ditch/canal
R45BC

Step 2 Site conditions during field assessment

First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

Appears to be constructed in upland but mapped by NWI as
Natural drainage flowing east into Lake Jennings. Farther

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below 'b', at 'x', or just above 'a' the OHWM.

OHWM. Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- Break in slope: on the bank, undercut bank, valley bottom, Other:

Shelving:

- shelf at top of bank, natural levee, man-made berms or levees, other berms:

Channel bar:

- shelving (berms) on bar, unvegetated, vegetation transition, sediment transition, upper limit of deposition on bar:

Instream bedforms and other bedload transport evidence:

- deposition bedload indicators, bedforms, erosional bedload indicators

Secondary channels:

Sediment indicators

- Soil development, Changes in character of soil, Mudcracks, Changes in particle-sized distribution, transition from, upper limit of sand-sized particles, silt deposits:

Vegetation Indicators

- Change in vegetation type and/or density: vegetation absent to, moss to, forbs to, graminoids to, woody shrubs to, deciduous trees to, coniferous trees to, Vegetation matted down and/or bent, Exposed roots below intact soil layer:

Ancillary indicators

- Wracking/presence of organic litter, Presence of large wood, Leaf litter disturbed or washed away, Water staining, Weathered clasts or bedrock:

Other observed indicators?

Describe:

Step 4 Is additional information needed to support this determination?

- Yes, No

If yes, describe and attach information to datasheet:

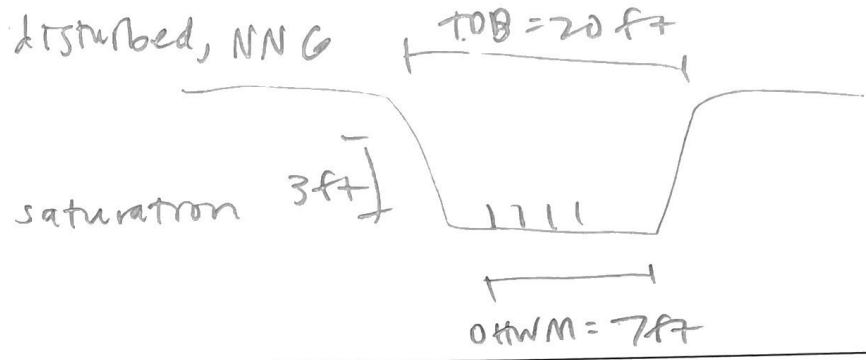
Project ID #: \_\_\_\_\_

**Step 5** Describe rationale for location of OHWM

clearly defined bed and bank, change in veg.

**Additional observations or notes**

looking west upstream



Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached?  Yes  No      If no, explain why not: \_\_\_\_\_

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
	see photo appendix T-03

U.S. Army Corps of Engineers (USACE)  
RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

OMB Control No. 0710-XXXX

Approval Expires:

The proponent agency is Headquarters USACE CECW-CO-R.

Project ID #:

Site Name: *NWW-ALT-04*

Date and Time:

Location (lat/long):

*439+20/439+17*

Investigator(s):

Step 1 Site overview from remote and online resources  
Check boxes for online resources used to evaluate site:

- gage data
- LiDAR
- geologic maps
- climatic data
- satellite imagery
- land use maps
- aerial photos
- topographic maps
- Other: \_\_\_\_\_

Describe land use and flow conditions from online resources.  
Were there any recent extreme events (floods or drought)?

*Dry at time of survey  
SDAM = intermittent*

Step 2 Site conditions during field assessment

First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

*Drainage has in-stream bank stabilization grids for erosion control.  
Recreates flows from 2 erosional features and ephemeral channel.*

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below 'b', at 'x', or just above 'a' the OHWM.

OHWM. Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- Break in slope: ▼
- on the bank: *X* ▼
- undercut bank: ▼
- valley bottom: ▼
- Other: \_\_\_\_\_

Shelving:

- shelf at top of bank:
- natural levee:
- man-made berms or levees:
- other berms: \_\_\_\_\_

Channel bar:

- shelving (berms) on bar:
- unvegetated:
- vegetation transition (go to veg. indicators)
- sediment transition (go to sed. indicators)
- upper limit of deposition on bar:

Instream bedforms and other bedload transport evidence:

- deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)
- bedforms (e.g., pools, riffles, steps, etc.):
- erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)

Secondary channels:

Sediment indicators

- Soil development:
- Changes in character of soil:
- Mudcracks:
- Changes in particle-sized distribution:
  - transition from *silt* to *cobble*
  - upper limit of sand-sized particles
  - silt deposits:

Vegetation Indicators

- Change in vegetation type and/or density:
 

Check the appropriate boxes and select the general vegetation change (e.g., graminoids to woody shrubs). Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.

  - vegetation absent to: *riparian*
  - moss to:
  - forbs to:
  - graminoids to:
  - woody shrubs to:
  - deciduous trees to:
  - coniferous trees to:
- Vegetation matted down and/or bent:
- Exposed roots below intact soil layer:

Ancillary indicators

- Wracking/presence of organic litter:
- Presence of large wood:
- Leaf litter disturbed or washed away:
- Water staining:
- Weathered clasts or bedrock:

Other observed indicators?

Describe:

Step 4 Is additional information needed to support this determination?

- Yes
- No

If yes, describe and attach information to datasheet:



U.S. Army Corps of Engineers (USACE)  
**RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET**

OMB Control No. 0710-XXXX

Approval Expires:

The proponent agency is Headquarters USACE CECW-CO-R.

Project ID #:

Site Name: NWW-ALT-05

Date and Time: 10/28/25

Location (lat/long): 439+20/439+17

Investigator(s): Anna Touchstone

**Step 1** Site overview from remote and online resources  
 Check boxes for online resources used to evaluate site:

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> gage data     | <input type="checkbox"/> LiDAR             | <input type="checkbox"/> geologic maps |
| <input type="checkbox"/> climatic data | <input type="checkbox"/> satellite imagery | <input type="checkbox"/> land use maps |
| <input type="checkbox"/> aerial photos | <input type="checkbox"/> topographic maps  | <input type="checkbox"/> Other: _____  |

**Describe land use and flow conditions from online resources.**  
 Were there any recent extreme events (floods or drought)?

Dry at time of survey, some recent rain

**Step 2** Site conditions during field assessment

First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

Drainage originates off-site to north, likely channels runoff from adjacent development. Flows under W main st via culvert and flows south into NWW-ALT-04

**Step 3** Check the boxes next to the indicators used to identify the location of the OHWM.

**OHWM is at a transition point**, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below 'b', at 'x', or just above 'a' the OHWM.

**OHWM.** Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

**Geomorphic indicators**

- Break in slope:** ▼
- on the bank:* x ▼
- undercut bank:* ▼
- valley bottom:* ▼
- Other: \_\_\_\_\_

- Shelving:**
- shelf at top of bank:*
- natural levee:*
- man-made berms or levees:*
- other berms:* \_\_\_\_\_

- Channel bar:**
- shelving (berms) on bar:*
- unvegetated:*
- vegetation transition (go to veg. indicators)*
- sediment transition (go to sed. indicators)*
- upper limit of deposition on bar:*

- Instream bedforms and other bedload transport evidence:**
- deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
- bedforms (e.g., poofs, riffles, steps, etc.):*
- erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*

- Secondary channels:**

**Sediment indicators**

- Soil development:**
- Changes in character of soil:**
- Mudcracks:**
- Changes in particle-sized distribution:**
- transition from silt to cobble*
- upper limit of sand-sized particles*
- silt deposits:*

**Vegetation Indicators**

- Change in vegetation type and/or density:**  
 Check the appropriate boxes and select the general vegetation change (e.g., graminoids to woody shrubs). Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.
- vegetation absent to:*
- moss to:*
- forbs to:*
- graminoids to:*
- woody shrubs to:*
- deciduous trees to:*
- coniferous trees to:*
- Vegetation matted down and/or bent:**
- Exposed roots below intact soil layer:**

**Ancillary indicators**

- Wracking/presence of organic litter:**
- Presence of large wood:**
- Leaf litter disturbed or washed away:**
- Water staining:**
- Weathered clasts or bedrock:**

**Other observed indicators?**

Describe:

**Step 4** Is additional information needed to support this determination?

- Yes  No

If yes, describe and attach information to datasheet:



**U.S. Army Corps of Engineers (USACE)**  
**RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET**

OMB Control No. 0710-XXXX

Approval Expires:

The proponent agency is Headquarters USACE CECW-CO-R.

Project ID #: \_\_\_\_\_ Site Name: NW W-ALT-06 Date and Time: \_\_\_\_\_

Location (lat/long): 555+79 / 555+76 Investigator(s): \_\_\_\_\_

**Step 1** Site overview from remote and online resources  
**Check boxes for online resources used to evaluate site:**

gage data     LiDAR     geologic maps  
 climatic data     satellite imagery     land use maps  
 aerial photos     topographic maps     Other: \_\_\_\_\_

**Describe land use and flow conditions from online resources.**  
 Were there any recent extreme events (floods or drought)?  
flowing water at time of survey

**Step 2** Site conditions during field assessment  
 First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.  
perennial channel flows from NE to SW across site. supports non-native riparian corridor and emergent vegetation

**Step 3** Check the boxes next to the indicators used to identify the location of the OHWM.  
**OHWM is at a transition point**, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below 'b', at 'x', or just above 'a' the OHWM.  
**OHWM.** Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators	Sediment indicators	Ancillary indicators
<input checked="" type="checkbox"/> <b>Break in slope:</b> <input type="checkbox"/> <input checked="" type="checkbox"/> <i>on the bank:</i> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <i>undercut bank:</i> <input type="checkbox"/> <input type="checkbox"/> <i>valley bottom:</i> <input type="checkbox"/> <input type="checkbox"/> Other: _____	<input type="checkbox"/> <b>Soil development:</b> <input type="checkbox"/> <b>Changes in character of soil:</b> <input type="checkbox"/> <b>Mudcracks:</b> <input checked="" type="checkbox"/> <b>Changes in particle-sized distribution:</b> <input type="checkbox"/> <i>transition from</i> <u>silt</u> <i>to</i> <u>cobble</u> <input type="checkbox"/> <i>upper limit of sand-sized particles</i> <input type="checkbox"/> <i>silt deposits:</i>	<input type="checkbox"/> <b>Wracking/presence of organic litter:</b> <input type="checkbox"/> <b>Presence of large wood:</b> <input type="checkbox"/> <b>Leaf litter disturbed or washed away:</b> <input type="checkbox"/> <b>Water staining:</b> <input type="checkbox"/> <b>Weathered clasts or bedrock:</b>
<input checked="" type="checkbox"/> <b>Shelving:</b> <input checked="" type="checkbox"/> <i>shelf at top of bank:</i> <input type="checkbox"/> <i>natural levee:</i> <input type="checkbox"/> <i>man-made berms or levees:</i> <input type="checkbox"/> <i>other berms:</i> _____	<input type="checkbox"/> <b>Vegetation Indicators</b> <input checked="" type="checkbox"/> <b>Change in vegetation type and/or density:</b> Check the appropriate boxes and select the general vegetation change (e.g., <i>graminoids to woody shrubs</i> ). <b>Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.</b> <input checked="" type="checkbox"/> <i>vegetation absent to:</i> <u>non-native riparian</u> <input type="checkbox"/> <i>moss to:</i> <input type="checkbox"/> <i>forbs to:</i> <input type="checkbox"/> <i>graminoids to:</i> <input type="checkbox"/> <i>woody shrubs to:</i> <input type="checkbox"/> <i>deciduous trees to:</i> <input type="checkbox"/> <i>coniferous trees to:</i>	<input type="checkbox"/> <b>Other observed indicators?</b> Describe:
<input type="checkbox"/> <b>Channel bar:</b> <input type="checkbox"/> <i>shelving (berms) on bar:</i> <input type="checkbox"/> <i>unvegetated:</i> <input type="checkbox"/> <i>vegetation transition (go to veg. indicators)</i> <input type="checkbox"/> <i>sediment transition (go to sed. indicators)</i> <input type="checkbox"/> <i>upper limit of deposition on bar:</i>	<input type="checkbox"/> <b>Vegetation matted down and/or bent:</b> <input checked="" type="checkbox"/> <b>Exposed roots below intact soil layer:</b>	<p><b>Step 4</b> Is additional information needed to support this determination?</p> <p><input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p> <p>If yes, describe and attach information to datasheet:</p>
<input checked="" type="checkbox"/> <b>Instream bedforms and other bedload transport evidence:</b> <input checked="" type="checkbox"/> <i>deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)</i> <input type="checkbox"/> <i>bedforms (e.g., poofs, riffles, steps, etc.):</i> <input type="checkbox"/> <i>erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)</i>		
<input type="checkbox"/> <b>Secondary channels:</b>		



**U.S. Army Corps of Engineers (USACE)  
RAPID ORDINARY HIGH WATER MARK  
(OHWM) FIELD IDENTIFICATION DATA SHEET**  
The proponent agency is Headquarters USACE CECW-COR.

*Form Approved -  
OMB No. 0710-0024  
Expires: 2027-09-30*

**The Agency Disclosure Notice (ADN)**

The Public reporting burden for this collection of information, 0710-0024, is estimated to average 30 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at [whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil](mailto:whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: \_\_\_\_\_ Site Name: NWW-ALT-07 Date and Time: 10/28/25

Location (lat/long): \_\_\_\_\_ Investigator(s): \_\_\_\_\_

**Step 1 Site overview from remote and online resources.**  
Check boxes for online resources used to evaluate site:

<input type="checkbox"/> gage data	<input type="checkbox"/> LiDAR	<input type="checkbox"/> geologic maps
<input type="checkbox"/> climatic data	<input type="checkbox"/> satellite imagery	<input type="checkbox"/> land use maps
<input type="checkbox"/> aerial photos	<input type="checkbox"/> topographic maps	<input type="checkbox"/> Other: _____

**Describe land use and flow conditions from online resources.**  
Were there any recent extreme events (floods or drought)?  
inundated at time of field survey

**Step 2 Site conditions during field assessment.** First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or human-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls, etc.  
originates from culvert under Amarillo ave, flows south into another culvert under Fletcher Pkwy. contains washed out pipe/culvert under

access road

**Step 3 Mark the boxes next to the indicators used to help identify the location of the OHWM.**  
OHWM is at a transition point, therefore some indicators used to identify the location of the OHWM may be just below or above the OHWM. Make a slash in boxes next to indicators that are helpful in identifying the OHWM. After the initial assessment, those indicators identified at the OHWM elevation should be changed from slashes to x's. Note, it is not necessary to mark indicators that are present but do not help inform identification of the OHWM.  
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and attach a photo log.

**Geomorphic indicators**

<input checked="" type="checkbox"/> Break in slope	<input type="checkbox"/> Channel bar
<input checked="" type="checkbox"/> on the bank	<input type="checkbox"/> shelving (berms) on bar
<input type="checkbox"/> undercut bank	<input type="checkbox"/> unvegetated
<input type="checkbox"/> valley bottom	<input type="checkbox"/> vegetation transition (go to veg. indicators)
<input type="checkbox"/> Other: _____	<input type="checkbox"/> sediment transition (go to sed. indicators)
<input type="checkbox"/> Shelving	<input type="checkbox"/> upper limit of deposition on bar
<input type="checkbox"/> shelf at top of bank	<input type="checkbox"/> Instream bedforms and other bedload transport evidence
<input type="checkbox"/> natural levee	<input type="checkbox"/> deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)
<input type="checkbox"/> human-made berms or levees	<input type="checkbox"/> bedforms (e.g., pools, riffles, steps, etc.)
<input type="checkbox"/> other berms: _____	<input type="checkbox"/> Weathered clasts or bedrock
<input type="checkbox"/> Secondary channels	<input type="checkbox"/> erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)

**Sediment indicators**

<input type="checkbox"/> Soil development
<input type="checkbox"/> Changes in character of soil
<input type="checkbox"/> Mudcracks
<input type="checkbox"/> Changes in particle-sized distribution
<input type="checkbox"/> transition from _____ to _____
<input type="checkbox"/> upper limit of sand-sized particles
<input type="checkbox"/> silt deposits

**Vegetation indicators** (Consider the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain)

<input checked="" type="checkbox"/> Change in vegetation type from <u>emergent</u> to <u>upland</u>	<input type="checkbox"/> Vegetation matted down and/or bent
<input type="checkbox"/> Change in density of vegetation <u>wetland (mowed)</u>	
<input type="checkbox"/> Exposed roots below intact soil layer	
<input type="checkbox"/> Other vegetation observations	

**Other physical indicators**

<input type="checkbox"/> Sediment deposited on vegetation or structures
<input type="checkbox"/> Wracking/presence of organic litter
<input type="checkbox"/> Presence of large wood
<input type="checkbox"/> Leaf litter disturbed or washed away
<input type="checkbox"/> Water staining

**Other observed indicators? Describe:**  
\_\_\_\_\_

Project ID #: \_\_\_\_\_

**Step 4** Was additional information used to support identification of the OHWM?  Yes  No  
If yes, describe and attach information to data sheet:

**Step 5** Is an OHWM present at this site?  Yes  No  
Describe rationale for location of OHWM or lack thereof by describing any observed indicators (at, above, and/or below the OHWM location).

OHWM mapped as low flow channel within emergent veg  
Approx. 1ft wide. Looks like feature was culverted  
under unpaved access route at some point but the  
culvert has washed out.

**Additional observations or notes**

Attach an imagery log of the site.  
Imagery log attached?  Yes  No If no, explain why not: \_\_\_\_\_

List photographs, or other imagery/sketches, and include descriptions in the table below.  
Number photographs in the order that they are taken. Attach imagery and include annotations of features.

Imagery Number	Imagery description
	see photo appendix





# Web application for the Regional Streamflow Duration Assessment Methods (SDAMs)

Version 3.0.1<<https://github.com/usepa/sdam-web-app>> Release date:  
October 2025

**Supporting SDAM materials including user manuals, field assessment forms, training videos and more**

<<https://www.epa.gov/streamflow-duration-assessment/materials-support-application-regional-sdams>>

**This web application is an analysis tool; it does not store data. After 60 minutes, the tool will timeout and all data will have to be re-entered.**

## Step 1 Step 1 Document reach location and select regional SDAM

Enter coordinates ▼

***Enter coordinates in decimal degrees to determine if the site is in a SDAM study area***

32.79491734349898

**Latitude**

-116.9820468539707

**Longitude**

**Assess reach location**

## **SDAM Region: Arid West**

**Enter Model Data**

### **Step 2 Enter field measurements for all indicators**

## **Arid West SDAM**

### **Indicators**

#### ***Perennial indicator taxa***

- No perennial indicator taxa detected
- 1 to 4 perennial indicator individuals
- 5 to 9 perennial indicator individuals
- 10 to 19 perennial indicator individuals
- 20 or more perennial indicator individuals

#### ***Slope (to the nearest half-percent)***

%

**Number of hydrophytic plant species**

- 0
- 1
- 2
- 3
- 4
- Greater than or equal to 5

**Prevalence of upland rooted plants in streambed**

**Upland rooted plants include FAC, FACU, UPL, NI, or not listed in the regionally appropriate National Wetland Plant List.**

- 0 (Poor) Rooted upland plants are prevalent within the streambed/thalweg.
- 0.5
- 1 (Weak) Rooted upland plants are consistently dispersed throughout the streambed/thalweg.
- 1.5
- 2 (Moderate) There are a few rooted upland plants present within the streambed/thalweg.
- 2.5
- 3 (Strong) Rooted upland plants are absent from the streambed/thalweg.

**Algal cover**

- Not detected
- <2%
- 2-10%
- 10-40%
- >40%

- Check here if algae exclusively appears to have been deposited from an upstream source, and no local growth is evident.**

### ***Differences in vegetation***

- 0 (Poor) No compositional or density differences in vegetation are present between the banks and the adjacent uplands.
- 0.5
- 1 (Weak) Vegetation growing along the reach may occur in greater densities or grow more vigorously than vegetation in the adjacent uplands, but there are no dramatic compositional differences between the two.
- 1.5
- 2 (Moderate) A distinct riparian corridor exists along part of the reach. Riparian vegetation is interspersed with upland vegetation along the length of the reach.
- 2.5
- 3 (Strong) Dramatic compositional differences in vegetation are present between the banks and the adjacent uplands. A distinct riparian vegetation corridor exists along the entire reach. Riparian, aquatic, or wetland species dominate the length of the reach.

### ***Riffle-pool sequence score***

- 0 (Poor) No riffle-pool sequences observed.
- 0.5
- 1 (Weak) Mostly has areas of pools or riffles.
- 1.5
- 2 (Moderate) Represented by a less frequent number of riffles and pools. Distinguishing the transition between riffles and pools is difficult to observe.
- 2.5

- 3 (Strong) Demonstrated by a frequent number of structural transitions (e.g., riffles followed by pools) along the entire reach. There is an obvious transition between riffles and pools.

**Enter the number of bankfull width measurements (m) (min. 1, max. 3) and associated measurement values to the nearest 0.1 m**

# 1

**bankfull width measurement 1**

1.5

**Mean bankfull width (m): 1.5**

**Run model**

**This reach is classified as:  
INTERMITTENT**

**Step 3 (optional) Enter additional information and generate a report (no information saved or stored)**

## **Arid West SDAM Report**

\* Maximum file upload size is 30MB

Enter information about the assessment. Indicators required for classification are filled in from entries above

### **General information**

**Project Name or Number:**

**Site Code or Identifier:**

**Assessor(s):**

**Waterway Name:**

**Visit Date:**

**Current Weather Conditions (check one):**

- Storm/Heavy Rain
- Steady Rain
- Intermittent Rain
- Snowing

- Cloudy
- Clear/Sunny

**Notes on current or recent weather conditions:****Surrounding land-use within 100 m****(check one or two):**

- Urban, industrial, or residential
- Agricultural
- Developed open-space (e.g., golf course, parks, lawn grasses)
- Forested
- Other Natural
- Other

**Comments on observed land-use:****Assessment reach length (m):****Describe reach boundaries:****Disturbed or difficult conditions (check all that apply):**

- Recent flood or debris flow

- Stream modifications (e.g., channelization)
- Diversions
- Water discharges
- Drought
- Vegetation removal/limitations
- Other (explain in notes)
- None

**Site disturbances/difficulties:**

## Observed hydrology

**Percent of reach with surface flows:****Percent of reach with surface and sub-surface flows:****Number of isolated pools:****Comments on observed hydrology:**

---

## Site photos

**Top of reach looking downstream:**

Browse...	No file selected
-----------	------------------

**Middle of reach looking upstream:**

Browse...	No file selected
-----------	------------------

**Middle of reach looking downstream:**

Browse...	No file selected
-----------	------------------

**Bottom of reach looking upstream:**

Browse...	No file selected
-----------	------------------

---

## Site sketch

**Site Sketch:**

Browse...	No file selected
-----------	------------------

# Indicators

## Mean bankfull channel width

### Notes on mean bankfull channel width:

### Mean bankfull width photo #1

Upload photo file here:

Browse...	No file selected
-----------	------------------

Mean bankfull width photo #1 caption:

### Mean bankfull width photo #2

Upload photo file here:

Browse...	No file selected
-----------	------------------

Mean bankfull width photo #2 caption:

### Mean bankfull width photo #3

Upload photo file here:

Browse...	No file selected
-----------	------------------

Mean bankfull width photo #3 caption:

**Aquatic macroinvertebrates**

Check if applicable:

No aquatic macroinvertebrates in assessment area

**Notes about aquatic macroinvertebrates:**

**Macroinvertebrate photo #1**

Upload photo file here:

Browse...	No file selected
-----------	------------------

Macroinvertebrate photo #1 caption:

**Macroinvertebrate photo #2**

Upload photo file here:

Browse...	No file selected
-----------	------------------

Macroinvertebrate photo #2 caption:

**Macroinvertebrate photo #3**

Upload photo file here:

Browse...	No file selected
-----------	------------------

Macroinvertebrate photo #3 caption:

**Macroinvertebrate photo #4**

Upload photo file here:

Browse...	No file selected
-----------	------------------

Macroinvertebrate photo #4 caption:

**Macroinvertebrate photo #5**

Upload photo file here:

Browse...	No file selected
-----------	------------------

Macroinvertebrate photo #5 caption:

**Macroinvertebrate photo #6**

Upload photo file here:

Browse...	No file selected
-----------	------------------

Macroinvertebrate photo #6 caption:

**Slope**

**Notes about slope:**

**Slope photo #1**

Upload photo file here:

Browse...	No file selected
-----------	------------------

Slope photo #1 caption:

**Slope photo #2**

Upload photo file here:

Browse...	No file selected
-----------	------------------

Slope photo #2 caption:

**Slope photo #3**

Upload photo file here:

Browse...	No file selected
-----------	------------------

Slope photo #3 caption:

**Hydrophytic plants**

Check if applicable:

 No vegetation in assessment area**Notes about hydrophytic vegetation (e.g., list species here or in photo captions and note odd distributions):**

**Hydrophyte photo #1**

Upload photo file here:

Browse...	No file selected
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Hydrophyte photo #1 caption:

**Hydrophyte photo #2**

Upload photo file here:

Browse...	No file selected
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Hydrophyte photo #2 caption:

**Hydrophyte photo #3**

Upload photo file here:

Browse...	No file selected
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Hydrophyte photo #3 caption:

**Hydrophyte photo #4**

Upload photo file here:

Browse...	No file selected
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Hydrophyte photo #4 caption:

**Hydrophyte photo #5**

Upload photo file here:

Browse...	No file selected
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Hydrophyte photo #5 caption:

**Hydrophyte photo #6**

Upload photo file here:

Browse...	No file selected
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Hydrophyte photo #6 caption:

**Prevalence of upland rooted plants in streambed**

**Notes about upland rooted plants:**

**Upland rooted plant photo #1**

Upload photo file here:

Browse...	No file selected
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Upland rooted plant photo #1 caption:

**Upland rooted plant photo #2**

Upload photo file here:

Browse...	No file selected
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Upland rooted plant photo #2 caption:

**Upland rooted plant photo #3**

Upload photo file here:

Browse...	No file selected
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Upland rooted plant photo #3 caption:

**Algal cover**

**Notes about algal cover:**

**Algae photo #1**

Upload photo file here:

Browse...	No file selected
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Algae photo #1 caption:

**Algae photo #2**

Upload photo file here:

Browse...	No file selected
-----------	------------------

Algae photo #2 caption:

**Algae photo #3**

Upload photo file here:

Browse...	No file selected
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Algae photo #3 caption:

**Differences in vegetation**

**Notes about differences in vegetation:**

**Vegetation difference photo #1**

Upload photo file here:

Browse...	No file selected
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Vegetation difference photo #1 caption:

**Vegetation difference photo #2**

Upload photo file here:

Browse...	No file selected
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Vegetation difference photo #2 caption:

**Vegetation difference photo #3**

Upload photo file here:

Browse...	No file selected
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Vegetation difference photo #3 caption:

**Riffle-pool sequence**

**Notes about the riffle-pool sequence:**

**Riffle-pool photo #1**

Upload photo file here:

Browse...	No file selected
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Riffle-pool photo #1 caption:

**Riffle-pool photo #2**

Upload photo file here:

Browse...	No file selected
-----------	------------------

Riffle-pool photo #2 caption:

**Riffle-pool photo #3**

Upload photo file here:

Browse...	No file selected
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Riffle-pool photo #3 caption:

---

## Supplemental information

Note if assessment was also conducted on different dates, historical photo interpretation, etc

**Additional notes about the assessment:**

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### Additional photos

**Additional photo #1**

Upload photo file here:

Browse...	No file selected
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Additional photo #1 caption:

**Additional photo #2**

Upload photo file here:

Browse...	No file selected
-----------	------------------

Additional photo #2 caption:

**Additional photo #3**

Upload photo file here:

Browse...	No file selected
-----------	------------------

Additional photo #3 caption:

**Additional photo #4**

Upload photo file here:

Browse...	No file selected
-----------	------------------

Additional photo #4 caption:

 <b>Generate report</b>
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Contact Us <<https://www.epa.gov/home/forms/send-request-technical-support>> to ask a question, provide feedback, or report a problem.

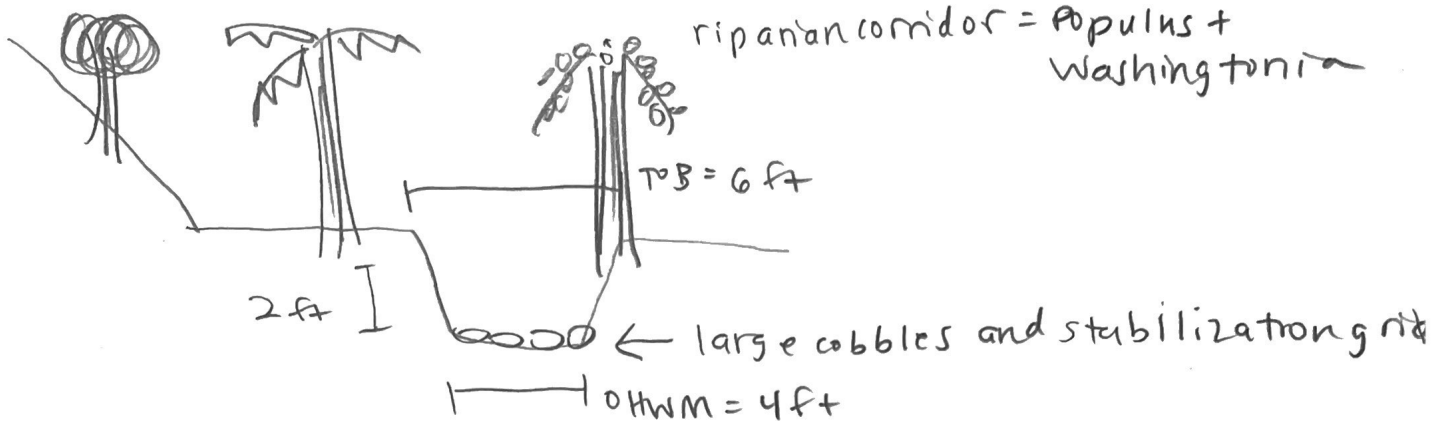
## Arid West Streamflow Duration Assessment Method

### General site information

Project name or number: <i>El Monte Pipeline</i>		
Site code or identifier: <i>439+20/439+17</i>	Assessor(s): <i>Anna Touchstone</i>	
Waterway name: <i>NWW-ALT-04</i>	Visit date: <i>10/28/25</i>	
Current weather conditions (check one): <input type="checkbox"/> Storm/heavy rain <input type="checkbox"/> Steady rain <input type="checkbox"/> Intermittent rain <input type="checkbox"/> Snowing <input type="checkbox"/> Cloudy (___ % cover) <input checked="" type="checkbox"/> Clear/sunny	Notes on current or recent weather conditions (e.g., precipitation in prior week):	Coordinates at downstream end (decimal degrees):  Lat (N): <i>32.7949173</i> Long (E): <i>-116.9820468</i> Datum: <i>WGS 84</i>
Surrounding land-use within 100 m (check one or two): <input checked="" type="checkbox"/> Urban/industrial/residential <input type="checkbox"/> Agricultural (farmland, crops, vineyards, pasture) <input type="checkbox"/> Developed open-space (e.g., golf course) <input type="checkbox"/> Forested <input checked="" type="checkbox"/> Other natural <input type="checkbox"/> Other: _____	Describe reach boundaries:  <i>Reach is dry within renew area. Receives stormwater flows from side channel and erosional feature</i>	
Mean bankfull channel width (m): <i>1.5</i> (Indicator 1)	Reach length (m): <i>70m</i> 40x width min 40 m max 200 m	Site photographs: Enter photo ID or check if completed. Top down: <input checked="" type="checkbox"/> Mid down: <input checked="" type="checkbox"/> Mid up: <input checked="" type="checkbox"/> Bottom up: <input checked="" type="checkbox"/>
Disturbed or difficult conditions (check all that apply): <input type="checkbox"/> Recent flood or debris flow <input type="checkbox"/> Stream modifications (e.g., channelization) <input type="checkbox"/> Diversions <input type="checkbox"/> Discharges <input type="checkbox"/> Drought <input type="checkbox"/> Vegetation removal/limitations <input type="checkbox"/> Other (explain in notes) <input type="checkbox"/> None Notes on disturbances or difficult site conditions: <i>. in-stream bank stabilization grids                  . unhoused encampment</i>		
Observed hydrology: <input type="radio"/> % of reach with surface flow <input type="radio"/> % of reach with sub-surface or surface flow <input type="radio"/> # of isolated pools	Comments on observed hydrology: <i>OTWMM indicators included shelving, sediment sorting, exposed roots, bed + bank, break in slope, change in veg cover/composition</i>	

Site sketch:

Looking west



1. Mean bankfull channel width (m) (nearest 0.1 m, copy from first page of field form)

1.5

Notes about mean bankfull channel width:



2. Aquatic macroinvertebrates: Abundance of perennial indicator taxa

Collect aquatic macroinvertebrates from at least 6 locations in the assessment reach, searching all suitable habitats on the streambed (including dry habitats, if present). Determine total abundance of individuals in perennial indicator families listed below, such that no one family counts for more than 11 individuals in the total.

Ephemeroptera	Plecoptera	Trichoptera	Coleoptera
Ephemerellidae (spiny crawler mayflies)	Chloroperlidae (green stoneflies)	Brachycentridae (humpless casemakers)	Elmidae (riffle beetles)
Heptageniidae (flathead mayflies)	Perlidae (common stoneflies)	Glossosomatidae (saddle casemakers)	
Leptohyphidae (little stout crawler mayflies)		Hydropsychidae (common net-spinners)	
Leptophlebiidae (prong-gilled mayflies)		Rhyacophilidae (free-living caddisflies)	

Mark the appropriate box for the number of perennial indicator individuals observed.

- No perennial indicator taxa detected
- 1 to 4 perennial indicator individuals
- 5 to 9 perennial indicator individuals
- 10 to 19 perennial indicator individuals
- 20 or more perennial indicator individuals

Check if applicable:  No aquatic macroinvertebrates in assessment area

Notes on perennial indicator taxa:

**3. Slope**

Using a clinometer or other device, record the slope as a percent, up to the nearest half-percent.

approx 1 %

Notes about slope:

**4. Number of hydrophytic plant species**

Record up to 6 hydrophytic plant species (FACW or OBL in the appropriate regional wetland plant list, depending on location) within the assessment area: **within the channel or up to one half-channel width outside the channel**. Explain in notes if species has an odd distribution (e.g., one individual or small patch, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID or check if photos are taken.

2 Number of hydrophytic plant species identified from the assessment reach without odd distribution. Enter zero if none were found.

Check if applicable:  No vegetation in assessment area

Species	Odd distribution?	Notes	Photo ID
Populus fremontii			
Washingtonia filifera			

Notes on hydrophytic vegetation:

**5. Prevalence of rooted upland plants in the streambed**

<p><u>2.5</u> (0-3)</p> <p>Half-scores (0.5, 1.5, and 2.5) are allowed.</p>	<p>Evaluate the prevalence of rooted upland plants (i.e., plants rated as FAC, FACU, UPL, NI, or not listed in the regionally appropriate National Wetland Plant List) in the streambed.</p> <p>0 (Poor) Rooted upland plants are <i>prevalent</i> within the streambed/thalweg.                  1 (Weak) Rooted upland plants are <i>consistently dispersed</i> throughout the streambed/thalweg.                  2 (Moderate) There are <i>a few</i> rooted upland plants present within the streambed/thalweg.                  3 (Strong) Rooted upland plants are <i>absent</i> from the streambed/thalweg.</p>												
<table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 45%;">Upland Species</th> <th style="width: 30%;">Notes</th> <th style="width: 25%;">Photo ID</th> </tr> </thead> <tbody> <tr> <td>Schinus terebinthifolia</td> <td></td> <td></td> </tr> <tr> <td>Quercus agrifolia</td> <td></td> <td></td> </tr> <tr> <td>Acacia spp.</td> <td></td> <td></td> </tr> </tbody> </table>	Upland Species	Notes	Photo ID	Schinus terebinthifolia			Quercus agrifolia			Acacia spp.			<p>Notes on rooted upland plants:</p>
Upland Species	Notes	Photo ID											
Schinus terebinthifolia													
Quercus agrifolia													
Acacia spp.													

**6. Algal cover**

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed.

- Not detected
- ≤2% cover
- 2 to 10% cover
- 10 to 40% cover
- >40% cover
- Check here if algae *exclusively* appears to have been deposited from an upstream source, and *no* local growth is evident.

Notes on algal cover on the streambed:

**7. Differences in vegetation**

<p style="text-align: center;"><b>2 (0-3)</b></p> <p><i>Half-scores (0.5, 1.5, 2.5) are allowed.</i></p>	<p>Compare the composition and density of plants growing on the banks and riparian areas to plants in the adjacent uplands. For this indicator, an upland species is not defined by its wetland indicator status, but rather by its location relative to the channel.</p> <ul style="list-style-type: none"> <li>0 (Poor) No compositional or density differences in vegetation are present between the banks and the adjacent uplands.</li> <li>1 (Weak) Vegetation growing along the reach may occur in greater densities or grow more vigorously than vegetation in the adjacent uplands, but there are no dramatic compositional differences between the two.</li> <li>2 (Moderate) A distinct riparian corridor exists along part of the reach. Riparian vegetation is interspersed with upland vegetation along the length of the reach.</li> <li>3 (Strong) Dramatic compositional differences in vegetation are present between the banks and the adjacent uplands. A distinct riparian vegetation corridor exists along the entire reach. Riparian, aquatic, or wetland species dominate the length of the reach.</li> </ul>
<p>Notes on differences in vegetation:</p>	

**8. Riffle-pool sequence**

<p><u>Q</u> (0-3)</p> <p><i>Half-scores (0.5, 1.5, 2.5) are allowed.</i></p>	<p>Evaluate the prevalence of riffles, pools, and other microhabitats in the streambed.</p> <p>0 (Poor) No riffle-pool sequences observed.</p> <p>1 (Weak) Mostly has areas of pools or riffles.</p> <p>2 (Moderate) Represented by a less frequent number of riffles and pools. Distinguishing the transition between riffles and pools is difficult to observe.</p> <p>3 (Strong) Demonstrated by a frequent number of structural transitions (e.g., riffles followed by pools) along the entire reach. There is an obvious transition between riffles and pools.</p>
	<p>Notes about riffle-pool sequence:</p>

**Photo log**

Indicate if any other photographs taken during the assessment:

Photo ID	Description
see photo appendix	

**Additional notes about the assessment:**

**Model classification:**

- |  |   |
|--|---|
| <input type="checkbox"/> Ephemeral               | <input type="checkbox"/> Less than perennial    |
| <input type="checkbox"/> At least intermittent   | <input type="checkbox"/> Perennial              |
| <input checked="" type="checkbox"/> Intermittent | <input type="checkbox"/> Needs more information |