

APPENDIX D
Delineation of Waters of the United States, Including Wetlands

Delineation of Waters of the United States, Including Wetlands

San Pasqual Undergrounding Project

July 2016

Prepared for:
City of Escondido
Vista Irrigation District
Bureau of Indian Affairs

Prepared by:

ATKINS

3570 Carmel Mountain Road, Suite 300
San Diego, California 92130
Atkins Project No.: 10004195

Contents

1.0	Summary	1
2.0	Introduction	1
2.1	Project Description	1
2.2	Project Location	4
3.0	Existing Conditions.....	4
3.1	Climate	4
3.2	Hydrology.....	5
4.0	Regulatory Background.....	8
4.1	United States Army Corps of Engineers	8
4.2	California Department of Fish and Wildlife	11
4.3	Regional Water Quality Control Board	11
5.0	Delineation Methods	11
5.1	Technical Method	11
5.2	Date of Field Observations.....	12
5.3	Wetland Vegetation Indicator Status Reference	12
5.4	Hydric Soil Method of Determination.....	12
5.5	Wetland Hydrology Method of Determination	12
6.0	Delineation Results	12
6.1	Features Delineated.....	12
6.2	Characteristics of Delineated Features.....	12
6.3	Unvegetated Ephemeral Channel.....	14
6.4	Discussion of Results.....	18
7.0	References	19
Appendix A	Delineation Tiles Routine Wetland Determination Forms	

Tables

Table 1	Summary of Key Points Contained in the EPA and USACE Clean Water Rule	10
Table 2	Potential Area of Jurisdictional Resources within the Study Area.....	13
Table 3	Potential Jurisdictional Resources within the Study Area	13

Figures

Figure 1	Regional Location.....	2
Figure 2	Overview of Proposed Project	3
Figure 3	San Luis Rey Watershed.....	6
Figure 4	Connection to Paradise Creek and San Luis Rey River.....	15
Figure 5	Connection to Moosa Canyon Creek and San Luis Rey River	16

Abbreviations

BIA	Bureau of Indian Affairs
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CWA	Clean Water Act
EPA	U.S. Environmental Protection Agency
GPS	Global Positioning System
MSCP	Multiple Species Conservation Plan
OHWM	Ordinary High Water Mark
ROW	Right of Way
RWQCB	Regional Water Quality Control Board
San Pasqual Band	San Pasqual Band of Mission Indians
SPUP	San Pasqual Undergrounding Project
SWANCC	Solid Waste Agency of Northern Cook County
U.S.	United States
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
VID	Vista Irrigation District

1.0 Summary

Atkins biologists systematically delineated the study area between February and May 2016. The waters of the United States (U.S.) have been mapped within the study area and include unvegetated channels. These features occupy a total of 0.05 acre of the study area. Jurisdictional waters of the State were also delineated in accordance with the California Department of Fish and Wildlife (CDFW) and Regional Water Quality Control Board (RWQCB) as described in the Section 3.1 (Regulatory Jurisdiction) of this report. Waters of the State occupy a total of 0.01 acre of the study area. No jurisdictional wetlands were documented in the study area.

This delineation of waters of the U.S. is subject to verification by the U.S. Army Corps of Engineers (USACE). Atkins advises all parties to treat the information contained herein as preliminary until the USACE provides written verification of the boundaries of their jurisdiction.

2.0 Introduction

On behalf of the City of Escondido (Escondido), Vista Irrigation District (VID), and the Bureau of Indian Affairs (BIA), Atkins conducted a delineation of waters of the United States (U.S.), including wetlands, occurring within the San Pasqual Undergrounding Project (SPUP) study area located south of the San Luis Rey River in Valley Center and the San Pasqual Reservation in San Diego County (Figures 1 and 2).

2.1 Project Description

The proposed action is an integral component of the San Luis Rey Indian Water Rights Settlement Agreement (January 30, 2015) including the United States (acting through the Secretary of the Interior and the Attorney General of the United States); the La Jolla, Rincon, San Pasqual, Pauma and Pala Bands of Mission Indians, the San Luis Rey Indian Water Authority, Escondido, and VID. The Settlement is authorized by the Act of November 30, 1988, Public Law 100-675, as amended.

The proposed project would remove, relocate, and restore about 2.5 miles of the Escondido Canal that crosses the San Pasqual Reservation (Figure 2). The proposed pipeline would run generally from north to south within the



Canal with flowing water

existing Escondido Canal right of way (ROW) and along existing roads, primarily North Canal Road, South Canal Road, North Lake Wohlford Road, and Paradise Mountain Road, to the extent feasible. The proposed pipeline would begin at the desilting basin northeast of North Canal Road and continue in a southwesterly direction and connect to the existing underground pipeline at a location south of Paradise Mountain Road. The proposed pipeline would include a 100-foot construction corridor (50 feet on each side of pipeline alignment) for the entire 2.5-mile length.

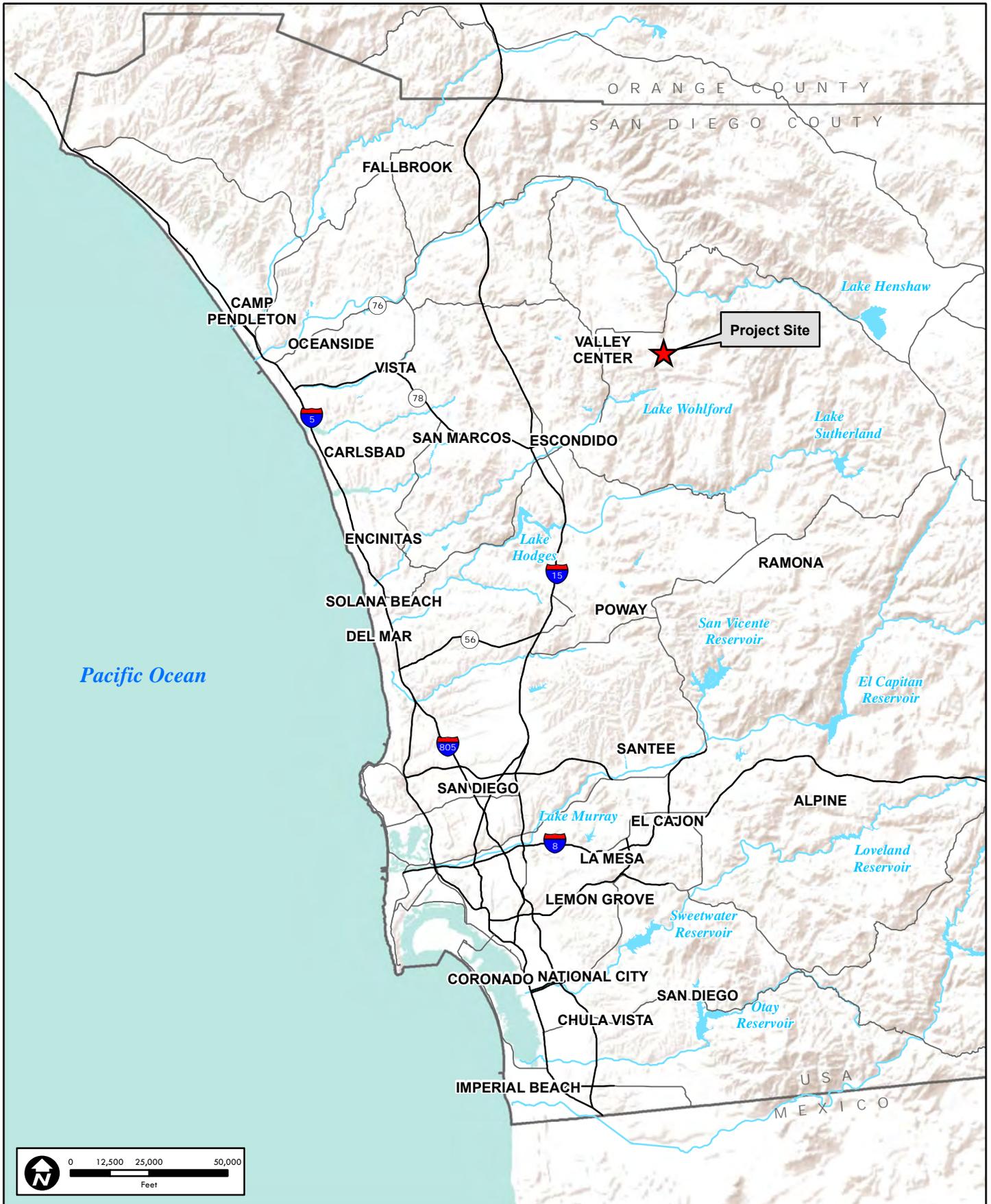
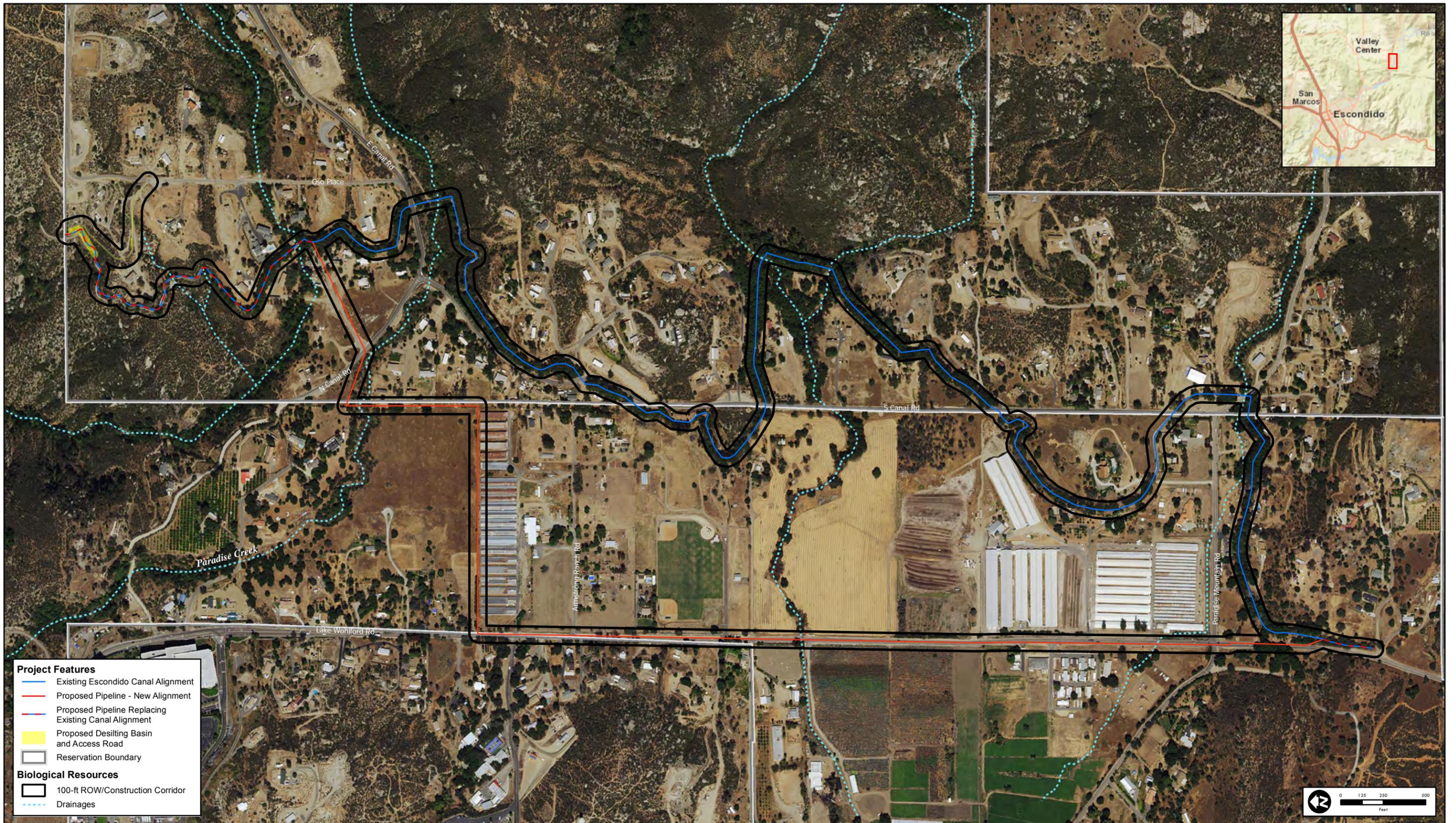


Figure 1
Regional Location





Project Features

- Existing Escondido Canal Alignment
- Proposed Pipeline - New Alignment
- Proposed Pipeline Replacing Existing Canal Alignment
- Proposed Desilting Basin and Access Road
- Reservation Boundary

Biological Resources

- 100-ft ROW/Construction Corridor
- Drainages



Figure 2
Overview of the Proposed Project
 100049195 2016 San Pasqual Undergrounding Project

A desilting basin and access road would be constructed at the intersection of the proposed alignment and the existing canal to remove sediment from the canal water prior to discharge into the new underground pipeline. Two desilting basin options are presented on Figure 2.

The proposed action includes reclamation of the land occupied by the replaced canal by means of demolition, grading, restoration/revegetation, and any associated mitigation of environmental impacts that may be required.

2.2 Project Location

The study area is located on the San Pasqual Reservation and on San Diego County land in the community of Valley Center, approximately 5 miles northeast of Escondido (Figure 1). This location corresponds to Sections 15 and 22 in Township 11 South, Range 1 West of the Rodriguez Mountains U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles.

The study area is located within USGS Hydrological Unit Code 18070303 named San Luis Rey-Escondido watershed (EPA 2014).

3.0 Existing Conditions

The study area currently consists of Lake Wohlford Road, South Canal Road, an unnamed dirt road, Escondido Canal, San Diego County and San Pasqual Reservation developed and undeveloped land, and San Diego North County Multiple Species Conservation Plan (MSCP) Preserve land (Hellhole Canyon). The County is currently developing additional MSCP Plans for the North County and East County areas. The Draft North County Plan is a stand-alone habitat conservation program for unincorporated lands under the County of San Diego's jurisdiction in the northwestern part of the county, from the coast eastward to Ramona and the western flanks of Palomar Mountain. It is intended to create a 107,000-acre regional preserve system in northern San Diego County. Included are general measures and recommendations for managing plant communities and specific habitats for over 60 species. Surrounding lands are a combination of residential and agricultural land. This location corresponds to the South Coast Subregion of the California Floristic Province (Baldwin et al 2012).

The elevation of the study area is approximately 1,600 to 1,700 feet above mean sea level. Topography in the vicinity of the study area is characterized as uplands and low hills. Local terrain within the study area consists of generally flat to slightly sloping upland.

3.1 Climate

San Diego County has a Mediterranean climate with cool, wet winters and warm, dry summers. The average total precipitation in Escondido is 14.98 inches. Rainfall is the heaviest between January and March with precipitation ranging 2.64 to 3.43 inches. Rain is infrequent during summer months, with precipitation ranging 0.08 to 0.20 inch.

The average annual temperature is approximately 65 degrees Fahrenheit for Escondido. Summer temperatures range from 58 to 89 degrees Fahrenheit and winters temperatures range 42 to 74 degrees Fahrenheit.

3.2 Hydrology

The San Luis Rey River flows approximately 55 miles from its headwaters in the Palomar and Hot Springs Mountains, crossing northern San Diego County, until it eventually flows through the coastal town of Oceanside and meets the Pacific Ocean (Figure 3). The San Luis Rey River watershed includes an area of approximately 562 square miles. Drainage of the study area occurs through surface runoff into ditches and drainages that flow into Paradise Creek or Moosa Creek that both flow into the San Luis Rey River. Some drainage also flows into the Escondido Canal.

3.2.1 Vegetation Communities

The study area consists of ten vegetation communities, including coast live oak woodland, Engelmann oak woodland, eucalyptus woodland, southern willow scrub, coastal sage scrub, southern mixed chaparral, non-native grassland, agricultural, ornamental, and disturbed (Oberbauer et al. 2008).

3.2.2 Woodlands

Oak Woodlands

Southern oak woodlands are a vegetation community that occurs in the outer portion of the central Coast Range and extends south into Baja, California. In San Diego County, oak woodland is best developed in the interior valleys and on gentle foothill slopes of the Peninsular Ranges between 500 and 4,500 feet in elevation. In the study area, oak woodlands occur primarily along the Escondido Canal and drainages.

Coast Live Oak Woodland

Southern coast live oak woodland is an open to locally dense, evergreen, sclerophyllous (stiff hard leaved) woodland that is dominated by coast live oak (*Quercus agrifolia*). This vegetation community has a poor understory due to the tannins produced by the oaks. Poison oak (*Toxicodendron diversilobum*) is common and grows as a shrub and a vine. Non-native grasses are also common.

Engelmann Oak Woodlands

Engelmann oak woodland is an open to locally dense, evergreen, woodland that is dominated by Engelmann oak (*Quercus engelmannii*) and coast live oak. Species occurring within the oak woodlands along the Escondido Canal include coast live oak, Engelmann oak, toyon (*Heteromeles arbutifolia*), and poison oak. Disturbed areas of this habitat included tree-of-heaven (*Ailanthus altissima*), Italian thistle (*Carduus pycnocephalus*), non-native grasses, and impacts from adjacent development (i.e., residences).

Eucalyptus Woodland

Eucalyptus woodlands are a type of non-native vegetation dominated by eucalyptus trees (*Eucalyptus* spp.). These introduced trees are drought tolerant once established and produce a large amount of leaf and bark litter. This habitat is generally not considered sensitive, but eucalyptus is one of many trees that can support sensitive nesting raptor species.

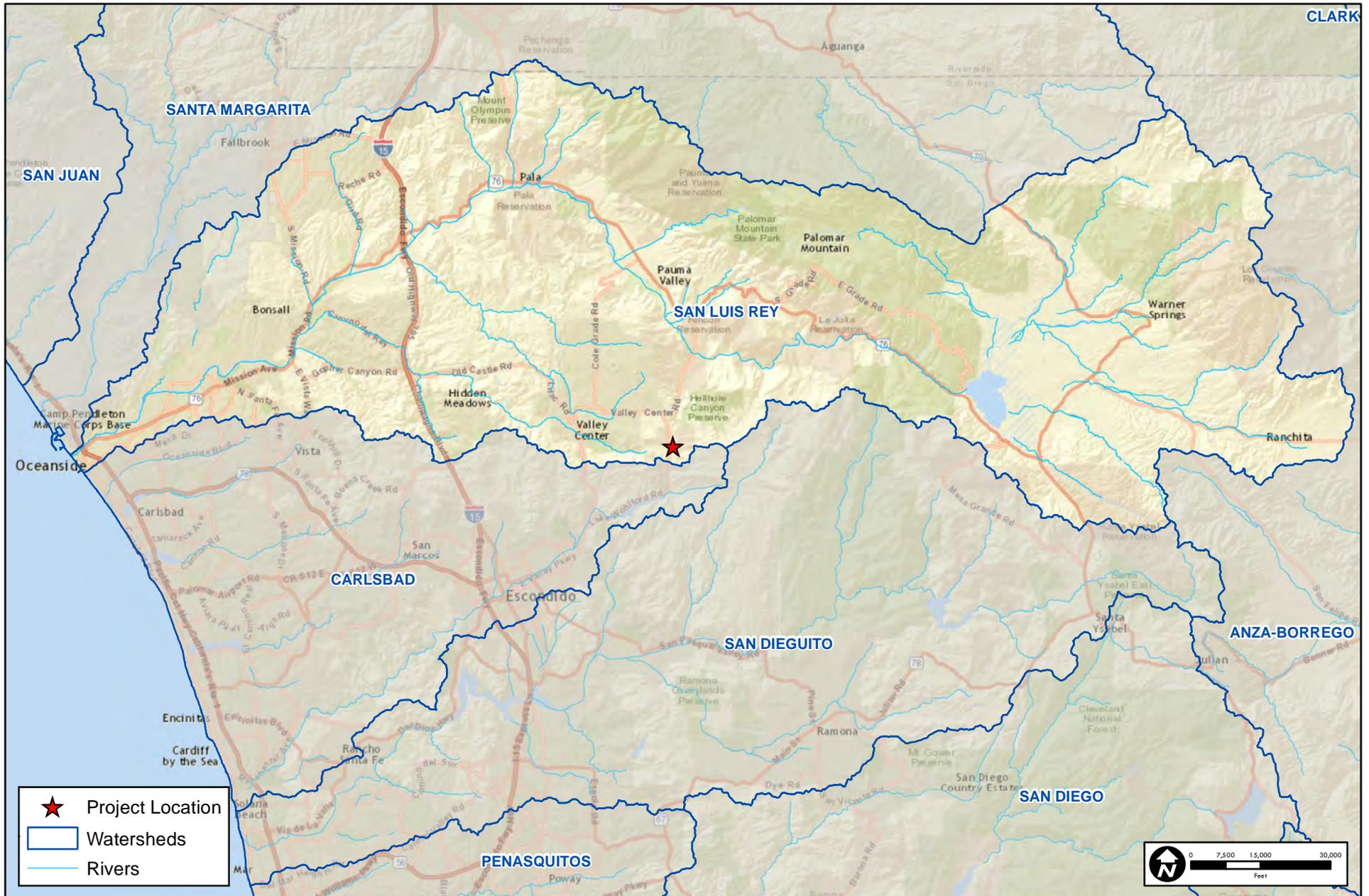


Figure 3
San Luis Rey Watershed



100049195 2016 San Pasqual Undergrounding Project

Sources: Esri 2016, SanGIS 2016

6/8/2016 bela7036 \\SUSDDA1101\data\Clients\Esccondido\100049195 VID SPUP ENV EA MND\GIS\data\SanPasqual_Watersheds.mxd

3.2.3 Riparian

Southern Willow Scrub

Southern willow scrub consists of dense, broadleaved, winter-deciduous stands of trees dominated by shrubby willows (*Salix* spp.) in association with mule fat (*Baccharis salicifolia*), and with scattered cottonwood (*Populus* spp.) and western sycamores (*Platanus racemosa*). This vegetation community occurs on loose, sandy or fine gravelly alluvium deposited near stream channels during flood flows. Southern willow scrub in the study area consists primarily of willow species (i.e., *Salix laevigata* and *Salix gooddingii*), and a small patch of the invasive weed giant reed (*Arundo donax*).

3.2.4 Shrublands

Coastal Sage Scrub

Coastal sage scrub is dominated by subshrubs that can withstand the prolonged drought period in the summer and fall in areas of low precipitation. This habitat type occupies xeric sites characterized by shallow soils. Coastal sage scrub may be dominated by a variety of species depending upon soil type, slope, and aspect. Dominant coastal sage scrub species found within the project area include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), deerweed (*Acmispon glaber*), and black sage (*Salvia mellifera*). Disturbed coastal sage scrub contains many of the same shrub species as undisturbed coastal sage scrub but is sparser and has a higher proportion of non-native annual species.

Southern Mixed Chaparral

Southern mixed chaparral is composed of broad-leaved sclerophyllous shrubs that can reach 6 to 10 feet in height and form dense often nearly impenetrable stands with poorly developed understories. Depending upon relative proximity to the coast, southern mixed chaparral in the project area is dominated by chamise (*Adenostoma fasciculatum*), mission manzanita (*Xylococcus bicolor*), Ramona lilac (*Ceanothus tomentosus*), scrub oak (*Quercus berberidifolia*), mountain mahogany (*Cercocarpus betuloides*), and sugar bush (*Rhus ovata*).

3.2.5 Grasslands

Non-native Grassland

Non-native grassland is characterized by a dense to sparse cover of non-native annual grasses, and often includes a mixture of native and non-native annual forbs. Non-native grasslands are located in patches throughout the study area, along the roads and in mowed fields adjacent to residences. Species occurring within this vegetation community include ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis* ssp. *rubens*), ryegrass (*Festuca* spp.), mustard (*Brassica* spp.), and prickly lettuce (*Lactuca serriola*).

3.2.6 Disturbed/Developed

Agriculture

Agriculture refers to lands subject to routine and ongoing commercial operations associated with orchards and vineyards, intensively developed agriculture, such as dairies, nurseries, and chicken ranches, and extensive agriculture such as field and pastures and row crops.

Ornamental

Ornamental include areas with planted landscaping. Most of the ornamental areas are along Lake Wohlford Road and are adjacent to agricultural or developed area. Landscape areas often require irrigation.

Disturbed

Disturbed land includes areas in which there is sparse vegetative cover and where there is evidence of soil surface disturbance and compaction from previous human activity and/or the presence of building foundations and debris. Vegetation on disturbed land (if present) has a high predominance of non-native and/or weedy species that are indicators of surface disturbance and soil compaction, such as Russian thistle (*Salsola tragus*), telegraph weed (*Heterotheca grandiflora*), horehound (*Marrubium vulgare*), and sow-thistle (*Sonchus oleraceus*). Disturbed habitat is not considered sensitive, and no mitigation is required for impacts.

Developed

Developed land is that where permanent structures (and associated infrastructure) and/or pavement have been placed, preventing natural vegetation growth, or where landscaping is clearly tended and maintained. On site, developed land includes primarily residential buildings, paved roads, and adjacent landscaping.

4.0 Regulatory Background

4.1 United States Army Corps of Engineers

4.1.1 Regulatory Definition

For delineation purposes, wetlands are defined as:

Those areas that are inundated or saturated by surface or groundwater 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 (33 Code of Federal Regulations (CFR) 328.3, 40 CFR 230.3).

Explicit in the wetland definition is the consideration of three parameters: hydrology, hydric soil, and hydrophytic vegetation. Positive indicators of all three parameters are present in wetlands under normal circumstances.

For the purposes of delineating stream channels, the USACE defines the Ordinary High Water Mark (OHWM) in Regulatory Guidance Letter Number 05-05, 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.

4.1.2 Regulatory Jurisdiction

The USACE and U.S. Environmental Protection Agency (EPA) are responsible for making all final jurisdictional determinations. Under Section 404 of the federal Clean Water Act (CWA), the USACE and the EPA reserve the right to determine jurisdiction on a case-by-case basis (CFR, Volume 41, Number 219).

According to 33 CFR 328.4(c), the limits of jurisdiction in non-tidal waters are as follows:

- In the absence of adjacent wetlands, the jurisdiction extends to the OHWM, or
- When adjacent wetlands are present, the jurisdiction extends beyond the OHWM to the limit of the adjacent wetlands.
- When the water of the United States consists only of wetlands, the jurisdiction extends to the limit of the wetland.

On January 9, 2001 the U.S. Supreme Court issued a decision (*Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159 (2001) [SWANCC]), that the USACE lacks the authority to regulate isolated wetlands via the “Migratory Bird Rule.” The 1986 Migratory Bird Rule stated that Section 404 of the CWA extended to intrastate waters which provide habitat for birds protected by migratory treaties; other migratory birds that cross state lines; or endangered species. Intrastate waters used to irrigate crops sold in interstate commerce also were included. As a result of the court decision, many isolated wetlands (not connected or adjacent to other jurisdictional waters of the U.S.), which previously fell under USACE authority, are now unregulated for Section 404 purposes.

On June 5, 2007, the USACE and EPA issued a joint guidance memorandum that further refined “jurisdiction over waters of the United States under the Clean Water Act” (33 USC 1251 *et seq.*) (USACE and EPA 2007a). This memorandum implements the Supreme Court's decision in the consolidated cases of *Rapanos v. United States* and *Carabell v. U. S. Army Corps of Engineers* (547 U.S. 715 (2006) (*Rapanos*)) (USACE and EPA 2007a) (refer to Table 1). In addition, the procedures included in this memorandum replace the coordination procedures contained in the January 2003 EPA/USACE guidance implementing the SWANCC decision (but leaves the remainder of that guidance unaffected) (USACE and EPA 2007b). Further, this memorandum does not nullify or supersede the 1990 Geographic Jurisdiction Memorandum of Agreement, including its special case provisions (USACE and EPA 2007b).

On June 29, 2015, the EPA and USACE issued the Clean Water Rule (80 Fed. Reg. 37,054) to further clarify protection of streams and wetlands under the CWA, following *Rapanos* and SWANCC. The rule became effective August 28, 2015 and ensures that waters of the U.S. protected under the CWA are more precisely defined and consistent when making jurisdictional determinations. However, on October 9, 2015, the U.S. Court of Appeals for the Sixth District stayed the Clean Water Rule nationwide pending further action of the court. A summary of key points contained within the Clean Water Rule are provided in Table 1 below.

On May 31, 2016 the Supreme Court issued a verdict on the *U. S. Army Corps of Engineers v. Hawkes Co., Inc.* (578 U.S.). This case questioned whether an approved jurisdictional determination (“AJD”) finalized through the USACE administrative appeals process, 33 CFR Part 331, constitutes “final agency action for which there is no other adequate remedy in a court,” 5 U.S.C. § 704, and is therefore subject to judicial review under the Administrative Procedure Act (“APA”), 5 U.S.C. §§ 701, *et seq.* The Supreme Court ruled that Clean Water Act jurisdictional determinations issued by the U.S. Army Corps of Engineers are indeed final agency actions subject to judicial review under the Administrative Procedure Act.

Table 1 Summary of Key Points Contained in the EPA and USACE Clean Water Rule

“Waters of the United States” are defined to include eight categories of jurisdictional waters:

1. Traditional Navigable Waters
2. Territorial Seas
3. Interstate Waters
4. Impoundments
5. Tributaries
6. Adjacent Waters
7. Case-Specific “Waters of the United States”
8. Waters and Features that are not “Waters of the United States”

The rule recognizes jurisdiction for three basic categories:

1. Waters that are jurisdictional in all instances,
2. Waters that are excluded from jurisdiction, and
3. Waters subject to case-specific analysis to determine whether they are jurisdictional.

There were no changes in the final rule to any first four categories of “waters of the U.S.,” which are jurisdictional in all instances: Traditional Navigable Waters, Interstate Waters, Territorial Seas, and Impoundments.

Significant Nexus Standard

Waters are “waters of the U.S.” if they, either alone or in combination with similarly situated waters in the region, significantly affect the chemical, physical, or biological integrity of traditional navigable waters, interstate waters, or the territorial seas.

Tributaries

Tributaries defined as “waters of the U.S.” must be part of a tributary system that eventually flows to a traditional navigable water, an interstate water, or the territorial seas. A tributary may contribute flow through any number of downstream waters, including non-jurisdictional features (i.e. culverts, pipes, or dams), but it must be part of a tributary system that eventually flows to a traditional navigable water, an interstate water, or the territorial seas. Second, the rule requires two physical indicators of flow: 1) defined bed and bank, and 2) an indicator of ordinary high water mark.

Ditches

The rule also qualifies what types of ditches are jurisdictional. Ditches protected by the rule must meet the definition of tributary, as defined above. Ditches that meet the jurisdictional criteria are: 1) Ditches with perennial flow; 2) Ditches with intermittent flow that are a relocated tributary, or are excavated in a tributary, or drain wetlands; 3) Ditches, regardless of flow, that are excavated in or relocate a tributary.

Adjacent Water

The final rule established a definition of “neighboring” for purposes of determining adjacency. In the rule, the agencies identify three circumstances under which waters would be “neighboring” and therefore “waters of the United States”:

1. Waters located in whole or in part within 100 feet of the ordinary high water mark of a traditional navigable water, interstate water, the territorial seas, an impoundment of a jurisdictional water, or a tributary, as defined in the rule.
2. Waters located in whole or in part in the 100-year floodplain and that are within 1,500 feet of the ordinary high water mark of a traditional navigable water, interstate water, the territorial seas, an impoundment, or a tributary, as defined in the rule (“floodplain waters”).
3. Waters located in whole or in part within 1,500 feet of the high tide line of a traditional navigable water or the territorial seas and waters located within 1,500 feet of the ordinary high water mark of the Great Lakes.

Case-Specific “Waters of the United States”

The rule identifies five specific types of waters in specific regions that science demonstrates should be subject to a case-specific significant nexus analysis. These five types of waters are: 1) Prairie potholes, 2) Carolina and Delmarva bays, 3) Pocosins, 4) Western vernal pools in California, and 5) Texas coastal prairie wetlands.

Other waters subject to a case-specific nexus determination are: 1) Waters within the 100-year floodplain of a traditional navigable water, interstate water, or the territorial seas; 2) Waters within 4,000 feet of the high tide line or the ordinary high water mark of a traditional navigable water, interstate water, the territorial seas, impoundments, or covered tributary.

4.2 California Department of Fish and Wildlife

The CDFW, through provisions of the California Fish and Game Code (Section 1602), is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks and at least an intermittent flow of water. The CDFW regulates wetland areas only to the extent that those wetlands are part of a river, stream, or lake, as defined by the CDFW.

In obtaining CDFW agreements, the limits of wetlands are not typically determined. The reason for this is that the CDFW generally includes within the jurisdictional limits of streams and lakes any riparian habitat present. Riparian habitat includes willows, mule fat, and other vegetation typically associated with the banks of a stream or lake shoreline. In most situations, wetlands associated with a stream or lake would fall within the limits of riparian habitat. Thus, defining limits of CDFW jurisdiction based on riparian habitat will automatically include any wetland areas and may include additional areas that do not meet the USACE criteria for soils and/or hydrology (e.g., where riparian woodland canopy extends beyond the banks of a stream away from frequently saturated soils).

CDFW does not have jurisdiction on the San Pasqual Reservation. CDFW jurisdiction occurs on San Diego County land along Lake Wohlford Road (refer to Figure 2).

4.3 Regional Water Quality Control Board

Under the Clean Water Act and the California Porter-Cologne Water Quality Control Act, an activity which may result in a discharge into a water body must request state certification from the RWQCB that the proposed activity will not violate federal and state water quality standards. This generally includes all waters subject to the jurisdiction of the USACE and CDFW, including isolated waters excluded from USACE jurisdiction. However, waters within the San Pasqual Reservation are not within RWQCB jurisdiction.

RWQCB jurisdiction overlaps CDFW jurisdiction and occurs on San Diego County land along Lake Wohlford Road (refer to Figure 2).

5.0 Delineation Methods

5.1 Technical Method

The routine on-site determination was based on field observations of soil, vegetation, and hydrologic characteristics as defined in the USACE Wetlands Delineation Manual (Environmental Laboratory 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0 (USACE 2008). A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States (Lichvar and McColley 2008) was also consulted to more accurately depict and discuss perennial channel forms within the study area.

Minimum delineation standards require at least one set of paired data points (wetland and upland) for each feature. A pedestrian survey was conducted over the entire study area with aerial imagery for reference to determine potential features requiring data points.

Three-parameter data points (soil, vegetation, and hydrology) were collected to characterize and document features within the study area. Wetland determination data forms for these data points are presented in Appendix A.

Seven wetland data points were assessed within drainages and/or riparian vegetation, and none of the areas qualified as wetlands based on lacking all the three parameters (Appendix A).

5.2 Date of Field Observations

The field observations for this delineation were conducted by Brian Lohstroh, Melissa Tu, Katie Laybourn, and Branden Belajac on February 10, February 11, March 21, and March 28, 2016. Reconnaissance surveys of Hellhole Canyon were conducted on May 12, 2016.

5.3 Wetland Vegetation Indicator Status Reference

The USACE 2016 National Wetland Plant List website was used to determine the wetland indicator status for each plant species (Lichvar et al 2016 and USACE 2016). Status for the Arid West was used.

5.4 Hydric Soil Method of Determination

A standard Munsell® soil color chart was used to determine soil matrix and redox feature colors (chroma and value) to determine hydric soil.

5.5 Wetland Hydrology Method of Determination

Wetland hydrology indicators include presence of the water table, soil saturation, ponding/surface water, drainage patterns, bankfull, and the OHWM.

The boundaries of each delineated feature and the location of three-parameter data points and reference locations were either mapped using a Trimble GPS capable of sub-meter accuracy or mapped through remote sensing using recent (2015) aerial photography with onsite observation verification. These data were then overlain onto the aerial for calculating acreages of wetland features.

6.0 Delineation Results

6.1 Features Delineated

Thirteen USACE jurisdictional features, all non-wetland waters of the U.S. (ephemeral drainages), were mapped within the study area. No jurisdictional wetlands were observed. The study area consists of a 100-foot wide buffer, two 50-foot linear buffers on each side of the canal and each side of the proposed pipeline (refer to map tiles in Appendix A).

These features occupy a total of 0.050 acre (2,170 square feet). Table 2 provides an acreage summary and resources are listed as potentially jurisdictional until verified by the USACE. Appendix A presents the delineation maps showing each delineated feature and data point locations.

6.2 Characteristics of Delineated Features

Table 3 provides details and acreages of the delineated features within the study area. Each delineated feature is described below.

Table 2 Potential Area of Jurisdictional Resources within the Study Area

Type	Square feet	Acreage
USACE Jurisdictional Resources		
Wetland	0	0
Non-Wetland Waters of the U.S. Ephemeral Channel	2,170	0.050
Total	2,170	0.050
CDFW Waters of the State		
Wetland	0	0
Ephemeral Channel	430	0.010
Total	430	0.010

Table 3 Potential Jurisdictional Resources within the Study Area

Feature	Tile No. ⁽¹⁾	Drainage Dimension (feet)		Square Feet	Soil Pit(s)	CDFW/RWQCB Jurisdiction ⁽²⁾	Culvert	Temporary Impacts Likely	Project Area		Drainage Connection
		Width	Length						Under Canal	Pipeline	
1a	1	1	50	50	-	No	No	No	x	x	Paradise
1b		3	50	150	-	No	No	No	x	x	Paradise
1c		2	100	200	-	No	No	No	x	x	Paradise
2a	2	2	50	100	2	No	No	No	x	x	Paradise
2b		4	60	240	-	No	No	No	x	x	Paradise
3	3	1	130	130	1	No	No	Yes		x	Paradise
4	4	1	100	100	3-5	No	No	No	x		Paradise
5	5	3	100	300	-	Yes	Yes	Yes ⁽³⁾		x	Paradise
6a	6	4	50	200	-	No	No	No	x		Paradise
6b		3	80	240	6	No	No	No	x		Paradise
6c		1	120	120	7	No	No	No	x		Paradise
7	7	1	130	130	-	Yes	Yes	Yes		x	Moosa
8a	8	1	50	50	-	No	Yes	Yes	x		Moosa
8b		2	80	160	-	No	Yes	Yes	x		Moosa
Total		-	1,150	2,170⁽⁴⁾	-	-	-	--	-	-	-

Notes: No areas qualified as three parameter (hydric soil, wetland hydrology, hydrophytic vegetation) wetlands.

⁽¹⁾ See Appendix A for Figure Tiles

⁽²⁾ CDFW and RWQCB do not have jurisdiction on the federal reservation

⁽³⁾ Temporary impacts may occur under culvert

⁽⁴⁾ 2,170 square feet = 0.05 acre (0.04981)

6.3 Unvegetated Ephemeral Channel

Approximately 0.050 acre of unvegetated channel was mapped within the study area. The small ephemeral drainage channels in the study area range from 1-foot wide to 4-feet wide (refer to Map Tiles in Appendix A).

The northern drainage channels (1a-6c) flow into Paradise Creek and ultimately to the San Luis Rey River (Figure 4 and Appendix A). The San Luis Rey River occurs north of the project area and flows to the Pacific Ocean. The southern drainage channels (7 and 8) flow to Moosa Creek and ultimately to the San Luis Rey River (Figure 5 and Appendix A).

Feature 1a and 1b

The canal is suspended over the rocky drainage (Photo 1). The drainage is approximately 1-foot wide upstream of the canal and 3-feet wide downstream of the canal (refer to Table 3). The proposed pipeline would be constructed within the existing canal and would be suspended over the 1 to 3 foot wide drainage. Temporary impacts may occur during construction. However, no permanent impacts to the drainage are anticipated.



Photo 1. The 3-foot wide drainage, 1B, looking downstream from the canal.

Feature 1c

The drainage is approximately 2 feet wide and begins just downstream of the canal (refer to Table 3). The proposed pipeline would be constructed within the existing canal. No impacts to the drainage are anticipated.

Feature 2

The canal is suspended over the drainage. The drainage is approximately 2-feet wide upstream of the canal and 4-feet wide downstream of the canal (refer to Table 3) (Photo 2). The proposed pipeline would be constructed within the existing canal and would be suspended over the drainage. Temporary impacts may occur during construction. Therefore, no impacts to the drainage are anticipated.



Photo 2. Feature 2 looking upstream from the canal.

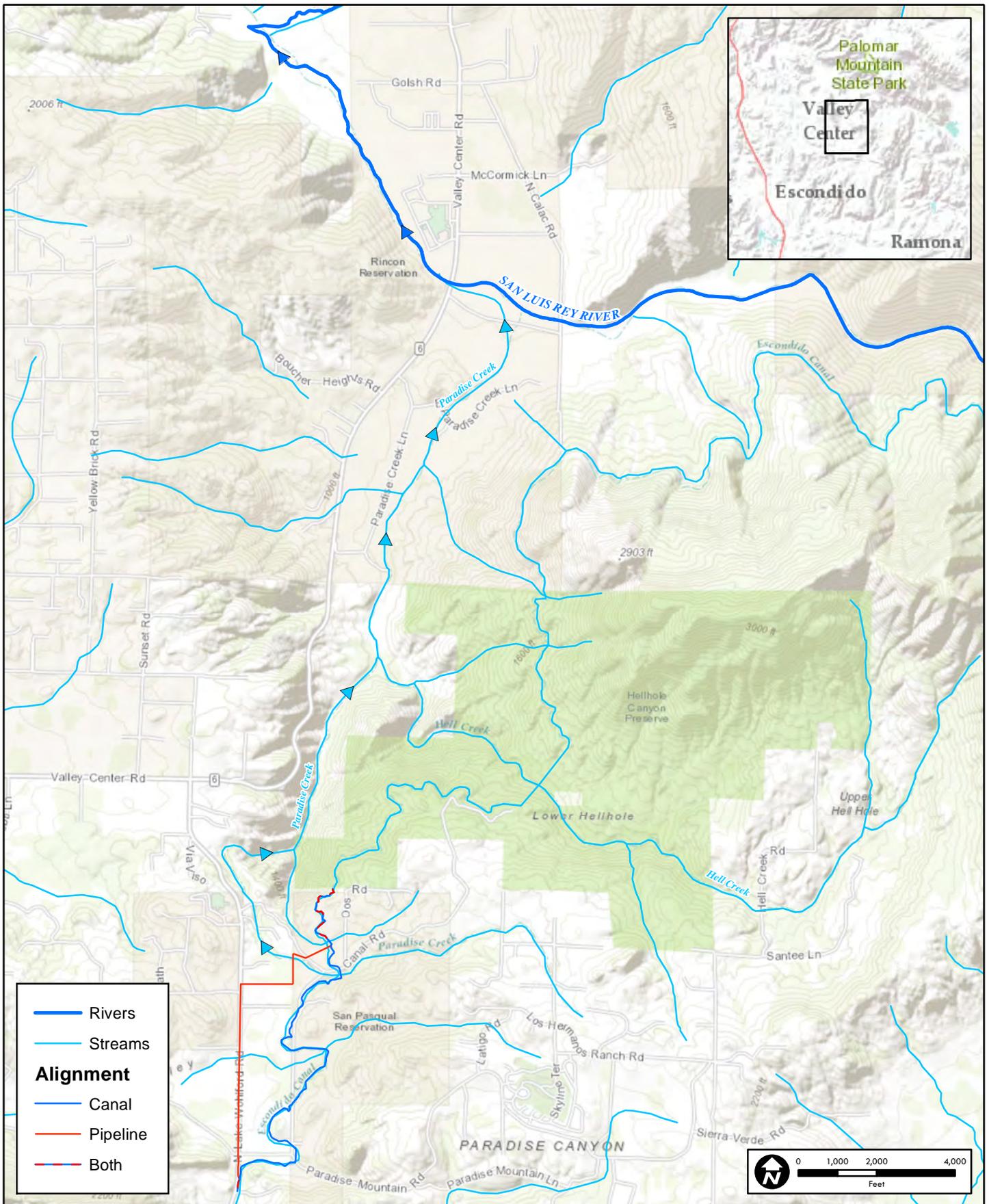


Figure 4
Connection to Paradise Creek and San Luis Rey River

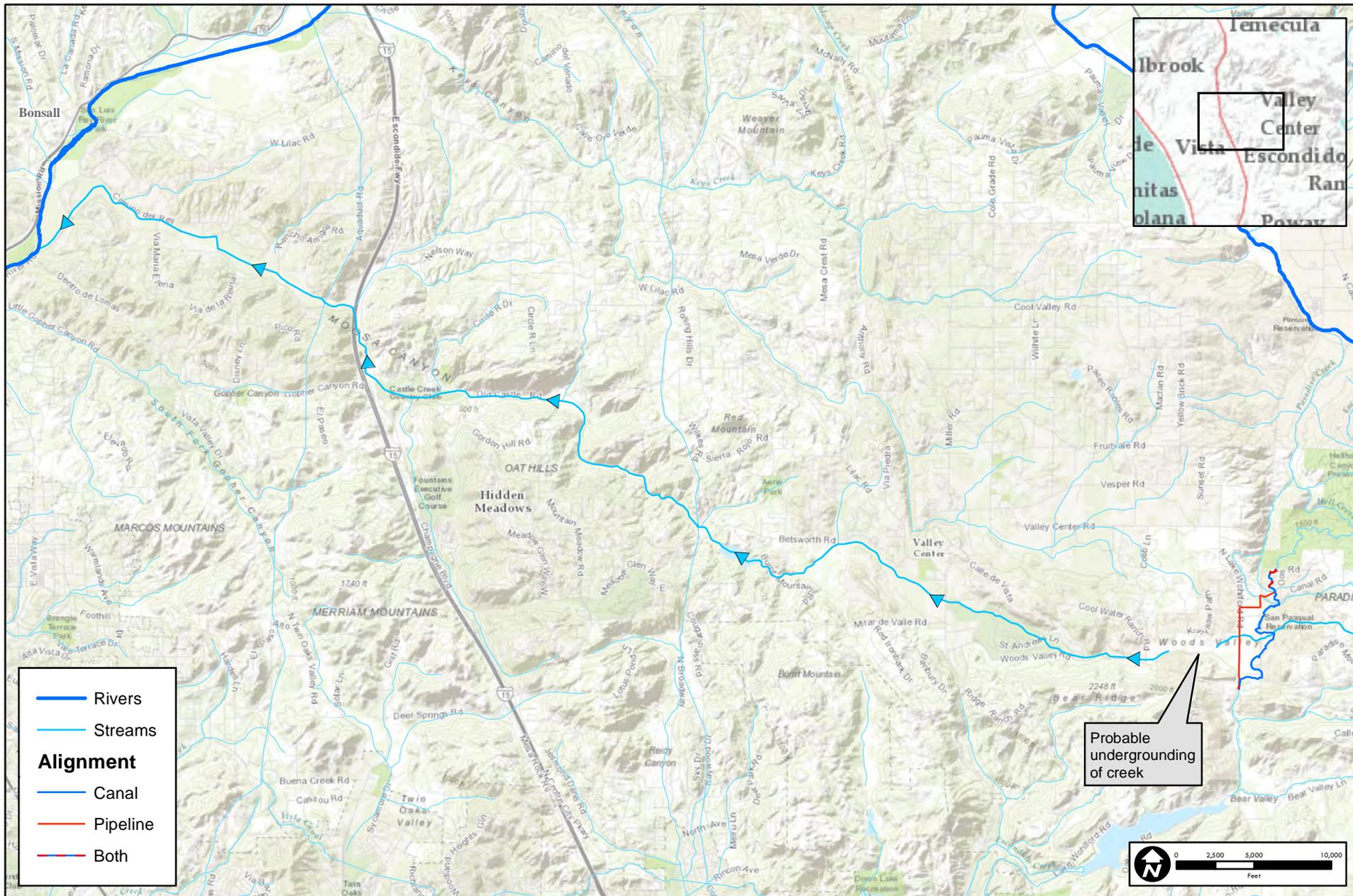


Figure 5
Connection to Moosa Canyon Creek and San Luis Rey River

Feature 3

The proposed pipeline would be open trench construction and would be placed under the 1-foot wide drainage (Photo 3). Temporary impacts to the drainage would occur.

Feature 4

The canal is suspended over the ephemeral drainage channel (Photos 4 and 5). The drainage is approximately 1-foot wide (refer to Table 3). This portion of the canal is proposed for removal. No impacts to the drainage are anticipated. Temporary impacts to the surrounding vegetation would occur.



Photo 3. Feature 3 looking downstream.

Feature 5

The proposed pipeline would be open trench construction within Lake Wohlford Road. Feature 5, a 3-foot wide ephemeral drainage goes through a culvert under Lake Wohlford Road. The pipeline would be placed under the culvert.



Photo 4. Canal flume over drainage 4, looking southwest.

Features 6a and 6b

The canal is suspended over Features 6a and 6b. The drainage is approximately 4 feet upstream and 3 feet downstream of the canal (refer to Table 3). This portion of the canal is proposed for removal. No impacts to the drainage are anticipated. Temporary impacts to the surrounding vegetation would occur.

Feature 6c

The canal is suspended over Feature 6c. The drainage is approximately 1-foot wide (refer to Table 3). This portion of the canal is proposed for removal. No impacts to the drainage are anticipated. Temporary impacts to the surrounding vegetation would occur.

Feature 7

The proposed pipeline would be placed under the 1-foot wide drainage. Temporary impacts to the drainage are anticipated. This location is downstream of Feature 8.



Photo 5. Feature 4 looking downstream.

Feature 8

Feature 8, an ephemeral drainage channel, crosses the canal within a culvert in Paradise Mountain Road (Photos 6 and 7). The drainage is approximately 1 foot upstream and 2 feet downstream of the Paradise Mountain Road (refer to Table 3). Removal of the canal upstream and downstream of Paradise Mountain Road could temporarily impact feature 8.



Photo 6. Feature 8 looking upstream.



Photo 7. Figure 8 looking downstream.

6.4 Discussion of Results

Non-wetland waters of the U.S. features that occur within the study area include unvegetated ephemeral channels. These features occupy a total of 0.05 acre and are subject to USACE jurisdiction. No discharge of dredged or fill material into waters of the U.S. is permitted unless authorized under a Department of the Army Permit. Additionally, a total 0.01 acre of waters of the State including unvegetated channels occur within the study area. Therefore, no activity is permitted unless authorized by the USACE, CDFW, and San Diego RWQCB.

This delineation of waters of the U.S. is subject to verification by the USACE. Atkins advises all parties to treat the information contained herein as preliminary until the USACE provides written verification regarding the boundaries of their jurisdiction.

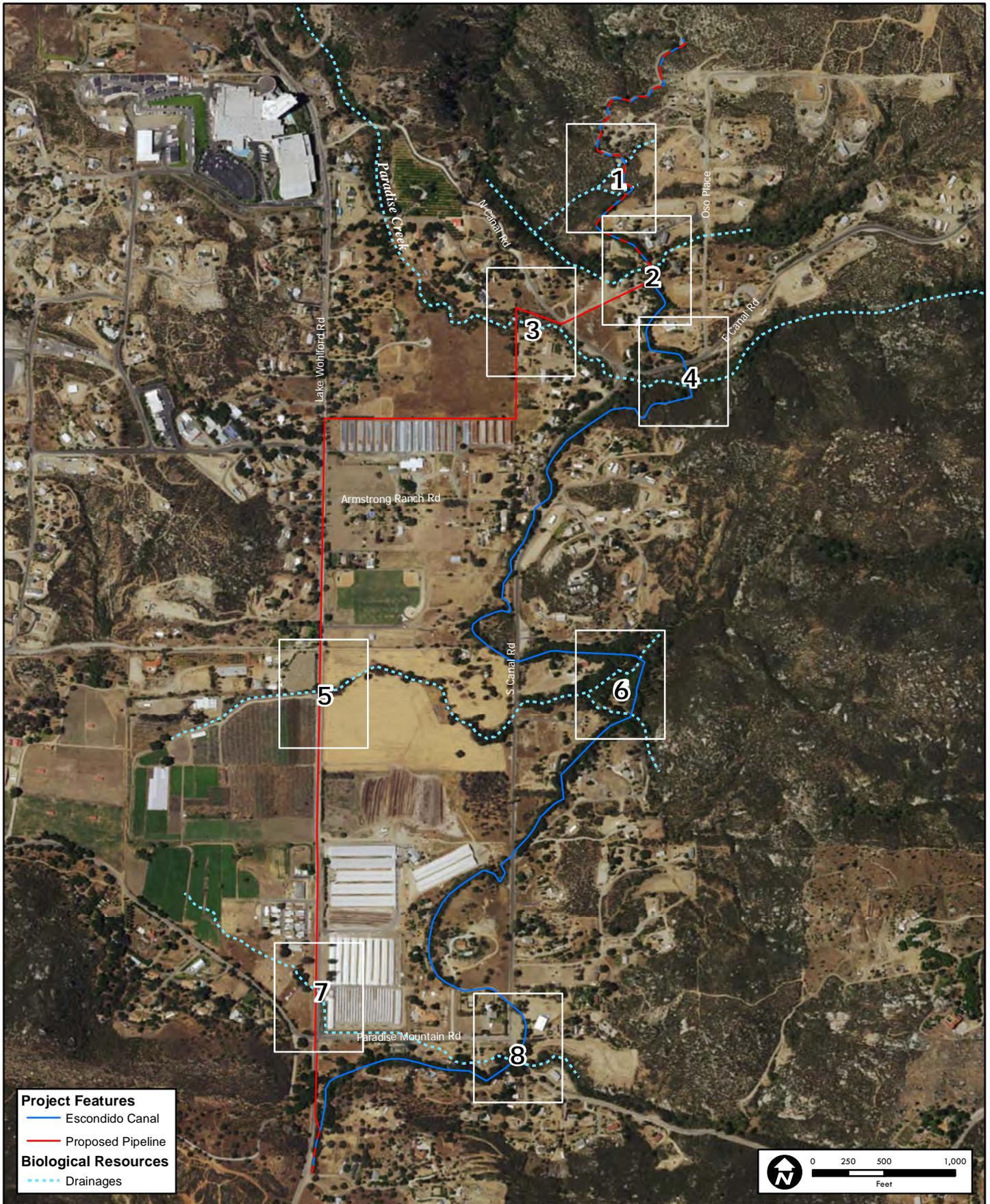
Permit applications should be prepared once the team is further along in the design phase but early enough to allow for the one to two year permit application review period.

7.0 References

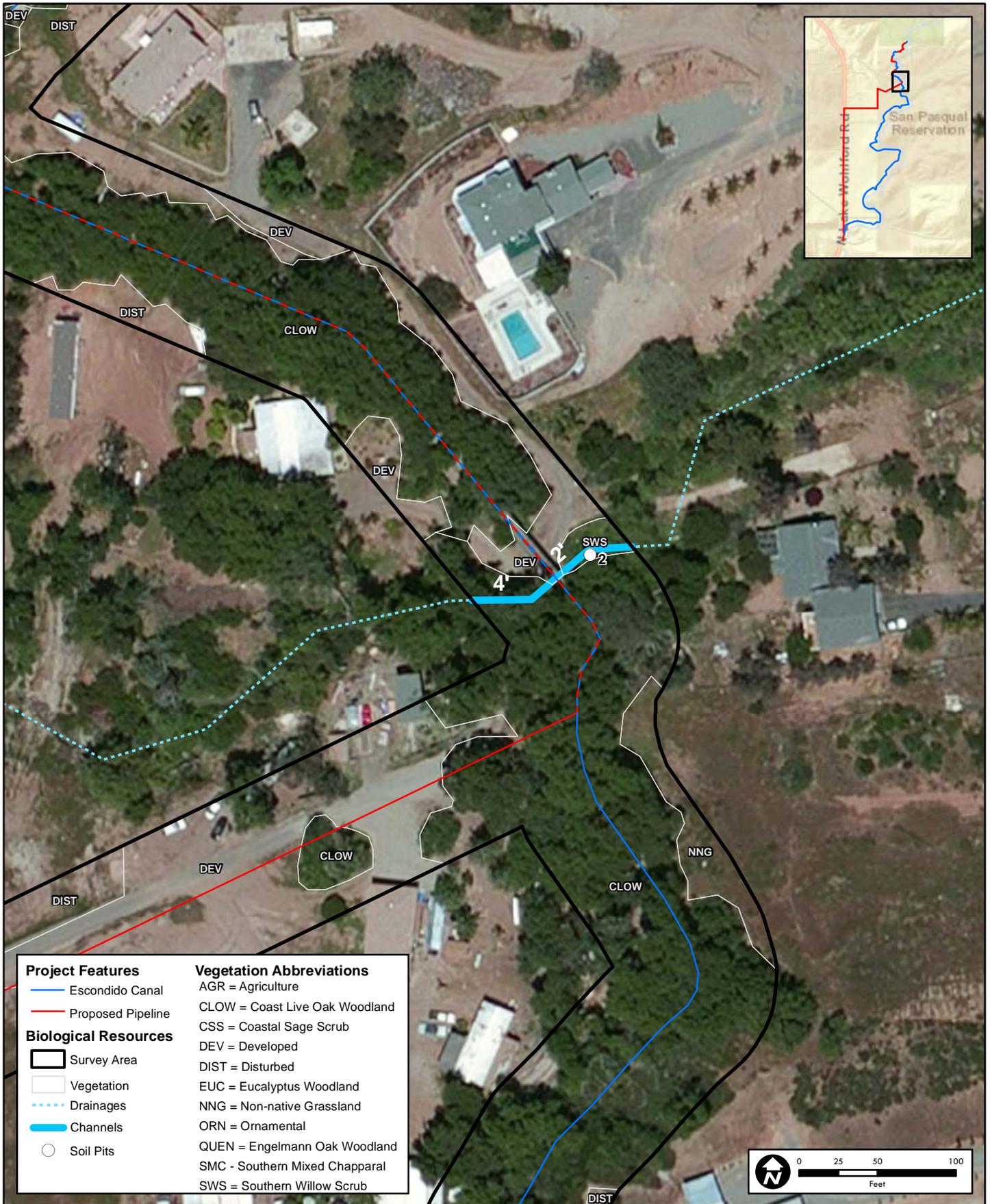
- Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken. 2012. *The Jepson Manual: Higher Plants of California*. University of California Press. Berkeley, California. January.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station. Vicksburg, Mississippi.
- Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List: 2016 wetland ratings*. *Phytoneuron* 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X.
- Lichvar, R.W. and Shawn M. McColley. 2008. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. A Delineation Manual*. ERDC/CRREL TR-08-12. U.S. Army Engineer Research and Development Center. Hanover, New Hampshire.
- Oberbauer, Thomas, Meghan Kelly, and Jeremy Buegge. 2008. *Draft Vegetation Communities of San Diego County*. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California," Robert F. Holland, PhD., October 1986.
- U.S. Army Corps of Engineers (USACE). 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) Final report*. ERDC/EL TR-08-28. U.S. Army Engineer research and Development Center. Vicksburg, Mississippi.
- U.S. Army Corps of Engineers (USACE). 2016. *National Wetland Plant List, version 3.3* at http://wetland_plants.usace.army.mil/. U.S. Army Corps of Engineers Engineer Research and Development Center Cold Regions Research and Engineering Laboratory. Hanover, New Hampshire.
- U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (EPA). 2007a. *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States*. June.
- U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (EPA). 2007b. *Solid Waste Agency of Northern Cook County (SWANCC) v. USACE: Isolated Waters, Migratory Birds, Statutory and Constitutional Interpretation*.
- U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (EPA). 2015. *Clean Water Rule: Definition of "Waters of the U.S."* June.
- U.S. Department of Agriculture (USDA). 1973. *Soil Survey San Diego Area, California*. December.
- U.S. Environmental Protection Agency (EPA). 2014. *San Diego Watershed Profile*. Retrieved from: http://cfpub.epa.gov/surf/huc.cfm?huc_code=18070304.

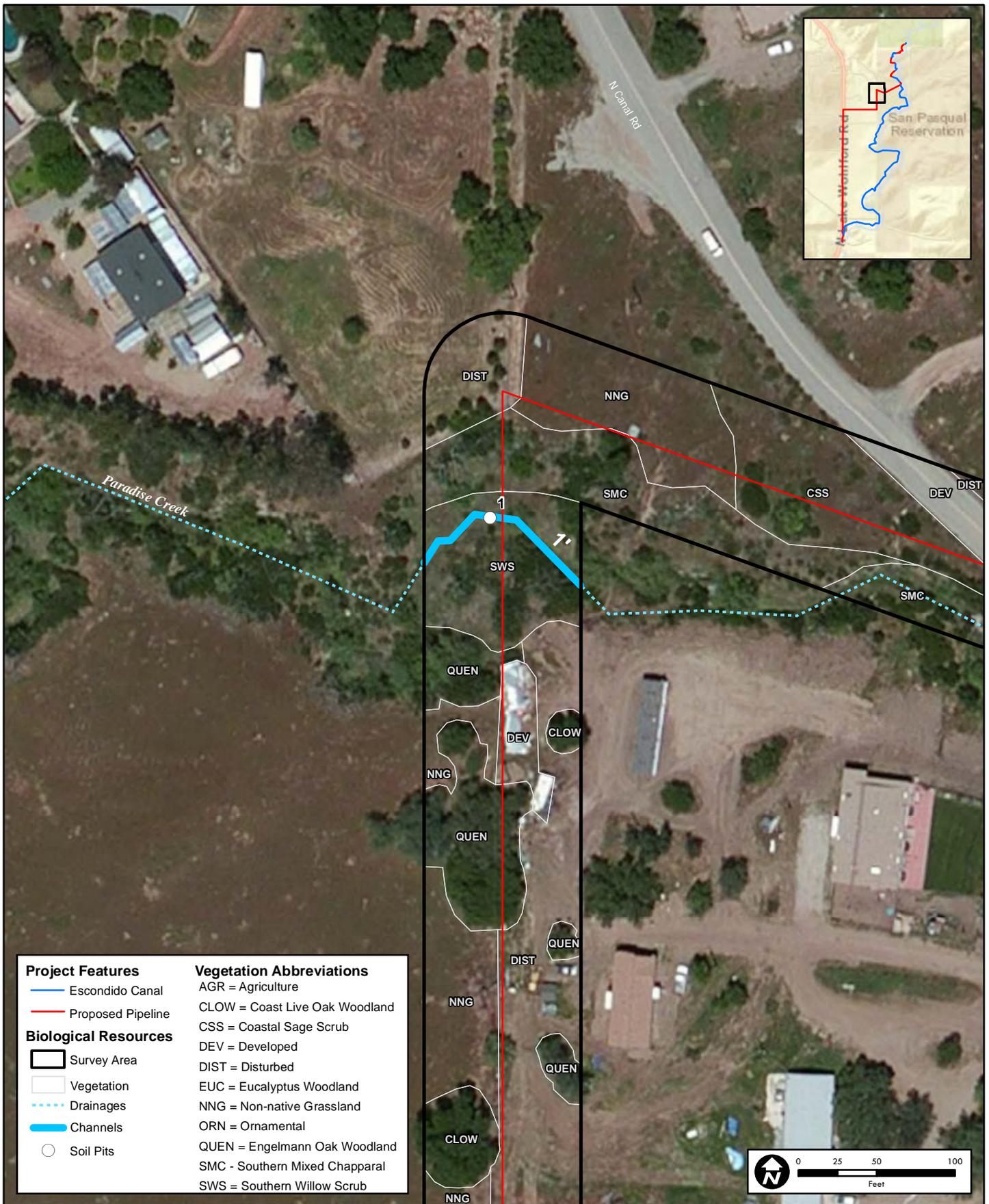
APPENDIX A
Delineation Tiles
Routine Wetland Determination Forms

Delineation Tiles







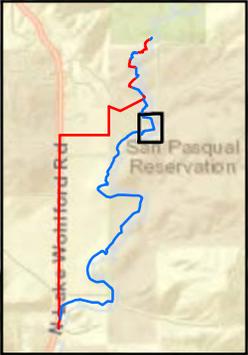
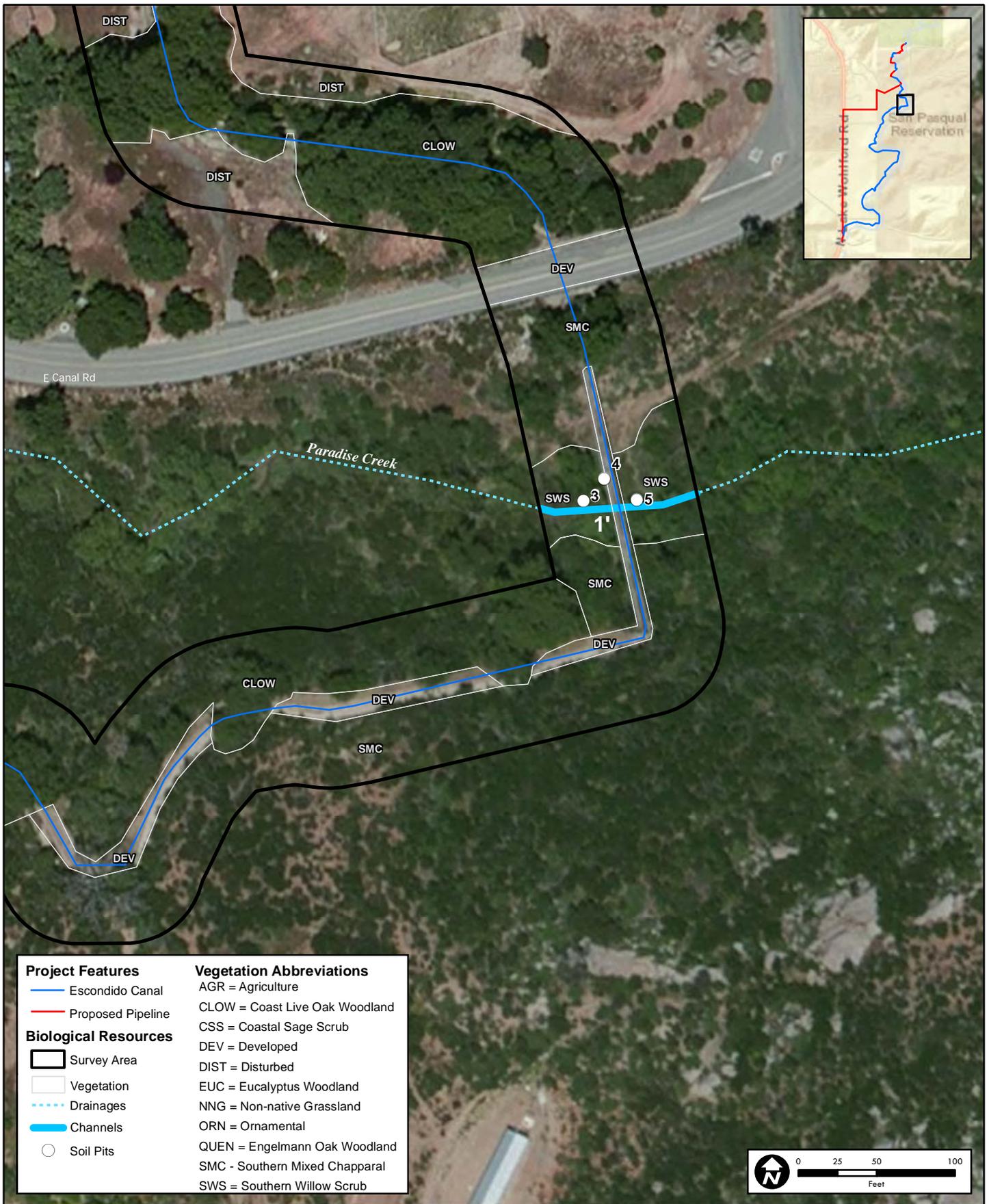


Tile 3
Potential Waters of the U.S.

ATKINS

100049195

Sources: Esri 2016, Atkins 2016



Project Features

- Escondido Canal
- Proposed Pipeline

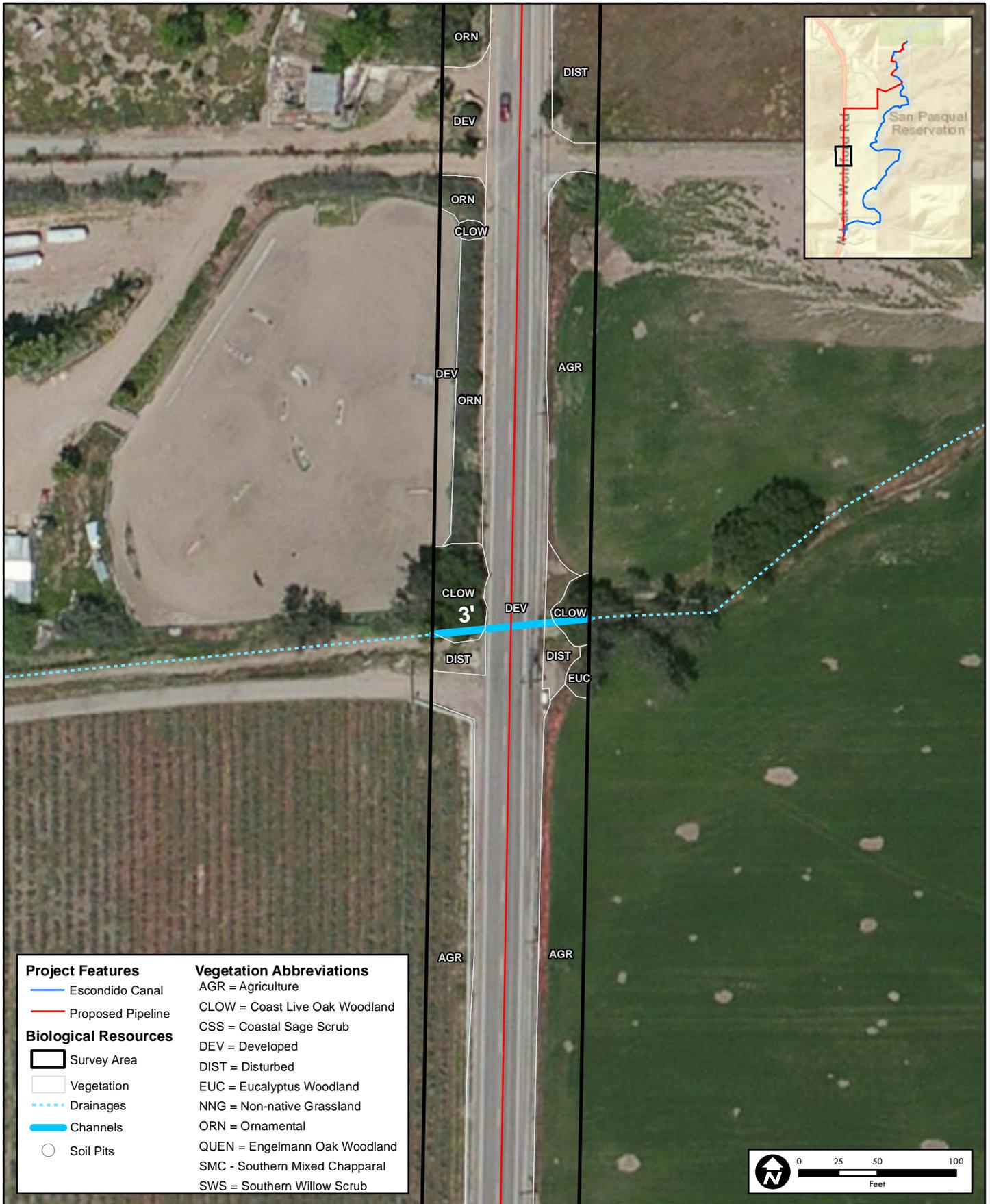
Biological Resources

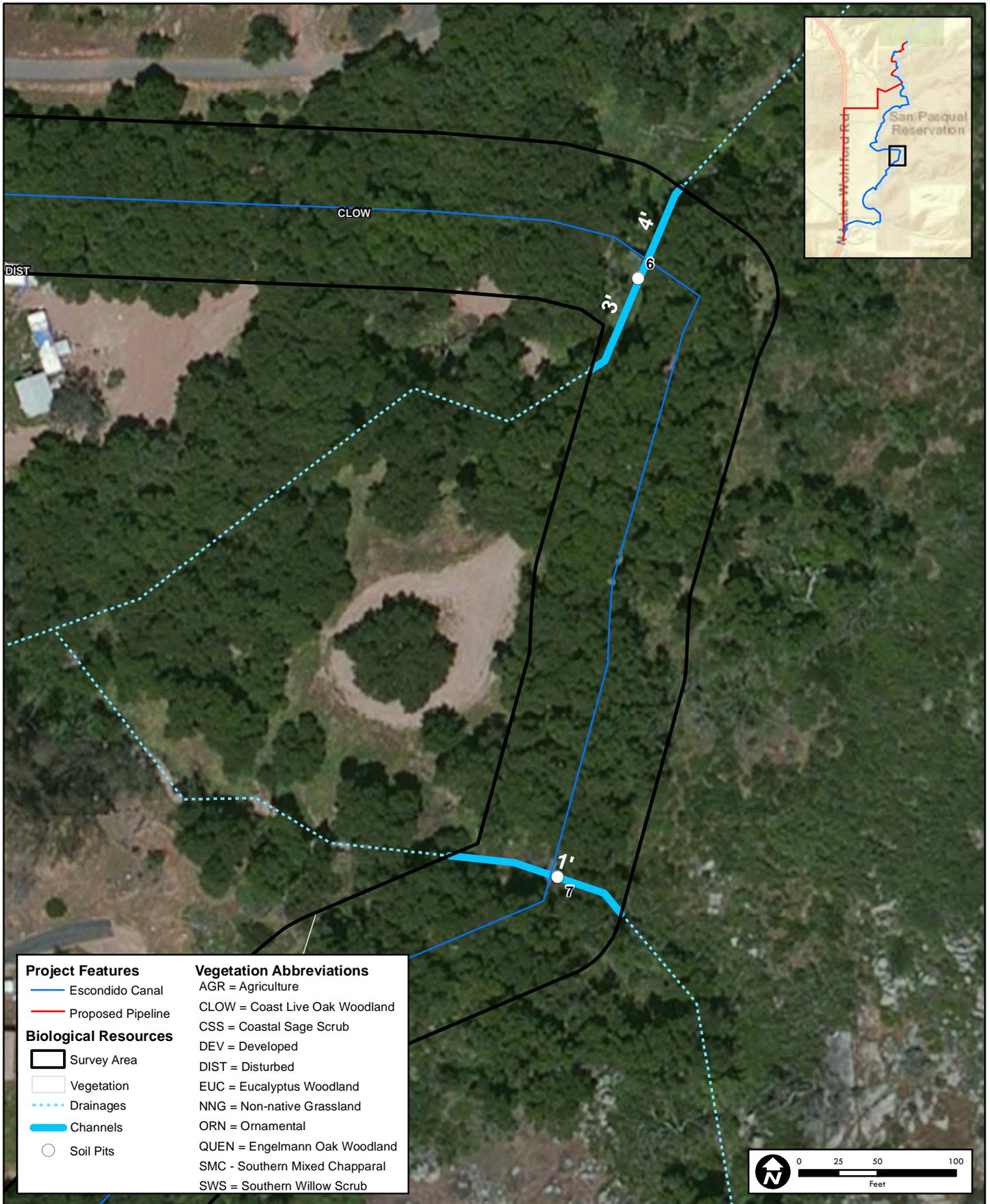
- Survey Area
- Vegetation
- Drainages
- Channels
- Soil Pits

Vegetation Abbreviations

- AGR = Agriculture
- CLOW = Coast Live Oak Woodland
- CSS = Coastal Sage Scrub
- DEV = Developed
- DIST = Disturbed
- EUC = Eucalyptus Woodland
- NNG = Non-native Grassland
- ORN = Ornamental
- QUEN = Engelmann Oak Woodland
- SMC = Southern Mixed Chapparal
- SWS = Southern Willow Scrub







Project Features

- Escondido Canal
- Proposed Pipeline

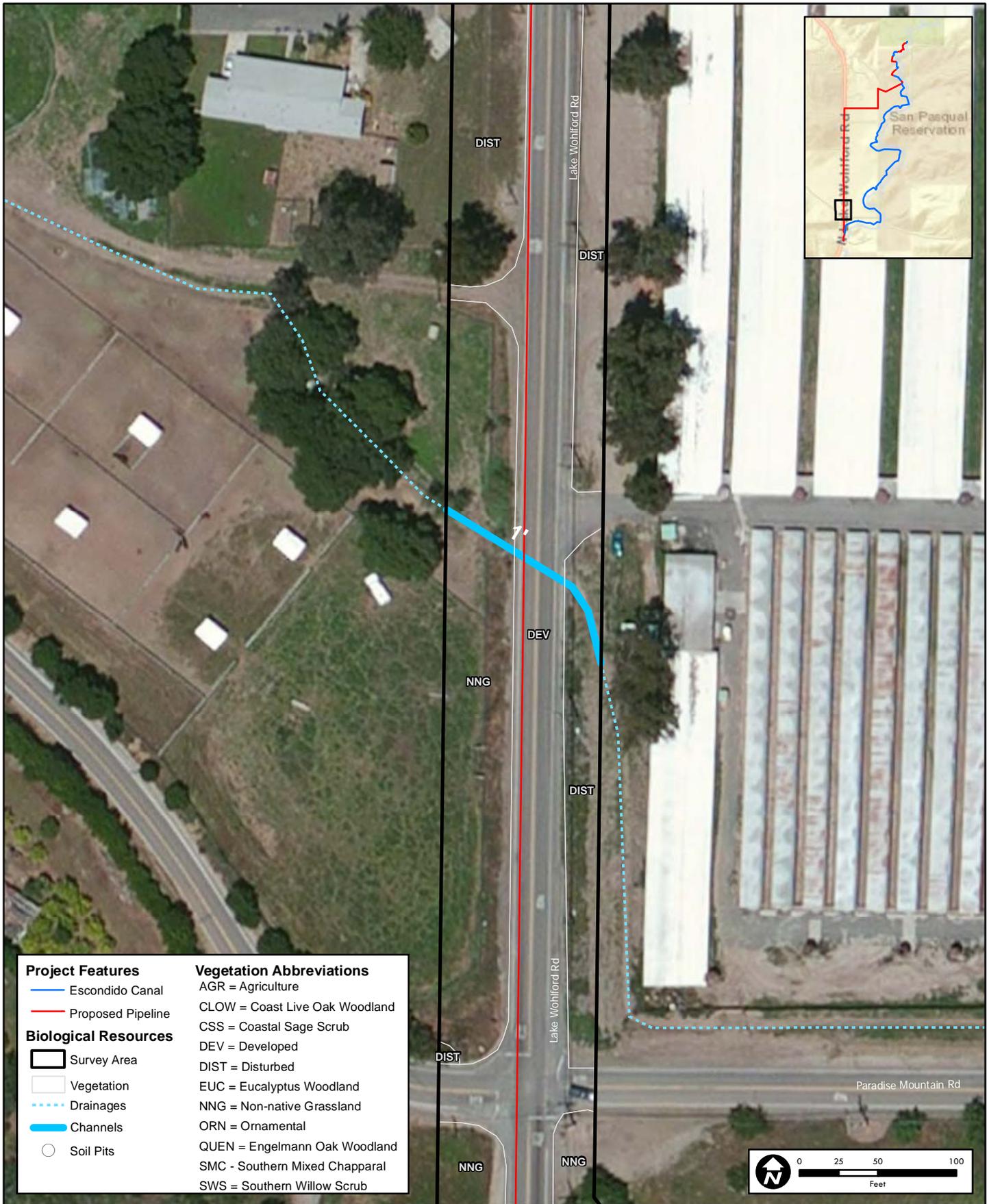
Biological Resources

- Survey Area
- Vegetation
- Drainages
- Channels
- Soil Pits

Vegetation Abbreviations

- AGR = Agriculture
- CLOW = Coast Live Oak Woodland
- CSS = Coastal Sage Scrub
- DEV = Developed
- DIST = Disturbed
- EUC = Eucalyptus Woodland
- NNG = Non-native Grassland
- ORN = Ornamental
- QUEN = Engelmann Oak Woodland
- SMC = Southern Mixed Chapparal
- SWS = Southern Willow Scrub





Project Features

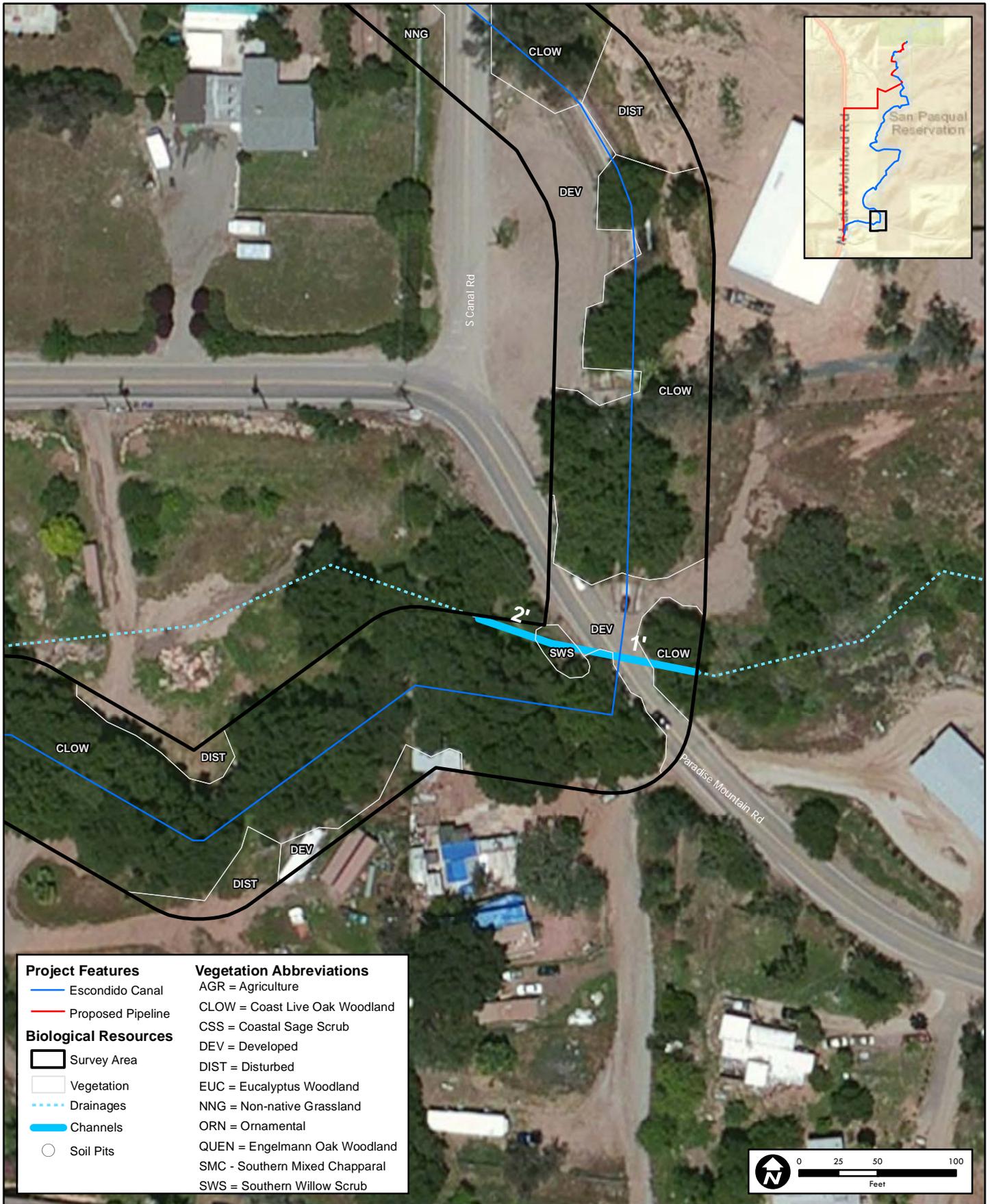
- Escondido Canal
- Proposed Pipeline

Biological Resources

- Survey Area
- Vegetation
- Drainages
- Channels
- Soil Pits

Vegetation Abbreviations

- AGR = Agriculture
- CLOW = Coast Live Oak Woodland
- CSS = Coastal Sage Scrub
- DEV = Developed
- DIST = Disturbed
- EUC = Eucalyptus Woodland
- NNG = Non-native Grassland
- ORN = Ornamental
- QUEN = Engelmann Oak Woodland
- SMC = Southern Mixed Chapparal
- SWS = Southern Willow Scrub



Tile 8
Potential Waters of the U.S.



100049195

Sources: Esri 2016, Atkins 2016

Routine Wetland Determination Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: San Pasqual Undergrounding Project City/County: San Pasqual/San Diego Sampling Date: 2/12/16
 Applicant/Owner: City of Escondido/VID/Bureau of Indian Affairs State: CA Sampling Point: Pit 1
 Investigator(s): B. Lohstroh, K. Laybourn, and B. Belajac Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): C Lat: 33.215770 Long: -116.967010 Datum: NAD83
 Soil Map Unit Name: Fallbrook sandy loam NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Salix Lasiolepis</u>	50	Y	FACW	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
2. _____				
3. _____				
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____				
3. _____				
4. _____				
5. _____				
Herb Stratum (Plot size: _____)				
1. <u>Bromus rubens</u>	80	Y	UPL	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Artemisia douglasiana</u>	<5	N	FAC	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>10</u> % Cover of Biotic Crust _____				

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
--

Remarks: NWI classification is pre-2003 Paradise fire.

SOIL

Sampling Point: Pit #1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6"	10YR 3/2	100					loamy sand	course sand
6-12"	10YR 3/2	100					loamy sand	
12-18"	10YR 2/2	100					sandy clay	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 1 cm Muck (A9) (LRR C)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> 2 cm Muck (A10) (LRR B)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1)			<input type="checkbox"/> Reduced Vertic (F18)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Stratified Layers (A5) (LRR C)			<input type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)			<input type="checkbox"/> Redox Dark Surface (F6)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Depressions (F8)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Vernal Pools (F9)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)								
Restrictive Layer (if present):								
Type: _____								
Depth (inches): _____						Hydric Soil Present? Yes _____ No <u> X </u>		
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input checked="" type="checkbox"/> Water Marks (B1) (Riverine)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)	
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present?	Yes _____ No <u> X </u>	Depth (inches): _____	
Water Table Present?	Yes _____ No <u> X </u>	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____ No <u> X </u>	Depth (inches): _____	Wetland Hydrology Present? Yes <u> X </u> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			
-Paradise creek is the name on the map -Trash accumulation from water flow -Mud stains on leaves from past flow -Ordinary high water maek : 2.5 ft width			

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: San Pasqual Undergrounding Project City/County: San Pasqual/San Diego Sampling Date: 2/12/16
 Applicant/Owner: City of Escondido/VID/Bureau of Indian Affairs State: CA Sampling Point: Pit 2
 Investigator(s): B. Lohstroh, K. Laybourn, and B. Belajac Section, Township, Range: S15, T11S, R1W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): C Lat: 33.216831 Long: -116.963807 Datum: NAD83
 Soil Map Unit Name: Fallbrook-Vista sandy loam NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3 x 3 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Platanus racemosa</u>	50	Y	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
2. _____				
3. _____				
4. _____				
50 = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>3 x 3 m</u>)				
1. <u>Quercus agrifolia</u>	65	Y	UPL	
2. <u>Vinca minor</u>	20	Y	UPL	
3. _____				
4. _____				
5. _____				
75 = Total Cover				
Herb Stratum (Plot size: <u>3 x 3 m</u>)				
1. <u>Bromus rubens</u>	50	Y	UPL	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
50 = Total Cover				
Woody Vine Stratum (Plot size: <u>3 x 3 m</u>)				
1. <u>Toxicodendron diversilobum</u>	50	Y	UPL	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____		Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>

Remarks: NWI classification is pre-2003 Paradise fire.

SOIL

Sampling Point: Pit #2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6"	10YR 4/4	100					clay sand	
6-18"	10YR 4/3	100					loamy, fine, sand	

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: San Pasqual Undergrounding Project City/County: San Pasqual/San Diego Sampling Date: 2/12/16
 Applicant/Owner: City of Escondido/VID/Bureau of Indian Affairs State: CA Sampling Point: Pit 3
 Investigator(s): B. Lohstroh, K. Laybourn, and B. Belajac Section, Township, Range: S15, T11S, R1W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): C Lat: 33.214535 Long: 116.963075 Datum: NAD83
 Soil Map Unit Name: Fallbrook-Vista sandy loam NWI classification: Freshwater forested/shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3 x 3 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Platanus racemosa</u>	30	X	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
2. <u>Salix lasiolepis</u>	60	X	FACW	
3. <u>Quercus agrifolia</u>	20		UPL	
4. _____				Prevalence Index worksheet: _____ Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>3 x 3 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Cortaderia selloana</u>	60	X	FACU	
2. <u>Artemisia douglasiana</u>	30	X	FAC	
3. _____				
4. _____				
5. _____				Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
_____ = Total Cover				
Herb Stratum (Plot size: <u>3 x 3 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Carduus pycnocephalus</u>	40	X	UPL	
2. <u>Juncus mexicanus</u>	40	X	FACW	
3. <u>Stachys ajugoides</u>	5		OBL	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>3 x 3 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Toxicodendron diversilobum</u>	30	X	UPL	
2. <u>Rubis ursinus</u>	30	X	FACU	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				

Remarks: NWI classification is pre-2003 Paradise fire.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: San Pasqual Undergrounding Project City/County: San Pasqual/San Diego Sampling Date: 2/12/16
 Applicant/Owner: City of Escondido/VID/Bureau of Indian Affairs State: CA Sampling Point: Pit 4
 Investigator(s): B. Lohstroh, K. Laybourn, and B. Belajac Section, Township, Range: S15, T11S, R1W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 30
 Subregion (LRR): C Lat: 33.214574 Long: -116.963032 Datum: NAD83
 Soil Map Unit Name: Fallbrook sandy loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3 x 3 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Quercus agrifolia</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60%</u> (A/B)
2. <u>Salix lasiolepis</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>20</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>3 x 3 m</u>)				
1. <u>Artemisia douglasiana</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
<u>10</u> = Total Cover				
Herb Stratum (Plot size: <u>3 x 3 m</u>)				
1. <u>Juncus mexicanus</u>	<u>80</u>	<u>Y</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Carduus pycnocephalus</u>	<u>2</u>	<u>N</u>	<u>UPL</u>	
3. <u>Galium aperine</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
4. <u>Bromus rubens</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>102</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>3 x 3 m</u>)				
1. <u>Rubus ursinus</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
<u>10</u> = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Hydrophytic Vegetation Present? Yes <u>X</u> No _____				

Remarks: upland

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: San Pasqual Undergrounding Project City/County: San Pasqual/ San Diego Sampling Date: 2/12/16
 Applicant/Owner: City of Escondido/VID/Bureau of Indian Affairs State: CA Sampling Point: Pit 5
 Investigator(s): B. Lobstroh, K. Laybourn, and B. Belejac Section, Township, Range: S15, T11S, R1W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): C Lat: 33.214537 Long: -116.962963 Datum: NAD83
 Soil Map Unit Name: Fallbrook-Vista sandy loam NWI classification: Freshwater forested/shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>NWI classification is pre-2003 Paradise fire.</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3 x 3 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Salix lasiolepis</u>	50	X	FACW	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
2. _____				
3. _____				
4. _____				
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>3 x 3 m</u>)				
1. <u>Artemisia douglasiana</u>	60	X	FAC	
2. <u>Cortaderia seloana</u>	10		FACU	
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: <u>3 x 3 m</u>)				
1. <u>Sonchus asper</u>	40	X	FAC	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Bromus rubens</u>	60	X	UPL	
3. <u>Galium asperine</u>	5		FACU	
4. <u>Conium maculatum</u>	10		FACW	
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>3 x 3 m</u>)				
1. <u>Rubus ursinus</u>	20	X	FACU	
2. <u>Toxicodendron diversibum</u>	10	X	UPL	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>				

Remarks: Dead and dying trees

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: San Pasqual Undergrounding Project City/County: San Pasqual/ San Diego Sampling Date: 2/12/16
 Applicant/Owner: Bureau of Indian Affairs State: CA Sampling Point: Pit 6
 Investigator(s): B. Lohstroh, K. Laybourn, and B. Belajac Section, Township, Range: S15, T11S, R1W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): C Lat: 33.209212 Long: -116.964113 Datum: NAD83
 Soil Map Unit Name: Fallbrook sandy loam NWI classification: Freshwater forested/shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>NWI classification is pre-2003 Paradise fire.</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>3 x 3 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Bromus rubens</u>	<u>50</u>	<u>X</u>	<u>UPL</u>	
2. <u>Stipa miliacea</u>	<u>10</u>		<u>UPL</u>	
3. <u>Artemisia douglasiana</u>	<u>5</u>		<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>40</u> % Cover of Biotic Crust _____				
Remarks: <u>5 ft banks</u>				

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: San Pasqual Undergrounding Project City/County: San Pasqual/ San Diego Sampling Date: 2/12/16
 Applicant/Owner: City of Escondido/VID/Bureau of Indian Affairs State: CA Sampling Point: Pit 7
 Investigator(s): B. Lohstroh, K. Laybourn, and B. Belajac Section, Township, Range: S15, T11S, R1W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): C Lat: 33.208162 Long: -116.964272 Datum: NAD83
 Soil Map Unit Name: Fallbrook sandy loam NWI classification: Freshwater forested/shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>3 x 3 m</u>)				
1. <u>Sanbucus mexicanus</u>	<u>10</u>	<u>X</u>	<u>UPL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
_____ = Total Cover				
Herb Stratum (Plot size: <u>3 x 3 m</u>)				
1. <u>Bromus rubens</u>	<u>40</u>	<u>X</u>	<u>UPL</u>	
2. <u>Avena barbata</u>	<u>40</u>	<u>X</u>	<u>UPL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>3 x 3 m</u>)				
1. <u>Toxicodendron diversilobum</u>	<u>20</u>	<u>X</u>	<u>UPL</u>	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				

Remarks: NWI classification is pre-2003 Paradise fire.

