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**SAN DIEGO GAS & ELECTRIC COMPANY AND SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT  
BIOLOGICAL RESOURCES TECHNICAL REPORT**

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**Prepared for:**



**Prepared by:**



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## EXECUTIVE SUMMARY

This Biological Resources Technical Report documents the methods and results of biological resources surveys conducted for the San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SoCalGas) Pipeline Safety & Reliability Project (Proposed Project). SDG&E and SoCalGas are hereinafter referred to as “the Applicants.” The Proposed Project involves construction, operation, and maintenance of an approximately 47-mile-long, 36-inch-diameter natural gas transmission pipeline that will carry natural gas from SDG&E’s existing Rainbow Metering Station to the pipeline’s terminus on Marine Corps Air Station Miramar. Biological resources were assessed for their potential to occur within the Biological Resources Study Area (BRSA), which included all Proposed Project components, plus an approximately 150-foot buffer on each side of these components. In total, the BRSA covered approximately 2,264 acres. This report identifies potential impacts to habitats and species that could result from construction, operation, and maintenance of the Proposed Project.

The BRSA includes a diversity of upland and wetland/riparian vegetation communities. Diegan coastal sage scrub, coast live oak woodlands, eucalyptus woodland, and chaparral communities comprise the vast majority of the BRSA, along with large, developed areas comprising the cities of San Diego, Escondido, and Poway. A total of 15 distinct riparian or wetland vegetation communities, comprising approximately 167.1 acres, also exist within the Proposed Project area.

Based on the literature and database review, 129 special-status plant species were initially identified to have the potential to occur within the BRSA. Of those 129 species, 19 special-status plant species were observed within the BRSA during focused special-status plant surveys. Thirty-five readily identifiable perennial shrubs, trees, and stem succulents that were not observed during the special-status plant surveys were determined to not be present within the BRSA because these species would have been observed during surveys if they were present. An additional 24 special-status plant species that were not observed during either pass of the rare plant surveys were determined to not be expected. These species are either annual herbs, perennial rhizomatous herbs, or perennial bulbiferous species that might not have germinated due to the drought conditions of the winter of 2014-2015.

Based on the literature and database review, a total of 44 special-status wildlife species were initially identified as having the potential to occur within the BRSA. Of the 44 special-status wildlife species, the following 14 species were either observed within the BRSA during surveys in 2014 and 2015, or are presumed present within the BRSA:

- Belding’s orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), a California Species of Special Concern (SSC);
- coast horned lizard (*Phrynosoma blainvillii*), an SSC;
- coastal California gnatcatcher (*Polioptila californica californica*), a federally threatened species;
- least Bell’s vireo (*Vireo bellii pusillus*), a federally endangered (FE) and California state endangered (CE) species;
- northern harrier (*Circus cyaneus*), an SSC;
- Riverside fairy shrimp (*Streptocephalus woottoni*), an FE species;

- San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), an SSC;
- San Diego fairy shrimp, (*Branchinecta sandiegonensis*), an FE species;
- southwestern willow flycatcher (*Empidonax traillii extimus*), an FE and CE species;
- western pond turtle (*Actinemys marmorata*), an SSC;
- western spadefoot (*Spea hammondi*), an SSC;
- white-tailed kite (*Elanus leucurus*) an SSC;
- yellow-breasted chat (*Icteria virens*), an SSC; and
- yellow warbler (*Setophaga petechia*), an SSC.

The following three federally or state-listed species have a moderate or high potential to be present within the BRSA, but have not been observed within the BRSA:

- arroyo toad (*Anaxyrus californicus*),
- Quino checkerspot butterfly (*Euphydryas editha quino*),
- Stephens' kangaroo rat (*Dipodomys stephensi*).

Additional surveys for these species have either been completed or will be conducted prior to the start of construction.

Critical habitat for arroyo toad, coastal California gnatcatcher, least Bell's vireo, San Diego fairy shrimp, and southwestern willow flycatcher occurs within the BRSA. Within the BRSA at the San Luis Rey River, critical habitat has been designated for arroyo toad, coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher. Designated critical habitat for coastal California gnatcatcher is also located throughout the BRSA in various locations.

A total of 145 drainages potentially under the jurisdiction of the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and/or California Department of Fish and Wildlife (CDFW) were mapped within the BRSA, comprising approximately 10.5 acres (96,299.8 linear feet) within the limits of the ordinary high water mark. Wetlands potentially under the jurisdiction of the USACE, RWQCB, and/or CDFW comprised a total of approximately 139.3 acres within the BRSA. One perennial drainage, the San Luis Rey River, and 25 intermittent drainages were observed within the BRSA. These intermittent drainages include many of the named drainage features (i.e., Rainbow Creek, Moosa Creek, Reidy Canyon Creek, Escondido Creek, Poway Creek, Beeler Creek, San Clemente Canyon Creek, and Elanus Canyon Creek). Biologists also mapped 119 ephemeral drainages.

The Proposed Project will result in temporary impacts (e.g., ground disturbance, vegetation removal, and grading) within the following:

- six staging areas;
- four bore pits;
- entry and exit points for three locations where horizontal direction drilling (HDD) is proposed; and
- temporary and permanent right-of-way where restoration of vegetation will occur to return the land to its pre-disturbance conditions.

Total temporary impacts resulting from the Proposed Project will be approximately 496.3 acres, which includes approximately 356.1 acres of urban/developed areas (i.e., roads and road shoulders). Permanent impacts are associated with the 10 mainline valves, permanent facilities (i.e., the Rainbow Pressure-Limiting Station), and cross-ties with existing natural gas lines (i.e., Line 1601, Line 2010, and Line 1600). No new permanent access roads will be constructed as part of the Proposed Project. Total permanent impacts resulting from the Proposed Project will be approximately 1.8 acres, of which approximately 0.6 acre is urban/developed land. In addition, critical habitat for three special-status wildlife species—arroyo toad, coastal California gnatcatcher, and least Bell’s vireo—is located within the Proposed Project construction areas.

The Applicants intend to minimize impacts to sensitive biological resources through avoidance where feasible, and through the implementation of various resource-specific Applicants-Proposed Measures, compensation, and best management practices. The Applicants will prepare a Biological Assessment for federally and state-listed species that may be adversely affected by the Proposed Project, and will request a Biological Opinion and take coverage under Section 7 of the federal Endangered Species Act and a Section 2081 Incidental Take Permit under the California Endangered Species Act. Federally listed species that may be affected by the Proposed Project include the arroyo toad, coastal California gnatcatcher, least Bell’s vireo, Quino checkerspot butterfly, Riverside fairy shrimp, San Diego fairy shrimp, southwestern willow flycatcher, and Stephens’ kangaroo rat. The Applicants will conduct construction activities in accordance with the permit requirements and authorizations established through the Section 7 consultation process.



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## 1 – INTRODUCTION

This Biological Resources Technical Report (BRTR) documents the methods and results of biological resources surveys conducted for the San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SoCalGas) Pipeline Safety & Reliability Project (Proposed Project). SDG&E and SoCalGas are hereinafter referred to as “the Applicants.” The Proposed Project involves construction, operation, and maintenance of an approximately 47-mile-long, 36-inch-diameter natural gas transmission pipeline that will carry natural gas from SDG&E’s existing Rainbow Metering Station to the pipeline’s terminus on Marine Corps Air Station (MCAS) Miramar. Biological resources were assessed for their potential to occur within the Biological Resources Study Area (BRSA), which includes all Proposed Project components plus a 150-foot buffer on both sides for a total of approximately 2,264 acres.

## 2 – PROJECT DESCRIPTION

### 2.0 LOCATION

The Proposed Project is located in San Diego County, California, and crosses the cities of San Diego, Escondido, and Poway. As shown in Figure A-1: Project Overview Map in Attachment A: Figures, the Proposed Project will be installed primarily within existing roadways and road shoulders. The pipeline will be installed approximately 42 inches below the ground surface using conventional trenching methods. The pipeline alignment will cross several major roads, including Interstate (I-) 15, as well as a number of water features, including the San Luis Rey River, Lake Hodges, and Escondido Creek. At these crossings, horizontal directional drilling (HDD) and horizontal boring methods will be implemented to minimize impacts to riparian habitat and water quality.

As depicted in Figure A-1: Project Overview Map in Attachment A: Figures, the potential route begins at SDG&E’s existing Rainbow Metering Station in the unincorporated community of Rainbow and terminates just north of State Route (SR-) 52 within MCAS Miramar. Within MCAS Miramar, the route parallels an unpaved aqueduct road for approximately 2.6 miles, and will tie in to the existing Line 2010 at its southern terminus.

### 2.1 PROJECT COMPONENTS

The Proposed Project includes the construction, operation, and maintenance of the following components:

- approximately 47 miles of 36-inch-diameter natural gas transmission pipeline,
- approximately 10 mainline valves (MLVs) spaced a maximum of five miles apart,
- one pressure-limiting station (i.e., the Rainbow Pressure-Limiting Station),
- three cross-tie facilities (i.e., Line 1600, Line 1601, and Line 2010),
- internal inspection launching and receiving equipment,
- cathodic protection system units with an estimated three rectifiers and three deep-well anode beds at three of the proposed MLVs, and
- an intrusion detection and leak monitoring system.

## **2.2 CONSTRUCTION METHODOLOGY**

The pipeline will be installed primarily within existing roadways and road shoulders and approximately 42 inches below the ground surface using conventional trenching methods for urban and cross-country areas. The pipeline alignment will cross several major roads, including I-15, as well as a number of water features, including the San Luis Rey River, Lake Hodges, and Escondido Creek. At these crossings, HDD and horizontal boring methods will be implemented to minimize impacts to riparian habitat and water quality. Existing access roads will be utilized for construction and no new access roads are proposed.

Night work will be limited to the minimum amount necessary to comply with local requirements to work during non-peak hours. Construction activities will be planned to avoid work during evening hours to the extent possible; however, it is anticipated that tie-ins, some welding activities, and HDD will extend beyond typical working hours. SDG&E will coordinate with local jurisdictions for all planned and unavoidable nighttime work.

In urban areas, the pipeline will be installed approximately 42 inches below the ground surface and backfilled with engineered slurry. Caution ribbon and an intrusion detection system will be installed between the ground surface and the top of the pipe to prevent inadvertent contact (e.g., during unauthorized digging). In cross-country areas, contours will be returned to near pre-construction conditions once the trench has been backfilled and revegetated using restoration best management practices (BMPs). Once the pipeline has been installed, it will be hydrostatically tested to verify the integrity of the pipe and welds.

### **2.2.0 Clearing and Grading**

As previously mentioned, the temporary construction right-of-way (ROW) will primarily utilize the roadway and road shoulder in urban areas where clearing and grading will be limited. Tree trimming may occur where branches or brush could be damaged by vehicles or heavy equipment. In addition, ornamental or specimen trees located in close proximity to the centerline of the pipe will need to be removed or trimmed in order to complete the trenching activities. Every effort will be made to avoid trees or trim the minimum necessary to install the pipe. However, if removal is necessary to install the pipe or if trenching activities will substantially damage the root systems, trees will be removed during the clearing and grading phase.

In cross-country areas, where necessary, clearing will begin with the removal of brush and other materials, which will then be windrowed along the edge of the ROW or disposed of in accordance with instructions from the jurisdictional agencies and/or landowners. When present and required, topsoil will be removed during clearing and grading operations and segregated from subsoil. At a minimum, the first two to four inches of surface topsoil<sup>1</sup> (where present) will be stripped across the entire ROW. The topsoil will be preserved and stored separately from subsoil for subsequent ROW restoration activities. In most areas where topsoil segregation will occur, the topsoil will be windrowed along the edge of the temporary construction easement.

The Proposed Project will be accessed by existing public roadways and unpaved roadways that intersect paved roadways adjacent to the route. One unpaved aqueduct road will be used during

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<sup>1</sup> Topsoil is considered the uppermost soil horizon, or A-horizon, and varies in depth based on location.

construction of the Proposed Project on MCAS Miramar. No improvements will be required along this road. Vehicles and equipment will also travel along the ROW in cross-country areas where the ROW is graded. No new permanent access roads will be constructed as part of the Proposed Project.

**2.3 IMPACT SUMMARY**

Permanent and temporary impact areas will be required to construct, operate, and maintain the Proposed Project. Table 1: Impact Summary provides an impact summary for each Proposed Project facility.

**Table 1: Impact Summary**

<b>Facility</b>	<b>Approximate Area with No Impact (acres)</b>	<b>Approximate Area with Temporary Impacts (acres)</b>	<b>Approximate Area with Permanent Impacts (acres)</b>
Underground HDD Easement	9.8	--	--
MLVs	--	--	0.8
Permanent Facilities	--	--	1.0
Temporary Work Areas	--	12.2	--
HDD Work Areas	--	7.9	--
Staging Areas	--	16.9	--
Construction ROW	--	459.2	--
<b>TOTAL</b>	<b>9.8</b>	<b>496.3</b>	<b>1.8</b>

**2.3.0 Permanent Impact Areas**

The Proposed Project will require an approximately 50-foot permanent linear easement along the entire alignment for operation and maintenance of the pipeline. Of the approximately 47 miles of the Proposed Project, approximately 41 miles (87 percent) will be installed in urban areas within existing roadways and road shoulders pursuant to franchise agreements. The remaining approximately six miles (13 percent) of the Proposed Project will be installed cross-country on federal land or privately owned land. With the exception of the Line 1601, Line 1600, and Line 2010 cross-ties, all aboveground facilities will be located within the approximately 50-foot permanent easement or on SDG&E-owned property. Permanent impacts are associated with the 10 MLVs, the Rainbow Pressure-Limiting Station and cross-ties with existing natural gas lines (i.e., Line 1601, Line 2010, and Line 1600).

**2.3.1 Temporary Impact Areas**

The Proposed Project will also result in temporary impacts within six staging areas, four bore pits, entry and exit points for three locations where HDD is proposed (which are referred to as the HDD work areas), and temporary ROW where restoration of vegetation will occur to return

the land to its pre-disturbance conditions. No new permanent access roads will be constructed as part of the Proposed Project.

### **2.3.2 No Impact Areas**

An underground easement of approximately 9.8 acres is proposed where the HDD and horizontal boring methods will be used to construct the facility. No impacts to vegetation or biological resources are anticipated within these HDD/horizontal boring areas, and these acreages are not included in Table 1: Impact Summary.

In addition, no impacts are anticipated within an approximately one-mile section of the Proposed Project where an existing gas pipeline will be used instead of constructing a new gas pipeline. This area is referred to as the “pre-lay” area, and is located between mile post (MP) 38 and MP 39 in the City of Poway. To be conservative, the impact analysis in this report assumes that construction of a new pipeline will occur in this area, and therefore, the impact number presented in Table 1: Impact Summary likely overestimates the total impacts resulting from the Proposed Project.

## **2.4 OPERATION AND MAINTENANCE**

Operation and maintenance activities for the Proposed Project will be conducted in the same manner as they are for the existing natural gas transmission lines operated by the Applicants in the vicinity of the Proposed Project. These activities generally consist of routine maintenance and inspection at the MLVs and other aboveground facilities. Following the completion of construction activities, the Proposed Project will not result in any long-term impacts to vegetation communities. If ground-disturbing activities are required (e.g., if the pipeline needs to be exposed in cross-country areas for inspection), ground disturbance will result in minimal impacts to biological resources and will be conducted very rarely (potentially once every seven years if a dig-up is required during pipeline testing or during an emergency).

# **3 – REGULATORY FRAMEWORK**

## **3.0 DEFINITIONS**

### **3.0.0 Sensitive Natural Communities**

Sensitive natural communities are communities that have a limited distribution and are often vulnerable to the environmental effects of projects. These communities may or may not contain special-status species or their habitats. For the purposes of this assessment, sensitive natural communities are considered to be any of the following:

- vegetation communities listed in the California Natural Diversity Database (CNDDDB);
- communities listed in the Natural Communities List (California Department of Fish and Wildlife [CDFW] 2010) with a rarity rank of S1 (critically imperiled), S2 (imperiled), or S3 (vulnerable);

- Tier I or Tier II vegetation communities, as defined by the City of San Diego Biology Guidelines (City of San Diego 2001); or
- any wetland/riparian community regulated by the United States (U.S.) Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), or the CDFW.

Although vegetation mapping within the BRSA conforms to Oberbauer et al. (2008), which is more generalized than the Natural Communities List, areas exhibiting characteristics of sensitive alliances from the Natural Communities List were also documented during vegetation mapping to ensure proper documentation of sensitive natural communities potentially impacted by the Proposed Project.

### 3.0.1 Special-Status Species

Special-status species are defined as follows:

- Federally listed species (i.e., plants or animals listed as threatened or endangered under the federal Endangered Species Act [FESA]). The FESA gives regulatory authority over terrestrial species and non-anadromous fish to the U.S. Fish and Wildlife Service (USFWS). The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NOAA Fisheries) has authority over marine mammals and anadromous fish.
- State-listed species (i.e., plants or animals listed as threatened or endangered under the California Endangered Species Act [CESA]). The CESA is enforced by the CDFW.
- Species that are candidates for possible future listing as threatened or endangered under the FESA (50 Code of Federal Regulations [CFR] Part 17; Federal Register [FR] Vol. 64, No. 205, pages 57533-57547, October 25, 1999) and under the CESA (California Fish and Game Code § 2068).
- Plants that meet the definition of rare or endangered under the California Environmental Quality Act (CEQA) (14 California Code of Regulations [CCR] § 15380 (b) and (d), including the following:
  - Species considered by the California Native Plant Society (CNPS) to be “rare, threatened or endangered in California” (California Rare Plant Ranks [CRPRs] 1A, 1B, 2A, and 2B).
  - Some species included on the CNDDDB Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2015b).
  - Plants that are considered a locally significant species, which is a species that is not rare from a statewide perspective, but is rare or uncommon in a local context, such as within a county or region (14 CCR § 15125 [c]), or is so designated in local or regional plans, policies, or ordinances (14 CCR CEQA Guidelines, Appendix G). This includes all List A, B, C, and D plants on the County of San Diego Sensitive Plant List, included in the Guidelines for Determining Significance and Report

Format and Content Requirements (County of San Diego 2010). Many of the County of San Diego List C and D plants are also CRPR 3 and 4 plant species.

- Animals that meet the definition of endangered, rare, or threatened under CEQA (14 CCR § 15380) that may include species not found on either the federal or state endangered species list, including the following:
  - Animals designated as Species of Special Concern (SSC) by the CDFW (2014c).
  - Animals designated as Fully Protected animals by the California Fish and Game Code § 3511, 4700, 5050, and 5515.
- Migratory birds and any of their parts, eggs, and nests protected by the USFWS under the Migratory Bird Treaty Act (MBTA).
- All raptors (e.g. hawks, eagles, and owls). Raptors and their nests, eggs, and young are protected under California Fish and Game Code § 3503.5.
- Birds of prey (California Fish and Game Code § 3503, 3513, and 3800).

### **3.1 RELEVANT REGULATIONS**

#### **3.1.0 Federal**

##### **Endangered Species Act**

The FESA of 1973 protects plants and wildlife that are listed as endangered or threatened by the USFWS and the NOAA Fisheries. The FESA prohibits take of endangered wildlife, where “take” is defined as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct” (16 U.S. Code [U.S.C.] §§ 1532[19], 1538). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging up, damaging, or destroying any listed plant on non-federal land in knowing violation of state law (16 U.S.C. § 1538[c]).

Under Section 7 of the FESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed species (including plants) or its critical habitat. Through consultation and the issuance of a Biological Opinion, the USFWS may issue an incidental take statement, allowing take of the species that is incidental to another authorized activity, provided that the action will not jeopardize the continued existence of the species. Section 10 of the FESA provides for issuance of incidental take permits (ITPs) to private parties with the development of a habitat conservation plan (HCP), such as SDG&E’s Subregional Natural Communities Conservation Plan (NCCP) and the Low-Effect HCP for the Quino checkerspot butterfly (QCB).

##### **Migratory Bird Treaty Act**

The MBTA of 1918, as amended, provides legal protection for almost all bird species occurring in, migrating through, or spending a portion of their life cycle in North America by restricting the killing, taking, collecting, and selling or purchasing of native bird species or their parts, nests, or eggs. The USFWS determined it was illegal under the MBTA to directly kill or destroy an active

nest (i.e., a nest with eggs or nestlings) of nearly any bird species, with the exception of non-native species through the MBTA Reform Act of 2004. The intent of the MBTA is to eliminate any commercial market for migratory birds, feathers, or bird parts, especially for eagles and other birds of prey. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities:

- falconry;
- raptor propagation;
- scientific collecting;
- special purposes, such as rehabilitation, education, migratory game bird propagation, and salvage; and
- take of depredating birds, taxidermy, and waterfowl sale and disposal.

The regulations governing migratory bird permits can be found in Title 50, Part 13 (General Permit Procedures) and Part 21 (Migratory Bird Permits) of the CFR.

### **Bald and Golden Eagle Protection Act**

The Bald and Golden Eagle Protection Act (BGEPA) was established in 1940 to protect bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) from any actions or offers to take, possess, sell, purchase, barter, transport, export, or import—at any time or any manner—any bald or golden eagle, alive or dead, or any part, nest, or egg thereof. Under the BGEPA, take of an eagle is defined as to “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb.” The BGEPA also extends to potential impacts to bald and golden eagles caused by human-induced environmental changes near a previously used nest when the eagles are not present. On September 11, 2009, the USFWS published a Final Eagle Permit Rule under the BGEPA authorizing limited issuance of permits to take bald and golden eagles, where take is associated with but is not the purpose of otherwise lawful activities.

### **Clean Water Act**

The purpose of the Clean Water Act (CWA) of 1977 is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” Section 404 of the CWA prohibits the discharge of fill material into waters of the U.S. without a permit from the USACE. On June 29, 2015, the USACE and the U.S. Environmental Protection Agency (EPA) issued *The Clean Water Rule: Definition of Waters of the United States* (CWR), refining the definition of waters of the U.S. (USACE and EPA 2015). The CWR will be effective August 28, 2015. The definition of waters of the U.S., as recently defined in the CWR, includes the following:

1. Traditional navigable waters (TNWs).
2. Interstate waters.
3. Territorial seas.
4. Impoundments of waters otherwise identified as waters of the U.S.

5. Tributaries of waterbodies in categories 1 through 3, displaying an ordinary high water mark (OHWM), a bed, and banks.
6. Waters adjacent<sup>2</sup> to a water identified in categories 1 through 5, including wetlands, ponds, vernal pools, lakes, oxbows, impoundments, and similar waters.
7. Waters that are determined, on a case-specific basis, to have a significant nexus<sup>3</sup> to a waterbody in categories 1 through 3.
8. Waters located within the 100-year floodplain of a water identified in categories 1 through 3 and waters within 4,000 feet of the high tide line or OHWM of a waterbody in categories 1 through 5, where they are determined on a case-specific basis to have a significant nexus to a water identified in categories 1 through 3.

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 CFR § 328.3[b]). The goals and standards of the CWA are enforced through permit provisions. The U.S. EPA also has authority over wetlands and may override a USACE permit.

A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions. Under Section 401 of the CWA, any applicant seeking a federal license or permit to conduct any activity that may result in any discharge into navigable waters must provide the licensing or permitting agency with a certification that the discharge will comply with the applicable CWA provisions, as stated in Title 33, Section 1341 of the U.S.C.

### **Marine Corps Air Station Miramar Integrated Natural Resource Management Plan**

The Proposed Project will be subject to the natural resource management actions outlined in the MCAS Miramar Integrated Natural Resources Management Plan (INRMP). These include management objectives for general vegetation, invasive plants, soil erosion and revegetation, watershed and floodplains, and special-status species, among others. MCAS Miramar Station Order 5090.4 states that persons operating aboard MCAS Miramar—and this includes the Applicants’ activities on the Proposed Project—have a responsibility to protect and conserve natural resources by observing the following restrictions and reporting violations:

- Reference the Environmental Management Department’s Sensitive Resources Map prior to conducting activities outside of developed areas of the station.
- Do not dig, alter, fill, or contaminate wetlands or stream channels without the Environmental Management Department’s approval and applicable CWA permits.

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<sup>2</sup> Adjacent waters are all waters within 100 feet of the OHWM of a water in categories 1 through 5; all waters within 1,500 feet of the OHWM of a water in categories 1 through 5 AND within the 100-year floodplain; and all waters within 1,500 feet of the high tide line of a water in categories 1 through 3.

<sup>3</sup> Waters determined to have a significant nexus have a significant effect on the chemical, physical, or biological integrity of a water identified in categories 1 through 3, either alone or in combination with other similarly situated waters in the region.



- Restrict vehicular traffic to maintained roadways (dirt or paved) and fuel breaks in East Miramar<sup>4</sup>. Avoid driving off of improved road surfaces, particularly during periods when the ground is wet or saturated.
- Submit plans for any facility or grounds alterations to the Environmental Management Department for review and approval.
- Ensure proper planning so that all necessary FESA consultations and CWA permits are completed prior to undertaking an action that may affect threatened and/or endangered species, wetlands, or other waterways (including ephemeral and intermittent stream channels).
- Ensure that any commitments made by the Section 7 FESA consultations and/or CWA permits are included and funded as a part of any applicable proposed actions (e.g., projects, maintenance, and real estate agreement).
- Incorporate locally adapted, native plants or other climatically adapted species into landscaping plans to reduce maintenance and watering requirements and prohibit use of invasive plant species. Incorporate removal of invasive species with project plans, where feasible.
- Do not harm or damage native species of plants or wildlife. Harassment of threatened, endangered, or other wildlife is prohibited except when presenting an imminent danger to the safety of personnel.
- Contact the Public Works Trouble Desk for assistance with removal of rattlesnakes, pests, and injured wildlife.
- Coordinate with the station Wildlife Biologist regarding bird nesting problems and methods to discourage or exclude nesting in problematic areas. Focused harassment and/or relocation of birds in problem areas may be authorized by the station Wildlife Biologist.
- A Standard Operating Procedure for Dead and Injured Large Wildlife is posted on the Natural Resources Program page of the MCAS Miramar Environmental Management System website.
- Do not dispose of green waste or surplus soil in undeveloped lands of the station.
- Report vandalism or habitat destruction to the Director of the Natural Resources Division.

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<sup>4</sup> East Miramar includes MCAS Miramar lands east of I-15, including the portion of MCAS Miramar where the Proposed Project is located.

### **3.1.1 State**

#### **California Endangered Species Act**

The CESA, adopted in 1984, generally parallels the main provisions of the FESA. Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Section 86 of the California Fish and Game Code defines take as to “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” The CESA allows for take that is incidental to otherwise lawful projects. State lead agencies are required to consult with the CDFW to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of essential habitat.

#### **Native Plant Protection Act**

The Native Plant Protection Act (NPPA) of 1977 (California Fish and Game Code §§ 1900-1913) was created with the intent to “preserve, protect, and enhance rare and endangered plants in this State.” The NPPA is administered by the CDFW. The California Fish and Game Commission has the authority to designate native plants as “endangered” or “rare” and to protect them from take. The CDFW generally regards as rare many plant species included on CRPR 1A, 1B, 2A, and 2B of the CNPS Inventory of Rare and Endangered Vascular Plants of California. In addition, sometimes CRPR 3 and 4 plants are considered if the population has local significance in the area and is impacted by a project. Section 1913(b) of the California Fish and Game Code includes a specific provision to allow for the incidental removal of endangered or rare plant species—if not otherwise salvaged by the CDFW—within a ROW to allow a public utility to fulfill its obligation to provide service to the public.

When the CESA was passed in 1984, it expanded on the original NPPA, enhanced legal protection for plants, and created the categories of “threatened” and “endangered” species to parallel the FESA. The CESA converted all rare animals to threatened species under the NPPA, but did not do so for rare plants, which resulted in three listing categories for plants in California: rare, threatened, and endangered. The NPPA remains part of the California Fish and Game Code, and mitigation measures for impacts to rare plants are specified in an agreement between the CDFW and a project proponent on a project-by-project basis.

#### **California Environmental Quality Act**

CEQA was enacted in 1970 to provide for full disclosure of environmental impacts to the public before issuance of a permit by local public agencies. In addition to federally or state-listed species, special-status plants and animals receive consideration under CEQA. Special-status species include wildlife SSCs, which are listed by the CDFW. Pursuant to the CEQA Guidelines (14 CCR § 15380), some SSCs could be considered “rare.” Any unmitigated impacts to rare species could be considered a “significant effect on the environment” (14 CCR § 15382). Thus, SSCs must be considered in any project that will undergo, or is currently undergoing, CEQA review, and/or that must obtain environmental permits from a public agency.

### **California Fish and Game Code Sections 1600 to 1606**

Sections 1600 through 1606 of the California Fish and Game Code require that a Notification of Lake or Streambed Alteration Agreement application must be submitted to the CDFW for “any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake.” The CDFW reviews the proposed actions and, if necessary, submits to the applicant a proposal that includes measures to protect affected riparian vegetation, fish, and wildlife resources. The Lake or Streambed Alteration Agreement is the final proposal that is mutually agreed upon by the CDFW and the applicant.

### **California Fish and Game Code Sections 3503, 3513, and 3800**

Sections 3503, 3513, and 3800 of the California Fish and Game Code afford protection over the destruction of nests or eggs of native bird species, and it states that no birds in the orders of *Falconiformes* or *Strigiformes* (i.e., birds of prey) can be taken, possessed, or destroyed.

### **California Fish and Game Code Sections 3511 and 4700**

According to Sections 3511 and 4700 of the California Fish and Game Code—which regulate birds and mammals, respectively—a Fully Protected species may not be taken or possessed, and incidental take of these species is not authorized. The State of California first began to designate species as Fully Protected prior to the creation of the CESA and the FESA. Lists of Fully Protected species were initially developed to provide protection to animals that were rare or faced possible extinction, including fish, amphibians, reptiles, birds, and mammals. Most Fully Protected species have since been listed as threatened or endangered under the CESA and/or the FESA. Fully Protected species may not be taken or possessed at any time, except under certain circumstances, such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock (California Fish and Game Code § 3511).

### **Porter-Cologne Water Quality Control Act**

The intent of the Porter-Cologne Water Quality Control Act (California Water Code § 13000 et seq.) is to protect water quality and the beneficial uses of water, and applies to both surface and groundwater. Under this law, the State Water Resources Control Board (SWRCB) develops statewide water quality plans, and the RWQCBs develop basin plans, which identify beneficial uses, water quality objectives, and implementation plans. The RWQCBs have the primary responsibility to implement the provisions of both statewide and basin plans. Waters regulated under the Porter-Cologne Water Quality Control Act, referred to as “waters of the State,” include isolated waters that are no longer regulated by the USACE. Any person discharging, or proposing to discharge, waste to waters of the State must file a Report of Waste Discharge and receive either waste discharge requirements (WDRs) or a waiver to WDRs before beginning the discharge.

#### **3.1.2 Local**

Pursuant to Article XII, Section 8 of the California Constitution, the CPUC has sole and exclusive state jurisdiction over the siting and design of the Proposed Project. Although local governments do not have the power to regulate such activities, the CPUC encourages, and the Applicants participate in, cooperative discussions with affected local governments to address

their concerns where feasible. This section of the BRTR highlights only ordinances regulating biological resources that are relevant to the Proposed Project.

### **County of San Diego**

The County of San Diego General Plan and Municipal Ordinance were reviewed for biological resource policies that are relevant to the Proposed Project. The County of San Diego has developed guidelines for determining the significance of a project's impacts to biological resources, which are published in the Guidelines for Determining Significance and Report Format and Content Requirements. Specifically, the guidelines address the implementation of the CEQA Guidelines and includes a review all state and local regulations and standards pertaining to the biological resources of San Diego County. In addition, the guidelines include criteria for categorizing adverse impacts, determining significance of these impacts, and establishing mitigation measures and project design features.

The county's Tree Ordinance (Title 7, Division 1, Chapter 5, Article 1 of the County of San Diego Code of Regulatory Ordinances) regulates the trimming, pruning, and removal of trees growing on County-owned property within the unincorporated territory of the county. A tree removal permit, which may include conditions on tree replacement, must be obtained in writing from the County Director. The County Director may specify the tree species and location of the replacement tree. In addition, Title 8, Division 7, Chapter 5 of the San Diego Code of Regulatory Ordinances requires any vegetation clearing to obtain a permit. Clearing may be covered under a grading permit if the vegetation clearing is incidental to the grading. Clearing permits may include conditions such as preparing and implementing a revegetation plan. If a proposed action is within a Multiple Species Conservation Plan (MSCP) subarea,<sup>5</sup> it must be in compliance with the Biological Mitigation Ordinance; if it is not within an MSCP subarea, the proposed action must be in compliance with the Habitat Loss Permit process (Title 8, Chapter 1, Division 6).

### **City of San Diego**

The City of San Diego General Plan and Municipal Code were reviewed for biological resource policies that are relevant to the Proposed Project. The City of San Diego has developed guidelines to aid in the implementation and interpretation of the City of San Diego's Environmentally Sensitive Lands Regulations and the Open Space Residential (OR-1-2) Zone.<sup>6</sup> The guidelines describe the contents that the Biological Survey Report must have, along with specific criteria for establishing mitigation based on the project's site and the project's effect on implementation of the MSCP. Section III of the guidelines serves as the standards for the determination of project-related impacts and mitigation under CEQA. According to the guidelines, any project that does not meet the standards described in Section III may have significant effects on the successful implementation of the MSCP. Any project that may have an effect requires a site-specific analysis in the project's Biological Survey Report to identify the effects the project will have on the regional MSCP, if any.

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<sup>5</sup> The San Diego MSCP is described in further detail in Section 3.1.3 Regional Conservation Plans.

<sup>6</sup> The Proposed Project does not cross zone OR-1-2 within the City of San Diego.

The city's Tree Protection Ordinance, codified by the City of San Diego Municipal Code Sections 26.0501 through 26.0503, allows for the designation and protection of tree resources located in the public ROWs, on city-owned open space, in parks or other publicly owned lands, and in private land restricted by dedicated open space easements. A tree may also be designated on private property for inventory purposes and for protection status if volunteered by the property owner. The ordinance restricts the removal of any designated tree unless it is a threat to public safety after reasonable efforts to correct or maintain problems have been implemented. Permits are only issued for tree removal if a clear, imminent, and significant public safety hazard exists; or if the City of San Diego's Urban Forester determines that protection may not be the appropriate course and the project applicant or adjacent owner has agreed to pay, in full, the assessed value of the tree. In addition, trees damaging public or private improvements and utility infrastructure may be removed if the damage cannot be reasonably corrected by trimming, root pruning, or other corrective action or adjustment, as determined by the City of San Diego's Urban Forester. All trees to be removed require replacement consistent with existing policies.

### **City of Escondido**

The City of Escondido's Municipal Code was reviewed for biological resource policies that are relevant to the Proposed Project. Chapter 18, Article 5 of the City of Escondido Municipal Code described the city's tree removal regulations. Sections 18 through 143 require a permit to remove or damage any tree, shrub, or ornamental plant growing or located on any street, sidewalk, recreational area, or public way. No specific regulations regarding permit conditions are noted in the City of Escondido Municipal Code. No other biology-specific regulations are relevant to the Proposed Project.

### **City of Poway**

The City of Poway's Municipal Code was reviewed for biological resource policies that are relevant to the Proposed Project. Chapter 12.32 of the City of Poway Municipal Code provides the general provisions for planting, trimming, and removal of trees in public property or on public ROWs. A tree removal permit must be obtained prior to removing a public tree or tree growing on public ROW. The Director of Public Services reviews each tree removal permit application and makes recommendations based on the application. The tree removal permit may come with a requirement to replace the tree if it is a species on the list of approved street trees or slope plant materials in the "City of Poway Guidelines for Landscape Requirements." The Poway Tree Committee has been designated to review appeals for denied tree removal permits, and keeps an inventory of public tree maintenance. No other biology-specific regulations are relevant to the Proposed Project.

## **3.1.3 Regional Conservation Plans**

### **San Diego Multiple Species Conservation Plan (Southwestern San Diego County)**

Under the Natural Community Conservation Planning Act of 1991, an MSCP has been developed for southwestern San Diego County in order to protect 85 species in the area. The MSCP is one of three subregional habitat planning efforts in San Diego County. The other two—the Multiple Habitat Conservation Program (MHCP) and the North County MSCP—are described in the following subsections.

The San Diego MSCP was approved in 1997 and is the result of a joint planning effort between the County of San Diego and the cities in the southwestern part of the county, including San Diego and Poway. The County of San Diego, the City of San Diego, and the City of Poway have each adopted subarea plans that conform to and implement the MSCP requirements as follows:

- **County of San Diego MSCP Subarea Plan.** The County of San Diego MSCP Subarea Plan was adopted in 1997 and applies to unincorporated lands in the BRSA. The total study area encompasses 12 jurisdictions and consists of 582,243 acres, of which approximately 43 percent (252,132 acres) is in unincorporated areas under the jurisdiction of the County of San Diego. The SDG&E's Subregional NCCP Conservation Guidelines, the San Diego MSCP, and the biological information from the MSCP's Multiple Habitat Planning Area (MHPA) preserve alternatives were used to establish conservation goals and criteria for habitat and individual species for the County of San Diego MSCP Subarea Plan.
- **City of San Diego MSCP Subarea Plan.** The City of San Diego adopted its own MSCP Subarea Plan in 1997 to implement the regional MSCP. New development must comply with the boundaries established within the plan, and guidelines for development include restoration of coastal sage scrub when disturbed. In addition, the MSCP Subarea Plan includes the policies and design guidelines regarding utilities. The City of San Diego MSCP Subarea Plan designates multiple areas within the BRSA north of MCAS Miramar as MHPAs, constituting preserve lands.
- **City of Poway MSCP Subarea Plan.** The City of Poway adopted its Subarea Plan in 1996. This plan serves to create a sustainable, interconnected network of habitat preserves throughout and ultimately beyond the City of Poway and thus maintain functioning ecosystems and viable populations of biological resources. The City of Poway MSCP Subarea Plan designates a Mitigation Area where conservation is to be focused, which includes mostly large, contiguous areas of habitat.

### **Multiple Habitat Conservation Program (Northwestern San Diego County)**

The MHCP is a comprehensive multiple jurisdictional planning program designed to create, manage, and monitor an ecosystem preserve in northwestern San Diego County. It is one of several large, multiple jurisdictional habitat planning efforts in San Diego County, each of which constitutes a "subregional" plan under the State of California's Natural Community Conservation Planning Act of 1991. The following seven cities encompass approximately 175 square miles and participated in the subregional MHCP: Carlsbad, Encinitas, Escondido, Oceanside, Solana Beach, Vista, and San Marcos.

These jurisdictions implement their portions of the MHCP through citywide "subarea" plans, which describe the specific policies each city institutes for the MHCP. The MHCP contains the overall conservation strategy for the subregion and documents the conservation actions that collectively will guarantee the protection of species covered by individual subarea plans. The subregional MHCP also describes the institutional mechanisms to coordinate MHCP implementation among the cities and other agencies. The subregional MHCP does not by itself authorize the take of biological resources and does not receive a permit. Permits or

authorizations to take biological resources will be granted to individual cities preparing adequate subarea plans, which describe the specific conservation and management actions each city will take to implement the goals, guidelines, and standards of the MHCP.

A specific policy of the MHCP is to direct land development to areas outside the Focused Planning Area (FPA)<sup>7</sup> in exchange for conservation inside, resulting in the creation of a preserve system. The MHCP preserve system is intended to protect viable populations of native plant and animal species and their habitats in perpetuity, while accommodating continued economic development and quality of life for residents of North County.

The Escondido Subarea Plan, contained within the MHCP Plan, overlaps a portion of the BRSA within the City of Escondido. The Escondido Subarea Plan designates Kit Carson Park on the northern side of Lake Hodges as a hardline FPA, indicating that 90 percent and greater conservation is anticipated here, and a small area east of Centre City Parkway at Nutmeg Street as a softline FPA, indicating that less than 90-percent conservation is anticipated at this location.

### **North County Multiple Species Conservation Plan**

Although not yet finalized, the North County MSCP will extend the county's MSCP program into the northwestern areas of the county. The North County MSCP area encompasses 294,849 acres in and around the unincorporated communities of Bonsall, De Luz, Fallbrook, Harmony Grove, Rancho Santa Fe, Lilac, Pala, Pauma Valley, Rainbow, Ramona, Rincon Springs, Twin Oaks Valley, and Valley Center. The North County MSCP will likely be complete prior to initiation of the Proposed Project. The North County MSCP Preliminary Public Review of Draft Plan underwent a public review in 2009. Comments received during the public review period are now being used to revise the North County MSCP. The county and its consultants have also initiated work on the environmental documents that will accompany the North County MSCP. The North County MSCP has designated pre-approved mitigation areas (PAMAs). These are areas with high biological value where conservation will be encouraged by providing mitigation ratios that favor developing outside of the PAMA and mitigating inside the PAMA.

#### **3.1.4 Existing San Diego Gas & Electric Company Plans**

##### **San Diego Gas & Electric Company Subregional Natural Community Conservation Plan**

Under Section 10(a) of the FESA, SDG&E developed a comprehensive multiple species and habitat NCCP in 1995 to effectively preserve and enhance covered sensitive species and their native habitats during operation, maintenance, and expansion of the electric and natural gas transmission system (16 U.S.C. § 1539). In addition, the Subregional NCCP is also a permit issued pursuant to California Fish and Game Code Section 2081<sup>8</sup> with an implementation agreement with the CDFW for the management and conservation of multiple species and their

<sup>7</sup> The FPAs and percent conservation estimates provided in the MHCP were used to analyze the levels of biological conservation expected throughout the MHCP area. Some lands within FPAs have been or will be dedicated for open space and habitat preservation. The FPAs are represented by a combination of "hardline" preserves (i.e., lands that will be conserved and managed for biological resources) and "softline" planning areas, within which preserve areas will ultimately be delineated based on further data and planning.

<sup>8</sup> California Fish and Game Code Sections 2081(b) and (c) allow the CDFW to issue an ITP for a state-listed threatened and endangered species only if specific criteria are met. Title 14, Sections 783.4(a) and (b) of the CCR provide additional information.

associated habitats, as established according to the CESA and the state's Natural Community Conservation Planning Act.

The purpose of the Subregional NCCP is to establish and implement a long-term agreement between SDG&E, the USFWS, and the CDFW for the preservation and conservation of sensitive species and their habitats while allowing SDG&E to develop, install, maintain, operate, and repair its facilities as necessary to provide energy services to customers living within SDG&E's service area. The Subregional NCCP authorizes certain levels of take of 110 covered species that may be affected by SDG&E's ongoing activity impacts including installation, use, maintenance, and repair operations and expansion of its systems.

The Subregional NCCP does not cover major expansions of SDG&E's gas and electric system, but does covers biological impacts associated with a previously anticipated Rainbow to Santee natural gas transmission pipeline and new gas transmission lines under 30 inches in diameter and less than 20 miles in length, as well as new natural gas compressor stations with habitat impacts under 10 acres. The Subregional NCCP allows for up to 400 acres of impacts in natural areas before requiring an amendment.

SDG&E implements the Subregional NCCP's operational protocols by conducting covered activities within the plan area; compliance with the NCCP supports the authorized take of species covered under the plan. The Subregional NCCP operational protocols include various protection, mitigation, and conservation measures to ensure the survivability and conservation of protected species and their habitat. The operational protocols provided in SDG&E's Subregional NCCP include provisions for personnel training; pre-activity studies; and for maintenance, repair, and construction of facilities including access roads, survey work, and emergency repairs. Under the Subregional NCCP, compensatory mitigation for take impacts may be mitigated through a conservation bank or through habitat enhancement measures.

The Proposed Project is located within the area where SDG&E's utility operations are currently covered by the Subregional NCCP. Take projected to occur as a result of SDG&E's covered activities within the Subregional NCCP area is nearing the level initially authorized under the plan. Take authorization for all of SDG&E's activities associated with Proposed Project, including maintenance activities, may not be available through the current Subregional NCCP. However, the Subregional NCCP may be amended to add new area; cover additional species, subspecies, or populations; or amend the take authorization levels. SDG&E is pursuing an amendment to the Subregional NCCP as expeditiously as possible. The Applicants must maintain valid take authorization throughout the duration of construction for all federally and/or state-listed threatened or endangered species documented in the Proposed Project area (i.e., coastal California gnatcatcher [*Polioptila californica californica*] and least Bell's vireo [*Vireo bellii pusillus*]). If the Subregional NCCP is amended at any time prior to the completion of construction, SDG&E will submit a copy of the amended plan to the CPUC upon signing of the implementing agreement, and SDG&E will follow the protocols in the amended Subregional NCCP for operation and maintenance associated with the Proposed Project.

Regardless of whether SDG&E relies on the Subregional NCCP for operation and maintenance of the Proposed Project, SDG&E will follow with the operational protocols outlined in Section



7.1 Operational Protocols and Section 7.2 Habitat Enhancement Measures of the Subregional NCCP.

### **San Diego Gas & Electric Company Low-Effect Habitat Conservation Plan for the Quino Checkerspot Butterfly**

SDG&E prepared a Low-Effect HCP to minimize and mitigate the effects of its activities on the federally endangered [FE] QCB and to obtain incidental take authorization for QCB from the USFWS. The HCP addresses potential impacts to the QCB from the use, maintenance, and repair of existing gas and electric facilities and allows for typical expansions to those systems. Other than maintenance of existing access roads, SDG&E activities include, without limitation, all current and future actions arising out of, or in any way connected with, the siting, design, installation, construction, use, maintenance, operation, repair, and removal of facilities within SDG&E's service territory.

The HCP also addresses incidental take within the HCP area associated with limited expansion of the electrical generation capacity or gas transmission systems, including the following:

- new electrical transmission line facilities that do not extend more than 30 miles outside of the HCP area;
- electrical interconnections with other utilities that do not extend more than 30 miles outside of the HCP area;
- new substations and regulator stations with total QCB habitat impacts under 20 acres; and
- new gas compressor stations with total QCB habitat impacts under 10 acres.

The HCP emphasizes protection of habitat through impact avoidance and use of operational protocols designed to avoid or minimize impacts to the QCB. The HCP was prepared in consultation with the USFWS to fulfill the requirements of a 10(a)(1)(B) permit application for the aforementioned proposed activities.

The Applicants propose to build a new natural gas transmission project, which is not an activity that is covered by the Low-Effect HCP. As a result, the Proposed Project is not covered by the SDG&E Low-Effect HCP for the QCB.

## **4 – METHODOLOGY**

This section describes the methods used to perform the literature review (conducted prior to biological surveys) and the biological surveys, including the initial habitat assessment and subsequent focused surveys for the Proposed Project.

### **4.0 BACKGROUND RESEARCH**

Biological resources data for the BRSA were obtained through a literature review of publicly available spatial data in ArcGIS format, as well as reference materials, including plant and wildlife occurrence databases, local guides, and survey protocols and publications. Publicly available spatial data included aerial photographs, U.S. Geological Survey (USGS) topographic maps, San Diego Association of Governments (SANDAG) 2012 vegetation mapping (SANDAG

2012), and National Hydrology Dataset data. These data provided biologists with a general understanding of the potential biological resources present within the BRSA.

A list of potentially occurring special-status wildlife species was developed by compiling all species that are documented in the CNDDDB (CDFW 2015a) within five miles<sup>9</sup> of the Proposed Project, as well as special-status species listed as occurring within MCAS Miramar (U.S. Marine Corps [USMC] 2014). CNDDDB occurrences of special-status wildlife species are mapped in Figure A-2: CNDDDB Occurrences for Special-Status Wildlife Species in Attachment A: Figures. A list of potentially occurring special-status plant species was developed by compiling all species that are documented in the CNDDDB (CDFW 2015a) within five miles on either side of the Proposed Project (10 miles total), as well as special-status plant species from the CNPS Inventory of Rare and Endangered Vascular Plants of California (CNPS 2014) Nine-Quad Search.

CNDDDB occurrences of special-status plant species are mapped in Figure A-3: CNDDDB Occurrences for Special-Status Plants in Attachment A: Figures. The CNPS Nine-Quad Search includes special-status plant species documented from the seven USGS quadrangles (quads) overlapping the BRSA (i.e., the Temecula, Bonsall, San Marcos, Valley Center, Escondido, Poway, and La Mesa quads) and the adjacent quads.<sup>10</sup> The CNPS Nine-Quad Search returned only CRPR 1A, 1B, and 2 species. Insignia added CRPR 3 and 4 plant species to the list of potentially occurring plants if the species were identified during habitat assessments or special-status plant surveys in April 2015.

Additional sources of information specifically related to special-status species occurrences, habitat requirements, and geographic distribution and abundance were consulted in determining the species' potential to occur within the BRSA. These sources included the following:

- CNDDDB RareFind Version 5 website (CDFW 2015e);
- MCAS Miramar INRMP (USMC 2014);
- USFWS Environmental Conservation Online System Species Profiles (USFWS 2015) and associated documents;
- CNPS Inventory of Rare and Endangered Vascular Plants of California (CNPS 2014);
- San Diego County Natural History Museum (SDNHM) San Diego County Plant Atlas – Collected Plant Distribution (SDNHM 2015a);
- species accounts from the Rare Plants of San Diego County online resource (Reiser 1994);
- A Guide to the Amphibians and Reptiles of California (California Herps 2015);

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<sup>9</sup> The use of a five-mile buffer is intended to capture all known occurrences within the vicinity and surrounding areas of the Proposed Project. A larger buffer typically includes many species that will not actually occur within the Proposed Project area, and a smaller buffer may omit species with larger geographic ranges from the potential-to-occur lists.

<sup>10</sup> The CNPS Nine-Quad Search covered 27 quads, including Temecula, Bonsall, San Marcos, Valley Center, Escondido, Poway, La Mesa, Wildomar, Murrieta, Bachelor Mountain, Fallbrook, Pechanga, Morro Hill, Pala, San Luis Rey, Encinitas, Rancho Santa Fe, Boucher Hill, Rodrigues Mountain, San Pasqual, Del Mar, San Vicente Reservoir, La Jolla, Point Loma, National City, Jamul Mountains, and El Cajon. Each 7.5-minute topographical quad covers approximately 50 square miles (or 32,000 acres). As a result, the total area included in the CNPS Nine-Quad search is approximately 1,350 square miles (or 864,000 acres) in Southern California.

- *The San Diego County Bird Atlas* (Unitt 2004);
- Checklist of Mammal Species Recorded in San Diego County (SDNHM 2015b);
- Mammals of California (University of California, Berkeley 2015);
- CDFW Life History Accounts (CDFW 2015d); and
- Sensitive Butterflies of San Diego County, California (Faulkner and Klein 2012).

In addition, Insignia Environmental (Insignia) biologists reviewed the USFWS Recovery Plan for the Quino checkerspot butterfly (USFWS 2003), and notes from the Sensitive Butterflies of San Diego County, California workshop (Faulkner and Klein 2012). The Draft Recovery Plan for Stephens' kangaroo rat (USFWS 1997b) and planning documents relevant to the Proposed Project were also reviewed. Relevant planning documents included the County of San Diego General Plan and the SDG&E Subregional NCCP.

#### 4.0.0 Special-Status Species' Potential to Occur

Once the list of potentially occurring special-status species was compiled using the previously referenced sources, Insignia biologists determined the potential for those species to occur within the BRSA based on information from the literature and database searches and the habitat assessment. Four categories were developed, as follows:

- **No Potential:** No suitable habitat exists or a species is not known to occur from the general area of the BRSA (i.e., generally more than 15 miles outside of the BRSA, or outside of San Diego County). The definition of habitat includes the major vegetation communities (e.g., chaparral or coastal scrub), as well as microhabitat conditions, such as specific edaphic (i.e., soil) requirements. In addition, the elevation range where the species occurs may be more than 300 feet above or below the elevation range within the BRSA, or the species is known to be extirpated from the BRSA.
- **Low Potential:** Habitat for the species is present, but the geographic and/or elevation ranges within the BRSA vary from those documented for the species. Specifically, the species occurs between five and 15 miles from the BRSA, or all known occurrences of the species within five miles of the BRSA are more than 30 years old, or the elevation range where the species occurs is between 100 and 300 feet above or below the elevation range of the BRSA.
- **Moderate Potential:** Habitat for the species is present; the geographic and elevation ranges within the BRSA are consistent with those documented for the species; and the species has been documented within one to five miles of the BRSA.
- **High Potential:** Habitat for the species is present; the geographic and elevation ranges within the BRSA are consistent with those documented for the species; and the species has been documented within one mile of the BRSA.

#### 4.0.1 Critical Habitat

The USFWS has designated critical habitat for some federally threatened and endangered species. If a project is within designated critical habitat, consultation with the USFWS and/or NOAA Fisheries may be required if the project is likely to impact this habitat. The USFWS

Critical Habitat Portal provides geographic information system (GIS) data (USFWS 2015) showing the location of all final designated critical habitat in San Diego County. The GIS data were reviewed to determine which species have designated critical habitat within five miles of the Proposed Project.

#### **4.1 AGENCY CORRESPONDENCE**

On January 30, 2015, Insignia notified the USFWS by email of the intention to conduct protocol-level surveys for the federally threatened (FT) coastal California gnatcatcher and the QCB, an FE species, in the Proposed Project area. Upon completion of the surveys, a 45-day report will be filed with the USFWS.

#### **4.2 SURVEY METHODOLOGY**

##### **4.2.0 Habitat Assessment**

Insignia biologists conducted a habitat assessment of the BRSA per the schedule outlined in Table 2: Habitat Assessment Schedule. The BRSA included all Proposed Project components as described in Section 2 – Project Description, plus a 150-foot buffer on each side of those Proposed Project components for a total of approximately 2,264 acres.

During the surveys, Insignia biologists focused their habitat assessment on natural areas where ground disturbance is proposed, walking much of the BRSA except areas that were too steep to navigate and areas that were developed (e.g., public roads, private homes, or businesses). Steep areas that were not included in surveys were primarily road cuts along I-15 and Old Highway 395, and are within the 150-foot buffer areas associated with the BRSA. No Proposed Project components are proposed within these steep areas. Active agricultural areas were also not surveyed unless some potential habitat for special-status species was present. Most active agricultural areas within the BRSA are row crops or bare ground corrals where animals are kept, and as a result, these areas generally will not support special-status species, with the exception of special-status raptor species that may forage in these areas. During the habitat assessment, biologists mapped vegetation communities and hydrological features (e.g., potentially jurisdictional drainages, wetland features, and vernal pools), and also assessed habitat for special-status plant and animal species. Additional drainage mapping was conducted during the spring of 2015. The potential for special-status plant and animal species was determined by the presence of diagnostic habitat elements and was noted.

The biologists paid particular attention to the potential for burrowing owl (*Athene cunicularia*) in accordance with the *Burrowing Owl Survey Protocol and Mitigation Guidelines* (California Burrowing Owl Consortium 1993) and the Staff Report on Burrowing Owl Mitigation (CDFW 2012). Ground squirrel (*Otospermophilus beecheyi*) burrows were mapped using a submeter-accurate Global Positioning System (GPS) unit in many of the non-native grasslands where ground disturbance is proposed. During the habitat assessment, biologists documented common and special-status plant and animal species observed directly or detected from calls, tracks, scat, nests, or other signs. The habitat assessments were performed during the day; therefore, nocturnal animals were identified by evidence that was observed during the surveys. Plant species that could not be identified in the field were identified later using taxonomic keys.

**Table 2: Habitat Assessment Schedule**

<b>Biologist</b>	<b>Specific Activity</b>	<b>Geographic Area (MPs)</b>	<b>Dates</b>	<b>Weather/Visibility</b>
Makela Mangrich and Shirley Innecken	Habitat assessment and vegetation mapping	MCAS Miramar (MP 44 to MP 47)	September 23 to 25, 2014	0% cloud cover/ Excellent
Makela Mangrich and Shirley Innecken	Habitat assessment and vegetation mapping	MCAS Miramar (MP 44 to MP 47)	October 2 and 3, 2014	0% cloud cover/ Excellent
Makela Mangrich and Shirley Innecken	Habitat assessment and vegetation mapping (reconnaissance survey)	Urbanized section (MP 1 to MP 44)	October 28, 2014	0% cloud cover/ Excellent
Makela Mangrich	Habitat assessment and vegetation mapping (reconnaissance survey)	Urbanized section (MP 1 to MP 44)	November 4, 2014; November 14, 2014; and January 5, 2015	0% to 20% cloud cover/ Excellent
Makela Mangrich and Lee Ripma	Habitat assessment for QCB surveys; initial phenology check for special-status plants; and vegetation mapping	MCAS Miramar	February 11, 2015	0% cloud cover/ Excellent
Makela Mangrich and Kevin Kilpatrick	Drainage mapping and habitat assessment	Urbanized section (MP 1 to MP 44) and MCAS Miramar (MP 44 to MP 47)	March 3 to 6, 2015	0% cloud cover/ Excellent

#### 4.2.1 Vegetation Mapping

Vegetation mapping on MCAS Miramar was conducted concurrently with the habitat assessment in the fall of 2014. Reconnaissance-level surveys were conducted within all areas north of MCAS Miramar on October 28, November 4, and November 11, 2014; and January 5, 2015. Vegetation mapping in these areas was finalized during habitat assessments and special-status plant surveys conducted in the spring of 2015. Biologists noted vegetation communities and boundaries on a hard-copy field map printed at a scale of one foot to 200 feet. These boundaries and vegetation community names were later recorded as a GIS shapefile using ArcMap software. Minimum mapping units for upland vegetation communities was generally one acre or less. For wetland/riparian communities, no minimum mapping unit was established so as to ensure that even very small wetland areas were documented.

The vegetation classification conforms to Oberbauer et al. (2008). Vegetation community descriptions are also derived from Oberbauer et al. (2008) with additional information on wildlife habitat preferences from CDFW's Wildlife Habitats – California Wildlife Habitat Relationship System (CDFW 2015f). Vegetation codes provide a hierarchy for organizing vegetation communities by physiognomic group (e.g., woodlands) and general habitat type (e.g.,

oak woodland). Definitions of terms applying to species cover, species frequency stratum cover, and the distinction between stratum (i.e., tree, shrub, and herbaceous) classes conform to the Vegetation Classification Manual for Western San Diego County (SANDAG 2011). Key terms (e.g., dominant, trace, etc.) used in the vegetation descriptions are also from the Vegetation Classification Manual for Western San Diego County.

Vernal pools were mapped based on the presence of vernal pool indicator species, such as woolly marbles (*Psilocarphus* spp.), and the presence of a basin that was at least partially vegetated during the normal growing season, or was unvegetated due to heavy clay or hardpan soils that do not support plant growth. These characteristics, described in Oberbauer et al. (2008) are discussed in more detail in Section 5.1.0 Vegetation Community/Land Cover Descriptions.

#### 4.2.2 Special-Status Plant Surveys

Special-status plant surveys were conducted in two passes during the spring of 2015 within 965 acres throughout the BRSA. Developed areas—including orchards and vineyards, intensive agricultural areas, and ornamental areas—were not surveyed. Areas mapped as disturbed habitat, as well as eucalyptus woodlands and non-native woodlands, were surveyed where there was potential for special-status plants to occur. The first pass started on April 6 and was completed on April 21. The second pass of surveys started on May 18 and was completed on June 2. Special-status plant surveys were floristic in nature and conducted in accordance with survey guidelines published by the CNPS (2001), CDFW (2009), and USFWS (1996).

On April 3, 2015, an Insignia biologist conducted a reference population check for three federally listed plant species in central San Diego County to ensure that these species were blooming and therefore visible and present within the BRSA. These species included San Diego ambrosia (*Ambrosia pumila*), San Diego button celery (*Eryngium aristulatum* var. *parishii*), and San Diego mesa mint (*Pogogyne abramsii*). All three species were blooming at the time of the reference population check. In addition, an Insignia biologist observed the phenology of various plant species during the early spring of 2015 and noted that many species appeared to be blooming earlier than normal, likely due to the high temperatures and low rainfall in the late winter and early spring of 2015. As a result of these observations and the reference population check, it was determined that special-status plant surveys could commence. The special-status plant survey schedule is provided in Attachment B: Special-Status Plant Species Survey Report.

Upon the completion of special-status plant surveys, the following determinations were made for all special-status species potentially occurring within the BRSA:

- **Present:** The species was observed in the BRSA during surveys.
- **Not Expected:** This species was not observed in the BRSA during surveys; however its presence cannot be dismissed. This is applicable to annual herbs and perennial bulbs, which can remain present underground in seed or bulb form for many years waiting for optimal germination and growth conditions (e.g., sufficient rainfall). This category is also applicable to special-status plant species that may occur within areas that were inaccessible to survey teams.

- **Not Present:** This species was not observed during surveys and its presence in the BRSA can be dismissed.

### 4.2.3 Preliminary Wetlands and Waters Assessment

Insignia biologist conducted a preliminary assessment of wetlands and waters within the BRSA in the winter and spring of 2015 in accordance with the schedule provided in Table 1: Preliminary Wetlands and Waters Assessment Timetable in Attachment C: Preliminary Wetlands and Waters Assessment.

#### Drainage Mapping

Insignia biologists used guidance from A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States (USACE 2008a) to determine the location and size of drainages potentially under the jurisdiction of the USACE and RWQCB. Culverts were also mapped to assist with determining downstream connectivity for potential jurisdictional features within the BRSA. The overall landforms, slopes, and climatic and hydrologic conditions were also assessed. Photographs were taken for each drainage feature to record downstream and upstream conditions, as well as OHWM indicators. Evidence supporting the delineation of each potentially jurisdictional drainage feature was recorded on field data forms.

Top-of-bank (TOB) measurements were noted for each drainage to assess the areas that may be CDFW-jurisdictional under Section 1600 of the California Fish and Game Code. In addition, Insignia biologists also mapped the edge of potentially CDFW-jurisdictional riparian canopy using full-color, ortho-corrected aerial photographs. These field maps were printed at a scale of one inch equals 200 feet. Riparian vegetation included in the CDFW riparian vegetation estimates exhibited a continuous canopy associated with the drainages observed within the BRSA. In instances where riparian canopy was not readily discernible from the aerial photographs, submeter-accurate GPS data were taken to demarcate the boundary between upland and riparian vegetation.

All potential drainages were evaluated to identify their connection to on-site and off-site hydrologic resources. Potential jurisdictional drainages were mapped as such if they did not demonstrate downstream connectivity to a TNW or tributary at the surface, but were identified as either adjacent waters or determined to potentially have a significant nexus to a TNW, as defined by the CWR.

#### Wetlands Mapping

Insignia biologists also mapped potential wetlands under the jurisdiction of the USACE and RWQCB in conjunction with vegetation mapping conducted for the Proposed Project. A full wetland delineation was not completed for this assessment. Wetlands were assessed in the field during the habitat assessment conducted in the fall and winter of 2014, and during special-status plant surveys conducted in the spring of 2015. Wetland boundaries were determined primarily by aerial interpretation of vegetation boundaries in conjunction with field calibration and verification. The wetland mapping was conducted according to the USACE's Wetlands Delineation Manual (Environmental Laboratory 1987) in conjunction with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version

2.0) (USACE 2008b), with modifications. For an area to be defined as a wetland under normal circumstances, the USACE's routine, on-site determination methods call for determining the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. No soil pits were dug within potential wetland areas, and hydric soils and wetland hydrology were not assessed. The wetland assessment relied exclusively on the presence of hydrophytic vegetation.

No minimum mapping unit for potential wetland areas was established; all potential wetlands that Insignia biologists encountered were mapped. In instances where wetland boundaries were not readily discernible from the aerial photographs, submeter-accurate GPS data were taken to demarcate the boundary between upland and potential wetland areas.

All potential wetland areas (i.e., areas dominated by hydrophytic vegetation) were evaluated to identify their connection to on-site and off-site hydrologic resources. Potential jurisdictional drainages were mapped as such if they did not demonstrate downstream connectivity to a TNW or tributary at the surface, but were identified as either adjacent waters or determined to potentially have a significant nexus to a TNW, as defined by the CWR.

### **Global Positioning System Data Collection**

Culvert and drainages were mapped using a Trimble GPS unit with submeter accuracy in locations where biologists could access these features; in some instances, culverts or drainages were obscured under thick brush, or were located within slopes that were either too steep to walk safely or were covered with poison oak (*Toxicodendron diversilobum*). Full-color, ortho-corrected aerial imagery was analyzed to assist with mapping the spatial extents of jurisdictional features that were not accessible during GPS data collection. A data dictionary within the GPS software ensured consistent data collection in the field. All spatial data was collected in the North American Datum 1983 State Plane California Zone 6 (feet) coordinate system. Potential wetlands that Insignia biologists encountered (based on the presence of hydrophytic vegetation) were also mapped.

#### **4.2.4 Quino Checkerspot Butterfly Surveys**

Areas indicative of potential habitat for QCB were noted to inform the development of QCB survey areas in accordance with the USFWS's QCB Survey Protocol (USFWS 2014b). A biologist with a 10(a)(1)(A) recovery permit (SC-12110) issued pursuant to the FESA (Shirley Innecken, QCB recovery permit #TE82480A-0) performed this QCB suitable habitat assessment in the fall of 2014 within areas identified in the QCB protocol as requiring surveys. QCB surveys were performed in accordance with the QCB protocol (USFWS 2014b) within MCAS Miramar and the portion of the University of California San Diego (UCSD) Chaparral Reserve north of the MCAS Miramar boundary to the Elliot Field Station gate at the far northern end of the aqueduct road, which is an unpaved patrol road located parallel to the Proposed Project within MCAS Miramar. No surveys were conducted within 19 acres of the BRSA in the Elliot Field Station, a UCSD facility within the larger Elliot Chaparral Reserve. The Elliot Field Station is located west of the far northern end of the aqueduct road. The USFWS has designated this area as requiring surveys, but protocol-level surveys were not conducted due to access restrictions during the protocol-dictated survey time window. Additional surveys will be conducted during subsequent flight seasons in suitable habitat within the Elliot Field Station.



An additional habitat assessment was conducted immediately prior to QCB protocol-level surveys on February 11, 2015 by Lee Ripma (QCB recovery permit #TE-221290-3.1) to review the mapped suitable habitat areas and confirm the presence of blooming host plants such as dot-seed plantain (*Plantago erecta*).

QCB surveys commenced on February 16, 2015 and were completed on May 6, 2015. Surveys were conducted by Rocks Biological Consulting biologists with a 10(a)(1)(A) recovery permit (SC-12110) issued pursuant to the FESA. A total of approximately 141 acres were surveyed according to the schedule provided in Table 1. Quino Checkerspot Butterfly Survey Dates/Conditions in Attachment D: Quino Checkerspot Butterfly Survey Report.

#### 4.2.5 Coastal California Gnatcatcher Surveys

Surveys for coastal California gnatcatcher were conducted in accordance with the USFWS coastal California gnatcatcher protocol-level survey guidelines (USFWS 1997a) during April and May of 2015. Rocks Biological Consulting biologists with the necessary 10(a)(1)(A) recovery permits surveyed a total of approximately 463 acres of the BRSA. Three complete surveys were conducted within suitable habitat at least one week apart. Suitable habitat included the following vegetation communities:

- Diegan coastal sage scrub,
- chamise chaparral,
- southern mixed chaparral,
- coastal sage-chaparral transition, and
- open coast live oak woodlands.

Restored and disturbed components of these vegetation communities were also included in the coastal California gnatcatcher survey area.

Areas within MCAS Miramar were excluded from surveys because MCAS Miramar conducts regular surveys for this species, most recently in 2013. Access constraints that precluded QCB surveys in the Elliot Field Station were resolved by the time the coastal California gnatcatcher surveys began. As a result, areas within the Elliot Field Station were included within the coastal California gnatcatcher survey area. The schedule for coastal California gnatcatcher surveys is provided in Table 1. Coastal California Gnatcatcher Survey Dates/Conditions in Attachment E: Coastal California Gnatcatcher Survey Report.

#### 4.2.6 Riparian Bird Surveys

Surveys for the least Bell's vireo and southwestern willow flycatcher (*Empidonax traillii extimus*) were conducted in accordance with the appropriate survey guidelines for each species (USFWS 2001; USGS 2010). A Borchers Environmental Management biologist holding the necessary 10(a)(1)(A) recovery permit for southwestern willow flycatcher conducted an initial habitat assessment on a total of approximately 149 acres of wetland and riparian communities within the BRSA. The biologist determined that approximately 62 acres assessed do not provide suitable habitat for either the least Bell's vireo or the southwestern willow flycatcher. As a result, surveys for both species were conducted within 87 acres of suitable habitat. Surveys for the least Bell's vireo began in mid-April 2015 and were completed by mid-July 2015 by a

Borcher Environmental Management biologist possessing the required expertise according to the survey protocol (USFWS 2001). A Borcher Environmental Management biologist holding the necessary 10(a)(1)(A) recovery permit for southwestern willow flycatcher began surveys for this species in mid-May of 2015 and completed surveys in mid-July of 2015.

A summary of the riparian bird survey schedule is provided in Table 1: Riparian Bird Survey Schedule in Attachment F: Riparian Bird Survey Report.

#### **4.2.7 Arroyo Toad Surveys**

Surveys for the arroyo toad (*Anaxyrus californicus*) were conducted in accordance with the appropriate survey guidelines for this species (USFWS 1999). Surveys began in April and were completed in late June 2015. Surveys performed in accordance with USFWS survey guidelines do not require a recovery permit under Section 10(a)(1)(A) of the FESA. A Borcher Environmental Management biologist with in-depth experience with arroyo toad biology and survey techniques conducted an initial habitat assessment on approximately 149 acres of wetland and riparian communities within the BRSA that could support the arroyo toad. The biologist determined that approximately 102 of the acres assessed do not provide suitable habitat for the arroyo toad. As a result, surveys for this species were conducted within 47 acres of suitable habitat, primarily within watersheds where arroyo toad has been observed in the past and where the USFWS has designated critical habitat. A summary of the arroyo toad survey schedule is included in Table 1: Arroyo Toad Protocol Survey Schedule in Attachment G: Arroyo Toad Survey Report.

### **4.3 IMPACT DETERMINATION**

Potential impacts associated with the Proposed Project can be classified as temporary, permanent, direct, and/or indirect. Temporary impacts generally include impacts associated with construction activities, including the use of vehicles or helicopters, storage of construction materials and equipment, or vegetation removal in areas that will be restored once construction is complete. Permanent impacts generally include impacts associated with construction and installation of a new facility. Direct impacts may refer to the loss or removal of vegetation communities due to construction of new access roads or work at staging/laydown areas. Indirect impacts may include interruption of nesting or foraging behavior due to loss of prey items, such as insects or food resources. Impacts to sensitive species may occur either through temporary or permanent habitat loss, interruption of normal species routines, or through direct mortality.

Potential impacts to sensitive biological resources associated with the Proposed Project were assessed by analyzing specific species' requirements, including necessary vegetative habitat, elevation range, foraging needs, denning or breeding requirements, migratory trends, current ranges, and known occurrences or records. Additionally, an estimate of the amount of vegetation removal planned for the clearing of the work areas and access roads was assessed. Impacts to aquatic resources were identified by examining the proximity of these resources to Proposed Project work areas and the construction needs within those areas. In addition, potential changes in hydrology and vegetation that might result from the Proposed Project were analyzed.

## 5 – RESULTS

### 5.0 GEOGRAPHY, CLIMATE, AND HYDROLOGY

The BRSA is located within the southwestern portion of the Peninsular Ranges geomorphic province in the South Coast Floristic Province (University of California Berkeley 2015). The BRSA crosses six hydrological units: Santa Margarita River, San Luis Rey, Carlsbad, San Dieguito, Peñasquitos, and San Diego. Streams are generally dry in the summer months, but it is common for perennial flows to be present, especially in the larger streams fed by the mountains east of the BRSA or by urban runoff. Many of the drainages in this region have been lined with concrete to serve as flood control channels, or have otherwise been altered to conform to the urban landscape. The BRSA includes the following major drainages (listed from north to south):

- Rainbow Creek,
- the San Luis Rey River,
- Moosa Creek,
- Escondido Creek,
- San Dieguito River/Lake Hodges,
- Poway Creek,
- Beeler Creek, and
- Carroll Canyon Creek.

In the vicinity of the BRSA, storm water generally flows from the east to the west (i.e., toward the Pacific Ocean), and is collected in storm drains that connect to the various creeks and rivers mentioned previously.

The elevation of the BRSA ranges from 230 feet to 1,200 feet above mean sea level (MSL). Between the years of 1981 and 2010, rainfall records from the BRSA's nearest climatological station (which is located at Lindbergh Field in the City of San Diego) show an average annual rainfall of approximately 10.4 inches. Between 1981 and 2010, the average annual temperature for this area ranged from a low of 58 degrees to 72 degrees Fahrenheit (NOAA 2015).

### 5.1 GENERAL VEGETATION COMMUNITIES

A total of 35 vegetation communities (not including distinct stand types, such as disturbed or restored) were mapped within the BRSA, including a diversity of both upland and wetland/riparian vegetation communities. Diegan coastal sage scrub, coast live oak woodlands, eucalyptus woodland, and chaparral communities comprise the vast majority of the BRSA, along with large developed areas comprising the cities of San Diego, Escondido, and Poway. Approximately 1,031 acres (46 percent) of the BRSA is within urban/developed areas. Table 3: Vegetation Communities Observed within the BRSA shows the vegetation communities and acreages within the BRSA. The locations of these different vegetation communities are shown in Figure A-4: Vegetation Communities in Attachment A: Figures.

**Table 3: Vegetation Communities Observed within the BRSA**

General Habitat Type	Vegetation Community	Approximate Area within the BRSA (acres)
Disturbed or Developed Habitat	Disturbed Habitat	52.3
	Urban/Developed	1031.4
	Ornamental	18.6
	Orchard/Vineyard	69.3
	Intensive Agriculture – Dairies, Nurseries, Chicken Ranches	18.9
	Row Crops	1.7
Scrub and Chaparral	Diegan Coastal Sage Scrub*	182.4
	Diegan Coastal Sage Scrub (open, disturbed) *	1.4
	Diegan Coastal Sage Scrub (burned) *	7.5
	Diegan Coastal Sage Scrub (disturbed) *	64.9
	Diegan Coastal Sage Scrub (open) *	25.2
	Diegan Coastal Sage Scrub (restored)*	112.7
	Diegan Coastal Sage Scrub ( <i>Adolphia californica</i> -dominated)*	1.6
	Diegan Coastal Sage Scrub ( <i>Opuntia</i> - or <i>Cylindropuntia</i> -dominated)*	0.6
	Diegan Coastal Sage Scrub: <i>Baccharis</i> -dominated*	13.5
	Diegan Coastal Sage Scrub: <i>Baccharis</i> -dominated (disturbed)*	0.2
	Diegan Coastal Sage Scrub: <i>Baccharis</i> -dominated (restored)*	4.6
	Southern Mixed Chaparral*	47.1
	Southern Mixed Chaparral (burned)*	6.5
	Chamise Chaparral	35.1
Coastal Sage-Chaparral Transition*	5.2	
Grasslands, Vernal Pools, Meadows, and Other Herb Communities	Valley Needlegrass Grassland*	0.1
	Non-Native Grassland (Annual Grassland)	63.6
	Non-Native Grassland: Broadleaf-dominated	53.0
	Vernal Pool*	0.3
	Freshwater Seep*	0.5

General Habitat Type	Vegetation Community	Approximate Area within the BRSA (acres)
Bog and Marsh	Cismontane Alkali Marsh*	8.9
	Coastal and Valley Freshwater Marsh*	2.6
	Emergent Wetland*	<0.1
	Herbaceous Wetland*	0.1
	Herbaceous Wetland (disturbed) *	4.2
Riparian and Bottomland Habitat	Southern Coast Live Oak Riparian Forest*	53.6
	Southern Coast Live Oak Riparian Forest (disturbed) *	5.1
	Southern Cottonwood-Willow Riparian Forest*	15.1
	Southern Cottonwood-Willow Riparian Forest (disturbed)*	1.1
	Southern Willow Scrub*	43.8
	Southern Willow Scrub (disturbed) *	8.9
	Mule Fat Scrub*	4.4
	Tamarisk Scrub	1.7
	Fresh Water	0.5
	Non-Vegetated Floodplain or Channel	7.5
	Non-Native Riparian	5.7
	Arundo-Dominated Riparian	2.9
Woodland	Open Coast Live Oak Woodland (<50%)*	61.0
	Open Coast Live Oak Woodland (<50%) (burned)*	2.7
	Open Coast Live Oak Woodland (<50%) (disturbed)*	3.4
	Dense Coast Live Oak Woodland (>50%)*	22.2
	Dense Coast Live Oak Woodland (>50%) (disturbed)*	1.2
	Undifferentiated Open Woodland	4.8
	Non-Native Woodland	35.4
	Non-Native Woodland (burned)	0.5
	Eucalyptus Woodland	147.5
<b>Total</b>		<b>2,264.1</b>

\*Sensitive natural community

Vegetation is a prime factor in assessing the suitability of a site for use by certain wildlife species and the potential for occurrence of certain plant species. A description of each plant community, the associated and observed wildlife species, and the location of each community within the BRSA follows.

### **5.1.0 Vegetation Community/Land Cover Descriptions**

This section provides a description of the vegetation communities and land cover types observed within the BRSA. These descriptions are organized by the Oberbauer et al. (2008) vegetation community codes, which are included in the subheadings below (e.g., 11300, 32500, etc.).

#### **Disturbed Habitat (11300)<sup>11</sup>**

Disturbed habitat includes areas that have been physically disturbed by previous human activity and are no longer recognizable as a native or naturalized vegetation community, but continue to retain a soil substrate. Examples of disturbed land include areas that have been graded, repeatedly cleared for fuel management purposes, and/or have experienced repeated use that prevents natural vegetation. Disturbed habitat includes all areas within the BRSA or in the immediate Proposed Project vicinity that have been previously disturbed and have not returned to native habitat.

Wildlife species that are typically associated with disturbed habitat include Anna's hummingbird (*Calypte anna*), house finch (*Carpodacus mexicanus frontalis*), American goldfinch (*Spinus tristis*), common raven (*Corvus corax*), European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), northern mockingbird (*Mimus polyglottos*), and rock dove (*Columba livia*).

Disturbed habitat occurs throughout the BRSA within dirt roads and dirt parking lots with little (i.e., less than approximately five percent) to no vegetative cover. On MCAS Miramar, the areas adjacent to roads have been repeatedly cleared to reduce the risk of wildfire. Disturbed habitat was mapped for those areas only when total absolute vegetation cover was less than five-percent. When fire management zones exhibited greater than five percent absolute cover, they were mapped as disturbed native vegetation communities (e.g., disturbed Diegan coastal sage scrub).

#### **Urban/Developed (12000)**

Urban/developed land includes areas that have been built or otherwise physically altered to an extent that it no longer supports native vegetation. Developed land is characterized by the presence of permanent or semi-permanent structures, pavement or hardscape, and/or landscaped areas that require irrigation. Wildlife species that are typically associated with urban/developed areas are similar to those previously described for disturbed habitat.

Developed land within the BRSA includes residential and other urban areas, as well as roads and other paved areas, such as parking lots. Areas mapped as urban/developed may contain limited amounts (generally less than 0.5 acre) of non-native woodlands or eucalyptus (*Eucalyptus* spp.) stands.

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<sup>11</sup> Numerical codes following the vegetation community name correspond to the coding hierarchy used in Oberbauer et al. (2008).

### **Orchard/Vineyard (18100)**

Orchards are planted fields with one or several tree or shrub species that are cultivated for crops. The trees are typically low and bushy with an open understory. Vineyards are fields of grapes planted in rows that are usually supported by wood and wire trellises. The understory of both orchards and vineyards are maintained and generally vegetated by short grasses and other weedy herbaceous plants. Wildlife species that are typically associated with orchards/vineyards are similar to those described for disturbed habitat, above.

Due to the intensive use of this land for agricultural purposes, these areas provide habitat for a limited number of wildlife species adapted to disturbance, including those listed in disturbed habitat. Due to the large size of some of the trees, raptor species could also use these areas for perching during foraging activities. Orchard/vineyard areas were observed primarily in the northern portion of the BRSA. Avocado trees were the most commonly observed orchard crop.

### **Intensive Agriculture (18200)**

Intensive agriculture includes dairies, nurseries, and chicken ranches, with open spaces used for livestock. There is usually no vegetation present except between animal holding areas. Due to the intensive use of this land for agricultural purposes, these areas provide habitat for a very limited number of wildlife species adapted to disturbance, such as those previously listed in disturbed habitat. Within the BRSA, intensive agriculture consists primarily of active nurseries selling potted herbs, shrubs, and trees.

### **Row Crops (18320)**

Row crops is a vegetation community comprised of annual and perennial crops grown in openly-spaced rows. Row crops are often planted in floodplains or upland areas with high-quality soil, and are rotated on a seasonal or yearly basis. Row crops in San Diego County are nearly always artificially irrigated. Due to the intensive use of this land for agricultural purposes, these areas provide habitat for a very limited number of wildlife species adapted to disturbance, such as those previously listed in disturbed habitat.

Within the BRSA, row crops consist primarily of artichokes (*Cynara* sp.). This vegetation community was mapped only where active annual or perennial crops were observed. Areas with fallow fields or bare soil were mapped as disturbed land because the use of the land for row crops could not be confirmed.

### **Ornamental (Not Applicable [N/A])**

Ornamental is not classified as a standalone vegetation community in Oberbauer et al. (2008), but is mentioned as a component of both disturbed and urban/developed areas. Ornamental vegetation was mapped within the BRSA when it was fairly extensive (generally over one acre in size), and when it was adjacent to or could otherwise be confused with native or potentially sensitive vegetation communities from an aerial image. Wildlife species that are typically associated with ornamental areas are similar to those previously described for disturbed habitat. The ornamental vegetation observed includes primarily herbaceous or shrubby vegetation used for landscaping in commercial and residential areas, such as western coastal wattle (*Acacia cyclops*), with very few trees.

### **Diegan Coastal Sage Scrub (32500)**

Diegan coastal sage scrub is the most common form of coastal sage scrub found in San Diego County. Typically, Diegan coastal sage scrub is made up of low, soft-woody subshrubs up to three feet in height. Most species commonly found in the community are drought-deciduous and include species such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), white sage (*Salvia apiana*), and laurel sumac (*Malosma laurina*). Diegan coastal sage scrub communities are most often found at elevations below 1,500 feet above median sea level (MSL). This community can be found on steep, xeric slopes or clay-rich soils that release stored water slowly.

Diegan coastal sage scrub provides habitat for the coastal California gnatcatcher, which is an FT species. Wildlife species most often associated with Diegan coastal sage scrub include the California towhee (*Pipilo crissalis*), spotted towhee (*Pipilo maculatus*), California thrasher (*Toxostoma redivivum*), and western scrub-jay (*Aphelocoma californica*). Scrub habitats also provide cover and forage for mammal species, including California ground squirrel (*Spermophilus beecheyi*) and desert cottontail rabbit (*Sylvilagus audubonii*). Side-blotched lizard (*Uta stansburiana*) and western fence lizard (*Sceloporus occidentalis*) are also commonly found in these habitats.

Diegan coastal sage scrub occurs throughout the BRSA, from the northern portions at the Rainbow Metering Station to the southern terminus on MCAS Miramar. Diegan coastal sage scrub communities within the BRSA are dominated by California sagebrush, California buckwheat, and black sage (*Salvia mellifera*), with laurel sumac and lemonadeberry (*Rhus integrifolia*) as very common associate species. Stands with shrub cover between 10 and 33 percent absolute shrub cover were mapped with an additional qualifier to designate them as “open” Diegan coastal sage scrub communities. Native forbs and grasses, such as needlegrass (*Stipa* [*Nassella*] spp.), and non-native grasses, such as wild oats (*Avena* spp.) and bromes (*Bromus* spp.), occur within these open Diegan coastal sage scrub stands typically with absolute covers greater than 50 percent.

Distinct types of coastal sage scrub were noted based on their species composition, relative disturbance levels, and landscape position, as follows:

- **Diegan coastal sage scrub (open)** stands were mapped where the total cover of coastal sage scrub shrub species was between five and 33 percent absolute cover, with herbaceous cover and bare ground or rock accounting for the remaining 66 to 95 percent. This definition is consistent with the *Vegetation Classification Manual for Western San Diego County* (SANDAG 2011). Some of these stands also exhibited a high degree of disturbance, so they were mapped as Diegan coastal sage scrub (open, disturbed).
- **Diegan coastal sage scrub (disturbed)** stands were mapped where the presence of non-native species was noted in greater than trace amounts and/or physical land disturbance (e.g., grading) was observed.
- **Diegan coastal sage scrub (open, disturbed)** stands were mapped where the conditions of both the Diegan coastal sage scrub (open) and the Diegan coastal sage scrub (disturbed) were observed.



- **Diegan coastal sage scrub (restored)** stands were mapped in areas that were likely part of a revegetation effort, such as in areas adjacent to or between roadways.
- **Diegan coastal sage scrub (burned)** stands were noted in areas where recent burns had removed nearly all vegetative cover. These areas were primarily observed within the perimeter of the Highway Fire, which burned approximately 400 acres south of SR-76 and west of I-15 in May 2014.
- **Diegan coastal sage scrub (*Adolphia californica*-dominated)** was observed in one location where California adolphia (*Adolphia californica*) was the dominant shrub species, with more typical coastal sage scrub dominants (e.g., California sagebrush and California buckwheat) at less than five-percent relative cover each. California adolphia is a CRPR 2B.1 perennial deciduous shrub and is further discussed in Section 5.2.0 Species Present in the BRSA.
- **Diegan coastal sage scrub (*Opuntia*- or *Cylindropuntia*-dominated)** was mapped in two distinct locations in the BRSA where either Mesa prickly-pear (*Opuntia littoralis*) or cane cholla (*Cylindropuntia californica* var. *parkeri*) is a dominant species.

#### **Diegan Coastal Sage Scrub – *Baccharis*-Dominated (32530)**

Diegan coastal sage scrub – *Baccharis*-dominated is similar to Diegan coastal sage scrub. This vegetation community is typically found on disturbed sites or sites with nutrient-poor soils in coastal and foothill areas in San Diego County. It is often found intermixed with other forms of Diegan coastal sage scrub and on the upper terraces of river valleys. Characteristic species include broom baccharis (*Baccharis sarothroides*) and coyote brush (*Baccharis pilularis*). Additional species found in Diegan coastal sage scrub – *Baccharis*-dominated may include California sagebrush, California buckwheat, saw-toothed goldenbush (*Hazardia squarrosa*), coastal goldenbush (*Isocoma menziesii*), and black sage. Associated wildlife species within this vegetation community are the same as those listed previously for Diegan coastal sage scrub.

In the BRSA, Diegan coastal sage scrub – *Baccharis*-dominated stands occur in mesic areas that are not wet enough to classify as a riparian or wetland community. These areas are dominated by similar species as Diegan coastal sage scrub, but tend to have a higher percent cover of blue elderberry (*Sambucus nigra* ssp. *caerulea*), laurel sumac, and lemonadeberry than the standard Diegan coastal sage scrub. Because broom baccharis is adapted to disturbance, Diegan coastal sage scrub – *Baccharis*-dominated was also observed in more heavily disturbed and restored sites.

Distinct types of Diegan coastal sage scrub – *Baccharis*-dominated were noted based on their relative disturbance levels and landscape position, as follows:

- **Diegan coastal sage scrub – *Baccharis*-dominated (disturbed)** stands were noted where the presence of non-native species was greater than trace amounts and/or where physical land disturbance (e.g., grading) was observed.
- **Diegan coastal sage scrub – *Baccharis*-dominated (restored)** was also noted on constructed grades between major roadways in the northern portion (e.g., I-15 and Old Highway 395) of the BRSA.

### **Southern Mixed Chaparral (37120)**

Southern mixed chaparral is dominated by broad, leathery-leaved, woody shrubs that are four to nine feet in height, forming a dense vegetation canopy. Dominant species include scrub oaks (*Quercus* spp.), chamise (*Adenostoma fasciculatum*), and several manzanita (*Arctostaphylos* spp.) and ceanothus (*Ceanothus* spp.) species. Southern mixed chaparral communities are most often found at elevations below 3,000 feet above MSL. Plants are deeply rooted with little to no understory and an accumulation of leaf litter. Southern mixed chaparral is adapted to repeated fires, which many species respond to by stump sprouting from an underground root burl. This community is typically found on dry, rocky, and often steep slopes.

Common wildlife species that occur in southern mixed chaparral include spotted towhee, California thrasher, wren (*Chamaea fasciata*), Bewick's wren (*Thryomanes bewickii*), western scrub jay, California ground squirrel, side-blotched lizard, and western fence lizard.

In the BRSA, southern mixed chaparral occurs primarily on north-facing slopes in MCAS Miramar and in a few scattered locations in the northern portion of the BRSA. These areas are distinguished from chamise chaparral by the presence of Ramona lilac (*Ceanothus tomentosus*) as a co-dominant or subdominant cover, with chamise as subdominant or sparsely present. Mission manzanita (*Xylococcus bicolor*) is often an associate species. These areas have a high species diversity in the shrub layer, with Eastwood's manzanita (*Arctostaphylos glandulosa* ssp. *glandulosa*), Nuttall's scrub oak (*Quercus dumosa*), interior scrub oak (*Quercus berberidifolia*), and other ceanothus species present. One stand of burned mixed chaparral was noted within the perimeter of the Highway Fire, which burned in May 2014.

### **Chamise Chaparral (37200)**

Typical chamise chaparral is dominated by chamise ranging from three to nine feet in height. Other plant species associated with this community contribute little to no vegetative cover, and there is little to no understory. Chamise chaparral communities are most often found at elevations ranging from 2,500 to 3,500 feet above MSL. Chamise chaparral is fire-adapted through stump sprouting. This community is often associated with soils that are shallow and dry, and often on xeric slopes and ridges.

Wildlife species typically associated with chamise chaparral include several bird species, such as California towhee, spotted towhee, California thrasher, Bewick's wren, and western scrub-jay. This habitat also provides cover and forage for mammal species, including California ground squirrel and mule deer (*Odocoileus hemionus*). Gopher snake (*Pituophis catenifer*), side-blotched lizard, granite spiny lizard (*Sceloporus orcutti*), and western fence lizard are also commonly found in this habitat.

In the BRSA, chamise chaparral occurs throughout MCAS Miramar on a variety of aspects but most commonly on south- or east-facing aspects and on less steep slopes and ridgetops. These areas are dominated by chamise, and Mission manzanita is a common associate species.

### **Coastal Sage-Chaparral Transition (37G00)**

Coastal sage-chaparral transition is comprised of a mix of sclerophyllous, woody chaparral species and drought-deciduous, malacophyllous (i.e., drought-deciduous plants with small, thin

leaves and shallow roots) sage scrub species. This often post-fire successional vegetation community is characterized by a co-dominance of California sagebrush and chamise. Other plant species often found in coastal sage-chaparral transition include black sage, ceanothus species, and poison oak (*Toxicodendron diversilobum*).

Wildlife species typically associated with this vegetation community are those listed previously for chaparral communities and Diegan coastal sage scrub. In the BRSA, coastal sage-chaparral transition occurs in MCAS Miramar. These areas are dominated by approximately equal components of Diegan coastal sage scrub-dominant species (e.g., California buckwheat, black sage) and chaparral-dominant species (e.g., chamise and Ramona lilac).

### **Valley Needlegrass Grassland (42110)**

Valley needlegrass grassland is a mid-height (up to two feet) grassland dominated by perennial, tussock-forming purple needlegrass (*Stipa [Nasella] pulchra*). Native and introduced annuals typically occur between the perennials, often actually exceeding the bunchgrasses in cover. In San Diego County, native perennial herbs are present, such as checkerbloom (*Sidalcea* spp.), western blue-eyed-grass (*Sisyrinchium bellum*), California poppy (*Eschscholzia californica*), and California goldfields (*Lasthenia californica*). The percent cover of native species at any one time may be quite low, but according to Oberbauer et al. (2008), it is considered native grassland if 20-percent aerial cover of native species is present.

Typical wildlife species that may forage in this habitat include mourning dove (*Zenaida macroura*), western meadowlark (*Sturnella neglecta*), and red-tailed hawk (*Buteo jamaicensis*). One stand of valley needlegrass grassland was observed at the southern end of the BRSA on MCAS Miramar. Purple needlegrass was observed at approximately 50-percent absolute cover in this stand.

### **Non-Native Grassland (Annual Grassland) (42200)**

Typical non-native grassland areas may have historically supported native grassland or other native plant communities in the past, but these areas have been invaded by exotic annuals. The flora of non-native grasslands includes a dense to sparse cover of introduced annual grasses, and may include numerous species of showy-flowered, non-native, or native wildflowers. These annuals germinate with the onset of the rainy season and set seed in late winter or spring. Non-native grasslands are often associated with deep, fine-textured soils with some clay content. Typical wildlife species that may forage in this habitat include mourning dove, western meadowlark, and red-tailed hawk.

In the BRSA, non-native grassland occurs in scattered locations throughout MCAS Miramar and in urban areas. These areas are dominated by wild oats and brome grasses, with less than 50-percent cover of invasive, non-native forbs. Many non-native grasslands observed in the spring of 2015 had a continuous (i.e., approaching 100-percent cover) herbaceous layer of brome grasses.

### **Non-Native Grassland: Broadleaf-Dominated (42210)**

This vegetation community is a subset of non-native grassland, and is dominated by one or several non-native invasive species, such as horseweed (*Erigeron [Conyza] canadensis*), black mustard (*Brassica nigra*), and star thistle (*Centaurea* spp.). To ensure consistency with

Oberbauer et al. (2008), this designation was only applied where non-native broadleaf species account for more than 50 percent of the total vegetative cover.

Typical wildlife species that may use this habitat are similar to those using non-native grasslands. In the BRSA, non-native grasslands: broadleaf-dominated occur in scattered locations throughout the urban areas, with smaller areas occurring within MCAS Miramar.

### **Vernal Pool (44000)**

Vernal pools are seasonally flooded depressions that support a distinctive living community adapted to extreme variability in hydrologic conditions (seasonally very dry and very wet conditions). Although vernal pools are often associated with hummocks or mima mounds, these features are not always present. In San Diego, vernal pools often retain pooled water for approximately two weeks after significant rain events. Vernal pools can be differentiated from other temporary wetlands by the following criteria:

- the basin is at least partially vegetated during the normal growing season, or is unvegetated due to heavy clay or hardpan soils that do not support plant growth; and
- the basin contains at least one vernal pool indicator species.

Vernal pool indicator species include woolly marbles, downingia (*Downingia cuspidata*), San Diego button celery, or vernal pool branchiopods (e.g., *Branchinecta* spp. and *Streptocephalus* spp.).

Wildlife species associated with vernal pools include vernal pool branchiopods; western spadefoot toad (*Spea hammondi*), a state SSC; and a number of aquatic invertebrates. Birds and other wildlife may use vernal pools as a water source, inadvertently dispersing branchiopod eggs (i.e., cysts) via their feet and digestive tracts.

In the BRSA, vernal pools occur in scattered locations in MCAS Miramar. These areas are dominated by woolly marbles (*Psilocarphus brevissimus* var. *brevissimus*). Due to the timing of the habitat assessment on MCAS Miramar, which was conducted during the dry season, additional species were not discernible. The spatial extent of these vernal pools was delineated using the diagnostic presence of senescing woolly marbles, as well as geomorphic indicators, such as depressions.

### **Freshwater Seep (45400)**

Typical freshwater seeps are composed of mostly perennial herbs, sedges, and grasses, often forming complete vegetative cover that grows throughout the year. Freshwater seeps in San Diego County are most often found at elevations ranging from 2,000 to 4,000 feet above MSL. Numerous terrestrial wildlife species utilize freshwater seeps as a source of water, including mule deer and cottontail rabbit. Amphibians are commonly associated with wet areas, and use seeps for dispersal between breeding and upland habitat.

In the BRSA, freshwater seeps occur in scattered locations throughout MCAS Miramar. These areas are usually associated with drainages, have a continuous herb layer, and are dominated by rushes (*Juncus* spp.) with absolute covers that are typically greater than 25 percent, with other native and non-native grasses as subdominant species.

### **Cismontane Alkali Marsh (52310)**

Cismontane alkali marshes occur in areas where standing waters or saturated soils are present during most or all of the year. High evaporation and low input of fresh water render these marshes somewhat salty, especially during the summer. Most growth and flowering of these areas occur during the summer. Characteristic species include yerba mansa (*Anemopsis californica*), sedges (*Carex* spp.), salt grass (*Distichlis spicata*), alkali heath (*Frankenia salina*), Mexican rush (*Juncus mexicanus*), perennial peppergrass (*Lepidium latifolium*), pickleweed (*Salicornia pacifica*), narrow-leaved cattail (*Typha angustifolia*), and southern cattail (*Typha domingensis*).

Freshwater marshes are among the most productive wildlife habitats in California. They provide food, cover, and water for more than 160 species of birds (CDFW 2015f)—such as the northern harrier (*Circus cyaneus*) or least bittern (*Ixobrychus exilis hesperis*)—and numerous mammals, reptiles, and amphibians. Many species rely on freshwater marshes for their entire life cycle.

Within the BRSA, cismontane alkali marsh was observed within the wetlands associated with Lake Hodges. The cismontane alkali marsh stands within Lake Hodges are primarily monotypic stands of the non-native invasive perennial peppergrass, and dead woody vegetation and thatch, which is presumed to be dead herbaceous alkali marsh species. The stands on the northern banks of Lake Hodges are more diverse marsh communities, dominated by roughly equal proportions of alkali heath, yerba mansa, and sedges, with varying amounts of perennial peppergrass in more disturbed areas.

### **Coastal and Valley Freshwater Marsh (52410)**

Coastal and valley freshwater marsh stands are dominated by perennial, emergent monocots up to 16 feet tall. Stands often form completely closed canopies. Bulrushes (*Schoenoplectus* [= *Scirpus*] spp.) and cattails (*Typha* spp.) are the dominant species. Coastal and valley freshwater marshes are often located on quiet sites lacking significant current, or are permanently flooded by fresh water. Prolonged water saturation permits the accumulation of deep, peaty soils in these areas. Wildlife species typically associated with emergent wetlands are similar to those found within cismontane alkali marsh, described previously.

Coastal and valley freshwater marsh occurs in isolated stands throughout the BRSA wherever fresh water is present for a significant portion of the year. These conditions are present along the larger perennial and intermittent drainages within the BRSA, and also along man-made drainage ditches in urbanized areas where water is allowed to pond.

### **Emergent Wetland (52440)**

Emergent wetlands are generally persistent wetlands dominated by low-growing, perennial wetland species. They can be found in channels, seeps, and springs; floodplains; margins of lakes and rivers; and various basins, such as pools and ponds, palustrine lakes, montane meadows, and dune swales. Emergent wetlands may be freshwater or alkaline. In San Diego County, emergent wetlands often occur in previously disturbed areas where wetlands are establishing, but have not yet established a full suite of species; however, disturbance is not a necessary element of this vegetation community. Characteristic species include sedges, spikerushes (*Eleocharis* spp.), rushes, dock (*Rumex* spp.), and many others. Wildlife species

typically associated with emergent wetlands are similar to those found within cismontane alkali marsh, described previously.

Within the BRSA, one small emergent wetland was observed within Rainbow Creek. Tall umbrella plant (*Cyperus eragrostis*), white watercress (*Nasturtium officinale*), rushes, and other low-growing, perennial wetland species were observed within this stand.

### **Herbaceous Wetland (52510)**

Herbaceous wetlands are typically seasonal wetlands (i.e., land that is saturated with water seasonally) supporting mainly annual hydrophytic species. These areas do not support perennial species, such as the cattails, rushes, and sedges typically associated with coastal and valley freshwater marsh. In San Diego County, herbaceous wetlands may only occur during wetter-than-average years and are usually found in swale areas or adjacent to drainages. Characteristic species include annuals, such as seep monkey flower (*Mimulus guttatus*) and annual beard grass (*Polypogon monspeliensis*). Wildlife species typically associated with herbaceous wetlands are similar to those found within cismontane alkali marsh, described previously.

Within the BRSA, one small herbaceous wetland was observed adjacent to Escondido Creek, and one isolated disturbed herbaceous wetland was observed north of Beeler Creek. Several disturbed herbaceous wetlands also were observed along an unnamed tributary to Poway Creek that lies south of Pomerado Road, and one small herbaceous wetland demonstrating seasonally wet conditions was observed within MCAS Miramar.

### **Southern Coast Live Oak Riparian Forest (61310)**

Southern coast live oak riparian forest is a dense riparian forest dominated by coast live oak (*Quercus agrifolia*) with sparse or trace amounts of woody riparian species, such as willows (*Salix* spp.) or western sycamores (*Platanus racemosa*). The canopy is closed, or nearly closed. This vegetation community appears to be richer in herbs and poorer in understory shrubs than other riparian communities. Southern coast live oak riparian forest is a homogenous mixture of coast live oak woodland and southern riparian woodland, especially if the riparian elements are not substantial or are discontinuous. These stands typically occur within bottomlands and outer floodplains along larger streams and on fine-grained, rich alluvium.

Riparian forest habitats provide food, water, migration and dispersal corridors; and escape, nesting, and thermal cover for an abundance of wildlife. At least 50 amphibians and reptiles are known to occur in lowland riparian systems. Many are permanent residents; others are transient or temporal visitors (CDFW 2015a). In general, riparian communities in Southern California support numerous aquatic insects, such as mayflies, damsel flies, and beetles; terrestrial insects, such as mosquitos and butterflies; native and introduced fish; amphibians and reptiles, such as tree frogs and side-blotched lizard; and breeding birds (USFWS 1989).

Within the BRSA, southern coast live oak riparian forests occur in drainages at the northern end near the Rainbow Metering Station (i.e., Rainbow Creek), in scattered roadside drainages south to SSR-76, and along an unnamed tributary to Poway Creek north of the intersection of Pomerado Road and Scripps Poway Parkway. Stands were mapped as southern coast live oak

riparian forest (disturbed) where greater than trace amounts of non-native species and/or physical land disturbance (e.g., grading or homes) were observed in the understory.

### **Southern Cottonwood-Willow Riparian Forest (61330)**

Southern cottonwood-riparian forests are tall, open, broad-leaf, winter-deciduous riparian forests dominated by Fremont's cottonwood (*Populus fremontii* ssp. *fremontii*) and several tree willows. Understories usually are shrubby willows. These areas are typically found in sub-irrigated and frequently overflowed lands along rivers and streams. The dominant species require moist, bare mineral soil for germination and establishment. Characteristic species include Douglas mugwort (*Artemisia douglasiana*), mule fat (*Baccharis salicifolia*), western sycamore, black willow (*Salix gooddingii*), arroyo willow (*Salix lasiolepis*), and hoary nettle (*Urtica dioica* ssp. *holosericea*). Wildlife species typically associated with these forests are similar to those found within southern coast live oak riparian forests, described previously.

Within the BRSA, southern cottonwood-riparian forest was mapped along an unnamed tributary to Moosa Creek, which flows into the San Luis Rey River; and in one stand directly north of the San Luis Rey River where it crosses the BRSA.

### **Southern Willow Scrub (63320)**

Southern willow scrub consists of dense, broad-leaf, winter-deciduous, riparian thickets dominated by several willow species, with scattered emergent Fremont cottonwood and western sycamore. Most stands are too dense to allow much understory development. Southern willow scrub occurs on loose, sandy or fine gravelly alluvium deposited near stream channels during flood flows. Characteristic species include arrow-weed (*Pluchea sericea*), black willow, Hind's willow (*Salix exigua* var. *hindsiana*), arroyo willow, and red willow (*S. laevigata*). Wildlife species typically associated with southern riparian woodlands are similar to those found within southern coast live oak riparian forests, described previously. Southern willow scrub provides ideal habitat for the federally and state endangered southwestern willow flycatcher.

In the BRSA, southern willow scrub occurs in intermittent and perennial drainages within urban areas, with the most significant stands located where the Proposed Project crosses the San Luis Rey River and Lake Hodges. These areas are dominated by red willow, black willow, and other willow species, often with an understory of mule fat or giant reed (*Arundo donax*). Southern willow scrub is the most abundant of the riparian forests mapped within the BRSA.

### **Mule Fat Scrub (63310)**

This riparian vegetation community commonly occurs in intermittent stream channels and is dominated by widely spaced mule fat, which is a tall, herbaceous plant. This is an intermediate successional community maintained by frequent flooding. Without frequent flooding, most mule fat scrub will succeed to cottonwood- or sycamore-dominated riparian forest or woodland. Mule fat scrub occurs along intermittent streams and is also associated with larger rivers in Northern and Southern California and northwestern Baja California, Mexico. Wildlife species typically associated with mule fat scrub are similar to those found within southern coast live oak riparian forests, described previously.

Within MCAS Miramar, mule fat scrub was observed along NS-4, an intermittent drainage crossing that parallels the proposed aqueduct road. Mule fat scrub was also observed at scattered locations along the tributaries to the San Luis Rey River, and in smaller, unnamed drainages. Characteristic species observed in these areas included mule fat, willows, and broom baccharis.

### **Tamarisk Scrub (63810)**

Tamarisk scrub is a weedy, virtual monoculture of any of several tamarisk species (*Tamarix chinensis* or *Tamarix ramosissima*), usually supplanting native vegetation following major disturbance. This vegetation community occurs on sandy or gravelly braided washes or intermittent streams, often in areas where high evaporation increases the stream's saltiness. Tamarisk is a prolific seeder, which predisposes the species to be an aggressive competitor in disturbed riparian corridors. Characteristic species associated with tamarisk scrub include big saltbush (*Atriplex lentiformis*), salt grass, arrow-weed, and narrow-leaved willow (*Salix exigua*). Tamarisk scrub is widely distributed and is increasing its range. Wildlife species typically associated with southern riparian woodlands are similar to those found within southern coast live oak riparian forests, described previously.

Within the BRSA, tamarisk scrub was observed directly south of where the Proposed Project crosses the San Luis Rey River, as well as along the northern banks of Lake Hodges. Characteristic species observed in these areas included tamarisk, with trace amounts of mule fat and broom baccharis.

### **Fresh Water (64140)**

Open water is comprised of year-round bodies of fresh water in the form of lakes, streams, ponds, or rivers. This includes portions of waterbodies that are usually covered by water and contain less than 10-percent vegetative cover. Within the BRSA, one small open water area was noted within the All Seasons Recreational Vehicle Park. The open water appears to be a man-made pond. Avian species adapted to human presence—such as mallard ducks (*Anas platyrhynchos*), American coots (*Fulica americana*), and other aquatic species (e.g., fish)—may use this pond. Most drainages within the BRSA exhibited ephemeral or intermittent hydrology, and as a result, they did not have standing water when vegetation mapping was conducted. The one perennial drainage—the San Luis Rey River—may have small patches of open water, but these patches were not visible from the aerial imagery due to the presence of mature southern cottonwood willow riparian forest, which is the vegetation community mapped for the San Luis Rey River reach within the BRSA.

### **Non-Vegetated Floodplain or Channel (64200)**

Non-vegetated floodplains or channels are the sandy, gravelly, or rocky fringe of waterways. These areas are unvegetated on a relatively permanent basis. Variable water lines inhibit the growth of vegetation, although some weedy species of grasses may grow along the outer edges of the wash. Vegetation may exist here but is usually less than 10-percent total cover. Wildlife species that use these areas are probably there as a result of the adjacent riparian or upland vegetation rather than as a result of the habitat that these areas provide. Typically, these are dry, concrete-lined channels providing little to no habitat value for most species.



Within the BRSA, non-vegetation floodplain or channel areas were mapped primarily along concrete-lined drainages and drainages with natural bottoms.

### **Non-Native Riparian (65000)**

Non-native riparian areas are densely vegetated riparian thickets dominated by non-native, invasive species. This designation is reserved for stands where non-native, invasive species account for more than 50 percent of the total vegetative cover within a mapping unit, and are not otherwise dominated by tamarisk or giant reed, as described in the Tamarisk Scrub (63810) and Arundo-Dominated Riparian (65100) sections, respectively. Non-native riparian areas are found in a variety of wetland habitats, often where disturbance has occurred. Characteristic species include giant reed, tamarisk, eucalyptus, Mexican fan palm (*Washingtonia robusta*), Canary Island palm (*Phoenix canariensis*), Bermuda grass (*Cynodon dactylon*), castor bean (*Ricinus communis*), and pampas grass (*Cortaderia* spp.), along with natives such as arrow-weed, Fremont's cottonwood, and willows.

Within the BRSA, non-native riparian vegetation was observed in scattered locations, primarily within urbanized drainages. In addition to the characteristic species listed previously, shamel ash (*Fraxinus uhdei*) and tree of heaven (*Ailanthus altissima*) were also identified within non-native riparian stands.

### **Arundo-Dominated Riparian (65100)**

Arundo-dominated riparian stands are densely vegetated riparian thickets dominated almost exclusively by giant reed. This designation is restricted to areas where giant reed accounts for more than 50 percent of the total vegetative cover within a stand. Arundo-dominated riparian areas occur on loose, sandy, or fine gravelly alluvium deposited near stream channels in areas subject to frequent flood flows.

Within the BRSA, three arundo-dominated riparian stands were observed. Two stands were located adjacent to the tamarisk scrub south of the San Luis Rey River, and one very small arundo-dominated stand was noted within a vacant lot in the City of Escondido.

### **Open Coast Live Oak Woodland (71161)**

This woodland is dominated by coast live oak, an evergreen oak that reaches 32 to 82 feet in height. The shrub layer is poorly developed, but may include toyon (*Heteromeles arbutifolia*), gooseberry (*Ribes* spp.), laurel sumac, or blue elderberry. The herb component is continuous and dominated by ripgut grass (*Bromus diandrus*) and other introduced taxa. It often occurs on north-facing slopes and shaded ravines in Southern California. This community intergrades with Diegan coastal sage scrub and southern mixed chaparral on drier sites. Open coast live oak woodland has a canopy cover of less than 50-percent absolute cover. Coast live oak is often co-dominant with other chaparral or woodland types.

Coastal oak woodlands provide habitat for a variety of wildlife species. At least 60 species of mammals may use oaks in some way and 110 species of birds have been observed during the breeding season in California habitats where oaks form a significant part of the canopy or subcanopy (CDFW 2015a). Quail (*Callipepla californica*), wild turkey (*Meleagris gallopavo*), squirrels (e.g., California ground squirrel), and southern mule deer (*Odocoileus hemionus*)

*fuliginatus*) may be so dependent on acorns in fall and early winter that a poor acorn year can result in significant declines in their populations (CDFW 2015a).

Open coast live oak woodlands were observed throughout the less developed portions of the BRSA, with the exception of MCAS Miramar. Many open coast live oak woodlands observed within the BRSA have a grassy understory with sparse or trace coastal sage scrub species. Distinct types of open coast live oak woodland were noted based on their relative disturbance levels and landscape position, as follows:

- **Open coast live oak woodland (disturbed)** stands were mapped where the presence of non-native species was noted in greater than trace amounts and/or physical land disturbance (e.g., grading) was observed.
- **Open coast live oak woodland (burned)** stands were noted in areas where recent burns have removed nearly all vegetative cover. These areas were primarily observed within the perimeter of the Highway Fire, which burned approximately 400 acres south of SR-76 and west of I-15 in May 2014.

### **Dense Coast Live Oak Woodland (71162)**

Dense coast live oak woodland is similar to open coast live oak woodland with respect to species composition, but contains coast live oak with absolute covers of more than 50 percent. Wildlife species typically associated with dense coast live oak woodlands are similar to those listed for open coast live oak woodland.

Within the BRSA, dense coast live oak woodlands were observed on north-facing slopes around the community of Rainbow, as well as within flat areas with large, mature, closed-canopy coast live oaks. Dense coast live oak woodland (disturbed) stands were mapped where the presence of non-native species—such as Mexican fan palm, Canary Island palm, and eucalyptus—were noted in greater than trace amounts and/or where physical land disturbance (e.g., grading and structures) was observed.

### **Undifferentiated Open Woodland (78000)**

According to Oberbauer et al. (2008), undifferentiated open woodland is a “catch-all category” in which a species’ composition is unknown, but the structural characteristics of the vegetation is known. Within the BRSA, undifferentiated open woodlands were mapped where some native trees (i.e., coast live oaks) were observed, but were not dominant. Non-native trees (e.g., ornamental or fruit trees) were often interspersed with the coast live oaks, and non-native grasses (e.g., bromes) were in the understory. This community was mapped primarily on larger, exurban acreages in the BRSA.

### **Non-Native Woodland (79000)**

Non-native woodlands are dominated by exotic tree species—usually intentionally planted—that are not maintained or artificially irrigated. This vegetation community does not include riparian woodlands, which were mapped as non-native riparian, or eucalyptus-dominated woodlands, which were mapped as eucalyptus woodland. Typical wildlife species associated with non-

native woodlands may include urban-adapted raptor species, such as red-tailed hawks. The sparse understory, however, offers very limited wildlife habitat.

Within the BRSA, non-native woodlands occur primarily within urbanized areas. Smaller pockets of non-native trees that did not meet the minimum mapping unit requirement were generally grouped into urban/developed areas. Many non-native woodlands occur along public roadways and sidewalks. Characteristic vegetation includes a mixture of eucalyptus, tree of heaven, Peruvian pepper tree (*Schinus molle*), and Brazilian pepper tree (*Schinus terebinthifolius*).

### **Eucalyptus Woodland (79100)**

Typical eucalyptus woodlands are dominated by several species of eucalyptus. Eucalyptus trees are native to Australia and are considered an invasive species because of their rapid growth rate and broad cover. These trees were historically planted as windbreaks and for aesthetic and horticultural purposes around houses and other developed areas. Many eucalyptus species have become naturalized, including in riparian areas. The understory within well-established groves of eucalyptus is usually very sparse due to the closed canopy and the allelopathic<sup>12</sup> nature of the leaf litter.

As a wildlife habitat, these woodlands provide nesting sites for a variety of raptors. During winter migrations, a large variety of warblers (e.g., *Oreothlypis* spp., *Setophaga* spp., etc.) may be found feeding on the insects that are attracted to eucalyptus flowers. The sparse understory, however, offers limited wildlife habitat.

In the BRSA, eucalyptus woodlands occur primarily within the urban areas, especially along public roadways, and in isolated, scattered locations within MCAS Miramar. These areas are dominated by several species of Eucalyptus, including blue gum (*Eucalyptus globulus*) and red gum (*Eucalyptus camaldulensis*).

## **5.2 SPECIAL-STATUS PLANT SPECIES**

Based on the literature and database review, as well as results from the field surveys, 129 special-status plant species were identified to have the potential to occur within the BRSA. Table 4: Special-Status Plant Species with Potential to Occur provides a list of potentially occurring special-status plant species and descriptions of their listing status, life history, blooming period, habitat requirements, and a brief assessment of their potential to occur within the BRSA. Of those 129 species, 51 were determined to have no potential to occur within the BRSA.

Nineteen special-status plant species were observed within the BRSA during focused special-status plant surveys conducted in 2015, as summarized in Table 5: Special-Status Plant Occurrences within the BRSA and shown in Attachment C: Special-Status Plant Species Occurrences Map of Attachment B: Special-Status Plant Species Survey Report. No federally or

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<sup>12</sup> Allelopathy is a biological phenomenon that is characteristic of some plants. An allelopathic plant produces certain biochemicals that influence the growth and development of other organisms. The biochemicals, called allelochemicals, can have a beneficial or detrimental effect on neighboring organisms.

state-listed special-status plants were observed within the BRSA during the surveys. The majority of the special-status plants identified within the BRSA are located in the southern portion of MCAS Miramar and along Pomerado Road.

Results of the focused special-status plant surveys conducted in 2015 are included in Attachment B: Special-Status Plant Species Survey Report. A complete list of all plant species observed during surveys is included in Attachment H: Plant Species Observed during Surveys.

Special-status plant species often require specific edaphic (i.e., soil) conditions, such as clay or gabbroic substrates. Within the BRSA, approximately 493 acres of clay soils occur. Clay soils include any of the following soil types (Bowman 1973) occurring within the BRSA: Bosanko Clay, Diablo-Olivenhain, Huerhuero, Olivenhain, and Redding. Within the BRSA, approximately 65 acres of gabbroic soils occur. Gabbroic soils include Las Posas soils (Bowman 1973). Figure A-5: Clay and Gabbroic Soils in Attachment A: Figures shows the distribution of these soil types within the BRSA.

Thirty-five special-status plant species were determined to not be present within the BRSA. An additional 24 special-status plant species that were not observed during rare plant surveys are described in Table 4: Special-Status Plant Species with Potential to Occur as “not expected to occur.” These species are either annual herbs, perennial rhizomatous herbs, or perennial bulbiferous species that might not have germinated due to the drought conditions of the winter of 2014-2015. Special-status species that could occur within areas that were inaccessible to survey teams were also included in this category.

Special-status plant surveys conducted within the BRSA during 2015 may underrepresent the total abundance and distribution of special-status plants because of the historic California drought. Between October 1, 2014 and April 26, 2015, the area experienced approximately 66 percent of the normal rainfall according to the San Diego Lindbergh Field station (NOAA 2015), and temperatures were four to eight degrees above normal from January to April 2015 (U.S. Climate Data 2015). This combination of higher-than-normal temperatures and below-average precipitation resulted in earlier than normal spring flowering, with peak bloom estimated to occur on or around April 15, 2015. Drought conditions also can result in a reduction in the total number of individuals of any one species observed, and the total number of annual or bulbiferous perennial species that germinate in a given year.

## **5.2.0 Species Present in the BRSA**

### **Ashy Spike-Moss**

Ashy spike-moss (*Selaginella cinerascens*) is a CRPR 4.1 perennial spore-bearing species in the spike-moss family that occurs in coastal scrub and chaparral habitats from 66 to 2,100 feet in elevation. It is easily identifiable at any time of the year due to its characteristic ashy moss-like vegetation. This species was observed throughout almost all of the undisturbed native habitats on MCAS Miramar. Due to the widespread nature of this species, mapping for this species was conducted to provide only generalized locations.

**Table 4: Special-Status Plant Species with Potential to Occur**

Species Name	Federal, State, and CRPR <sup>13</sup>	Habitat Preferences, Distribution Information, and Additional Notes	Flowering Phenology/ Life Form	Known Records <sup>14</sup>	Potential to Occur
<b>BRYOPHYTES - LIVERWORTS</b>					
<i>Sphaerocarpos drewei</i> Bottle liverwort	1B.1	Bottle liverwort occurs on soil in openings in chaparral and coastal scrub between 295 and 1,970 feet in elevation.	Not applicable/ Ephemeral Liverwort	Past occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. However, there are only two records of this species for San Diego County in the CNDDDB and much of the suitable historic habitat for this species has been lost to urbanization. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<b>BRYOPHYTES - MOSSES</b>					
<i>Schizymerium shevockii</i> Shevock's copper moss	1B.2	Shevock's copper moss occurs on metamorphic, rock, and mesic areas in cismontane woodland between 2,460 and 4,600 feet in elevation.	Not applicable/ Moss	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at elevations higher than those within the BRSA. <b>No Potential</b>
<i>Tortula californica</i> California screwmoss	1B.2	California screwmoss occurs in sandy soils in chenopod scrub and valley and foothill grassland between 30 feet and 4,790 feet in elevation.	Not applicable/ Moss	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. One recent CNDDDB occurrence is documented within five miles of the Proposed Project area.	Suitable habitat for this species is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<i>Triquetrella californica</i> Coastal triquetrella	1B.2	Coastal triquetrella occurs on soil in coastal bluff scrub and coastal scrub between 30 and 440 feet in elevation. The San Diego occurrence of this species at San Vicente Dam was documented at 650 feet in elevation.	Not applicable/ Moss	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. The remaining 12 occurrences are documented from the Bay Area. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>

<sup>13</sup> Explanation of federal and state listing codes:

Federal listing codes:

- FE: Federally listed as Endangered
- FT: Federally listed as Threatened
- FPE: Federally proposed for listing as Endangered
- FPT: Federally proposed for listing as Threatened
- FPD: Federally proposed for delisting
- FC: Federal candidate species

California listing codes:

- CE: State-listed as Endangered
- CT: State-listed as Threatened
- CR: State-listed as Rare
- CCE: Candidate for state listing as Endangered
- CCT: Candidate for state listing as Threatened
- CEQA: Not a state-listed species, but protected under CEQA

CRPRs:

- 1A: Presumed extinct in California
- 1B: Rare or Endangered in California and elsewhere
- 2: Rare or Endangered in California, more common elsewhere
- 3: Plants for which we need more information; a review list
- 4: Plants of limited distribution; a watch list

CRPR Threat Codes:

- .1: Seriously Endangered in California (over 80 percent of occurrences Threatened/high degree and immediacy of threat)
- .2: Fairly Endangered in California (20 to 80 percent of occurrences Threatened)
- .3: Not very Endangered in California (less than 20 percent of occurrences Threatened or no current threats known)

Note: CRPR 1A and some List 3 plant species lacking any threat information receive no threat code extension.

<sup>14</sup> The CNPS Nine-Quad Search refers to a query of the CNPS Inventory of Rare and Endangered Vascular Plants of California (CNPS 2014). All occurrence records in the CNPS Inventory of Rare and Endangered Vascular Plants of California include mention of the USGS 7.5-minute quads where this species has been documented. The CNPS Nine-Quad Search includes species that have been documented from the USGS quads overlapping the Proposed Project area or the adjacent quads. All CRPR 1A, 1B, and 2 species were included within the CNPS Nine-Quad Search. CRPR 3 and 4 species have been added to this table if they were observed within the BRSA during field surveys.

Species Name	Federal, State, and CRPR <sup>13</sup>	Habitat Preferences, Distribution Information, and Additional Notes	Flowering Phenology/ Life Form	Known Records <sup>14</sup>	Potential to Occur
<b>LYCOPHYTES</b>					
<b>Selaginellaceae – Spike Moss Family</b>					
<i>Selaginella cinerascens</i> Ashy spike-moss	4.1	Ashy spike-moss occurs in coastal scrub and chaparral habitats from 60 to 2,100 feet in elevation.	Not applicable/ Perennial rhizomatous herb	There are no CNDDDB occurrences of this species documented within five miles of the Proposed Project area.	This species was observed in patches sporadically throughout MCAS Miramar and nearby areas, primarily within relatively undisturbed Diegan coastal sage scrub, southern mixed chaparral, and chamise chaparral habitats. <b>Present</b>
<b>GYMNOSPERMS</b>					
<b>Cupressaceae – Cypress Family</b>					
<i>Hesperocyparis forbesii</i> Tecate cypress	1B.1	Tecate cypress occurs on clay, gabbroic, or metavolcanic substrates in closed-cone coniferous forest and chaparral between 260 and 4,920 feet in elevation.	Not applicable/ Perennial Evergreen Tree	CNPS occurrences have been reported within USGS 7.5-minute quads surrounding the BRSA. However, the nearest occurrence of this species is approximately 12 miles to the northwest of the BRSA in southern Riverside County. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<b>Pinaceae – Pine Family</b>					
<i>Pinus torreyana</i> ssp. <i>torreyana</i> Torrey pine	1B.2	Torrey pine occurs on sandstone in closed-cone coniferous forest and chaparral between 240 and 525 feet in elevation. This species is restricted to the immediate coastal zone of San Diego County and has not been documented east of I-15.	Not applicable/ Perennial Evergreen Tree	CNPS occurrences have been reported within USGS 7.5-minute quads surrounding the BRSA. No occurrences of this species have ever been documented as far inland as the BRSA. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<b>ANGIOSPERMS - DICOTS</b>					
<b>Apiaceae (Umbelliferae) – Carrot Family</b>					
<i>Eryngium aristulatum</i> var. <i>parishii</i> San Diego button-celery	FE CE 1B.1	San Diego button-celery occurs in coastal scrub, valley and foothill grassland, and vernal pools, often in mesic areas below 2,000 feet in elevation.	April-June/ Annual or Perennial Herb	One past CNDDDB occurrence was documented within 0.25 mile of the Proposed Project area in 1983, and one past occurrence was documented within one mile in 1979. Recent occurrences have been documented within five miles of the Proposed Project area. This species occurs on MCAS Miramar.	Suitable habitat for this species is present within the vernal pools on MCAS Miramar, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was confirmed to be blooming during reference population checks in a nearby vernal pool preserve area in April 2015. However, it was not observed within vernal pools occurring in the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<i>Eryngium pendletonense</i> Pendleton button-celery	1B.1	Pendleton button-celery occurs on clay soils in vernal mesic areas in coastal bluff scrub, valley and foothill grassland, and vernal pools between 50 and 365 feet in elevation.	April-July/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species is restricted to areas on Marine Corps Base, Camp Pendleton within approximately two miles of the Pacific Ocean, which is approximately 15 miles west of the BRSA. No occurrences of this species have been documented as far inland as the BRSA. <b>No Potential</b>

Species Name	Federal, State, and CRPR <sup>13</sup>	Habitat Preferences, Distribution Information, and Additional Notes	Flowering Phenology/ Life Form	Known Records <sup>14</sup>	Potential to Occur
<b>Asteraceae (Compositae) – Sunflower Family</b>					
<i>Ambrosia chenopodifolia</i> San Diego bur-sage	2B.1	San Diego bur-sage occurs in coastal scrub habitat between 180 and 510 feet in elevation. This species is apparently restricted to the Otay Mesa area of southern San Diego County.	April-June/ Perennial Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species is apparently restricted to the Otay Mesa area of southern San Diego County, approximately 20 miles south of the BRSA. <b>No Potential</b>
<i>Ambrosia monogyra</i> Singlewhorl burrobush	2.2	Singlewhorl burrobush occurs in chaparral and Sonoran desert scrub, often in sandy substrates and below 1,600 feet in elevation. This species is documented from south of SR-52 to the U.S.-Mexico border and as far east as the community of Dulzura.	August-November/ Perennial Shrub	Past CNDDDB occurrences have been reported within one mile of the BRSA. One historic CNDDDB occurrence of this species was documented within one mile of the Proposed Project area in 1979. However, considering the geographic distribution of this species, it would be most likely within MCAS Miramar. This species has never been documented as occurring on MCAS Miramar (USMC 2014).	Suitable habitat for this species is present in the form of chaparral, but this species is a recognizable shrub species and was not observed during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<i>Ambrosia pumila</i> San Diego ambrosia	FE 1B.1	San Diego ambrosia occurs in sandy loam or clay, often in disturbed areas, and sometimes alkaline in chaparral, coastal scrub, valley and foothill grassland, and vernal pools between 60 and 1,365 feet in elevation throughout coastal San Diego County.	April-October/ Perennial Rhizomatous Herb	There is one recent CNDDDB record documented within one mile of the Proposed Project area. Recent occurrences are documented within five miles of the Proposed Project area. The SDNHM reports one occurrence of this species on the west side of I-15 adjacent to Lake Hodges, which is within one mile of the BRSA.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was blooming at the time of reference population checks at a known site near the BRSA. However, this species was not observed during either pass of special-status plant surveys in 2015, and would have been visible if present. <b>Not Present</b>
<i>Artemisia palmeri</i> San Diego sagewort	4.2	This species occurs in chaparral, coastal scrub, riparian forest, riparian scrub, and riparian woodland areas between 50 and 3,000 feet in elevation.	February-September/ Perennial deciduous shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within the BRSA on the southern end of Pomerado Road, and is associated with riparian habitat. <b>Present</b>
<i>Baccharis vanessae</i> Encinitas baccharis	FT CE 1B.1	Encinitas baccharis occurs on sandstone in chaparral and cismontane woodland between 190 and 2,370 feet in elevation. It occurs primarily in low-growing chaparral in Corralitos loamy sand, Cieneba rocky coarse sandy loam soils or associated with large granitic boulders.	August-November/ Perennial Deciduous Shrub	Recent CNDDDB occurrences are documented within five miles of the Proposed Project area. One past CNDDDB occurrence was documented within one mile in 1984. The SDNHM herbarium includes records from Lake Hodges approximately two miles west of the BRSA.	Suitable habitat for this species is present within Kit Carson Park and the San Dieguito River Park, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. Cieneba rocky coarse sandy loam soils also occur within the BRSA. However, this species was not observed within the BRSA during either pass of special-status plant surveys in 2015 and would have been visible if present. In addition, this species' geographic range is fairly narrow within San Diego County, and very little habitat occurs for this species within that geographic range, none of which could be characterized as low-growing chaparral. <b>Not Present</b>
<i>Bahiopsis laciniata</i> (formerly <i>Viguiera laciniata</i> ) San Diego County viguiera	4.2	San Diego County viguiera occurs in chaparral and coastal sage scrub communities from 190 to 2,460 feet in elevation.	February-August/ Perennial Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was documented within the BRSA along the southern end of Pomerado Road in the community of Scripps Ranch. These individuals appear to have been planted during revegetation efforts because they are located immediately along the road edge within a revegetated area. <b>Present</b>

Species Name	Federal, State, and CRPR <sup>13</sup>	Habitat Preferences, Distribution Information, and Additional Notes	Flowering Phenology/ Life Form	Known Records <sup>14</sup>	Potential to Occur
<i>Centromadia parryi</i> ssp. <i>australis</i> Southern tarplant	1B.1	Southern tarplant occurs in marshes and swamps, occasionally along estuary margins, valley and foothill grasslands, occasionally in vernal mesic areas, and vernal pools below 1,575 feet in elevation.	June- November/ Annual Herb	One recent CNDDDB occurrence is documented within 0.25 mile of the Proposed Project area, and one recent occurrence is documented within one mile. One past occurrence was documented within 0.25 mile of the Proposed Project in 1916. This species occurs within the same general geographic and elevation range as the BRSA.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Centromadia pungens</i> ssp. <i>laevis</i> Smooth tarplant	1B.1	Smooth tarplant occurs in alkaline soils in chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland below 7,200 feet in elevation. This species occurs widely in San Diego County from Marine Corps Base, Camp Pendleton to the City of Santee.	April- September/ Annual Herb	Recent CNDDDB occurrences for this species are recorded within five miles of the Proposed Project area.	Potentially suitable habitat exists in meadows and seeps, riparian woodlands, and grasslands within the BRSA. The extent to which alkaline soils are present within the BRSA is undetermined. No chenopod scrub was observed, but tamarisk scrub was observed directly south of the San Luis Rey River, and on the northern shore of Lake Hodges. While tamarisk is not restricted to alkaline soils, it is well adapted to alkaline conditions. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Chaenactis glabriuscula</i> var. <i>orcuttiana</i> Orcutt's pincushion	1B.1	Orcutt's pincushion occurs in sandy coastal bluff scrub and on coastal dunes below 330 feet in elevation.	January- August/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable bluff scrub or dune habitat for this species is present within the BRSA. <b>No Potential</b>
<i>Corethrogyne filaginifolia</i> var. <i>incana</i> San Diego sand aster	1B.1	San Diego sand aster occurs in coastal bluff scrub, chaparral, and coastal scrub between 10 and 380 feet in elevation.	June- September/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. All SDNHM herbarium records are restricted to areas within the immediate coastal zone, with the exception of one outlier in the southern San Diego mountains.	Although suitable habitat for this species is present, this species typically occurs between five and 15 miles from the BRSA. This species was not observed during either pass of the 2015 special-status plant surveys and would have been visible if present. <b>Not Present</b>
<i>Corethrogyne filaginifolia</i> var. <i>linifolia</i> Del Mar Mesa sand aster	1B.1	Del Mar Mesa sand aster occurs in sand substrates on coastal bluff scrub, chaparral (e.g., maritime and openings), and coastal scrub between 50 and 500 feet in elevation.	May- September/ Perennial Herb	Recent CNDDDB occurrences of this species have been recorded within five miles of the BRSA. This species is known from only the immediate coastal zone, with the majority of the occurrences near the cities of Del Mar and Solana Beach.	No suitable habitat was observed within the BRSA. <b>No Potential</b>
<i>Deinandra conjugens</i> Otay tarplant	FT CE 1B.1	Otay tarplant occurs on clay soils in coastal scrub and valley and foothill grassland between 80 and 990 feet in elevation.	May-June/ Annual Herb	CNPS occurrences have been reported from within the USGS 7.5-minute quads within or surrounding the BRSA (i.e., the National City and Jamul Mountains quads). However, this species has never been documented north of I-8, with the closest occurrence approximately eight miles to the southeast of the BRSA. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species' geographic range is restricted to areas south of I-8 and was not observed during either pass of the 2015 special-status plant surveys. <b>Not Present</b>



Species Name	Federal, State, and CRPR <sup>13</sup>	Habitat Preferences, Distribution Information, and Additional Notes	Flowering Phenology/ Life Form	Known Records <sup>14</sup>	Potential to Occur
<i>Ericameria palmeri</i> var. <i>palmeri</i> Palmer's goldenbush	1B.1	Palmer's goldenbush occurs in coastal scrub, typically in mesic areas, below 2,000 feet in elevation.	September-November/ Perennial Evergreen Shrub	Recent CNDDDB occurrences of this species have been recorded within five miles of the BRSA. This species has a wide distribution according to SDNHM herbarium records.	Suitable habitat is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during surveys in 2015, and would have been visible in mesic coastal sage scrub stands if present. <b>Not Present</b>
<i>Grindelia hallii</i> San Diego gum plant	1B.2	San Diego gum plant occurs in chaparral, lower montane coniferous forest, meadows, and valley and foothill grassland between 600 and 5,730 feet in elevation.	May-October/Perennial Herb	CNPS occurrences have been reported within the La Mesa and Poway quads. As a result, this species is most likely to be observed within the MCAS Miramar portion of the BRSA and isolated natural areas along Pomerado Road within the City of Poway and the community of Scripps Ranch. This species is not documented in the MCAS Miramar INRMP (USMC 2014). One recent CNDDDB occurrence is documented within five miles of the Proposed Project area.	Suitable habitat for this species is present; the geographic and elevation ranges within the BRSA are consistent with those documented for this species; and this species has been documented within one to five miles of the BRSA. This species was not observed during either pass of 2015 special-status plant surveys. <b>Not Present</b>
<i>Hazardia orcuttii</i> Orcutt's hazardia	CT 1B.1	Orcutt's hazardia occurs in maritime chaparral and coastal scrub, often on clay soils between 260 and 280 feet in elevation.	August-October/ Perennial Evergreen Shrub	CNPS occurrences have been reported from within a USGS 7.5-minute quad adjacent to the BRSA (i.e., the Rancho Santa Fe quad). However, the SDNHM herbarium record for this species is approximately 10 miles southwest of the BRSA, also in the community of Rancho Santa Fe area. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present in the form of coastal scrub, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species typically occurs at lower elevations than the BRSA. This species was not observed during either pass of the 2015 special-status plant surveys. <b>Not Present</b>
<i>Heterotheca sessiliflora</i> ssp. <i>sessiliflora</i> Beach goldenaster	1B.1	Beach goldenaster occurs in coastal chaparral, coastal dunes, and coastal scrub below 4,020 feet in elevation.	March-December/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. No records of this species have been documented east of I-5 because this species is restricted to areas within the immediate coastal zone.	The BRSA is outside of this species' known geographic distribution. <b>No Potential</b>
<i>Holocarpha virgata</i> ssp. <i>elongata</i> Graceful tarplant	4.2	Graceful tarplant occurs in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland communities between 190 and 3,610 feet in elevation.	May-November/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search	Graceful tarplant was observed in two locations within MCAS Miramar—one at the northern end of the aqueduct road and one on the west side of the aqueduct road south of the paved Green Farms Road. <b>Present</b>
<i>Hulsea californica</i> San Diego sunflower	1B.3	San Diego sunflower occurs in openings and burned areas in chaparral, lower montane coniferous forest, and upper montane coniferous forest between 3,000 and 9,565 feet in elevation.	April-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at significantly higher elevations than the BRSA. <b>No Potential</b>

Species Name	Federal, State, and CRPR <sup>13</sup>	Habitat Preferences, Distribution Information, and Additional Notes	Flowering Phenology/ Life Form	Known Records <sup>14</sup>	Potential to Occur
<i>Isocoma menziesii</i> var. <i>decumbens</i> Decumbent goldenbush	1B.2	Decumbent goldenbush occurs in chaparral and sandy, often disturbed coastal scrub habitats between 30 and 450 feet in elevation.	April-November/ Perennial Shrub	Recent CNDDDB occurrences are recorded within five miles of the Proposed Project area. The SDNHM also has records of this species west of I-15 near Rancho Bernardo, and within a few miles of the BRSA.	Suitable habitat for this species is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. Individual goldenbush ( <i>Isocoma menziesii</i> ) individuals were observed in the BRSA and this intraspecific taxon (i.e., var. <i>decumbens</i> ) was verified within the BRSA during surveys in May 2015. Approximately 145 individuals were observed north of Scripps Poway Parkway along Pomerado Road. <b>Present</b>
<i>Iva hayesiana</i> San Diego marsh-elder	2B.2	San Diego marsh-elder occurs in marshes and swamps and on playas between 30 and 1,640 feet in elevation. This species is widely distributed in San Diego County, with the majority of the SDNHM records documented south of the City of Escondido to the U.S.-Mexico border.	April-October/ Perennial Herb	One historic CNDDDB occurrence was reported within 0.25 mile of the Proposed Project area in 1970. Recent CNDDDB occurrences are documented within five miles of the Proposed Project area. This species was documented from a drainage near Lake Miramar just north of MCAS Miramar, approximately one mile from the BRSA.	Suitable habitat for this species is present in scattered locations throughout the BRSA; the geographic and elevation ranges within the BRSA are consistent with those documented for this species; and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015, but may be present within riparian areas that were inaccessible to special-status plant surveyors. <b>Not Expected</b>
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i> Coulter's goldfields	1B.1	Coulter goldfields occurs in alkaline soils in coastal salt marshes, playas, and vernal pools below 4,600 feet in elevation.	February-June/ Annual Herb	CNDDDB occurrences of this species have been recorded within five miles of the BRSA.	The extent to which alkaline soils are present within the BRSA is undetermined. No chenopod scrub was observed, but tamarisk scrub was observed directly south of the San Luis Rey River and on the northern shore of Lake Hodges. While tamarisk is not restricted to alkaline soils, it is well adapted to alkaline conditions. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Leptosyne maritima</i> Sea-dahlia	2.2	Sea-dahlia occurs in coastal bluff scrub and coastal scrub below 500 feet in elevation. It is geographically restricted to areas immediately along the Pacific Ocean in San Diego County, south of the City of Encinitas.	March-May/ Perennial Herb	Recent CNDDDB occurrences of this species have been recorded within five miles of the BRSA. This species has never been documented as far inland as the BRSA.	The BRSA is outside of this species' known geographic distribution. <b>No Potential</b>
<i>Microseris douglasii</i> ssp. <i>platycarpa</i> Small-flowered microseris	4.2	Small-flowered microseris occurs within cismontane woodland, coastal scrub, valley and foothill grassland, and vernal pools from 50 to 3,510 feet in elevation.	March-May/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within vernal mesic areas on MCAS Miramar. <b>Present</b>
<i>Packera gander</i> Gander's ragwort	CR 1B.2	Gander's ragwort occurs on burns and gabbroic outcrops in chaparral between 1,310 and 3,940 feet in elevation.	April-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at elevations higher than those within the BRSA, primarily in the mountains east of the City of San Diego. <b>No Potential</b>

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<i>Pentachaeta aurea</i> ssp. <i>aurea</i> Golden-rayed pentachaeta	4.2	Golden-rayed pentachaeta occurs in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, and valley and foothill grasslands at elevations between 260 and 6,070 feet.	March-July/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within the BRSA in multiple locations on MCAS Miramar. <b>Present</b>
<i>Pseudognaphalium leucocephalum</i> White rabbit-tobacco	2B.2	White rabbit-tobacco occurs in sandy, gravelly areas in chaparral, cismontane woodland, coastal scrub, and riparian woodland below 6,890 feet in elevation.	July-December/ Perennial Herb	CNPS occurrences have been reported within USGS 7.5-minute quads surrounding the BRSA. However, the nearest documented occurrence of this species is approximately 10 miles away on Marine Corps Base, Camp Pendleton. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed during either pass of special-status plant surveys in 2015 and would have been visible if present. <b>Not Present</b>
<i>Senecio aphanactis</i> Chaparral ragwort	2.2	Chaparral ragwort occurs in chaparral, cismontane woodland, and coastal scrub, below 2,600 feet in elevation.	January-April/ Annual Herb	One historic CNDDDB occurrence was documented within 0.25 mile of the Proposed Project area in 1900, and one occurrence was documented within five miles in 1935.	Suitable habitat for this species is present, but all of the occurrences within five miles of the BRSA are more than 60 years old. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Stylocline citroleum</i> Oil neststraw	1B.1	Oil neststraw occurs in clay soils in chenopod scrub and coastal scrub between 100 and 1,300 feet in elevation.	April/ Annual Herb	One historic CNDDDB occurrence of this species was recorded within five miles of the BRSA. This occurrence was from known from a single collection made in 1883 and the exact location of the collection is not known. The CNDDDB mapped the collection in the “general vicinity of San Diego.” It is not included on the most recent checklist of plants in San Diego County.	It is presumed that this species is extirpated from San Diego County. <b>No Potential</b>
<i>Symphotrichum defoliatum</i> San Bernardino aster	1B.2	San Bernardino aster occurs near ditches, streams, and springs in cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and vernal mesic valley and foothill grassland between six and 6,700 feet in elevation. In San Diego County, this species occurs at elevations higher than 3,900 feet.	July-November/ Perennial Rhizomatous herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	In San Diego County, this species occurs at elevation ranges much higher than the BRSA. <b>No Potential</b>
<b>Beberidaceae – Barberry Family</b>					
<i>Berberis nevinii</i> Nevin's barberry	FE CE 1B.1	Nevin's barberry occurs on sandy or gravelly soils in chaparral, cismontane woodland, coastal scrub, and riparian scrub between 900 and 2,710 feet in elevation.	March-April/ Perennial Evergreen Shrub	One recent CNDDDB occurrence is documented within five miles of the Proposed Project area, specifically along Temecula Creek in the City of Temecula. The only record of this species in the SDNHM herbarium is from east of the Pauma Valley area, approximately 13 miles east of the BRSA	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed during either pass of the 2015 special-status plant surveys, and would have been visible if present. <b>Not Present</b>

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<b>Boraginaceae – Borage Family</b>					
<i>Cryptantha wigginsii</i> Wiggin's cryptantha	1B.2	Wiggin's cryptantha occurs in coastal scrub, often on clay soils, between 60 and 910 feet in elevation. This species is apparently restricted to the immediate coastal zone in San Diego County.	February-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. This species is not known from as far inland as the BRSA, with the nearest SDNHM herbarium occurrence reported approximately 11 miles west of the BRSA.	Suitable habitat for this species is present. However, this species typically occurs at elevations below the lowest point within the BRSA, and this species typically occurs between five and 15 miles from the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Nama stenocarpa</i> Mud nama	2B.2	Mud nama occurs in marshes, and in swamps on lake margins and riverbanks between 10 and 1,640 feet in elevation. The extant San Diego sites for this species are all created wetland sites.	January-July/ Annual or Perennial Herb	CNPS occurrences have been reported within the San Luis Rey quad approximately 10 miles west of the BRSA. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present along Lake Hodges and perennial waters such as the San Luis Rey River. However, the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015, nor were any areas of mud observed adjacent to wetlands. <b>Not Present</b>
<i>Phacelia stellaris</i> Brand's star phacelia	1B.1	Brand's star phacelia occurs in coastal dunes and coastal scrub below 650 feet in elevation.	March-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search, but all records of this species have been documented west of or immediately east of I-5 because this species is restricted to coastal areas.	The BRSA is outside of this species' known geographic distribution. <b>No Potential</b>
<b>Brassicaceae (Cruciferae) – Mustard Family</b>					
<i>Erysimum ammophilum</i> Sand-loving wallflower	1B.2	Sand-loving wallflower occurs in sandy openings in maritime chaparral, coastal dunes, and coastal scrub below 200 feet in elevation.	February-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable maritime habitat is present, and this species occurs below the elevations in the BRSA. <b>No Potential</b>
<i>Sibaropsis hammittii</i> Hammitt's clay-cress	1B.2	Hammitt's clay-cress occurs on clay soils in openings in chaparral and in valley and foothill grasslands between 2,360 and 3,500 feet in elevation. The SDNHM's herbarium records are all from the vicinity of the community of Alpine.	March-April/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at elevations higher than those within the BRSA and in a geographically isolated area approximately 20 miles east of the BRSA. <b>No Potential</b>
<b>Cactaceae – Cactus Family</b>					
<i>Bergerocactus emoryi</i> Golden-spined cereus	2B.2	Golden-spined cereus occurs in sandy soils in closed-cone coniferous forest, chaparral, and coastal scrub between 10 and 1,300 feet in elevation. Maritime succulent scrub is the primary habitat of this coastal cactus and moist ocean breezes may be a key to its habitat requirements.	May-June/ Perennial Stem Succulent	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no recent CNDDDB occurrences within five miles of the Proposed Project area.	There is no maritime succulent scrub within the BRSA and very few stem succulents species were observed within the BRSA. In addition, this species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>

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<i>Cylindropuntia californica</i> var. <i>californica</i> Snake cholla	1B.1	Snake cholla occurs in chaparral and coastal scrub between 90 and 500 feet in elevation. This species is documented from southern San Diego County south of I-8, and from the Del Mar quad.	April-May/ Perennial Stem Succulent	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. However, there are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present. However, this species typically occurs at elevations below the lowest point within the BRSA, and this species typically occurs between five and 15 miles from the BRSA. This species was not observed during either pass of the special-status plant surveys conducted in 2015. <b>Not Present</b>
<i>Ferocactus viridescens</i> San Diego barrel cactus	2B.1	San Diego barrel cactus occurs in chaparral, coastal scrub habitat, valley and foothill grassland, and vernal pools between nine and 1,480 feet in elevation.	May-June/ Perennial Stem Succulent	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within the BRSA at the southern end of the aqueduct road on MCAS Miramar. <b>Present</b>
<b>Chenopodiaceae – Goosefoot Family</b>					
<i>Aphanisma blitoides</i> Aphanisma	1B.2	Aphanisma occurs on sandy soils in coastal bluff scrub, coastal dunes, and coastal scrub below 1,000 feet in elevation.	March-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. No records of this species have been documented east of Interstate (I-) 5 because this species is restricted to areas within the immediate coastal zone.	No suitable habitat is present. The Biological Resources Survey Area (BRSA) is outside of this species' known geographic distribution. <b>No Potential</b>
<i>Atriplex coulteri</i> Coulter's saltbush	1B.2	Coulter's saltbush occurs in alkaline or clay substrates in coastal dunes, coastal scrub, and valley and foothill grassland between seal level and 1,500 feet in elevation. Its suitable microhabitat conditions include ocean bluffs, ridgetops, and alkaline low places.	March- October/ Perennial Herb	In 1971, one past CNDDDB occurrence was documented within one mile of the Proposed Project area and one past occurrence was documented within five miles.	Suitable habitat for this species is present in the form of alkaline low places and ridgetops in coastal scrub and grassland habitats. This species is documented from the same general geographic and elevation ranges occurring within the BRSA. However, this species was not observed during either pass of special-status plant surveys in 2015 and would likely have been visible if present. <b>Not Present</b>
<i>Atriplex pacifica</i> South Coast saltscale	1B.2	South Coast saltscale occurs in coastal bluff scrub, coastal dunes, coastal scrub, and playas below 460 feet in elevation.	March- October/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences within five miles of the Proposed Project area. The nearest SDNHM record is approximately four miles west of the BRSA.	Suitable habitat for this species is present in the form of coastal scrub; the geographic and elevation ranges within the BRSA are consistent with those documented for this species; and this species has been documented within one to five miles of the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Atriplex parishii</i> Parish's brittle scale	1B.1	Parish's brittle scale occurs on alkaline substrates in chenopod scrub, playas, and vernal pools between 80 and 6,240 feet in elevation.	June-October/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable chenopod scrub or playa habitat is present. Vernal pool habitat is present on MCAS Miramar but this species has never been documented on MCAS Miramar (USMC 2014). <b>No Potential</b>
<i>Suaeda esteroa</i> Estuary seablite	1B.2	Estuary seablite occurs in coastal marshes and swamps below 20 feet in elevation.	May-January/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. <b>No Potential</b>

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<b>Convolvulaceae – Morning-Glory Family</b>					
<i>Dichondra occidentalis</i> Western dichondra	4.2	Western dichondra occurs usually under shrubs in woodlands, coastal sage scrub, or chaparral between 160 and 1,640 feet.	January – July/ Perennial Rhizomatous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	Suitable habitat for this species is present and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was observed in the understory of trees growing along Pomerado Road in the southern portion of the BRSA, as well as underneath Nuttall’s scrub oak on MCAS Miramar. <b>Present</b>
<b>Crassulaceae – Stonecrop Family</b>					
<i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i> Blochman’s dudleya	1B.1	Blochman’s dudleya occurs on rocky and often clay or serpentinite substrates in coastal bluff scrub, chaparral, coastal scrub, and valley and foothill grassland between 10 and 1,480 feet in elevation.	April-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. All records of this species have been documented west of or immediately east of I-5 because this species is restricted to the coastal zone.	The BRSA is outside of this species’ known geographic distribution. <b>No Potential</b>
<i>Dudleya brevifolia</i> Short-leaved dudleya	CE 1B.1	Short-leaved dudleya occurs on Torrey sandstone in maritime openings in chaparral, and coastal scrub between 90 and 820 feet in elevation.	April-May/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable maritime habitat is present within the BRSA. <b>No Potential</b>
<i>Dudleya multicaulis</i> Many-stemmed dudleya	1B.2	Many-stemmed dudleya occurs in chaparral, coastal scrub and alley and foothill grassland, often on clay soils, between 50 feet and 2,600 feet in elevation.	April-July/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. SDNHM herbarium records for this species are exclusively within Marine Corps Base, Camp Pendleton, approximately 17 miles west of the BRSA.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is more than 15 miles from the BRSA. <b>No Potential</b>
<i>Dudleya variegata</i> Variegated dudleya	1B.2	Variegated dudleya occurs on clay soils in chaparral, cismontane woodland, coastal scrub habitat, valley and foothill grassland, and vernal pools between 10 and 1,900 feet in elevation.	April-June/ Perennial Herb	One recent CNDDDB occurrence is documented within 0.25 mile of the Proposed Project area, and two recent occurrences are documented within one mile. Multiple recent occurrences are documented within five miles of the Proposed Project area. This species has also been documented on MCAS Miramar.	Suitable habitat for this species is present and clay soils are known to occur within the BRSA. This species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. This species can be very diminutive and difficult to detect if it occurs within areas dominated by non-native grasslands. Its populations are also smaller during drought years, making it more difficult to detect. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Dudleya viscida</i> Sticky dudleya	1B.2	Sticky dudleya occurs on rocky substrates in coastal bluff scrub, chaparral, cismontane woodland and coastal scrub between 30 and 1,810 feet in elevation.	May-June/ Perennial Herb	CNPS occurrences have been reported within USGS 7.5-minute quads surrounding the BRSA. The nearest documented SDNHM record is approximately 10 miles to the east on Marine Corps Base, Camp Pendleton, with CNPS records from quads adjacent to the BRSA. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed during either pass of the 2015 special-status plant surveys, and would have been visible if present. <b>Not Present</b>

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<b>Ericaceae – Heath Family</b>					
<i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i> Del Mar manzanita	FE 1B.1	Del Mar manzanita occurs on sandy maritime mesas and bluffs in chaparral below 1,200 feet in elevation, primarily west of I-15, with the majority of the occurrences in and around the cities of Encinitas, Solana Beach, and Del Mar in coastal San Diego.	December-June/ Perennial Evergreen Shrub	Recent CNDDDB occurrences have been reported within 0.25 mile of the Proposed Project area. This species occurs on MCAS Miramar, and the SDNHM has a specimen that was taken near the intersection of Pomerado Road and Poway Road. However, this occurrence was not located during special-status plant surveys and is presumed extirpated.	Suitable habitat for this species is present on MCAS Miramar, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. However, no manzanita ( <i>Arctostaphylos</i> spp.) was observed within the BRSA on MCAS Miramar or in the southern portion of the BRSA. This species was not observed during 2015 special-status plant surveys. <b>Not Present</b>
<i>Arctostaphylos otayensis</i> Otay manzanita	1B.2	Otay manzanita occurs on metavolcanic soil in chaparral and cismontane woodland between 900 and 5,580 feet in elevation.	January-April/ Perennial Evergreen Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species has never been documented outside of Jamul Mountain and Otay Mountain, which are approximately 20 miles southeast of the BRSA. <b>No Potential</b>
<i>Arctostaphylos rainbowensis</i> Rainbow manzanita	1B.1	Rainbow manzanita occurs in chaparral between 670 and 2,200 feet in elevation. This species has a fairly wide distribution to the north, west, and east of the community of Rainbow, with one physically isolated occurrence north of the City of Escondido on the west side of I-15.	January-February/ Perennial Evergreen Shrub	One recent CNDDDB occurrence and one past CNDDDB occurrence are recorded within 0.25 mile of the Proposed Project area. Recent occurrences are documented within one mile of the Proposed Project area. At least one occurrence of this species has been documented between SR-76 and the City of Escondido.	Suitable habitat for this species is present within the BRSA, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA, within a fairly restricted geographic range near the community of Rainbow. However, this species was not observed within the BRSA during either pass of the 2015 special-status plant surveys. <b>Not Present</b>
<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i> Summer holly	1B.2	Summer holly occurs in chaparral and cismontane woodland between 980 and 2,595 feet in elevation, and is geographically situated west of I-15 and in a few higher-elevation sites in southern San Diego County.	April-June/ Perennial Evergreen Shrub	One recent CNDDDB occurrence was documented within 0.25 mile of the Proposed Project area. Recent CNDDDB occurrences are recorded within one mile of the Proposed Project area. The SDNHM herbarium reports records from just south of the BRSA on Mission Trails Regional Park.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. One individual was observed within the BRSA in a drainage approximately one mile north of Deer Springs Road on the west side of Old Highway 395. <b>Present</b>
<b>Euphorbiaceae – Spurge Family</b>					
<i>Euphorbia misera</i> Cliff spurge	2B.2	Cliff spurge occurs in rocky, coastal bluff scrub, coastal scrub, and Mojavean desert scrub between 320 and 1,640 feet in elevation. Maritime sage scrub with a high incidence of cactus is typical of the preferred habitat for this species.	December-October/ Perennial Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	No suitable habitat in the form of maritime sage scrub with a high incidence of cactus is present with the BRSA. This species appears to be restricted to known sites at Point Loma, La Jolla, Fairbanks Ranch, Otay Mesa, and near San Ysidro. It is presumed that most U.S. populations of cliff spurge have already been discovered. <b>Not Present</b>
<b>Fabaceae – Legume Family</b>					
<i>Astragalus deanei</i> Dean’s milkvetch	1B.1	Dean’s milkvetch occurs in chaparral in cismontane woodland, coastal scrub, and riparian forest between 240 and 2,280 feet in elevation. This species is documented primarily from Alpine, El Cajon, Jamul Mountains, and Barrett Lake in central San Diego County.	February-May/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. Most occurrences are south and east of MCAS Miramar. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015, but may be present within riparian areas that were inaccessible to special-status plant surveyors. <b>Not Expected</b>

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<i>Astragalus oocarpus</i> San Diego milk-vetch	1B.2	San Diego milk-vetch occurs in chaparral (openings) and cismontane woodland between 1,000 and 5,000 feet in elevation.	May-August/ Perennial Herb	One historic CNDDDB occurrence was recorded within five miles of the Proposed Project area in 1900. However, most occurrences are from the mountains in central and northern San Diego County, approximately 25 miles east of the BRSA.	Suitable habitat for this species is present, but the nearest CNDDDB record is more than 60 years old, and the general geographic range of this species is more than 15 miles away from the BRSA. <b>No Potential</b>
<i>Astragalus pachypus</i> var. <i>jaegeri</i> Jaeger's milkvetch	1B.1	Jaeger's milkvetch occurs in sandy or rocky soils in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland between 1,200 and 3,000 feet in elevation.	January-December/ Perennial Shrub	Historical CNDDDB occurrences of this species have been recorded within five miles of the BRSA, and suitable habitat exists on site. However, the most recent CNDDDB occurrence was recorded in 1881, and the southern extent of this species' range is approximately six miles north of the BRSA in the Temecula area. It is not known from San Diego County.	The BRSA is outside of this species' known geographic distribution. <b>No Potential</b>
<i>Astragalus tener</i> var. <i>titi</i> Coastal dunes milk-vetch	FE CE 1B.1	Coastal dunes milk-vetch prefers vernal mesic areas in sandy coastal bluff scrub, coastal dunes, and mesic coastal prairie between 30 and 165 feet in elevation.	March-May/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. <b>No Potential</b>
<i>Lotus nuttallianus</i> Nuttall's Acmispon	1B.1	Nuttall's Acmispon occurs on coastal dunes and in sandy areas in coastal scrub below 30 feet in elevation.	March-July/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. This species occurs at elevations lower than the BRSA. <b>No Potential</b>
<b>Fagaceae – Oak Family</b>					
<i>Quercus cedrosensis</i> Cedros Island oak	2B.2	Cedros Island oak occurs in closed-cone coniferous forest, chaparral, and coastal scrub between 830 and 3,150 feet in elevation.	April-May/ Perennial Evergreen Tree	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present. However, this species occurs at elevations higher than the BRSA and the majority of the documented occurrences of this species in San Diego County are in the Tijuana River valley at the U.S.-Mexico border. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<i>Quercus dumosa</i> Nuttall's scrub oak	1B.1	Nuttall's scrub oak occurs in chaparral, coastal scrub, and closed-cone coniferous forest, often in sandy or clay-loam substrates, below 1,300 feet in elevation.	February-March/ Perennial Evergreen Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed during the special-status plant surveys along Pomerado Road and in one occurrence within the Elliot Field Station. The low-growing scrub oaks observed along aqueduct road on MCAS Miramar were determined to be the common scrub oak ( <i>Quercus berberidifolia</i> ), although with characteristics (e.g., a "pruned" appearance, and occasional spreading stellate hairs on a very small portion of the abaxial leaf surface) demonstrated evidence of hybridization with Nuttall's scrub oak. <b>Present</b>
<i>Quercus engelmannii</i> Engelmann oak	4.2	Engelmann oak occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grasslands between 160 and 4,265 feet in elevation.	March-June/ Perennial Deciduous Tree	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed during the habitat assessment surveys in scattered locations along the urbanized section. <b>Present</b>



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<b>Frankeniaceae – Frankenia Family</b>					
<i>Frankenia palmeri</i> Palmer's frankenia	2B.1	Palmer's frankenia occurs in coastal dunes, coastal salt marshes and swamps, and playas below 30 feet in elevation. This species is apparently restricted to the immediate coast, and does not occur in inland salt marsh habitat.	May-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable coastal dune or salt marsh habitat is present within the BRSA. Although cismontane alkali marsh was observed in the immediate vicinity of Lake Hodges, this species would not occur that far inland. <b>No Potential</b>
<b>Geraniaceae – Geranium Family</b>					
<i>California macrophylla</i> Round-leaved filaree	1B.1	Round-leaved filaree occurs on clay soils in cismontane woodland and valley and foothill grassland between 50 and 3,940 feet in elevation.	March-May/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<b>Lamiaceae – Mint Family</b>					
<i>Acanthomintha ilicifolia</i> San Diego thorn-mint	FT CE 1B.1	San Diego thorn-mint occurs in vertisol clay soils in openings of chaparral, coastal scrub, valley and foothill grassland, and vernal pools below 3,000 feet in elevation. This species is widely distributed south of community of Bonsall to the U.S.-Mexico border.	April-June/ Annual Herb	One recent CNDDDB occurrence is documented within 0.25 mile of the Proposed Project area. Multiple recent occurrences are recorded within five miles of the Proposed Project area.	Suitable habitat for this species is present, and clay soils are known to occur within the BRSA. This species is known from the same general geographic and elevation range as the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Clinopodium chandleri</i> San Miguel savory	1B.2	San Miguel savory occurs on rocky, gabbroic, or metavolcanic substrates in chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland between 390 and 3,530 feet in elevation.	March-July/ Perennial Shrub	CNPS occurrences have been reported the Temecula and San Vicente quads. One CNDDDB occurrence was documented within five miles of the Proposed Project area in 1983.	Suitable habitat for this species is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015, but may be present within riparian areas that were inaccessible to special-status plant surveyors. <b>Not Expected</b>
<i>Lepechinia cardiophylla</i> Heart-leaved pitcher sage	1B.2	Heart-leaved pitcher sage occurs in closed-cone coniferous forest, chaparral, and cismontane woodland between 1,700 and 4,500 feet in elevation. The only records of this species in San Diego County are from Iron Mountain.	April-July/ Perennial Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present in the form of chaparral and cismontane woodlands. However, this species occurs at elevations higher than those within the BRSA and in a geographically isolated area approximately six miles east of the BRSA. In addition, this species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>

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<i>Lepechinia ganderi</i> Gander's pitcher sage	1B.3	Gander's pitcher sage occurs on gabbroic or metavolcanic rock in closed-cone coniferous forest, chaparral, coastal scrub and valley and foothill grassland between 1,000 and 3,300 feet in elevation. This species has only been documented in southern San Diego County on mountains, such as Otay Mountain and San Miguel Mountain (SDNHM 2015a; Reiser 1994).	June-July/ Perennial Shrub	Past occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present in the form of chaparral, coastal scrub, and grasslands. However, this species requires specific edaphic conditions (metavolcanic derived soils) not documented within the BRSA and is apparently restricted to a specific area in southern San Diego County, approximately 20 miles south of the BRSA. In addition, this species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<i>Monardella hypoleuca</i> ssp. <i>intermedia</i> Intermediate monardella	1B.3	Intermediate monardella occurs in chaparral, cismontane woodland, and lower montane coniferous forest between 1,310 and 4,100 feet.	April-September/ Perennial Rhizomatous Herb	Recent CNDBB occurrences have been reported within five miles of the Proposed Project area. The SDNHM includes only one herbarium record for this species at the far northwestern corner of San Diego County on Marine Corps Base, Camp Pendleton, approximately 17 miles northwest of the BRSA.	Suitable habitat for this species is present. However, this species is only known from the Santa Ana and Palomar mountains, and many occurrences are historical. In addition, this species occurs at elevations approximately 200 feet higher than those in the northern portion of the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Monardella hypoleuca</i> ssp. <i>lanata</i> Felt-leaved monardella	1B.2	Felt-leaved monardella occurs in chaparral and cismontane woodland between 980 and 5,200 feet in elevation. This species typically occupies undeveloped peaks and mountainous ridgelines.	June-August/ Perennial Rhizomatous Herb	Two past CNDDDB occurrences were documented within five miles of the Proposed Project area in 1978 and 1900. One recent occurrence is documented within five miles of the Proposed Project area.	Suitable habitat for this species is present. However, this species typically occurs at higher elevations than the BRSA, and often on ridgelines and peaks, which were documented in very few isolated locations in the northern urbanized section. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Monardella macrantha</i> ssp. <i>hallii</i> Hall's monardella	1B.3	Hall's monardella occurs in broad-leaf upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland between 2,400 and 7,200 feet in elevation.	June-October/ Perennial Rhizomatous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at elevations higher than those within the BRSA, primarily north of SR-76 in the Santa Rosa Mountains, approximately 15 miles east of the BRSA. <b>No Potential</b>
<i>Monardella nana</i> ssp. <i>leptosiphon</i> San Felipe monardella	1B.2	San Felipe monardella occurs in chaparral and lower montane coniferous forest between 3,930 and 6,090 feet in elevation. This species is known from the Santa Rosa and Laguna mountains of central San Diego County.	June-July/ Perennial Rhizomatous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species typically occurs at elevations much higher than the BRSA and is geographically restricted to an area approximately 30 miles east of the BRSA. <b>No Potential</b>
<i>Monardella viminea</i> Willow monardella	FE CE 1B.1	Willow monardella occurs in alluvial ephemeral washes in chaparral, coastal scrub habitat, riparian forest, riparian scrub, and riparian woodland between 160 and 740 feet in elevation.	June-August/ Perennial Herb	Three recent CNDDDB occurrences have been recorded within 0.25 mile of the Proposed Project area, two of which are presumed extant. One recent CNDDDB occurrence is documented within one mile of the Proposed Project area, and multiple recent occurrences are documented within five miles. This species occurs on MCAS Miramar near the BRSA along an intermittent, cobbly drainage.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. Willow monardella was not observed within the BRSA during either pass of special-status plant surveys in 2015. The CNDDDB occurrence near the BRSA on MCAS Miramar was observed and mapped to confirm its presence outside of the BRSA. <b>Not Present</b>

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<i>Pogogyne abramsii</i> San Diego mesa mint	FE CE 1B.1	San Diego mesa mint occurs in vernal pools between 295 and 660 feet in elevation.	March-July/ Annual Herb	One recent CNDDDB occurrence of this species is documented within 0.25 mile of the Proposed Project area, and recent occurrences are documented within one mile. This species occurs on MCAS Miramar.	Suitable habitat for this species is present within the vernal pools on MCAS Miramar, and this species is documented at the same general geographic and elevation ranges that occur within the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Pogogyne nudiuscula</i> Otay Mesa mint	FE CE 1B.1	Otay Mesa mint occurs in vernal pools between 295 and 820 feet in elevation.	May-July/ Annual Herb	Only one CNDDDB occurrence has been documented within five miles of the BRSA and this occurrence has since been extirpated. The majority of the occurrences of this species is in the Otay Mesa area, approximately 20 miles south of the BRSA.	Suitable habitat for this species is present in the vernal pools on MCAS Miramar. However, MCAS Miramar has not documented the presence of this species in its Integrated Natural Resources Management Plan (INRMP) (USMC 2014). In addition, the geographic range of this species is more than 15 miles from the BRSA. <b>No Potential</b>
<i>Salvia munzii</i> Munz's sage	2B.2	Munz's sage occurs in chaparral and coastal scrub between 370 and 3,500 feet in elevation. This shrub is often a dominant plant of the area where it occurs. It is known primarily from southern San Diego County in the Otay and Tijuana river watersheds.	February-April/ Perennial Evergreen Shrub	There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present. However, the geographic range of Munz's sage in San Diego County appears to be approximately 20 miles south of the BRSA. <b>No Potential</b>
<i>Scutellaria bolanderi</i> ssp. <i>austromontana</i> Southern mountains skullcap	1B.2	Southern mountains skullcap occurs in mesic areas in chaparral, cismontane woodland, and lower montane coniferous forest between 1,390 and 6,560 feet in elevation. In San Diego County, it appears to be restricted to the mountains east of the City of San Diego.	June-August/ Perennial Rhizomatous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No portion of the BRSA is within this species' documented geographic range. <b>No Potential</b>
<b>Limnanthaceae – Meadowfoam Family</b>					
Parish's meadowfoam ( <i>Limnanthes alba</i> ssp. <i>parishii</i> )	CE 1B.2	Parish's meadowfoam occurs in vernal mesic areas in lower montane coniferous forest, meadows and seeps, and vernal pools between 1,960 and 6,560 feet in elevation.	April-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at much higher elevations than the BRSA. <b>No Potential</b>
<b>Malvaceae – Mallow Family</b>					
<i>Ayenia compacta</i> California ayenia	2B.3	California ayenia occurs on rocky substrates in Mojavean and Sonora desert scrub between 490 and 3,600 feet in elevation. The geographic range of this species is the northern Laguna Mountains and southern Santa Rosa Mountains of eastern San Diego County.	March-April/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search, specifically the Wildomar quad in Riverside County. The majority of occurrences of this species in San Diego County are in the Anza Borrego Desert State Park.	No suitable habitat is present and no portion of the Proposed Project is within this species' documented geographic range. <b>No Potential</b>

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<i>Fremontodendron mexicanum</i> Mexican flannelbush	FE CR 1B.1	Mexican flannelbush occurs on gabbroic, metavolcanic, or serpentinite soils in closed-cone coniferous forest, chaparral, and cismontane woodland between 30 and 2,350 feet in elevation.	March-June/ Perennial Evergreen Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. However, no SDNHM records have been documented within five miles of the BRSA. In addition, there are no CNDDDB occurrences of this species within five miles of the Proposed Project area. The nearest SDNHM herbarium record is from east of the community of Pala, approximately eight miles east of the BRSA. The majority of documented records of this species are from along Cedar Creek on Otay Mountain in southern San Diego County, approximately 20 miles south of the BRSA.	Suitable habitat for this species is present (i.e., chaparral and cismontane woodland), but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed during either pass of the 2015 special-status plant surveys. <b>Not Present</b>
<b>Montiaceae – Miner’s Lettuce Family</b>					
<i>Calandrinia breweri</i> Brewer’s calandrinia	4.2	Brewer’s calandrinia occurs on sandy or loamy soils, disturbed sites and burns, within chaparral and coastal scrub communities between 30 and 4,010 feet in elevation.	March-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	Over 100 individuals of this species were observed on the MCAS Miramar component of the BRSA. <b>Present</b>
<b>Nyctaginaceae – Four O’Clock Family</b>					
<i>Abronia villosa</i> var. <i>aurita</i> Chaparral sand-verbena	1B.1	Chaparral sand-verbena occurs on sandy soils in chaparral, coastal scrub, and desert dunes between 240 and 5,250 feet.	January-September/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search, specifically around the community of Fallbrook. The closest records for this species in the SDNHM herbarium are in the Fallbrook area approximately five miles from the BRSA. Recent CNDDDB occurrences are documented within five miles of the Proposed Project area.	Suitable habitat for this species is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<b>Onagraceae – Evening Primrose Family</b>					
<i>Clarkia delicata</i> Delicate clarkia	1B.3	Delicate clarkia often occurs in gabbroic soils in chaparral and cismontane woodland between 770 and 3,280 feet in elevation. This species occurs at the periphery of oak woodlands and cismontane chaparral stands. This species is often observed in areas partially shaded by tree canopy or large shrubs, and typically in vernal mesic areas.	April-June/ Annual Herb	Recent CNDDDB occurrences of this species are documented within five miles of the Proposed Project area. The SDNHM includes multiple records of this species near the BRSA.	Suitable habitat exists within the BRSA and the species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed during special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<b>Orobanchaceae – Broomrape Family</b>					
<i>Chloropyron maritimum</i> ssp. <i>maritimum</i> Salt marsh bird’s-beak	FE CE 1B.2	Salt marsh bird’s-beak occurs on coastal dunes and in coastal salt marshes and swamps below 90 feet in elevation.	May-October/ Annual Hemiparasitic Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable coastal dune or salt marsh habitat is present. This species is not known to occur within the elevation range of the BRSA. <b>No Potential</b>

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<i>Dicranostegia orcuttiana</i> Orcutt's birds-beak	2B.1	Orcutt's birds-beak occurs in coastal scrub between 30 and 1,150 feet in elevation. The vast majority of SDNHM occurrences of this species are from the Otay and Tijuana river watersheds in southern San Diego County.	March-September/ Annual Hemiparasitic Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	The geographic distribution of this species is more than 15 miles outside of the BRSA. <b>No Potential</b>
<b>Picrodendraceae – Bitter-Tree Family</b>					
<i>Tetracoccus dioicus</i> Parry's tetracoccus	1B.2	Parry's tetracoccus occurs in chaparral and coastal scrub between 540 and 3,280 feet in elevation.	April-May/ Perennial Deciduous Shrub	Two CNDDDB occurrences of this species are documented within 0.25 mile of the Proposed Project area. One record is from 1936. Recent CNDDDB occurrences are documented within one mile of the Proposed Project area. In addition, the SDNHM includes records of this species within one mile of the northern end of the BRSA, on the west side of I-15 near the community of Rainbow.	This species was observed within a drainage on the southern end of Rainbow Hills Road within the BRSA. Approximately 50 individuals were observed along the south edge of this drainage. <b>Present</b>
<b>Plantaginaceae – Plantain Family</b>					
<i>Stemodia durantifolia</i> Purple stemodia	2B.1	Purple stemodia occurs in often mesic, sandy areas in scrub habitat between 590 and 990 feet in elevation.	January-December/ Perennial Herb	Two recent CNDDDB records are within five miles of the BRSA near MCAS Miramar. However, this species has not been documented within MCAS Miramar.	Suitable habitat for this species is present within the BRSA, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015, and would have been visible in mesic scrub habitats if present. <b>Not Present</b>
<b>Polemoniaceae – Phlox Family</b>					
<i>Linanthus orcuttii</i> Orcutt's linanthus	1B.3	Orcutt's linanthus occurs in openings in chaparral, lower montane coniferous forest, and pinyon and juniper woodland between 3,000 and 7,040 feet in elevation.	May-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. This species occurs at elevations higher than the BRSA. <b>No Potential</b>
<i>Navarretia fossalis</i> Spreading navarretia	1B.1	Spreading navarretia occurs in chenopod scrub habitat, assorted shallow freshwater (including marshes and swamps), on playas and in vernal pools between 90 and 2,150 feet in elevation.	April-June/ Annual Herb	Recent CNDDDB occurrences have been reported within five miles of the BRSA.	Suitable habitat for this species is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either pass of the special-status plant surveys in 2015, but was confirmed blooming during reference population checks in a nearby vernal pool preserve area in April 2015. As a result, this species is presumed not present within the BRSA. <b>Not Present</b>

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<i>Navarretia prostrata</i> Prostrate vernal pool navarretia	1B.1	Prostrate vernal pool navarretia occurs in mesic coastal scrub habitats, meadows and seeps, alkaline valley and foothill grassland and vernal pools between 50 and 3,970 feet in elevation.	April-July/ Annual Herb	One historic CNDDDB occurrence was documented within five miles of the Proposed Project area in 1981, specifically in the vernal pools at roughly SR-52 and SR-163. However, the MCAS Miramar INRMP does not include this species as occurring within MCAS Miramar (USMC 2014).	Suitable habitat for this species is present within vernal pools on MCAS Miramar. In addition, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within five miles of the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<b>Polygonaceae – Buckwheat Family</b>					
<i>Chorizanthe orcuttiana</i> Orcutt’s spineflower	FE CE 1B.1	Orcutt’s spineflower occurs in sandy openings in closed-cone coniferous forest, maritime chaparral, and coastal scrub habitats between 10 and 410 feet in elevation. This species requires a distinctive loose sandy substrate. Occurrences are situated within a few miles of the Pacific Ocean.	March-May/ Annual Herb	Only one CNDDDB occurrence has been documented within five miles of the BRSA and this site is probably extirpated. This species has never been documented as far inland as the BRSA.	No suitable maritime scrub habitat is present within the BRSA. <b>No Potential</b>
<i>Chorizanthe parryi</i> var. <i>parryi</i> Parry’s spineflower	1B.1	Parry’s spineflower occurs on sandy or rocky substrates in openings in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland between 900 and 4,000 feet in elevation.	April-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species range is north of the BRSA within Los Angeles, Riverside, and San Bernardino counties. It is not known in San Diego County. <b>No Potential</b>
<i>Chorizanthe polygonoides</i> var. <i>longispina</i> Long-spined spineflower	1B.2	Long-spined spineflower occurs in chaparral, coastal scrub, meadows, seeps, valley and foothill grassland, and vernal pools, often in clay soils and below 5,000 feet in elevation.	April-July/ Annual Herb	CNDDDB occurrences have been reported within one mile of the BRSA. Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within the BRSA in multiple locations along the aqueduct road on MCAS Miramar during special-status plant surveys in April 2015. <b>Present</b>
<i>Dodecahema leptoceras</i> Slender-horned spineflower	FE CE 1B.1	Slender-horned spineflower occurs on sandy soils in chaparral, cismontane woodland, and alluvial fans in coastal scrub between 650 and 2,500 feet in elevation. The southernmost extent of its geographic range is southern Riverside County, near the City of Temecula.	April-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	The southern extent of this species’ range is approximately six miles north of the BRSA in the Temecula area. It is not known from San Diego County. <b>No Potential</b>
<i>Nemacaulis denudata</i> var. <i>denudata</i> Coast wooly-heads	1B.2	Coast wooly-heads occurs on coastal dunes below 330 feet in elevation.	April-September/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. <b>No Potential</b>
<i>Nemacaulis denudata</i> var. <i>gracilis</i> Slender cottonheads	2B.2	Slender cottonheads occurs on coastal dunes, desert dunes, and Sonoran desert scrub below 1,320 feet in elevation. This species is restricted to the immediate coastal zone in San Diego County.	March-May/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. In addition, this species has not been documented as far inland as the BRSA within San Diego County. <b>No Potential</b>

Species Name	Federal, State, and CRPR <sup>13</sup>	Habitat Preferences, Distribution Information, and Additional Notes	Flowering Phenology/ Life Form	Known Records <sup>14</sup>	Potential to Occur
<b>Ranunculaceae – Buttercup Family</b>					
<i>Delphinium hesperium</i> ssp. <i>cuyamaca</i> Cuyamaca larkspur	CR 1B.2	Cuyamaca larkspur occurs in mesic areas in lower montane coniferous forest, meadows, seeps, and vernal pools between 4,000 and 5,350 feet in elevation.	May-July/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at substantially higher elevations than the BRSA. <b>No Potential</b>
<i>Myosurus minimus</i> ssp. <i>apus</i> Little mousetail	3.1	Little mousetail occurs in vernal pools (alkaline) between 65 and 2,100 feet in elevation.	March-June/ Annual Herb	Two recent CNDDDB occurrences have been reported within five miles of the Proposed Project area. In addition, this species has been documented to occur within MCAS Miramar (U.S. Marine Corps [USMC] 2014).	Suitable vernal pool habitat for this species is present on MCAS Miramar. This species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<b>Rhamnaceae – Buckthorn Family</b>					
<i>Adolphia californica</i> California adolphia	2B.1	California adolphia occurs on clay soils in chaparral, coastal scrub, and valley and foothill grassland between 140 and 2,500 feet in elevation.	January-April/ Perennial Deciduous Shrub	One recent CNDDDB occurrence is recorded within 0.25 mile of the Proposed Project area, and one recent occurrence is documented within one mile. Multiple other recent CNDDDB occurrences are documented within five miles of the Proposed Project area.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was observed in one stand of remnant coastal sage scrub directly south of Lake Hodges. Hundreds of individuals were observed, comprising the dominant species of that coastal sage scrub stand. <b>Present</b>
<i>Ceanothus cyaneus</i> Lakeside ceanothus	1B.2	Lakeside ceanothus occurs in closed-cone coniferous forest and chaparral between 770 and 2,480 feet in elevation.	April-June/ Perennial Evergreen Shrub	There are no CNDDDB records of this species within five miles of the Proposed Project area. All SDNHM records are approximately 10 miles from the BRSA, and the majority are in the community of Lakeside.	Suitable habitat (i.e., chaparral) exists on site but this species' geographic range is between five and 15 miles from the BRSA. This species was not observed within MCAS Miramar or the southern portion of the BRSA during either pass of the 2015 special-status plant surveys, and as a result, is presumed absent. <b>Not Present</b>
<i>Ceanothus ophiochilus</i> Vail Lake ceanothus	FT CE 1B.1	Vail Lake ceanothus occurs on gabbroic or pyroxenite-rich outcrops in chaparral between 1,900 and 3,500 feet.	February-March/ Perennial Evergreen Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species is not known to occur within the elevation range of the BRSA and is not documented from San Diego County. <b>No Potential</b>
<i>Ceanothus otayensis</i> Otay Mountain ceanothus	1B.2	Otay Mountain ceanothus occurs on metavolcanic or gabbroic substrates in chaparral between 1,960 and 3,610 feet in elevation.	January-April/ Perennial Evergreen Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present, and this species occurs at higher elevations than the BRSA. <b>No Potential</b>

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<i>Ceanothus verrucosus</i> Wart-stemmed ceanothus	2B.2	Wart-stemmed ceanothus occurs in chaparral between three and 1,250 feet in elevation, primarily west of I-15.	December-May/ Perennial Evergreen Shrub	Recent CNDDDB occurrences are documented within five miles of the Proposed Project area. One occurrence is located within 0.25 mile, and one occurrence is located within one mile of the Proposed Project area; however, these occurrences were documented in 1939. This species has been observed on MCAS Miramar and is widely distributed within one to five miles of the BRSA.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed during either pass of special-status plant surveys conducted in 2015, but chaparral habitat is difficult to access when it is mature, and visibility within chaparral stands can be limited by tall, dense vegetation. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<b>Rosaceae – Rose Family</b>					
<i>Horkelia cuneata</i> var. <i>puberula</i> Mesa horkelia	1B.1	Mesa horkelia occurs in sandy or gravelly areas in maritime chaparral, cismontane woodland and coastal scrub between 230 and 2,660 feet in elevation. The southernmost extent of its geographic range is northern San Diego County.	February-September/ Perennial Herb	Two past CNDDDB occurrences have been reported within five miles of the Proposed Project area—one in 1926 and one in 1940. There are no SDNHM herbarium records mapped for this species. In addition, the northern portion of the BRSA represents the southernmost end of this species' geographic range.	Suitable habitat for this species is present, but all of the occurrences within five miles of the BRSA are more than 60 years old. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. This species may flower as late as September, and absent flowers, may not have been documented during the special-status plant surveys. <b>Not Expected</b>
<i>Horkelia truncata</i> Ramona horkelia	1B.3	Ramona horkelia occurs in clay and gabbroic substrates in chaparral and cismontane woodland between 1,300 and 4,270 feet in elevation. Geographic distribution in San Diego County is diverse, with occurrences from Marine Corps Base, Camp Pendleton southeast to the southern San Diego mountains near Barrett Lake.	May-June/ Perennial Herb	One past CNDDDB occurrence for this species is recorded within one mile of the Proposed Project area.	Suitable habitat exists on site, but this species typically occurs at higher elevations than the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<b>Rubiaceae – Madder Family</b>					
<i>Galium proliferum</i> Desert bedstraw	2B.2	Desert bedstraw occurs on rocky, carbonate (limestone) in Joshua tree woodland, Mojavean desert scrub, and Pinyon and juniper woodland 3,900 and 5,350 feet in elevation.	March-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. <b>No Potential</b>
<b>Violaceae – Violet Family</b>					
<i>Viola purpurea</i> ssp. <i>aurea</i> Golden violet	2B.2	Golden violet occurs in sandy soils in Great Basin scrub and pinyon and juniper woodland between 3,280 and 8,200 feet in elevation.	April-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present, and this species occurs at substantially higher elevations than those within the BRSA. <b>No Potential</b>
<b>ANGIOSPERMS - MONOCOTS</b>					
<b>Alliaceae – Onion Family</b>					
<i>Allium munzii</i> Munz's onion	FE CT 1B.1	Munz's onion occurs on mesic, clay soil in chaparral, cismontane woodland, coastal scrub, Pinyon and juniper woodland, and valley and foothill grassland between 970 and 3,510 feet.	March-May/ Perennial Bulbiferous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	The southern extent of this species' range is approximately six miles north of the BRSA in the Temecula area. It is not known from San Diego County. <b>No Potential</b>



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<b>Agavaceae – Agave Family</b>					
<i>Agave shawii</i> var. <i>shawii</i> Shaw’s agave	2B.1	Shaw’s agave occurs in coastal bluff scrub and coastal scrub between 30 and 400 feet in elevation. It is geographically restricted to areas immediately along the Pacific Ocean in San Diego County, south of the City of Del Mar.	September-May/ Perennial Leaf Succulent	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	The BRSA is outside of this species’ known geographic range. This species has never been documented as far inland as the BRSA. <b>No Potential</b>
<b>Juncaceae – Rush Family</b>					
<i>Juncus acutus</i> ssp. <i>leopoldii</i> Southwestern spiny rush	4.2	Southwestern spiny rush occurs in coastal dunes, meadows and seeps (occasionally within alkaline seeps), and marshes and swamps, and occasionally within coastal salt marshes from sea level to 2,950 feet in elevation.	March-June/ Perennial Rhizomatous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within intermittent drainages in the southern portion of the BRSA. <b>Present</b>
<i>Juncus luciensis</i> Santa Lucia dwarf rush	1B.2	Santa Lucia dwarf rush occurs in chaparral, Great Basin scrub, lower montane coniferous forest, meadows and seeps, and vernal pools between 980 and 6,700 feet in elevation. This species appears to be widely distributed in California, but there is only one recorded location for this species in San Diego County, which is near Cuyamaca Rancho State Park at approximately 4,600 feet in elevation.	April-July/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present. However, this species’ geographic distribution in San Diego County indicates that it may only be found at higher elevations than in the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<b>Liliaceae – Lily Family</b>					
<i>Calochortus dunnii</i> Dunn’s mariposa lily	CR 1B.2	Dunn’s mariposa lily occurs on gabbroic or metavolcanic, rocky soils in closed-cone coniferous forest, chaparral, and valley and foothill grassland between 600 and 6,000 feet in elevation.	February-June/ Perennial Bulbiferous Herb	Past occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. However, the majority of the SDNHM herbarium records are from southern San Diego County (approximately 13 miles south of the BRSA), and eastern San Diego County (approximately 18 miles east of the BRSA). There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present in the form of chaparral and grasslands, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed during special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Calochortus weedii</i> var. <i>intermedius</i> Intermediate mariposa lily	1B.2	Intermediate mariposa lily occurs on rocky, calcareous substrates in chaparral, coastal scrub, and valley and foothill grassland between 340 and 2,810 feet in elevation. The southern extent of its known range appears to be in and around the City of Temecula.	May-July/ Perennial Bulbiferous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	The southern extent of this species range is approximately six miles north of the BRSA in the Temecula area. It is not known from San Diego County. <b>No Potential</b>
<i>Lilium parryi</i> Lemon lily	1B.2	Lemon lily occurs in mesic areas in lower montane coniferous forest, meadows and seeps, riparian forest, and upper montane coniferous forest between 4,000 and 9,010 feet in elevation.	July-August/ Perennial Bulbiferous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. This species occurs at elevations higher than those within the BRSA. <b>No Potential</b>

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<b>Poaceae – Grass Family</b>					
<i>Orcuttia californica</i> California Orcutt grass	FE CE 1B.1	California Orcutt grass occurs in vernal pools between 50 and 2,965 feet in elevation.	April-June/ Annual Herb	Recent CNDDDB occurrences have been recorded within five miles of the Proposed Project area. This species is present on MCAS Miramar.	Suitable habitat for this species is present and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed within vernal pools during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<b>Ruscaceae – Butcher’s Broom Family</b>					
<i>Nolina cismontane</i> Chaparral nolina	1B.2	Chaparral nolina occurs in sandstone or gabbroic substrates in chaparral and coastal scrub between 460 and 4,185 feet in elevation. The SDNHM occurrences nearest to the BRSA are primarily located along and north of SR-76.	March-July/ Perennial Evergreen Shrub	Recent CNDDDB occurrences have been recorded within one mile of the BRSA in the northern BRSA along and north of SR-76.	Suitable habitat is present and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<b>Themidaceae – Brodiaea Family</b>					
<i>Bloomeria clevelandii</i> San Diego goldenstar	1B.1	San Diego goldenstar occurs on clay substrates in chaparral, coastal scrub, valley and foothill grassland, and vernal pools between 160 and 1,525 feet in elevation.	April-May/ Perennial Bulbiferous Herb	Two recent CNDDDB occurrences are documented within 0.25 mile of the Proposed Project area. Recent CNDDDB occurrences have been documented within one mile of the Proposed Project area.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was observed on MCAS Miramar during the first pass of special-status plant surveys in 2015. <b>Present</b>
<i>Brodiaea filifolia</i> Thread-leaved brodiaea	FT CE 1B.1	Thread-leaved brodiaea occurs on clay soils in coastal scrub, cismontane woodland, valley and foothill grassland, vernal pools between 80 and 3,680 feet in elevation.	March-June/ Perennial Bulbiferous Herb	Recent CNDDDB occurrences have been recorded within five miles of the BRSA near the cities of Vista and San Marcos and the community of Rancho Santa Fe.	Suitable habitat for this species is present; clay soils are known to occur within the BRSA; the geographic and elevation ranges within the BRSA are consistent with those documented for this species; and this species has been documented within one to five miles of the BRSA. This species was confirmed to be blooming on Marine Corps Base, Camp Pendleton during the first pass of special-status plant surveys. However, this species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<i>Brodiaea orcuttii</i> Orcutt’s brodiaea	1B.1	Orcutt’s brodiaea occurs on clay in closed-cone coniferous forest, chaparral, cismontane woodland, meadows, valley and foothill grassland, vernal pools between 90 and 5,550 feet in elevation.	May-July/ Perennial Bulbiferous Herb	Recent CNDDDB occurrences are documented within 0.25 mile of the Proposed Project area.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was observed in the BRSA at multiple locations within MCAS Miramar during both passes of special-status plant surveys in 2015. <b>Present</b>
<i>Brodiaea santarosae</i> Santa Rosa basalt brodiaea	1B.2	Santa Rosa basalt brodiaea occurs on basaltic substrates in valley and foothill grassland between 1,850 and 3,430 feet in elevation. This species is geographically restricted to the Santa Rosa plateau in Riverside County.	May-June/ Perennial Bulbiferous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at elevations that are at least 300 feet higher than the BRSA, and its geographic range is more than 15 miles from the BRSA. <b>No Potential</b>

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Aphanisma ( <i>Aphanisma blitoides</i> )	1B.2	Aphanisma occurs on sandy soils in coastal bluff scrub, coastal dunes, and coastal scrub below 1,000 feet in elevation.	March-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. No records of this species have been documented east of I-5 because this species is restricted to areas within the immediate coastal zone.	No suitable habitat is present. The BRSA is outside of this species' known geographic distribution. <b>No Potential</b>
Ashy spike-moss ( <i>Selaginella cinerascens</i> )	4.1	Ashy spike-moss occurs in coastal scrub and chaparral habitats from 60 to 2,100 feet in elevation.	Not applicable/ Perennial rhizomatous herb	There are no CNDDDB occurrences of this species documented within five miles of the Proposed Project area.	This species was observed in patches sporadically throughout MCAS Miramar and nearby areas, primarily within relatively undisturbed Diegan coastal sage scrub, southern mixed chaparral, and chamise chaparral habitats. <b>Present</b>
Beach goldenaster ( <i>Heterotheca sessiliflora</i> ssp. <i>sessiliflora</i> )	1B.1	Beach goldenaster occurs in coastal chaparral, coastal dunes, and coastal scrub below 4,020 feet in elevation.	March-December/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. No records of this species have been documented east of I-5 because this species is restricted to areas within the immediate coastal zone.	The BRSA is outside of this species' known geographic distribution. <b>No Potential</b>
Blochman's dudleya ( <i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i> )	1B.1	Blochman's dudleya occurs on rocky and often clay or serpentinite substrates in coastal bluff scrub, chaparral, coastal scrub, and valley and foothill grassland between 10 and 1,480 feet in elevation.	April-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. All records of this species have been documented west of or immediately east of I-5 because this species is restricted to the coastal zone.	The BRSA is outside of this species' known geographic distribution. <b>No Potential</b>
Bottle liverwort ( <i>Sphaerocarpos drewei</i> )	1B.1	Bottle liverwort occurs on soil in openings in chaparral and coastal scrub between 295 and 1,970 feet in elevation.	Not applicable/ Ephemeral Liverwort	Past occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. However, there are only two records of this species for San Diego County in the CNDDDB and much of the suitable historic habitat for this species has been lost to urbanization. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. <b>Low Potential</b>
Brand's star phacelia ( <i>Phacelia stellaris</i> )	1B.1	Brand's star phacelia occurs in coastal dunes and coastal scrub below 650 feet in elevation.	March-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search, but all records of this species have been documented west of or immediately east of I-5 because this species is restricted to coastal areas.	The BRSA is outside of this species' known geographic distribution. <b>No Potential</b>
Brewer's calandrinia ( <i>Calandrinia breweri</i> )	4.2	Brewer's calandrinia occurs on sandy or loamy soils, disturbed sites and burns, within chaparral and coastal scrub communities between 30 and 4,010 feet in elevation.	March-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	Over 100 individuals of this species were observed on the MCAS Miramar component of the BRSA. <b>Present</b>

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California adolphia ( <i>Adolphia californica</i> )	2B.1	California adolphia occurs on clay soils in chaparral, coastal scrub, and valley and foothill grassland between 140 and 2,500 feet in elevation.	January-April/ Perennial Deciduous Shrub	One recent CNDDDB occurrence is recorded within 0.25 mile of the Proposed Project area, and one recent occurrence is documented within one mile. Multiple other recent CNDDDB occurrences are documented within five miles of the Proposed Project area.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was observed in one stand of remnant coastal sage scrub directly south of Lake Hodges. Thousands of individuals were observed, comprising the dominant species of that coastal sage scrub stand. <b>Present</b>
California ayenia ( <i>Ayenia compacta</i> )	2B.3	California ayenia occurs on rocky substrates in Mojavean and Sonora desert scrub between 490 and 3,600 feet in elevation. The geographic range of this species is the northern Laguna Mountains and southern Santa Rosa Mountains of eastern San Diego County.	March-April/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search, specifically the Wildomar quadrangle in Riverside County. The majority of occurrences of this species in San Diego County are in the Anza Borrego Desert State Park.	No suitable habitat is present and no portion of the Proposed Project is within this species' documented geographic range. <b>No Potential</b>
California Orcutt grass ( <i>Orcuttia californica</i> )	FE CE 1B.1	California Orcutt grass occurs in vernal pools between 50 and 2,965 feet in elevation.	April-June/ Annual Herb	Recent CNDDDB occurrences have been recorded within five miles of the Proposed Project area. This species is present on MCAS Miramar.	Suitable habitat for this species is present and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed within vernal pools occurring within the BRSA during either round of special-status plant surveys in 2015. In addition, this species is an annual, and due to the drought, it may not have germinated in the winter of 2014-2015. <b>Moderate Potential</b>
California screwmoss ( <i>Tortula californica</i> )	1B.2	California screwmoss occurs in sandy soils in chenopod scrub and valley and foothill grassland between 30 feet and 4,790 feet in elevation.	Not applicable/ Moss	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. One recent CNDDDB occurrence is documented within five miles of the Proposed Project area.	Suitable habitat for this species is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015. <b>Moderate Potential</b>
Cedros Island oak ( <i>Quercus cedrosensis</i> )	2B.2	Cedros Island oak occurs in closed-cone coniferous forest, chaparral, and coastal scrub between 830 and 3,150 feet in elevation.	April-May/ Perennial Evergreen Tree	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present. However, this species occurs at elevations higher than the BRSA and the majority of the documented occurrences of this species in San Diego County are in the Tijuana River valley at the U.S.-Mexico border. This species was not observed within the BRSA during either round of special-status plant surveys in 2015. <b>Not Expected</b>
Chaparral nolina ( <i>Nolina cismontana</i> )	1B.2	Chaparral nolina occurs in sandstone or gabbroic substrates in chaparral and coastal scrub between 460 and 4,185 feet in elevation. The San Diego Natural History Museum (SDNHM) occurrences nearest to the BRSA are primarily located along and north of State Route (SR-) 76.	March-July/ Perennial Evergreen Shrub	Recent CNDDDB occurrences have been recorded within one mile of the BRSA in the northern BRSA along and north of SR-76.	Suitable habitat is present and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015. <b>Not Expected</b>

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Chaparral ragwort ( <i>Senecio aphanactis</i> )	2.2	Chaparral ragwort occurs in chaparral, cismontane woodland, and coastal scrub, below 2,600 feet in elevation.	January-April/ Annual Herb	One historic CNDDDB occurrence was documented within 0.25 mile of the Proposed Project area in 1900, and one occurrence was documented within five miles in 1935.	Suitable habitat for this species is present, but all of the occurrences within five miles of the BRSA are more than 60 years old. This species was not observed within the BRSA during either round of special-status plant surveys in 2015. However, it is an annual species that may not have germinated in the winter of 2014-2015, and as a result, has a low potential for occurring within the BRSA. <b>Low Potential</b>
Chaparral sand-verbena ( <i>Abronia villosa</i> var. <i>aurita</i> )	1B.1	Chaparral sand-verbena occurs on sandy soils in chaparral, coastal scrub, and desert dunes between 240 and 5,250 feet.	January-September/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search, specifically around the community of Fallbrook. The closest records for this species in the SDNHM herbarium are in the Fallbrook area approximately five miles from the BRSA. Recent CNDDDB occurrences are documented within five miles of the Proposed Project area.	Suitable habitat for this species is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015. However, it is an annual species that may not have germinated in the winter of 2014-2015, and as a result, has a low potential for occurring within the BRSA. <b>Low Potential</b>
Cliff spurge ( <i>Euphorbia misera</i> )	2B.2	Cliff spurge occurs in rocky, coastal bluff scrub, coastal scrub, and Mojavean desert scrub between 320 and 1,640 feet in elevation. Maritime sage scrub with a high incidence of cactus is typical of the preferred habitat for this species.	December-October/ Perennial Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat in the form of maritime sage scrub with a high incidence of cactus is not present with the BRSA. This species appears to be restricted to known sites at Point Loma, La Jolla, Fairbanks Ranch, Otay Mesa, and near San Ysidro. It is presumed that most U.S. populations of cliff spurge have already been discovered. <b>Not Expected</b>
Coast wooly-heads ( <i>Nemacaulis denudata</i> var. <i>denudata</i> )	1B.2	Coast wooly-heads occurs on coastal dunes below 330 feet in elevation.	April-September/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. <b>No Potential</b>
Coastal dunes milk-vetch ( <i>Astragalus tener</i> var. <i>titi</i> )	FE CE 1B.1	Coastal dunes milk-vetch prefers vernal mesic areas in sandy coastal bluff scrub, coastal dunes, and mesic coastal prairie between 30 and 165 feet in elevation.	March-May/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. <b>No Potential</b>
Coastal triquetrella ( <i>Triquetrella californica</i> )	1B.2	Coastal triquetrella occurs on soil in coastal bluff scrub and coastal scrub between 30 and 440 feet in elevation. The San Diego occurrence of this species at San Vicente Dam was documented at 650 feet in elevation.	Not applicable/ Moss	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. The remaining 12 occurrences are documented from the Bay Area. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015. <b>Low Potential</b>

Species Name	Federal, State, and CRPR <sup>13</sup>	Habitat Preferences, Distribution Information, and Additional Notes	Flowering Phenology/ Life Form	Known Records <sup>14</sup>	Potential to Occur
Coulter goldfields ( <i>Lasthenia glabrata</i> ssp. <i>coulteri</i> )	1B.1	Coulter goldfields occurs in alkaline soils in coastal salt marshes, playas, and vernal pools below 4,600 feet in elevation.	February-June/ Annual Herb	CNDDDB occurrences of this species have been recorded within five miles of the BRSA.	The extent to which alkaline soils are present within the BRSA is undetermined. No chenopod scrub was observed, but tamarisk scrub was observed directly south of the San Luis Rey River and on the northern shore of Lake Hodges. While tamarisk is not restricted to alkaline soils, it is well adapted to alkaline conditions. This species was not observed within the BRSA during either round of special-status plant surveys in 2015. However, this is an annual species that may not have germinated in the winter of 2014-2015, and as a result, has a low potential for occurring within the BRSA. <b>Low Potential</b>
Coulter's saltbush ( <i>Atriplex coulteri</i> )	1B.2	Coulter's saltbush occurs in alkaline or clay substrates in coastal dunes, coastal scrub, and valley and foothill grassland between seal level and 1,500 feet in elevation. Its suitable microhabitat conditions include ocean bluffs, ridgetops, and alkaline low places (CDFW 2015b).	March-October/ Perennial Herb	In 1971, one past CNDDDB occurrence was documented within one mile of the Proposed Project area and one past occurrence was documented within five miles.	Suitable habitat for this species is present in the form of alkaline low places and ridgetops in coastal scrub and grassland habitats. This species is documented from the same general geographic and elevation ranges occurring within the BRSA. However, this species was not observed during either round of special-status plant surveys in 2015 and would likely have been visible if present. <b>Not Expected</b>
Cuyamaca larkspur ( <i>Delphinium hesperium</i> ssp. <i>cuyamacae</i> )	CR 1B.2	Cuyamaca larkspur occurs in mesic areas in lower montane coniferous forest, meadows, seeps, and vernal pools between 4,000 and 5,350 feet in elevation.	May-July/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at substantially higher elevations than the BRSA. <b>No Potential</b>
Dean's milk vetch ( <i>Astragalus deanei</i> )	1B.1	Dean's milk vetch occurs in chaparral in cismontane woodland, coastal scrub, and riparian forest between 240 and 2,280 feet in elevation. This species is documented primarily from Alpine, El Cajon, Jamul Mountains, and Barrett Lake in central San Diego County.	February-May/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. Most occurrences are south and east of MCAS Miramar. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015, but may be present within riparian areas that were inaccessible to special-status plant surveyors. <b>Not Expected.</b>
Decumbent goldenbush ( <i>Isocoma menziesii</i> var. <i>decumbens</i> )	1B.2	Decumbent goldenbush occurs in chaparral and sandy, often disturbed coastal scrub habitats between 30 and 450 feet in elevation.	April-November/ Perennial Shrub	Recent CNDDDB occurrences are recorded within five miles of the Proposed Project area. The SDNHM also has records of this species west of I-15 near Rancho Bernardo, and within a few miles of the BRSA.	Suitable habitat for this species is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. Individual goldenbush ( <i>Isocoma menziesii</i> ) individuals were observed in the BRSA and this intraspecific taxon (i.e., var. <i>decumbens</i> ) was verified within the BRSA during the second pass of surveys in May 2015. Approximately 74 individuals were observed north of Scripps Poway Parkway along Pomerado Road. <b>Present</b>

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Del Mar manzanita ( <i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i> )	FE 1B.1	Del Mar manzanita occurs on sandy maritime mesas and bluffs in chaparral below 1,200 feet in elevation, primarily west of I-15, with the majority of the occurrences in and around the cities of Encinitas, Solana Beach, and Del Mar in coastal San Diego.	December-June/ Perennial Evergreen Shrub	Recent CNDDDB occurrences have been reported within 0.25 mile of the Proposed Project area. This species occurs on MCAS Miramar, and the SDNHM has a specimen that was taken near the intersection of Pomerado Road and Poway Road. However, this occurrence was not located during special-status plant surveys and is presumed extirpated.	Suitable habitat for this species is present on MCAS Miramar, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. However, no manzanita ( <i>Arctostaphylos</i> spp.) were observed within the BRSA on MCAS Miramar or in the southern portion of the BRSA. This species was not observed during either round of 2015 special-status plant surveys. <b>Not Expected</b>
Del Mar Mesa sand aster ( <i>Corethrogyne filaginifolia</i> var. <i>linifolia</i> )	1B.1	Del Mar Mesa sand aster occurs in sand substrates on coastal bluff scrub, chaparral (e.g., maritime and openings), and coastal scrub between 50 and 500 feet in elevation.	May-September/ Perennial Herb	Recent CNDDDB occurrences of this species have been recorded within five miles of the BRSA. This species is known from only the immediate coastal zone, with the majority of the occurrences near the cities of Del Mar and Solana Beach.	No suitable habitat was observed within the BRSA. <b>No Potential</b>
Delicate clarkia ( <i>Clarkia delicata</i> )	1B.3	Delicate clarkia often occurs in gabbroic soils in chaparral and cismontane woodland between 770 and 3,280 feet in elevation. This species occurs at the periphery of oak woodlands and cismontane chaparral stands. This species is often observed in areas partially shaded by tree canopy or large shrubs, and typically in vernal mesic areas.	April-June/ Annual Herb	Recent CNDDDB occurrences of this species are documented within five miles of the Proposed Project area. The SDNHM includes multiple records of this species near the BRSA.	Suitable habitat exists within the BRSA and the species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed during either round of special-status plant surveys conducted in 2015. However, this is an annual species that may not have germinated in the winter of 2014-2015, or it may not have been in bloom during the special-status plant surveys, and as a result, has a moderate potential for occurring within the BRSA. <b>Moderate Potential</b>
Desert bedstraw ( <i>Galium proliferum</i> )	2B.2	Desert bedstraw occurs on rocky, carbonate (limestone) in Joshua tree woodland, Mojavean desert scrub, and Pinyon and juniper woodland 3,900 and 5,350 feet in elevation.	March-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. <b>No Potential</b>
Dunn's mariposa lily ( <i>Calochortus dunnii</i> )	CR 1B.2	Dunn's mariposa lily occurs on gabbroic or metavolcanic, rocky soils in closed-cone coniferous forest, chaparral, and valley and foothill grassland between 600 and 6,000 feet in elevation.	February-June/ Perennial Bulbiferous Herb	Past occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. However, the majority of the SDNHM herbarium records are from southern San Diego County (approximately 13 miles south of the BRSA), and eastern San Diego County (approximately 18 miles east of the BRSA). There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present in the form of chaparral and grasslands, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015. However, this is perennial bulb species that may not have germinated in the winter of 2014-2015, and as a result, has a low potential for occurring within the BRSA. <b>Low Potential</b>
Encinitas baccharis ( <i>Baccharis vanessae</i> )	FT CE 1B.1	Encinitas baccharis occurs on sandstone in chaparral and cismontane woodland between 190 and 2,370 feet in elevation. It occurs primarily in low-growing chaparral in Corralitos loamy sand, Cieneba rocky coarse sandy loam soils or associated with large granitic boulders.	August-November/ Perennial Deciduous Shrub	Recent CNDDDB occurrences are documented within five miles of the Proposed Project area. One past CNDDDB occurrence was documented within one mile in 1984. The SDNHM herbarium includes records from Lake Hodges approximately two miles west of the BRSA.	Suitable habitat for this species is present within Kit Carson Park and the San Dieguito River Park, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. Cieneba rocky coarse sandy loam soils also occur within the BRSA. However, this species was not observed within the BRSA during either round of special-status plant surveys in 2015 and would have been visible if present. In addition, this species' geographic range is fairly narrow within San Diego County, and very little habitat occurs for this species within that geographic range, none of which could be characterized as low-growing chaparral. <b>Not Expected</b>

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Engelmann oak ( <i>Quercus engelmannii</i> )	4.2	Engelmann oak occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grasslands between 160 and 4,265 feet in elevation.	March-June/ Perennial Deciduous Tree	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed during the habitat assessment surveys in scattered locations along the urbanized section. <b>Present</b>
Estuary seablite ( <i>Suaeda esteroa</i> )	1B.2	Estuary seablite occurs in coastal marshes and swamps below 20 feet in elevation.	May-January/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. <b>No Potential</b>
Felt-leaved monardella ( <i>Monardella hypoleuca</i> ssp. <i>lanata</i> )	1B.2	Felt-leaved monardella occurs in chaparral and cismontane woodland between 980 and 5,200 feet in elevation. This species typically occupies undeveloped peaks and mountainous ridgelines.	June-August/ Perennial Rhizomatous Herb	Two past CNDDDB occurrences were documented within five miles of the Proposed Project area in 1978 and 1900. One recent occurrence is documented within five miles of the Proposed Project area.	Suitable habitat for this species is present. However, this species typically occurs at higher elevations than the BRSA, and often on ridgelines and peaks, which were documented in very few isolated locations in the northern urbanized section. In addition, this species was not observed within the BRSA during either round of special-status plant surveys in 2015. <b>Not Expected</b>
Gander's pitcher sage ( <i>Lepechinia ganderi</i> )	1B.3	Gander's pitcher sage occurs on gabbroic or metavolcanic rock in closed-cone coniferous forest, chaparral, coastal scrub and valley and foothill grassland between 1,000 and 3,300 feet in elevation. This species has only been documented in southern San Diego County on mountains, such as Otay Mountain and San Miguel Mountain (SDNHM 2015a; Reiser 1994).	June-July/ Perennial Shrub	Past occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present in the form of chaparral, coastal scrub, and grasslands. However, this species requires specific edaphic conditions (metavolcanic derived soils) not documented within the BRSA and is apparently restricted to a specific area in southern San Diego County, approximately 20 miles south of the BRSA. In addition, this species was not observed within the BRSA during either round of special-status plant surveys in 2015. <b>Not Expected</b>
Gander's ragwort ( <i>Packera ganderi</i> )	CR 1B.2	Gander's ragwort occurs on burns and gabbroic outcrops in chaparral between 1,310 and 3,940 feet in elevation.	April-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at elevations higher than those within the BRSA, primarily in the mountains east of the City of San Diego. <b>No Potential</b>
Golden violet ( <i>Viola purpurea</i> ssp. <i>aurea</i> )	2B.2	Golden violet occurs in sandy soils in Great Basin scrub and pinyon and juniper woodland between 3,280 and 8,200 feet in elevation.	April-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present, and this species occurs at substantially higher elevations than those within the BRSA. <b>No Potential</b>
Golden-rayed pentachaeta ( <i>Pentachaeta aurea</i> ssp. <i>aurea</i> )	4.2	Golden-rayed pentachaeta occurs in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, and valley and foothill grasslands at elevations between 260 and 6,070 feet.	March-July/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within the BRSA in multiple locations on MCAS Miramar. <b>Present</b>
Golden-spined cereus ( <i>Bergerocactus emoryi</i> )	2B.2	Golden-spined cereus occurs in sandy soils in closed-cone coniferous forest, chaparral, and coastal scrub between 10 and 1,300 feet in elevation. Maritime succulent scrub is the primary habitat of this coastal cactus and moist ocean breezes may be a key to its habitat requirements.	May-June/ Perennial Stem Succulent	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no recent CNDDDB occurrences within five miles of the Proposed Project area.	There is no maritime succulent scrub within the BRSA and very few stem succulents species were observed within the BRSA. In addition, this species was not observed within the BRSA during either round of special-status plant surveys in 2015. <b>Not Expected</b>



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Graceful tarplant ( <i>Holocarpha virgata</i> ssp. <i>elongata</i> )	4.2	Graceful tarplant occurs in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland communities between 190 and 3,610 feet in elevation.	May- November/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search	Graceful tarplant was observed in two locations within MCAS Miramar—one at the northern end of the aqueduct road and one on the west side of the aqueduct road south of the paved Green Farms Road. <b>Present</b>
Hall's monardella ( <i>Monardella macrantha</i> ssp. <i>hallii</i> )	1B.3	Hall's monardella occurs in broad-leafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland between 2,400 and 7,200 feet in elevation.	June-October/ Perennial Rhizomatous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at elevations higher than those within the BRSA, primarily north of SR-76 in the Santa Rosa Mountains, approximately 15 miles east of the BRSA. <b>No Potential</b>
Hammitt's clay-cress ( <i>Sibaropsis hammittii</i> )	1B.2	Hammitt's clay-cress occurs on clay soils in openings in chaparral and in valley and foothill grasslands between 2,360 and 3,500 feet in elevation. The SDNHM's herbarium records are all from the vicinity of the community of Alpine.	March-April/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at elevations higher than those within the BRSA and in a geographically isolated area approximately 20 miles east of the BRSA. <b>No Potential</b>
Heart-leaved pitcher sage ( <i>Lepechinia cardiophylla</i> )	1B.2	Heart-leaved pitcher sage occurs in closed-cone coniferous forest, chaparral, and cismontane woodland between 1,700 and 4,500 feet in elevation. The only records of this species in San Diego County are from Iron Mountain.	April-July/ Perennial Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present in the form of chaparral and cismontane woodlands. However, this species occurs at elevations higher than those within the BRSA and in a geographically isolated area approximately six miles east of the BRSA. In addition, this species was not observed within the BRSA during either round of special-status plant surveys in 2015. <b>Not Expected</b>
Intermediate mariposa lily ( <i>Calochortus weedii</i> var. <i>intermedius</i> )	1B.2	Intermediate mariposa lily occurs on rocky, calcareous substrates in chaparral, coastal scrub, and valley and foothill grassland between 340 and 2,810 feet in elevation. The southern extent of its known range appears to be in and around the City of Temecula.	May-July/ Perennial Bulbiferous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	The southern extent of this species range is approximately six miles north of the BRSA in the Temecula area. It is not known from San Diego County. <b>No Potential</b>
Intermediate monardella ( <i>Monardella hypoleuca</i> ssp. <i>intermedia</i> )	1B.3	Intermediate monardella occurs in chaparral, cismontane woodland, and lower montane coniferous forest between 1,310 and 4,100 feet.	April- September/ Perennial Rhizomatous Herb	Recent CNDDDB occurrences have been reported within five miles of the Proposed Project area. The SDNHM includes only one herbarium record for this species at the far northwestern corner of San Diego County on Marine Corps Base, Camp Pendleton, approximately 17 miles northwest of the BRSA.	Suitable habitat for this species is present. However, this species is only known from the Santa Ana and Palomar mountains, and many occurrences are historical. In addition, this species occurs at elevations approximately 200 feet higher than those in the northern portion of the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015 <b>Not Expected</b>
Jaeger's milkvetch ( <i>Astragalus pachypus</i> var. <i>jaegeri</i> )	1B.1	Jaeger's milkvetch occurs in sandy or rocky soils in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland between 1,200 and 3,000 feet in elevation.	January- December/ Perennial Shrub	Historical CNDDDB occurrences of this species have been recorded within five miles of the BRSA, and suitable habitat exists on site. However, the most recent CNDDDB occurrence was recorded in 1881, and the southern extent of this species' range is approximately six miles north of the BRSA in the Temecula area. It is not known from San Diego County.	The BRSA is outside of this species' known geographic distribution. <b>No Potential</b>

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Lakeside ceanothus ( <i>Ceanothus cyaneus</i> )	1B.2	Lakeside ceanothus occurs in closed-cone coniferous forest and chaparral between 770 and 2,480 feet in elevation.	April-June/ Perennial Evergreen Shrub	There are no CNDDDB records of this species within five miles of the Proposed Project area. All SDNHM records are approximately 10 miles from the BRSA, and the majority are in the community of Lakeside.	Suitable habitat (i.e., chaparral) exists on site but this species' geographic range is between five and 15 miles from the BRSA. This species was not observed within MCAS Miramar or the southern portion of the BRSA during either round of the 2015 special-status plant surveys, and as a result, is not expected to occur within the BRSA. <b>Not Expected</b>
Lemon lily ( <i>Lilium parryi</i> )	1B.2	Lemon lily occurs in mesic areas in lower montane coniferous forest, meadows and seeps, riparian forest, and upper montane coniferous forest between 4,000 and 9,010 feet in elevation.	July-August/ Perennial Bulbiferous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. This species occurs at elevations higher than those within the BRSA. <b>No Potential</b>
Little mouseltail ( <i>Myosurus minimus</i> ssp. <i>apus</i> )	3.1	Little mouseltail occurs in vernal pools (alkaline) between 65 and 2,100 feet in elevation.	March-June/ Annual Herb	Two recent CNDDDB occurrences have been reported within five miles of the Proposed Project area. In addition, this species has been documented to occur within MCAS Miramar (U.S. Marine Corps [USMC] 2014).	Suitable vernal pool habitat for this species is present on MCAS Miramar. This species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed within vernal pools occurring within the BRSA during either round of special-status plant surveys in 2015, but because it is an annual herb species, it may not have germinated during the drought conditions present in the winter of 2014-2015. As a result, this species has a low potential for occurring within the BRSA. <b>Low Potential</b>
Long-spined spineflower ( <i>Chorizanthe polygonoides</i> var. <i>longispina</i> )	1B.2	Long-spined spineflower occurs in chaparral, coastal scrub, meadows, seeps, valley and foothill grassland, and vernal pools, often in clay soils and below 5,000 feet in elevation.	April-July/ Annual Herb	CNDDDB occurrences have been reported within one mile of the BRSA. Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within the BRSA in multiple locations along the aqueduct road on MCAS Miramar during the first round of special-status plant surveys in 2015. <b>Present</b>
Many-stemmed dudleya ( <i>Dudleya multicaulis</i> )	1B.2	Many-stemmed dudleya occurs in chaparral, coastal scrub and alley and foothill grassland, often on clay soils, between 50 feet and 2,600 feet in elevation.	April-July/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. SDNHM herbarium records for this species are exclusively within Marine Corps Base, Camp Pendleton, approximately 17 miles west of the BRSA.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is more than 15 miles from the BRSA. <b>No Potential</b>
Mesa horkelia ( <i>Horkelia cuneata</i> var. <i>puberula</i> )	1B.1	Mesa horkelia occurs in sandy or gravelly areas in maritime chaparral, cismontane woodland and coastal scrub between 230 and 2,660 feet in elevation. The southernmost extent of its geographic range is northern San Diego County.	February- September/ Perennial Herb	Two past CNDDDB occurrences have been reported within five miles of the Proposed Project area—one in 1926 and one in 1940. There are no SDNHM herbarium records mapped for this species. In addition, the northern portion of the BRSA represents the southernmost end of this species' geographic range.	Suitable habitat for this species is present, but all of the occurrences within five miles of the BRSA are more than 60 years old. This species was not observed within the BRSA during either round of special-status plant surveys in 2015. This species may flower as late as September, and absent flowers, may not have been documented during the special-status plant surveys. <b>Low Potential</b>

Species Name	Federal, State, and CRPR <sup>13</sup>	Habitat Preferences, Distribution Information, and Additional Notes	Flowering Phenology/ Life Form	Known Records <sup>14</sup>	Potential to Occur
Mexican flannelbush ( <i>Fremontodendron mexicanum</i> )	FE CR 1B.1	Mexican flannelbush occurs on gabbroic, metavolcanic, or serpentinite soils in closed-cone coniferous forest, chaparral, and cismontane woodland between 30 and 2,350 feet in elevation.	March-June/ Perennial Evergreen Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. However, no SDNHM records have been documented within five miles of the BRSA. In addition, there are no CNDDDB occurrences of this species within five miles of the Proposed Project area. The nearest SDNHM herbarium record is from east of the community of Pala, approximately eight miles east of the BRSA. The majority of documented records of this species are from along Cedar Creek on Otay Mountain in southern San Diego County, approximately 20 miles south of the BRSA.	Suitable habitat for this species is present (i.e., chaparral and cismontane woodland), but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed during either round of the 2015 special-status plant surveys, and as a result, is not expected to occur within the BRSA. <b>Not Expected</b>
Mud nama ( <i>Nama stenocarpa</i> )	2B.2	Mud nama occurs in marshes, and in swamps on lake margins and riverbanks between 10 and 1,640 feet in elevation. The extant San Diego sites for this species are all created wetland sites.	January-July/ Annual or Perennial Herb	CNPS occurrences have been reported within the San Luis Rey quadrangle approximately 10 miles west of the BRSA. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present along Lake Hodges and perennial waters such as the San Luis Rey River. However, the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015, nor were any areas of mud observed adjacent to wetlands. <b>Not Expected</b>
Munz's onion ( <i>Allium munzii</i> )	FE CT \1B.1	Munz's onion occurs on mesic, clay soil in chaparral, cismontane woodland, coastal scrub, Pinyon and juniper woodland, and valley and foothill grassland between 970 and 3,510 feet.	March-May/ Perennial Bulbiferous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	The southern extent of this species' range is approximately six miles north of the BRSA in the Temecula area. It is not known from San Diego County. <b>No Potential</b>
Munz's sage ( <i>Salvia munzii</i> )	2B.2	Munz's sage occurs in chaparral and coastal scrub between 370 and 3,500 feet in elevation. This shrub is often a dominant plant of the area where it occurs. It is known primarily from southern San Diego County in the Otay and Tijuana River watersheds.	February-April/ Perennial Evergreen Shrub	There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present. However, the geographic range of Munz's sage in San Diego County appears to be approximately 20 miles south of the BRSA. <b>No Potential</b>
Nevin's barberry ( <i>Berberis nevinii</i> )	FE CE \1B.1	Nevin's barberry occurs on sandy or gravelly soils in chaparral, cismontane woodland, coastal scrub, and riparian scrub between 900 and 2,710 feet in elevation.	March-April/ Perennial Evergreen Shrub	One recent CNDDDB occurrence is documented within five miles of the Proposed Project area, specifically along Temecula Creek in the City of Temecula. The only record of this species in the SDNHM herbarium is from east of the Pauma Valley area, approximately 13 miles east of the BRSA	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed during either round of the 2015 special-status plant surveys, and would have been visible if present. As a result, is not expected to occur within the BRSA. <b>Not Expected</b>
Nuttall's Acmispon ( <i>Lotus nuttallianus</i> )	1B.1	Nuttall's Acmispon occurs on coastal dunes and in sandy areas in coastal scrub below 30 feet in elevation.	March-July/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. This species occurs at elevations lower than the BRSA. <b>No Potential</b>

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Nuttall's scrub oak ( <i>Quercus dumosa</i> )	1B.1	Nuttall's scrub oak occurs in chaparral, coastal scrub, and closed-cone coniferous forest, often in sandy or clay-loam substrates, below 1,300 feet in elevation.	February-March/ Perennial Evergreen Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed during the special-status plant surveys along Pomerado Road and in one occurrence within the Elliot Field Station. The low-growing scrub oaks observed along aqueduct road on MCAS Miramar were determined to be the common scrub oak ( <i>Quercus berberidifolia</i> ), although with characteristics (e.g., a "pruned" appearance, and occasional spreading stellate hairs on a very small portion of the abaxial leaf surface) demonstrated evidence of hybridization with Nuttall's scrub oak. <b>Present</b>
Oil neststraw ( <i>Stylocline citroleum</i> )	1B.1	Oil neststraw occurs in clay soils in chenopod scrub and coastal scrub between 100 and 1,300 feet in elevation.	April/ Annual Herb	One historic CNDDDB occurrence of this species was recorded within five miles of the BRSA. This occurrence was from known from a single collection made in 1883 and the exact location of the collection is not known. The CNDDDB mapped the collection in the "general vicinity of San Diego." It is not included on the most recent checklist of plants in San Diego County.	It is presumed that this species is extirpated from San Diego County. <b>No Potential</b>
Orcutt's birds-beak ( <i>Dicranostegia orcuttiana</i> )	2B.1	Orcutt's birds-beak occurs in coastal scrub between 30 and 1,150 feet in elevation. The vast majority of SDNHM occurrences of this species are from the Otay and Tijuana river watersheds in southern San Diego County.	March-September/ Annual Hemiparasitic Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	The geographic distribution of this species is more than 15 miles outside of the BRSA. <b>No Potential</b>
Orcutt's brodiaea ( <i>Brodiaea orcuttii</i> )	1B.1	Orcutt's brodiaea occurs on clay in closed-cone coniferous forest, chaparral, cismontane woodland, meadows, valley and foothill grassland, vernal pools between 90 and 5,550 feet in elevation.	May-July/ Perennial Bulbiferous Herb	Recent CNDDDB occurrences are documented within 0.25 mile of the Proposed Project area.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was observed in the BRSA at multiple locations within MCAS Miramar during both rounds of special-status plant surveys in 2015. <b>Present</b>
Orcutt's hazardia ( <i>Hazardia orcuttii</i> )	CT 1B.1	Orcutt's hazardia occurs in maritime chaparral and coastal scrub, often on clay soils between 260 and 280 feet in elevation.	August-October/ Perennial Evergreen Shrub	CNPS occurrences have been reported from within a USGS 7.5-minute quadrangle adjacent to the BRSA (i.e., the Rancho Santa Fe quadrangle). However, the SDNHM herbarium record for this species is approximately 10 miles southwest of the BRSA, also in the community of Rancho Santa Fe area. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present in the form of coastal scrub, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species typically occurs at lower elevations than the BRSA. This species also was not observed during either round of the 2015 special-status plant surveys, and as a result, is not expected to occur. <b>Not Expected</b>
Orcutt's linanthus ( <i>Linanthus orcuttii</i> )	1B.3	Orcutt's linanthus occurs in openings in chaparral, lower montane coniferous forest, and pinyon and juniper woodland between 3,000 and 7,040 feet in elevation.	May-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. This species occurs at elevations higher than the BRSA. <b>No Potential</b>
Orcutt's pincushion ( <i>Chaenactis glabriuscula</i> var. <i>orcuttiana</i> )	1B.1	Orcutt's pincushion occurs in sandy coastal bluff scrub and on coastal dunes below 330 feet in elevation.	January-August/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable bluff scrub or dune habitat for this species is present within the BRSA. <b>No Potential</b>

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Orcutt's spineflower ( <i>Chorizanthe orcuttiana</i> )	FE CE 1B.1	Orcutt's spineflower occurs in sandy openings in closed-cone coniferous forest, maritime chaparral, and coastal scrub habitats between 10 and 410 feet in elevation. This species requires a distinctive loose sandy substrate. Occurrences are situated within a few miles of the Pacific Ocean.	March-May/ Annual Herb	Only one CNDDDB occurrence has been documented within five miles of the BRSA and this site is probably extirpated. This species has never been documented as far inland as the BRSA.	No suitable maritime scrub habitat is present within the BRSA. <b>No Potential</b>
Otay manzanita ( <i>Arctostaphylos otayensis</i> )	1B.2	Otay manzanita occurs on metavolcanic soil in chaparral and cismontane woodland between 900 and 5,580 feet in elevation.	January-April/ Perennial Evergreen Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species has never been documented outside of Jamul Mountain and Otay Mountain, which are approximately 20 miles southeast of the BRSA. <b>No Potential</b>
Otay Mesa mint ( <i>Pogogyne nudiuscula</i> )	FE CE 1B.1	Otay Mesa mint occurs in vernal pools between 295 and 820 feet in elevation.	May-July/ Annual Herb	Only one CNDDDB occurrence has been documented within five miles of the BRSA and this occurrence has since been extirpated. The majority of the occurrences of this species is in the Otay Mesa area, approximately 20 miles south of the BRSA.	Suitable habitat for this species is present in the vernal pools on MCAS Miramar. However, MCAS Miramar has not documented the presence of this species in its INRMP (USMC 2014). In addition, the geographic range of this species is more than 15 miles from the BRSA. <b>No Potential</b>
Otay Mountain ceanothus ( <i>Ceanothus otayensis</i> )	1B.2	Otay Mountain ceanothus occurs on metavolcanic or gabbroic substrates in chaparral between 1,960 and 3,610 feet in elevation.	January-April/ Perennial Evergreen Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present, and this species occurs at higher elevations than the BRSA. <b>No Potential</b>
Otay tarplant ( <i>Deinandra conjugens</i> )	FT CE 1B.1	Otay tarplant occurs on clay soils in coastal scrub and valley and foothill grassland between 80 and 990 feet in elevation.	May-June/ Annual Herb	CNPS occurrences have been reported from within the USGS 7.5-minute quadrangles within or surrounding the BRSA (i.e., the National City and Jamul Mountains quadrangles). However, this species has never been documented north of I-8, with the closest occurrence approximately eight miles to the southeast of the BRSA. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed during either round of the 2015 special-status plant surveys. Because this species geographic range is apparently restricted to areas south of I-8, and because of the negative survey results in 2015, this species is not expected to occur in the BRSA. <b>Not Expected</b>
Palmer's frankenia ( <i>Frankenia palmeri</i> )	2B.1	Palmer's frankenia occurs in coastal dunes, coastal salt marshes and swamps, and playas below 30 feet in elevation. This species is apparently restricted to the immediate coast, and does not occur in inland salt marsh habitat.	May-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable coastal dune or salt marsh habitat is present within the BRSA. Although cismontane alkali marsh was observed in the immediate vicinity of Lake Hodges, this species would not occur that far inland. <b>No Potential</b>
Palmer's goldenbush ( <i>Ericameria palmeri</i> var. <i>palmeri</i> )	1B.1	Palmer's goldenbush occurs in coastal scrub, typically in mesic areas, below 2,000 feet in elevation.	September- November/ Perennial Evergreen Shrub	Recent CNDDDB occurrences of this species have been recorded within five miles of the BRSA. This species has a wide distribution according to SDNHM herbarium records.	Suitable habitat is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015, and would have been visible in mesic coastal sage scrub stands if present. <b>Not Expected</b>

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Parish's brittlescale ( <i>Atriplex parishii</i> )	1B.1	Parish's brittlescale occurs on alkaline substrates in chenopod scrub, playas, and vernal pools between 80 and 6,240 feet in elevation.	June-October/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable chenopod scrub or playa habitat is present. Vernal pool habitat is present on MCAS Miramar but this species has never been documented on MCAS Miramar (USMC 2014). <b>No Potential</b>
Parish's meadowfoam ( <i>Limnanthes alba</i> ssp. <i>parishii</i> )	CE 1B.2	Parish's meadowfoam occurs in vernal mesic areas in lower montane coniferous forest, meadows and seeps, and vernal pools between 1,960 and 6,560 feet in elevation.	April-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at much higher elevations than the BRSA. <b>No Potential</b>
Parry's spineflower ( <i>Chorizanthe parryi</i> var. <i>parryi</i> )	1B.1	Parry's spineflower occurs on sandy or rocky substrates in openings in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland between 900 and 4,000 feet in elevation.	April-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species range is north of the BRSA within Los Angeles, Riverside, and San Bernardino counties. It is not known in San Diego County. <b>No Potential</b>
Parry's tetracoccus ( <i>Tetracoccus dioicus</i> )	1B.2	Parry's tetracoccus occurs in chaparral and coastal scrub between 540 and 3,280 feet in elevation.	April-May/ Perennial Deciduous Shrub	Two CNDDDB occurrences of this species are documented within 0.25 mile of the Proposed Project area. One record is from 1936. Recent CNDDDB occurrences are documented within one mile of the Proposed Project area. In addition, the SDNHM includes records of this species within one mile of the northern end of the BRSA, on the west side of I-15 near the community of Rainbow.	This species was observed within a drainage on the southern end of Rainbow Hills Road within the BRSA. Approximately 50 individuals were observed along the south edge of this drainage. <b>Present</b>
Pendleton button-celery ( <i>Eryngium pendletonense</i> )	1B.1	Pendleton button-celery occurs on clay soils in vernal mesic areas in coastal bluff scrub, valley and foothill grassland, and vernal pools between 50 and 365 feet in elevation.	April-July/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species is restricted to areas on Marine Corps Base, Camp Pendleton within approximately two miles of the Pacific Ocean, which is approximately 15 miles west of the BRSA. No occurrences of this species have been documented as far inland as the BRSA. <b>No Potential</b>
Prostrate vernal pool navarretia ( <i>Navarretia prostrata</i> )	1B.1	Prostrate vernal pool navarretia occurs in mesic coastal scrub habitats, meadows and seeps, alkaline valley and foothill grassland and vernal pools between 50 and 3,970 feet in elevation.	April-July/ Annual Herb	One historic CNDDDB occurrence was documented within five miles of the Proposed Project area in 1981, specifically in the vernal pools at roughly SR-52 and SR-163. However, the MCAS Miramar INRMP does not include this species as occurring within MCAS Miramar (USMC 2014).	Suitable habitat for this species is present within vernal pools on MCAS Miramar. In addition, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within five miles of the BRSA. However, this species was not observed within vernal pools occurring in the BRSA during either round of the special-status plant surveys in 2015. In addition, this species is an annual, and due to the drought, may not have germinated in the winter of 2014-2015. <b>Low Potential</b>
Purple stemodia ( <i>Stemodia durantifolia</i> )	2B.1	Purple stemodia occurs in often mesic, sandy areas in scrub habitat between 590 and 990 feet in elevation.	January-December/ Perennial Herb	Two recent CNDDDB records are within five miles of the BRSA near MCAS Miramar. However, this species has not been documented within MCAS Miramar.	Suitable habitat for this species is present within the BRSA, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015, and would have been visible in mesic scrub habitats if present. <b>Not Expected</b>

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Rainbow manzanita ( <i>Arctostaphylos rainbowensis</i> )	1B.1	Rainbow manzanita occurs in chaparral between 670 and 2,200 feet in elevation. This species has a fairly wide distribution to the north, west, and east of the community of Rainbow, with one physically isolated occurrence north of the City of Escondido on the west side of I-15.	January-February/ Perennial Evergreen Shrub	One recent CNDDDB occurrence and one past CNDDDB occurrence are recorded within 0.25 mile of the Proposed Project area. Recent occurrences are documented within one mile of the Proposed Project area. At least one occurrence of this species has been documented between SR-76 and the City of Escondido.	Suitable habitat for this species is present within the BRSA, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. However, this species was not observed within the BRSA during either round of the 2015 special-status plant surveys. No manzanita ( <i>Arctostaphylos</i> sp.) were observed in the BRSA within this fairly restricted geographic range near the community of Rainbow. <b>Not Expected</b>
Ramona horkelia ( <i>Horkelia truncata</i> )	1B.3	Ramona horkelia occurs in clay and gabbroic substrates in chaparral and cismontane woodland between 1,300 and 4,270 feet in elevation. Geographic distribution in San Diego County is diverse, with occurrences from Marine Corps Base, Camp Pendleton southeast to the southern San Diego mountains near Barrett Lake.	May-June/ Perennial Herb	One past CNDDDB occurrence for this species is recorded within one mile of the Proposed Project area.	Suitable habitat exists on site, but this species typically occurs at higher elevations than the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015. <b>Not Expected</b>
Round-leaved filaree ( <i>California macrophylla</i> )	1B.1	Round-leaved filaree occurs on clay soils in cismontane woodland and valley and foothill grassland between 50 and 3,940 feet in elevation.	March-May/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015. However, it is an annual species that may not have germinated in the winter of 2014-2015, and as a result, has a low potential for occurring within the BRSA. <b>Low Potential</b>
Salt marsh bird's-beak ( <i>Chloropyron maritimum</i> ssp. <i>maritimum</i> )	FE CE 1B.2	Salt marsh bird's-beak occurs on coastal dunes and in coastal salt marshes and swamps below 90 feet in elevation.	May-October/ Annual Hemiparasitic Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable coastal dune or salt marsh habitat is present. This species is not known to occur within the elevation range of the BRSA. <b>No Potential</b>
San Bernardino aster ( <i>Symphotrichum defoliatum</i> )	1B.2	San Bernardino aster occurs near ditches, streams, and springs in cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and vernal mesic valley and foothill grassland between six and 6,700 feet in elevation. In San Diego County, this species occurs at elevations higher than 3,900 feet.	July- November/ Perennial Rhizomatous herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	In San Diego County, this species occurs at elevation ranges much higher than the BRSA. <b>No Potential</b>
San Diego ambrosia ( <i>Ambrosia pumila</i> )	FE 1B.1	San Diego ambrosia occurs in sandy loam or clay, often in disturbed areas, and sometimes alkaline in chaparral, coastal scrub, valley and foothill grassland, and vernal pools between 60 and 1,365 feet in elevation throughout coastal San Diego county.	April-October/ Perennial Rhizomatous Herb	There is one recent CNDDDB record documented within one mile of the Proposed Project area. Recent occurrences are documented within five miles of the Proposed Project area. The SDNHM reports one occurrence of this species on the west side of I-15 adjacent to Lake Hodges, which is within approximately one mile of the BRSA.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. However, this species was not observed during either round of special-status plant surveys in 2015, and would have been visible if it was present. This species was blooming at the time of reference population checks at a known site near the BRSA. <b>Not Expected</b>

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San Diego barrel cactus ( <i>Ferocactus viridescens</i> )	2B.1	San Diego barrel cactus occurs in chaparral, coastal scrub habitat, valley and foothill grassland, and vernal pools between nine and 1,480 feet in elevation.	May-June/ Perennial Stem Succulent	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within the BRSA at the southern end of the aqueduct road on MCAS Miramar. <b>Present</b>
San Diego bur-sage ( <i>Ambrosia chenopodifolia</i> )	2B.1	San Diego bur-sage occurs in coastal scrub habitat between 180 and 510 feet in elevation. This species is apparently restricted to the Otay Mesa area of southern San Diego County.	April-June/ Perennial Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species is apparently restricted to the Otay Mesa area of southern San Diego County, approximately 20 miles south of the BRSA. <b>No Potential</b>
San Diego button-celery ( <i>Eryngium aristulatum</i> var. <i>parishii</i> )	FE CE 1B.1	San Diego button-celery occurs in coastal scrub, valley and foothill grassland, and vernal pools, often in mesic areas below 2,000 feet in elevation.	April-June/ Annual or Perennial Herb	One past CNDDDB occurrence was documented within 0.25 mile of the Proposed Project area in 1983, and one past occurrence was documented within one mile in 1979. Recent occurrences have been documented within five miles of the Proposed Project area. This species occurs on MCAS Miramar.	Suitable habitat for this species is present within the vernal pools on MCAS Miramar, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed within vernal pools occurring in the BRSA during either round of special-status plant surveys in 2015, but it was confirmed to be blooming during reference population checks in a nearby vernal pool preserve area in April 2015. As a result, is not expected to occur within the BRSA. <b>Not Expected</b>
San Diego County viguiera ( <i>Bahiopsis [Viguiera] laciniata</i> )	4.2	San Diego County viguiera occurs in chaparral and coastal sage scrub communities from 190 to 2,460 feet in elevation.	February- August/ Perennial Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was documented within the BRSA along the southern end of Pomerado Road in the community of Scripps Ranch. These individuals appear to have been planted during revegetation efforts because they are located immediately along the road edge within a revegetated area. <b>Present</b>
San Diego goldenstar ( <i>Bloomeria clevelandii</i> )	1B.1	San Diego goldenstar occurs on clay substrates in chaparral, coastal scrub, valley and foothill grassland, and vernal pools between 160 and 1,525 feet in elevation.	April-May/ Perennial Bulbiferous Herb	Two recent CNDDDB occurrences are documented within 0.25 mile of the Proposed Project area. Recent CNDDDB occurrences have been documented within one mile of the Proposed Project area.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was observed on MCAS Miramar during first round of special-status plant surveys in 2015. <b>Present</b>
San Diego gum plant ( <i>Grindelia hallii</i> )	1B.2	San Diego gum plant occurs in chaparral, lower montane coniferous forest, meadows, and valley and foothill grassland between 600 and 5,730 feet in elevation.	May- October/Perenn ial Herb	CNPS occurrences have been reported within the La Mesa and Poway quadrangles. As a result, this species is most likely to be observed within the MCAS Miramar portion of the BRSA and isolated natural areas along Pomerado Road within the City of Poway and the community of Scripps Ranch. This species is not documented in the MCAS Miramar INRMP (USMC 2014). One recent CNDDDB occurrence is documented within five miles of the Proposed Project area.	Suitable habitat for this species is present; the geographic and elevation ranges within the BRSA are consistent with those documented for this species; and this species has been documented within one to five miles of the BRSA. This species was not observed during either round of 2015 special-status plant surveys. <b>Not Expected</b>



Species Name	Federal, State, and CRPR <sup>13</sup>	Habitat Preferences, Distribution Information, and Additional Notes	Flowering Phenology/ Life Form	Known Records <sup>14</sup>	Potential to Occur
San Diego marsh-elder ( <i>Iva hayesiana</i> )	2B.2	San Diego marsh-elder occurs in marshes and swamps and on playas between 30 and 1,640 feet in elevation. This species is widely distributed in San Diego County, with the majority of the SDNHM records documented south of the City of Escondido to the U.S.-Mexico border.	April-October/ Perennial Herb	One historic CNDDDB occurrence was reported within 0.25 mile of the Proposed Project area in 1970. Recent CNDDDB occurrences are documented within five miles of the Proposed Project area. This species was documented from a drainage near Lake Miramar just north of MCAS Miramar, approximately one mile from the BRSA.	Suitable habitat for this species is present in scattered locations throughout the BRSA; the geographic and elevation ranges within the BRSA are consistent with those documented for this species; and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015, but may be present within riparian areas that were inaccessible to special-status plant surveyors. <b>Low Potential</b>
San Diego mesa mint ( <i>Pogogyne abramsii</i> )	FE CE 1B.1	San Diego mesa mint occurs in vernal pools between 295 and 660 feet in elevation.	March-July/ Annual Herb	One recent CNDDDB occurrence of this species is documented within 0.25 mile of the Proposed Project area, and recent occurrences are documented within one mile. This species occurs on MCAS Miramar.	Suitable habitat for this species is present within the vernal pools on MCAS Miramar, and this species is documented at the same general geographic and elevation ranges that occur within the BRSA. However, this species was not observed within vernal pools occurring in the BRSA during either round of special-status plant surveys in 2015. <b>Low Potential</b>
San Diego milk-vetch ( <i>Astragalus oocarpus</i> )	1B.2	San Diego milk-vetch occurs in chaparral (openings) and cismontane woodland between 1,000 and 5,000 feet in elevation.	May-August/ Perennial Herb	One historic CNDDDB occurrence was recorded within five miles of the Proposed Project area in 1900. However, most occurrences are from the mountains in central and northern San Diego County, approximately 25 miles east of the BRSA.	Suitable habitat for this species is present, but the nearest CNDDDB record is more than 60 years old, and the general geographic range of this species is more than 15 miles away from the BRSA. <b>No Potential</b>
San Diego sagewort ( <i>Artemisia palmeri</i> )	4.2	This species occurs in chaparral, coastal scrub, riparian forest, riparian scrub, and riparian woodland areas between 50 and 3,000 feet in elevation.	February-September/ Perennial deciduous shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within the BRSA on the southern end of Pomerado Road, and is associated with riparian habitat. <b>Present</b>
San Diego sand aster ( <i>Corethrogyne filaginifolia</i> var. <i>incana</i> )	1B.1	San Diego sand aster occurs in coastal bluff scrub, chaparral, and coastal scrub between 10 and 380 feet in elevation.	June-September/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. All SDNHM herbarium records are restricted to areas within the immediate coastal zone, with the exception of one outlier in the southern San Diego mountains.	Although suitable habitat for this species is present, this species typically occurs between five and fifteen miles from the BRSA. This species was not observed during either round of the 2015 special-status plant surveys and would have been visible if present. <b>Not Expected</b>
San Diego sunflower ( <i>Hulsea californica</i> )	1B.3	San Diego sunflower occurs in openings and burned areas in chaparral, lower montane coniferous forest, and upper montane coniferous forest between 3,000 and 9,565 feet in elevation.	April-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at significantly higher elevations than the BRSA. <b>No Potential</b>
San Diego thorn-mint ( <i>Acanthomintha ilicifolia</i> )	FT CE 1B.1	San Diego thorn-mint occurs in vertisol clay soils in openings of chaparral, coastal scrub, valley and foothill grassland, and vernal pools below 3,000 feet in elevation. This species is widely distributed south of community of Bonsall to the U.S.-Mexico border.	April-June/ Annual Herb	One recent CNDDDB occurrence is documented within 0.25 mile of the Proposed Project area. Multiple recent occurrences are recorded within five miles of the Proposed Project area.	Suitable habitat for this species is present, and clay soils are known to occur within the BRSA. This species is known from the same general geographic and elevation range as the BRSA. However, this species was not observed within the BRSA, nor was the CNDDDB occurrence near the BRSA, during either round of special-status plant surveys in 2015. This is an annual herb species that may not have germinated during the drought conditions in the winter of 2014-2015. As a result, there is a low potential for this species to occur within the BRSA. <b>Low Potential</b>

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San Felipe monardella ( <i>Monardella nana</i> ssp. <i>leptosiphon</i> )	1B.2	San Felipe monardella occurs in chaparral and lower montane coniferous forest between 3,930 and 6,090 feet in elevation. This species is known from the Santa Rosa and Laguna mountains of central San Diego County.	June-July/ Perennial Rhizomatous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species typically occurs at elevations much higher than the BRSA and is geographically restricted to an area approximately 30 miles east of the BRSA. <b>No Potential</b>
San Miguel savory ( <i>Clinopodium chandleri</i> )	1B.2	San Miguel savory occurs on rocky, gabbroic, or metavolcanic substrates in chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland between 390 and 3,530 feet in elevation.	March-July/ Perennial Shrub	CNPS occurrences have been reported the Temecula and San Vicente quadrangles. One CNDDDB occurrence was documented within five miles of the Proposed Project area in 1983.	Suitable habitat for this species is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015, but may be present within riparian areas that were inaccessible to special-status plant surveyors. <b>Low Potential</b>
Sand-loving wallflower ( <i>Erysimum ammophilum</i> )	1B.2	Sand-loving wallflower occurs in sandy openings in maritime chaparral, coastal dunes, and coastal scrub below 200 feet in elevation.	February-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable maritime habitat is present, and this species occurs below the elevations in the BRSA. <b>No Potential</b>
Santa Lucia dwarf rush ( <i>Juncus luciensis</i> )	1B.2	Santa Lucia dwarf rush occurs in chaparral, Great Basin scrub, lower montane coniferous forest, meadows and seeps, and vernal pools between 980 and 6,700 feet in elevation. This species appears to be widely distributed in California, but there is only one recorded location for this species in San Diego County, which is near Cuyamaca Rancho State Park at approximately 4,600 feet in elevation.	April-July/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present. However, this species' geographic distribution in San Diego County indicates that it may only be found at higher elevations than in the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015. It is also an annual herb species that may not have germinated during the drought conditions in the winter of 2014-2015. As a result, there is a low potential for this species to occur within the BRSA. <b>Low Potential</b>
Santa Rosa basalt brodiaea ( <i>Brodiaea santarosae</i> )	1B.2	Santa Rosa basalt brodiaea occurs on basaltic substrates in valley and foothill grassland between 1,850 and 3,430 feet in elevation. This species is geographically restricted to the Santa Rosa plateau in Riverside County.	May-June/ Perennial Bulbiferous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at elevations that are at least 300 feet higher than the BRSA, and its geographic range is more than 15 miles from the BRSA. <b>No Potential</b>
Sea-dahlia ( <i>Leptosyne maritima</i> )	2.2	Sea-dahlia occurs in coastal bluff scrub and coastal scrub below 500 feet in elevation. It is geographically restricted to areas immediately along the Pacific Ocean in San Diego County, south of the City of Encinitas.	March-May/ Perennial Herb	Recent CNDDDB occurrences of this species have been recorded within five miles of the BRSA. This species has never been documented as far inland as the BRSA.	The BRSA is outside of this species' known geographic distribution. <b>No Potential</b>
Shaw's agave ( <i>Agave shawii</i> var. <i>shawii</i> )	2B.1	Shaw's agave occurs in coastal bluff scrub and coastal scrub between 30 and 400 feet in elevation. It is geographically restricted to areas immediately along the Pacific Ocean in San Diego County, south of the City of Del Mar.	September-May/ Perennial Leaf Succulent	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	The BRSA is outside of this species' known geographic range. This species has never been documented as far inland as the BRSA. <b>No Potential</b>

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Shevock's copper moss ( <i>Schizymerium shevockii</i> )	1B.2	Shevock's copper moss occurs on metamorphic, rock, and mesic areas in cismontane woodland between 2,460 and 4,600 feet in elevation.	Not applicable/ Moss	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at elevations higher than those within the BRSA. <b>No Potential</b>
Short-leaved dudleya ( <i>Dudleya brevifolia</i> )	CE 1B.1	Short-leaved dudleya occurs on Torrey sandstone in maritime openings in chaparral, and coastal scrub between 90 and 820 feet in elevation.	April-May/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable maritime habitat is present within the BRSA. <b>No Potential</b>
Singlewhorl burrobush ( <i>Ambrosia monogyra</i> )	2.2	Singlewhorl burrobush occurs in chaparral and Sonoran desert scrub, often in sandy substrates and below 1,600 feet in elevation. This species is documented from south of SR-52 to the U.S.-Mexico border and as far east as the community of Dulzura.	August- November/ Perennial Shrub	Past CNDDDB occurrences have been reported within one mile of the BRSA. One historic CNDDDB occurrence of this species was documented within one mile of the Proposed Project area in 1979. However, considering the geographic distribution of this species, it would be most likely within MCAS Miramar. This species has never been documented as occurring on MCAS Miramar (USMC 2014).	Suitable habitat for this species is present in the form of chaparral, but this species is a recognizable shrub species and was not observed during either round of special-status plant surveys in 2015. <b>Not Expected</b>
Slender cottonheads ( <i>Nemacaulis denudata</i> var. <i>gracilis</i> )	2B.2	Slender cottonheads occurs on coastal dunes, desert dunes, and Sonoran desert scrub below 1,320 feet in elevation. This species is restricted to the immediate coastal zone in San Diego County.	March-May/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. In addition, this species has not been documented as far inland as the BRSA within San Diego County. <b>No Potential</b>
Slender-horned spineflower ( <i>Dodecahema leptoceras</i> )	FE CE 1B.1	Slender-horned spineflower occurs on sandy soils in chaparral, cismontane woodland, and alluvial fans in coastal scrub between 650 and 2,500 feet in elevation. The southernmost extent of its geographic range is southern Riverside County, near the City of Temecula.	April-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	The southern extent of this species' range is approximately six miles north of the BRSA in the Temecula area. It is not known from San Diego County. <b>No Potential</b>
Small-flowered microseris ( <i>Microseris douglasii</i> ssp. <i>platycarpa</i> )	4.2	Small-flowered microseris occurs within cismontane woodland, coastal scrub, valley and foothill grassland, and vernal pools from 50 to 3,510 feet in elevation.	March-May/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within vernal mesic areas on MCAS Miramar. <b>Present</b>
Smooth tarplant ( <i>Centromadia pungens</i> ssp. <i>laevis</i> )	1B.1	Smooth tarplant occurs in alkaline soils in chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland below 7,200 feet in elevation. This species occurs widely in San Diego County from Marine Corps Base, Camp Pendleton to the City of Santee.	April- September/ Annual Herb	Recent CNDDDB occurrences for this species are recorded within five miles of the Proposed Project area.	Potentially suitable habitat exists in meadows and seeps, riparian woodlands, and grasslands within the BRSA. The extent to which alkaline soils are present within the BRSA is undetermined. No chenopod scrub was observed, but tamarisk scrub was observed directly south of the San Luis Rey River, and on the northern shore of Lake Hodges. While tamarisk is not restricted to alkaline soils, it is well adapted to alkaline conditions. This species was not observed during either round of the 2015 special-status plant surveys. This is an annual herb species that may not have germinated during the drought conditions in the winter of 2014-2015. As a result, there is a moderate potential for this species to occur within the BRSA. <b>Moderate Potential</b>

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Snake cholla ( <i>Cylindropuntia californica</i> var. <i>californica</i> )	1B.1	Snake cholla occurs in chaparral and coastal scrub between 90 and 500 feet in elevation. This species is documented from southern San Diego County south of I-8, and from the Del Mar quadrangle.	April-May/ Perennial Stem Succulent	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. However, there are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present. However, this species typically occurs at elevations below the lowest point within the BRSA, and this species typically occurs between five and 15 miles from the BRSA. This species was not observed during either round of the special-status plant surveys conducted in 2015 and is not expected to occur within the BRSA. <b>Not Expected</b>
South Coast saltscale ( <i>Atriplex pacifica</i> )	1B.2	South Coast saltscale occurs in coastal bluff scrub, coastal dunes, coastal scrub, and playas below 460 feet in elevation.	March- October/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences within five miles of the Proposed Project area. The nearest SDNHM record is approximately four miles west of the BRSA.	Suitable habitat for this species is present in the form of coastal scrub; the geographic and elevation ranges within the BRSA are consistent with those documented for this species; and this species has been documented within one to five miles of the BRSA. However, this species was not observed during either round of special-status plant surveys in 2015. It is more common along the Pacific Coast and in southern San Diego County. This is an annual herb species that may not have germinated during the drought conditions in the winter of 2014-2015. As a result, there is a low potential for this species to occur within the BRSA <b>Low Potential</b>
Southern mountains skullcap ( <i>Scutellaria bolanderi</i> ssp. <i>austromontana</i> )	1B.2	Southern mountains skullcap occurs in mesic areas in chaparral, cismontane woodland, and lower montane coniferous forest between 1,390 and 6,560 feet in elevation. In San Diego County, it appears to be restricted to the mountains east of the City of San Diego.	June-August/ Perennial Rhizomatous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No portion of the BRSA is within this species' documented geographic range. <b>No Potential</b>
Southern tarplant ( <i>Centromadia parryi</i> ssp. <i>australis</i> )	1B.1	Southern tarplant occurs in marshes and swamps, occasionally along estuary margins, valley and foothill grasslands, occasionally in vernal mesic areas, and vernal pools below 1,575 feet in elevation.	June- November/ Annual Herb	One recent CNDDDB occurrence is documented within 0.25 mile of the Proposed Project area, and one recent occurrence is documented within one mile. One past occurrence was documented within 0.25 mile of the Proposed Project in 1916. This species occurs within the same general geographic and elevation range as the BRSA.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed during either round of the 2015 special-status plant surveys. This is an annual herb species that may not have germinated during the drought conditions in the winter of 2014-2015. As a result, there is a low potential for this species to occur within the BRSA. <b>Low Potential</b>
Southwestern spiny rush ( <i>Juncus acutus</i> ssp. <i>leopoldii</i> )	4.2	Southwestern spiny rush occurs in coastal dunes, meadows and seeps (occasionally within alkaline seeps), and marshes and swamps, and occasionally within coastal salt marshes from sea level to 2,950 feet in elevation.	March-June/ Perennial Rhizomatous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within intermittent drainages in the southern portion of the BRSA. <b>Present</b>

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Spreading navarretia ( <i>Navarretia fossalis</i> )	1B.1	Spreading navarretia occurs in chenopod scrub habitat, assorted shallow freshwater (including marshes and swamps), on playas and in vernal pools between 90 and 2,150 feet in elevation.	April-June/ Annual Herb	Recent CNDDDB occurrences have been reported within five miles of the BRSA.	Suitable habitat for this species is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either round of the special-status plant surveys in 2015, but was confirmed blooming during reference population checks in a nearby vernal pool preserve area in April 2015. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
Sticky dudleya ( <i>Dudleya viscida</i> )	1B.2	Sticky dudleya occurs on rocky substrates in coastal bluff scrub, chaparral, cismontane woodland and coastal scrub between 30 and 1,810 feet in elevation.	May-June/ Perennial Herb	CNPS occurrences have been reported within USGS 7.5-minute quadrangles surrounding the BRSA. The nearest documented SDNHM record is approximately 10 miles to the east on Marine Corps Base, Camp Pendleton, with CNPS records from quadrangles adjacent to the BRSA. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed during either round of the 2015 special-status plant surveys, and would have been visible if present. <b>Not Expected</b>
Summer holly ( <i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i> )	1B.2	Summer holly occurs in chaparral and cismontane woodland between 980 and 2,595 feet in elevation, and is geographically situated west of I-15 and in a few higher-elevation sites in southern San Diego County.	April-June/ Perennial Evergreen Shrub	One recent CNDDDB occurrence was documented within 0.25 mile of the Proposed Project area. Recent CNDDDB occurrences are recorded within one mile of the Proposed Project area. The SDNHM herbarium reports records from just south of the BRSA on Mission Trails Regional Park.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. One individual was observed within the BRSA in a drainage approximately one mile north of Deer Springs Road on the west side of Old Highway 395. <b>Present</b>
Tecate cypress ( <i>Hesperocyparis forbesii</i> )	1B.1	Tecate cypress occurs on clay, gabbroic, or metavolcanic substrates in closed-cone coniferous forest and chaparral between 260 and 4,920 feet in elevation.	Not applicable/ Perennial Evergreen Tree	CNPS occurrences have been reported within USGS 7.5-minute quadrangles surrounding the BRSA. However, the nearest occurrence of this species is approximately 12 miles to the northwest of the BRSA in southern Riverside County. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015. <b>Not Expected</b>
Thread-leaved brodiaea ( <i>Brodiaea filifolia</i> )	FT CE 1B.1	Thread-leaved brodiaea occurs on clay soils in coastal scrub, cismontane woodland, valley and foothill grassland, vernal pools between 80 and 3,680 feet in elevation.	March-June/ Perennial Bulbiferous Herb	Recent CNDDDB occurrences have been recorded within five miles of the BRSA near the cities of Vista and San Marcos and the community of Rancho Santa Fe.	Suitable habitat for this species is present; clay soils are known to occur within the BRSA; the geographic and elevation ranges within the BRSA are consistent with those documented for this species; and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015. It was confirmed to be blooming on Marine Corps Base, Camp Pendleton during the first round of special-status plant surveys by biologists working there, and so would likely have been visible if present. As a result, this species is not expected to occur. <b>Not Expected</b>

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Torrey pine ( <i>Pinus torreyana</i> ssp. <i>torreyana</i> )	1B.2	Torrey pine occurs on sandstone in closed-cone coniferous forest and chaparral between 240 and 525 feet in elevation. This species is restricted to the immediate coastal zone of San Diego County and has not been documented east of I-15.	Not applicable/ Perennial Evergreen Tree	CNPS occurrences have been reported within USGS 7.5-minute quadrangles surrounding the BRSA. No occurrences of this species have ever been documented as far inland as the BRSA. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015. <b>Not Expected</b>
Vail Lake ceanothus ( <i>Ceanothus ophiochilus</i> )	FT CE 1B.1	Vail Lake ceanothus occurs on gabbroic or pyroxenite-rich outcrops in chaparral between 1,900 and 3,500 feet.	February- March/ Perennial Evergreen Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species is not known to occur within the elevation range of the BRSA and is not documented from San Diego County. <b>No Potential</b>
Variegated dudleya ( <i>Dudleya variegata</i> )	1B.2	Variegated dudleya occurs on clay soils in chaparral, cismontane woodland, coastal scrub habitat, valley and foothill grassland, and vernal pools between 10 and 1,900 feet in elevation.	April-June/ Perennial Herb	One recent CNDDDB occurrence is documented within 0.25 mile of the Proposed Project area, and two recent occurrences are documented within one mile. Multiple recent occurrences are documented within five miles of the Proposed Project area. This species has also been documented on MCAS Miramar.	Suitable habitat for this species is present and clay soils are known to occur within the BRSA. This species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015. This species can be very diminutive and difficult to detect if it occurs within areas dominated by non-native grasslands. Its populations are also smaller during drought years, making it more difficult to detect. As a result, there is a low potential for this species to occur within the BRSA. <b>Low Potential</b>
Wart-stemmed ceanothus ( <i>Ceanothus verrucosus</i> )	2B.2	Wart-stemmed ceanothus occurs in chaparral between three and 1,250 feet in elevation, primarily west of I-15.	December- May/ Perennial Evergreen Shrub	Recent CNDDDB occurrences are documented within five miles of the Proposed Project area. One occurrence is located within 0.25 mile, and one occurrence is located within one mile of the Proposed Project area; however, these occurrences were documented in 1939. This species has been observed on MCAS Miramar and is widely distributed within one to five miles of the BRSA.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed during either round of special-status plant surveys conducted in 2015, but chaparral habitat is difficult to access when it is mature, and visibility within chaparral stands can be limited by tall, thick vegetation. As a result, there remains a low potential for this species to occur within the BRSA. <b>Low Potential</b>
Western dichondra ( <i>Dichondra occidentalis</i> )	4.2	Western dichondra occurs usually under shrubs in woodlands, coastal sage scrub, or chaparral between 160 and 1,640 feet.	January – July/ Perennial Rhizomatous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	Suitable habitat for this species is present and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was observed in the understory of trees growing along Pomerado Road in the southern portion of the BRSA. <b>Present</b>
White rabbit-tobacco ( <i>Pseudognaphalium leucocephalum</i> )	2B.2	White rabbit-tobacco occurs in sandy, gravelly areas in chaparral, cismontane woodland, coastal scrub, and riparian woodland below 6,890 feet in elevation.	July- December/ Perennial Herb	CNPS occurrences have been reported within USGS 7.5-minute quadrangles surrounding the BRSA. However, the nearest documented occurrence of this species is approximately 10 miles away on Marine Corps Base, Camp Pendleton. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed during either round of special-status plant surveys in 2015 and would have been visible if present. <b>Not Expected</b>

Species Name	Federal, State, and CRPR <sup>13</sup>	Habitat Preferences, Distribution Information, and Additional Notes	Flowering Phenology/ Life Form	Known Records <sup>14</sup>	Potential to Occur
Wiggin's cryptantha ( <i>Cryptantha wigginsii</i> )	1B.2	Wiggin's cryptantha occurs in coastal scrub, often on clay soils, between 60 and 910 feet in elevation. This species is apparently restricted to the immediate coastal zone in San Diego County.	February-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. This species is not known from as far inland as the BRSA, with the nearest SDNHM herbarium occurrence reported approximately 11 miles west of the BRSA.	Suitable habitat for this species is present. However, this species typically occurs at elevations below the lowest point within the BRSA, and this species typically occurs between five and 15 miles from the BRSA. This species was not observed within the BRSA during either round of special-status plant surveys in 2015. This is an annual herb species that may not have germinated during the drought conditions in the winter of 2014-2015. As a result, there is a low potential for this species to occur within the BRSA. <b>Low Potential</b>
Willow monardella ( <i>Monardella viminea</i> )	FE CE 1B.1	Willow monardella occurs in alluvial ephemeral washes in chaparral, coastal scrub habitat, riparian forest, riparian scrub, and riparian woodland between 160 and 740 feet in elevation.	June-August/ Perennial Herb	Three recent CNDDDB occurrences have been recorded within 0.25 mile of the Proposed Project area, two of which are presumed extant. One recent CNDDDB occurrence is documented within one mile of the Proposed Project area, and multiple recent occurrences are documented within five miles. This species occurs on MCAS Miramar near the BRSA along an intermittent, cobbly drainage.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. Willow monardella was not observed within the BRSA during either round of special-status plant surveys in 2015. The CNDDDB occurrence near the BRSA on MCAS Miramar was observed and mapped to confirm its presence outside of the BRSA. <b>Not Expected</b>

Sources: CDFW 2015b; CNPS 2014; Reiser 1994; SDNHM 2015a.





**Table 5: Special-Status Plant Occurrences within the BRSA**

Plant Species	CRPR Status	Total Numbers
Ashy spike-moss ( <i>Selaginella cinerascens</i> )	4.1	33,000 <sup>15</sup>
Brewer's calandrinia ( <i>Calandrinia breweri</i> )	4.2	121
California adolphia ( <i>Adolphia californica</i> )	1B.2	750
Decumbent goldenbush ( <i>Isocoma menziesii</i> var. <i>decumbens</i> )	2B.1	145
Engelmann oak ( <i>Quercus engelmannii</i> )	4.2	67
Golden-rayed pentachaeta ( <i>Pentachaeta aurea</i> ssp. <i>aurea</i> )	4.2	5,787
Graceful tarplant ( <i>Holocarpha virgata</i> ssp. <i>elongata</i> )	4.2	589
Long-spined spineflower ( <i>Chorizanthe polygonoides</i> var. <i>longispina</i> )	1B.2	1,351
Nuttall's scrub oak ( <i>Quercus dumosa</i> )	1B.1	321
Orcutt's brodiaea ( <i>Brodiaea orcuttii</i> )	1B.1	2,309
Parry's tetracoccus ( <i>Tetracoccus dioicus</i> )	1B.2	50
San Diego barrel cactus ( <i>Ferocactus viridescens</i> )	2B.1	1
San Diego County viguiera ( <i>Bahiopsis</i> [ <i>Viguiera</i> ] <i>laciniata</i> )	4.2	1,334
San Diego goldenstar ( <i>Bloomeria clevelandii</i> )	1B.1	3,991
San Diego sagewort ( <i>Artemisia palmeri</i> )	4.2	37
Small-flowered microseris ( <i>Microseris douglasii</i> ssp. <i>platycarpha</i> )	4.2	50

<sup>15</sup> This species is difficult to count on an individual level, and most occurrences within the BRSA covered a large area. Therefore, the count for this species is an estimate based on density at each occurrence location.

<b>Plant Species</b>	<b>CRPR Status</b>	<b>Total Numbers</b>
Southwestern spiny rush ( <i>Juncus acutus</i> ssp. <i>leopoldii</i> )	4.2	16
Summer holly ( <i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i> )	1B.2	1
Western dichondra ( <i>Dichondra occidentalis</i> )	4.2	580

### **Brewer's Calandrinia**

Brewer's calandrinia (*Calandrinia breweri*) is a CRPR 4.2 annual herb in the miner's lettuce family that occurs on sandy or loamy soils—as well as disturbed sites and burns—within chaparral and coastal scrub communities between 32 and 4,002 feet in elevation. It is normally identifiable from March to June. Over 100 individuals were observed during the QCB surveys on MCAS Miramar in February 2015. This species was blooming at the time of the observations, which was slightly earlier than normal. However, this was not unexpected given the early precipitation events in the winter of 2014 and the dry January and early February in 2015.

### **California Adolphia**

California adolphia (*Adolphia californica*) is a CRPR 2B.1 perennial deciduous shrub in the buckthorn family that occurs on clay soils in chaparral, coastal scrub, and valley and foothill grasslands at elevations between 140 and 2,500 feet. California adolphia is typically identifiable during a flowering period from January to April. It is also possible to identify this species outside of the flowering period because it has distinguishing cauline spines.

At least 750 California adolphia individuals were observed within a remnant patch of Diegan coastal sage scrub on an east-facing slope, south of the Lake Hodges area. California adolphia was present in this stand at an absolute cover of 50 to 60 percent and comprised a distinct Diegan coastal sage scrub stand.

### **Decumbent Goldenbush**

Decumbent goldenbush (*Isocoma menziesii* var. *decumbens*) is a CRPR 1B.2 perennial shrub in the sunflower family that occurs in chaparral and sandy, often disturbed coastal scrub habitats between 30 and 450 feet in elevation. Decumbent goldenbush is identifiable during a flowering period from April to November. It is also possible to identify this species outside of the flowering period because it has distinguishing vegetative characters. Approximately 145 individuals were observed north of Scripps Poway Parkway along Pomerado Road.

Individual goldenbush (*Isocoma menziesii*) individuals were observed in the BRSA and this intraspecific taxon (var. *decumbens*) was verified within the BRSA during the second pass of surveys in May 2015. Approximately 145 individuals were observed north of Scripps Poway Parkway along Pomerado Road.

### **Engelmann Oak**

Engelmann oak (*Quercus engelmannii*) is a CRPR 4.2 deciduous tree in the oak family that occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grasslands between 164 and 4,265 feet in elevation. This species is normally identifiable at any time of the year due to its characteristic grey-green foliage, and long, wavy leaves. Sixty-seven Engelmann oak individuals were observed in scattered locations throughout the urbanized areas in the northern portion of the BRSA, often associated with or adjacent to drainages.

Engelmann oak individuals north of Deer Springs Road and south of Gopher Canyon Road appear to be hybridizing with Torrey oak (*Quercus x. acutidens*), a common scrub oak hybrid. Specifically, these Engelmann oak individuals exhibited brighter green leaves, an occasional leaf

with serration, and a smaller growth form than other Engelmann oak individuals observed in the BRSA. Consistent with the dichotomous key for the *Quercus* genus in *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al. 2012), leaf color and size—as well as the size of the individual tree—were used as diagnostic characteristics to differentiate these individuals from Torrey oak.

### **Golden-Rayed Pentachaeta**

Golden-rayed pentachaeta (*Pentachaeta aurea* ssp. *aurea*) is a CRPR 4.2 annual herb in the sunflower family that occurs in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, and valley and foothill grasslands at elevations between 260 and 6,070 feet. It is normally identifiable from March to July. Golden-rayed pentachaeta was observed during the Quino checkerspot butterfly (QCB) surveys on MCAS Miramar in February 2015, as well as during the first pass of special-status plant surveys in April 2015 on MCAS Miramar and within the Elliot Field Station, which is directly north of MCAS Miramar. Approximately 6,000 individuals were observed within these areas.

### **Graceful Tarplant**

Graceful tarplant (*Holocarpha virgata* ssp. *elongata*) is a CRPR 4.2 annual herb in the sunflower family that blooms from May to November. It is usually found in mildly disturbed or overgrazed grasslands, and is often abundant and numbering in the thousands. Because its habitat is usually on relatively level ground where development is common, it is presumed to be declining in San Diego County (Reiser 1994). Graceful tarplant was observed within the BRSA on MCAS Miramar. Approximately 473 graceful tarplant individuals were observed growing under a solar array on the northern portion of MCAS Miramar, and approximately 116 individuals were observed along the west end of the aqueduct road, south of the paved Green Farm Road (also referred to as Rifle Range Road or H Road).

### **Long-Spined Spineflower**

Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*) is a CRPR 1B.2 annual herb in the buckwheat family that occurs in chaparral, coastal scrub, meadows, seeps, valley and foothill grasslands, and vernal pools below 5,000 feet in elevation and often on clay soils. Five recent CNDDDB occurrences dated from 2003 have been reported within one mile of the BRSA. Long-spined spineflower is normally identifiable during an April to July flowering period.

Approximately 1,350 individual long-spined spineflower individuals were observed in the BRSA across multiple locations within the central portion of MCAS Miramar. Some occurrences were small, with just a few individuals, and others were large, with more than 100 individuals. This species was observed within mapped clay soils, primarily within highly compacted soils with low cover of non-native species (e.g., brome grasses). These occurrences also coincide with the location of a CNDDDB element record for this species.

### **Nuttall's Scrub Oak**

Nuttall's scrub oak is a CRPR 1B.1 perennial evergreen shrub in the oak family that is found in coastal chaparral habitats (Reiser 1994). On flat terrain, this species appears to favor open coastal chaparral habitat, and this shrub may grow in dense stands on north-facing slopes. It

often has a rounded, almost “pruned” appearance, with small, spinose leaves. Reiser (1994) confirms that Nuttall’s scrub oak occurs on MCAS Miramar “in considerable numbers” and “in the hills at Camp Elliott.”<sup>16</sup> The BRSA is situated within an area of overlap between the geographic range of Nuttall’s scrub oak and the common scrub oak.

Approximately 321 individual Nuttall’s scrub oak trees were observed in the southern BRSA along Pomerado Road. These occurrences were found in association with southern mixed chaparral communities on north-facing slopes, and within more open chaparral (e.g., southern mixed chaparral and chamise chaparral) communities on flat terrain.

Nuttall’s scrub oak observed within the BRSA exhibited characteristics indicative of hybridization with the common scrub oak. The most diagnostic character that distinguishes Nuttall’s scrub oak from the common scrub oak is the presence in Nuttall’s scrub oak of two- to six-rayed spreading trichomes (i.e., hairs) on the underside of the leaf that can generally be observed by the unaided eye or with a hand lens under low magnification. The common scrub oak exhibits minute, appressed, four- to 10-rayed trichomes that are generally not visible without magnification. Upon examination of the scrub oak specimens on MCAS Miramar using a microscope, it was noted that some leaves exhibited both the long two- to six-rayed trichomes indicative of Nuttall’s scrub oak, and the minute four- to 10-rayed trichomes indicative of the common scrub oak. As a result, it can be concluded that many of the small, rounded scrub oaks observed within MCAS Miramar and the southern BRSA along Pomerado Road (generally south of Scripps Poway Parkway) are hybrids of these two species. To ensure consistency in mapping Nuttall’s scrub oak in the field, specimens were determined to be Nuttall’s scrub oak only if spreading two- to six-rayed hairs were readily visible with or without the use of a hand lens on the underside of the leaves examined. If biologists did not readily observe these trichomes, they were not mapped and were presumed to be the common scrub oak.

### **Orcutt’s Brodiaea**

Orcutt’s brodiaea (*Brodiaea orcuttii*) is a CRPR 1B.1 perennial bulbiferous herb in the brodiaea family that occurs in clay soils in closed-cone coniferous forest, chaparral, cismontane woodland, meadows, seeps, valley and foothill grasslands, and vernal pools between 90 and 5,550 feet in elevation. Orcutt’s brodiaea is typically identifiable during a May to July flowering period.

Approximately 2,300 Orcutt’s brodiaea individuals were observed within mapped clay soils on MCAS Miramar. This species was in peak bloom during the first pass of the special-status plant surveys conducted in April 2015. It was often associated with non-native grasslands, and was often intermixed with or very near to long-spined spineflower and San Diego goldenstar occurrences.

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<sup>16</sup> The former Camp Elliott encompasses portions of the Tierrasanta and West Hills communities, the planned Castlerock community, Mission Trails Region Park, and the East Elliott Community Planning Area. Additionally, portions of the former camp are still used by the U.S. Marine Corps.

### **Parry's Tetracoccus**

Parry's tetracoccus (*Tetracoccus dioicus*) is a CRPR 1B.2 perennial deciduous shrub in the bitter-tree family that occurs in chaparral and coastal scrub between 540 and 3,280 feet in elevation. This perennial deciduous shrub is normally identifiable during an April to May flowering period, although it is somewhat characteristic in vegetative form and can be identified outside of the flowering period. One CNDDDB occurrence of this species was documented within 0.25 mile of the Proposed Project area. Occurrences have also been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. In addition, the SDNHM includes records of this species within one mile of the northern end of the BRSA, on the west side of I-15 near the community of Rainbow. This species was observed within a drainage on the west side of Rainbow Hills Road within the BRSA. Approximately 50 individual shrubs were observed on the south bank of this drainage.

### **San Diego Barrel Cactus**

San Diego barrel cactus (*Ferocactus viridescens*) is a CRPR 2B.1 perennial stem succulent in the cactus family that occurs in chaparral, coastal scrub habitats, valley and foothill grasslands, and vernal pool habitat at elevations between nine and 1,480 feet. One individual was mapped within the BRSA along the aqueduct road on MCAS Miramar.

### **San Diego County Viguiera**

San Diego County viguiera (*Bahiopsis [Viguiera] laciniata*) is a CRPR 4.2 perennial shrub in the sunflower family that occurs in chaparral and coastal sage scrub communities from 190 to 2,460 feet in elevation. This species was documented within the BRSA along the southern end of Pomerado Road in the community of Scripps Ranch. These shrubs appear to have been planted during revegetation efforts because they are located immediately along the road edge within a revegetated area. Approximately 1,334 individual shrubs were observed.

### **San Diego Goldenstar**

San Diego goldenstar (*Bloomeria clevelandii*) is a CRPR 1B.1 bulbiferous herb in the brodiaea family that occurs on clay substrates in chaparral, coastal scrub, valley and foothill grasslands, and vernal pools between 160 and 1,525 feet in elevation. Fifteen recent occurrences have been reported within one mile of the BRSA, the most recent dating from 2010. Nearly 4,000 individuals were observed throughout MCAS Miramar and within the Elliot Field Station, which is directly north of MCAS Miramar. These occurrences were in peak bloom during the first pass of the special-status plant surveys conducted in April 2015 and were often associated with golden-rayed pentachaeta occurrences. One large population was observed in the understory of a eucalyptus grove.

### **San Diego Sagewort**

San Diego sagewort (*Artemisia palmeri*) is a CRPR 4.2 perennial deciduous shrub in the sunflower family that occurs in chaparral, coastal scrub, riparian forest, riparian scrub, and riparian woodland areas between 50 and 3,000 feet in elevation. Thirty-seven occurrences of this species were noted within the BRSA on the southern end of Pomerado Road, and were associated with the large, intermittent drainage south of Pomerado Road.

### Small-Flowered Microseris

Small-flowered microseris (*Microseris douglasii* ssp. *platycarpa*) is a CRPR 4.2 annual herb in the sunflower family that occurs within cismontane woodland, coastal scrub, valley and foothill grasslands, and vernal pools from 50 to 3,510 feet in elevation. This species is typically identifiable during a March to May blooming period. Approximately 50 individuals of this species were observed within vernal mesic areas on MCAS Miramar.

### Southwestern Spiny Rush

Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*) is a CRPR 4.2 perennial rhizomatous herb in the rush family that occurs in coastal dunes, meadows, and seeps, and occasionally within alkaline seeps, marshes and swamps, and coastal salt marshes. Sixteen individuals were observed within two intermittent drainages in the southern portion of the BRSA.

### Summer Holly

Summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*) is a CRPR 1B.2 perennial evergreen shrub in the heath family that occurs in chaparral and cismontane woodland between 980 and 2,595 feet in elevation. Summer holly is normally identifiable during an April to June flowering period, but can also be identified from its characteristic leaf shape. One individual summer holly was observed in a steep, east-facing drainage on the west side of Old Highway 395, north of Deer Springs Road.

### Western Dichondra

Western dichondra (*Dichondra occidentalis*) is a CRPR 4.2 perennial rhizomatous herb in the morning-glory family that usually occurs under shrubs in woodlands, coastal sage scrub, or chaparral between 160 and 1,640 feet in elevation. Although it blooms from January to July, it is identifiable outside of that period by its characteristic leaf shape. Approximately 580 individuals were observed in the understory of trees growing along Pomerado Road in the southern portion of the BRSA.

## 5.3 GENERAL WILDLIFE SPECIES

A complete list of wildlife observed in the BRSA during Insignia's 2014 and 2015 habitat assessments are presented in Attachment I: Wildlife Species Observed during Surveys. Avian species observed include the mourning dove, red-tailed hawk, and common raven. Mammalian species observed during the site visits include coyote (*Canis latrans*), brush rabbit (*Sylvilagus bachmani*), and San Diego black-tailed jackrabbit.

## 5.4 SPECIAL-STATUS WILDLIFE SPECIES

Based on the literature and database review, as well as results from the field surveys in late 2014 and the spring of 2015, 44 special-status wildlife species were identified to have the potential to occur within the BRSA. CNDDDB wildlife occurrences within five miles of the BRSA are shown on Figure A-2: CNDDDB Occurrences for Special-Status Wildlife Species in Attachment A: Figures. Table 6: Special-Status Wildlife Species with Potential to Occur provides a list of the 44 potentially occurring special-status wildlife species and descriptions of the listing status, life history, habitat requirements, and a brief assessment of their potential to occur.

Of the 44 potentially occurring special-status wildlife species, one species—western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)—was determined to have no potential to occur within the BRSA based on the rare and sporadic nature of sightings in San Diego County. Of the 43 remaining special-status wildlife species considered, the following 11 wildlife species are federally or state-listed as endangered or threatened, or are candidate species for these listings:

- arroyo toad, FE;
- coastal California gnatcatcher, FT;
- Hermes copper butterfly (*Lycaena hermes*), FC;
- least Bell's vireo, FE and CE;
- QCB, FE;
- Riverside fairy shrimp (*Streptocephalus woottoni*), FE;
- San Diego fairy shrimp (*Branchinecta sandiegonensis*), FE;
- southwestern willow flycatcher, FE and CE;
- Stephens' kangaroo rat (*Dipodomys stephensi*), FE and CT;
- Swainson's hawk (*Buteo swainsoni*), CT; and
- Townsend's big-eared bat (*Corynorhinus townsendii townsendii*), candidate for state listing (CC).

The following 10 special-status wildlife species were observed within the BRSA during habitat assessments or focused surveys in 2014 and 2015:

- Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*),
- coast horned lizard (*Phrynosoma blainvillii*),
- coastal California gnatcatcher,
- least Bell's vireo,
- northern harrier,
- San Diego black-tailed jackrabbit,
- western pond turtle (*Actinemys marmorata*)
- white-tailed kite (*Elanus leucurus*),
- yellow-breasted chat (*Icteria virens*), and
- yellow warbler (*Setophaga petechia*).

Four special-status wildlife species—Riverside fairy shrimp, San Diego fairy shrimp, southwestern willow flycatcher, and western spadefoot—were also presumed to be present within the BRSA based on maps and data from the MCAS Miramar INRMP. Southwestern willow flycatcher was presumed to be present based on the sighting of a single willow flycatcher individual in May 2015, as described in more detail in Section 5.4.0 Species Present or Presumed Present within the BRSA.

Of the 14 special-status wildlife species determined or presumed to be present within the BRSA, five species—coastal California gnatcatcher, least Bell's vireo, Riverside fairy shrimp, San Diego fairy shrimp, and southwestern willow flycatcher—are federally listed species. In addition, least Bell's vireo and southwestern willow flycatcher are state-listed species. Figure A-6: Special-Status Wildlife Occurrences in Attachment A: Figures shows the locations where these species were observed during habitat assessments and focused surveys in the spring of 2015.



**Table 6: Special-Status Wildlife Species with Potential to Occur**

Species Name	Listing Status <sup>17</sup>	Life History	Known Records	Potential to Occur
<b>Invertebrates</b>				
Hermes copper butterfly ( <i>Lycaena hermes</i> )	FC	Hermes copper butterfly is found in mixed woodlands, chaparral, and coastal sage scrub from San Diego County to adjacent Baja California Norte, Mexico. Spiny redberry ( <i>Rhamnus crocea</i> ) is the host larval food plant for this species, which is common in cismontane California coastal sage scrub and chaparral vegetation communities. However, this species is limited to only a portion of the redberry range, usually along north-facing hillsides or within deeper, well-drained soils of canyon bottoms where host (spiny redberry) and nectar (California buckwheat) plants are present. In addition, mature spiny redberry plants appear to be essential to this species' survival. It may take as long as 18 years after a wildfire for this species to re-colonize an area.	Three recent <sup>18</sup> CNDDDB occurrences are recorded within five miles of the BRSA. Marschalek and Klein (2012) document extant Hermes copper populations in San Diego County near the cities Poway and Escondido, and the community of Fallbrook, with historic occurrences within MCAS Miramar that are presumed to have been extirpated as a result of the 2003 wildfires that burned in that area. A small, inconsistent population of Hermes copper butterfly is known from the Meadowbrook Ecological Reserve, directly adjacent to but outside of the BRSA, west of Pomerado Road and south of Ted Williams Parkway.	Spiny redberry, the host plant for Hermes copper butterfly, was observed very sporadically within the BRSA and primarily on north-facing slopes, occasionally in association with California buckwheat, which is the preferred nectar plant for Hermes copper butterfly. The spiny redberry individuals on MCAS Miramar are approximately 12 years old. Other more mature individuals were observed in a remnant coastal sage scrub hillside in the City of Poway. Hermes copper butterfly is known or has been historically documented from areas near and within the BRSA. <b>Moderate Potential</b>
Quino checkerspot butterfly ( <i>Euphydryas editha quino</i> )	FE	QCB inhabits open canopy scrub habitat from the Santa Monica Mountains south to Baja California, Mexico. This species is native to coastal sage scrub, chaparral, and valley grassland communities; the larval host plant is usually dot-seed plantain or a related species.	Four recent CNDDDB occurrences are recorded within five miles of the BRSA.	Suitable habitat for the species is present within the BRSA within open coastal sage scrub and open chaparral habitats, vernal pool complexes on MCAS Miramar, and grasslands. All of the BRSA within MCAS Miramar overlaps the area where the USFWS requires surveys for this species. This species was not observed during protocol-level surveys conducted in the spring of 2015, nor has the USMC documented this species within MCAS Miramar in its INRMP (USMC 2014). However, no surveys were conducted within suitable habitat on 19 acres within the Elliot Field Station due to access restrictions. Surveys on this area will be conducted prior to construction of the Proposed Project. <b>Moderate Potential</b>

<sup>17</sup> Explanation of state and federal listing status:

Federal listing codes:

- FE: Federally Endangered Species
- FT: Federally Threatened Species
- FC: Federal Candidate for Listing
- DPS: Distinct Population Segment
- BGEPA: Bald and Golden Eagle Protection Act

California listing codes:

- CE: State-listed as Endangered
- CT: State-listed as Threatened
- CC: State Candidate for Listing
- FP: Fully Protected Species
- SSC: Species of Special Concern

<sup>18</sup> Recent is defined as less than 30 years ago, or since 1985.

Species Name	Listing Status <sup>17</sup>	Life History	Known Records	Potential to Occur
Riverside fairy shrimp ( <i>Streptocephalus woottoni</i> )	FE	The Riverside fairy shrimp is restricted to deep seasonal vernal pools, vernal pool-like ephemeral ponds, and stock ponds and other human-modified depressions. It has a relatively long maturation time. Riverside fairy shrimp prefer warm-water pools that have low to moderate dissolved solids, are less predictable, and remain filled for extended periods of time. It inhabits deeper vernal pools, which hold water for a longer duration. This species ranges from Ventura County to Baja California, Mexico and can be found in annual grassland, chaparral, or coastal sage scrub along coastal mesas or within valley depressions.	One recent CNDDDB occurrence of this species is recorded within one mile of the BRSA. Four recent CNDDDB records are documented within five miles of the BRSA; however, two of these may be extirpated.	Suitable habitat for the species is present in the vernal pools along the aqueduct road on MCAS Miramar. San Diego fairy shrimp has been documented within vernal pool complexes on MCAS Miramar within the same geographic area as the BRSA. As a result, the presence of this species is presumed within the vernal pool complexes on MCAS Miramar within the BRSA. No other vernal pools are present within the BRSA. <b>Presumed present</b>
San Diego fairy shrimp ( <i>Branchinecta sandiegonensis</i> )	FE	The San Diego fairy shrimp inhabits fresh or alkaline vernal pools, potholes, and other ephemeral pools. The range of this species extends from coastal Orange and San Diego counties into northwestern Baja California, Mexico. This species can be found in shallow pools ranging in depth from two to 12 inches, and is often found in vernal pool complexes that may be hydrologically connected.	Three recent <sup>19</sup> CNDDDB occurrences of this species are recorded within 0.25 mile of the BRSA. Five recent occurrences are also recorded within one mile of the BRSA.	Suitable habitat for the species is present in the vernal pools along the aqueduct road on MCAS Miramar. Riverside fairy shrimp has been documented within vernal pool complexes on MCAS Miramar within the same geographic area as the BRSA. As a result, the presence of this species is presumed within the vernal pool complexes on MCAS Miramar within the BRSA. No other vernal pools are present within the BRSA. <b>Presumed present</b>
<b>Fishes</b>				
Arroyo chub ( <i>Gila orcuttii</i> )	SSC	The arroyo chub is a small fish found in coastal freshwater streams and rivers in Southern California. This species occurs in Los Angeles, Orange, and San Diego counties, but has also been introduced into several rivers and streams in Southern California, including as far north as the City of San Luis Obispo and to the east within the Mojave River watershed. This species prefers slow-moving water in streams and rivers with mud or sand substrates and water depths of at least 15 inches; however, some individuals have been found in areas with gravel or boulder substrates as well.	Four recent CNDDDB occurrences are recorded within five miles of the BRSA, all within the Santa Margarita River watershed, including within Rainbow Creek, which is approximately five miles downstream of the BRSA. The remaining records are within the Santa Margarita River.	Rainbow Creek within the BRSA appears to be an intermittent or perennial drainage with a depth of approximately 12 inches observed in the spring of 2015, which is less than drainages where this species typically occurs. In addition, this species has not been observed this far upstream in Rainbow Creek. As a result, this stretch of Rainbow Creek has a low potential for arroyo chub. It is not expected to occur within any of the other perennial drainages within the BRSA. <b>Low Potential</b>
<b>Amphibians</b>				
Arroyo toad ( <i>Anaxyrus californicus</i> )	FE SSC	Arroyo toad ranges coastally between Monterey County and Baja California, Mexico and inhabits sandy riverbanks, washes, and arroyos, especially in riparian areas. Habitat may include mule fat ( <i>Baccharis salicifolia</i> ), willows, cottonwood ( <i>Populus</i> spp.), sycamores, and/or coast live oak. Breeding takes place in the spring or summer, primarily after rain, and adults then disperse onto adjacent uplands.	Six recent CNDDDB occurrences are recorded within five miles of the BRSA, including two within 0.25 mile of the San Luis Rey River watershed.	Potential habitat for this species occurs within the BRSA in the San Luis Rey River and tributaries, as well as within the San Dieguito River/Lake Hodges and its associated tributaries. Surveys conducted in 2015 did not result in any observation of arroyo toad individuals, but two drainages within the BRSA will be surveyed again during a wetter rain year to confirm absence of arroyo toad. <b>Moderate Potential</b>

<sup>19</sup> Recent is defined as less than 30 years ago, or since 1985.

Species Name	Listing Status <sup>17</sup>	Life History	Known Records	Potential to Occur
Western spadefoot ( <i>Spea hammondi</i> )	SSC	Western spadefoot ranges throughout the Central Valley and adjacent foothills of California. In the Coast Ranges, it is found from Santa Barbara County south to the U.S.-Mexico border. This species prefers areas of open vegetation and short grasses with sandy or gravelly soils. The western spadefoot frequents washes, floodplains of rivers, and alkali flats, but can be found in foothills and mountains. Throughout most of the year, this species resides in underground burrows. Breeding occurs in shallow, temporary pools formed by heavy winter rains that are void of bullfrogs ( <i>Rana catesbeiana</i> ), fish, and crayfish.	Three recent CNDDDB occurrences are recorded within 0.25 mile of the BRSA. In addition, three recent occurrences are recorded within one mile of the BRSA.	Suitable habitat for this species is present along MCAS Miramar and in various drainages throughout the northern urban section of the BRSA. Western spadefoot has been documented within MCAS Miramar. As a result, the presence of this species is presumed within the BRSA in drainages on MCAS Miramar; Carroll Canyon Creek; the South Fork of Moosa Creek; and Keys Creek, a tributary to the San Luis Rey River. <b>Presumed present</b>
<b>Reptiles</b>				
Belding's orange-throated whiptail ( <i>Aspidoscelis hyperythra beldingi</i> )	SSC	Belding's orange-throated whiptail occurs in Orange, Riverside, and San Diego counties west of the crest of the Peninsular Ranges. It also occurs in southwestern San Bernardino County and extends to the tip of Baja California, Mexico. This species inhabits washes, streams, and sandy areas with rocks, patches of brush, and often dry or rocky hillsides. These lizards can also be found along ridges and valleys that support coastal sage scrub, open chaparral, dry washes, and sparse grasslands mixed with sage scrub species. Breeding takes place in summer, and eggs are usually laid between June and July.	Six recent CNDDDB occurrences of this species have been recorded within 0.25 mile of the BRSA.	Suitable habitat for this species occurs throughout much of the BRSA. Belding's orange-throated whiptails were observed within the BRSA adjacent to Moosa Creek and two tributaries to Moosa Creek; in upland habitats just north of the San Dieguito River/Lake Hodges; and along Pomerado Road within the BRSA. This species also has been detected on MCAS Miramar in the past, although not necessarily within the BRSA. <b>Present</b>
Coast horned lizard (=Blainville's horned lizard) ( <i>Phrynosoma blainvillii</i> )	SSC	Coast horned lizard is found in the Sierra Nevada foothills from Butte County to Kern County and throughout the central and southern California coast. It occurs in valley-foothill hardwood, conifer woodland, riparian woodland, pine-cypress woodland, juniper woodland, and annual grassland habitats. This species inhabits open country, especially sandy areas, washes, floodplains, and wind-blown deposits. It is typically found at elevations up to 8,000 feet.	Two recent CNDDDB occurrences have been recorded within 0.25 mile of the BRSA and five recent occurrences have been recorded within one mile of the BRSA.	Habitat for this species is present within the BRSA, including in MCAS Miramar and in scattered locations throughout the urban section of the BRSA. This species was incidentally detected on MCAS Miramar within the BRSA during special-status plant surveys in the spring of 2015. <b>Present</b>
Coast patch-nosed snake ( <i>Salvadora hexalepis virgulata</i> )	SSC	Coast patch-nosed snake inhabits brushy areas and chaparral in canyons, rocky hillsides, and plains in coastal Southern California. Distribution begins from the northern Carrizo Plains in San Luis Obispo County, south through the coastal zone, and extends into Baja California Norte, Mexico. This species actively forages during the day and requires loose soil and small mammal burrows for refuge and breeding.	Two recent CNDDDB occurrences have been recorded within five miles of the BRSA.	Brushy areas and rocky hillsides are present in multiple locations within the BRSA, which provide refuge and foraging habitat for this species. This species also has been detected on MCAS Miramar in the past, although not necessarily within the BRSA. <b>High Potential</b>
Coronado skink ( <i>Plestiodon skiltonianus interparietalis</i> )	SSC	The Coronado skink is found throughout most of San Diego County and its distribution continues south into Baja California Norte, Mexico. This species frequents grassland, juniper-sage woodland, chaparral, and open pine-oak forests. Rocky habitat near streams with ample plant cover is preferred, but this species can also be found on dry hillsides far from water. Eggs are laid from June to July and are tended by the female.	Two recent CNDDDB occurrences have been recorded within 0.25 mile of the BRSA, and one occurrence has been recorded within one mile.	Habitat for this species is present within the BRSA, including grasslands, rocky areas, and streams. This species also has been detected on MCAS Miramar in the past, although not necessarily within the BRSA. <b>High Potential</b>
Red diamond rattlesnake ( <i>Crotalus ruber</i> )	SSC	The red diamond rattlesnake ranges along coastal San Diego County to the eastern slopes of the mountains, north through western Riverside County, and into the southernmost portion of San Bernardino County. Habitat includes woodland, chaparral, and arid desert in rocky areas and dense vegetation from sea level to 3,000 feet in elevation. This species emerges and breeds in the spring, is most active from March to June, and gives live-birth from mid-August to October.	Four recent CNDDDB occurrences are recorded within 0.25 mile of the BRSA; however, one is considered extirpated.	Suitable habitat for this species is present throughout the BRSA in the form of coast live oak woodlands and chaparral. This species also has been detected on MCAS Miramar in the past, although not necessarily within the BRSA. <b>High Potential</b>

Species Name	Listing Status <sup>17</sup>	Life History	Known Records	Potential to Occur
Two-striped gartersnake ( <i>Thamnophis hammondi</i> )	SSC	The two-striped gartersnake ranges from the southeastern slope of the Diablo Range and the Salinas Valley south along the South Coast and Transverse ranges to the U.S.-Mexico border; it also occurs on Santa Catalina Island. This species is highly aquatic and forages primarily in and along streams. During the night, refuge is sought in small mammal burrows, crevices, or under surface objects. In winter, this species may retreat to upland habitat.	One recent CNDDDB occurrence is recorded within one mile of the BRSA within MCAS Miramar, and three recent CNDDDB occurrences are recorded within five miles of the BRSA.	Suitable habitat for the species is present within the BRSA primarily along named rivers and drainages (i.e., Rainbow Creek, the San Luis Rey River, Escondido Creek, the San Dieguito River/Lake Hodges, Beeler Creek, and Poway Creek). This species also has been detected on MCAS Miramar in the past, although not necessarily within the BRSA. <b>Moderate Potential</b>
Silvery legless lizard ( <i>Anniella pulchra pulchra</i> )	SSC	The silvery legless lizard ranges from Contra Costa County, south through the Coast Ranges and into Baja California, Mexico. Populations also exist in the San Joaquin Valley and into the mountains of Southern California. This is a fossorial species that buries itself in the top layer of sand or soil, and forages at the base of shrubs or other vegetation on the surface or just below the surface in leaf litter or sandy soil.	No CNDDDB occurrences have been recorded within five miles of the BRSA, but this species has been observed within MCAS Miramar.	Suitable habitat for this species occurs throughout much of the BRSA. This species also has been detected on MCAS Miramar in the past, although not necessarily within the BRSA. <b>High Potential</b>
Western pond turtle ( <i>Actinemys marmorata</i> )	SSC	This species is found throughout California west of the Sierra-Cascade crest. It is absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries. This species occurs in aquatic habitat with permanent or nearly permanent water in a wide variety of habitat types. Western pond turtle requires basking sites within aquatic habitat, such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks. This species is typically found at elevations below 4,700 feet, but has been documented above 5,000 feet.	Four recent CNDDDB occurrences of the species have been recorded within five miles of the BRSA.	Habitat for this species in the form of perennial water or ponds with basking sites occurs in multiple areas within the BRSA, notably within named rivers and drainages (i.e., Rainbow Creek, the San Luis Rey River, Escondido Creek, the San Dieguito River/Lake Hodges, Beeler Creek, and Poway Creek). This species was detected at the edge of the BRSA within the pond associated with the All Seasons Recreational Vehicle Park. This species also has been detected on MCAS Miramar in the past, although not necessarily within the BRSA. <b>Present</b>
<b>Birds</b>				
Coastal cactus wren ( <i>Campylorhynchus brunneicapillus sandiegensis</i> )	SSC	The coastal cactus wren is limited in range to southern Orange County, the coastal lowlands of San Diego County, and the extreme northwestern edge of Baja California, Mexico. This species is found in arid and semiarid regions where it nests in areas containing thickets of chollas ( <i>Cylindropuntia</i> spp.) or prickly-pear cacti ( <i>Opuntia</i> spp.) that are tall enough to support and protect their nests; occasionally they utilize spiny ornamental plants as well. Coastal cactus wrens nest almost exclusively in prickly pear ( <i>O. oricola</i> ) and coastal cholla ( <i>Cylindropuntia prolifera</i> ). Typically, associated habitat includes coastal sage scrub at elevations below 1,500 feet where cacti are prominent.	Two recent CNDDDB occurrences of this species are recorded within 0.25 mile of the BRSA, and five recent occurrences are recorded within one mile of the BRSA.	Within the BRSA, one small stand of prickly pear was observed in association with a disturbed coastal sage scrub stand. The prickly pear individuals in this area were observed at approximately 25-percent relative cover, and therefore the prickly pear is not sufficiently dense to support high-quality nesting habitat for this species. Another small isolated stand of coastal sage scrub habitat dominated by cane cholla ( <i>Cylindropuntia californica</i> var. <i>parkeri</i> ) was observed. Collectively, these two areas dominated by either prickly pear or cane cholla comprise a total of 0.6 acre, all of which is outside of the Proposed Project impact areas and is exclusively within the BRSA survey buffer. Coastal cactus wren territories are generally larger than one acre, and no other suitable habitat was observed in the vicinity of either of these potentially suitable habitat stands. As a result, there is a low potential for this species to occur within the BRSA. <b>Nesting: Low Potential</b> <b>Foraging: Low Potential</b>

Species Name	Listing Status <sup>17</sup>	Life History	Known Records	Potential to Occur
Coastal California gnatcatcher <i>(Polioptila californica californica)</i>	FT SSC	Coastal California gnatcatcher is an obligate, permanent resident of coastal sage scrub vegetation. It makes limited use of adjacent habitats outside of the breeding season. The species typically occurs in areas dominated by California sagebrush and California buckwheat. The species is restricted to elevations from sea level to 2,000 feet. Coastal California gnatcatcher breeds from February to late August, but most of the breeding occurs between mid-March and mid-May.	Twenty recent CNDDDB occurrences of this species are recorded within 0.25 mile of the BRSA.	Coastal California gnatcatchers were observed foraging and breeding within the BRSA during the 2015 protocol surveys for this species in multiple coastal sage scrub stands. MCAS Miramar representatives have also documented this species at multiple locations within 0.25 mile of the BRSA during the 2013 surveys for this species. <b>Nesting: Present</b> <b>Foraging: Present</b>
Golden eagle <i>(Aquila chrysaetos)</i>	BGEPA FP	The distribution of golden eagle ranges from Mexico to Alaska. In the western U.S., this species generally occurs in open country, prairies, tundra, open coniferous forest, and barren areas, especially in hilly or mountainous regions. Up to 90 percent of its prey consists of rodents and rabbits, but it also consumes other mammals, birds, amphibians, fish, and reptiles. Golden eagle typically nests in high locations and utilizes cliffs with overhanging ledges and large trees for cover. This species breeds from late January through August, with a peak in March through July.	Two recent CNDDDB occurrences for this species are recorded within five miles of the BRSA.	The northern portion of the BRSA does contain high cliffs and hilly habitat, but is limited in size and scale such that breeding golden eagles are not expected to occur within the BRSA. Foraging habitat is present within large stands of native habitats throughout the BRSA, such as on MCAS Miramar. <b>Nesting: Low Potential</b> <b>Foraging: Moderate Potential</b>
Grasshopper sparrow <i>(Ammodramus savannarum)</i>	SSC	Grasshopper sparrow occurs in California primarily as a summer resident from March to September, but can sometimes be found in winter primarily on the coastal slope of Southern California. Short to middle-height and moderately open grasslands are preferred, with scattered shrubs, such as California buckwheat or California sagebrush. This species is usually absent from areas with dense scrub or trees present, and is usually found in larger tracts of habitat, rather than small, isolated areas. Nests are built on the ground at the base of grass clumps, and pairs can raise two broods per season.	No CNDDDB occurrences are recorded within five miles of the BRSA. However, this species has been observed within MCAS Miramar in the past.	Suitable habitat for the species is present within the BRSA in open coastal sage scrub communities and grasslands, which occur throughout the BRSA. This species has been detected on MCAS Miramar, not necessarily within the BRSA. <b>Nesting: Moderate Potential</b> <b>Foraging: Moderate Potential</b>
Least Bell's vireo <i>(Vireo bellii pusillus)</i>	FE CE	Least Bell's vireo is a rare, summer visitor in California that ranges from sea level in coastal areas to 1,500 feet in elevation in the interior areas. Least Bell's vireo breeds in willow riparian thickets with good overstory and understory vegetation, preferably where flowing water is present. This species typically inhabits structurally diverse woodlands along watercourses, including oak woodlands, mule fat scrub, and cottonwood-willow forests. During the breeding season, this species may forage in adjacent upland habitats. Breeding typically occurs from late March to late September.	Five recent CNDDDB occurrences of this species are recorded within 0.25 mile of the BRSA.	Suitable riparian habitat is present within the BRSA, most notably within named rivers and drainages (i.e., Rainbow Creek, the San Luis Rey River, Escondido Creek, the San Dieguito River/Lake Hodges, Beeler Creek, and Poway Creek). This species was observed foraging and breeding within the BRSA in multiple riparian systems. This species has also been detected on MCAS Miramar in the past, including nesting and foraging observations in 2011 from San Clemente Canyon where it crosses the BRSA. This species was also observed foraging within the riparian system at the far southern end of the BRSA on MCAS Miramar (i.e., Elanus Canyon) in 2011. <b>Nesting: Present</b> <b>Foraging: Present</b>
Least bittern <i>(Ixobrychus exilis hesperis)</i>	SSC	The least bittern is a solitary and secretive bird that resides and breeds in freshwater or brackish marshes with tall emergent vegetation. The breeding range for this species is scattered throughout California. Though many migrate during winter to the neotropics, some remain in southern regions, including Southern California. Resident birds also exist on the coastal slope of Southern California, in the Salton Sea area, and along the lower Colorado River.	One recent CNDDDB occurrence for this species is recorded within 0.25 mile of the BRSA. In addition, one occurrence is recorded within five miles of the BRSA.	Suitable habitat for this species is present in the form of freshwater marsh and cismontane alkali marsh in scattered locations throughout the BRSA, most notably within named rivers and drainages (i.e., Rainbow Creek, the San Luis Rey River, Escondido Creek, the San Dieguito River/Lake Hodges, Beeler Creek, and Poway Creek). <b>Nesting: High Potential</b> <b>Foraging: High Potential</b>

Species Name	Listing Status <sup>17</sup>	Life History	Known Records	Potential to Occur
Northern harrier ( <i>Circus cyaneus</i> )	SSC	The northern harrier occurs year-round in California from sea level to 9,000 feet in elevation. Breeding and foraging habitats include a variety of treeless, open areas that provide adequate vegetation for cover. Suitable habitat includes freshwater, brackish and saltwater marshes, wet meadows, annual and perennial grasslands (including those with vernal pools), some croplands, sagebrush flats, and desert sinks. Nests are usually located within patches of dense, tall vegetation in undisturbed areas, and the breeding season extends from March through August.	One recent CNDDDB occurrence of this species is recorded within five miles of the BRSA.	Suitable foraging and breeding habitat for the species is present within scattered patches in the BRSA, primarily within the northern portion of the BRSA around the communities of Rainbow and Fallbrook, and on MCAS Miramar. One individual northern harrier was observed foraging near the intersection of the aqueduct road and the paved Green Farm Road on MCAS Miramar in April 2015. <b>Nesting: High Potential</b> <b>Foraging: Present</b>
Southwestern willow flycatcher ( <i>Empidonax traillii extimus</i> )	FE CE	Southwestern willow flycatcher winters in Mexico, Central America, and northern South America, and breeds in Southern California, Arizona, New Mexico, and the southern portions of Nevada, Utah, and Colorado. Riparian habitat is required for breeding, and nest sites usually occur in areas with dense vegetation and streams or wetland areas. Breeding takes place from mid-May to late August.	Five recent CNDDDB occurrences of this species are recorded within five miles of the BRSA.	Suitable riparian habitat is present within the BRSA, most notably within named rivers and drainages (i.e., Rainbow Creek, the San Luis Rey River, Escondido Creek, the San Dieguito River/Lake Hodges, Beeler Creek, and Poway Creek) and within some of the larger unnamed intermittent drainages. Protocol-level surveys for this species in 2015 resulted in a single observation of a migrant willow flycatcher, although the subspecies could not be confirmed due to similarities between subspecies. Breeding was not documented within the BRSA, but moderate potential for breeding southwestern willow flycatcher exists within the BRSA within larger riparian systems, such as the San Dieguito River/Lake Hodges. <b>Nesting: Moderate Potential</b> <b>Foraging: Presumed Present</b>
Swainson's hawk ( <i>Buteo swainsoni</i> )	CT	Swainson's hawk breeds in the western U.S. and Canada and winters in South America. This species breeds in trees within mature riparian forests, oak groves, and in mature roadside trees in close proximity to large, open expanses of suitable foraging habitat. Suitable foraging habitat includes native grassland or lightly grazed dryland pasture, alfalfa and other hay crops, and row crops. Swainson's hawk does not forage in vineyards, orchards, or cotton fields because prey is not available in these areas during most of the breeding season.	Five CNDDDB occurrences for this species are recorded within five miles of the BRSA; however, the most recent occurrence was recorded in 1933. All five of these occurrences are listed as possibly extirpated.	Marginally suitable habitat is present throughout many areas of the BRSA. Swainson's hawk no longer nests in Southern California. Over most of San Diego County, Swainson's hawk is now a rare fall migrant. <b>Nesting: No Potential</b> <b>Foraging: Low Potential</b>
Western burrowing owl ( <i>Athene cunicularia hypugaea</i> )	SSC	Western burrowing owl lives in dry, open areas with no trees and short grass or vegetation. This species is a resident throughout the year in parts of California, but usually migrates between nesting and wintering sites. Refuge and nests are primarily within burrows of the California ground squirrel but other retreats are also used. Elevation ranges from sea level to 5,000 feet, and breeding takes place from March through August.	Four recent CNDDDB occurrences of this species are recorded within five miles of the BRSA.	California ground squirrel burrows were observed in multiple locations within the BRSA in or near grassland or other open areas, primarily in the northern portion of the BRSA. Burrows and open areas provide both nesting and foraging opportunities for the western burrowing owl. This species has also been documented on MCAS Miramar during surveys conducted in the past, not necessarily within the BRSA. <b>Nesting: Moderate Potential</b> <b>Foraging: Moderate Potential</b>
Western yellow-billed cuckoo ( <i>Coccyzus americanus occidentalis</i> )	FT CE	Western yellow-billed cuckoo arrives in California as early as May and departs by mid-September. This species prefers to nest in open woodlands with clearings and dense, scrubby vegetation, often along water. Breeding habitat generally consists of mixed old-growth riparian forests vegetated by willow and cottonwood. Breeding generally occurs in the summer between May and August at elevations below 2,500 feet.	One CNDDDB occurrence for this species is recorded within five miles of the BRSA; however, it was recorded in 1950.	Although suitable habitat for this species is present within larger named drainages within the BRSA (e.g., the San Luis Rey River), the yellow-billed cuckoo is now only a rare and sporadic summer visitor to San Diego County, and is not known to have nested for decades. <b>Nesting: No Potential</b> <b>Foraging: No Potential</b>

Species Name	Listing Status <sup>17</sup>	Life History	Known Records	Potential to Occur
White-tailed kite <i>(Elanus leucurus)</i>	FP	In California, the white-tailed kite may remain resident in coastal and valley lowlands, but is rarely found away from agricultural areas. This species is not considered migratory, but may become nomadic in response to prey abundance. Foraging takes place in open grasslands, meadows, farmlands, and emergent wetlands. Nests are constructed in dense oak, willow, or other tree and shrub stands located near open foraging.	Two recent CNDDDB occurrences for this species are recorded within five miles of the BRSA.	Suitable habitat for nesting and foraging is present within the BRSA, primarily within the northern portion of the BRSA around the communities of Rainbow and Fallbrook where agricultural operations, as well as potential nest sites (e.g., dense oak, willow, or other trees), occur. This species was observed foraging within southern willow scrub stands associated with Lake Hodges. <b>Nesting: High Potential</b> <b>Foraging: Present</b>
Yellow warbler <i>(Setophaga petechia)</i>	SSC	The yellow warbler occurs as a migrant and summer resident in California from late March through early October and breeds from April to late July. It is absent from most of the Mojave Desert and all of the Colorado Desert, with breeding limits at 7,000 to 8,500 feet. This species generally occupies riparian vegetation in close proximity to water along streams and wet meadows. Yellow warblers are often associated with willow and cottonwood trees in riparian areas. This species has shown a high degree of site fidelity, returning to the same breeding grounds or territory year after year.	One recent CNDDDB occurrence of this species is recorded within 0.25 mile of the BRSA.	Suitable riparian habitat is present in scattered locations throughout the BRSA, most notably within named rivers and drainages (i.e., Rainbow Creek, the San Luis Rey River, Escondido Creek, the San Dieguito River/Lake Hodges, Beeler Creek, and Poway Creek). This species was observed within the BRSA in an unnamed tributary to Rainbow Creek; within the San Luis Rey River; within Moosa Creek and an associated tributary; within the riparian area north of the San Dieguito River/Lake Hodges area along Bear Valley Parkway; and within the riparian habitat associated with the San Dieguito River/Lake Hodges. This species has also been detected on MCAS Miramar surveys, although not necessarily within the BRSA. <b>Nesting: Presumed Present</b> <b>Foraging: Present</b>
Yellow-breasted chat <i>(Icteria virens)</i>	SSC	The yellow-breasted chat occupies early successional riparian habitats with a well-developed shrub layer and an open canopy. This species is widely distributed in California, but is now rare or absent from much of the Central Valley and parts of the southern coastal slope. It is generally present during migration, and residency occurs from late March to late September. Breeding takes place from late April through early August.	One recent CNDDDB occurrence of this species is recorded within 0.25 mile of the BRSA, and one is recorded within one mile.	Suitable riparian habitat with an associated shrub layer is present within the BRSA, most notably within named rivers and drainages (i.e., the Rainbow Creek, the San Luis Rey River, Escondido Creek, the San Dieguito River/Lake Hodges, Beeler Creek, and Poway Creek). This species was observed within the BRSA within the San Dieguito River/Lake Hodges area, and to the north within riparian habitat associated with an unnamed tributary to the San Dieguito River located parallel to Bear Valley Parkway. Yellow-breasted chat was also detected on MCAS Miramar during surveys, although not necessarily within the BRSA. <b>Nesting: Presumed Present</b> <b>Foraging: Present</b>
<b>Mammals</b>				
American badger <i>(Taxidea taxus)</i>	SSC	American badger has an extensive range throughout Canada, the U.S., and Mexico, and occurs throughout California. It is found primarily in grasslands, parklands, farms, and other treeless areas with friable soil and a supply of rodent prey. The species is also found in forest glades and meadows, marshes, brushy areas, hot deserts, and mountain meadows. It is sometimes found at elevations up to 12,000 feet, but is usually found in elevations lower and warmer than those characterized by coniferous forests. Burrows have low, elliptical entrances that are usually eight to 12 inches wide. Breeding generally occurs in the summer or fall, but implantation is delayed so young are born between March and April.	Three CNDDDB occurrences for this species are recorded within five miles of the BRSA, including one within 0.25 mile; however, no dates are available. The record within 0.25 mile is from the Escondido area and is likely extirpated. The other two records are from west of Interstate 15 in the Deer Spring Road area, north of the City of Escondido. It is estimated that these sites were visited after 1900.	Open areas of grasslands, parklands, farms, and other treeless areas and brush are present within the BRSA, which may provide habitat for this species. However, this species is very scarce in San Diego County and has never been documented on MCAS Miramar, and the CNDDDB records are presumed to be older than 30 years because the dates are unavailable for these records. <b>Low Potential</b>

Species Name	Listing Status <sup>17</sup>	Life History	Known Records	Potential to Occur
Big free-tailed bat ( <i>Nyctinomops macrotis</i> )	SSC	The big free-tailed bat is primarily known from urban areas of San Diego County, but is found in New Mexico, Arizona, and Texas up to 8,000 feet in elevation. Buildings, caves, and crevices in high cliffs or rocky outcrops are used for roosting. This species inhabits arid hilly regions and lowlands up to 6,000 feet, and young are born in June and July.	Four recent CNDDDB occurrences of this species are recorded within five miles of the BRSA, including one within 0.25 mile.	Foraging habitat occurs within the BRSA in multiple locations. Rocky outcrops are located within Kit Carson Park, and buildings are all present within the BRSA—all of which may provide additional roosting sites for this species. <b>High Potential</b>
Dulzura pocket mouse ( <i>Chaetodipus californicus femoralis</i> )	SSC	This species inhabits a variety of habitats, including coastal scrub, chaparral, open scrub oak, and grasslands in San Diego County. This mouse eats the seeds of grasses and shrubs, such as sage ( <i>Salvia</i> spp.).	Five recent CNDDDB occurrences have been recorded within five miles of the BRSA.	Suitable habitat is present within the BRSA, and this species has been documented within five miles of the BRSA. This species has been detected on MCAS Miramar in the past, although not necessarily within the BRSA. <b>Moderate Potential</b>
Los Angeles pocket mouse ( <i>Perognathus longimembris brevinasus</i> )	SSC	The Los Angeles pocket mouse historically ranged from the San Fernando Valley east toward the City of San Bernardino and south into western Riverside County. Their current range is not well defined as because this species is difficult to detect due to its seasonal emergence patterns. Hibernation occurs from October to February, and animals become torpid when deprived of food for more than a day. Habitat includes lower-elevation grassland, alluvial sage scrub, and coastal sage scrub.	One recent CNDDDB occurrence of this species is recorded within five miles of the BRSA, but it is within Riverside County. Los Angeles pocket mouse is known only from the Warner Valley area in San Diego County.	Grassland and coastal sage scrub are present within the BRSA, but this species' geographic distribution in San Diego County does not overlap with the BRSA. <b>Low Potential</b>
Mexican long-tongued bat ( <i>Choeronycteris mexicana</i> )	SSC	The Mexican long-tongued bat is known only from San Diego County as a summer resident, with records largely from urban locations in the City of San Diego. In New Mexico and Arizona, they occupy desert and montane riparian, succulent scrub, desert scrub, and pinyon-juniper habitats from sea level to 6,000 feet. This species feeds primarily on nectar, pollen, and fruit, and it uses mines, caves, and buildings for roosting and breeding. Seasonal movements follow the flowering period of food plants, particularly agave and yucca; this species will also feed from hummingbird feeders in urban areas.	No recent CNDDDB occurrences of this species are recorded within five miles of the BRSA. Two CNDDDB occurrences were recorded in 1981, including one recorded within one mile and one recorded within five miles of the BRSA.	Because buildings are present throughout much of the BRSA, and this species has been known to use buildings for both roosting and breeding, suitable habitat is present within the BRSA. However, all CNDDDB occurrences of this species are older than 30 years. <b>Low Potential</b>
Northwestern San Diego pocket mouse ( <i>Chaetodipus fallax fallax</i> )	SSC	The northwestern San Diego pocket mouse is found in Orange County and arid, coastal habitats of San Diego, Riverside, and San Bernardino counties. This species inhabits sagebrush, desert scrub, chaparral, pinyon-juniper, and annual grasslands, as is usually associated with sandy or gravelly substrate.	One recent CNDDDB occurrence of this species has been recorded within one mile of the BRSA, and nine recent occurrences have been recorded within five miles of the BRSA.	Suitable habitat for this species in the form of coastal sage scrub, desert scrub, chaparral, and annual non-native grassland is present within the BRSA. This species was also detected on MCAS Miramar in the past during surveys (although not necessarily within the BRSA) conducted in 2000 through their natural resources program. <b>Moderate Potential</b>
Pallid bat ( <i>Antrozous pallidus</i> )	SSC	The pallid bat is found throughout low elevations in California and is absent from the high Sierra Nevada from Shasta to Kern counties, and is also absent from Del Norte and western Siskiyou counties to northern Mendocino County. Occupied habitats include grasslands, shrublands, woodlands, and forests from sea level to mixed conifers. This species is a yearlong resident in California and is most common in open, dry locations with rocky areas, caves, or mines for roosting. Insects form the diet and are usually gleaned and frequently taken on the ground as this species forages from approximately 1.5 to eight feet above the ground. Mating takes place from late October to February, and young are born from April to July.	No recent CNDDDB occurrences of this species are recorded within five miles of the BRSA. The last occurrence was recorded within 0.25 mile of the BRSA during 1968.	Suitable habitat does exist within the BRSA for this species, including cliffs and rocky areas, as well as grasslands, shrub lands, and woodland. However, all CNDDDB occurrences of this species are older than 30 years. <b>Low Potential</b>



Species Name	Listing Status <sup>17</sup>	Life History	Known Records	Potential to Occur
Pocketed free-tailed bat <i>(Nyctinomops femorosaccus)</i>	SSC	The pocketed free-tailed bat ranges from Riverside, San Diego, and Imperial counties in California, but is more common in Mexico. Habitat includes desert riparian, alkali, and succulent scrub, pinyon-juniper woodlands, Joshua tree woodlands, and palm oasis. This species prefers rock crevices in cliffs as roosting sites, but may also be found in caverns or buildings. Roosts are usually made up of small groups, and this species is likely active year-round, except during rain events. Young are born in June and July, peaking in late June.	Five recent CNDDDB occurrences of this species are recorded within five miles of the BRSA, including one within 0.25 mile.	Habitat for this species in the form of riparian habitats, palm trees, cliffs, and alkali scrub (i.e., tamarisk scrub and cismontane alkali marsh) is present within the BRSA. This species has also been detected on MCAS Miramar in the past, but not necessarily within the BRSA. <b>High Potential</b>
San Diego black-tailed jackrabbit <i>(Lepus californicus bennettii)</i>	SSC	San Diego black-tailed jackrabbit generally occurs in open areas or semi-open country with scattered low shrubs and is confined to coastal Southern California. It typically occurs in grasslands, agricultural fields, or sparse coastal sage scrub, at elevations ranging from sea level to 6,000 feet. It is generally not found in chaparral or woodland habitats. The length of the breeding season depends on the duration and severity of winter, but within this range, the San Diego black-tailed jackrabbit can usually breed throughout the year.	One recent CNDDDB occurrence of this species is recorded within 0.25 mile of the BRSA and one is recorded within one mile of the BRSA.	This species was observed in multiple locations within the BRSA on MCAS Miramar in late 2014 and early 2015 during within the BRSA during habitat assessments and drainage mapping. <b>Present</b>
San Diego desert woodrat <i>(Neotoma lepida intermedia)</i>	SSC	The San Diego desert woodrat inhabits areas with oak, scrub oak, and chaparral. This species occurs in coastal California from the City of San Luis Obispo south through the Transverse and Peninsular ranges into Baja California, Mexico. Large rocks or rocky outcrops with succulents are preferred for cover. Its diet consists of fruit, grain, and other vegetation, including cactus.	One recent CNDDDB occurrence has been recorded within 0.25 mile of the BRSA, and three recent occurrences have been recorded within one mile of the BRSA.	Habitat is present for this species within the BRSA in coast live oak woodlands, and mixed chaparral throughout the BRSA. This species has been detected on MCAS Miramar in the past, although not necessarily within the BRSA. <b>High Potential</b>
Stephens' kangaroo rat <i>(Dipodomys stephensi)</i>	FE CT	Stephens' kangaroo rat is located in the San Jacinto Valley from Riverside County to San Diego County. This species generally occurs in both non-native annual and native perennial grasslands with sparse perennial vegetation, as well as in sparse coastal sage scrub and sagebrush communities with sparse (i.e., less than 30 percent) canopy coverage. This species is frequently found in close association with dirt roads, disturbed areas, and other sites with a high percentage of bare ground. In general, perennial shrub cover and dense grasses restrict the presence of this species. Burrowing takes place in firm soil that is not hard nor sandy, and this species may use abandoned pocket gopher ( <i>Thomomys bottae</i> ) burrows. The known range of this species is generally north of the Escondido area into Riverside County.	Eight recent CNDDDB occurrences of this species have been recorded within five miles of the BRSA.	Suitable habitat for this species is present within the BRSA in open coastal sage scrub, non-native grasslands, and disturbed areas. Many open coastal sage scrub and non-native grassland stands were densely vegetated with brome grasses at the time of the habitat assessment, reducing the likelihood for this species to occur there. This species also appears to require specific edaphic conditions that have not been confirmed within the BRSA. <b>Moderate Potential</b>
Townsend's big-eared bat <i>(Corynorhinus townsendii townsendii)</i>	CC/SSC	The Townsend's big-eared bat has a range throughout California, but is considered uncommon; it is most abundant in mesic habitats. These bats gather at hibernacula from October to April and mate from November to February; young are born in May and June. This species gleans moths and sometimes other soft-bodied prey from brush, trees, or along habitat edges. Caves, mines, tunnels, or man-made structures are used for roosting and are the most limiting factor for this species. The Townsend's big-eared bat is extremely sensitive to disturbance at roosts sites, which often causes abandonment. Separate sites may also be used for night, day, hibernation, and maternity roosts.	One recent CNDDDB occurrence of this species is recorded within five miles of the BRSA.	Suitable habitat exists within the BRSA for this species, including tunnels and large drainage culverts, some of which are in fairly undisturbed sites. <b>Moderate Potential</b>

Species Name	Listing Status <sup>17</sup>	Life History	Known Records	Potential to Occur
Western mastiff bat <i>(Eumops perotis californicus)</i>	SSC	Western mastiff bat is found in southeastern San Joaquin Valley and the Coastal Ranges from Monterey County to southern California and eastward to the Colorado Desert. Habitat is open and semi-arid to arid, woodland, coastal scrub, annual grasslands, palm oases, chaparral, desert scrub, and urban. This species is the largest native bat in the U.S. and requires tall roost sites, including cliff faces, tall trees, or tall buildings, which it drops from in order to take flight.	Five recent CNDDDB occurrences for this species are recorded within five miles of the BRSA.	Tall trees and tall buildings were observed in scattered locations throughout the BRSA. This species has been detected at MCAS Miramar in the past, not necessarily within the BRSA. <b>Moderate Potential</b>
Western red bat <i>(Lasiurus blossevillii)</i>	SSC	Western red bat occurs throughout the Central Valley and coastal California. The winter range includes western lowlands and coastal regions south of San Francisco Bay. This species roosts primarily in trees within forests and woodlands from sea level up through mixed conifer forests. Foraging occurs over grasslands, shrublands, open forests, and croplands. Water—in addition to the diet—is required, so this species is often associated with riparian or wetland habitat as well.	Two recent CNDDDB occurrences for this species are recorded within five miles of the BRSA.	Habitat for this species is present within the BRSA, most notably within named rivers and drainages (i.e., Rainbow Creek, the San Luis Rey River, Escondido Creek, the San Dieguito River/Lake Hodges, Beeler Creek, and Poway Creek) and other tributaries that provide water for this species. <b>Moderate Potential</b>
Western yellow bat <i>(Lasiurus xanthinus)</i>	SSC	Western yellow bat occurs in palm oases, but may also use ornamental palms in landscaping. Distribution is primarily within Mexico and Central America, with a range that extends into the southern portions of California and Arizona. This species appears to roost exclusively in skirts of palm trees and is limited in its distribution by the availability of palm habitat. Yellow bats likely do not hibernate, as activity has been observed year-round. Breeding is thought to occur from late April through July.	One recent CNDDDB occurrence of this species is recorded within 0.25 mile of the BRSA and one is recorded within one mile of the BRSA.	Palm trees are located throughout the BRSA, including within urban areas; therefore, roosting habitat is plentiful for this species. Foraging takes place within proximity to palm tree habitat as well. <b>High Potential</b>

Coastal California gnatcatcher and least Bell's vireo were also observed on MCAS Miramar during surveys conducted by the USMC. Locations of coastal California gnatcatchers on MCAS Miramar are provided in Attachment J: MCAS Miramar California Gnatcatcher 2013 Breeding Season Survey Areas. Least Bell's vireo locations within MCAS Miramar are shown in Attachment K: Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*) Surveys at Marine Corps Air Station Miramar 2011 Report.

The following federally or state-listed species were initially determined to have a moderate or high potential to be present within the BRSA, but have not been observed within the BRSA. Surveys for these species have either been completed in 2015, or will be conducted prior to the start of construction.

- Arroyo toad, an FE species, has the potential to occur within the BRSA in riparian and wetland habitats, primarily within the San Luis Rey River and associated tributaries. The arroyo toad has been documented within the San Luis Rey and associated tributaries in the past (CDFW 2015a), but outside of the BRSA. Surveys for this species were completed in June 2015. This species was not documented within the BRSA, but two surveyed drainages within the BRSA may still support arroyo toad during years with normal rainfall, as described in more detail in Attachment G: Arroyo Toad Survey Report. These two drainages will be surveyed prior to construction during a year with normal rainfall patterns.
- QCB, an FE species, has the potential to occur within open coastal sage scrub, open chaparral, grasslands, and herbaceous wetland/seep communities. Surveys for this species were conducted in the spring of 2015 within 141 acres on MCAS Miramar in accordance with the USFWS survey protocols (USFWS 2014b). Surveys were completed on May 6, 2015. No QCBs were observed during surveys in the spring of 2015.
- Stephens' kangaroo rat, an FE and CT species, has the potential to occur within the BRSA in open coastal sage scrub, non-native grasslands, and disturbed areas, primarily in areas north of the City of Escondido in accordance with its documented range. During the habitat assessment, areas within the BRSA were determined to potentially support Stephens' kangaroo rat, including within Laydown Yards #2, #3, #4, and #5. Surveys for this species will be conducted prior to construction in accordance with Applicants-Proposed Measure (APM-) BIO-12.

A detailed discussion regarding local populations, habitat requirements, and life history is provided in the following subsection for the wildlife species that are present, or have a high or moderate potential for occurring in the BRSA.

#### **5.4.0 Species Present or Presumed Present within the BRSA**

##### **Invertebrate Species**

##### ***San Diego Fairy Shrimp***

The San Diego fairy shrimp is an FE crustacean that inhabits fresh or alkaline vernal pools, potholes and other ephemerally inundated depressions. This species is generally restricted to

vernal pools in coastal Southern California and northwestern Baja California, Mexico. San Diego fairy shrimp are usually observed from January to March when seasonal rainfall forms vernal pools and initiates cyst (egg) hatching. They are usually restricted to vernal pools and other non-vegetated ephemeral basins two to 12 inches in depth.

San Diego fairy shrimp cysts require drying and re-wetting in order to hatch. They cannot hatch in perennial basins, where the cysts cannot dry out. Individuals hatch and mature within seven to 14 days of rainfall inundating vernal pools, depending on water temperature. These cysts are capable of withstanding temperature extremes and prolonged drying. When pools refill in the same or subsequent rainy seasons, only a portion of the cysts hatch; therefore, cyst “banks” develop in pool soils that are composed of cysts from several years of breeding. Because ephemeral pools commonly dry before all hatched individuals can reproduce, this partial hatching of cysts allows fairy shrimp to persist in these specialized habitats. San Diego fairy shrimp feed on algae, diatoms, and particulate organic matter. In turn, fairy shrimp provide an important food source for other wildlife such as birds and amphibians, which also utilize vernal pools for food, water, and breeding.

The BRSA crosses designated critical habitat for San Diego fairy shrimp<sup>20</sup> on MCAS Miramar, as depicted in Figure A-7: Designated Critical Habitat in Attachment A: Figures. Suitable habitat for this species is present in the vernal pools along the aqueduct road on MCAS Miramar and within the BRSA, but outside of the areas proposed for construction activities. Vernal pool habitat basins and their watersheds are considered Level 1 Management Areas (MAs) in the MCAS Miramar INRMP. These areas receive the highest conservation priority.

Additional areas of potential fairy shrimp habitat were also observed that did not meet the definition of a vernal pool due to the lack of vernal pool indicator species (e.g., woolly marbles). These potential fairy shrimp habitat areas clearly hold water for periods of time due to the presence of cracked soils and a characteristic “bathtub” ring around the perimeter of the ponded area where there is a distinct change in vegetation. These areas were observed to be holding water in March 2015, but were dry during special-status plant surveys in April 2015.

San Diego fairy shrimp is known to be present on MCAS Miramar (USMC 2014) in the same general area as the Proposed Project. As a result, the presence of this species is presumed both within the vernal pool complexes and the potential fairy shrimp habitat areas not meeting the definition of a vernal pool.

### ***Riverside Fairy Shrimp***

Riverside fairy shrimp is an FE crustacean species that is restricted to deep seasonal vernal pools, vernal pool-like ephemeral ponds, stock ponds and other human-modified depressions. This species has a relatively long maturation time compared to other fairy shrimp, thus requiring deeper pools that will remain inundated for nine to 10 weeks. With the exception of these habitat

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<sup>20</sup> Designated critical habitat for San Diego fairy shrimp is located within the BRSA on MCAS Miramar; however, the USFWS exempted areas within the boundaries of MCAS Miramar in its final rule (USFWS 2007) because it determined that these areas are exempt under Section 4(a)(3)(B)(i) of the FESA and that the INRMP at MCAS Miramar provides a benefit to San Diego fairy shrimp. As a result, MCAS Miramar lands are exempt from the revised final critical habitat for San Diego fairy shrimp.

and developmental differences, this species reproduces in the same way as described for the San Diego fairy shrimp, by way of forming cyst banks within the soils of ephemeral pools. Riverside fairy shrimp will not hatch in pools that receive cool waters from early winter rains, nor will they hatch in shallow pools.

This species ranges from Ventura County to Baja California, Mexico. One recent CNDDDB occurrence of this species is recorded within one mile of the BRSA. This species is documented from one complex on MCAS Miramar, throughout Marine Corps Base, Camp Pendleton, and within eight complexes in the community of Otay Mesa.

Suitable habitat for this species is present in the vernal pools along the aqueduct road on MCAS Miramar; in the BRSA, but outside of the areas proposed for construction activities; and in temporarily ponded areas not meeting the definition of a vernal pool, as previously described for San Diego fairy shrimp. As mentioned, Riverside fairy shrimp has been documented within vernal pool complexes on MCAS Miramar within the same geographic area as the BRSA. As a result, the presence of this species is presumed within the vernal pool complexes and in the temporarily ponded areas on MCAS Miramar within the BRSA.

### ***Western Spadefoot***

The western spadefoot is a state SSC that ranges within the Central Valley and associated foothills, south of Monterey Bay and into northern Baja. This species inhabits areas containing sandy or gravelly soils with open vegetation, and can be found in lowlands, along washes or floodplains of rivers, in alkali flats, and in foothills and mountains at over 4,000 feet. Western spadefoot requires seasonal rain pools that do not contain bullfrogs, fish, or crayfish. Throughout the range of the species, the breeding season can begin in winter, but is dependent on the timing of pool inundation. During the remainder of the year, the western spadefoot primarily remains in underground burrows and is mostly active at night. Metamorphosis can occur in as little as eight to 16 days (Stebbins 2003), which allows them to breed in extremely small puddles that may not be considered habitat for other species. Three recent CNDDDB occurrences of this species have been recorded within one mile of the BRSA.

Suitable habitat for the species is present along the aqueduct road on MCAS Miramar and in various drainages throughout the northern urban section of the BRSA. Western spadefoot has been documented within MCAS Miramar and in the CNDDDB within the BRSA. As a result, the presence of this species is presumed within the BRSA in drainages on MCAS Miramar; the unnamed tributary to Peñasquitos Creek that runs south of and parallel to Pomerado Road directly north of MCAS Miramar; the South Fork of Moosa Creek; and Keys Creek, a tributary to the San Luis Rey River.

## **Reptile Species**

### ***Belding's Orange-Throated Whiptail***

Belding's orange-throated whiptail is a state SSC and frequents dry, often rocky hillsides, ridges and valleys that support coastal sage scrub, open chaparral, dry washes, and sparse grasslands mixed with sage scrub species. It is found in Southern California within portions of Orange, Riverside, San Diego, and San Bernardino counties and extends into Baja California, Mexico. This species can be found at elevation ranges from near sea level to 3,500 feet. Breeding usually

takes place in May, although it has occasionally been observed in July; eggs are typically laid between June and July. Two individuals were observed along Pomerado Road.

### ***Coast Horned Lizard***

Coast horned lizard, also known as Blainville's horned lizard, is a state SSC found in the Sierra Nevada foothills from Butte County to Kern County and throughout the central and southern California coast. Elevation can range between sea level and 8,000 feet, and this species occurs in valley-foothill hardwood, conifer woodland, riparian woodland, pine-cypress woodland, juniper woodland, and annual grassland habitats. This species requires open areas for basking and foraging, and utilizes low shrubs for cover. Ants are generally a primary food source, though other invertebrates are also ingested. Loose and sandy areas, washes, floodplains, and wind-blown deposits allow this species to bury itself and also provide habitat for ant nests. Foraging takes place on the ground, typically in open areas or between shrubs. Eggs are buried in loose soils in April to June and hatch after two months. Two recent CNDDDB occurrences have been recorded within 0.25 mile of the BRSA and five recent occurrences have been recorded within one mile of the BRSA.

This species was incidentally detected on MCAS Miramar within the BRSA during special-status plant surveys in the spring of 2015. Two individuals were observed at two different locations south of the paved Green Farm Road (also referred to as Rifle Range Road or H Road) that bisects the BRSA on MCAS Miramar, as depicted in Figure A-6: Special-Status Wildlife Occurrences in Attachment A: Figures.

### ***Western Pond Turtle***

Western pond turtle (*Actinemys marmorata*) is a state SSC found throughout California west of the Sierra-Cascade crest and is absent from desert regions, except along the Mojave River and its tributaries. This species usually occurs in areas of calm freshwater environments, but can also occur in brackish and saltwater habitat for short periods of time. It occupies a wide variety of permanent or near-permanent aquatic habitats, including ponds, lakes, rivers, streams, marshes, sloughs, irrigation ditches, and wetlands. This species requires basking sites within or along aquatic habitat and will use natural or man-made objects for basking. Its surrounding habitat primarily consists of woodlands, grasslands, and open forest. Nesting, dispersal, and aestivation occurs in upland habitat, and females dig nests within sandy to hardpan soil that is at least four inches deep. Eggs are laid once or twice per year, typically between April and August, and can be up to 0.5 mile from water. Dirt roads and banks along canals and ditches can also be used for nesting. During spring or early summer, females move overland and sometimes climb hillsides to find suitable sites for egg-laying. Though other turtle species have populated areas, this species is the only native turtle in California.

Habitat for this species in the form of perennial water or ponds with basking sites occurs in multiple areas within the BRSA, notably within named rivers and drainages (i.e., Rainbow Creek, the San Luis Rey River, Escondido Creek, San Dieguito River/Lake Hodges, Poway Creek, Beeler Creek, and Carroll Canyon Creek). Four recent CNDDDB occurrences for this species have been recorded within five miles of the BRSA. This species was detected at the edge of the BRSA within the pond associated with the All Seasons Recreational Vehicle Park.

This species also has been detected on MCAS Miramar during inventory surveys summarized in the INRMP. These observations were not mapped in the INRMP, and therefore, their proximity to the BRSA cannot be determined.

## **Avian Species**

### ***Coastal California Gnatcatcher***

The coastal California gnatcatcher is an FT species and a state SSC. This species is a non-migratory songbird and ranges west of the Transverse and Peninsular ranges in coastal Southern California. This species is primarily found at elevations below 800 feet along the coast and up to 1,600 feet inland (Atwood and Bontrager 1992). The largest populations of this species are located in San Diego, Orange, and Riverside counties, with smaller populations located in Los Angeles County, southwestern San Bernardino County, and southern Ventura County (Atwood and Bontrager 2001).

This species occurs in the coastal sage scrub vegetation communities of Southern California, especially in those dominated by California sagebrush and California buckwheat. The breeding season for coastal California gnatcatcher extends from approximately February through August, with peak nesting activity occurring from mid-March through mid-May. Incubation takes 14 days. The young fledge at eight to 13 days of age and are dependent on their parents for up to three or four weeks; however, fledglings may associate with their parents for several months (USFWS 1997a). Foraging by coastal California gnatcatcher primarily consists of gleaning sessile prey from foliage while quickly moving through branches of shrubs. Larger prey items are beaten against a branch before being swallowed whole or fed to juveniles (Atwood and Bontrager 2001).

The BRSA crosses designated critical habitat for coastal California gnatcatcher at several locations from the northernmost extent near the community of Rainbow south to Kit Carson Park, as depicted in Figure A-7: Designated Critical Habitat in Attachment A: Figures. California gnatcatchers were observed foraging within the BRSA during the 2014 habitat assessment surveys on MCAS Miramar, and during the 2015 protocol surveys for this species in coastal sage scrub stands throughout the BRSA. The results of the protocol surveys for this species are detailed in Attachment E: Coastal California Gnatcatcher Survey Report. The USMC has also documented this species at multiple locations within 0.25 mile of the BRSA during its 2013 surveys for this species, as depicted in Attachment J: MCAS Miramar California Gnatcatcher 2013 Breeding Season Survey Areas.

### ***Least Bell's Vireo***

Least Bell's vireo is an FE and CE migratory songbird species. The current breeding distribution for this species is restricted to Monterey, San Benito, and Inyo counties, as well as numerous small populations south of the Tehachapi Mountains in California and portions of northern Baja California in Mexico. Typically, least Bell's vireo inhabits structurally diverse woodlands along watercourses, including cottonwood and willow forests, oak woodlands, and mule fat scrub. Breeding usually occurs from late March to late September and nests are primarily constructed between three to six feet aboveground within dense cover. Nesting occurs in openings within the riparian woodland and along the riparian edge in a variety of plant species, including willows, mule fat, Fremont cottonwood, western sycamore, coast live oak, and several herbaceous

species. A dense, stratified canopy is preferred for foraging, but least Bell's vireo have also been observed utilizing adjacent upland habitat as well. Five recent CNDDDB occurrences of this species have been documented within 0.25 mile of the BRSA.

Ten locations of least Bell's vireo were recorded within the BRSA during the course of the survey effort. Eight of these locations represent centers of presumed or documented breeding pairs based on persistent occurrences or the actual location of nests or fledged young. Two of the locations represent transient occupancy of presumably lone, singing males in mid- to late-breeding season. The least Bell's vireo locations were documented within the following four drainages in the BRSA:

- the San Luis Rey River, where two presumed breeding pairs were observed;
- Moosa Creek just north of Gopher Canyon Road, where one presumed breeding pair was observed;
- the San Dieguito River/Lake Hodges, where five presumed breeding pairs of least Bell's vireo were observed and one transient individual was observed; and
- Carroll Canyon Creek, where one transient individual was observed.

Details regarding the distribution and abundance of least Bell's vireo in areas covered by the 2015 riparian bird surveys are provided in Attachment F: Riparian Bird Survey Report.

Because the USMC at MCAS Miramar conducts surveys for least Bell's vireo within the BRSA every two years, focused surveys for this species were not conducted on MCAS Miramar. This species was detected during riparian bird surveys at MCAS Miramar in the past, including nesting and foraging observations in 2011. Nesting and foraging observations were made within San Clemente Canyon where it crosses the BRSA, as shown in Attachment K: Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*) Surveys at Marine Corps Air Station Miramar 2011 Report. This species was also observed foraging within riparian vegetation at the far southern end of the BRSA on MCAS Miramar (i.e., Elanus Canyon) in 2011. The MCAS Miramar riparian bird surveys in 2013 resulted in far fewer observations of this species, and none within the BRSA.

Concurrent with the protocol-level surveys for the least Bell's vireo (and southwestern willow flycatcher, discussed in the Southwestern Willow Flycatcher section that follows), Insignia conducted a preliminary assessment of potentially jurisdictional wetlands and waters, and also refined the vegetation map from which the habitat assessment and survey areas were developed. The wetland delineation and vegetation map refinement resulted in approximately 5.9 acres of additional riparian and/or wetland vegetation that could potentially support least Bell's vireo and/or southwestern willow flycatcher. These areas were not included in the 2015 riparian bird habitat assessment or protocol surveys. These areas are small, isolated locations of marginally suitable habitat for both species located on minor tributaries within the BRSA. SDG&E intends to conduct an additional habitat assessment and protocol-level surveys, if warranted, within these approximately 5.9 acres of potentially suitable least Bell's vireo and southwestern willow flycatcher habitat prior to construction.



### ***Northern Harrier***

The northern harrier is a state SSC that is found throughout the year in California. It ranges from sea level to 9,000 feet and inhabits areas with low vegetation, including deserts, coastal sand dunes, croplands, dry plains, grasslands, estuaries, open floodplains, and marshes. Breeding occurs between March and August and is most common in large, undisturbed tracts of wetlands and grasslands with low, thick vegetation. Nesting takes place on the ground, usually within a dense clump of vegetation, such as willows, grasses, sedges, reeds, bulrushes, and cattails or tule. This species utilizes scattered perches, such as shrubs or fence posts, but forages in flight and preys primarily on medium-sized rodents, reptiles, and passerines. One individual northern harrier was observed foraging within the BRSA near the intersection of the aqueduct road and the paved Green Farm Road (also referred to as Rifle Range Road or H Road) on MCAS Miramar in April 2015.

### ***Southwestern Willow Flycatcher***

Southwestern willow flycatcher is a federal and state endangered species that is now restricted to breeding in riparian habitats in Southern California, Arizona, New Mexico, and the extreme southern portions of Nevada, Utah, and Colorado. This species ranges from sea level to over 8,500 feet, but is primarily found in lower-elevation, riparian habitats. Breeding takes place from mid-May to late August and occurs in patchy to dense riparian habitats along streams or other wetlands. Nest sites usually consist of dense vegetation with small openings, open water, or shorter/sparser vegetation, creating a mosaic that is not uniformly dense. In almost all cases, slow-moving or still surface water and/or saturated soil is present at or near the breeding sites during wet years. Common tree and shrub species comprising nesting habitat includes willows, mulefat, box elder (*Acer negundo*), stinging nettle (*Urtica* spp.), blackberry (*Rubus* spp.), cottonwood (*Populus* spp.), arrowweed (*Tessaria sericea*), tamarisk (*Tamarix ramosissima*), and Russian olive (*Eleagnus angustifolia*).

Five recent CNDDDB occurrences for this species have been recorded within five miles of the BRSA. As mentioned previously, protocol-level surveys for this species were completed in July 2015 and a single migratory willow flycatcher—whose subspecies was undetermined—was documented within the BRSA in one location in an isolated southern willow scrub stand in the City of Poway. The subspecies could not be determined because of the similarity between the southwestern willow flycatcher and the little willow flycatcher (*Empidonax traillii* ssp. *brewsteri*), which is not special status. The presence of foraging, migratory southwestern willow flycatcher is therefore presumed within the BRSA. There is a moderate potential for southwestern willow flycatcher to breed within remnant stands of riparian habitat in the BRSA, primarily within the San Dieguito River/Lake Hodges area. Unitt (1994) documents breeding southwestern willow flycatcher along the San Dieguito River between Lake Hodges and Tim's Canyon, which is located approximately 10 miles upstream to the northeast of the BRSA. However, no breeding or migratory southwestern willow flycatchers were observed within the Lake Hodges portion of the BRSA. Unitt (1994) does not document breeding locations of southwestern willow flycatcher within any other portions of the BRSA.

Because the USMC at MCAS Miramar conducts surveys for southwestern willow flycatcher, focused surveys for this species were not conducted on MCAS Miramar. The USMC at MCAS Miramar conducted inventory surveys for southwestern willow flycatcher in 2011 and 2014.

These surveys were conducted in specific areas throughout MCAS Miramar, and were conducted in accordance with USFWS survey requirements (Sogge et al. 2010). Marginally suitable habitat for southwestern willow flycatcher was documented within the BRSA, but no willow flycatcher individuals were observed within the BRSA on MCAS Miramar as a result of either the 2011 or 2014 surveys. One migrant willow flycatcher—presumed to be a little willow flycatcher—was documented approximately 4.25 miles west of the BRSA along San Clemente Canyon.

Attachment K: Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*) Surveys at Marine Corps Air Station Miramar 2011 Report provides additional details on the southwestern willow flycatcher surveys conducted on MCAS Miramar.

### ***White-Tailed Kite***

The white-tailed kite is an FP bird species. In California, the white-tailed kite may remain resident in coastal and valley lowlands but is rarely found away from agricultural areas. They are generally found in areas below 2,000 feet in elevation, but have occasionally been seen in mountainous areas. This species is not considered migratory, but may become nomadic in response to prey abundance. Foraging takes place in open grasslands, meadows, farmlands, and emergent wetlands. Nests are constructed in dense oak, willow, or other tree and shrub stands located near open foraging. Breeding generally occurs in the lowlands and foothills west of the Sierra Nevada, and the southeastern deserts in California. White-tailed kites form a monogamous pair in December, and nest building starts in January. Two recent CNDDDB occurrences for this species are recorded within five miles of the BRSA. Within the BRSA, a white-tailed kite was observed foraging within southern willow scrub stands associated with Lake Hodges.

### ***Yellow-Breasted Chat***

The yellow-breasted chat is a state SSC that occupies early successional riparian habitats with a well-developed shrub layer and an open canopy. This species is widely distributed in California, but is now rare or absent from much of the Central Valley and parts of the southern coastal slope. Yellow-breasted chat is present in southern California generally only from late March or early April to mid-September. Breeding takes place from late April through early August. One recent CNDDDB occurrence of this species is recorded within 0.25 mile of the BRSA, and one is recorded within one mile. Within the BRSA, one individual was heard calling within a coast live oak riparian forest in Kit Carson Park. This species was observed within the BRSA in the San Dieguito River and Lake Hodges area, and to the north within riparian habitat associated with an unnamed tributary to the San Dieguito River that runs parallel to Bear Valley Parkway. Yellow-breasted chat has also been detected during surveys on MCAS Miramar. The locations of these observations were not included in Attachment K: Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*) Surveys at Marine Corps Air Station Miramar 2011 Report, and therefore, their proximity to the BRSA cannot be determined.

### ***Yellow Warbler***

The yellow warbler is a state SSC that inhabits moist habitats with high insect abundance. The presence of willows is one common feature of yellow warbler habitat north of Mexico. Habitats include the edges of marshes and swamps, willow-lined streams, and leafy bogs. The yellow warbler also inhabits dry areas, such as thickets, orchards, farmlands, forest edges, and suburban yards and gardens. This species seems to prefer areas of scattered trees, dense shrubbery, and

any other moist, shady areas. The yellow warbler is highly migratory, wintering in Southern California, southern Florida, and south through the Brazilian Amazon, Bolivia, and Peru (Kadlec 2003).

Yellow warblers usually breed from April to late July. Parental feeding may extend to two weeks after the young leave the nest, sometimes longer. The yellow warbler is primarily an insect feeder, including insect larvae and caterpillars. They may occasionally supplement their diet with berries. The yellow warbler forages for insects and spiders by gleaning and hawking on the limbs of trees and bushes. One recent CNDDDB occurrence for this species has been recorded within 0.25 mile of the BRSA. This species was observed within the BRSA in the San Dieguito River and Lake Hodges area, and to the north within riparian habitat associated with an unnamed tributary to the San Dieguito River that runs parallel to Bear Valley Parkway. This species has also been detected during surveys conducted on MCAS Miramar. The locations of these observations were not provided in Attachment K: Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*) Surveys at Marine Corps Air Station Miramar 2011 Report, and therefore, their proximity to the BRSA cannot be determined.

## **Mammal Species**

### ***San Diego Black-Tailed Jackrabbit***

San Diego black-tailed jackrabbit is a state SSC and occurs only on the coastal side of the mountains of Southern California. This species can be found from sea level to 6,000 feet and is usually within sparse coastal sage scrub, agricultural fields, and grassland habitats. Grasses and forbs are the preferred diet, but this species is also known to browse shrubs, and will consume nearly all other vegetation types occurring in the area. Due to the milder climate in Southern California, this species likely breeds year-round. Formal nests are not created and young are born beneath vegetation that provides some overhead cover. This species is primarily solitary except when mating or raising young.

This species was observed in multiple locations within the BRSA on MCAS Miramar in late 2014 and early 2015 during habitat assessments and drainage mapping. One recent CNDDDB occurrence of this species has been recorded within 0.25 mile of the BRSA, and one was documented within one mile.

## **5.4.1 Species with a High Potential to Occur**

### **Reptile Species**

#### ***Coast Patch-Nosed Snake***

The coast patch-nosed snake (*Salvadora hexalepis virgultea*) is a state SSC found in coastal Southern California from San Luis Obispo County south into Baja California Norte, Mexico. It can occur from sea level to 7,000 feet and can be found in brushy areas, canyons, rocky hillsides, and plains. Habitat includes desert scrub, coastal chaparral, washes, and sandy flats. This species actively forages during the day and requires loose soil and small mammal burrows for refuge and breeding. Breeding occurs in the spring and eggs are laid from approximately May to August. Loose soil, burrows, or rock crevices are used for cover. Two recent CNDDDB occurrences for this species have been recorded within five miles of the BRSA.

Brushy areas and rocky hillsides are present in multiple locations within the BRSA, which provide refuge and foraging habitat for this species. This species also has been detected on MCAS Miramar during inventory surveys, as summarized in the INRMP. These observations were not mapped in the INRMP, and therefore, their proximity to the BRSA cannot be determined.

### ***Coronado Skink***

The Coronado skink (*Plestiodon skiltonianus interparietalis*) is a state SSC found in Southern California—primarily in San Diego County and possibly into extreme south Riverside County—and it extends into northern Baja California, Mexico from sea level to 8,300 feet. This species inhabits coastal valley, coastal sage scrub, grassland, woodland, and chaparral habitat, especially where there are clearings and associated streams or rivers; however, this species can also be found in arid locations far from water. The Coronado skink is diurnal, but is secretive and forages beneath leaf litter or other cover during the day, retreating into burrows or under cover when startled. Females lay two to 10 eggs in June and July, which they actively guard until hatching occurs in late July to August. This species feeds on insects and other small invertebrates, particularly spiders and sow bugs. Habitat for this species is present within the BRSA, including grasslands, rocky areas, and streams. Two recent CNDDDB occurrences for this species have been recorded within 0.25 mile of the BRSA, and one occurrence has been recorded within one mile.

### ***Red Diamond Rattlesnake***

The red diamond rattlesnake (*Crotalus ruber*) is a state SSC and can be found in San Bernardino, Riverside, and San Diego counties. Its habitat includes arid desert in rocky areas, chaparral, woodland, and dense vegetation as well. This species can also occur from sea level up to 3,000 feet in elevation, and it is active from mid-spring into fall. The red diamond rattlesnake is successful as an ambush predator and will actively seek prey on the ground and in bushes. As temperatures increase throughout the season, this species becomes less active during the day and becomes fully nocturnal. Young are typically born from mid-August to October. Suitable habitat for this species is present throughout the BRSA in the form of coast live oak woodlands and chaparral. Four recent CNDDDB occurrences of this species have been recorded within 0.25 mile of the BRSA.

### ***Silvery Legless Lizard***

The silvery legless lizard (*Anniella pulchra pulchra*) is a state SSC that is located in the Coast Ranges from Contra Costa County south into Baja California, Mexico. Occurrence of this species is spotty throughout the remainder of its range, including the floor of the San Joaquin Valley from San Joaquin County south, the western slope of the southern Sierra Nevada, the Tehachapi Mountains west of the Mojave Desert, and the mountains of Southern California. This is a fossorial species and burrowing usually takes place near the surface in loose soil, making it vulnerable to trampling or death by vehicles. It is rarely encountered as it often forages within grass or underneath leaf litter and then buries itself in the soil. Suitable habitat for this species occurs throughout much of the BRSA. No CNDDDB occurrences have been recorded within five miles of the BRSA, but this species has been observed within MCAS Miramar and could occur there and in other portions of the BRSA with suitable habitat.

## Avian Species

### *Least Bittern*

The least bittern is a state SSC bird that resides and breeds in freshwater or brackish marshes with tall, emergent vegetation. The breeding range for this species is spotted throughout California. Though many least bitterns migrate during winter to the neotropics, some remain in southern regions including Southern California. Resident birds also exist on the coastal slope of Southern California, in the Salton Sea area, and along the lower Colorado River. Suitable habitat for this species is present in the form of freshwater marsh and cismontane alkali marsh in scattered locations throughout the BRSA, most notably within named rivers and drainages (i.e., Rainbow Creek, the San Luis Rey River, Moosa Creek, Escondido Creek, San Dieguito River/Lake Hodges, Poway Creek, Beeler Creek, and Carroll Canyon Creek). One recent CNDDDB occurrence for this species is recorded within 0.25 mile of the BRSA. In addition, one occurrence is recorded within five miles of the BRSA.

## Mammal Species

### *Big Free-Tailed Bat*

The big free-tailed bat (*Nyctinomops macrotis*) is a state SSC. It is widely but locally distributed from Iowa and southwestern British Columbia in the north, southward through Mexico and the West Indies to Uruguay in South America. It is rarely found in California and it is known primarily from urban areas in San Diego County. It is a colonial roosting species that prefers rugged cliff faces, slopes, and outcrops; up to 150 individuals have been observed in roost sites. Like most bat species, it can be found in a wide variety of habitats, including various woodland, desert, and scrub associations. Little is known of its habits, but it has been observed emerging late in the evening. It eats primarily moths, but will also eat crickets, grasshoppers, flying ants, stink bugs, beetles, and leafhoppers. With the exception of its noticeably larger size, this species is superficially similar in appearance to the more common Brazilian free-tailed bat (*Tadarida brasiliensis*). It has deep reddish to dark brown overall coloration; a dark facial mask; and large, dark, forward-pointing ears that are briefly joined at the forehead. Little is known about its reproduction and development, but data suggest that each gravid female gives birth to a single offspring in late June to early July. By October, the young are nearly full grown and are able to feed themselves. While rearing their young, the females gather in nursery colonies, while adult males gather elsewhere. Factors contributing to the decline of this species are not well known.

Foraging habitat does occur within the BRSA in multiple locations. Rocky outcrops are located within Kit Carson Park and suitable buildings are present within the BRSA—all of which may provide additional roosting sites for this species. Four recent CNDDDB occurrences of this species are recorded within five miles of the BRSA, including one within 0.25 mile.

### *Pocketed Free-Tailed Bat*

Pocketed free-tailed bat (*Nyctinomops femorosaccus*) is a state SSC that ranges from Riverside, San Diego, and Imperial counties in California, but is more common in Mexico. It inhabits desert riparian, alkali, and succulent scrub, pinyon-juniper woodlands, Joshua tree woodlands, and palm oasis habitats. This species prefers rock crevices in cliffs as roosting sites, but may also be found in caverns or buildings. Roosts are usually made up of small groups, and this species is likely active year-round, except during rain events. It gives birth to one young per

year, which takes place in June or July, and lactation occurs in July and August. Although migration patterns are not well understood, it is most likely a yearlong resident, but little wintering information exists for this species within its range in the U.S. The pocketed free-tailed bat feeds on insects flying over desert habitat, streams, or ponds. This species feeds primarily on moths, but also eats crickets, flying ants, stinkbugs, froghoppers, leafhoppers, lacewings, and other insects. It usually appears well after sunset. Little is known of the factors contributing to the decline of this species in the U.S.

Habitat for this species occurs in the form of riparian habitats, palm trees, cliffs, and alkali scrub (i.e., tamarisk scrub and cismontane alkali marsh), which are present within the BRSA. This species also has been detected on MCAS Miramar during inventory surveys, as summarized in the INRMP. These observations were not mapped in the INRMP, and therefore, their proximity to the BRSA cannot be determined. Five recent CNDDDB occurrences of this species are recorded within five miles of the BRSA, including one within 0.25 mile.

### ***San Diego Desert Woodrat***

San Diego desert woodrat (*Neotoma lepida intermedia*) is a state SSC that inhabits Joshua tree woodlands, pinyon-juniper woodlands, sagebrush, mixed chaparral, scrub oak, oak, and desert areas with large rocks or outcrops. Cover is required for this species, and dens are also constructed between large boulders using sticks, yucca leaves, and other materials. Large rocks appear to be the preferred den site for this species. Breeding takes places from late October or November through April, and gestation takes 30 to 36 days. This species occurs in coastal California from the City of San Luis Obispo south through the Transverse and Peninsular ranges into Baja California, Mexico. Large rocks or rocky outcrops with succulents are preferred for cover. Its diet consists of fruit, grain, and other vegetation, including species in the cactus family. One recent CNDDDB occurrence has been recorded within 0.25 mile of the BRSA, and three recent occurrences have been recorded within one mile of the BRSA.

### ***Western Yellow Bat***

The western yellow bat (*Lasiurus xanthinus*) is a state SSC that occurs in palm oases, but may also use ornamental palms in landscaping. In California, it is an obligate foliage-roosting species that prefers dead palm fronds to other types of tree substrates. Yellow bats likely do not hibernate, as activity has been observed year-round. The western yellow bat is primarily non-colonial, but small colonies have been documented in some areas. Distribution is primarily within Mexico and Central America, with a range that extends into the southern portions of California and Arizona. Unlike many other bats found in this region, it appears that this species is found throughout the year in Southern California. It can be distinguished from other bat species in California by its yellow fur, short ears, and medium size. Breeding is thought to occur from late April through July. Females give birth to one to four pups from June through July. Threats to this species include its limited distribution, restrictive habitat requirements, and predation.

Palm trees are located throughout the BRSA, including within urban areas; therefore, roosting habitat is plentiful for this species. Foraging takes place within proximity to palm tree habitat as well. One recent CNDDDB occurrence of this species is recorded within 0.25 mile of the BRSA, and one CNDDDB occurrence was recorded within one mile of the BRSA.

## 5.4.2 Species with a Moderate Potential to Occur

### Invertebrate Species

#### *Hermes Copper Butterfly*

The Hermes copper butterfly is an FC species known to occur in San Diego County and up to 100 miles south of San Diego County in Baja California, Mexico. This species is typically found in close proximity (within 300 to 400 feet) of its host plant—spiny redberry (*Rhamnus crocea*) (Marschalek and Klein 2010)—in association with nectar sources within coastal sage scrub and chaparral habitat, which include California buckwheat, chamise, slender sunflower (*Helianthus gracilentus*), golden yarrow (*Eriophyllum confertiflorum*), poison oak, and short-podded mustard (*Hirschfeldia incana*) (Faulkner et al. 2008). This species' flight season is generally mid-May to early-July, depending on the elevation and weather, and they do not stray far from their host plant (USFWS 2010b). Strahm et al. (2012) found that the majority of Hermes copper butterfly observations in San Diego County occur in a small area from the community of Jamul to the community of Descanso, and that the butterfly's range in San Diego County has been greatly reduced by fire and land development. It may take as long as 18 years after a wildfire for this species to re-colonize an area, due to the fact that mature spiny redberry appears to be essential to this species' survival.

During special-status plant surveys in 2015 for the Proposed Project, all locations of spiny redberry within the BRSA were mapped south of Deer Springs Road, which is the northernmost extent of this species' current range following the 2003 and 2007 fires (Strahm et al. 2012). Approximately 20 individual spiny redberry plants were observed sporadically within this area of the BRSA. Spiny redberry plants were observed primarily on north-facing slopes, occasionally in association with California buckwheat, which is the preferred nectar plant for Hermes copper butterfly. Spiny redberry individuals on MCAS Miramar are approximately 12 years old. Other more mature individuals were observed in a remnant coastal sage scrub hillside in the City of Poway.

#### *Quino Checkerspot Butterfly*

QCB is an FE species that was once known to occur widely in coastal sage scrub habitat in Southern California and northern Baja California, Mexico. The current range is limited now to only a few populations in Riverside and San Diego counties. Adults emerge in early to mid-spring and after mating. Females deposit eggs on California plantain or sometimes on purple owl's clover (*Castilleja exserta*). Larvae feed on the host plants until summer temperatures cause the plants to die back, and then larvae enter a period of inactivity until new growth emerges in late winter or early spring. At this stage, the larvae commence feeding and then enter a pupal phase for a short time before emerging. The timing of emergence is dependent on winter rains, but usually occurs from mid-February through March. Four recent CNDDDB occurrences for this species have been recorded within five miles of the BRSA.

According to the MCAS Miramar INRMP, no confirmed QCB sightings have been reported on MCAS Miramar. Due to recent sighting of this species adjacent to MCAS Miramar in areas burned by the Cedar Fire, the USMC at MCAS Miramar commissioned a protocol-level survey for this species in 2011 within 1,400 acres of suitable habitat in East Miramar. No individuals were found during the surveys throughout the flight season (USMC 2014).

A total of approximately 160 acres of suitable QCB habitat is present within the BRSA. Suitable habitat includes areas of coastal sage scrub, chaparral, grassland, and herbaceous wetland/seep communities overlapping with areas identified by the USFWS as requiring surveys (USFWS 2014b). Surveys for this species were conducted in the spring of 2015 by Rocks Biological Consulting biologists within 141 acres on MCAS Miramar in accordance with the USFWS survey protocols (USFWS 2014b). The remaining approximately 19 acres of suitable habitat within the Elliot Field Station were not surveyed in 2015 due to access constraints. These areas fall within the USFWS required survey areas for QCB, and as a result, will be surveyed prior to construction of the Proposed Project. No QCBs were observed during surveys in the spring of 2015.

## **Amphibian Species**

### ***Arroyo Toad***

The arroyo toad is an FE species and a state SSC that ranges within coastal California between Monterey County and Baja California, Mexico. Habitat for this species includes streams, washes, and arroyos, preferably with sandy banks and associated riparian woodlands including sycamore, willow, cottonwood, coast live oak, and mule fat scrub. During spring or summer, breeding usually takes place after rain and the adults then often disperse onto adjacent uplands (USFWS 1999). Dispersal is normally within 0.3 mile of aquatic breeding sites; however, some individuals have been observed up to 1.2 miles from stream habitat (USFWS 2009). Elevations for this species range from near sea level to 3,000 feet. Two recent CNDDDB occurrences for this species have been recorded within 0.25 mile of the BRSA along the San Luis Rey River. Potential habitat for this species occurs within the BRSA in the San Luis Rey River and tributaries, as well as within the San Dieguito River and Lake Hodges area and its associated tributaries. Protocol-level surveys for this species were completed in the spring of 2015. This species was not documented within the BRSA, but two surveyed drainages within the BRSA may still support arroyo toad during years with normal rainfall, as described in more detail in Attachment G: Arroyo Toad Survey Report. Additional details regarding the results of the arroyo toad surveys are provided in Attachment G: Arroyo Toad Survey Report.

## **Reptile Species**

### ***Two-Striped Gartersnake***

The two-striped gartersnake (*Thamnophis hammondi*) is a state SSC found in the southern Diablo Range and Salinas Valley through the South Coast and Transverse ranges to the U.S.-Mexico border. This species is highly aquatic and does most of its foraging within or along waterways, so it is associated with permanent or semi-permanent water. It can be found in a variety of habitats from sea level to 8,000 feet, and it often basks during the day on rocks or vegetation along streams. When startled, this species takes refuge in the water, but it may be found in mammal burrows or under objects within upland habitat in milder climates during winter. It is recognized by its lack of a mid-dorsal stripe; its dorsal coloration is usually olive or brownish and its ventral coloration is dull yellow to orange-red or salmon. Intergrading color morphs are common. This snake is most active at dusk or at night, but it may also forage by day. Its diet includes tadpoles, toads, frogs, small fish, earthworms, California newt (*Taricha torosa*) larvae, and aquatic eggs. It emerges from hibernation in the spring and may be active on warm



winter days. Mating takes place in the spring and live young are born in late summer and fall. The two-striped garter snake is a live-bearing species that gives birth to up to 36 young at a time.

Suitable habitat for the species is present within the BRSA, primarily along named rivers and drainages (i.e., Rainbow Creek, the San Luis Rey River, Escondido Creek, Moosa Creek, San Dieguito River/Lake Hodges, Poway Creek, Beeler Creek, and Carroll Canyon Creek). One recent CNDDDB occurrence for this species has been recorded within one mile of the BRSA, and three occurrences have been recorded within five miles.

## **Avian Species**

### ***Golden Eagle***

The golden eagle is a federally protected species under the BGEPA and is also a state FP species. This species is found mostly in western North America, from Alaska south to central Mexico. Fewer are found in eastern Canada and the eastern U.S. The golden eagle prefers mountainous or hilly terrain and hunts over open country for small mammals, snakes, birds, or carrion. This species nests on cliff faces, walled canyons, or in tall trees. The golden eagle is a very large raptor, standing nearly three feet tall, with a large, hooked bill. It is brown all over, with a golden sheen on its head and golden patches and highlights over its life molt. Direct or indirect human activities (e.g., collisions with vehicles, power lines, or other structures; electrocution; gunshot; and poisoning) have been estimated to cause up to 70 percent of recorded golden eagle deaths. Populations are also threatened by habitat degradation and nest disturbance (Kochert et al. 2002).

The BRSA appears to represent the western extent of its current, documented breeding range (Unitt 2004). With the exception of documented breeding at Lake Hodges west of the BRSA, all other breeding locations are east of the BRSA. However, golden eagles have been observed in areas overlapping the BRSA during the breeding season and in winter months. As a result, this species has a low potential to breed within the BRSA, but may have a moderate potential to forage over large portions of the BRSA where prey is abundant and there are areas of hilly, open terrain (Unitt 2004). As depicted in Figure A-8: Conserved Lands within the Biological Resources Survey Area in Attachment A: Figures, areas where golden eagles have a potential to occur are located in the far northern portion of the BRSA near the Riverside County line; around Kit Carson Park and the San Dieguito River Park; and possibly within the UCSD Chaparral Reserve and on MCAS Miramar. Two recent CNDDDB occurrences for this species are recorded within five miles of the BRSA.

### ***Grasshopper Sparrow***

The grasshopper sparrow (*Ammodramus savannarum*) is a state SSC that occurs in dry grasslands, especially those with a variety of grasses, tall forbs, and scattered shrubs for singing perches. Short to middle-height, moderately open grasslands are preferred, with scattered shrubs such as California buckwheat or California sagebrush. This species is usually absent from areas with dense scrub or trees, and is usually found in larger tracts of habitat rather than small, isolated areas. The grasshopper sparrow feeds primarily on insects in the order Orthoptera, which includes grasshoppers, locusts, and crickets. They also feed on other invertebrates, and grass and forb seeds. Grasshopper sparrows build nests from grasses and forbs in slight depressions on the ground. Pairs can raise two broods per season, breeding from early April to

mid-July, with breeding peaking in May and June. In Southern California, this species has been documented as breeding at up to 5,000 feet in elevation in the San Jacinto Mountains. Grasshopper sparrows occur in California primarily as summer residents from March to September, but can sometimes be found in winter, primarily on the coastal slope of Southern California.

Suitable habitat for the species is present throughout the BRSA in open coastal sage scrub communities and grasslands. No CNDDDB occurrences are recorded within five miles of the BRSA. However, this species has been observed within MCAS Miramar, according to the INRMP.

### ***Western Burrowing Owl***

The western burrowing owl is a state SSC that occurs in dry, open habitats (e.g., grasslands and prairies) with low-growing or no vegetation. This species ranges from sea level to 5,000 feet in elevation and occupies underground burrows, typically those of the California ground squirrel. California is an important wintering site, but this species is often a resident throughout year, moving between wintering and breeding sites. Habitat can also occur in open areas of farmland, levee banks, and other disturbed or managed areas where burrows or burrow-like refuges are present, such as small-diameter pipes, rock piles with voids, or similar hollow spaces. The defining characteristics of suitable habitat for this species are burrows for roosting and nesting, as well as relatively short vegetation with only sparse shrubs. Breeding takes place from March through August.

California ground squirrel burrows were observed in multiple locations within the BRSA in or near grassland or other open areas, primarily in the northern portion of the BRSA. Burrows and open areas provide both nesting and foraging opportunities for the western burrowing owl. Four recent CNDDDB occurrences for this species have been recorded within five miles of the BRSA.

## **Mammal Species**

### ***Dulzura Pocket Mouse***

The Dulzura pocket mouse (*Chaetodipus californicus femoralis*) is a state SSC with a distribution that is restricted to California. This species' range extends from the San Francisco Bay south to the border of Baja California, Mexico; eastward to the edge of the Central Valley; and along the foothills of the Sierra Nevada on the west side of the Central Valley. Dulzura pocket mouse inhabits a wide variety of habitats year-pass within its range, including montane hardwood forest, valley foothill hardwood-coniferous forest, valley foothill hardwood forest, annual grassland, sagebrush, chamise-redshank and montane chaparral, and coastal scrub. This species' population occurs in higher numbers in habitats where grassland and chaparral are in close proximity. In central California, Dulzura pocket mouse is found at low to moderate elevations, whereas it is found primarily at moderate elevations in Southern California. This species is restricted to high elevations at the southernmost portion of its range in the Sierra de San Pedro Mártir in Baja California, Mexico, with an overall range in elevation from sea level to 7,800 feet. The Dulzura pocket mouse typically produces one litter a year—and occasionally two—between April and July. The Dulzura pocket mouse is primarily a granivore, consuming the seeds from annual grasses and forbs. Insects and leafy vegetation supplement its diet seasonally.

Suitable habitat is present within the BRSA and this species has been documented within five miles of the BRSA. Five recent CNDDDB occurrences for this species have been recorded within five miles of the BRSA.

### ***Northwestern San Diego Pocket Mouse***

The northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*) is a state SSC and is one of five subspecies of the San Diego pocket mouse. This subspecies is confined to Orange County and the coastal habitats of San Diego, Riverside, and San Bernardino counties within open herbaceous areas, usually in association with rocks or coarse gravel. Vegetation types include scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert succulent shrub, pinyon-juniper woodlands, and annual grassland in the valleys and foothills of southwestern California. Insects are sometimes eaten, but this species primarily forages on the seeds of forbs, grasses, and shrubs and prefers grass seeds. Breeding occurs primarily between March and May. Suitable habitat for this species is present within the BRSA in the form of coastal sage scrub, desert scrub, chaparral, and annual non-native grassland. One recent CNDDDB occurrence of this species has been recorded within one mile of the BRSA, and nine recent occurrences have been recorded within five miles.

### ***Stephens' Kangaroo Rat***

The Stephens' kangaroo rat is an FE and CT species. Current populations exist only in the San Jacinto Valley, western Riverside County, and northwestern San Diego County. This species generally occurs in both non-native annual and native perennial grasslands with sparse perennial vegetation, as well as in sparse coastal sage scrub and sagebrush communities with sparse canopy coverage. Plant species may include buckwheat (*Eriogonum* spp.), chamise, brome grasses, and filarees (*Erodium* spp.). Although it can burrow into firm soil, this species prefers areas with well-drained, gravelly, or sandy soils for digging its burrows. Stephens' kangaroo rats can live indefinitely without water, subsisting on dry seeds that they often store in their burrows for later consumption. It also consumes some green vegetation and insects, when available. This species physically resembles other kangaroo rat species in having long hind legs; small front legs and feet; brown upper parts; a white belly; and a long, tufted tail.

Stephens' kangaroo rat is threatened by the continued destruction, fragmentation, and degradation of its habitat through human and human-induced activities, such as the clearing of land for urban and suburban development, agriculture, water projects, military activities, wildland or prescribed fires, off-road vehicle use, and—to a lesser degree—by livestock grazing and the invasion of non-native plant species.

Suitable habitat for this species is present within the BRSA in open coastal sage scrub, non-native grasslands, and disturbed areas. Areas with some potential for kangaroo rat species were observed within areas proposed for construction of the Proposed Project (i.e., laydown yards), including in areas north of the City of Escondido within this species' geographic range. Eight recent CNDDDB occurrences of this species have been recorded within five miles of the BRSA.

### ***Townsend's Big-Eared Bat***

The Townsend's big-eared bat is a CC species and a state SSC. This species ranges over most of the western U.S. north to southwest Canada, south into central Mexico, and east along a smaller

range through the middle of the U.S. to Pennsylvania from sea level to 6,000 feet above MSL. This species is found in all habitat types except alpine, but it is rare throughout most of its range. Roosts occur in caves, buildings, tunnels, mines, and other human-made structures (Gruver and Keinath 2006). This species hibernates singly or in groups from October to April, and undergoes short migrations to hibernation roosts. Females form maternity colonies, but males are solitary in the spring and summer. One young is born in each litter in May or June, and the young are independent after six weeks. Moths are its main food source, but beetles and insects are consumed as well. This species has high site fidelity, but it is extremely sensitive to disturbance of roosting sites. Suitable habitat exists within the BRSA for this species, including tunnels and large drainage culverts, some of which are in fairly undisturbed sites. One recent CNDDDB occurrence of this species is recorded within five miles of the BRSA.

### ***Western Mastiff Bat***

The western mastiff bat (*Eumops perotis californicus*) is a state SSC. It is a permanent resident throughout its range in Southern California, southern Arizona, Texas, and south to South America. With a wingspan approaching two feet, the western mastiff bat is the largest bat species in North America. It is also unique in that its call can be readily identified with the unaided ear. It roosts in small colonies or singly in primarily natural substrates, such as cliff faces, large boulders, and exfoliating rock surfaces. It is less commonly found in artificial structures such as buildings and roof tiles. It is found in a wide variety of habitats, including desert scrub, chaparral, woodlands, floodplains, and grasslands. Reasons for observed population declines are unknown. Tall trees and tall buildings were observed in scattered locations throughout the BRSA. Two recent CNDDDB occurrences for this species are recorded within five miles of the BRSA.

### ***Western Red Bat***

The western red bat (*Lasiurus blossevillii*) is a state SSC that has a broad range, extending from southern British Columbia; throughout much of the western U.S., Mexico, and Central America; and as far south as Argentina and Chile (CDFW 1998). Within California, this species is found in coastal areas near the San Francisco Bay south to the Central Valley and into eastern portions of Riverside County and central San Diego County (CDFW 1998). They roost in small colonies in the foliage of trees and shrubs in forest edges in areas adjacent to streams and open fields, preferring foraging areas that are distant from human habitation (CDFW 1998). Western red bats are medium-sized bats best distinguished by their brick red-colored fur; short rostrum; short, rounded ears; and heavily furred interfemoral membrane (CDFW 1998). Breeding occurs in late summer or early fall; females become pregnant in spring and give birth to one to five pups. This species is insectivorous and migratory. Threats to the western red bat include predation, agricultural conversion of riparian habitat, storage reservoirs that submerge riparian habitat, pesticides from agriculture, and fire (CDFW 1998).

Habitat for this species is present within the BRSA, most notably within named rivers and drainages (i.e., Rainbow Creek, the San Luis Rey River, Moosa Creek, Escondido Creek, San Dieguito River/Lake Hodges, Poway Creek, Beeler Creek, and Carroll Canyon Creek) and other tributaries provide water for this species. Two recent CNDDDB occurrences for this species are recorded within five miles of the BRSA.

## 5.5 SENSITIVE NATURAL COMMUNITIES

Within the BRSA, 17 sensitive natural communities were observed within 34 different stand types (e.g., disturbed and restored). The acreages of these sensitive natural communities are shown in Table 3: Vegetation Communities Observed within the BRSA. Figure A-4: Vegetation Communities in Attachment A: Figures depicts these vegetation communities within the BRSA.

Within a five-mile radius of the Proposed Project area, the following nine sensitive natural communities were documented in the CNDDDB:

- San Diego Mesa Hardpan Vernal Pool,
- Southern Coast Live Oak Riparian Forest,
- Southern Cottonwood Willow Riparian Forest,
- Southern Maritime Chaparral,
- Southern Riparian Forest,
- Southern Riparian Scrub,
- Southern Sycamore Alder Riparian Woodland,
- Southern Willow Scrub, and
- Valley Needlegrass Grassland.

## 5.6 CRITICAL HABITAT

The USFWS has designated critical habitat within five miles of the Proposed Project for the following 10 species:

- arroyo toad,
- coastal California gnatcatcher,
- least Bell's vireo,
- San Diego ambrosia,
- San Diego fairy shrimp,
- San Diego thorn-mint (*Acanthomintha ilicifolia*),
- southwestern willow flycatcher,
- Spreading navarretia (*Navarretia fossalis*),
- thread-leaved brodiaea (*Brodiaea filifolia*), and
- willowy monardella (*Monardella viminea*).

Critical habitat for arroyo toad, coastal California gnatcatcher, least Bell's vireo, San Diego fairy shrimp, and southwestern willow flycatcher occurs within the BRSA, as depicted in Figure A-7: Designated Critical Habitat in Attachment A: Figures and quantified in Table 7: Critical Habitat within the BRSA. Within the BRSA at the San Luis Rey River, critical habitat has been designated for arroyo toad, coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher. Designated critical habitat for coastal California gnatcatcher is located throughout the BRSA in various locations, as well.

Designated critical habitat for San Diego fairy shrimp is located within the BRSA on MCAS Miramar; however, the USFWS exempted areas within the boundaries of MCAS Miramar in its

final rule (USFWS 2007) because it determined that these areas are exempt under Section 4(a)(3)(B)(i) of the FESA and that the INRMP at MCAS Miramar provides a benefit to San Diego fairy shrimp. As a result, MCAS Miramar lands are exempt from the revised final critical habitat for San Diego fairy shrimp, and are therefore not included in Table 7: Critical Habitat within the BRSA.

**Table 7: Critical Habitat within the BRSA**

Species	Approximate Critical Habitat within the BRSA (acres) <sup>21</sup>
Arroyo toad	61.2
Coastal California gnatcatcher	641.1
Least Bell’s vireo	40.6
San Diego fairy shrimp	0.5
Southwestern willow flycatcher	11.3

Source: USFWS 2015

## 5.7 WILDLIFE MIGRATION CORRIDORS

Wildlife corridors are areas that connect suitable habitat in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features (e.g., canyon drainages, ridgelines, or areas with vegetation cover) provide corridors for wildlife travel. Wildlife corridors are important because they provide access to mates, food, and water; allow the dispersal of individuals away from high-population-density areas; and facilitate genetic diversity. The CEQA Guidelines require that project proponents disclose impacts to wildlife corridors and mitigate for significant impacts to wildlife corridors. This section discusses the applicable wildlife corridors present or potentially present within the BRSA.

### 5.7.0 Terrestrial Species

Terrestrial wildlife species migrate through both upland and drainage areas, depending on the species. Species that need protective cover from predators (e.g., mammals, reptiles, and smaller avian species) tend to migrate along natural drainages and riparian corridors that have a high vegetative cover. These areas also serve as an important source of food resources (e.g., insects and seeds) for these species. There are numerous natural drainages and riparian corridors in the BRSA, including Rainbow Creek, the San Luis Rey River, Moosa Creek, Escondido Creek, Lake Hodges (the dammed portion of the San Dieguito River), Poway Creek, Beeler Creek, and Carroll Canyon Creek. These drainages may be used as migration corridors by a variety of species. Predator species, such as bobcat (*Lynx rufus*) or mountain lion (*Puma concolor*), require larger portions of intact habitat, including interconnected upland and riparian systems for migration.

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<sup>21</sup> Critical habitat for arroyo toad, southwestern willow flycatcher, and least Bell’s vireo overlap at the San Luis Rey River, so a total cannot be determined for this column.

The Proposed Project is located in the Pacific Flyway, a major north-south avian migratory corridor that extends along the West Coast from Alaska to Patagonia, and provides suitable foraging habitat for many resident and migratory avian species. The Pacific Flyway links breeding grounds in the north to more southerly wintering areas and, therefore, is utilized by an abundance of bird species during migration. The BRSA consists mostly of urban/developed and disturbed areas, thus diminishing the potential for most of the BRSA to be used as a migration corridor for avian species. MCAS Miramar and the larger drainage systems within the BRSA (i.e., Lake Hodges and the San Luis Rey River) provide areas that could be used as a migration corridor for avian species.

The BRSA overlaps at least a portion of conserved lands identified by SANDAG (SANDAG 2014), as depicted in Figure A-8: Conserved Lands within the Biological Resources Survey Area in Attachment A: Figures. These are conserved lands identified in multiple MSCP documents and the MHCP, as well as other federal, state, non-profit, land conservancy, and private conserved lands. Not all conserved lands mapped by SANDAG represent potential wildlife migration corridors. Some are entirely surrounded by development, while others are golf courses, which provide marginally suitable migration corridors for wildlife due to the presence of humans for most of the day. The following conserved lands intersecting the BRSA may provide wildlife connectivity for terrestrial species:

1. Two private conserved lands at the southern end of Rainbow Hills Road. These are located on avocado orchards between MP 3.2 and MP 3.8. No aboveground facilities are located within the potential easement. Information is not publicly available and a title search for the location using both the landowner's name and assessor's parcel number did not identify any evidence of a conservation easement at these locations. Therefore, it has been assumed that this conservation easement does not currently exist.

This area is contiguous to other large blocks of undeveloped land, some of which are also conserved land, north of the City of Fallbrook. These lands are connected to the approximately 8,850-acre Fallbrook Naval Weapons Station, which is contiguous to Marine Corps Base, Camp Pendleton and covers more than 125,000 acres.

2. South of the San Luis Rey River, west of Old Highway 395, and just north of MP 10. The San Luis Rey provides a potential wildlife connection from its source in the mountains east of the BRSA to its mouth at the Pacific Ocean. A patchwork of conserved lands comprises the San Luis Rey River and its floodplain.
3. In wetland/riparian habitat in Kit Carson Park, north of Lake Hodges between MP 28 and MP 29, as well as the San Dieguito River Park between MP 29 and MP 30. Lake Hodges is the dammed portion of the San Dieguito River, providing potential wildlife connectivity from its source in the mountains east of the City of Escondido to its mouth at the Pacific Ocean near the Del Mar Fairgrounds. A patchwork of conserved lands comprises Lake Hodges, as well as upstream and downstream portions of the San Dieguito River and its floodplain.

4. Battle Mountain on City of San Diego property. This area is connected via upland and riparian habitat to the larger open space areas south of Lake Hodges via a bridge under I-15. These conserved lands intersect the BRSA between MP 30.5 and MP 31.
5. In the South Poway Cornerstone lands primarily east of Pomerado Road in the City of Poway between MP 38 and 39. These conserved lands are contiguous with conserved lands stretching eastward through the City of Poway to SR-67 and Iron Mountain.
6. The Scripps Miramar Open Space area administered by the City of San Diego, and located along an unnamed tributary to Los Peñasquitos Creek on the south side of Pomerado Road (approximately MP 40 to MP 42.2). This drainage appears to be primarily dominated by non-native species, but may provide connectivity to downstream portions of the watershed, eventually connecting to the approximately 4,000-acre Los Peñasquitos Canyon Preserve.
7. At the Elliot Field Station and the larger UCSD Chaparral Reserve, which is managed by the University of California Reserve System, north of MCAS Miramar from approximately MP 43.5 to MP 44. This area is contiguous with the 23,065-acre MCAS Miramar, which itself serves as a wildlife corridor and preserve area. MCAS Miramar is contiguous to the approximately 5,800-acre Mission Trails Regional Park, south of SR-52. Wildlife crossing corridors under SR-52 are in place between MCAS Miramar and Mission Trails Regional Park to promote wildlife connectivity.

### **5.7.1 Aquatic Species**

Aquatic species are also known to migrate within wetland and drainages. Within the BRSA, the San Luis Rey River and—to a lesser extent—the San Dieguito River/Lake Hodges serve as linkages for aquatic species. Aquatic species cannot migrate beyond the dam on the San Dieguito River, but aquatic species could migrate when water is present within the reservoir and in upstream portions. Other drainages—including Rainbow Creek, Moosa Creek, Escondido Creek, Poway Creek, Beeler Creek, and Carroll Canyon Creek—could also provide wildlife connectivity for aquatic species while water is flowing within those drainages.

## **5.8 AQUATIC RESOURCES AND RIPARIAN HABITAT**

Aquatic resources in the form of wetlands, drainages, and riparian areas were observed within the BRSA. A Preliminary Wetlands and Waters Assessment has been prepared in compliance with the USACE's Minimum Standards for Acceptance for Preliminary Wetlands Delineations (USACE 2001) and Final Map and Drawing Standards for the South Pacific Division Regulatory Program (USACE 2012), and it is provided in Attachment C: Preliminary Wetlands and Waters Assessment. Attachment B: Wetland and Waters Assessment Map within Attachment C: Preliminary Wetlands and Waters Assessment shows the locations of the wetlands and waters identified within the BRSA and described in the following subsections.

As summarized in Table 8: Potential Jurisdictional Hydrological Features within the BRSA, a total of approximately 149.8 acres of potential USACE- and RWQCB-jurisdictional areas and approximately 157.8 acres of potential CDFW-jurisdictional areas were mapped within the BRSA.



**Table 8: Potential Jurisdictional Hydrological Features within the BRSA**

Feature Type	Potential USACE- and RWQCB- Jurisdictional Area <sup>22</sup>		Potential CDFW- Jurisdictional Area <sup>23</sup> (acres)
	Acres	Linear Feet	
Wetlands	139.3	N/A	N/A
Ephemeral Drainages	3.4	52,125	10.9
Intermittent Drainages	6.7	43,811	20.0
Perennial Drainages	0.4	363	4.0
Riparian Vegetation	N/A	N/A	122.9
<b>Total Jurisdictional Area<sup>24</sup></b>	<b>149.8</b>	<b>96,300</b>	<b>157.8</b>

**5.8.0 USACE- and RWQCB-Jurisdictional Features**

A total of 145 drainages potentially under the jurisdiction of the USACE and RWQCB were mapped within the BRSA, comprising approximately 10.5 acres (96,300 linear feet) within the limits of the OHWM. Wetlands potentially under the jurisdiction of the USACE and RWQCB comprised a total of approximately 139.3 acres within the BRSA. Table 8: Potential Jurisdictional Hydrological Features within the BRSA summarizes the waters of the U.S. (i.e., drainages and wetlands) mapped within the BRSA. Attachment C: Wetland and Water Survey Results of Attachment C: Preliminary Wetlands and Waters Assessment provides additional information (i.e., acreage and type of feature) for each mapped wetland or water feature within the BRSA.

Upstream portions of two USACE-defined TNWs are located within the BRSA: the San Luis Rey River, and the dammed portion of the San Dieguito River (referred to as Lake Hodges). However, the USACE considers the San Dieguito River a TNW only from the coast to near I-5, which is located more than 10 miles downstream of the BRSA. The San Luis Rey River is considered a TNW from the coast to SR-76, which is located approximately six miles downstream of the BRSA. The San Luis Rey River’s reach within the BRSA was dry during surveys in 2014 and 2015, but upstream and downstream portions of this river do exhibit flow during most of the year. Historic drought conditions may also be causing drier-than-normal hydrological flow. As a result, it is likely that this reach of the San Luis Rey River exhibits perennial flow during normal rain years. The portion of the San Dieguito River/Lake Hodges that is within the BRSA was also dry during surveys in 2014 and 2015. This stretch is presumed to exhibit an intermittent hydrological regime.

In total, 25 intermittent drainages were observed within the BRSA. These include many of the named drainage features (i.e., Rainbow Creek, Moosa Creek, Reidy Canyon Creek, Escondido

<sup>22</sup> These numbers include the area within the OHWM for drainages potentially under the jurisdiction of the USACE and RWQCB.

<sup>23</sup> The distance between TOBs was used to measure the area of streams under the jurisdiction of the CDFW.

<sup>24</sup> Figures do not sum due to rounding.

Creek, Poway Creek, Beeler Creek, San Clemente Canyon Creek, and Elanus Canyon Creek). Four of these intermittent drainages also exhibited ephemeral flow in at least a portion of the area mapped within the BRSA. Biologists also mapped 119 ephemeral drainages, which are generally considered to be tributaries due their direct or indirect flow into a TNW.

Potential USACE- and RWQCB-jurisdictional wetlands comprise a total of approximately 139.3 acres within the BRSA based on the presence of dominant hydrophytic vegetation communities. No soil pits were dug within these potential wetland areas; as a result, it was not possible to determine if these areas also met the hydric soil and hydrology parameters of the wetland delineation test, as outlined in the Wetlands Delineation Manual (Environmental Laboratory 1987). As such, the mapped wetland totals included in Table 8: Potential Jurisdictional Hydrological Features within the BRSA likely overestimate the USACE-jurisdictional wetland areas present within the BRSA.

### **5.8.1 CDFW-Jurisdictional Areas**

A total of approximately 157.9 acres of potential CDFW-jurisdictional features, including 35.0<sup>25</sup> acres of drainages and 122.9 acres of riparian vegetation, were identified within the BRSA, as summarized in Table 8: Potential Jurisdictional Hydrological Features within the BRSA and pursuant to Section 1600 of the California Fish and Game Code. The approximately 157.9 acres include the area within the TOBs of all 145 drainage features, as well as riparian areas, which include approximately 21.5 acres of coast live oak woodland vegetation. These areas were not dominated by hydrophytic vegetation, but have a continuous canopy of coast live oak trees that are associated with drainage features observed within the BRSA.

### **5.8.2 Non-Jurisdictional Features**

While mapping drainages, biologists also noted non-jurisdictional linear features, such as swales or erosional features. These features will not fall under the jurisdiction of the USACE, RWQCB, or CDFW. Concrete-lined ditches with ephemeral that were neither relocated tributaries nor excavated in a tributary were determined to be non-jurisdictional, and were not further documented. These non-jurisdictional ditches appeared to carry water only from anthropogenic sources (e.g., landscape run-off, etc.).

## **6 – IMPACTS**

This section describes potential impacts to sensitive biological resources—including special-status plants and animals, and waters of the U.S. and the State—that may occur in the Proposed Project area. Each impact discussion is accompanied by APMs that will be implemented during the Proposed Project to avoid and/or reduce the potential for and/or level of impacts to each resource. A complete list of APMs that have been proposed is included in Section 7 – Applicants-Proposed Measures.

The Applicants intend to prepare a Biological Assessment for federally and state-listed species that may be adversely affected by the Proposed Project, and will request a Biological Opinion

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<sup>25</sup> Figures do not sum due to rounding to the nearest tenth.

and take coverage under Section 7<sup>26</sup> of the FESA and a Section 2081 ITP under the CESA. Species that may be adversely affected by the Proposed Project include, but are not limited to, the arroyo toad, coastal California gnatcatcher, least Bell's vireo, Quino checkerspot butterfly, Riverside fairy shrimp, San Diego fairy shrimp, southwestern willow flycatcher, and Stephens' kangaroo rat. The Applicants will conduct construction activities in accordance with the permit requirements and authorizations established through the Section 7 consultation process, as described in the following subsections. The Applicants will conduct construction activities in accordance with the permit requirements and authorizations established through the Section 7 consultation process. Temporary and permanent impacts to federally and state-listed species and their habitats will be mitigated at a one-to-one ratio, or as required by the USFWS and the CDFW.

## 6.0 CONSTRUCTION-RELATED IMPACTS

### 6.0.0 General Vegetation Communities

A variety of vegetation communities occur in the BRSA. Construction of the Proposed Project will result in temporary impacts to approximately 496.3 acres and permanent impacts to up to 1.5 acres to these vegetation communities, primarily through vegetation removal, grading, and other ground disturbance from construction activities. The temporary and permanent impacts are summarized in Table 9: Potential Impacts to Vegetation Communities.

Vegetation clearing within the ROW, temporary HDD workspace areas, and laydown yards is anticipated to result in approximately 496.3 acres of direct temporary impacts to all vegetation communities and land cover types observed within the BRSA. Of these approximately 496.3 acres, urban/developed areas comprise approximately 356.1 acres. As a result, direct temporary impacts are anticipated to affect approximately 140.2 acres of native and naturalized vegetation other than these urban/developed areas. Construction will be discontinuous and vegetation clearing will not occur in all areas simultaneously.

Indirect temporary impacts to vegetation communities may result from construction activities that could deposit additional dust on plants, reducing the photosynthetic vigor of these vegetation communities. The Proposed Project may also result in indirect impacts to vegetation communities if noxious weed seeds are spread during construction. If allowed to establish and spread, these weeds could alter the species composition of these vegetation communities.

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<sup>26</sup> Section 7 of the FESA, called "Interagency Cooperation," is the mechanism by which federal agencies ensure the actions they take, including those they fund or authorize, do not jeopardize the existence of any federally listed species. Section 7 consultation occurs between a federal agency, whose actions may affect a listed species, and the USFWS. Discussions between the two agencies may include what types of listed species may occur in the proposed action area, and what effect the proposed action may have on those species. Because a portion of the Proposed Project is located on MCAS Miramar, the Department of the Navy (i.e., the USMC) may consult with the USFWS to address potential impacts to federally listed species resulting from the Proposed Project.

**Table 9: Potential Impacts to Vegetation Communities**

General Habitat Type	Vegetation Community	Approximate Permanent Impacts (acres)	Approximate Temporary Impacts (acres)	Approximate Total Impacts (acres)
Disturbed or Developed Habitat	Disturbed Habitat	0.1	7.9	8.0
	Urban/Developed	0.5	356.1	356.5
	Ornamental	0	1.1	1.1
	Orchard/Vineyard	0.1	13.0	13.1
	Intensive Agriculture – Dairies, Nurseries, Chicken Ranches	0	1.8	1.8
	Row Crops	0	0	0
Scrub and Chaparral	Diegan Coastal Sage Scrub*	0.1	18.3	18.4
	Diegan Coastal Sage Scrub (open, disturbed)*	0	0.1	0.1
	Diegan Coastal Sage Scrub ( <i>Adolphia californica</i> -dominated)*	0	<0.1	<0.1
	Diegan Coastal Sage Scrub (burned)*	0	0.9	0.9
	Diegan Coastal Sage Scrub (disturbed)*	<0.1	14.4	14.4
	Diegan Coastal Sage Scrub (open)*	0	3.1	3.1
	Diegan Coastal Sage Scrub (restored)*	0	6.3	6.3
	Diegan Coastal Sage Scrub: <i>Baccharis</i> -Dominated*	0.1	2.0	2.1
	Diegan Coastal Sage Scrub: <i>Baccharis</i> -Dominated (disturbed)*	0	0	0
	Southern Mixed Chaparral*	0	5.3	5.5
	Southern Mixed Chaparral (burned)*	0	2.2	2.2
	Chamise Chaparral	0	8.7	8.7
	Coastal Sage-Chaparral Transition*	0	0.8	0.8

General Habitat Type	Vegetation Community	Approximate Permanent Impacts (acres)	Approximate Temporary Impacts (acres)	Approximate Total Impacts (acres)
Grasslands, Vernal Pools, Meadows, and Other Herb Communities	Valley Needlegrass Grassland*	<0.1	0	<0.1
	Non-Native Grassland: Broadleaf-Dominated	0.1	13.9	13.9
	Non-Native Grassland (Annual Grassland)	0.5	15.1	15.6
	Vernal Pool*	0	0	0
	Freshwater Seep*	0	0.3	0.3
	Freshwater Seep (disturbed)*	0	0	0
Bog and Marsh	Cismontane Alkali Marsh*	0	1.3	1.3
	Coastal and Valley Freshwater Marsh*	0	<0.1	<0.1
	Emergent Wetland*	0	0	0
	Herbaceous Wetland*	0	<0.1	<0.1
	Herbaceous Wetland (disturbed)*	0	0	0
Riparian and Bottomland Habitat	Southern Coast Live Oak Riparian Forest*	0	0.1	0.1
	Southern Coast Live Oak Riparian Forest (disturbed)*	0	0	0
	Southern Cottonwood-Willow Riparian Forest*	0	0.9	0.9
	Southern Willow Scrub*	0	0.1	0.1
	Southern Willow Scrub (disturbed)*	0	<0.1	<0.1
	Mule Fat Scrub*	0	0.1	0.1
	Tamarisk Scrub*	0	0	0
	Fresh Water (Open Water)*	0	0	0
	Non-Vegetated Floodplain or Channel*	0	0.9	0.9
	Non-Native Riparian*	0	<0.1	<0.1
	Arundo-Dominated Riparian*	0	0	0

General Habitat Type	Vegetation Community	Approximate Permanent Impacts (acres)	Approximate Temporary Impacts (acres)	Approximate Total Impacts (acres)
Woodland	Open Coast Live Oak Woodland (<50%)*	0	4.0	4.0
	Open Coast Live Oak Woodland (<50%) (burned)*	0	0.3	0.3
	Open Coast Live Oak Woodland (<50%) (disturbed)*	0	0.2	0.2
	Dense Coast Live Oak Woodland (>50%)*	0	0.4	0.4
	Dense Coast Live Oak Woodland (>50%) (disturbed)*	0	0.1	0.1
	Undifferentiated Open Woodland	0	0.1	0.1
	Non-Native Woodland	0	2.4	2.4
	Non-Native Woodland (burned)	0	0.1	0.1
	Eucalyptus Woodland	0.1	14.1	14.3
<b>Total</b>		<b>1.5</b>	<b>496.3</b>	<b>496.8</b>

\*Sensitive natural community. Totals may not be precise due to rounding.

Construction of MLVs and aboveground facilities will result in permanent impacts to approximately 1.5 acres within all vegetation communities and land cover types. Of the approximately 1.5 acres, urban/developed areas comprise 0.5 acre. As a result, permanent impacts are anticipated to affect approximately one acre of native and naturalized vegetation. These permanent impacts will occur only to upland vegetation communities; riparian or wetland communities are not anticipated to be permanently impacted by construction activities associated with the Proposed Project.

To reduce impacts to vegetation communities, the Applicants will implement APM-BIO-01, which states that biological monitors will be present during vegetation removal and initial ground-disturbing activities within native habitat and verify that activities are in compliance with the Proposed Project permits and authorizations. The Applicants will demarcate the boundaries of work limits and sensitive habitats and resources that will be avoided in accordance with APM-BIO-02. Demarcating the boundaries of construction areas will minimize the potential for impacts to vegetation communities outside of approved work areas. If impacts to vegetation communities are unavoidable, the Applicants will implement a Habitat Restoration Plan in accordance with APM-BIO-03, which will guide restoration of temporarily impacted areas. The Applicants will also prepare and implement a Noxious and Invasive Weed Management Plan (NIWMP) in accordance with APM-BIO-04 to reduce impacts associated with the spread of noxious weeds in the construction areas. These APMs are presented and discussed in Section 7 – Applicants-Proposed Measures.

### 6.0.1 Special-Status Plant Species

Nineteen special-status plant species were documented within the BRSA during the spring 2015 special-status plant surveys, as detailed in Table 5: Special-Status Plant Occurrences within the BRSA. Attachment C: Special-Status Plant Species Occurrences Map of Attachment B: Special-Status Plant Species Survey Report depicts the locations of special-status plant species documented within the BRSA. Of the 19 species observed, the following 11 species were documented within areas proposed for temporary construction activities associated with the Proposed Project:

- ashy spike-moss,
- Brewer’s calandrinia,
- Engelmann oak,
- golden-rayed pentachaeta,
- graceful tarplant,
- long-spined spineflower,
- Orcutt’s brodiaea,
- San Diego barrel cactus,
- San Diego County viguiera,
- San Diego goldenstar, and
- western dichondra.

Construction activities associated with the Proposed Project (i.e., earth-moving/grading, vegetation removal, and vehicle travel) have the potential to result in mortality of special-status plant species that occur within temporary construction areas, particularly within MCAS Miramar

and other cross-country sections of the Proposed Project. These activities may result in the loss of individual special-status plants, disturbance of their seed banks due to topsoil movement or removal, or the introduction of invasive species/noxious weeds that could eventually outcompete special-status plant species and thereby reduce long-term viability. Temporary direct impacts to special-status plants may also include unauthorized collection or trampling by construction personnel.

Temporary indirect impacts to special-status plant species documented both within and near construction areas could result from construction-related runoff, sedimentation, and erosion, which have the potential to alter site conditions sufficiently to favor the establishment of other native and non-native species. In addition, construction-related dust could reduce the metabolic rates of special-status plant species within and in the vicinity of construction areas, thus affecting long-term survival.

Under the County of San Diego's Guidelines for Determining Significance for Biological Resources, any impacts to county List A or B plant species—which include all CRPR 1B and 2B species observed within the BRSA—are considered to be significant. According to the county's guidelines, if it is determined that a given project will not have a substantial adverse effect on the local long-term survival of a special-status plant species, and if less than five percent of that species and its habitat will be impacted, impacts to these CRPR 1B and 2B special-status plant species are considered to be less than significant. Using this metric, impacts to four special-status CRPR 1B and 2B plant species—long-spined spineflower, Orcutt's brodiaea, San Diego barrel cactus, and San Diego goldenstar—are considered to be potentially significant because impacts to these species will exceed five percent of the total area mapped within the BRSA.

According to the County of San Diego's Guidelines for Determining Significance for Biological Resources, impacts to the county's List C or D species—which include CRPR 3 and 4 species observed within the BRSA—will be considered significant if the Proposed Project impacts the local long-term survival of those species. These CRPR 3 and 4 species were generally observed at the landscape level (i.e., hundreds or thousands of individuals) within the BRSA, and publicly available data (e.g., the SDNHM distribution mapping) show that these species occur in multiple locations elsewhere in San Diego County. As a result, it can be reasonably concluded that there will be no threat to the long-term survival of these CRPR 3 and 4 species as a result of the Proposed Project.

Table 10: Potential Impacts to Special-Status Plant Species lists the total individuals of each special-status plant species within the BRSA and temporary impact areas, and quantifies the anticipated percentage of individual plants that will be impacted.

The Proposed Project will result in approximately 1.0 acres of permanent impacts to potential special-status plant habitat (i.e., all areas proposed for permanent impacts other than urban/developed areas). However, focused surveys for special-status plants did not result in any observations of special-status plants in areas proposed for permanent impacts.



**Table 10: Potential Impacts to Special-Status Plant Species**

<b>Species</b>	<b>Listing Status</b>	<b>Total Number of Individuals Observed in the BRSA</b>	<b>Estimated Number of Individuals within the Temporary Impact Area</b>	<b>Percent of Individuals within the Temporary Impact Area</b>
Ashy spike-moss ( <i>Selaginella cinerascens</i> )	4.1	33,000	4,763	14
Brewer's calandrinia ( <i>Calandrinia breweri</i> )	4.2	121	120	99
California adolphia ( <i>Adolphia californica</i> )	2B.1	750	0	0
Decumbent goldenbush ( <i>Isocoma menziesii</i> var. <i>decumbens</i> )	2B.1	145	0	0
Engelmann oak ( <i>Quercus engelmannii</i> )	4.2	67	1	1
Golden-rayed pentachaeta ( <i>Pentachaeta aurea</i> ssp. <i>aurea</i> )	4.2	5,787	5073	88
Graceful tarplant ( <i>Holocarpha virgata</i> ssp. <i>elongata</i> )	4.2	589	5	1
Long-spined spineflower ( <i>Chorizanthe polygonoides</i> var. <i>longispina</i> )	1B.2	1,351	511	38
Nuttall's scrub oak ( <i>Quercus dumosa</i> )	1B.1	321	0	0
Orcutt's brodiaea ( <i>Brodiaea orcuttii</i> )	1B.1	2,309	107	5
Parry's tetracoccus ( <i>Tetracoccus dioicus</i> )	1B.2	50	0	0
San Diego barrel cactus ( <i>Ferocactus viridescens</i> )	2B.1	1	1	100
San Diego County viguiera ( <i>Bahiopsis [Viguiera] laciniata</i> )	4.2	1,334	249	19

<b>Species</b>	<b>Listing Status</b>	<b>Total Number of Individuals Observed in the BRSA</b>	<b>Estimated Number of Individuals within the Temporary Impact Area</b>	<b>Percent of Individuals within the Temporary Impact Area</b>
San Diego goldenstar ( <i>Bloomeria clevelandii</i> )	1B.1	3,991	2,886	72
San Diego sagewort ( <i>Artemisia palmeri</i> )	4.2	37	0	0
Small-flowered microseris ( <i>Microseris douglasii</i> ssp. <i>platycarpa</i> )	4.2	50	0	0
Southwestern spiny rush ( <i>Juncus acutus</i> ssp. <i>leopoldii</i> )	4.2	16	0	0
Summer holly ( <i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i> )	1B.2	1	0	0
Western dichondra ( <i>Dichondra occidentalis</i> )	4.2	580	0	0

Source: CNPS 2014

To ensure that special-status plant species will not be impacted by the Proposed Project, and in accordance with APM-BIO-06, the Applicants will conduct pre-construction surveys for federally listed, state-listed, and CRPR 1 and 2 plants within one year prior to the start of construction. Surveys will be conducted in areas adjacent to or within the construction areas that have potential for special-status plants to occur. These surveys will be conducted in accordance with CDFW (2009), USFWS (1996) and CNPS (2001) guidelines within impact areas associated with the Proposed Project.<sup>27</sup> Federally listed, state-listed, or CRPR 1 and 2 special-status plant species that the Applicants determine can be avoided will be demarcated or flagged for avoidance prior to construction. In locations where special-status plant species cannot be avoided, such as within the temporary work areas on MCAS Miramar, the Applicants will develop and implement a Habitat Restoration Plan, as required by APM-BIO-03, and will include measures for restoring habitat for federally listed, state-listed, or CRPR 1 and 2 special-status plant species that may be impacted by construction activities. The Applicants will prepare and implement an NIWMP in accordance with APM-BIO-04, which will reduce the threat from the spread of noxious weeds.

One Engelmann oak tree was documented within Proposed Project temporary impact areas. In accordance with APM-BIO-05, native oaks that occur within the Proposed Project area will be avoided during construction activities or mitigated for in accordance with local jurisdictional requirements. Permanent impacts from unauthorized trampling and collection of special-status plant species will be minimized through implementation of APM-BIO-07, which specifies that all construction personnel will attend training on minimizing impacts to special-status species, as well as APM-BIO-08, which prohibits the collection of plants and requires vehicles and personnel to use authorized travel routes. These APMs are presented and discussed in Section 7 – Applicants-Proposed Measures.

## 6.0.2 General Wildlife Species

Potential impacts to wildlife species include being crushed by construction vehicles or by vegetation removal as a result of Proposed Project construction activities. These potential impacts are most likely to occur on MCAS Miramar, where cross-country construction activities are proposed and habitat for many common wildlife species has been documented. Wildlife species may also fall into areas excavated for the Proposed Project and they may become trapped, which could result in mortality or injury. Construction activities may also result in mortality of wildlife traveling across access roads within the temporary construction areas.

Temporary indirect impacts to all wildlife species within construction areas may result from construction noise and ground vibration, as mammals may be deterred from inhabiting or foraging in areas near such activities. In addition, temporary indirect impacts associated with nighttime construction activities may result in temporary avoidance of construction areas by nocturnal small mammals due to lighting. Wildlife species may be temporarily affected by night

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<sup>27</sup> Although special-status plant surveys were conducted in 2015, pre-construction special-status plant surveys will be required per APM-BIO-06 because the abundance and distribution of annual special-status plants may change by the time construction is scheduled. Despite this, the less-than-significant conclusions drawn from the impact analysis presented in this BRTR for special-status plant species is not anticipated to change as a result of these pre-construction surveys because the Proposed Project impacts are limited and the populations extend beyond the Proposed Project limits and BRSA.

lighting if such lighting causes confusion or disorientation during important feeding times (typically at dusk). The Proposed Project may also result in indirect impacts to general wildlife species if noxious weed seeds are spread within occupied habitats during construction. If allowed to establish and spread, these weeds could alter the species composition of the habitat areas where wildlife are present, which could potentially result in declines in the fecundity of these species.

The Proposed Project will result in approximately one acre of permanent impacts to potential habitat for general wildlife species (i.e., all areas proposed for permanent impacts other than urban/developed areas), as a result of construction of the permanent stations and MLVs. Because this area is small compared to regionally available habitat for general wildlife species, and because these permanent impacts will not result in the long-term decline in any general wildlife species, there will be no substantial adverse impact to general wildlife species resulting from these permanent impacts. As a result, permanent impacts to general wildlife habitat will be minimal.

To ensure that these wildlife species are not impacted as a result of construction activities associated with the Proposed Project, the Applicants will implement APM-BIO-01, which states that biological monitors will be present during construction in areas where these species may occur. The biological monitor will have the authority to halt any work activity that might result in impacts to resources and will demarcate the boundaries of work limits and sensitive habitats and resources that will be avoided in accordance with APM-BIO-02.

The Applicants will also implement APM-BIO-07, which specifies that all construction personnel will attend training on minimizing impacts to special-status species, as well as APM-BIO-08, which prohibits construction personnel from conducting activities that may harm or harass special-status wildlife species (i.e., hunting, feeding, and collecting wildlife). The Applicants will also secure open trenches and excavations in accordance with APM-BIO-09, and will inspect construction areas for local wildlife, which will reduce potential impacts to these species. APM-BIO-10 will minimize night lighting in construction areas located in potential wildlife habitat areas, and APM-BIO-11 will require drivers on the Proposed Project to minimize vehicle speeds to avoid mortality or injury of special-status mammals. APM-BIO-12 states that the Applicants will stop work and a qualified biologist will relocate special-status wildlife species occurring within construction areas to an appropriate habitat area that is out of harm's way. These APMs are presented and discussed in Section 7 – Applicants-Proposed Measures.

### **6.0.3 Special-Status Wildlife Species**

#### **Mammal Species**

Proposed Project construction activities—including the clearing of vegetation—may impact 11 special-status mammal species that are either present within the BRSA or have a moderate or high potential to occur within the BRSA, as discussed in the following paragraphs. San Diego black-tailed jackrabbit, an SSC, is present within the BRSA. Big free-tailed bat, pocketed free-tailed bat, San Diego desert woodrat, and western yellow bat have a high potential to occur within the BRSA. The following species have a moderate potential to occur:

- Dulzura pocket mouse,
- northwestern San Diego pocket mouse,

- Stephens' kangaroo rat,
- Townsend's big-eared bat,
- western mastiff bat, and
- western red bat.

Stephens' kangaroo rat, an FE and CT species, has the potential to occur within the BRSA in open coastal sage scrub, non-native grasslands, and disturbed areas, primarily in areas north of the City of Escondido in accordance with its documented range. During the habitat assessment, areas were identified that could potentially support Stephens' kangaroo rat, including within Laydown Yards #2, #3, #4, and #5. Direct impacts to Stephens' kangaroo rat could occur within these four laydown yards, where minor grading activities are proposed. These impacts could collapse burrows and/or directly injure or kill Stephens' kangaroo rats that are unable to escape. Temporary impacts to Stephens' kangaroo rats within construction areas may also result from construction noise and ground vibration, as this species may be deterred from inhabiting or foraging in areas near such activities.

Potential impacts to other special-status small mammals (i.e., San Diego black-tailed jackrabbit, San Diego desert woodrat, Dulzura pocket mouse, and northwestern San Diego pocket mouse) include being crushed by construction vehicles or by vegetation removal as a result of Proposed Project construction activities. These potential impacts are most likely to occur on MCAS Miramar where cross-country construction activities are proposed and habitat for these species has been documented. Special-status small mammals may also fall into areas excavated for the Proposed Project and they may become trapped, which could result in mortality or injury. Construction activities may also result in mortality of small mammals along access roads within the temporary construction areas. The Proposed Project may also result in indirect impacts to special-status wildlife species if noxious weed seeds are spread within occupied habitats during construction. If allowed to establish and spread, these weeds could alter the species composition of the habitat areas where special-status species are present, which could potentially result in declines in the fecundity of these species.

Potential impacts to special-status bat species include destruction of roost sites, which may include palm trees, as a result of vegetation clearing during construction. Impacts may also occur to special-status bat species if construction activities occur adjacent to important maternal roost sites, such as bridges or underpasses, and result in abandonment of those sites during the breeding season.

Temporary impacts to all special-status mammals occurring or potentially occurring within construction areas may result from construction noise and ground vibration, as mammals may be deterred from inhabiting or foraging in areas near such activities. In addition, temporary impacts associated with nighttime construction activities may result in temporary avoidance of construction areas by nocturnal small mammals due to lighting. Special-status bat species may be temporarily affected by night lighting if such lighting causes confusion or disorientation during important feeding times (typically at dusk). Conversely, night lighting may attract insects to an area, making it easier for special-status bats to locate food resources. Temporary impacts to small mammals may occur throughout the Proposed Project impact areas, but will be most pronounced on MCAS Miramar where construction activities will take place in close proximity to suitable habitat for these special-status mammal species.

The Proposed Project will result in approximately 1.0 acres of permanent impacts to potential special-status mammal habitat (i.e., all areas proposed for permanent impacts other than urban/developed areas). Permanent impacts to special-status mammal habitat are anticipated as a result of construction of the permanent stations and MLVs. Vegetation clearing and grading will occur within these areas, resulting in the removal of approximately 1.0 acres of habitat for special-status mammals. Because this area is small compared to regionally available habitat for special-status small mammal species, and because these permanent impacts will not result in the long-term decline in any special-status small mammal species, there will be no substantial adverse impact to special-status small mammal species resulting from these permanent impacts.

To ensure that these mammal species are not impacted as a result of the Proposed Project, the Applicants will implement APM-BIO-01, which states that biological monitors will be present during construction in areas where these species may occur. The biological monitor will have the authority to halt any work activity that might result in impacts to resources and will demarcate the boundaries of work limits and sensitive habitats and resources that will be avoided in accordance with APM-BIO-02. In accordance with APM-BIO-04, the Applicants will prepare and implement an NIWMP to reduce impacts associated with the spread of noxious weeds in the construction areas.

The Applicants will also implement APM-BIO-07, which specifies that all construction personnel will attend training on minimizing impacts to special-status species, as well as APM-BIO-08, which prohibits construction personnel from conducting activities that may harm or harass special-status wildlife species (i.e., hunting, feeding, and collecting wildlife). The Applicants will also secure open trenches and excavations in accordance with APM-BIO-09, and will inspect construction areas for local wildlife, which will reduce potential impacts to these species. APM-BIO-10 will minimize night lighting in construction areas located in potential wildlife habitat areas, and APM-BIO-11 will require drivers on the Proposed Project to minimize vehicle speeds to avoid mortality or injury of special-status mammals. APM-BIO-12 states that the Applicants will stop work and a qualified biologist will relocate special-status wildlife species occurring within construction areas to an appropriate habitat area that is out of harm's way.

In addition, the Applicants will implement APM-BIO-13, which calls for avoidance of potential Stephens' kangaroo rat habitat areas to the extent practical through preliminary design modifications. If avoidance of these habitat areas is not possible, the Applicants will conduct focused surveys to determine if Stephens' kangaroo rats are present. If Stephens' kangaroo rat is determined to occur within Proposed Project construction areas, and avoidance is not possible, then the Applicants will consult with the USFWS through Section 7 of the FESA. APM-BIO-14 will also be implemented, which requires the Applicants to avoid and minimize impacts to roosting bats by avoiding tree trimming during the bat breeding season; assessing a habitat's potential to support special-status bat species; and if applicable, establishing exclusionary zones around active roost sites. These APMs are presented and discussed in Section 7 – Applicants-Proposed Measures.

### **Avian Species**

Proposed construction activities may impact up to 11 special-status avian species that have either been observed on site or have a moderate or high potential to breed or forage within the

Proposed Project area, as summarized in Table 6: Special-Status Wildlife Species with Potential to Occur. Six special-status avian species—coastal California gnatcatcher, least Bell’s vireo, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler—were observed in the Proposed Project area. One species—least bittern—has a high potential for occurring within the BRSA; and four species—golden eagle, grasshopper sparrow, southwestern willow flycatcher, and western burrowing owl—have a moderate potential to occur within the BRSA. Impacts to these special-status species, and to other nesting birds protected by the MBTA and the California Fish and Game Code, may occur as a result of Proposed Project construction, as described in the following subsections.

Proposed Project activities that could adversely affect special-status avian species’ habitats include earth-moving/grading, vegetation trimming, and vegetation removal. Impacts to avian species may include the removal of nesting or foraging habitat and/or the removal of some food sources. Impacts to avian species may occur if nests are present within areas proposed for grading and vegetation clearing. Immature birds may be killed or injured if their nests are destroyed during construction activities. Construction activities also may result in direct injury or mortality to avian bird species as a result of collisions with construction vehicles. The Proposed Project may also result in impacts to special-status avian species if noxious weed seeds are spread within occupied habitats during construction. If allowed to establish and spread, these weeds could alter the species composition of the habitat areas where special-status species are present, which could potentially result in reduced fecundity of special-status avian species.

Temporary impacts to all avian species include the disruption of nesting behavior due to a temporary increase in the presence of humans, as well as noise from construction equipment and vehicles. Temporary impacts may also result from unauthorized actions from construction personnel, such as hunting or feeding of avian species. Night lighting associated with construction activities may also temporarily affect avian species’ roosting and foraging behavior, especially for avian species that are active after dark.

The Proposed Project will result in approximately 1.5 acres of permanent impacts to potential special-status avian habitat. This includes all areas proposed for permanent impacts, including urban/developed areas due to the potential for non-native trees to provide habitat for nesting and foraging avian species. Permanent impacts to special-status avian habitat are anticipated as a result of construction of the permanent stations and MLVs. Vegetation clearing and grading within these areas will occur, resulting in the removal of approximately 1.5 acres of habitat for special-status avian species. Because this area is small compared to the avian habitat available regionally, and because these permanent impacts will not result in the long-term decline of any avian species, there will be no substantial adverse impact on avian species resulting from these permanent impacts.

The Applicants will implement the following APMs, which will reduce impacts to avian species. APM-BIO-01 ensures that biological monitors are present during construction in areas where these species may occur. The biological monitor will have the authority to halt any work activity that might result in impacts to resources and will demarcate the boundaries of work limits and sensitive habitats and resources that will be avoided in accordance with APM-BIO-02.

Temporary impacts to avian species’ habitats will be restored in accordance with a Habitat Restoration Plan, as detailed in APM-BIO-03. In accordance with APM-BIO-04, the Applicants will prepare and implement an NIWMP to reduce impacts associated with the spread of noxious

weeds in the construction areas. APM-BIO-07 states that all construction personnel will attend training on minimizing impacts to special-status species, and APM-BIO-08 prohibits construction personnel from conducting activities that may harm or harass special-status wildlife species (e.g., hunting, feeding, and collecting). The Applicants will minimize night lighting in construction areas located in potential wildlife habitat areas in accordance with APM-BIO-10, and APM-BIO-11 states that drivers on the Proposed Project will minimize vehicle speeds to avoid mortality or injury of special-status mammals. In accordance with APM-BIO-12, crews will stop work if special-status avian species are observed within the Proposed Project construction areas, and work will not proceed in the immediate area until the animal has traveled off site on its own or has been relocated by a qualified biologist. Impacts to nesting bird species will be reduced by implementing an Applicants-prepared Nesting Bird Management Plan (NBMP) in accordance with APM-BIO-16. These APMs are presented and discussed in Section 7 – Applicants-Proposed Measures.

***Coastal California Gnatcatcher***

Breeding and foraging coastal California gnatcatcher individuals have been documented within the BRSA in scattered locations from near Canonita Road south to Scripps Poway Parkway, as shown in Figure A-6: Special-Status Wildlife Occurrences in Attachment A: Figures. The coastal California gnatcatchers observed within the vicinity of MP 11 occur within temporary impact areas associated with the temporary construction ROW. The remaining occurrences of this species are located outside of the Proposed Project impact areas. MCAS Miramar has also documented coastal California gnatcatcher adjacent to the BRSA, but generally outside of the Proposed Project impact areas. No occurrences of this species were located within permanent impact areas associated with the Proposed Project. Permanent and temporary impacts to coastal California gnatcatcher habitat are summarized in Table 11: Potential Impacts to Coastal California Gnatcatcher Habitat.

**Table 11: Potential Impacts to Coastal California Gnatcatcher Habitat**

<b>Impact Type</b>	<b>Approximate Permanent Impacts (acres)</b>	<b>Approximate Temporary Impacts (acres)</b>	<b>Approximate Total Impacts (acres)</b>
MLVs 2, 3, 4, 5, and 9	0.2	--	0.2
Permanent Facility (Rainbow Pressure-Limiting Station)	<0.01	--	0.03
Temporary Construction ROW	--	61.4	61.4
Temporary HDD Workspace	--	3.4	3.4
Laydown Yards	--	1.5	1.5
<b>Total</b>	<b>0.3</b>	<b>66.3</b>	<b>66.6</b>

Temporary impacts of up to 66.3 acres of coastal California gnatcatcher nesting and foraging habitat are anticipated due to the construction of the Proposed Project. Temporary impacts are



consistent with those described previously in the Avian Species section. Impacts will be most significant during the nesting season for this species, which is generally March through August.

Direct permanent impacts to approximately 0.3 acre of coastal California gnatcatcher nesting and foraging habitat are anticipated. The Proposed Project activities that could adversely affect coastal California gnatcatcher habitat include earth-moving/grading, vegetation trimming, and vegetation removal associated with permanent facilities (i.e., the Rainbow Pressure-Limiting Station) and MLVs 2, 3, 4, 5, and 9. These permanent impacts to coastal California gnatcatcher habitat will result in potential adverse effects to this FT species and state SSC.

To minimize adverse impacts to coastal California gnatcatcher, the Applicants will coordinate with the USFWS to obtain the necessary permits under the FESA, and comply with all permit requirements for this species. The Applicants will implement the following APMs, which will further reduce impacts to coastal California gnatcatcher. APM-BIO-01 will ensure that biological monitors are present during construction in areas where these species may occur. The Applicants will demarcate the boundaries of work limits and sensitive habitats and resources that will be avoided in accordance with APM-BIO-02. Temporary impacts to avian species' habitats will be restored in accordance with a Habitat Restoration Plan, as detailed in APM-BIO-03. In accordance with APM-BIO-04, the Applicants will prepare and implement an NIWMP to reduce impacts associated with the spread of noxious weeds in the construction areas. APM-BIO-07 states that all construction personnel will attend training on minimizing impacts to special-status species, and APM-BIO-08 prohibits construction personnel from conducting activities that may harm or harass special-status wildlife species (e.g., hunting, feeding, and collecting). The Applicants will minimize night lighting in construction areas located in potential wildlife habitat areas in accordance with APM-BIO-10, and APM-BIO-11 states that drivers on the Proposed Project will minimize vehicle speeds to avoid mortality or injury of special-status wildlife. In accordance with APM-BIO-12, crews will stop work if special-status avian species are observed within the Proposed Project construction areas, and work will not proceed in the immediate area until the animal has traveled off site on its own. Impacts to nesting bird species will be reduced by implementing an Applicants-prepared NBMP in accordance with APM-BIO-16. These APMs are presented and discussed in Section 7 – Applicants-Proposed Measures.

### ***Riparian Bird Species***

Nesting least Bell's vireos have been confirmed within four drainages in the BRSA, as described in Attachment F: Riparian Bird Survey Report. In addition, MCAS Miramar has documented the presence of least Bell's vireo within both the Middle San Clemente Canyon and Elanus Canyon areas of the BRSA in 2011, as detailed in Attachment K: Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*) Surveys at Marine Corps Air Station Miramar 2011 Report. A single migratory willow flycatcher, whose subspecies was undetermined, was documented in one location within the BRSA in an isolated southern willow scrub stand in the City of Poway. The presence of foraging and/or migratory southwestern willow flycatcher is therefore presumed within the BRSA. There is a moderate potential for southwestern willow flycatcher to breed within the BRSA. In addition, multiple yellow warbler and yellow-breasted chat individuals were observed within the BRSA.

The Proposed Project will result in temporary impacts of up to 1.5 acres within riparian communities, which provide habitat for the least Bell's vireo, southwestern willow flycatcher,

yellow-breasted chat, and yellow warbler. As summarized in Table 12: Potential Impacts to Special-Status Riparian Bird Habitat, temporary impacts are anticipated from the temporary construction ROW and temporary HDD workspace areas. No permanent impacts to riparian bird nesting and foraging habitat are anticipated.

**Table 12: Potential Impacts to Special-Status Riparian Bird Habitat**

<b>Impact Type</b>	<b>Approximate Permanent Impacts (acres)</b>	<b>Approximate Temporary Impacts (acres)</b>	<b>Approximate Total Impacts (acres)</b>
Temporary Construction ROW	--	1.3	1.3
Temporary HDD Workspace	--	0.2	0.2
<b>Total</b>	<b>--</b>	<b>1.5</b>	<b>1.5</b>

Impacts may occur to special-status riparian bird species if nests are present within areas proposed for grading and vegetation clearing. Immature special-status riparian birds may be killed or injured if their nests are inadvertently destroyed during construction activities.

The Proposed Project activities that could temporarily affect special-status riparian bird habitat include earth-moving/grading, tree trimming, and tree removal associated with the temporary impact areas (i.e., laydown yards, bore pits, and temporary HDD workspace areas), which could temporarily reduce their available habitat. Temporary indirect impacts to special-status riparian birds are consistent with those described previously in the Avian Species section, and may also include the disruption of foraging and breeding behavior due to a temporary increase in the presence of humans, as well as noise from construction equipment and vehicles. Impacts will be most significant during the nesting season for these species, which is generally April 10 through July 31 for least Bell’s vireo, mid-May to mid-July for southwestern willow flycatcher, late April through early August for yellow-breasted chat, and late May through early June for yellow warbler.

To minimize potential adverse impacts to federally and state-listed riparian bird species, the Applicants will coordinate with the USFWS to obtain necessary permits under the FESA for impacts to the least Bell’s vireo and southwestern willow flycatcher. The Applicants will also implement APM-BIO-01 to ensure that biological monitors are present during construction in areas where special-status riparian bird species may occur. The Applicants will demarcate the boundaries of work limits and sensitive habitats and resources that will be avoided in accordance with APM-BIO-02. Temporary impacts to avian species’ habitats will be restored in accordance with a Habitat Restoration Plan, as detailed in APM-BIO-03. In accordance with APM-BIO-04, the Applicants will prepare and implement an NIWMP to reduce impacts associated with the spread of noxious weeds in the Proposed Project construction areas. APM-BIO-07 states that all construction personnel will attend training on minimizing impacts to special-status species, and APM-BIO-08 prohibits construction personnel from conducting activities that may harm or harass special-status wildlife species (e.g., hunting, feeding, and collecting). The Applicants will minimize night lighting in construction areas located in potential wildlife habitat areas in accordance with APM-BIO-10, and APM-BIO-11 states that drivers on the Proposed Project will minimize vehicle speeds to avoid mortality or injury of special-status riparian birds. In

accordance with APM-BIO-12, crews will stop work if special-status avian species are observed within the Proposed Project construction areas, and work will not proceed in the immediate area until the animal has traveled off site on its own. Impacts to nesting bird species will be reduced by implementing an Applicants-prepared NBMP in accordance with APM-BIO-16. These APMs are presented and discussed in Section 7 – Applicants-Proposed Measures.

### ***Golden Eagle***

Impacts to foraging golden eagles may include the removal of foraging habitat and/or the removal of some food sources. No direct take of individual birds is anticipated and no impacts to breeding golden eagle habitat are expected. Temporary impacts to golden eagle foraging habitat are anticipated due to Proposed Project construction by changing the prey availability within construction areas. The temporary lack of vegetation within construction areas may make golden eagle prey easier to detect, which could provide an advantage to foraging avian species in general, but there may also be a resulting decline in prey availability while vegetation is still recovering from the initial impact. These changes in prey availability and foraging quality will last only for a short time, and golden eagles could forage in other areas outside of the BRSA. Temporary impacts are consistent with those described previously in the Avian Species section, and may also include the disruption of foraging behavior due to a temporary increase in the presence of humans, as well as noise from construction equipment and vehicles.

Approximately 1.2 acres of permanent impacts to golden eagle foraging habitat (i.e., all areas proposed for permanent impacts other than urban/developed areas) are anticipated due to the construction of the Proposed Project. Permanent impacts include the construction of permanent facilities and MLVs, resulting in the reduction in prey (e.g., ground squirrels and other small mammals) availability in these areas. Vegetation clearing and grading within these areas will occur, resulting in the removal of approximately 1.2 acres of foraging habitat for golden eagle. Because this area is small compared to the foraging habitat that is available regionally, and because these permanent impacts will not result in the long-term decline in golden eagle population levels, there will be no substantial adverse impact to golden eagle resulting from these permanent impacts.

To minimize impacts to golden eagle, the Applicants will also implement APM-BIO-01 to ensure that biological monitors are present during construction in areas where these species may occur. The Applicants will demarcate the boundaries of work limits and sensitive habitats and resources that will be avoided in accordance with APM-BIO-02. Temporary impacts to avian species' habitats will be restored in accordance with a Habitat Restoration Plan, as detailed in APM-BIO-03. In accordance with APM-BIO-04, the Applicants will prepare and implement an NIWMP to reduce impacts associated with the spread of noxious weeds in the Proposed Project construction areas. APM-BIO-07 states that all construction personnel will attend training on minimizing impacts to special-status species, and APM-BIO-08 prohibits construction personnel from conducting activities that may harm or harass special-status wildlife species (e.g., hunting, feeding, and collecting). The Applicants will minimize night lighting in construction areas located in potential wildlife habitat areas in accordance with APM-BIO-10, and APM-BIO-11 states that drivers on the Proposed Project will minimize vehicle speeds to avoid mortality or injury of foraging golden eagle. In accordance with APM-BIO-12, crews will stop work if special-status avian species are observed within the Proposed Project construction areas, and

work will not proceed in the immediate area until the animal has traveled off site on its own. Impacts to nesting bird species will be reduced by implementing an Applicants-prepared NBMP in accordance with APM-BIO-16. These APMs are presented and discussed in Section 7 – Applicants-Proposed Measures.

### ***Western Burrowing Owl***

Western burrowing owl has not been documented within the BRSA; however, potentially suitable habitat for this species is present in scattered locations through the BRSA. The defining characteristics of suitable habitat for this species are the presence of burrows for roosting and nesting, as well as relatively short vegetation with only sparse shrubs. California ground squirrel burrows occur in multiple locations within the BRSA in or near grassland or other open areas, primarily in the northern areas within the BRSA. Potentially suitable habitat for western burrowing owl overlaps both permanent and temporary impact areas associated with the Proposed Project, and because this species is known to inhabit disturbed and urban areas (i.e., culverts or other surrogate burrow spaces created by humans), all vegetation communities and land cover types are considered potential habitat areas for western burrowing owl.

If present within the BRSA, impacts to western burrowing owls may include the removal of nesting or foraging habitat and/or the removal of some food sources. Temporary impacts to burrowing owl habitat are anticipated within up to 496.3 acres where temporary construction activities are proposed. Temporary impacts to western burrowing owl habitat occurring as a result of minor grading activities have the potential to displace individual western burrowing owls that are present, as well as reduce the availability of prey for this species. Impacts may also occur if western burrowing owls are present within areas proposed for grading and vegetation clearing.

Western burrowing owls may also experience a disruption of nesting behavior due to a temporary increase in the presence of humans, and noise from construction equipment and vehicles, as described previously in the Avian Species section. Impacts will be most significant during the nesting season, which is generally April 15 through July 15 for this particular species.

Permanent impacts to western burrowing owl habitat will be limited because only approximately 1.8 acres of permanent impacts to western burrowing owl habitat (i.e., all areas proposed for permanent impacts) are anticipated due to the construction of the Proposed Project. Permanent impacts include the construction of permanent facilities and MLVs, as vegetation clearing and grading will occur in these areas. However, no burrowing owls or large complexes of ground squirrel burrows were observed in areas proposed for permanent impacts, making it unlikely that these areas are occupied by western burrowing owl.

In accordance with APM-BIO-15, the Applicants will reduce impacts to western burrowing owl by conducting take-avoidance surveys prior to construction per the Staff Report on Burrowing Owl Mitigation (CDFW 2012). The Applicants will also implement APM-BIO-01 to ensure that biological monitors are present during construction in areas where these species may occur. The Applicants will demarcate the boundaries of work limits and sensitive habitats and resources that will be avoided in accordance with APM-BIO-02. Where temporary impacts affect burrowing owl habitats, restoration will occur in accordance with a Habitat Restoration Plan, as detailed in APM-BIO-03. In accordance with APM-BIO-04, the Applicants will prepare and implement an

NIWMP to reduce impacts associated with the spread of noxious weeds in the construction areas. APM-BIO-07 states that all construction personnel will attend training on minimizing impacts to special-status species, and APM-BIO-08 prohibits construction personnel from conducting activities that may harm or harass special-status wildlife species (e.g., hunting, feeding, and collecting). The Applicants will minimize night lighting in construction areas located in potential wildlife habitat areas in accordance with APM-BIO-10, and APM-BIO-11 states that drivers on the Proposed Project will minimize vehicle speeds to avoid mortality or injury of burrowing owl. In accordance with APM-BIO-12, crews will stop work if special-status avian species are observed within the Proposed Project construction areas, and work will not proceed in the immediate area until the animal has traveled off site on its own. Impacts to nesting bird species will be reduced by implementing an Applicants-prepared NBMP in accordance with APM-BIO-16. These APMs are presented and discussed in Section 7 – Applicants-Proposed Measures.

### *Other Avian Species*

Nesting birds protected under the MBTA have been observed within the BRSA. Impacts are expected to occur to nesting and foraging bird habitat within temporary and permanent impact areas through vegetation clearing and grading of suitable nesting bird habitat, including ground-nesting, shrub-nesting, and tree-nesting bird species. Impacts may also occur to nesting bird species if nests are present within areas proposed for grading and vegetation clearing. Immature avian species may be killed or injured if their nests are destroyed during construction activities.

Temporary impacts may include the disruption of nesting behavior due to a temporary increase in human presence, and noise from construction equipment and vehicles, as described previously in the Avian Species section. Temporary impacts to avian foraging and breeding habitat are anticipated within up to 496.3 acres where temporary construction activities are proposed. To be conservative, this figure includes all temporary impact areas, including urban/developed areas, because it is possible that birds protected by the MBTA will nest within trees located in urban/developed areas, as well as other areas dominated by native and naturalized vegetation.

Permanent impacts to foraging and breeding habitat for all avian species will be limited. Of the approximately 1.8 acres of permanent impacts anticipated for the Proposed Project, approximately 0.6 acre will occur within urban/developed areas that provide only minimal foraging and breeding habitat, as shown in Table 9: Potential Impacts to Vegetation Communities. Urban/developed areas include large golf course areas adjacent to large contiguous blocks of native habitat. Urban/developed areas also include individual trees not meeting the minimum mapping unit for mapping as a woodland community. In addition, impacts will be limited as there is an abundance of foraging and breeding habitat in areas adjacent to the BRSA. As a result, permanent impacts to approximately 1.8 acres of foraging and breeding habitat for avian species will be unlikely to result in adverse impacts to regional population levels of avian species.

The Applicants will reduce impacts to nesting bird species by implementing APM-BIO-01 to ensure that biological monitors are present during construction in areas where these species may occur. The Applicants will demarcate the boundaries of work limits and sensitive habitats and resources that will be avoided in accordance with APM-BIO-02. Avian species habitats that are temporarily impacted will be restored in accordance with a Habitat Restoration Plan, as detailed

in APM-BIO-03. In accordance with APM-BIO-04, the Applicants will prepare and implement an NIWMP to reduce impacts associated with the spread of noxious weeds in the construction areas. APM-BIO-07 states that all construction personnel will attend training on minimizing impacts to special-status species, and APM-BIO-08 prohibits construction personnel from conducting activities that may harm or harass special-status wildlife species (e.g., hunting, feeding, and collecting). The Applicants will minimize night lighting in construction areas located in potential wildlife habitat areas in accordance with APM-BIO-10, and APM-BIO-11 states that drivers on the Proposed Project will minimize vehicle speeds to avoid mortality or injury of special-status avian species. In accordance with APM-BIO-12, crews will stop work if special-status avian species are observed within the Proposed Project construction areas, and work will not proceed in the immediate area until the animal has traveled off site on its own. Impacts to nesting bird species will be reduced by implementing an Applicants-prepared NBMP in accordance with APM-BIO-16. These APMs are presented and discussed in Section 7 – Applicants-Proposed Measures.

### **Reptile and Amphibian Species**

Construction activities could potentially impact two special-status amphibian species—arroyo toad and western spadefoot—and the following eight special-status reptile species that are either present or have a moderate or high potential to occur within the Proposed Project area:

- Belding’s orange-throated whiptail,
- coast horned lizard,
- coast patch-nosed snake,
- Coronado skink,
- red diamond rattlesnake,
- silvery legless lizard,
- two-striped gartersnake, and
- western pond turtle.

Arroyo toad, an FE species, has the potential to occur within the BRSA in riparian and wetland habitats, primarily within the San Luis Rey River, the San Dieguito River/Lake Hodges, and associated tributaries. The arroyo toad has been documented within these drainages in the past, but not within the BRSA. Surveys for this species were completed in the spring of 2015, and no arroyo toad individuals or sign were documented within the BRSA. However, two surveyed drainages within the BRSA may still support arroyo toad during years with normal rainfall, as described in Attachment G: Arroyo Toad Survey Report. As a result, the Applicants will conduct additional surveys during a normal or above-normal rainfall year within these two drainages to confirm absence of arroyo toad.

If arroyo toad is documented within impact areas associated with the Proposed Project, impacts may include crushing of individuals by construction vehicles and the loss of available habitat by vegetation removal or grading activities. Arroyo toad may also fall into areas excavated for the Proposed Project and become trapped, which could result in mortality or injury. Potential impacts to arroyo toad within construction areas may also result from construction noise and ground vibration, as this species may be deterred from inhabiting or foraging in areas near such activities. Temporary impacts to wetland or riparian habitats are expected as a result of the

Proposed Project, but no permanent impacts to wetland and riparian habitats will result, which limits the potential risk to arroyo toad.

Impacts to other special-status amphibian or reptiles (i.e., Belding's orange-throated whiptail, coast horned lizard, coast patch-nosed snake, Coronado skink, red diamond rattlesnake, silvery legless lizard, striped gartersnake, western pond turtle, and western spadefoot) include being crushed by construction vehicles or by vegetation removal as a result of Proposed Project construction activities, particularly on MCAS Miramar where cross-country construction activities are proposed and where habitat for many of these species occurs. Special-status amphibians or reptiles may also fall into areas excavated for the Proposed Project and become trapped, which could result in mortality or injury. Construction activities may also result in mortality of amphibians or reptiles along access roads within the temporary construction areas. The Proposed Project may also result in impacts to special-status amphibian and reptile species if noxious weed seeds are spread within occupied habitats during construction. If allowed to establish and spread, these weeds could alter the habitat for special-status amphibian and reptile species. Impacts to western pond turtle will be limited because this species is primarily aquatic, and was found only in the All Seasons Recreational Vehicle Park, where Proposed Project impacts are not anticipated to occur.

Temporary impacts to all special-status amphibians or reptiles occurring or potentially occurring within construction areas may result from construction noise and ground vibration, as animals may be deterred from inhabiting or foraging in areas near such activities. In addition, temporary impacts associated with nighttime construction activities may result in temporary avoidance of construction areas due to lighting. These temporary impacts may occur throughout the Proposed Project impact areas, but will be most pronounced on MCAS Miramar where construction activities will take place in close proximity to suitable habitat for these special-status species.

The Proposed Project will result in approximately 1.2 acres of permanent impacts to potential special-status reptile habitat (i.e., all areas proposed for permanent impacts other than urban/developed areas). No permanent impacts are anticipated within riparian or wetland areas, which reduces the potential for special-status amphibian habitat to be impacted. Permanent impacts to special-status reptile habitat are anticipated as a result of construction of the permanent stations and MLVs. Vegetation clearing and grading within these areas will occur. Because this area is small compared to the special-status reptile habitat that is available regionally, and because these permanent impacts will not result in the long-term decline of any special-status reptile species, there will be no substantial adverse impacts to special-status reptiles resulting from these permanent impacts.

To ensure that special-status amphibians or reptiles are not impacted as a result of the Proposed Project, the Applicants will implement APM-BIO-01, which states that biological monitors will be present during construction in areas where these species may occur. The biological monitor will have the authority to halt any work activity that might result in impacts to resources and will demarcate the boundaries of work limits and sensitive habitats and resources that will be avoided in accordance with APM-BIO-02. APM-BIO-04 states that the Applicants will prepare and implement an NIWMP to reduce impacts associated with the spread of noxious weeds in the construction areas. The Applicants will also implement APM-BIO-07, which states that all construction personnel will attend training on minimizing impacts to special-status species, as

well as APM-BIO-08, which restricts construction personnel from conducting activities that may harm or harass special-status wildlife species (i.e., hunting, feeding, and collecting wildlife). APM-BIO-09 provides additional protection for wildlife species by requiring that open trenches and excavations are inspected for local wildlife, which will reduce potential impacts to these species. APM-BIO-10 will also be implemented to minimize night lighting in construction areas located in potential wildlife habitat areas, and APM-BIO-11 states that drivers on the Proposed Project will minimize vehicle speeds to avoid mortality or injury of special-status reptiles and amphibians. In accordance with APM-BIO-12, if a special-status wildlife species is identified on site, crews will immediately stop work, contact the Applicants, and a qualified biologist will relocate special-status wildlife species occurring within construction areas to appropriate habitat areas out of harm's way. These APMs are presented and discussed in Section 7 – Applicants-Proposed Measures.

### **Invertebrate Species**

Construction activities could potentially impact four special-status invertebrate species: Hermes copper butterfly, QCB, San Diego fairy shrimp, and Riverside fairy shrimp. Hermes copper butterfly and QCB both have a moderate potential to occur within suitable habitat in the Proposed Project area. San Diego fairy shrimp and Riverside fairy shrimp are presumed present within the vernal pool complexes located along the aqueduct road on MCAS Miramar. The following subsections describe the anticipated impacts to these four invertebrate species resulting from the Proposed Project.

#### ***Hermes Copper Butterfly and Quino Checkerspot Butterfly***

QCB, an FE species, has the potential to occur within the BRSA in open coastal sage scrub, open chaparral, grasslands, and herbaceous wetland/seep communities. Surveys for this species were completed in the spring of 2015.<sup>28</sup> No QCBs were observed. As such, no permanent or temporary impacts to this species are anticipated.

Habitat assessments determined that there are small patches of potentially suitable habitat for Hermes copper butterfly, an FC species. Approximately 20 spiny redberry individuals were identified within the BRSA during special-status plant surveys in 2015, and one such spiny redberry is located within the temporary impact area associated with the temporary construction ROW, as shown in Figure A-6: Special-Status Wildlife Occurrences in Attachment A: Figures. No Hermes copper butterfly individuals or their sign were observed during any surveys conducted for the Proposed Project in 2015. There is a moderate potential for Hermes copper butterfly to occur within the BRSA near mature spiny redberry plants that are located near California buckwheat shrubs, which the species uses as nectar sources. The following impact analysis is provided in the event that subsequent survey efforts document QCB within the BRSA, or in the event that the status of Hermes copper butterfly changes to FE or FT.

Potential impacts to these two butterflies, if observed within the BRSA, may include the removal of habitat, removal of larval host plants and/or nectar plants, and/or the removal of some food

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<sup>28</sup> An additional approximately 19 acres of suitable habitat for QCB within the Elliot Field Station were not surveyed in 2015 due to access constraints. These areas fall within the USFWS required survey areas for QCB, and as a result, will be surveyed prior to construction of the Proposed Project.



sources. If present within the construction areas, individuals of these two butterfly species may be killed or injured from construction vehicles. The Proposed Project may also result in impacts to special-status butterfly species if noxious weed seeds are spread within occupied habitats during construction. If allowed to establish and spread, the weeds could alter the species composition of the habitat areas where special-status butterflies are present.

Temporary impacts of up to 39.3 acres of QCB habitat are anticipated due to the construction of the Proposed Project. Temporary impacts will occur along the aqueduct road on MCAS Miramar. At this location, work will be conducted within a new easement adjacent to an existing, unpaved aqueduct road. Temporary impacts may also include the disruption of mating behavior due to a temporary increase in the presence of humans, or dust and noise from construction equipment and vehicles. Temporary impacts will be most significant during the flight season, which is generally mid-February through the second Saturday of May for QCB (USFWS 2014) and mid-May to July for Hermes copper butterfly.

Direct permanent impacts to approximately 0.3 acre of potential QCB habitat are anticipated due to the construction of the Line 2010 Cross-Tie facility within MCAS Miramar at the southern terminus of the Proposed Project. Because no QCBs were observed within these areas, it is not anticipated that these permanent impacts will result in any impacts to QCB.

To ensure that special-status butterflies are not impacted as a result of the Proposed Project, the Applicants will implement APM-BIO-01, which states that biological monitors will be present during construction in areas where these species may occur. The biological monitor will have the authority to halt any work activity that might result in impacts to resources and will demarcate the boundaries of work limits and sensitive habitats and resources that will be avoided in accordance with APM-BIO-02. In accordance with APM-BIO-04, the Applicants will prepare and implement an NIWMP to reduce impacts associated with the spread of noxious weeds that could adversely affect habitat following construction. The Applicants will also implement APM-BIO-07, which states that all construction personnel will attend training on minimizing impacts to special-status species, as well as APM-BIO-08, which restricts construction personnel from conducting activities that may harm or harass special-status wildlife species (i.e., hunting, feeding, and collecting wildlife). APM-BIO-11 requires construction traffic to minimize vehicle speeds to avoid mortality or injury of special-status butterflies. In accordance with APM-BIO-12, if a special-status wildlife species is identified on site, crews will immediately stop work and contact the Applicants. Work will not proceed in the immediate area until the animal has traveled off site on its own or has been relocated by a qualified biologist. If the identified special-status wildlife species is a federally and/or state-listed species, the USFWS and/or CDFW (depending upon the listing status) will be notified.

For Hermes copper butterfly, the MCAS Miramar INRMP specifies that if this species becomes listed as threatened or endangered, focused surveys must be completed prior to actions that will remove stands of its host plant (USMC 2014). If this species becomes listed prior to construction of the Proposed Project, SDG&E will implement APM-BIO-08 and will conduct pre-construction surveys for this species within suitable habitat areas, will coordinate with the USFWS to obtain the necessary permits under the FESA if a Hermes copper butterfly is observed within the BRSA, and will reduce impacts to Hermes copper butterfly by implementing the permit requirements, which may include implementing no-work buffers. In addition, the

Applicants will ensure that a USFWS-approved biological monitor is present, and will limit work in close proximity to active sites until after the flight season. In addition, temporary impacts to Hermes copper butterfly and QCB resulting from fugitive dust generated by Proposed Project activities will be minimized by watering unpaved construction surfaces to control dust emissions.

### ***San Diego Fairy Shrimp and Riverside Fairy Shrimp***

San Diego fairy shrimp and Riverside fairy shrimp are presumed present within the vernal pool complexes located along the aqueduct road on MCAS Miramar. These vernal pools will be completely avoided by the Proposed Project activities. During the dry summer months, indirect effects to vernal pools in the vicinity of the construction areas could result from exposure to fugitive dust generated by construction activities. Construction activities that could generate fugitive dust include the use of the unpaved roads by trucks and heavy equipment, and vegetation removal.

Indirect impacts to fairy shrimp habitat could also result from spillage of construction materials, such as fuel or oil leaking from construction vehicles. Chemical pollution within fairy shrimp habitat could result in chemical changes that could cause mortality of fairy shrimp individuals, and declines in reproductive fecundity of fairy shrimp in affected pools/ponded areas. Erosion and sedimentation could also occur within the fairy shrimp habitat after storm events if storm water pollution control devices are not implemented and result in fill of these areas. Filling in fairy shrimp habitat could reduce the amount of water held at any one time, which could potentially result in declines in how long these areas remain ponded. If this occurs, fairy shrimp species may either not hatch at all, or may not grow to reach a reproductive age. This could result in long-term declines of these species within affected pools/ponded areas.

Vernal pool habitat basins and their watersheds are considered Level I MAs in the MCAS Miramar INRMP, and these areas receive the highest conservation priority. MCAS Miramar has enacted proactive measures to prevent damage to vernal pool habitat, including posting signs and fencing, identifying potential impacts from activities by lessees and ROW holders, developing procedures to respond to and fix accidental impacts on vernal pool habitat, and developing education programs to create and maintain awareness of the values of vernal pool habitat. The Applicants will coordinate with MCAS Miramar prior to and during Proposed Project construction to ensure that the Proposed Project does not prevent MCAS Miramar from meeting the goals and objectives of the Level 1 MAs for vernal pool habitat basins and watersheds identified in the MCAS Miramar INRMP.

Temporary impacts to special-status fairy shrimp resulting from fugitive dust generated by Proposed Project activities will be minimized by watering unpaved construction surfaces to control dust emissions. To further avoid and minimize impacts to San Diego fairy shrimp and Riverside fairy shrimp, APM-BIO-17 will be implemented, and the Applicants will fence the perimeter of vernal pools or ponded areas potentially supporting fairy shrimp and will add a five-foot buffer, as well as preclude any construction activities within that fenced area. In addition, the Applicants will prepare and implement the Proposed Project's Storm Water Pollution Prevention Plan (SWPPP), which is required by law. The Proposed Project SWPPP will require that vehicles are checked daily and maintained in accordance with the manufacturer's specifications to minimize the potential for leaks, and that refueling and maintenance of vehicles will occur at least 50 feet from the edge of any aquatic feature. The SWPPP will ensure that

storm water pollution control devices are implemented to avoid fill within fairy shrimp habitat. In addition, the Applicants will prepare and implement a Hazardous Materials and Waste Management Program (HMWMP) for the construction phase of the Proposed Project to ensure compliance with all applicable federal, state, and local regulations. The HMWMP will provide a list of the hazardous materials that will be present on site during construction and will include information regarding their storage, use, transportation, and disposal. The plan will also include a list of spill response materials and the locations of these materials at the Proposed Project site during construction. In addition, the HMWMP will outline procedures for the identification and avoidance of contaminated materials; the secondary containment of on-site hazardous materials; spill response measures; and waste minimization during construction, operation, and maintenance. These measures will reduce potential impacts to fairy shrimp species that could result from the construction of the Proposed Project.

#### **6.0.4 Sensitive Natural Communities**

Impacts to sensitive natural communities are identified in Table 9: Potential Impacts to Vegetation Communities, and sensitive natural communities are marked with an asterisk. Temporary or permanent impacts are anticipated within 15 sensitive natural communities within the following general habitat types:

- scrub and chaparral;
- grasslands, vernal pools, meadows, and other herb communities;
- bog and marsh;
- riparian and bottomland habitat; and
- woodland.

Vegetation clearing within the ROW, temporary HDD workspace areas, and laydown yards is anticipated to result in approximately 61.1 acres of temporary impacts to sensitive natural communities. However, construction will be discontinuous and vegetation clearing will not occur in all areas simultaneously. Temporary indirect impacts to sensitive natural communities may result from construction activities that could deposit additional dust on plants, reducing the photosynthetic vigor of these sensitive natural communities. The Proposed Project may also result in impacts to sensitive natural communities if noxious weed seeds are spread within sensitive habitats during construction. If allowed to establish and spread, these weeds could alter the species composition of these sensitive natural communities.

Construction of MLVs and aboveground facilities will result in permanent impacts to approximately 0.3 acre of sensitive natural communities. These permanent impacts will occur only to upland sensitive natural communities, and riparian or wetland communities are not anticipated to be permanently impacted by construction activities associated with the Proposed Project. To reduce impacts to sensitive natural communities, the Applicants will implement APM-BIO-01, which states that biological monitors will monitor construction activities within sensitive vegetation communities and ensure avoidance of the sensitive vegetation that is intended for avoidance. The Applicants will demarcate the boundaries of work limits and sensitive habitats and resources that will be avoided in accordance with APM-BIO-02. Demarcating the boundaries of construction areas will minimize the potential for impacts to sensitive natural communities outside of approved work areas. If impacts to sensitive natural

communities are unavoidable, the Applicants will implement a Habitat Restoration Plan in accordance with APM-BIO-03. The Applicants also will prepare and implement an NIWMP in accordance with APM-BIO-04 to reduce impacts associated with the spread of noxious weeds in the construction areas. These measures will reduce potential impacts to sensitive natural communities that could result from construction of the Proposed Project.

### **6.0.5 Critical Habitat**

Critical habitat for three special-status wildlife species—arroyo toad, coastal California gnatcatcher, and least Bell's vireo—is located within the Proposed Project construction areas. Although the Proposed Project crosses southwestern willow flycatcher critical habitat, no impacts are anticipated because the pipeline will be installed under the San Luis Rey River using HDD techniques in this area. Maps showing the location of critical habitat in the Proposed Project area are provided in Figure A-7: Designated Critical Habitat in Attachment A: Figures. The total area of permanent and temporary impacts to critical habitat resulting from the Proposed Project is provided in Table 13: Impacts to Critical Habitat.

The Proposed Project activities will result in permanent and temporary impacts to critical habitat for the coastal California gnatcatcher at various locations throughout the Proposed Project. Temporary impacts to critical habitat for coastal California gnatcatcher will occur within HDD workspace areas, laydown yards, and within the temporary construction ROW throughout various portions of the BRSA. Temporary impacts to critical habitat for the arroyo toad and least Bell's vireo are anticipated at the crossing of the San Luis Rey River, where the Proposed Project will be installed using an HDD technique to minimize impacts. Temporary impacts to critical habitat for the arroyo toad and least Bell's vireo will result from preparation of the HDD workspace areas, which may include vegetation clearing and minor grading. The entry site for the HDD at the San Luis Rey River crossing will be located approximately 0.14 mile to the north of the river corridor, and the exit site is located approximately 0.37 mile to the south. Additional temporary impacts to critical habitat for the arroyo toad and least Bell's vireo are proposed within the temporary construction ROW. The temporary construction ROW will primarily utilize the roadway and road shoulder in urban areas where clearing and grading will be limited. The Proposed Project may also result in potential impacts to critical habitat if noxious weed seeds are spread during construction. If allowed to establish and spread, these weeds could alter the species composition of critical habitat and habitat quality for these three federally listed species.

Permanent impacts to coastal California gnatcatcher critical habitat are proposed within MLVs 1, 2, 4, and 5, as well as a very small amount within the proposed Rainbow Pressure-Limiting Station. Permanent impacts to coastal California gnatcatcher habitat include direct vegetation clearing and ground disturbance. No other permanent impacts to critical habitat are anticipated as a result of the Proposed Project.

**Table 13: Impacts to Critical Habitat**

Species	Approximate Permanent Impacts (acres)			Approximate Temporary Impacts (acres)				Total Impacts (Permanent + Temporary)
	MLVs 1, 2, 4, and 5	Rainbow Pressure-Limiting Station	Total Permanent Impacts	HDD Workspace Areas	Laydown Yards	Temporary Construction ROW and Work Areas	Total Temporary Impacts	
Arroyo toad	0	0	0	2.1	0	6.1	8.2	8.2
Coastal California gnatcatcher	0.4	<0.1	0.4	5.0	6.9	104.1	116.0	116.4
Least Bell's vireo	0	0	0	1.5	0	2.3	3.8	3.8

Source: USFWS 2015b

To minimize impacts to critical habitat for these three species, the Applicants will demarcate the boundaries of work limits and sensitive habitats and resources that will be avoided in accordance with APM-BIO-02. Demarcating the boundaries of construction areas will minimize the potential for impacts to critical habitat outside of approved work areas. In addition, the Applicants will prepare and implement a Habitat Restoration Plan, in accordance with APM-BIO-03. Restoring temporarily impacted construction areas, as appropriate, will minimize the duration of impacts to critical habitat and will more quickly return these areas to near pre-construction conditions. In addition, the Applicants will prepare and implement an NIWMP to reduce impacts associated with the spread of noxious weeds in the construction areas in accordance with APM-BIO-04.

### **6.0.6 Wildlife Migration Corridors**

As discussed in Section 5.7 Wildlife Migration Corridors, the Proposed Project is located within a number of wildlife corridors and preserved areas, including MHPAs, the Pacific Flyway, several hydrologic features, and conserved lands identified by SANDAG. Figure A-8: Conserved Lands within the Biological Resources Survey Area in Attachment A: Figures depicts the anticipated temporary impacts areas within SANDAG conserved lands and MHPAs. As summarized in Section 2.1 Project Components, the Proposed Project will involve the construction of an underground natural gas transmission line and small, isolated, aboveground facilities, including 10 MLVs, cross-ties with existing natural gas lines, and two new pressure-limiting stations. These aboveground Proposed Project components will not create a barrier to wildlife migration corridors because they will occur within small, discontinuous areas and terrestrial species could easily maneuver around them.

Construction activities within areas that serve as wildlife corridors may temporarily disrupt normal animal movement due to construction equipment and materials, excavations, increased human presence, increased noise levels, and increased vehicular traffic along access roads. However, construction activities will not occur in all areas simultaneously. The Applicants estimate that construction progress will occur at a rate of 200 to 300 feet per day, resulting in minor impacts to wildlife movement at any point in time and at any given location. Temporary restrictions on wildlife movement will also be localized to only a portion of the potential wildlife movement area that animals can use at any one time because wildlife can use areas outside of the proposed construction areas.

Construction activities associated with the Proposed Project will result in permanent impacts to approximately 1.8 acres of land that currently provide limited wildlife migration opportunities. Approximately 33 percent (0.6 acre) of these permanent impact areas are urban/developed and provide very limited wildlife movement opportunities. In addition, permanent impact areas will be discontinuous (the largest impact area measures approximately 0.3 acre) with breaks of natural habitat between them. As a result, permanent impacts resulting from the Proposed Project will not create a substantial barrier for wildlife movement.

To further minimize impacts to native wildlife movements, the Applicants will implement APM-BIO-01, which states that biological monitors will be present during vegetation removal and ground-disturbing activities within areas that serve as potential wildlife migration corridors to ensure all permit conditions and authorizations are implemented. In accordance with APM-BIO-01, the biological monitor will have the authority to halt any unauthorized work activity that

might result in impacts to wildlife migration corridors. Some nighttime work will be conducted, including potentially within areas where HDD activities will occur and in areas adjacent to the San Luis Rey River and Lake Hodges/San Dieguito River Park. However, HDD workspace areas are relatively small,<sup>29</sup> and work will not occur in all areas simultaneously. In addition, in accordance with APM-BIO-10, construction night lighting will be minimized to the extent feasible.

**6.0.7 Aquatic Resources and Riparian Habitat**

The Proposed Project will not result in any permanent impacts to potentially jurisdictional waters. As summarized in Table 14: Impacts to Potentially Jurisdictional Hydrological Features, a total of approximately 3.51 acres of temporary impacts to USACE- and RWQCB-jurisdictional areas, and approximately 3.56 acres of temporary impacts to CDFW-jurisdictional areas will be required to construct the Proposed Project.

**Table 14: Impacts to Potentially Jurisdictional Hydrological Features**

<b>Feature Type</b>	<b>Approximate Temporary Impacts to USACE- and RWQCB-Jurisdictional Area (acres)</b>	<b>Approximate Temporary Impacts to CDFW-Jurisdictional Area (acres)<sup>30</sup></b>
Wetlands	2.70	N/A
Ephemeral Drainages	0.34	0.93
Intermittent Drainages	0.47	1.56
Perennial Drainages	--	--
Riparian Areas	N/A	1.07
<b>Total Jurisdictional Area<sup>31</sup></b>	<b>3.51</b>	<b>3.56</b>

**USACE- and RWQCB-Jurisdictional Features**

Construction of the Proposed Project will result in direct temporary impacts to approximately 2.70 acres of wetlands and approximately 0.82 acre of drainages potentially under the jurisdiction of the USACE and RWQCB. The Proposed Project activities that could temporarily impact these jurisdictional waters include earth-moving/grading, tree trimming, and vegetation removal associated with the temporary construction ROW, and within the temporary HDD workspace areas.

<sup>29</sup> In general, the work area required at the entry site will be approximately 400 feet by 200 feet, while the exit site will require a work area of varying lengths to string and weld the pullback pipe. Typically, the exit site will be approximately 200 feet by 100 feet, plus an additional 50 feet wide by the length of the HDD for the pullback.

<sup>30</sup> The distance between TOBs was used to measure the area of streams under the jurisdiction of the CDFW.

<sup>31</sup> Impacts to jurisdictional wetlands and waters include impacts within areas along an approximately one-mile “pre-lay” area where an existing gas line will be used and where new construction impacts are not anticipated. As a result, the impacts presented here likely overstate the actual impacts to jurisdictional wetlands and waters.

As mentioned in Section 4.2.3 Preliminary Wetlands and Waters Assessment, a full wetland delineation was not conducted. The resulting wetland areas that were mapped may therefore overestimate the potential for USACE-jurisdictional wetlands within the BRSA. The Applicants will conduct a formal wetland delineation in accordance with the USACE's Wetlands Delineation Manual (USACE 1987) in conjunction with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008b). The anticipated timing for this wetland delineation is spring 2016. It is anticipated that final USACE-jurisdictional wetland boundaries will be considerably less than the estimates provided in Table 14: Impacts to Potentially Jurisdictional Hydrological Features.

### **CDFW-Jurisdictional Areas**

Construction of the Proposed Project will result in direct temporary impacts to approximately 3.56 acres of potential CDFW-jurisdictional areas, which includes approximately 2.49 acres of drainages, and approximately 1.07 acres of CDFW-jurisdictional riparian areas. The Proposed Project activities that could temporarily impact CDFW-jurisdictional areas include earth-moving/grading, tree trimming, and vegetation removal associated with the temporary construction ROW, and within the temporary HDD workspace areas.

### **Potential Indirect Impacts to all Jurisdictional Areas**

HDD operations have the potential for a "frac-out" to occur when a fracture is encountered in the strata above the drilling location and beneath the water feature. During a frac-out, "drilling mud" (i.e., lubrication containing water and bentonite clay) can rise to the surface and potentially increase turbidity in the water feature above. In accordance with APM-HYD-01, if a frac-out occurs within a water feature, a Proposed Project-specific frac-out contingency plan will be implemented to contain and remove the drilling mud.

Indirect impacts to wetlands and waters could also result from spillage of construction materials, as well as from erosion and sedimentation. These potential impacts will be avoided and minimized through implementation of the Proposed Project's SWPPP, which is required by law. The Proposed Project SWPPP will require that vehicles are checked daily and maintained in accordance with manufacturer's specifications to minimize the potential for leaks, and refueling and maintenance of vehicles will occur at least 50 feet from the edge of any aquatic feature. In addition, as detailed in APM-HAZ-01, the Applicants will prepare and implement an HMWMP for the construction phase of the Proposed Project to ensure compliance with all applicable federal, state, and local regulations. The HMWMP will provide a list of the hazardous materials that will be present on site during construction and will include information regarding their storage, use, transportation, and disposal. The plan will also include a list of spill response materials, and the locations of these materials at the Proposed Project site during construction. In addition, the HMWMP will outline procedures for the identification and avoidance of contaminated materials, the secondary containment of on-site hazardous materials, spill response measures, and waste minimization during construction, operation, and maintenance.

For all temporary impacts to water features, the Applicants will obtain necessary authorizations from the USACE pursuant to CWA Section 404, the RWQCB pursuant to CWA Section 401, and the CDFW pursuant to California Fish and Game Code Section 1600. Following



construction, all temporarily impacted water features will be restored by implementing a Habitat Restoration Plan, in accordance with APM-BIO-03.

## **6.1 OPERATION AND MAINTENANCE IMPACTS**

Operation and maintenance of the Proposed Project will not directly impact biological resources discussed within this section due to the temporary and intermittent nature of these activities. Operation and maintenance activities for the Proposed Project will be conducted in the same manner as they are for the existing natural gas transmission lines operated by the Applicants in the vicinity of the Proposed Project, as described in more detail in Section 2.4 Operation and Maintenance.

For operation and maintenance of the Proposed Project, the Applicants will either rely on the SDG&E Subregional NCCP or obtain incidental take coverage through Section 7 consultation and a Section 2081 ITP. As described in Section 3.1 Relevant Regulations, the SDG&E Subregional NCCP authorizes certain levels of take of 110 covered species that may be affected by SDG&E's ongoing activity impacts, including installation, use, maintenance, and repair operations, as well as expansion of its systems. SDG&E implements the Subregional NCCP's operational protocols in conducting covered activities within the plan area. The Subregional NCCP operational protocols include various protection, mitigation, and conservation measures to ensure the survivability and conservation of protected species and their habitats. The operational protocols provided in SDG&E's Subregional NCCP include provisions for personnel training; pre-activity studies; and maintenance, repair, and construction of facilities, including access roads, survey work, and emergency repairs.

Under the Subregional NCCP, compensatory mitigation for take impacts may be mitigated through a conservation bank or through habitat enhancement measures. Take authorization for all of the Applicants' activities associated with Proposed Project, including operation and maintenance activities, may not be available through the current Subregional NCCP. Regardless of whether the Applicants rely on the Subregional NCCP for operations and maintenance of the Proposed Project, the Applicants will follow the operational protocols outlined in Section 7.1 Operational Protocols and Section 7.2 Habitat Enhancement Measures of the plan. As a result, impacts to special-status species resulting from operation and maintenance of the Proposed Project are anticipated to be less than significant.

## **7 – APPLICANTS-PROPOSED MEASURES**

The following APMs will be implemented by the Applicants to reduce potential impacts to biological resources. Specifically, the APMs have been designed to minimize or eliminate potential impacts to special-status plant and wildlife species present in the surrounding area, as well as more common native wildlife species. Specific implementation of these APMs is discussed with each applicable impact in Section 6 – Impacts.

The Applicants will seek take coverage for the Proposed Project through a Section 7 consultation with the USFWS and a Section 2081 ITP from the CDFW. The Applicants intend to prepare a Biological Assessment for federally and state-listed species that may be adversely affected by the Proposed Project, and will request a Biological Opinion and take coverage under Section 7 of the

FESA and an ITP under Section 2081 of the CESA. Those authorizations and permits may require additional avoidance and minimization measures.

- **APM-BIO-01:** Biological monitors will be present during vegetation removal and initial ground-disturbing activities within native habitat (i.e., all areas except the disturbed and developed general habitat types). The biological monitors will conduct a pre-construction sweep of the work area prior to vegetation removal or initial ground disturbance and will verify that activities are in compliance with the Proposed Project permits and authorizations. The biological monitors will have the authority to halt work that poses an imminent threat to federally or state-listed species.
- **APM-BIO-02:** Prior to construction, the Applicants will demarcate the boundaries of work limits and resources that will be avoided. The boundaries will be maintained for the duration of construction activities at each location.
- **APM-BIO-03:** Prior to construction, the Applicants will prepare and implement a Habitat Restoration Plan for areas temporarily disturbed during construction. The Habitat Restoration Plan will describe, at a minimum, the pre-construction documentation of existing conditions, clearing and grading procedures to be used during construction that will help facilitate restoration, recontouring and seedbed preparation methods, topsoil salvage, seed mix selection and application procedures, the schedule for restoration activities, monitoring periods, success criteria, remedial measures, and reporting procedures to be used.
- **APM-BIO-04:** The Applicants will prepare and implement an NIWMP that is intended to minimize the spread of noxious and invasive weeds during construction. The NIWMP will include, but will not be limited to, ensuring that construction vehicles arrive to work sites clean and weed-free prior to entering the ROW in cross-country areas, ensuring straw wattles used to contain storm water runoff are weed-free, and documenting the extent of noxious weeds within the construction areas prior to construction. Noxious weeds are defined as species rated as High on the California Invasive Plant Inventory Database, which is published by the California Integrated Pest Council. Construction within urban/developed areas and intensive agricultural areas will be exempt from the NIWMP requirements.
- **APM-BIO-05:** Impacts to oak trees will be avoided and/or minimized to the extent possible during construction of the Proposed Project by temporarily fencing the perimeter of the oak tree dripline. In the event that any native oak trees are required to be removed to construct the Proposed Project, the Applicants will comply with all County of San Diego and local municipality requirements for oak tree preservation and mitigation, including obtaining tree removal and/or vegetation clearing permits. The Applicants will coordinate with each municipality to adequately meet the individual permit conditions, which generally involve tree replacement at one-to-one mitigation ratios. If oak trees are cut down, tree material will be chipped on site and then hauled off to an approved landfill facility, or cut and left on site in order to minimize the risk of spreading golden oak borer.

- **APM-BIO-06:** During the appropriate phenological (i.e., blooming) periods, pre-construction surveys for federally listed, state-listed, and CRPR 1 and 2 special-status plants will be conducted within one year prior to construction in areas adjacent to or within the construction areas that have potential for special-status plants to occur. The boundaries of these special-status plant occurrences will be mapped with submeter-accurate GPS units. Prior to construction, the locations of any federally listed, state-listed, and CRPR 1 and 2 special-status plants that the Applicants determine can be avoided will be flagged for avoidance with fencing or flagging. Flag boundaries for special-status plants will be maintained during work at these locations. Where disturbance to these areas cannot be avoided, the Applicants will develop and implement the Habitat Restoration Plan described in APM-BIO-03.
- **APM-BIO-07:** Prior to construction, a qualified biologist or other qualified resource specialist will develop an environmental training for all Proposed Project personnel. The training will describe the appropriate work practices necessary to effectively implement the APMs and to comply with the applicable environmental laws, regulations, and related permits/authorizations, including appropriate wildlife avoidance; impact minimization procedures; the importance of these resources, and the purpose and necessity of protecting them; and methods for protecting sensitive ecological resources. In addition, the environmental training will familiarize all Proposed Project personnel with special-status species that may occur within the construction areas. The training will include BMPs to reduce the potential for erosion and sedimentation during construction of the Proposed Project. The Applicants, their contractor, and their subcontractor personnel will attend the training prior to starting work on the Proposed Project. Upon completion of the training, each attendee will sign a form stating that he/she participated in the training and understood the material presented.
- **APM-BIO-08:** In order to protect plant and wildlife, food-related garbage and trash will be removed from the Proposed Project area daily or will be stored in concealed garbage containers. Smoking will only be allowed in cleared areas or enclosed vehicles to reduce the potential for wildfires, and firearms will be prohibited in all Proposed Project areas. Proposed Project personnel will not be allowed to bring pets to any Proposed Project area to minimize harassment or killing of wildlife and to prevent the introduction of destructive animal diseases to native wildlife populations. No harm, harassment, or collection of plant and wildlife species will be allowed. Feeding of wildlife will be prohibited.
- **APM-BIO-09:** All steep-walled trenches or excavations used during construction will be inspected twice daily (i.e., in the early morning prior to the start of construction activities and in the evenings after construction has stopped for the day) to protect against wildlife entrapment. Additionally, trenches and/or open excavations will be inspected prior to filling to ensure the absence of wildlife. Excavations will be sloped on one end to provide an escape route for wildlife in areas where there is the potential for wildlife entrapment. If wildlife is located in the trench or excavation and cannot escape unimpeded, the biological monitor will be called immediately to remove the animal. If the trapped animal is injured, a recognized wildlife rescue agency (e.g., Project Wildlife) will be employed to remove the animal and address the injury.

- **APM-BIO-10:** Construction night lighting in potential special-status wildlife habitats (generally considered to be any habitat other than urban/developed areas) will be minimized to the extent feasible. Exterior lighting within and adjacent to potential special-status wildlife habitats will utilize the lowest illumination allowed for human safety and will be selectively placed, shielded, and directed away from native vegetation to the maximum extent practicable.
- **APM-BIO-11:** Construction vehicle and equipment speeds will be limited to 15 miles per hour on all unpaved surfaces during the day and 10 miles per hour on all unpaved surfaces at night to prevent mortality of nocturnal special-status wildlife species.
- **APM-BIO-12:** If a special-status wildlife species is identified on site during construction, crews will immediately stop work and contact the designated Applicants' representative. Work will not proceed in the immediate area until the animal has traveled off site on its own or has been relocated by a biologist qualified to handle wildlife. If the identified special-status wildlife species is a federally and/or state-listed species, a biologist qualified to handle the special-status wildlife species will relocate the species into appropriate habitat areas out of harm's way and out of the construction ROW.
- **APM-BIO-13:** Prior to the final design, a biologist experienced with Stephens' kangaroo rat life history and surveying techniques will conduct surveys for kangaroo rat species in suitable habitat for Stephens' kangaroo rat (e.g., open coastal sage scrub, grasslands, and disturbed areas) within 150 feet on either side of the Proposed Project area. If kangaroo rat species are detected in these survey areas, the Applicants will avoid those habitat areas to the extent feasible. If avoidance of kangaroo rat habitat areas is not feasible, the Applicants—in coordination with the USFWS—will conduct trapping surveys to determine if the kangaroo rat species present is the Stephens' kangaroo rat. If Stephens' kangaroo rat is determined to be present and impacts to its habitat are unavoidable, the Applicants will consult with the USFWS through the Section 7 consultation process to obtain incidental take authorization.
- **APM BIO-14:** The Applicants will avoid and minimize impacts to roosting bats to the extent feasible. Prior to construction, the Applicants will conduct a survey of potential bat roosts located within or immediately adjacent to the ROW in areas where the Proposed Project activities (e.g., blasting) have the potential to directly impact active roosts or disrupt bat breeding activities. Potential roost sites will be searched for signs of bat use, such as urine streaking, grease marks and droppings, moth wings, and dead bats. Up to two weeks prior to construction, a qualified biologist will conduct an emergent bat survey within potential roost sites that have signs of bat use. If bats are detected, the Applicants will not remove the roost (e.g., palm trees) until it can be determined that the bats no longer are present. If a maternal roost is identified, no construction will occur within 200 feet of the maternal roost during the pupping season (typically April 1 through August 31).
- **APM-BIO-15:** A qualified biologist will conduct take avoidance (i.e., pre-construction) surveys for western burrowing owl in accordance with Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFW 2012) prior to construction activities. The Applicants

will prepare a survey report in accordance with the requirements of the staff report. If a breeding territory or nest is confirmed, the CDFW will be notified and the Applicants will avoid impacts to burrowing owl to the extent feasible. If unavoidable impacts to western burrowing owl are anticipated, the Applicants will implement mitigation methods as outlined in the staff report and in coordination with the CDFW. These mitigation measures may include avoiding occupied habitat during the breeding season, minimizing impacts to burrowing owls through the use of visual screens or buffer zones, burrow exclusion, and closures conducted in accordance with an artificial burrow or exclusion plan, as outlined in Appendix E of the staff report.

- **APM-BIO-16:** An NBMP will be prepared to outline procedures for minimizing impacts to nesting birds protected by the Migratory Bird Treaty Act during construction. The plan will address how to avoid direct or indirect impacts to nesting birds through various measures, including:
  - conducting pre-construction nesting bird surveys during specified breeding times within a certain distance of the Proposed Project impact areas,
  - establishing avoidance and minimization buffers for active nests based on species-specific noise tolerances,
  - describing construction activities that can occur within avoidance and minimization buffers,
  - implementing procedures for reducing buffers as appropriate, and
  - monitoring protocols to document compliance with the NBMP, including daily nesting bird reports, during construction.

The NBMP will be implemented during the nesting season, prior to and during construction of the Proposed Project, for all potentially affected bird species.

- **APM-BIO-17:** The Applicants will temporarily fence the perimeter of vernal pools or ponded areas potentially supporting fairy shrimp and will include a five-foot buffer between the fence and the water feature. The fenced boundaries will be maintained in place for the duration of construction at each location. Biological monitors will routinely check these areas during construction to ensure that fencing is in place and that no unauthorized construction activities occur. No construction activities—including any vegetation clearing, grading, or refueling of construction vehicles—will be allowed within the fenced area.

## 8 – PERMITS AND AUTHORIZATIONS

Several regulatory approvals, authorizations, or permits are required for the Proposed Project, as provided in Table 15: Anticipated Biological Resource Permits and Authorizations. These approvals may include conditions that afford additional protection to species and/or their habitat. In addition to implementing the APMs for the Proposed Project, the Applicants will comply with all mitigation measures and permit conditions that result from these regulatory reviews and approvals.

**Table 15: Anticipated Biological Resource Permits and Authorizations**

Agency	Permit/Approval/Consultation	Jurisdiction/Purpose of Permit
<b>Federal Agencies</b>		
Department of the Navy, MCAS Miramar	ROW	Authorization for pipeline facilities in and across MCAS Miramar-managed land
	National Environmental Policy Act Compliance	Issuance of a discretionary federal permit
USACE	CWA Section 404 Nationwide Permit	Temporary fill of waters of the U.S.
USFWS	FESA Section 7 Consultation	Construction activities such as vegetation clearing or removal that may affect federally listed species or their habitats, including coastal California gnatcatcher and least Bell’s vireo
<b>State Agencies</b>		
CPUC	Certificate of Public Convenience and Necessity	Construction of a new, intrastate, 36-inch-diameter natural gas pipeline
	CEQA Compliance	Issuance of a discretionary permit by a state agency
SWRCB	NPDES – Construction Stormwater Permit	Storm water discharges associated with construction activities disturbing one or more acre of land
CDFW	California Fish and Game Code Section 1600 Streambed Alteration Agreement	Activities that will disturb the bed or bank of a jurisdictional waterbody
	2081 ITP	Potential incidental take of the state-listed least Bell’s vireo
RWQCB	CWA Section 401 Water Quality Certification	Activities authorized by federal agencies that may affect state water quality

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## 10 – CONTRIBUTING BIOLOGISTS

Table 16: List of Contributing Biologists lists the biologists from Insignia, Borchers Environmental Management, and Rocks Biological Consulting who contributed to this BRTR.

**Table 16: List of Contributing Biologists**

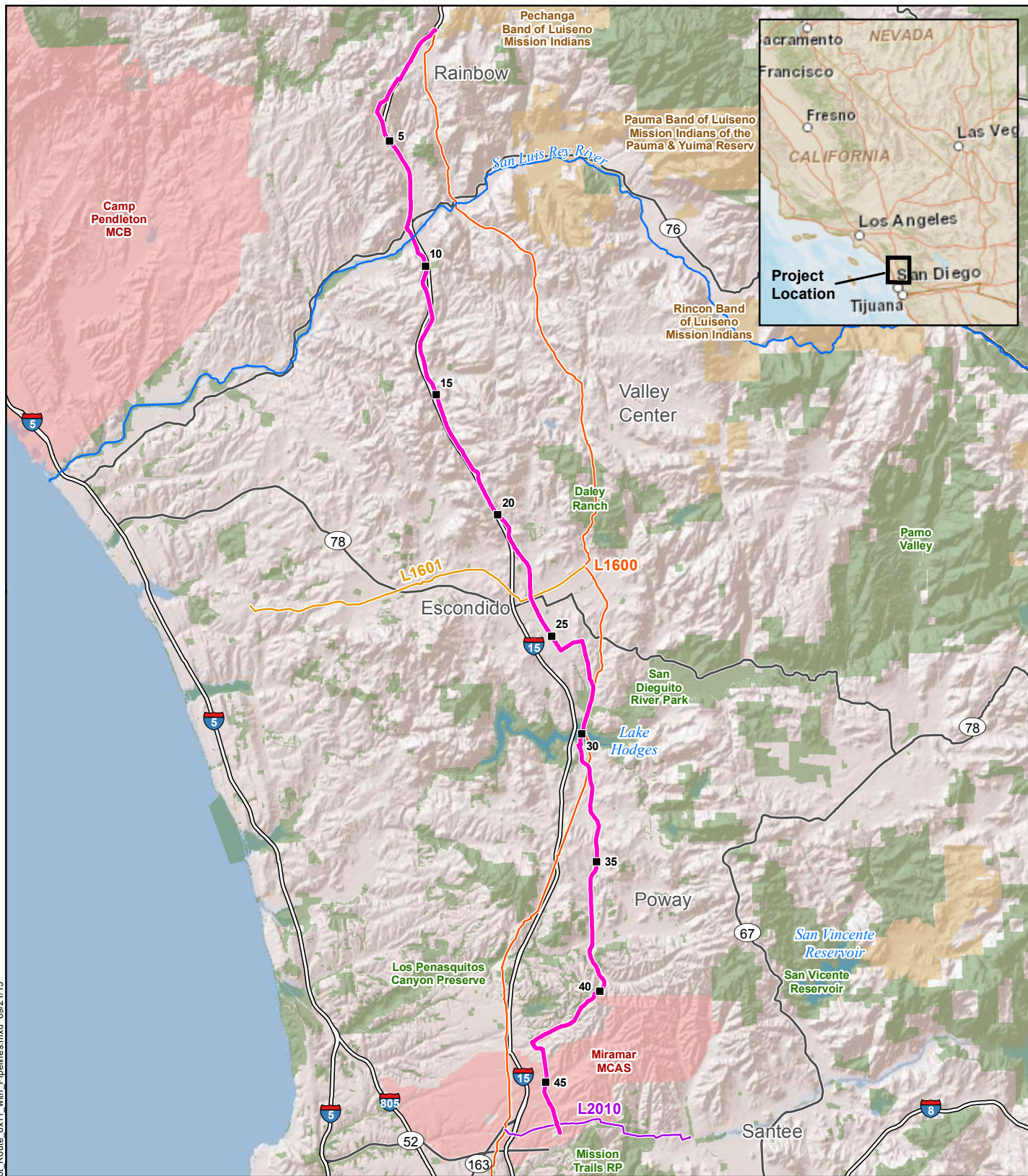
Biologist	Title	Biological Resource and Applicable Recovery Permit Number
<b>Insignia Environmental</b>		
Isabelle de Geofroy	Senior Biologist and Proposed Project Biological Lead Technical Reviewer	Special-status plants, and wetlands and waters
Makela Mangrich	Lead Biologist and Proposed Project Biological Task Lead	Special-status plants, wetlands and waters, and special-status wildlife
Jesse Byrd	Biologist	Wetlands and waters
Sheryl Creer	Biologist	Special-status plants, and wetlands and waters
Shirley Inneken	Associate Biologist	Special-status plants, wetlands and waters, and Quino checkerspot butterfly (TE-82480A-0)
Kevin Kilpatrick	Senior Biologist	Habitat assessment and least Bell's vireo
Adam Lievers	Environmental Inspector/Biological Monitor	Wetlands and waters
<b>Borchers Environmental Management</b>		
Andrew Borchers	Senior Biologist	Arroyo toad
Rachel Borchers	Biologist	Arroyo toad
John Lovio	Senior Biologist	Least Bell's vireo and southwestern willow flycatcher (TE-065741-3)
<b>Rocks Biological Consulting</b>		
Lee Ripma	Senior Biologist	Special-status plants, coastal California gnatcatcher, and Quino checkerspot butterfly (TE-221290-3.1)
Jim Rocks	Principal Biologist	Special-status plants, coastal California gnatcatcher, and Quino checkerspot butterfly (TE-063230-4)
Melanie Rocks	Principal Biologist	Quino checkerspot butterfly (TE-082908-1)

<b>Biologist</b>	<b>Title</b>	<b>Biological Resource and Applicable Recovery Permit Number</b>
Melanie Dicus	Senior Biologist	Special-status plants, Quino checkerspot butterfly (TE-049175-3), and coastal California gnatcatcher (TE-049175-3)
Brian Lohstroh	Senior Biologist	Quino checkerspot butterfly (TE-063608-5) and coastal California gnatcatcher (TE-063608-5)
Garrett Huffman	Biologist	Quino checkerspot butterfly (TE-20168A-0) and coastal California gnatcatcher (TE-20168A-0)
Monica Alfaro	Senior Biologist	Quino checkerspot butterfly (TE-05124-2)
Shannon Walsh	Biologist	Coastal California gnatcatcher (authorized individual under TE-221290-3.1)

**ATTACHMENT A: FIGURES**





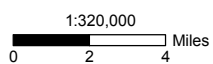


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**Figure A-1: Project Overview Map**

**Pipeline Safety & Reliability Project**

- |                          |                            |                            |
|--------------------------|----------------------------|----------------------------|
| ■ Milepost               | — Interstate               | ■ Parks                    |
| — Proposed Project Route | — Major Road/State Highway | ■ Military                 |
| — Line 1601              |                            | ■ Bureau of Indian Affairs |
| — Line 1600              |                            |                            |
| — Line 2010              |                            |                            |





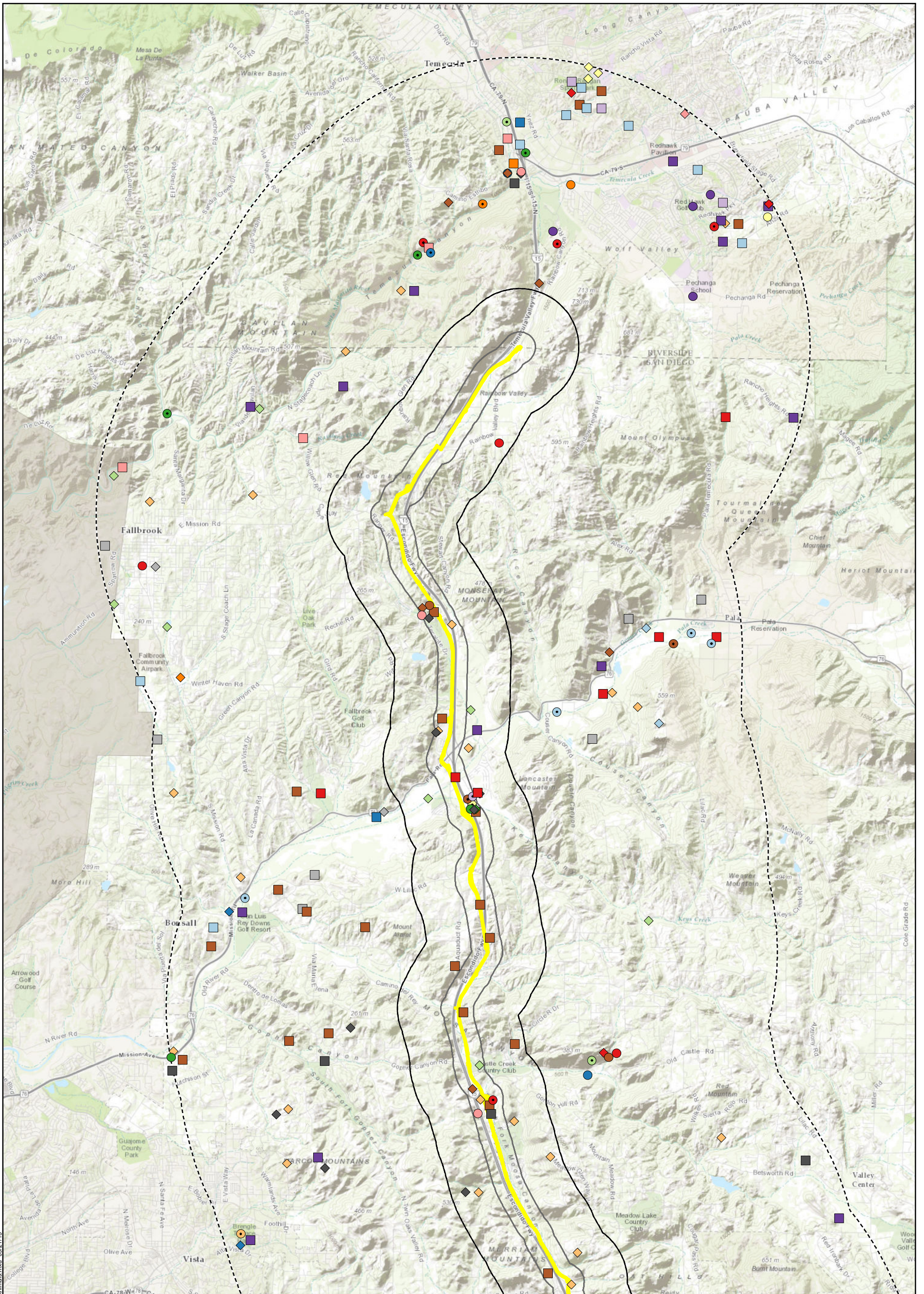
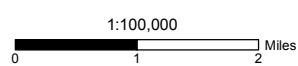


Figure A-2: CNDB Occurrences for Special-Status Wildlife Species Map 1 of 3

Pipeline Safety & Reliability Project

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|--|--|
| <ul style="list-style-type: none"> <li>0.25-Mile</li> <li>1-Mile</li> <li>5-Miles</li> <li>Biological Resource Survey Area</li> <li>Bell's sage sparrow</li> <li>Cooper's hawk</li> <li>Coronado Island skink</li> </ul> | <ul style="list-style-type: none"> <li>Dulzura pocket mouse</li> <li>Los Angeles pocket mouse</li> <li>Riverside fairy shrimp</li> <li>San Diego black-tailed jackrabbit</li> <li>San Diego desert woodrat</li> <li>Stephens' kangaroo rat</li> <li>Swainson's hawk</li> <li>arroyo chub</li> <li>arroyo toad</li> <li>black-crowned night heron</li> <li>burrowing owl</li> <li>coast horned lizard</li> <li>coastal California gnatcatcher</li> <li>coastal cactus wren</li> <li>coastal whiptail</li> <li>golden eagle</li> <li>hoary bat</li> <li>least billed</li> <li>northern harrier</li> <li>northwestern San Diego pocket mouse</li> <li>orange-throat whiptail</li> <li>pallid bat</li> <li>quino checkerspot butterfly</li> <li>red-diamond rattlesnake</li> <li>rosy boa</li> <li>southern California rufous-crowned sparrow</li> <li>southwestern willow flycatcher</li> <li>two-striped garter snake</li> <li>western masiff bat</li> <li>western pond turtle</li> <li>western spadefoot</li> <li>western yellow bat</li> <li>western yellow-billed cuckoo</li> <li>white-faced ibis</li> <li>yellow warbler</li> <li>yellow-breasted chat</li> </ul> |
|--|--|



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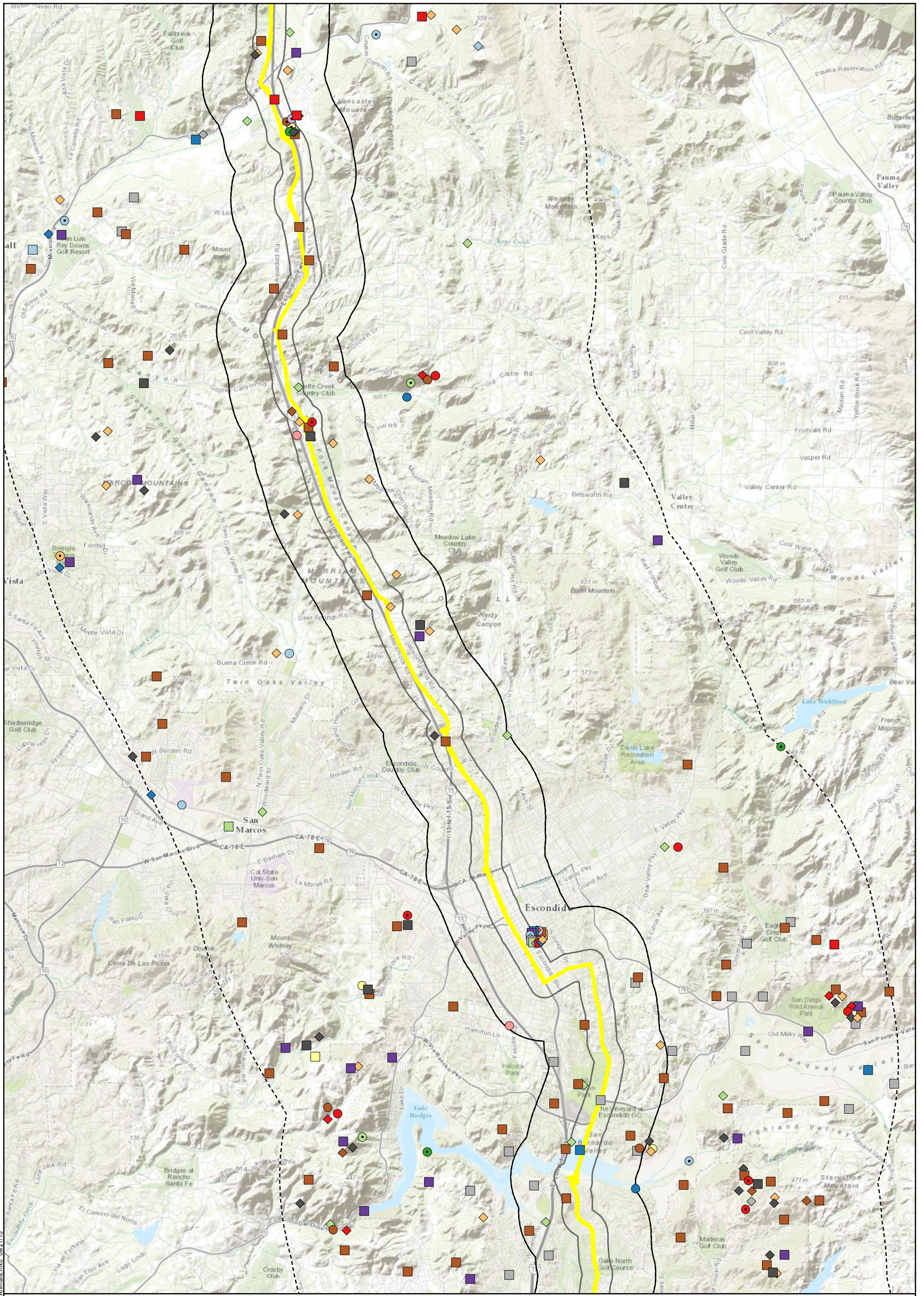
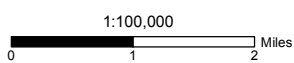


Figure A-2: CNDBB Occurrences for Special-Status Wildlife Species Map 2 of 3

Pipeline Safety & Reliability Project

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|---|---|--|
| <ul style="list-style-type: none"> <li>0.25-Mile</li> <li>1-Mile</li> <li>5-Miles</li> <li>Biological Resource Survey Area</li> <li>American badger</li> <li>Bell's sage sparrow</li> </ul> | <ul style="list-style-type: none"> <li>Cooper's hawk</li> <li>Coronado Island skink</li> <li>Dulzura pocket mouse</li> <li>San Diego black-tailed jackrabbit</li> <li>San Diego desert woodrat</li> <li>Stephens' kangaroo rat</li> <li>Swainson's hawk</li> <li>Townsend's big-eared bat</li> <li>arroyo toad</li> <li>big free-tailed bat</li> <li>burrowing owl</li> <li>coast horned lizard</li> <li>coast patch-nosed snake</li> <li>coastal California gnatcatcher</li> <li>coastal cactus wren</li> <li>coastal whiptail</li> <li>golden eagle</li> <li>hoary bat</li> </ul> | <ul style="list-style-type: none"> <li>least Bell's vireo</li> <li>least bittern</li> <li>northwestern San Diego pocket mouse</li> <li>orange-throat whiptail</li> <li>pallid bat</li> <li>pocketed free-tailed bat</li> <li>red-diamond rattlesnake</li> <li>rosy boa</li> <li>southern California rufous-crowned sparrow</li> <li>southwestern willow flycatcher</li> <li>western mastiff bat</li> <li>western pond turtle</li> <li>western spadefoot</li> <li>western yellow bat</li> <li>white-faced ibis</li> <li>yellow warbler</li> <li>yellow-breasted chat</li> </ul> |
|---|---|--|



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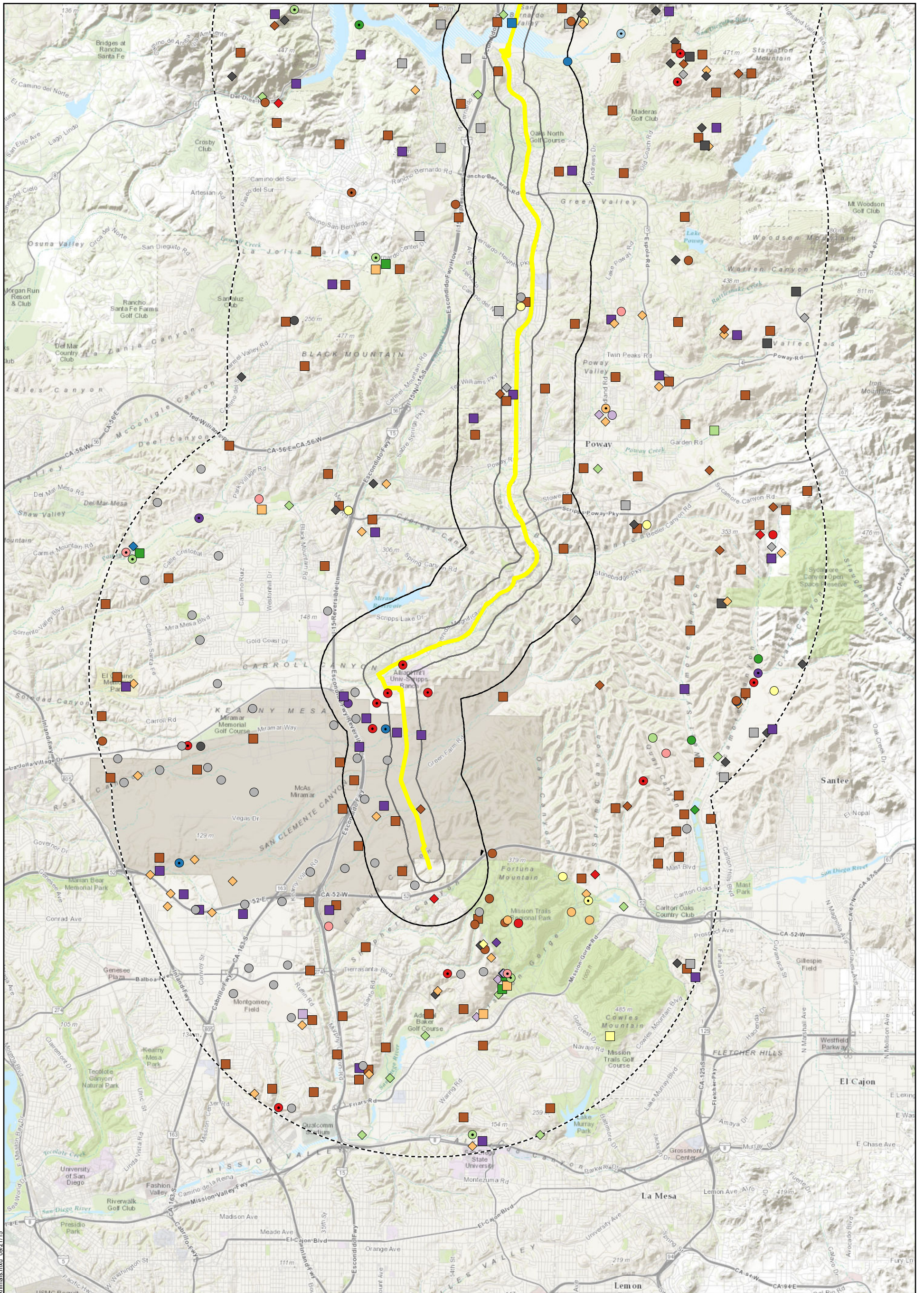
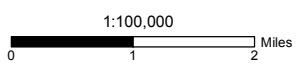


Figure A-2: CNDB Occurrences for Special-Status Wildlife Species Map 3 of 3

Pipeline Safety & Reliability Project

- |   |   |  |   |   |  |
|---|---|--|---|---|--|
| <ul style="list-style-type: none"> <li>0.25-Mile</li> <li>1-Mile</li> <li>5-Miles</li> <li>Biological Resource Survey Area</li> <li>Bell's sage sparrow</li> <li>California horned lark</li> <li>Cooper's hawk</li> </ul> | <ul style="list-style-type: none"> <li>Coronado Island skink</li> <li>Dulzura pocket mouse</li> <li>Hermes copper butterfly</li> <li>Mexican long-tongued bat</li> <li>Riverside fairy shrimp</li> <li>San Diego black-tailed jackrabbit</li> <li>San Diego desert woodrat</li> </ul> | <ul style="list-style-type: none"> <li>San Diego fairy shrimp</li> <li>San Diego ringneck snake</li> <li>Swainson's hawk</li> <li>Townsend's big-eared bat</li> <li>Yuma myotis</li> <li>big free-tailed bat</li> <li>burrowing owl</li> <li>San Diego horned lizard</li> <li>coast patch-nosed snake</li> <li>coastal California gnatcatcher</li> <li>coastal cactus wren</li> <li>coastal whiptail</li> <li>hoary bat</li> <li>least Bell's vireo</li> </ul> | <ul style="list-style-type: none"> <li>least bittern</li> <li>northwestern San Diego pocket mouse</li> <li>orangethroat whiptail</li> <li>pocketed free-tailed bat</li> <li>prairie falcon</li> <li>quino checkerspot butterfly</li> <li>red-diamond rattlesnake</li> </ul> | <ul style="list-style-type: none"> <li>rosy boa</li> <li>southern California rufous-crowned sparrow</li> <li>southwestern willow flycatcher</li> <li>two-striped garter snake</li> <li>western mastiff bat</li> <li>western pond turtle</li> <li>western red bat</li> </ul> | <ul style="list-style-type: none"> <li>western spadefoot</li> <li>western yellow bat</li> <li>white-tailed kite</li> <li>yellow warbler</li> <li>yellow-breasted chat</li> </ul> |
|---|---|--|---|---|--|



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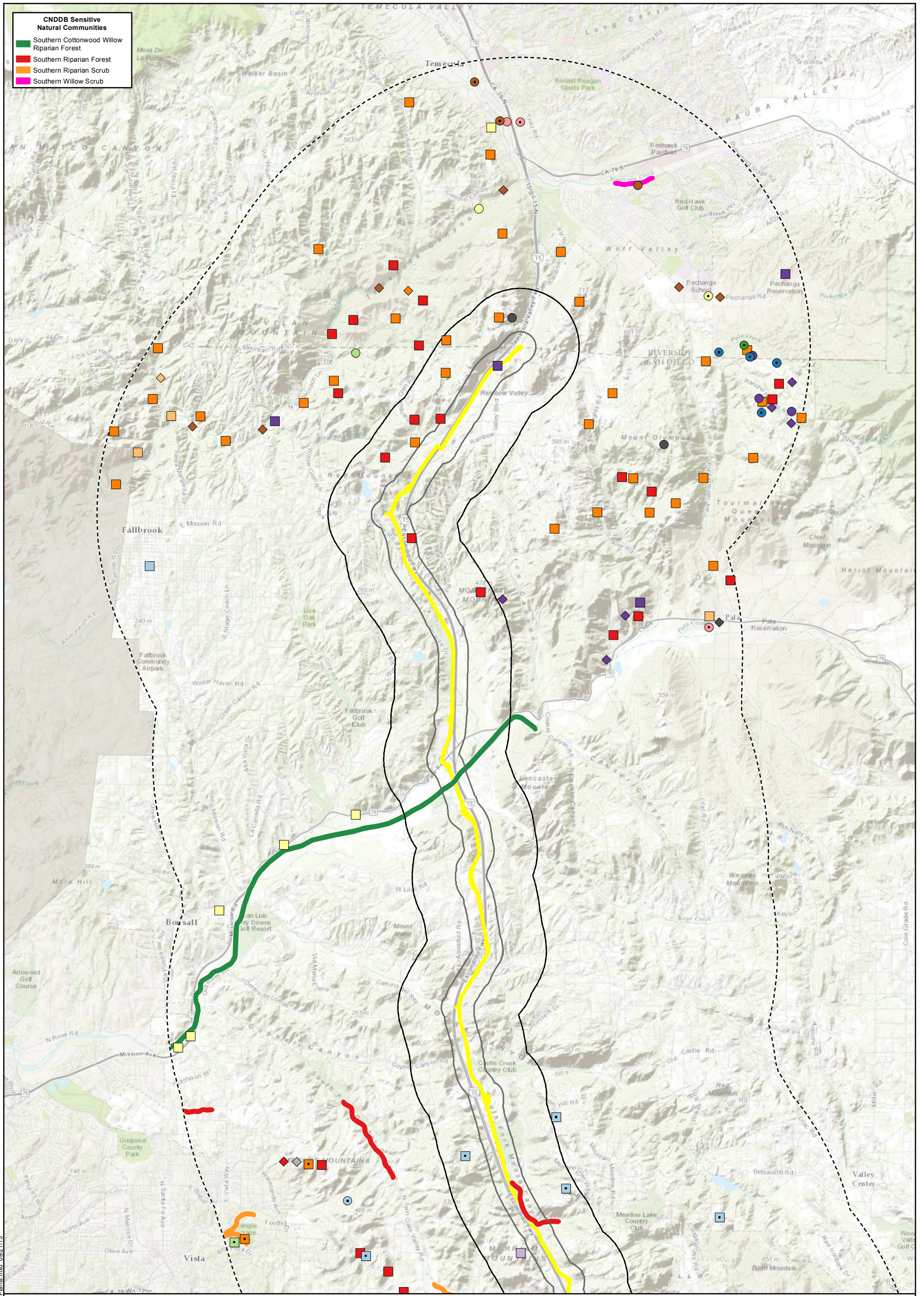
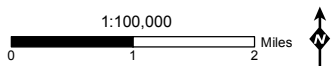


Figure A-3: CNDDB Occurrences for Special-Status Plant Species Map 1 of 3

Pipeline Safety & Reliability Project

- |                                 |                      |                      |                         |                       |                        |                            |                        |
|---------------------------------|----------------------|----------------------|-------------------------|-----------------------|------------------------|----------------------------|------------------------|
| 0.25-Mile                       | Coulter's goldfields | Orcutt's brodiaea    | Rainbow manzanita       | San Diego thorn-mint  | chapparal sand-verbena | intermediate monardella    | smooth tarplant        |
| 1-Mile                          | Gander's ragwort     | Orcutt's pincushion  | Ramona horkelia         | San Miguel savory     | decumbent goldenbush   | long-spined spineflower    | summer holly           |
| 5-Miles                         | Jaeger's milk-vetch  | Parry's tetracoccus  | Robinson's pepper-grass | Shevock's copper moss | delicate clarkia       | mesa horkelia              | thread-leaved brodiaea |
| Biological Resource Survey Area | Nevin's barberry     | Payson's jewelflower | San Diego ambrosia      | chapparal nolina      | felt-leaved monardella | slender-horned spineflower | wart-stemmed ceanothus |
| California screw moss           |                      |                      |                         |                       |                        |                            |                        |



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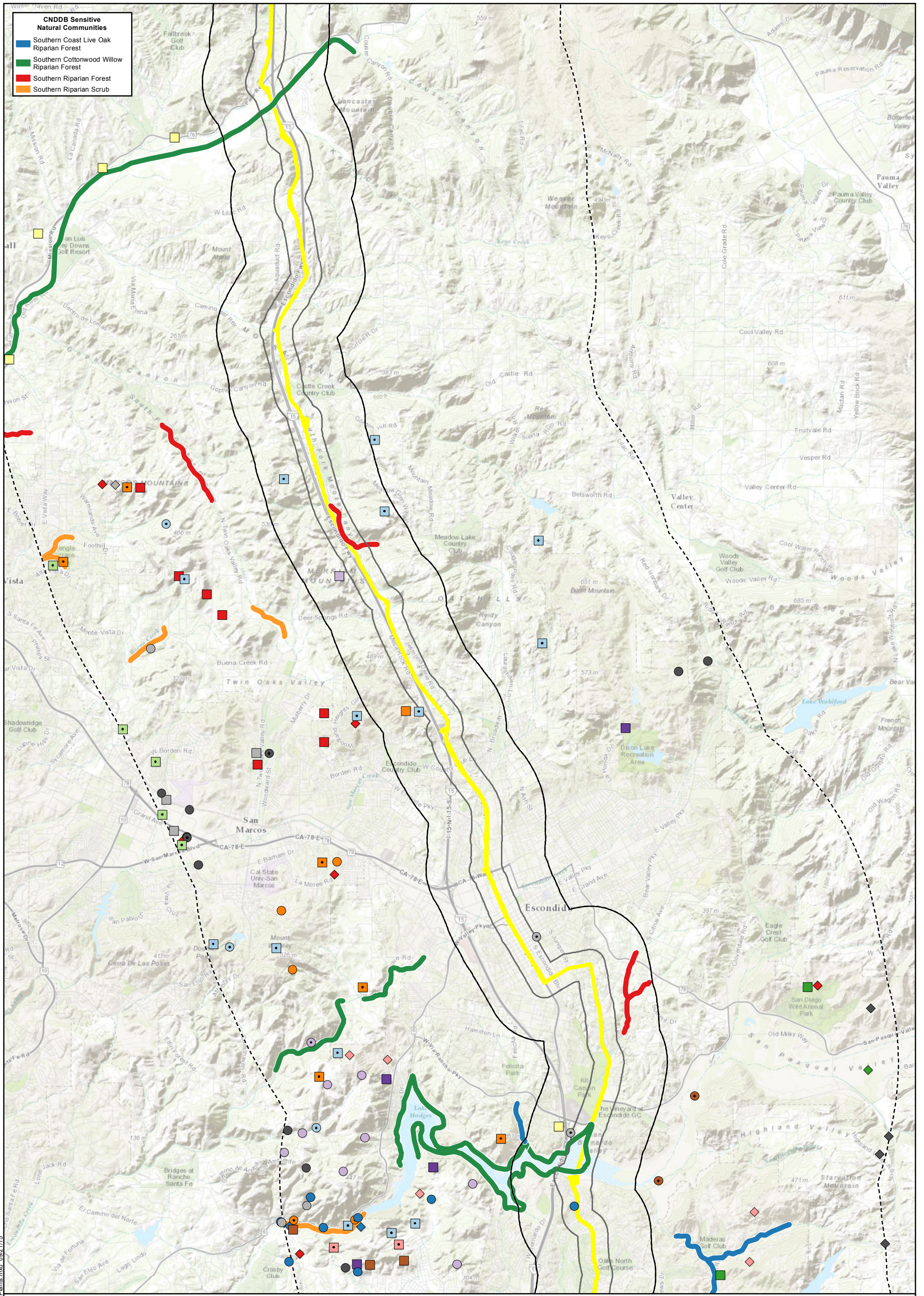


Figure A-3: CNDDB Occurrences for Special-Status Plant Species Map 2 of 3

Pipeline Safety & Reliability Project

- |                                 |                     |                     |                         |                       |                        |                      |                        |
|---------------------------------|---------------------|---------------------|-------------------------|-----------------------|------------------------|----------------------|------------------------|
| 0.25-Mile                       | Del Mar manzanita   | Palmer's goldenbush | Robinson's pepper-grass | San Diego marsh-elder | decumbent goldenbush   | sea dahlia           | summer holy            |
| 1-Mile                          | Encinitas baccharis | Parry's tetracoccus | San Diego ambrosia      | San Diego milk-vetch  | delicate clarkia       | smooth tarplant      | thread-leaved brodiaea |
| 5-Miles                         | Nuttall's scrub oak | Rainbow manzanita   | San Diego barrel cactus | San Diego sagewort    | felt-leaved monardella | southern tarplant    | variegated dudleya     |
| Biological Resource Survey Area | Orcutt's brodiaea   | Ramona horkelia     | San Diego button-celery | San Diego thorn-mint  | purple sternodia       | spreading navarretia | wart-stemmed ceanothus |
| California adolphia             |                     |                     |                         |                       |                        |                      |                        |

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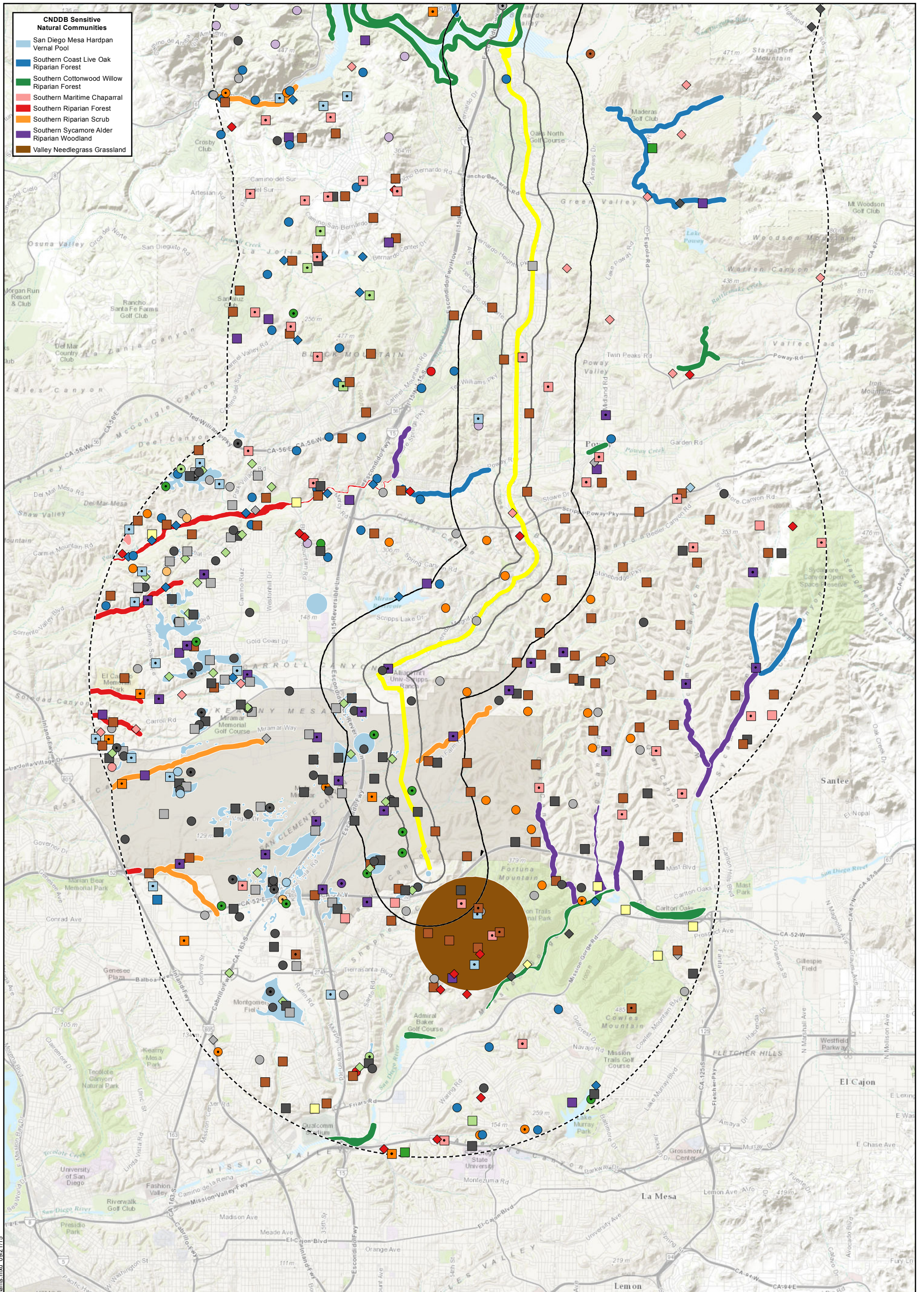
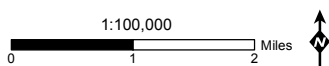


Figure A-3: CNDB Occurrences for Special-Status Plant Species Map 3 of 3

Pipeline Safety & Reliability Project

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## Vegetation Community Codes Used in Figure A-4: Vegetation Communities

General Habitat Type	Vegetation Code on Maps	Vegetation Community
Disturbed or Developed Habitat	DIST	Disturbed Habitat
	DEV	Urban/Developed
	ORN	Ornamental
	ORV	Orchard/Vineyard
	IAG	Intensive Agriculture – Dairies, Nurseries, Chicken Ranches
	RC	Row Crops
Scrub and Chaparral	bCSS	Diegan Coastal Sage Scrub (burned)
	CSS	Diegan Coastal Sage Scrub
	CSS-ADO	Diegan Coastal Sage Scrub ( <i>Adolphia californica</i> dominated)
	CSS-O	Diegan Coastal Sage Scrub (open)
	CSS-OPU	Diegan Coastal Sage Scrub ( <i>Opuntia</i> or <i>Cylindropuntia</i> dominated)
	dCSS	Diegan Coastal Sage Scrub (disturbed)
	dCSS-O	Diegan Coastal Sage Scrub - (open, disturbed)
	rCSS	Diegan Coastal Sage Scrub (restored)
	CSS-BAC	Diegan Coastal Sage Scrub: <i>Baccharis</i> -dominated
	dCSS-BAC	Diegan Coastal Sage Scrub: <i>Baccharis</i> -dominated (disturbed)
	rCSS-BAC	Diegan Coastal Sage Scrub: <i>Baccharis</i> -dominated (restored)
	bM-CHAP	Southern Mixed Chaparral (burned)
	M-CHAP	Southern Mixed Chaparral
	rM-CHAP	Southern Mixed Chaparral (restored)
	C-CHAP	Chamise Chaparral
CSS-CHAP	Coastal Sage-Chaparral Transition	
Grasslands, Vernal Pools, Meadows, and Other Herb Communities	VNG	Valley Needlegrass Grassland
	NNG	Non-native Grassland (Annual Grassland)
	NNG-RUD	Non-native Grassland: Broadleaf-dominated
	VP	Vernal Pool
	dFWS	Freshwater Seep (disturbed)
	FWS	Freshwater Seep

<b>General Habitat Type</b>	<b>Vegetation Code on Maps</b>	<b>Vegetation Community</b>
Bog and Marsh	CAM	Cismontane Alkali Marsh
	FWM	Coastal and Valley Freshwater Marsh
	dFWM	Coastal and Valley Freshwater Marsh (disturbed)
	EW	Emergent Wetland
	dHW	Herbaceous Wetland (disturbed)
	HW	Herbaceous Wetland
Riparian and Bottomland Habitat	CLORF	Southern Coast Live Oak Riparian Forest
	dCLORF	Southern Coast Live Oak Riparian Forest (disturbed)
	dSCWRF	Southern Cottonwood-Willow Riparian Forest (disturbed)
	SCWRF	Southern Cottonwood-Willow Riparian Forest
	SRW	Southern Riparian Woodland
	dSWS	Southern Willow Scrub (disturbed)
	SWS	Southern Willow Scrub
	MFS	Mule Fat Scrub
	TAM	Tamarisk Scrub
	OW	Fresh Water (Open Water)
	CHAN	Non-Vegetated Floodplain or Channel
	NNR	Non-Native Riparian
	ARU	Arundo-Dominated Riparian
Woodland	bCLOW-O	Open Coast Live Oak Woodland (<50%) (burned)
	CLOW-O	Open Coast Live Oak Woodland (<50%)
	dCLOW-O	Open Coast Live Oak Woodland (<50%) (disturbed)
	CLOW-D	Dense Coast Live Oak Woodland (>50%)
	dCLOW-D	Dense Coast Live Oak Woodland (>50%) (disturbed)
	UOW	Undifferentiated Open Woodland
	bNNW	Non-Native Woodland (burned)
	NNW	Non-Native Woodland
	EUC	Eucalyptus Woodland

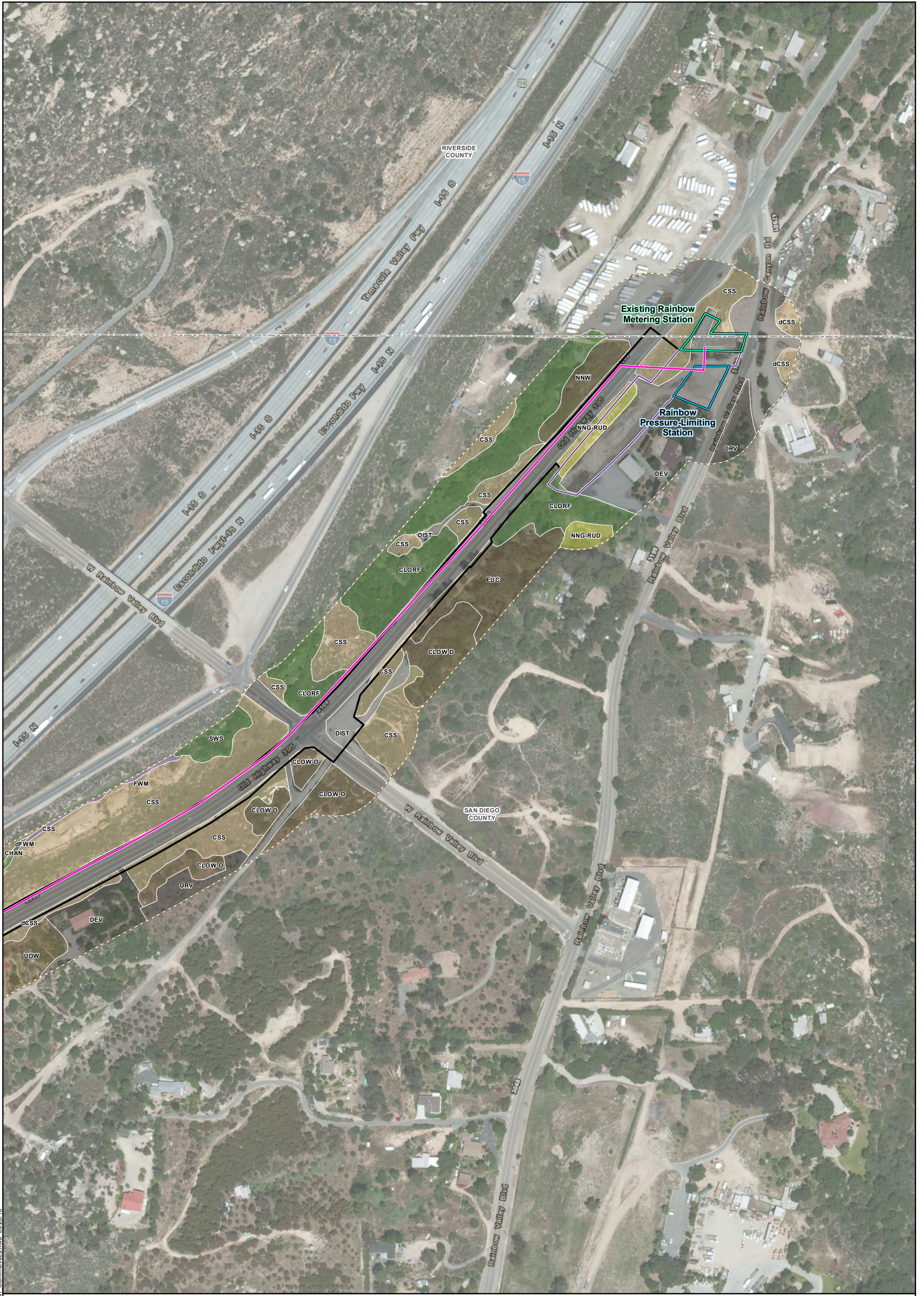
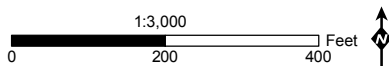
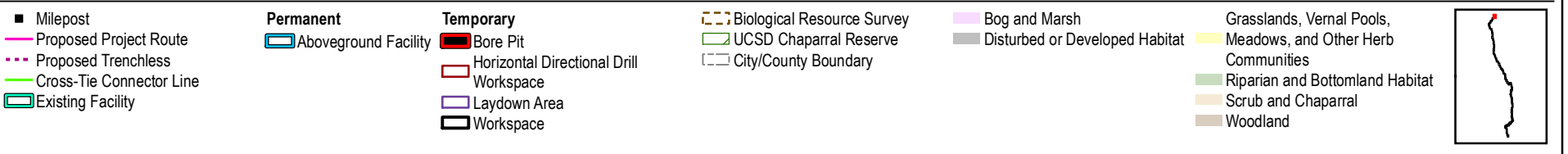


Figure A-4: Vegetation Communities Map 1 of 72

Pipeline Safety & Reliability Project



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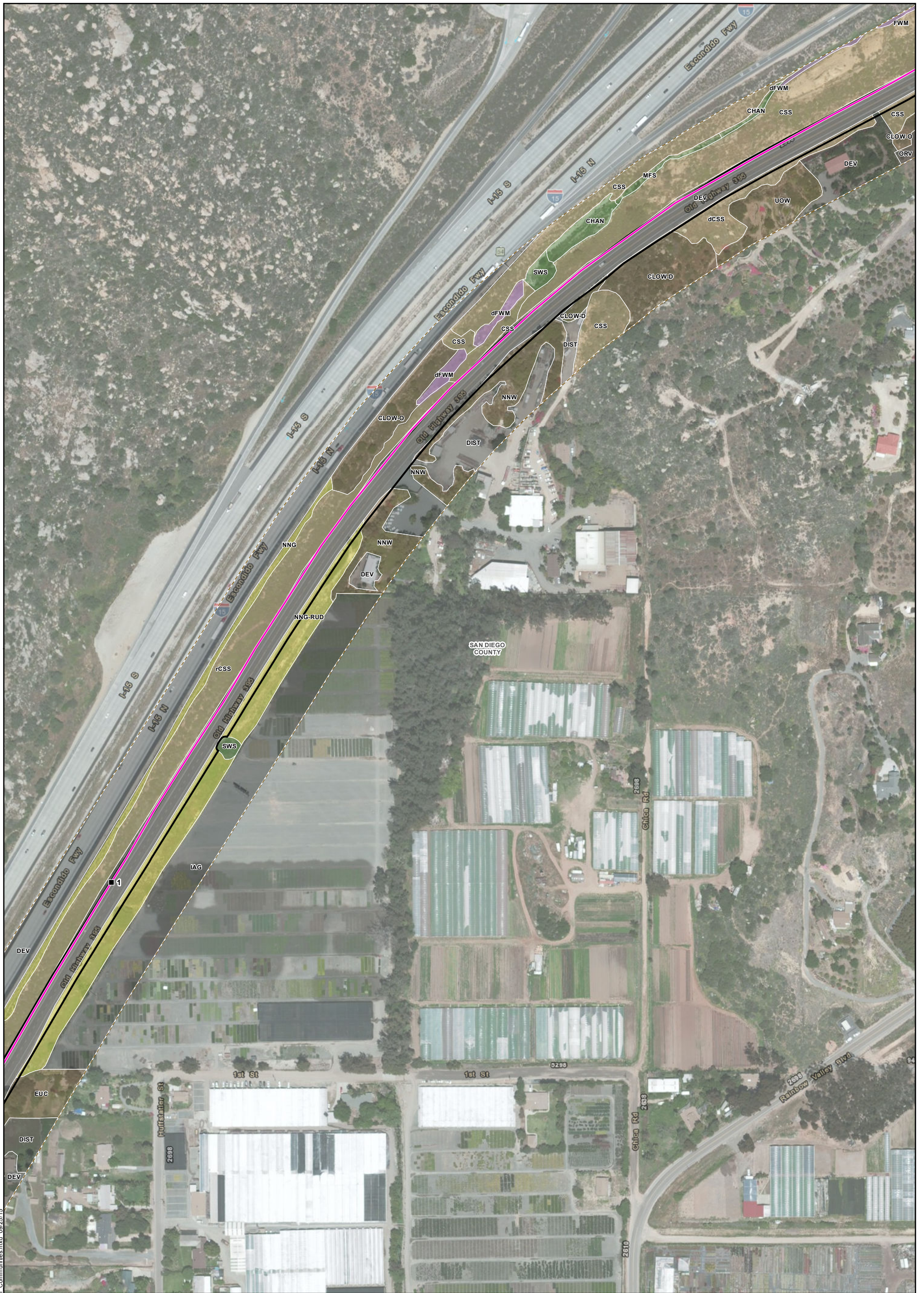
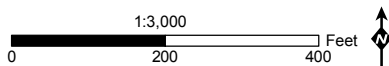


Figure A-4: Vegetation Communities Map 2 of 72

Pipeline Safety & Reliability Project

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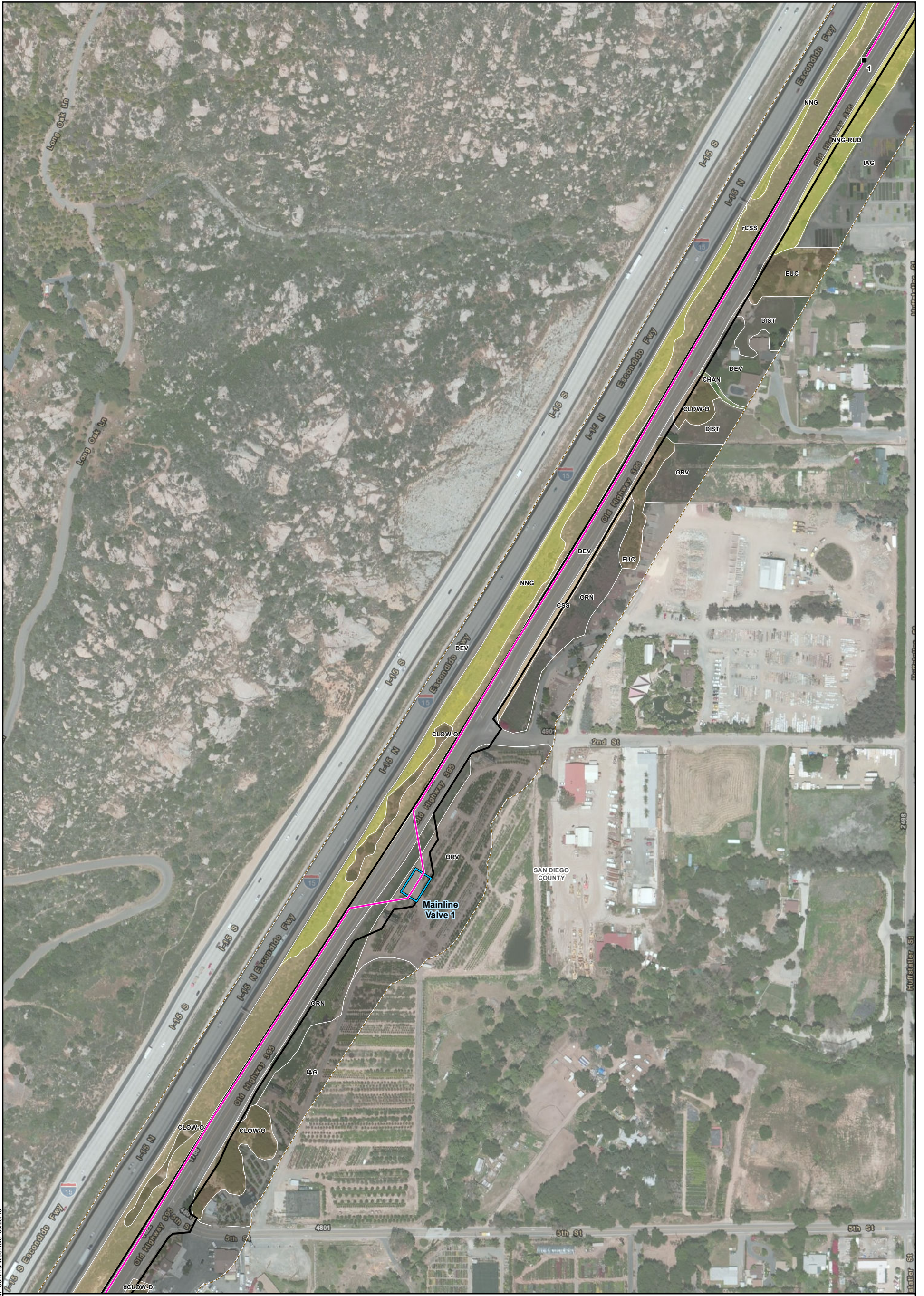
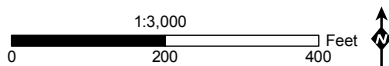


Figure A-4: Vegetation Communities Map 3 of 72

Pipeline Safety & Reliability Project

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>▭ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul>	
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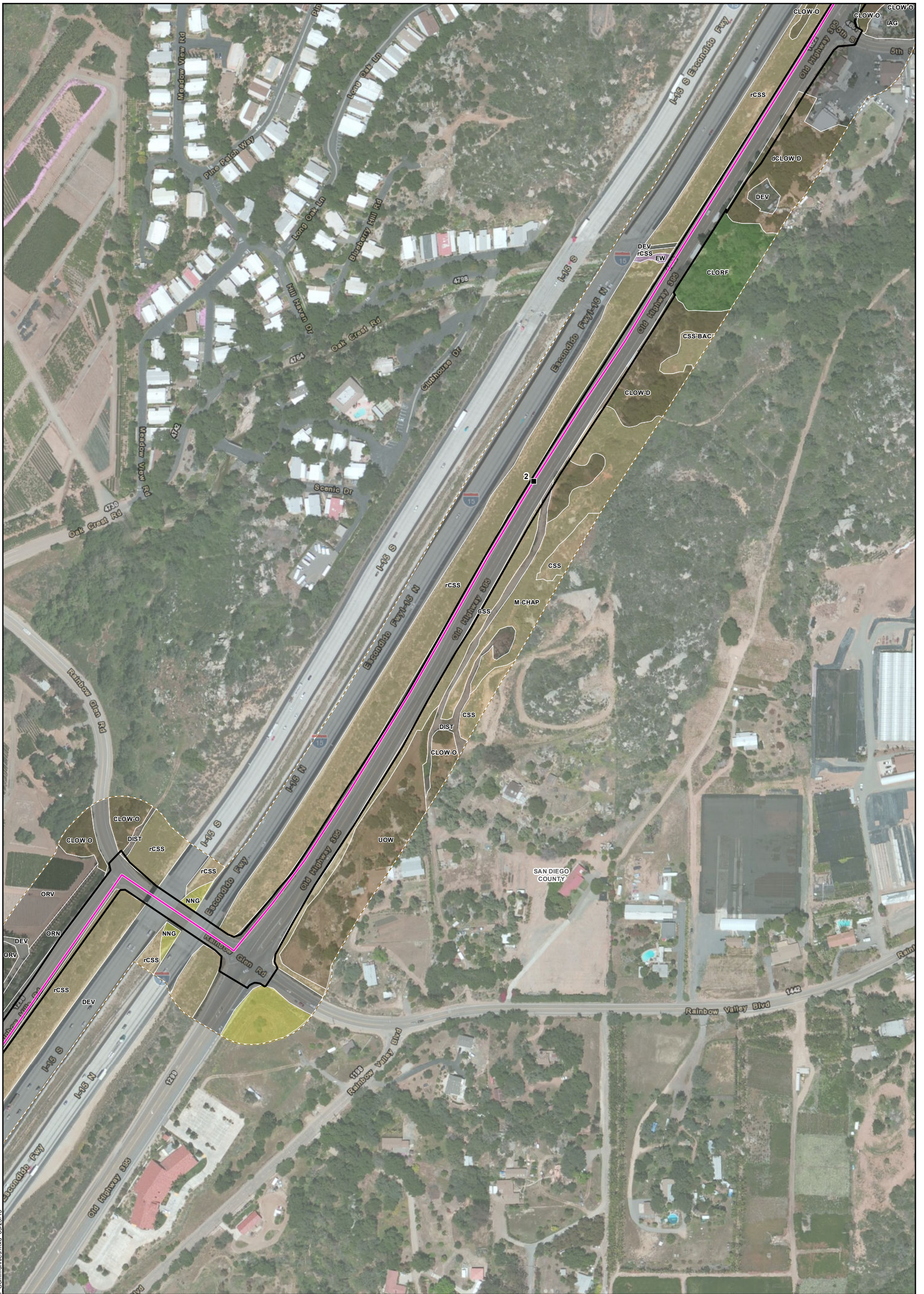
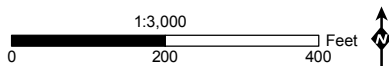
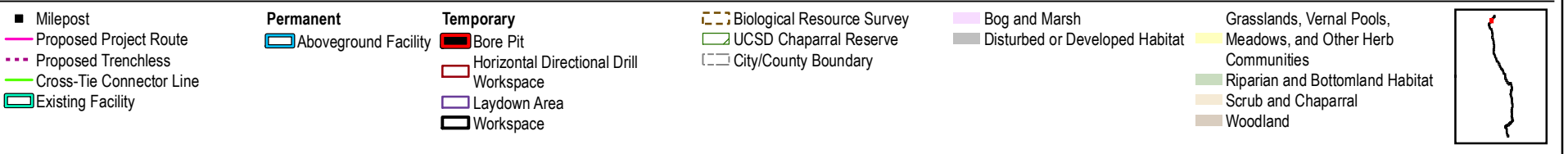


Figure A-4: Vegetation Communities Map 4 of 72

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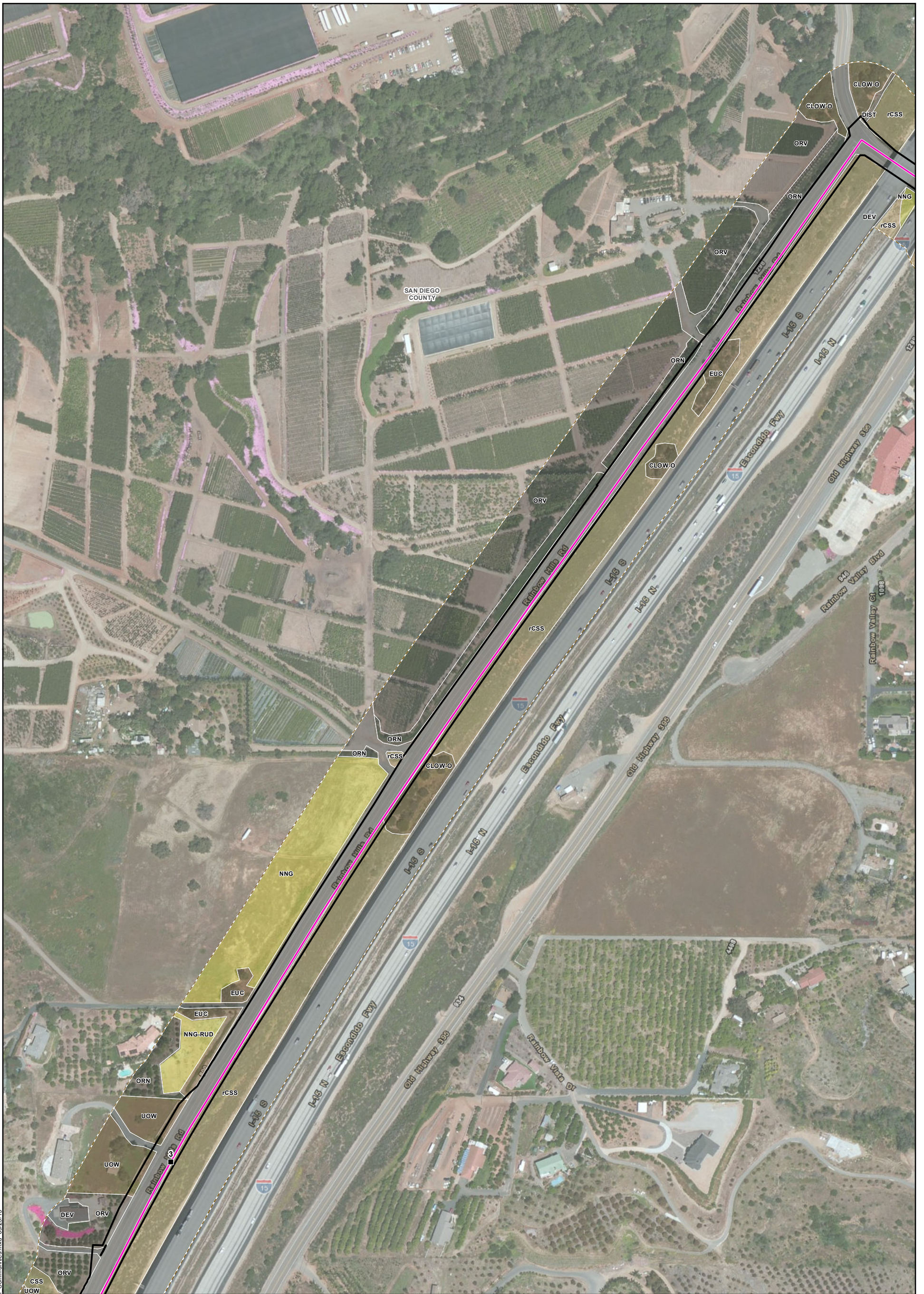
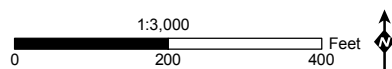


Figure A-4: Vegetation Communities Map 5 of 72

Pipeline Safety & Reliability Project

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|--|--|---|--|---|---|--|
| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul> | <p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> | <p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>▭ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul> | <ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul> |  |
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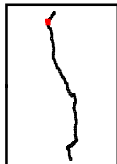




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**Figure A-4: Vegetation Communities Map 6 of 72**

**Pipeline Safety & Reliability Project**

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul>	
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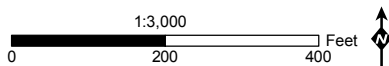
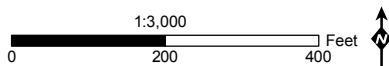




Figure A-4: Vegetation Communities Map 7 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>— Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Workspace</li> </ul>	<ul style="list-style-type: none"> <li>Biological Resource Survey</li> <li>UCSD Chaparral Reserve</li> <li>City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>Bog and Marsh</li> <li>Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>Riparian and Bottomland Habitat</li> <li>Scrub and Chaparral</li> <li>Woodland</li> </ul>	
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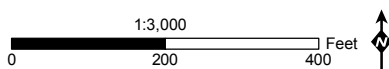
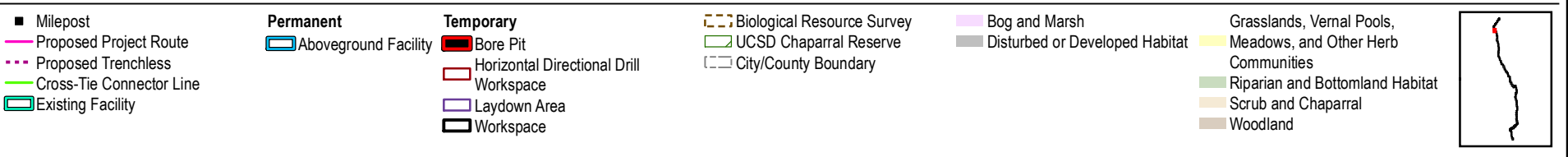
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Figure A-4: Vegetation Communities Map 9 of 72

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Figure A-4: Vegetation Communities Map 10 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>— Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>— Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>— Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>— Horizontal Directional Drill Workspace</li> <li>— Laydown Area</li> <li>— Workspace</li> </ul>	<ul style="list-style-type: none"> <li>— Biological Resource Survey</li> <li>— UCSD Chaparral Reserve</li> <li>— City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>■ Bog and Marsh</li> <li>■ Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>■ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>■ Riparian and Bottomland Habitat</li> <li>■ Scrub and Chaparral</li> <li>■ Woodland</li> </ul>	
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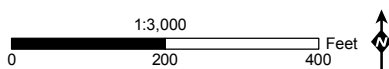
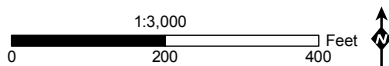
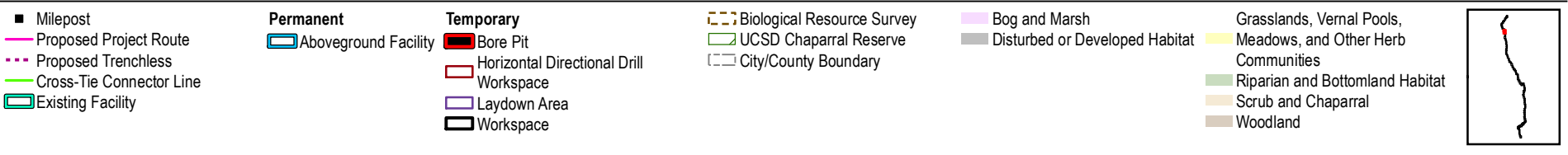




Figure A-4: Vegetation Communities Map 11 of 72

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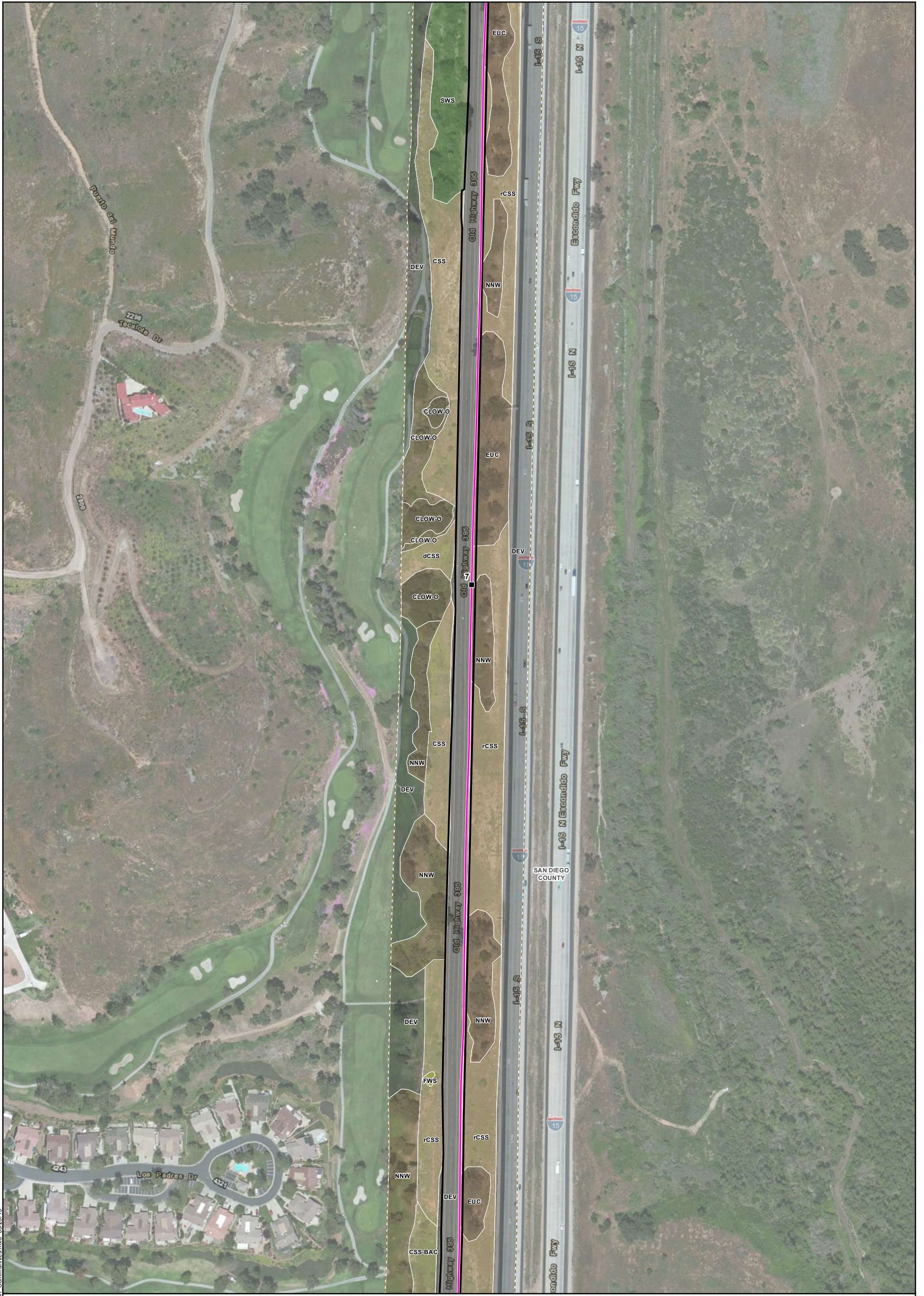
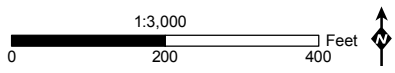


Figure A-4: Vegetation Communities Map 12 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul>	
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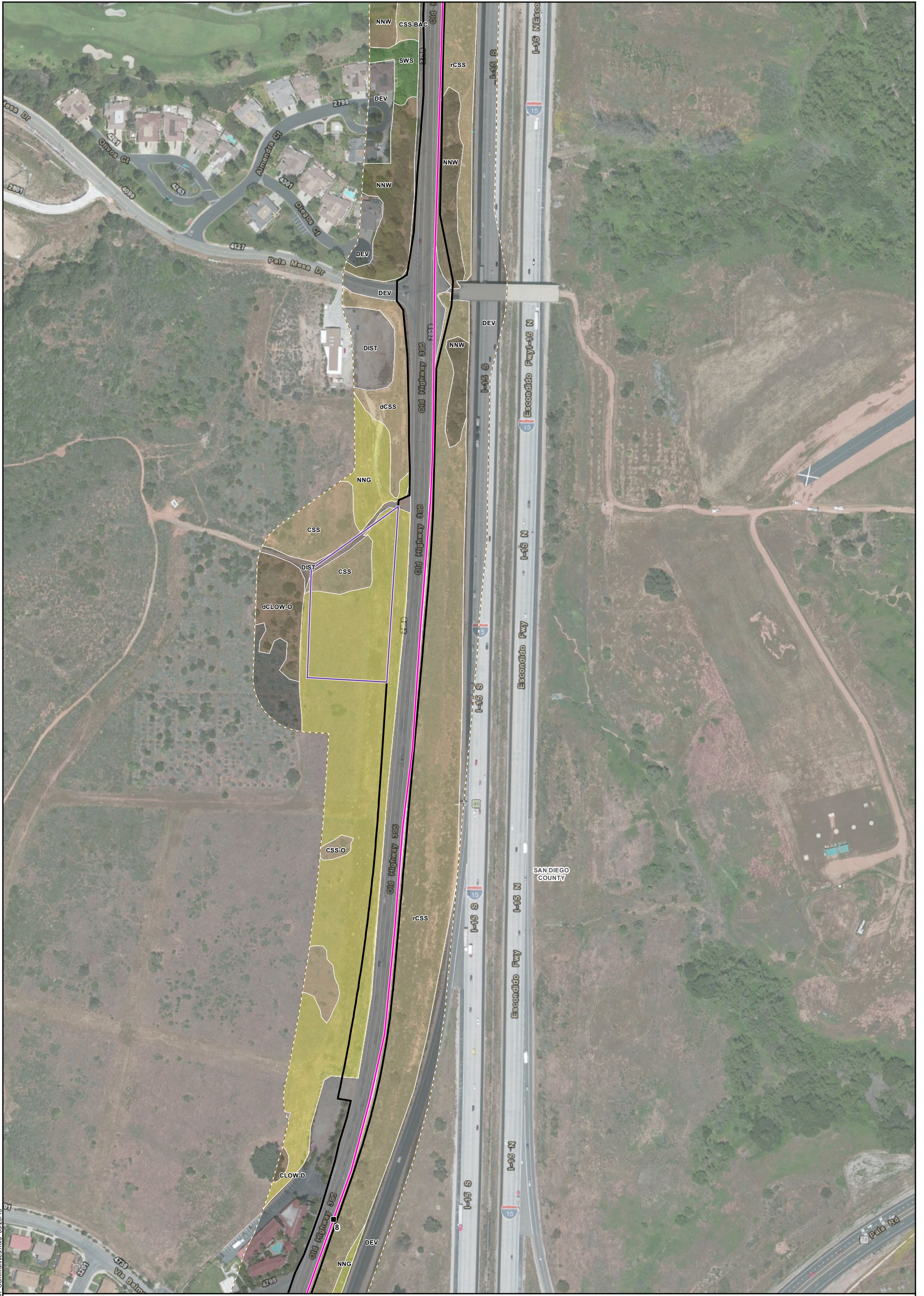
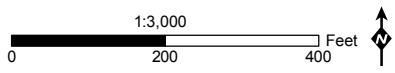


Figure A-4: Vegetation Communities Map 13 of 72

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<ul style="list-style-type: none"> <li>Milepost</li> <li>Proposed Project Route</li> <li>Proposed Trenchless</li> <li>Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Workspace</li> </ul>	<ul style="list-style-type: none"> <li>Biological Resource Survey</li> <li>UCSD Chaparral Reserve</li> <li>City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>Bog and Marsh</li> <li>Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>Riparian and Bottomland Habitat</li> <li>Scrub and Chaparral</li> <li>Woodland</li> </ul>	
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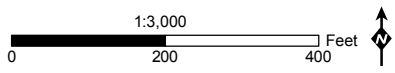
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Figure A-4: Vegetation Communities Map 14 of 72

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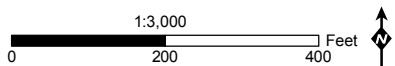
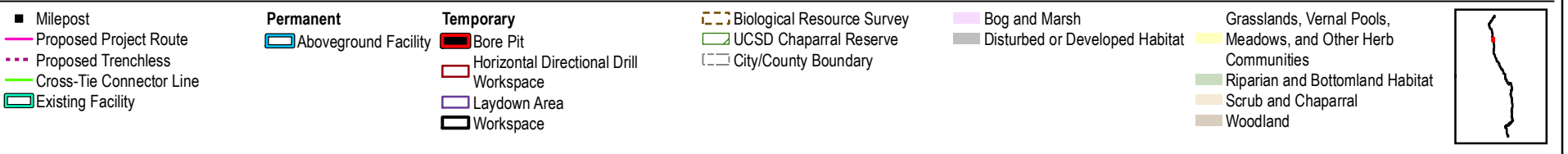


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Figure A-4: Vegetation Communities Map 15 of 72

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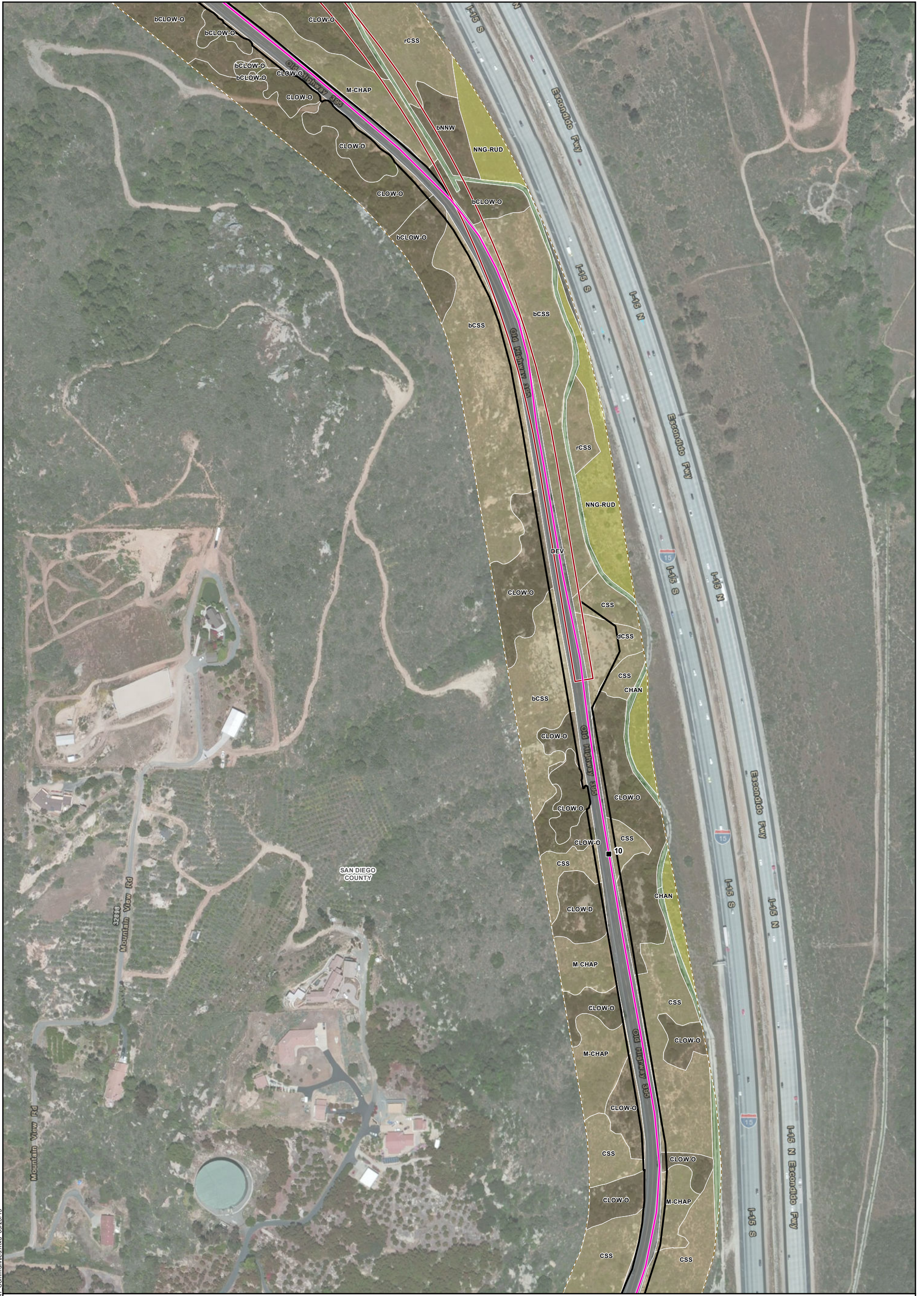
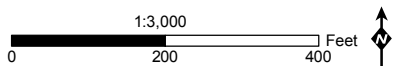


Figure A-4: Vegetation Communities Map 16 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>— Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>— Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>— Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>— Horizontal Directional Drill Workspace</li> <li>— Laydown Area</li> <li>— Workspace</li> </ul>	<ul style="list-style-type: none"> <li>— Biological Resource Survey</li> <li>— UCSD Chaparral Reserve</li> <li>— City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>— Bog and Marsh</li> <li>— Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>— Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>— Riparian and Bottomland Habitat</li> <li>— Scrub and Chaparral</li> <li>— Woodland</li> </ul>	
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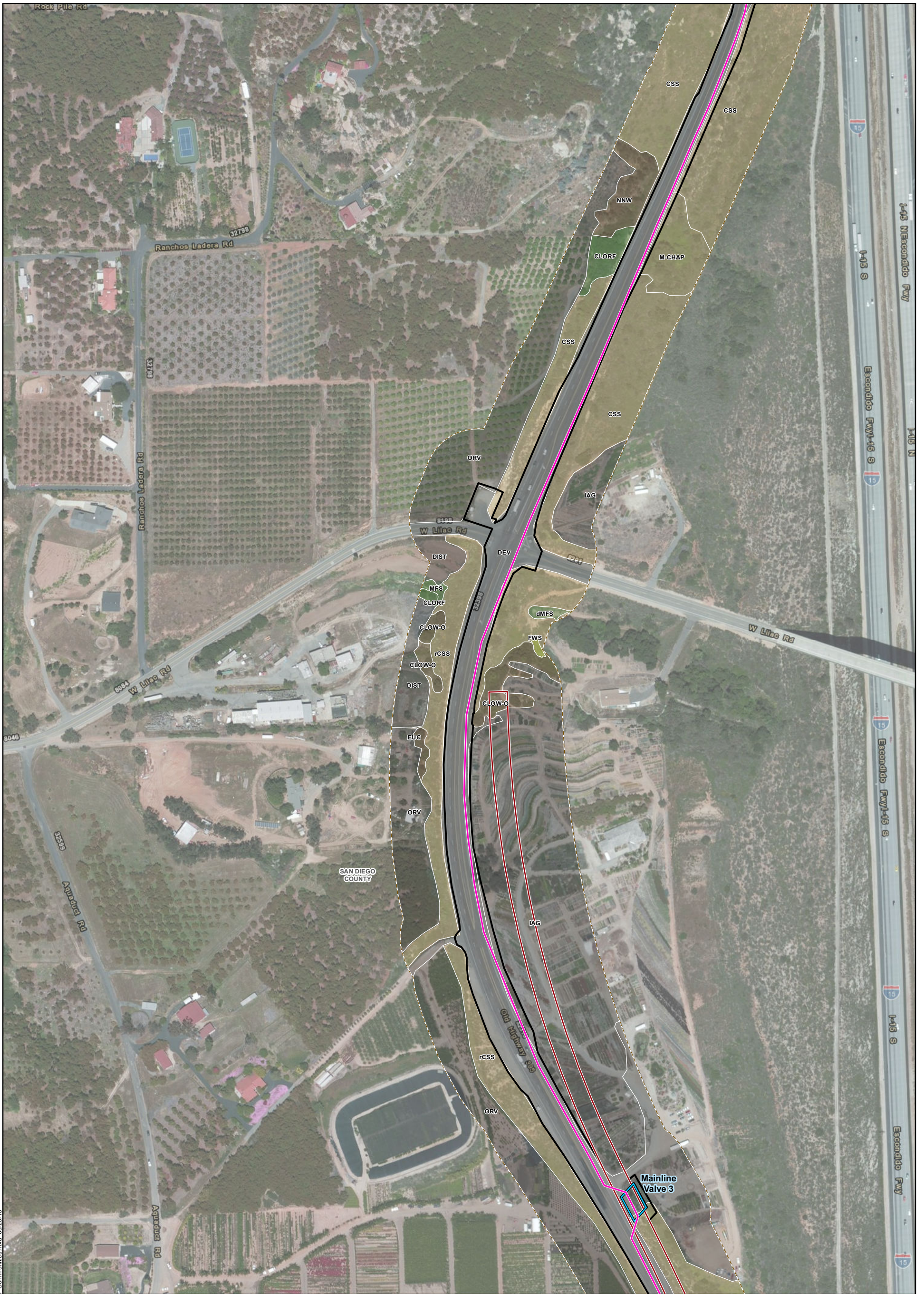


Figure A-4: Vegetation Communities Map 17 of 72

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| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>— Existing Facility</li> </ul> | <p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>— Aboveground Facility</li> </ul> | <p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>— Horizontal Directional Drill Workspace</li> <li>— Laydown Area</li> <li>— Workspace</li> </ul> | <ul style="list-style-type: none"> <li>--- Biological Resource Survey</li> <li>— UCSD Chaparral Reserve</li> <li>--- City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>■ Bog and Marsh</li> <li>■ Disturbed or Developed Habitat</li> </ul> | <ul style="list-style-type: none"> <li>■ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>■ Riparian and Bottomland Habitat</li> <li>■ Scrub and Chaparral</li> <li>■ Woodland</li> </ul> |
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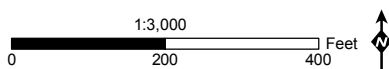
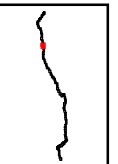
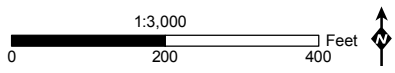
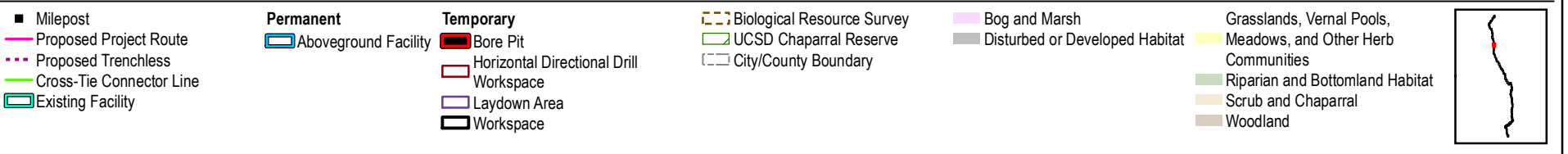


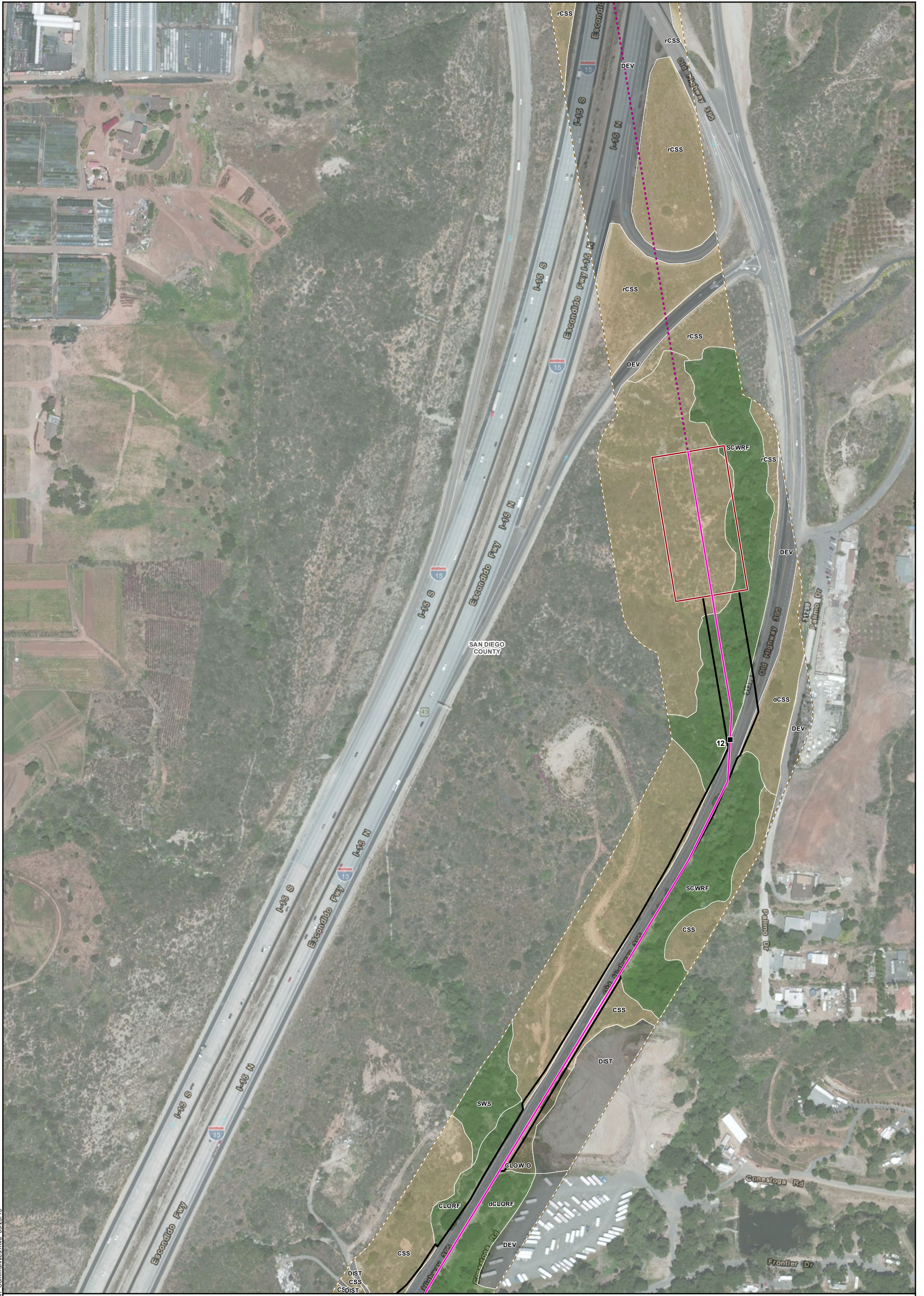


Figure A-4: Vegetation Communities Map 18 of 72

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**Figure A-4: Vegetation Communities Map 19 of 72**

**Pipeline Safety & Reliability Project**

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul>	
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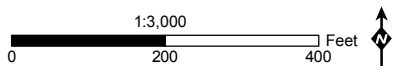




Figure A-4: Vegetation Communities Map 20 of 72

Pipeline Safety & Reliability Project

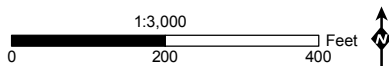
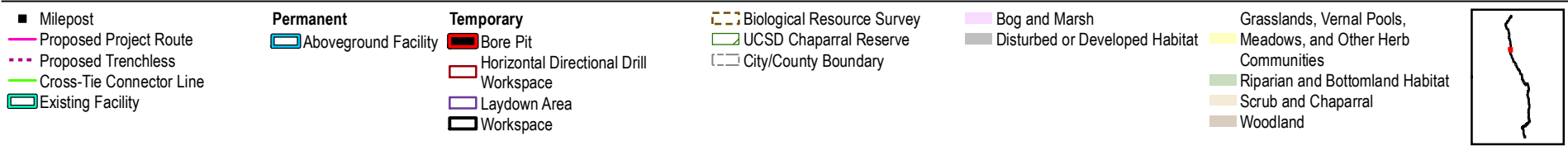


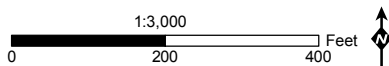




Figure A-4: Vegetation Communities Map 21 of 72

Pipeline Safety & Reliability Project

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|--|--|---|--|---|---|--|
| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul> | <p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> | <p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul> | <ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul> |  |
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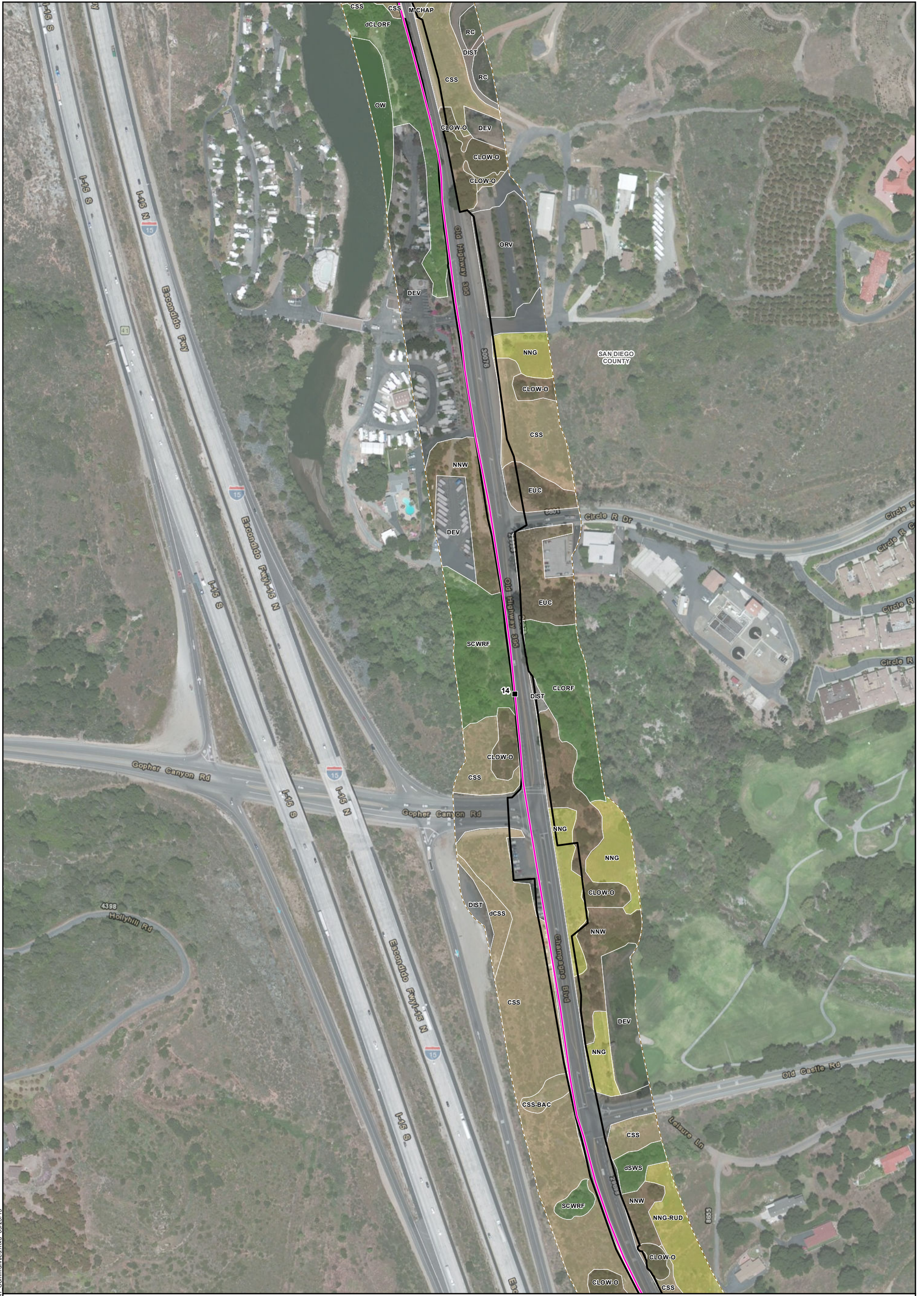
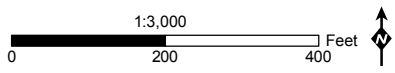


Figure A-4: Vegetation Communities Map 22 of 72

Pipeline Safety & Reliability Project

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>▭ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul>	
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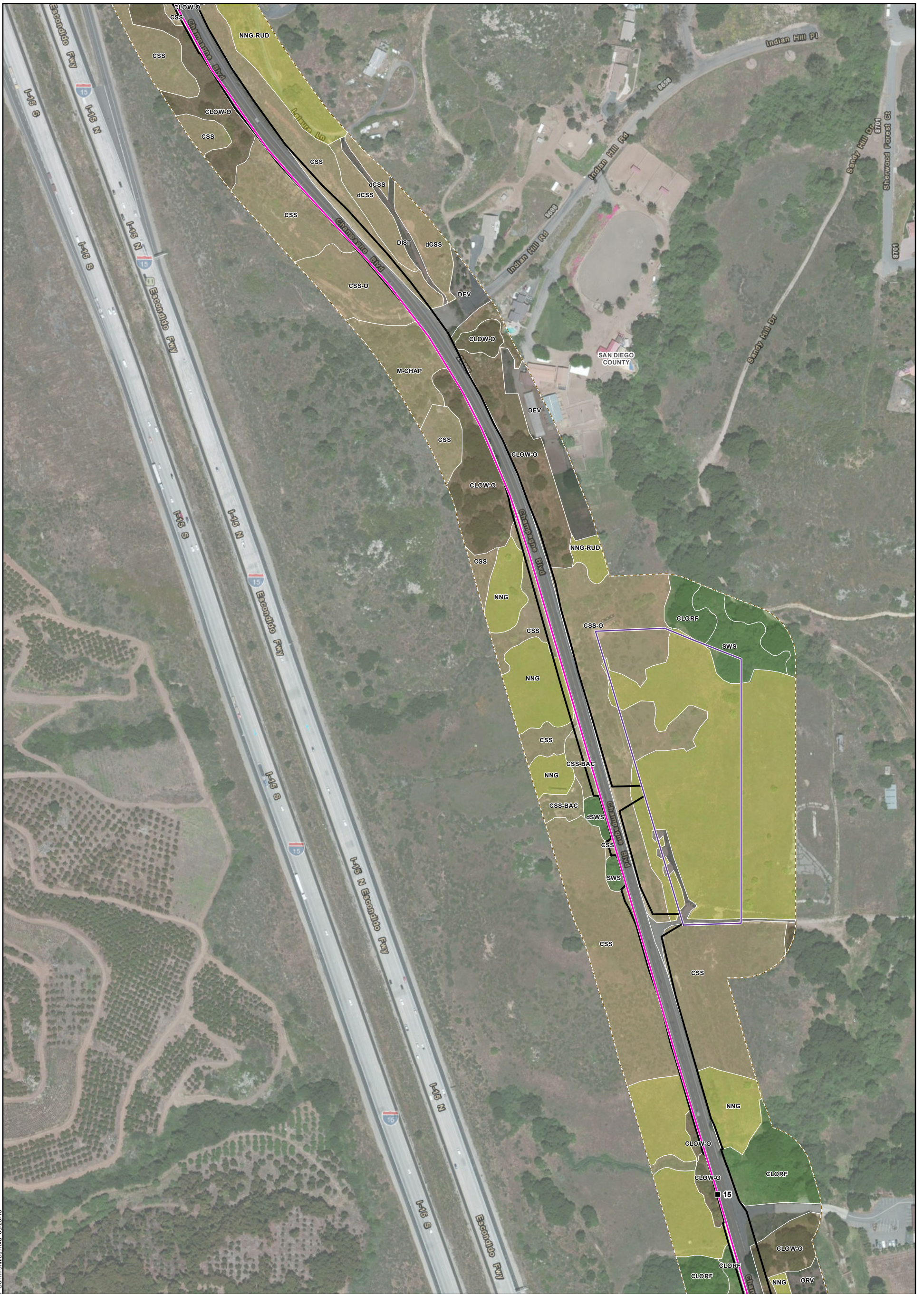


Figure A-4: Vegetation Communities Map 23 of 72

Pipeline Safety & Reliability Project

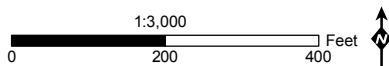
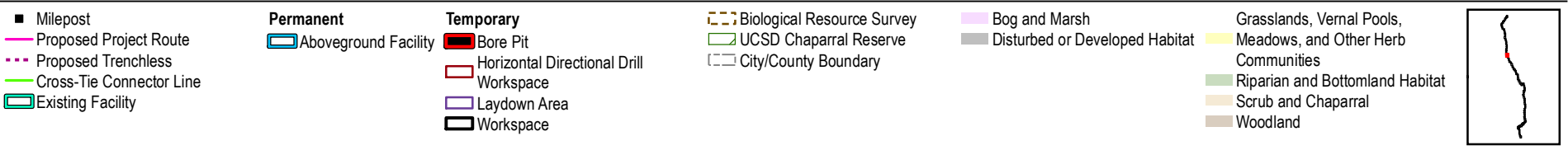
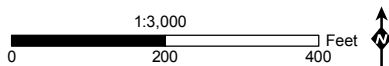




Figure A-4: Vegetation Communities Map 24 of 72

Pipeline Safety & Reliability Project

<ul style="list-style-type: none"> <li>Milepost</li> <li>Proposed Project Route</li> <li>Proposed Trenchless</li> <li>Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Workspace</li> </ul>	<ul style="list-style-type: none"> <li>Biological Resource Survey</li> <li>UCSD Chaparral Reserve</li> <li>City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>Bog and Marsh</li> <li>Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>Riparian and Bottomland Habitat</li> <li>Scrub and Chaparral</li> <li>Woodland</li> </ul>	
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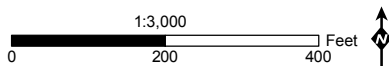
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Figure A-4: Vegetation Communities Map 25 of 72

Pipeline Safety & Reliability Project

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul>	
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Figure A-4: Vegetation Communities Map 26 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Workspace</li> </ul>	<ul style="list-style-type: none"> <li>Biological Resource Survey</li> <li>UCSD Chaparral Reserve</li> <li>City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>Bog and Marsh</li> <li>Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>Riparian and Bottomland Habitat</li> <li>Scrub and Chaparral</li> <li>Woodland</li> </ul>	
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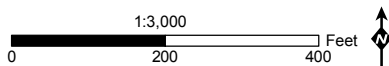
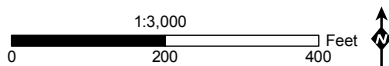
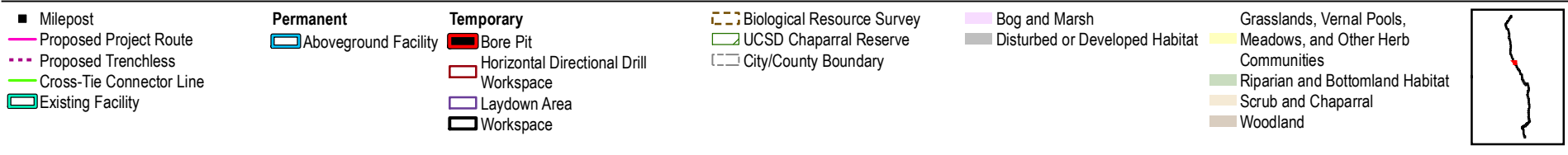




Figure A-4: Vegetation Communities Map 27 of 72

Pipeline Safety & Reliability Project



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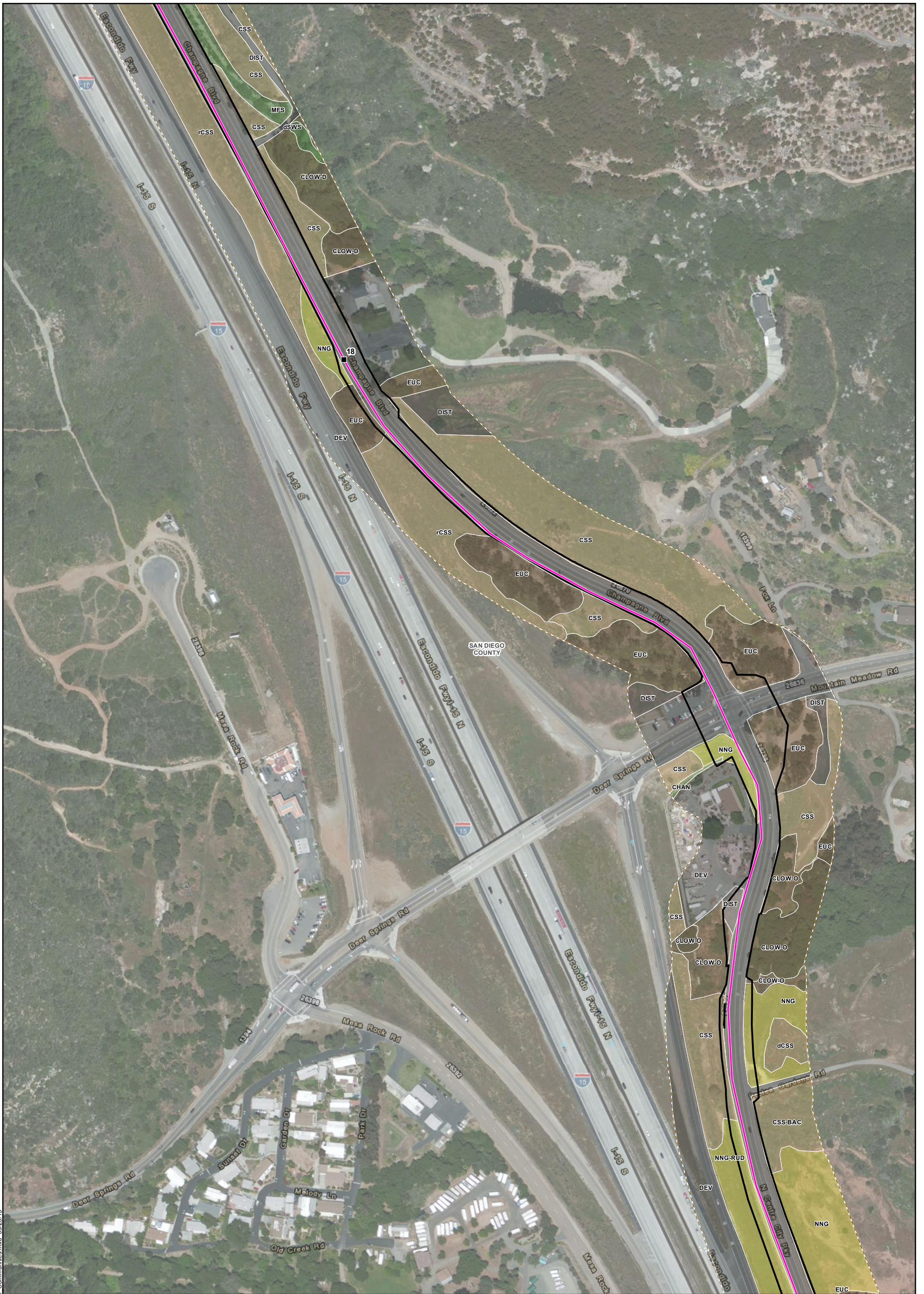
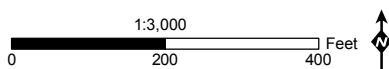


Figure A-4: Vegetation Communities Map 28 of 72

Pipeline Safety & Reliability Project

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|--|--|---|--|---|---|--|
| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul> | <p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> | <p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul> | <ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul> |  |
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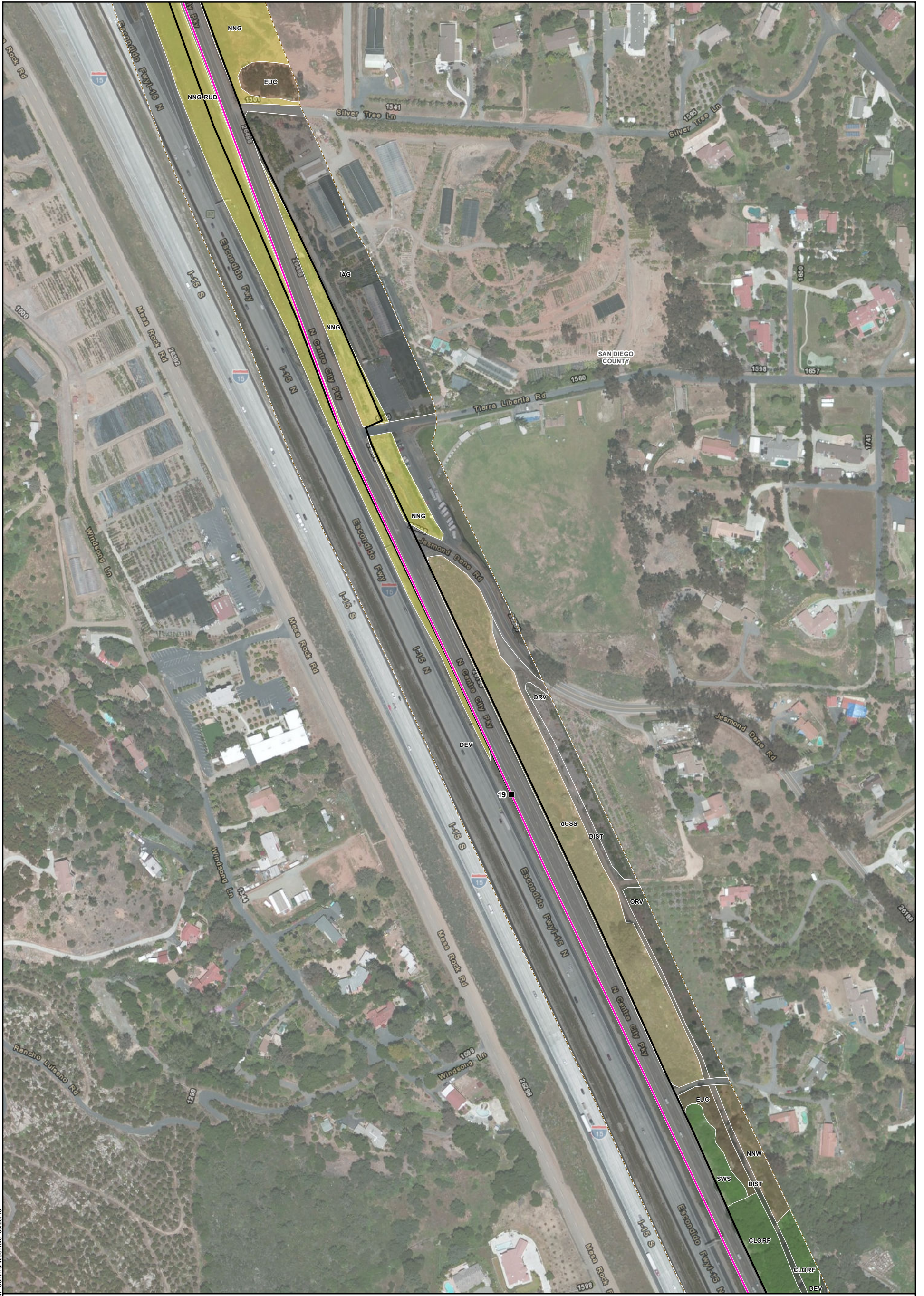
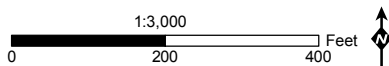


Figure A-4: Vegetation Communities Map 29 of 72

Pipeline Safety & Reliability Project

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>— Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Workspace</li> </ul>	<ul style="list-style-type: none"> <li>Biological Resource Survey</li> <li>UCSD Chaparral Reserve</li> <li>City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>Bog and Marsh</li> <li>Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>Riparian and Bottomland Habitat</li> <li>Scrub and Chaparral</li> <li>Woodland</li> </ul>	
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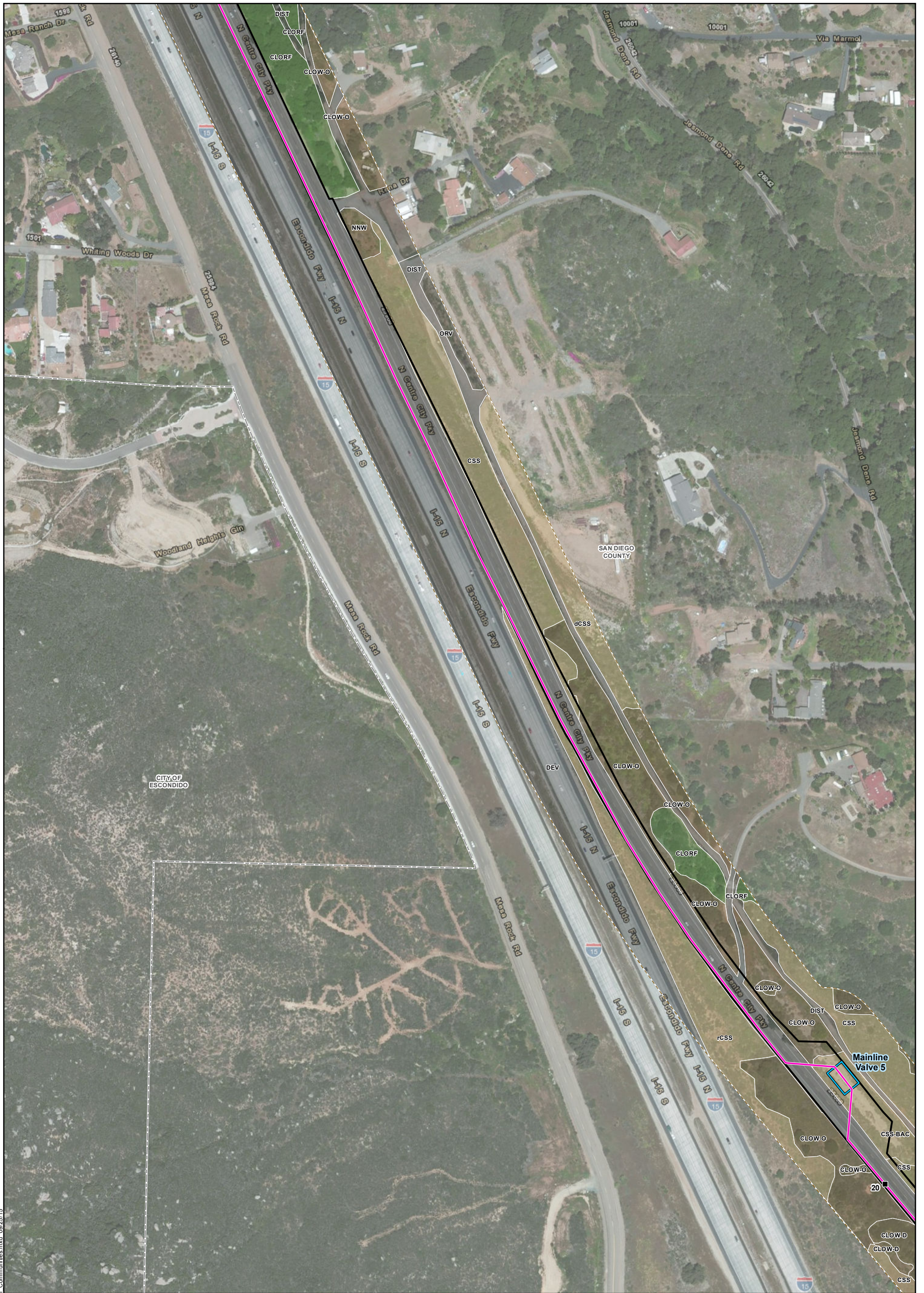
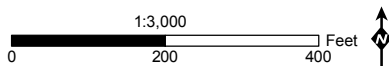


Figure A-4: Vegetation Communities Map 30 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul>	
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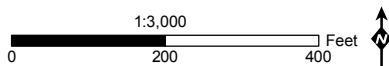
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Figure A-4: Vegetation Communities Map 31 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul>	
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Figure A-4: Vegetation Communities Map 32 of 72

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| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>— Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>— Existing Facility</li> </ul> | <p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>— Aboveground Facility</li> </ul> | <p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>— Horizontal Directional Drill Workspace</li> <li>— Laydown Area</li> <li>— Workspace</li> </ul> | <ul style="list-style-type: none"> <li>— Biological Resource Survey</li> <li>— UCSD Chaparral Reserve</li> <li>— City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>— Bog and Marsh</li> <li>— Disturbed or Developed Habitat</li> </ul> | <ul style="list-style-type: none"> <li>— Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>— Riparian and Bottomland Habitat</li> <li>— Scrub and Chaparral</li> <li>— Woodland</li> </ul> |  |
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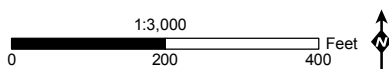
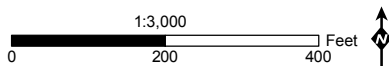




Figure A-4: Vegetation Communities Map 33 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>— Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>— Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>— Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>— Horizontal Directional Drill Workspace</li> <li>— Laydown Area</li> <li>— Workspace</li> </ul>	<ul style="list-style-type: none"> <li>— Biological Resource Survey</li> <li>— UCSD Chaparral Reserve</li> <li>— City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>— Bog and Marsh</li> <li>— Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>— Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>— Riparian and Bottomland Habitat</li> <li>— Scrub and Chaparral</li> <li>— Woodland</li> </ul>	
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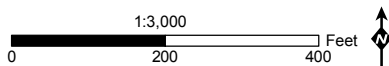
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Figure A-4: Vegetation Communities Map 34 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>— Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>— Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>— Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>— Horizontal Directional Drill Workspace</li> <li>— Laydown Area</li> <li>— Workspace</li> </ul>	<ul style="list-style-type: none"> <li>— Biological Resource Survey</li> <li>— UCSD Chaparral Reserve</li> <li>— City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>— Bog and Marsh</li> <li>— Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>— Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>— Riparian and Bottomland Habitat</li> <li>— Scrub and Chaparral</li> <li>— Woodland</li> </ul>	
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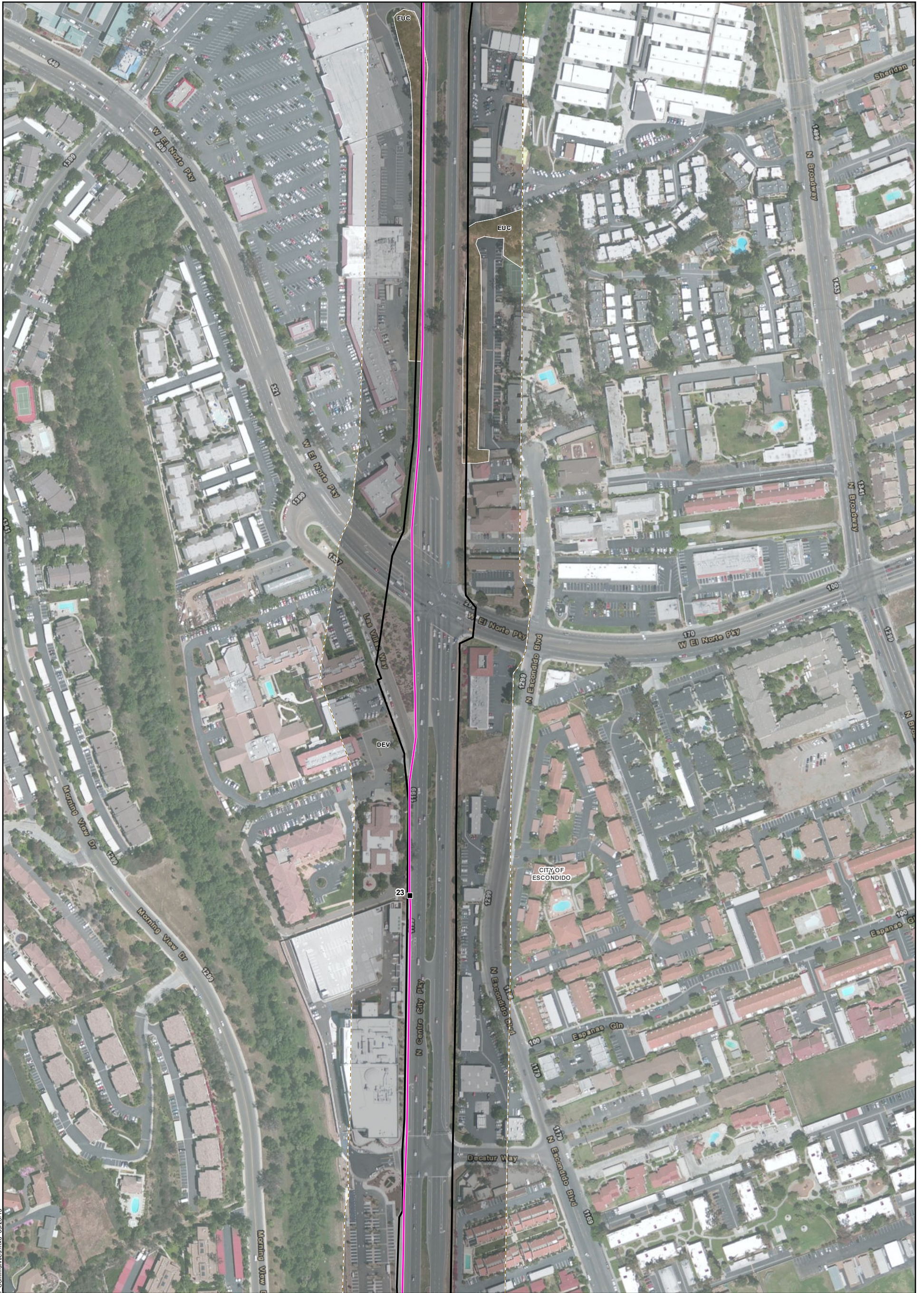


Figure A-4: Vegetation Communities Map 35 of 72

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|--|--|---|--|---|---|--|
| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul> | <p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> | <p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul> | <ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul> |  |
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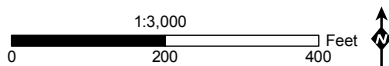
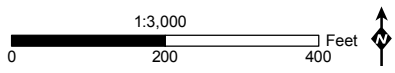




Figure A-4: Vegetation Communities Map 36 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>— Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>— Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>— Horizontal Directional Drill Workspace</li> <li>— Laydown Area</li> <li>— Workspace</li> </ul>	<ul style="list-style-type: none"> <li>--- Biological Resource Survey</li> <li>— UCSD Chaparral Reserve</li> <li>--- City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>— Bog and Marsh</li> <li>— Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>— Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>— Riparian and Bottomland Habitat</li> <li>— Scrub and Chaparral</li> <li>— Woodland</li> </ul>	
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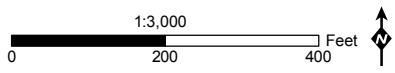




Figure A-4: Vegetation Communities Map 37 of 72

Pipeline Safety & Reliability Project

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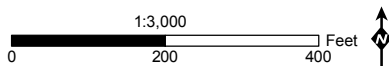
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Figure A-4: Vegetation Communities Map 38 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>— Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>— Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>— Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>— Horizontal Directional Drill Workspace</li> <li>— Laydown Area</li> <li>— Workspace</li> </ul>	<ul style="list-style-type: none"> <li>— Biological Resource Survey</li> <li>— UCSD Chaparral Reserve</li> <li>— City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>— Bog and Marsh</li> <li>— Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>— Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>— Riparian and Bottomland Habitat</li> <li>— Scrub and Chaparral</li> <li>— Woodland</li> </ul>	
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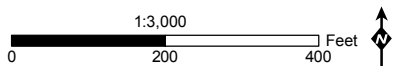
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Figure A-4: Vegetation Communities Map 39 of 72

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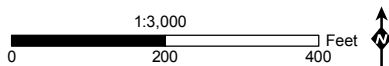
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Figure A-4: Vegetation Communities Map 40 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul>	
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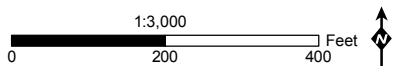
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Figure A-4: Vegetation Communities Map 41 of 72

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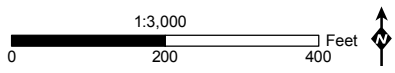
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Figure A-4: Vegetation Communities Map 42 of 72

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| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>— Existing Facility</li> </ul> | <p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>— Aboveground Facility</li> </ul> | <p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>— Horizontal Directional Drill Workspace</li> <li>— Laydown Area</li> <li>— Workspace</li> </ul> | <ul style="list-style-type: none"> <li>--- Biological Resource Survey</li> <li>— UCSD Chaparral Reserve</li> <li>--- City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>— Bog and Marsh</li> <li>— Disturbed or Developed Habitat</li> </ul> | <ul style="list-style-type: none"> <li>— Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>— Riparian and Bottomland Habitat</li> <li>— Scrub and Chaparral</li> <li>— Woodland</li> </ul> |  |
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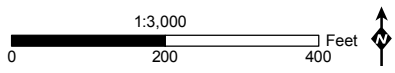
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Figure A-4: Vegetation Communities Map 43 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>▭ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul>	
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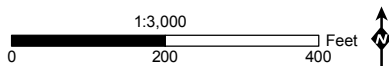
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Figure A-4: Vegetation Communities Map 44 of 72

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Figure A-4: Vegetation Communities Map 45 of 72

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| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul> | <p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> | <p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul> | <ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul> |  |
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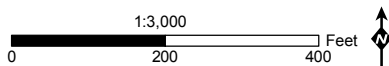
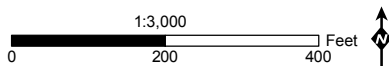
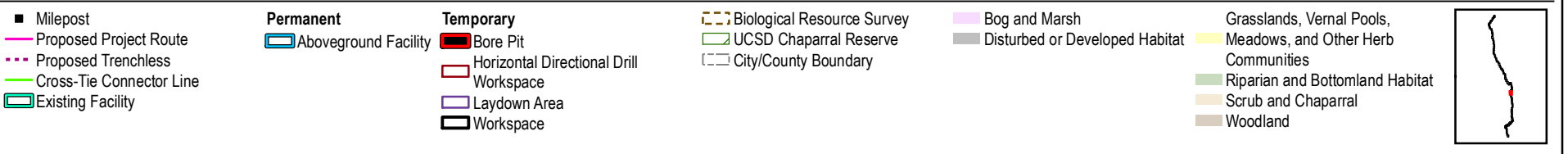




Figure A-4: Vegetation Communities Map 46 of 72

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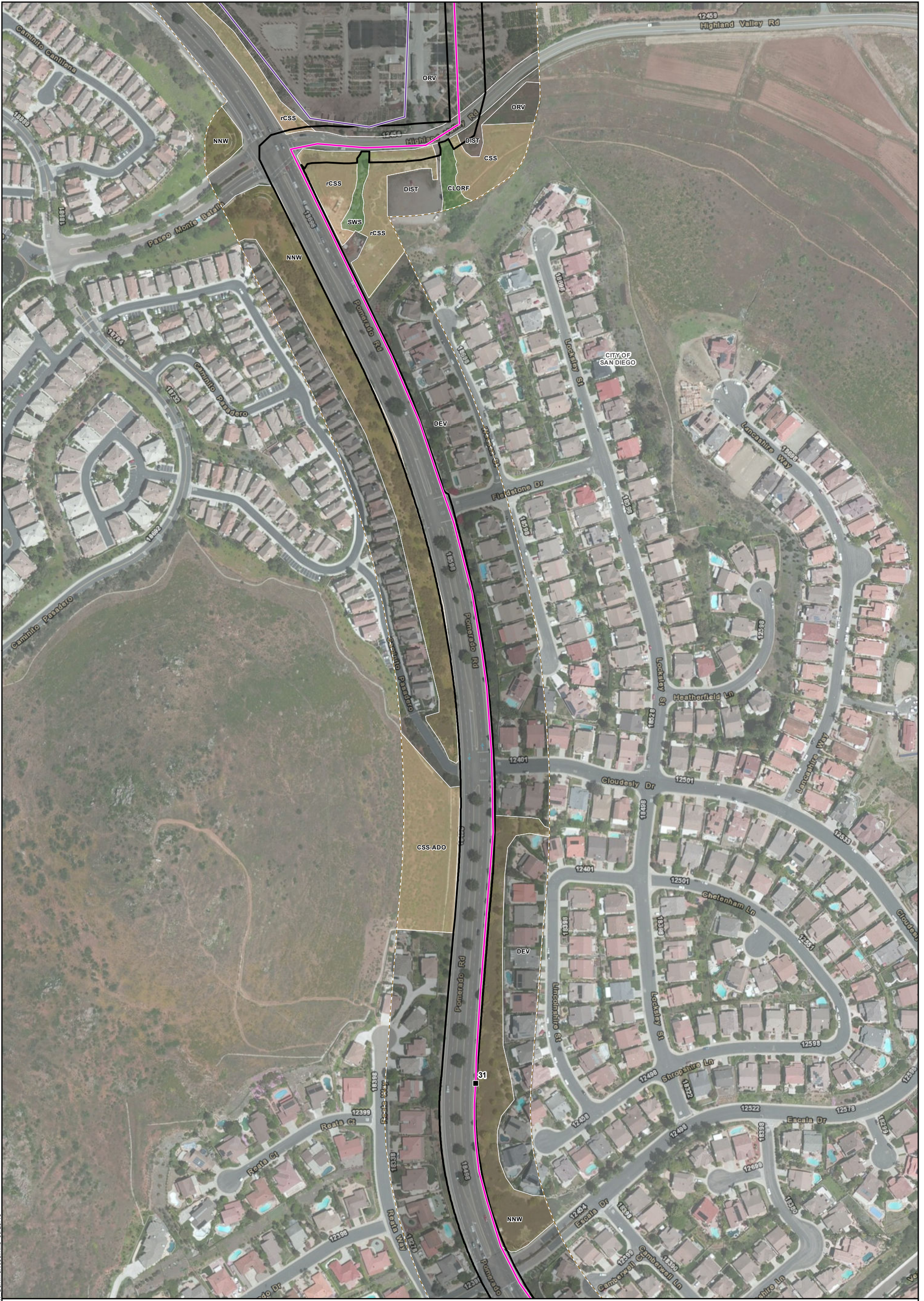
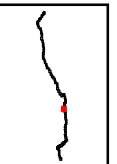
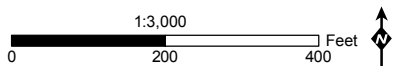


Figure A-4: Vegetation Communities Map 47 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>— Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>— Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>— Horizontal Directional Drill Workspace</li> <li>— Laydown Area</li> <li>— Workspace</li> </ul>	<ul style="list-style-type: none"> <li>--- Biological Resource Survey</li> <li>— UCSD Chaparral Reserve</li> <li>--- City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>— Bog and Marsh</li> <li>— Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>— Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>— Riparian and Bottomland Habitat</li> <li>— Scrub and Chaparral</li> <li>— Woodland</li> </ul>	
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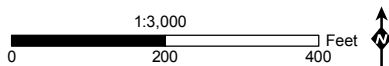
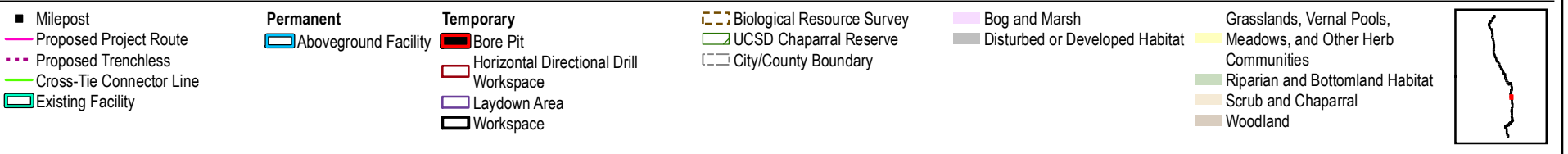


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Figure A-4: Vegetation Communities Map 48 of 72

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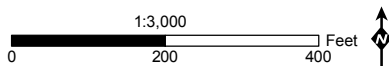
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Figure A-4: Vegetation Communities Map 49 of 72

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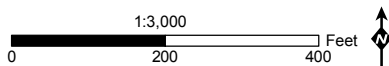
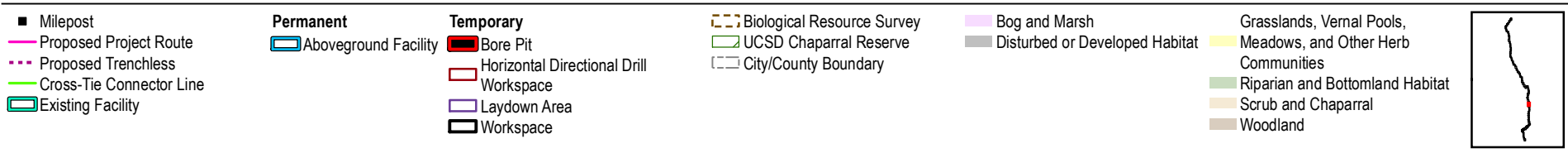


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Figure A-4: Vegetation Communities Map 50 of 72

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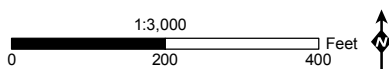
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Figure A-4: Vegetation Communities Map 51 of 72

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| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>— Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>— Existing Facility</li> </ul> | <p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>— Aboveground Facility</li> </ul> | <p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>— Horizontal Directional Drill Workspace</li> <li>— Laydown Area</li> <li>— Workspace</li> </ul> | <ul style="list-style-type: none"> <li>— Biological Resource Survey</li> <li>— UCSD Chaparral Reserve</li> <li>— City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>— Bog and Marsh</li> <li>— Disturbed or Developed Habitat</li> </ul> | <ul style="list-style-type: none"> <li>— Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>— Riparian and Bottomland Habitat</li> <li>— Scrub and Chaparral</li> <li>— Woodland</li> </ul> |  |
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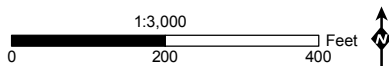
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Figure A-4: Vegetation Communities Map 52 of 72

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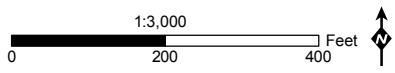




Figure A-4: Vegetation Communities Map 53 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>— Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>— Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>— Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>— Horizontal Directional Drill Workspace</li> <li>— Laydown Area</li> <li>— Workspace</li> </ul>	<ul style="list-style-type: none"> <li>— Biological Resource Survey</li> <li>— UCSD Chaparral Reserve</li> <li>— City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>— Bog and Marsh</li> <li>— Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>— Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>— Riparian and Bottomland Habitat</li> <li>— Scrub and Chaparral</li> <li>— Woodland</li> </ul>	
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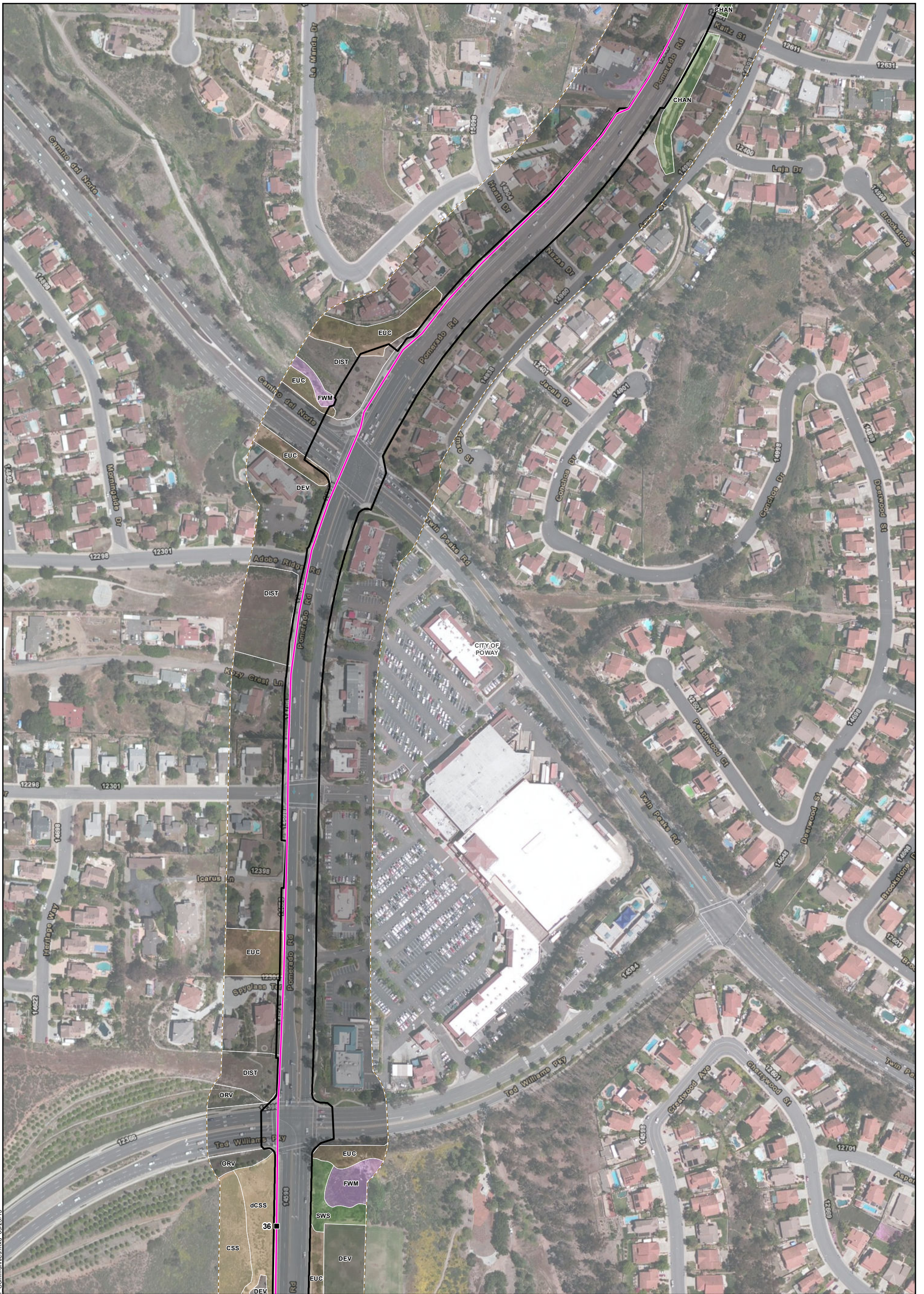


Figure A-4: Vegetation Communities Map 54 of 72

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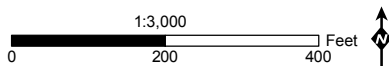
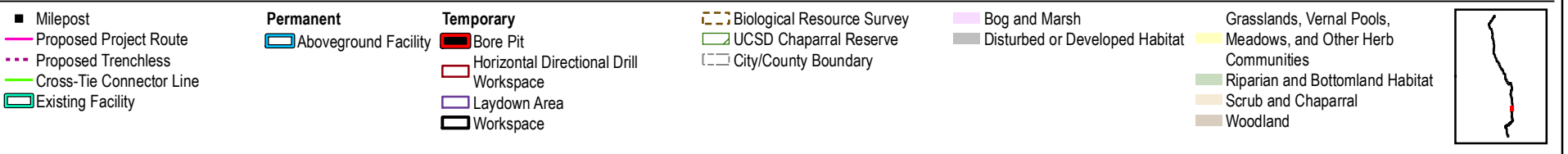
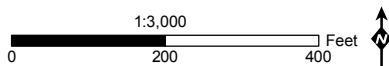
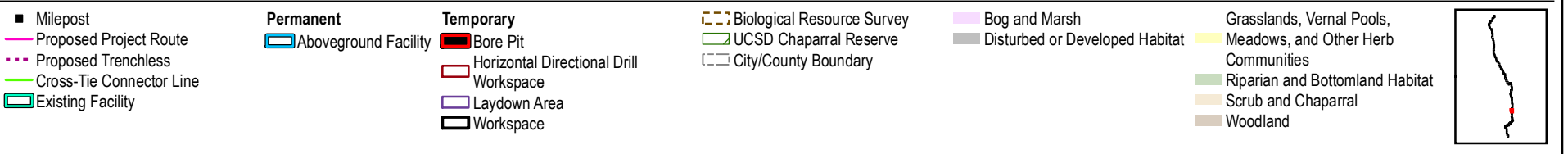




Figure A-4: Vegetation Communities Map 55 of 72

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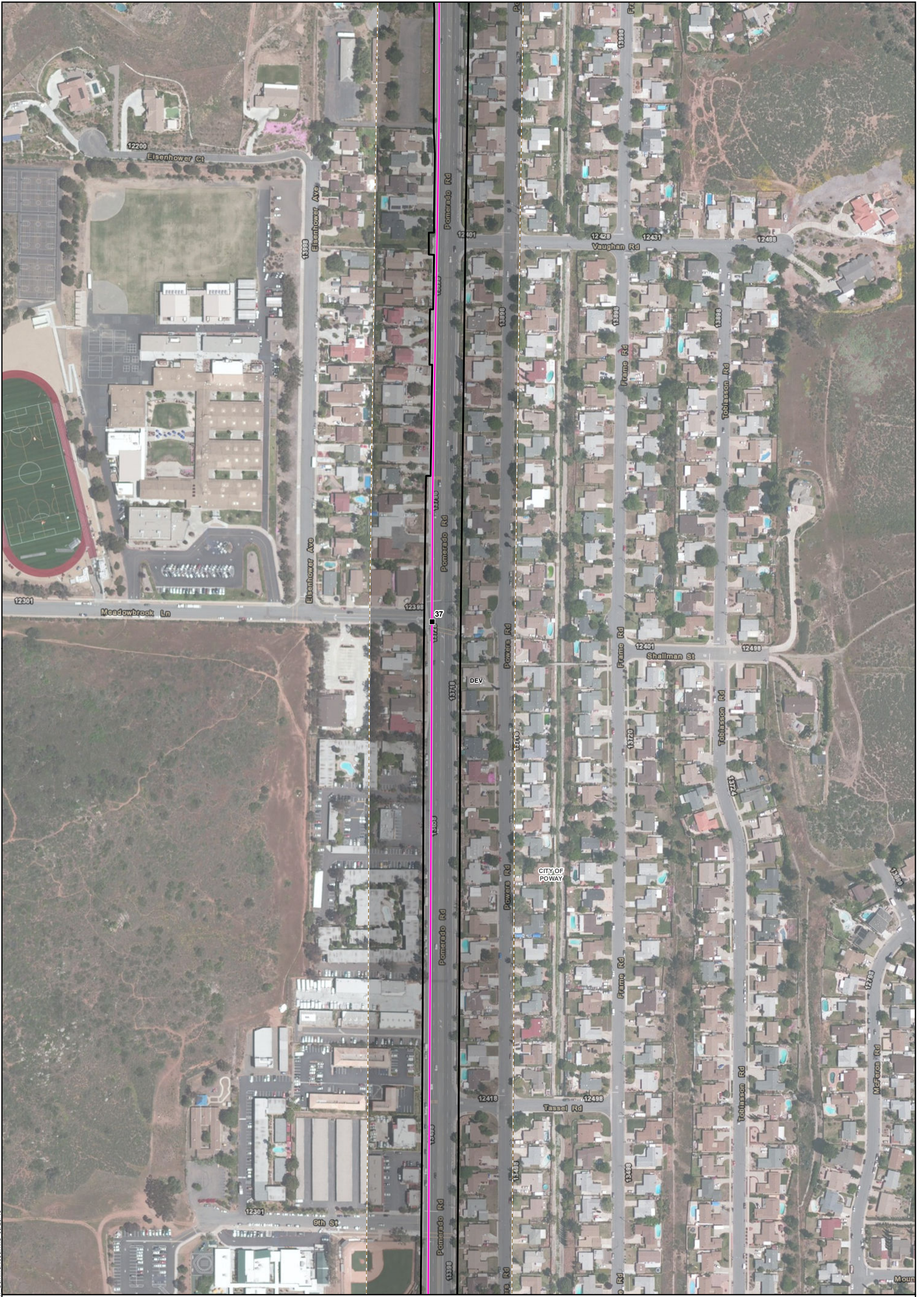
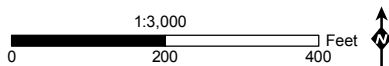


Figure A-4: Vegetation Communities Map 56 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul>	
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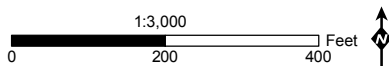
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Figure A-4: Vegetation Communities Map 57 of 72

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| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul> | <p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> | <p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul> | <ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul> |  |
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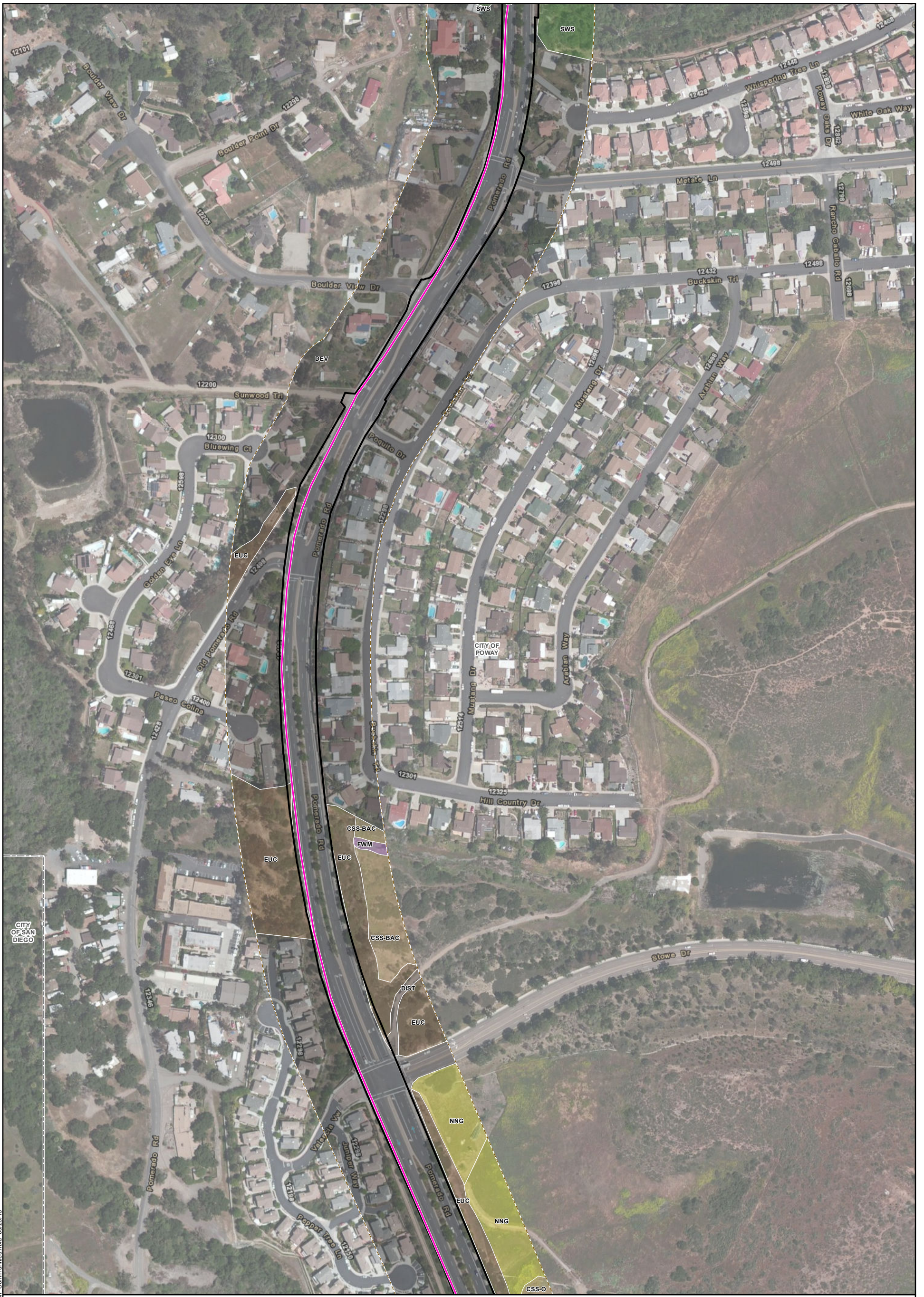
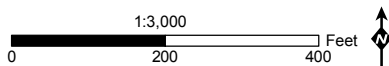


Figure A-4: Vegetation Communities Map 58 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul>	
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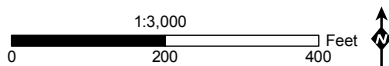
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Figure A-4: Vegetation Communities Map 59 of 72

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<ul style="list-style-type: none"> <li>Milepost</li> <li>Proposed Project Route</li> <li>Proposed Trenchless</li> <li>Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Workspace</li> </ul>	<ul style="list-style-type: none"> <li>Biological Resource Survey</li> <li>UCSD Chaparral Reserve</li> <li>City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>Bog and Marsh</li> <li>Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>Riparian and Bottomland Habitat</li> <li>Scrub and Chaparral</li> <li>Woodland</li> </ul>	
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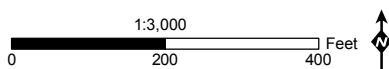
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Figure A-4: Vegetation Communities Map 60 of 72

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| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>— Existing Facility</li> </ul> | <p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>— Aboveground Facility</li> </ul> | <p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>— Horizontal Directional Drill Workspace</li> <li>— Laydown Area</li> <li>— Workspace</li> </ul> | <ul style="list-style-type: none"> <li>--- Biological Resource Survey</li> <li>--- UCSD Chaparral Reserve</li> <li>--- City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>■ Bog and Marsh</li> <li>■ Disturbed or Developed Habitat</li> </ul> | <ul style="list-style-type: none"> <li>■ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>■ Riparian and Bottomland Habitat</li> <li>■ Scrub and Chaparral</li> <li>■ Woodland</li> </ul> |  |
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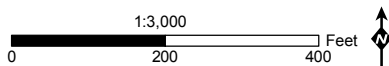




Figure A-4: Vegetation Communities Map 61 of 72

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| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul> | <p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> | <p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>--- Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>--- City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul> | <ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul> |  |
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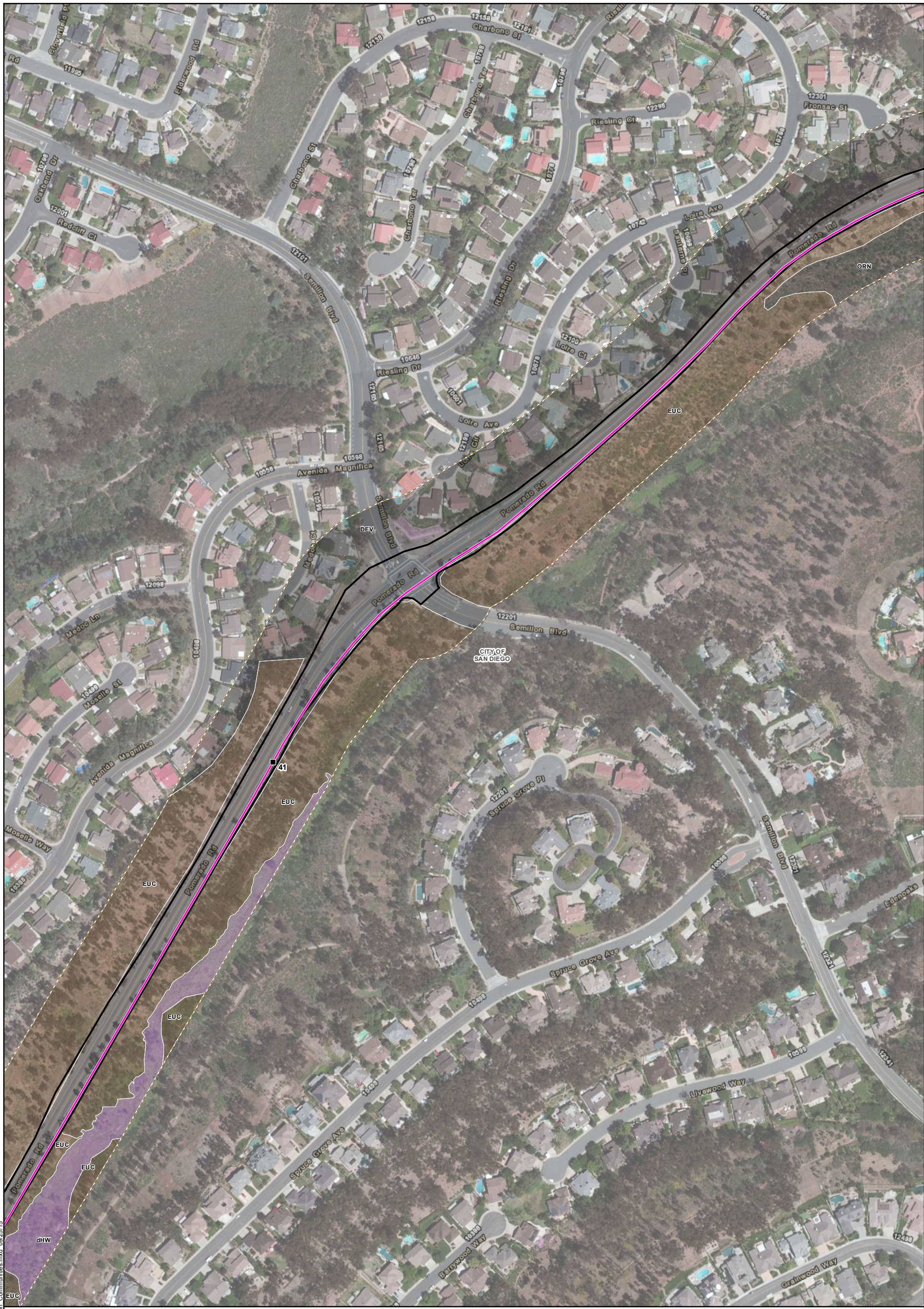
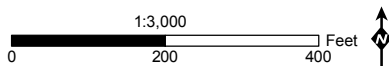


Figure A-4: Vegetation Communities Map 62 of 72

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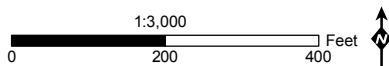
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Figure A-4: Vegetation Communities Map 63 of 72

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|--|--|---|--|---|---|--|
| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>— Existing Facility</li> </ul> | <p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>— Aboveground Facility</li> </ul> | <p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>— Horizontal Directional Drill Workspace</li> <li>— Laydown Area</li> <li>— Workspace</li> </ul> | <ul style="list-style-type: none"> <li>--- Biological Resource Survey</li> <li>— UCSD Chaparral Reserve</li> <li>--- City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>— Bog and Marsh</li> <li>— Disturbed or Developed Habitat</li> </ul> | <ul style="list-style-type: none"> <li>— Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>— Riparian and Bottomland Habitat</li> <li>— Scrub and Chaparral</li> <li>— Woodland</li> </ul> |  |
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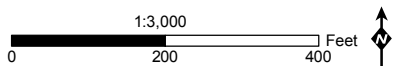
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Figure A-4: Vegetation Communities Map 64 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul>	
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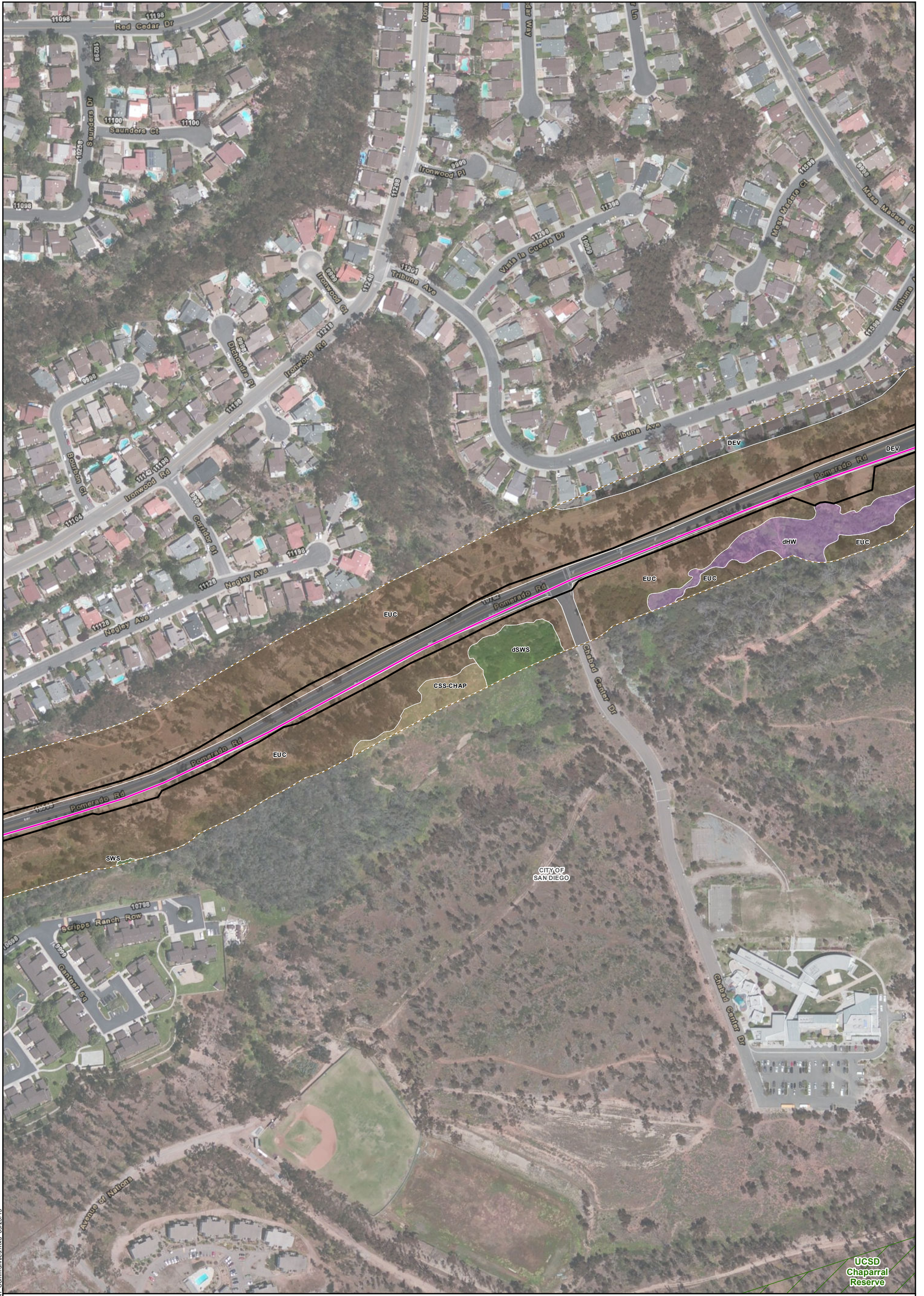
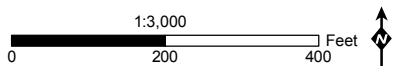


Figure A-4: Vegetation Communities Map 65 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>— Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>— Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>— Horizontal Directional Drill Workspace</li> <li>— Laydown Area</li> <li>— Workspace</li> </ul>	<ul style="list-style-type: none"> <li>--- Biological Resource Survey</li> <li>— UCSD Chaparral Reserve</li> <li>--- City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>— Bog and Marsh</li> <li>— Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>— Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>— Riparian and Bottomland Habitat</li> <li>— Scrub and Chaparral</li> <li>— Woodland</li> </ul>	
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Figure A-4: Vegetation Communities Map 66 of 72

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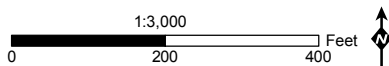
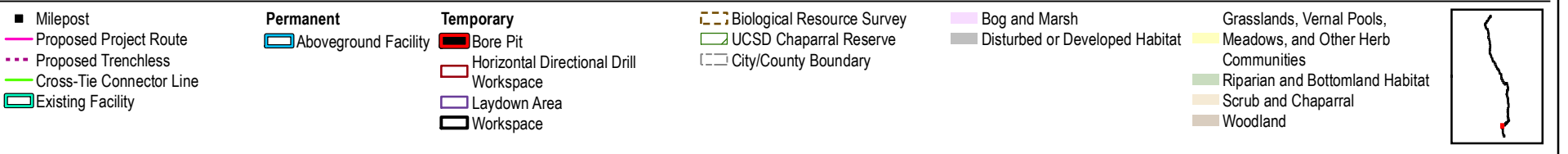
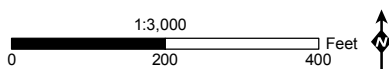
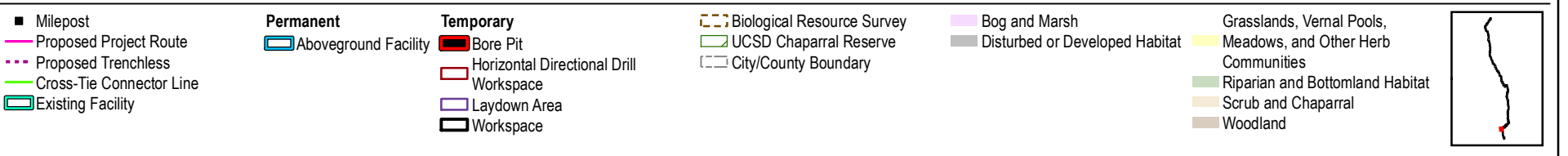




Figure A-4: Vegetation Communities Map 67 of 72

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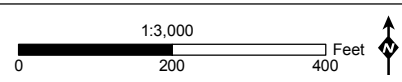
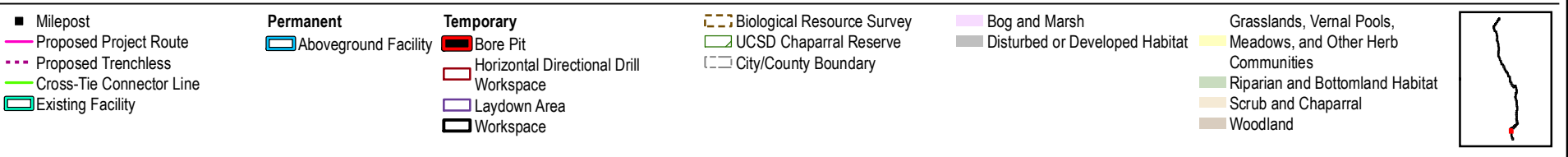


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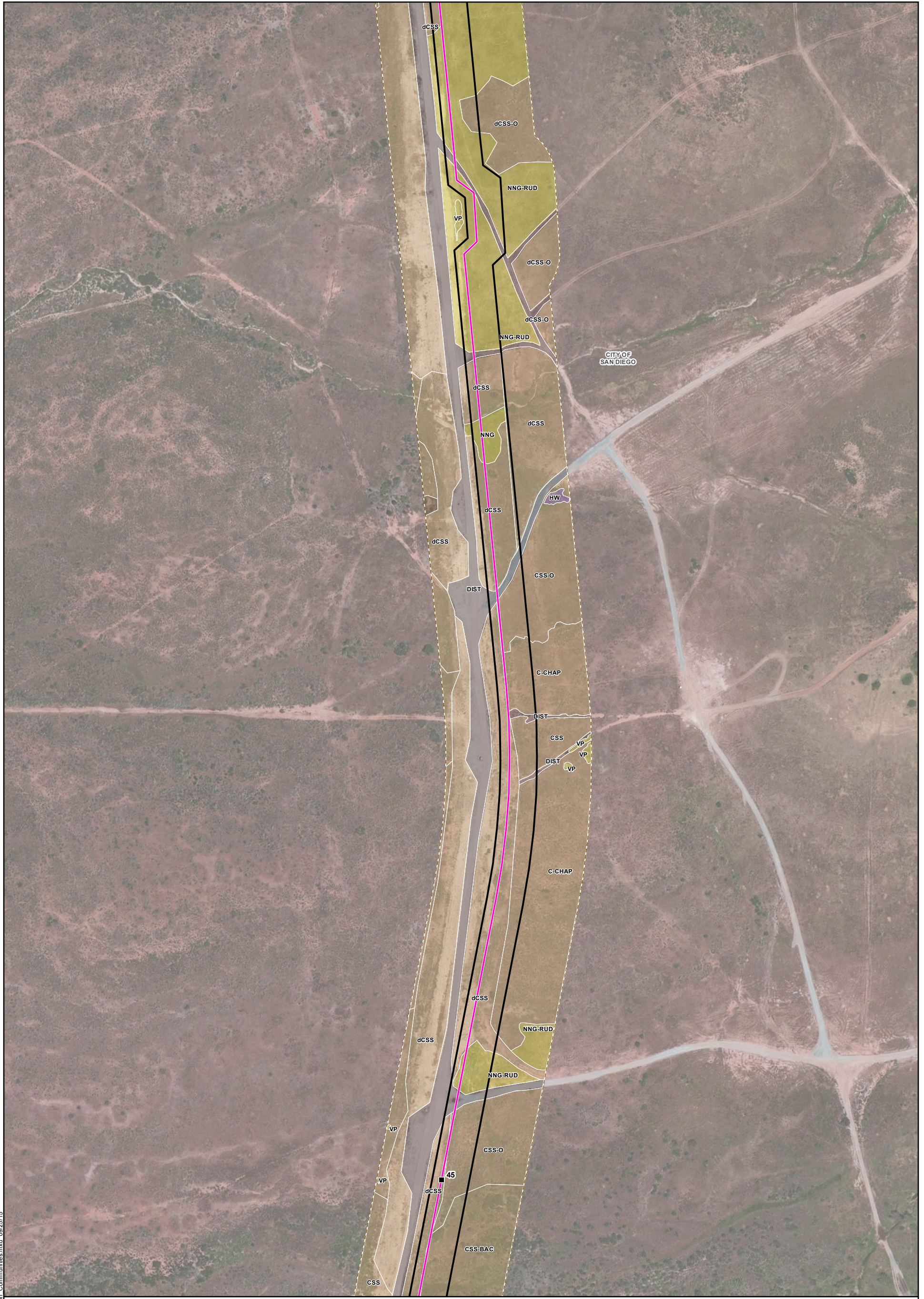
Figure A-4: Vegetation Communities Map 68 of 72

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**Figure A-4: Vegetation Communities Map 69 of 72**

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>- - - Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>▭ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul>	
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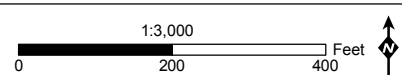
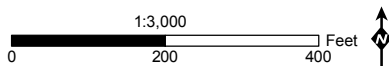




Figure A-4: Vegetation Communities Map 70 of 72

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul>	
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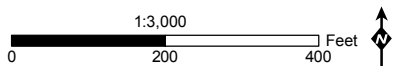
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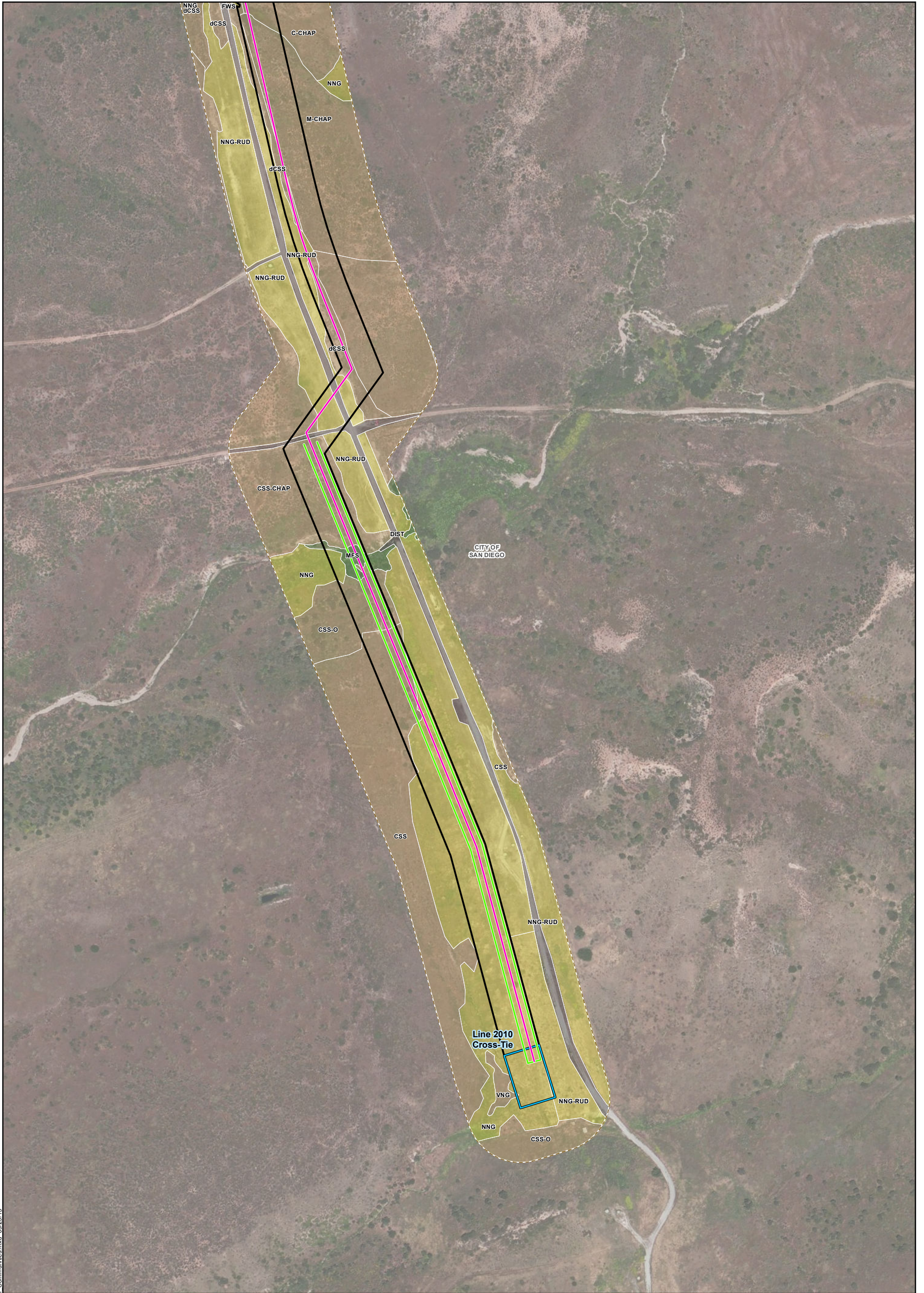
Figure A-4: Vegetation Communities Map 71 of 72

Pipeline Safety & Reliability Project

<ul style="list-style-type: none"> <li>Milepost</li> <li>Proposed Project Route</li> <li>Proposed Trenchless</li> <li>Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul>	<b>Permanent</b> <ul style="list-style-type: none"> <li>Aboveground Facility</li> </ul>	<b>Temporary</b> <ul style="list-style-type: none"> <li>Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Workspace</li> </ul>	<ul style="list-style-type: none"> <li>Biological Resource Survey</li> <li>UCSD Chaparral Reserve</li> <li>City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>Bog and Marsh</li> <li>Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>Riparian and Bottomland Habitat</li> <li>Scrub and Chaparral</li> <li>Woodland</li> </ul>	
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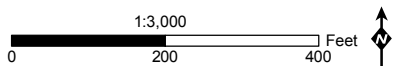


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**Figure A-4: Vegetation Communities Map 72 of 72**

**Pipeline Safety & Reliability Project**

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey</li> <li>▭ UCSD Chaparral Reserve</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Bog and Marsh</li> <li>▭ Disturbed or Developed Habitat</li> </ul>	<ul style="list-style-type: none"> <li>▭ Grasslands, Vernal Pools, Meadows, and Other Herb Communities</li> <li>▭ Riparian and Bottomland Habitat</li> <li>▭ Scrub and Chaparral</li> <li>▭ Woodland</li> </ul>	
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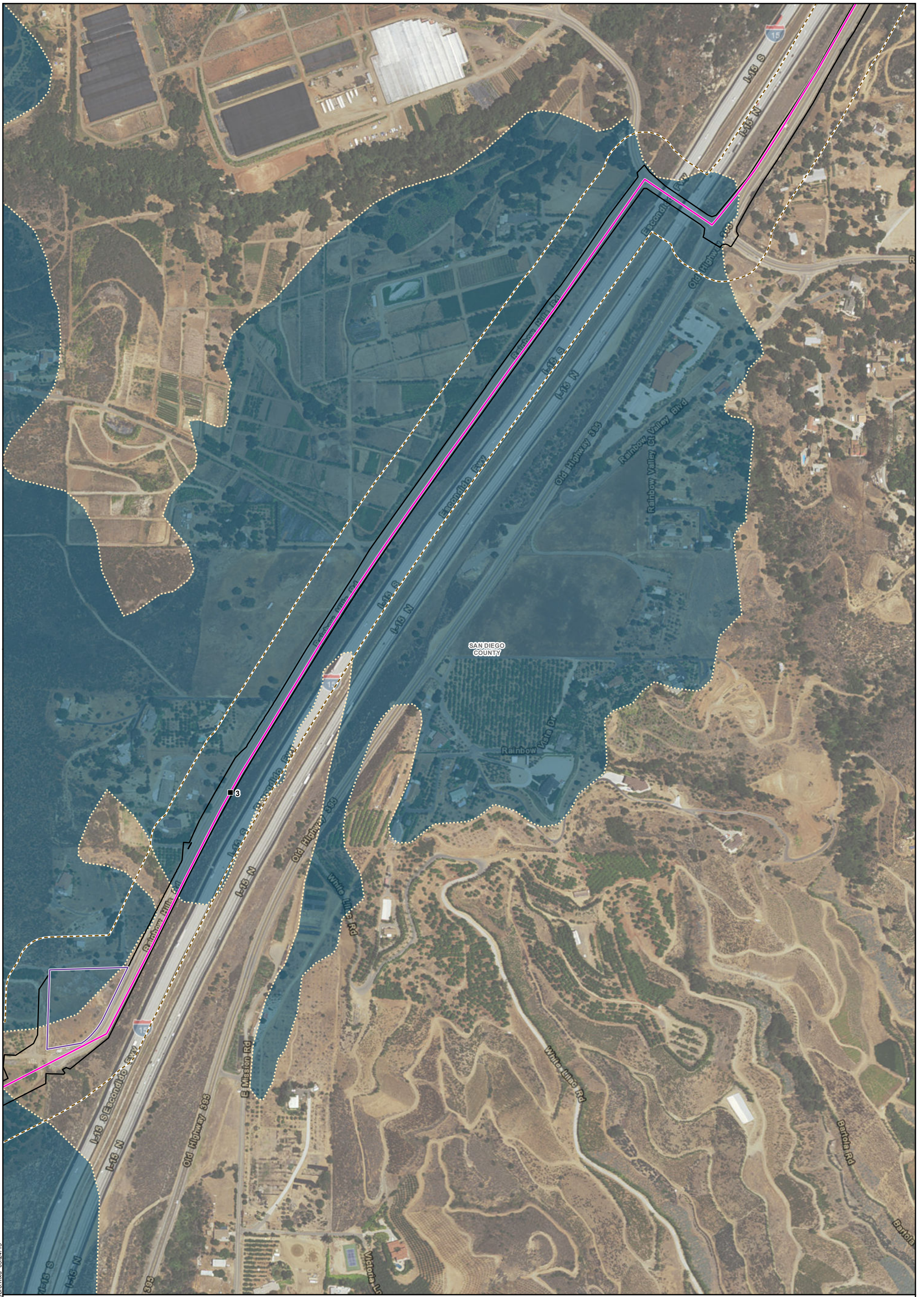
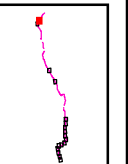
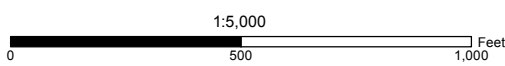


Figure A-5: Clay and Gabbroic Soils Map 1 of 17

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- Milepost
- Proposed Project Route
- Cross-Tie Connector Line
- Permanent Impacts
- Aboveground Facility
- Laydown Area
- Temporary Impacts
- Workspace
- Biological Resource Survey Area
- City/County Boundary
- Soil Unit Boundary
- Clay Soil
- Gabbro Soil

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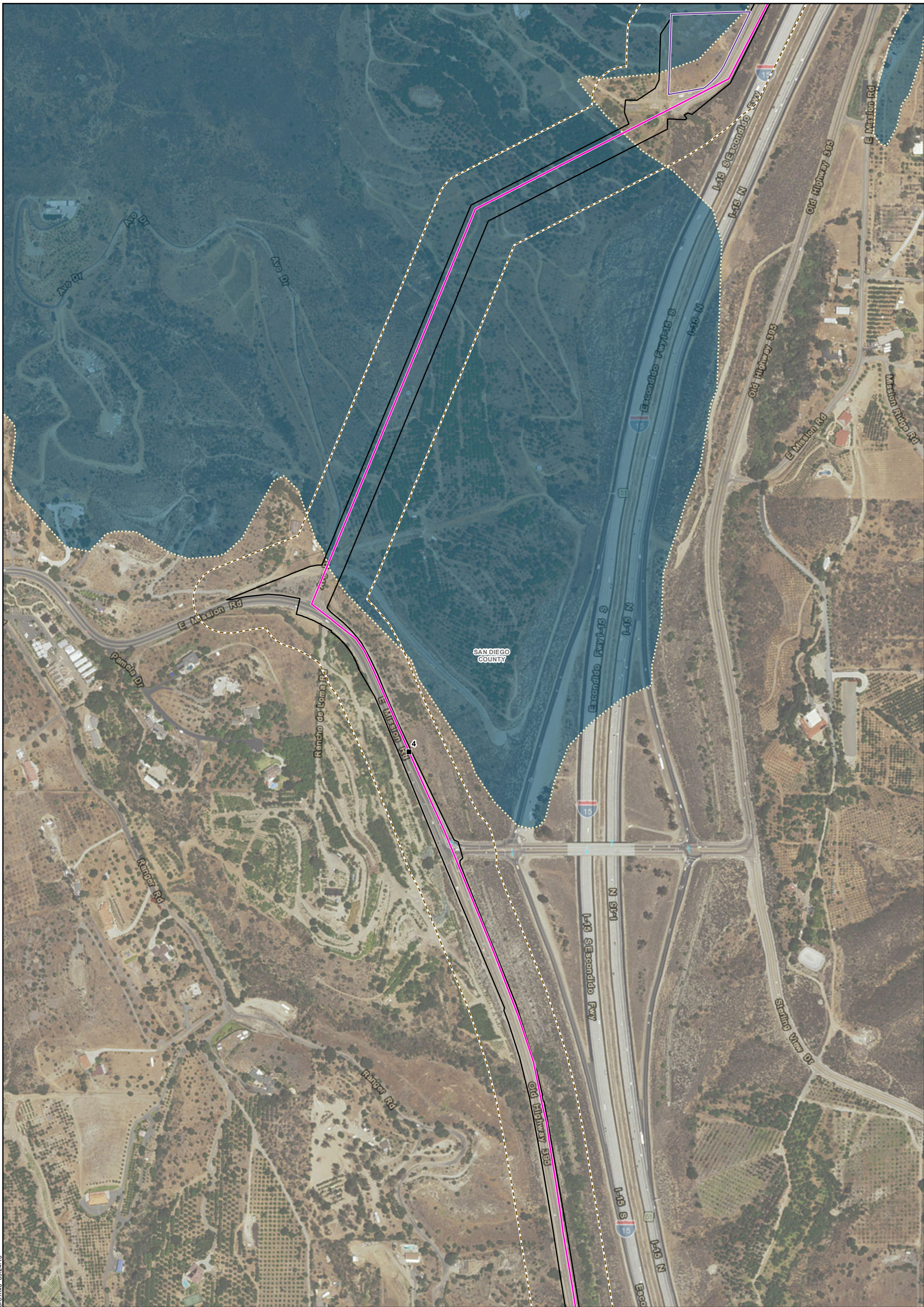
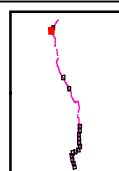


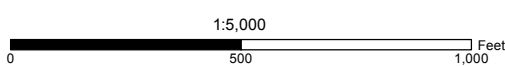
Figure A-5: Clay and Gabbroic Soils Map 2 of 17

Pipeline Safety & Reliability Project

- |                            |                        |                   |                                     |                        |
|----------------------------|------------------------|-------------------|-------------------------------------|------------------------|
| ■ Milepost                 | Permanent Impacts      | Temporary Impacts | --- Biological Resource Survey Area | --- Soil Unit Boundary |
| — Proposed Project Route   | ▭ Aboveground Facility | ▭ Laydown Area    | ▭ City/County Boundary              | ■ Clay Soil            |
| — Cross-Tie Connector Line | ▭ Workspace            |                   |                                     | ■ Gabbro Soil          |



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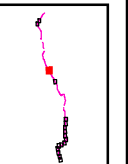
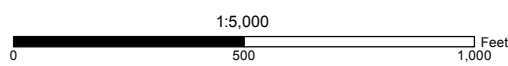


Figure A-5: Clay and Gabbroic Soils Map 3 of 17

Pipeline Safety & Reliability Project

- |                            |                          |                          |                                     |                        |
|----------------------------|--------------------------|--------------------------|-------------------------------------|------------------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | <b>Temporary Impacts</b> | --- Biological Resource Survey Area | --- Soil Unit Boundary |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ Laydown Area           | ▭ City/County Boundary              | ■ Clay Soil            |
| — Cross-Tie Connector Line |                          | ▭ Workspace              |                                     | ■ Gabbro Soil          |

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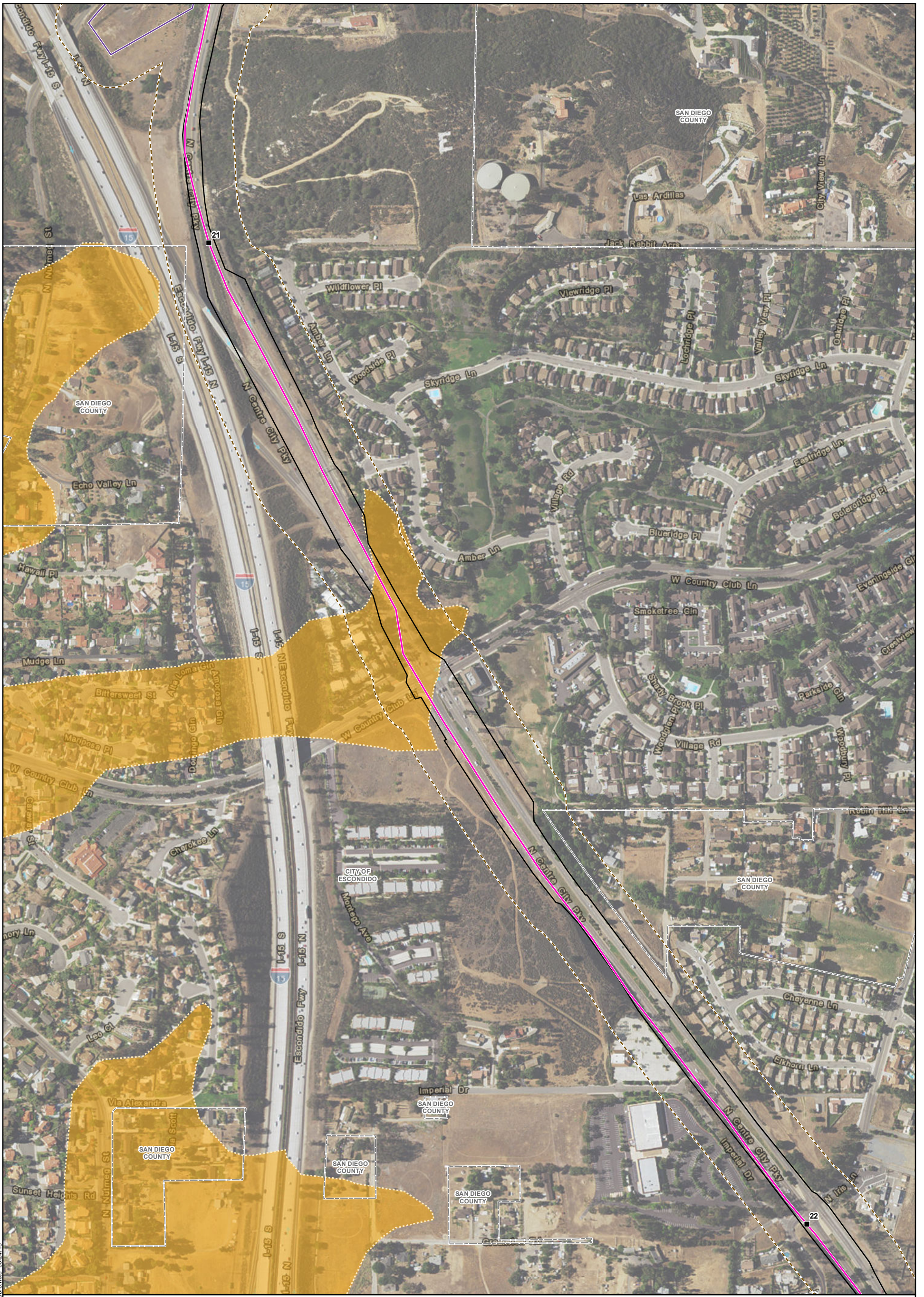
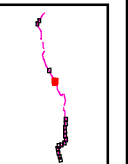
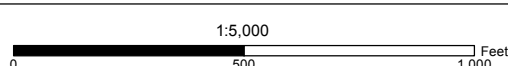


Figure A-5: Clay and Gabbroic Soils Map 4 of 17

- Milepost
- Proposed Project Route
- Cross-Tie Connector Line
- Permanent Impacts**
- ▭ Aboveground Facility
- Temporary Impacts**
- ▭ Laydown Area
- ▭ Workspace
- ▭ Biological Resource Survey Area
- ▭ City/County Boundary
- ▭ Soil Unit Boundary
- Clay Soil
- Gabbro Soil



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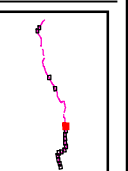
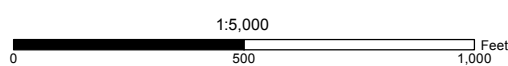




Figure A-5: Clay and Gabbroic Soils Map 5 of 17

- Milepost
- Proposed Project Route
- Cross-Tie Connector Line
- Permanent Impacts
  - Aboveground Facility
- Temporary Impacts
  - Laydown Area
  - Workspace
- Biological Resource Survey Area
- City/County Boundary
- Soil Unit Boundary
- Clay Soil
- Gabbro Soil

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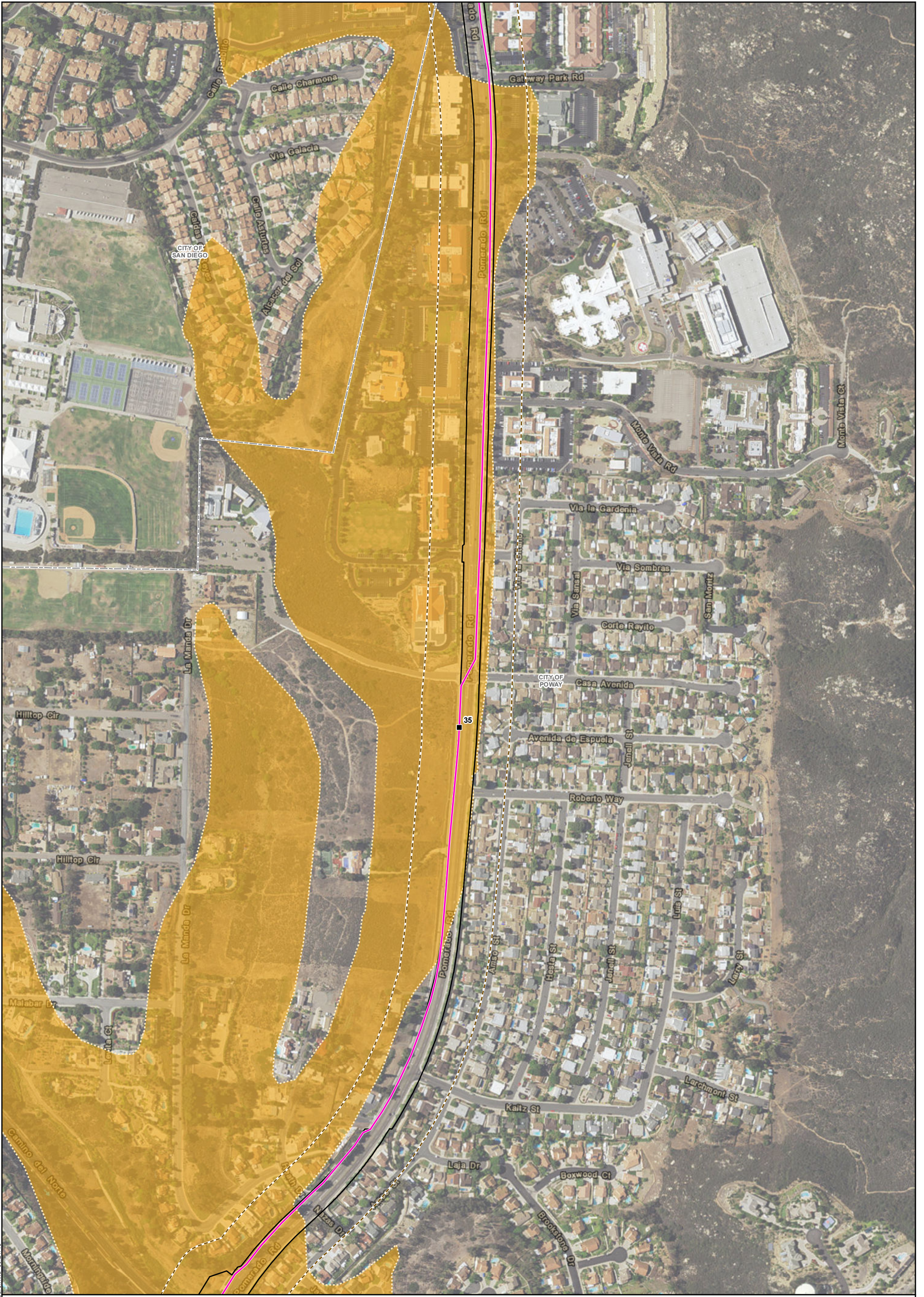
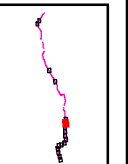
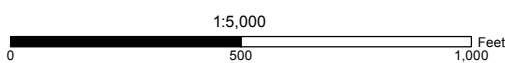


Figure A-5: Clay and Gabbroic Soils Map 6 of 17

- Milepost
- Proposed Project Route
- Cross-Tie Connector Line
- Permanent Impacts**
- ▭ Aboveground Facility
- Temporary Impacts**
- ▭ Laydown Area
- ▭ Workspace
- ▭ Biological Resource Survey Area
- ▭ City/County Boundary
- ▭ Soil Unit Boundary
- ▭ Clay Soil
- ▭ Gabbro Soil

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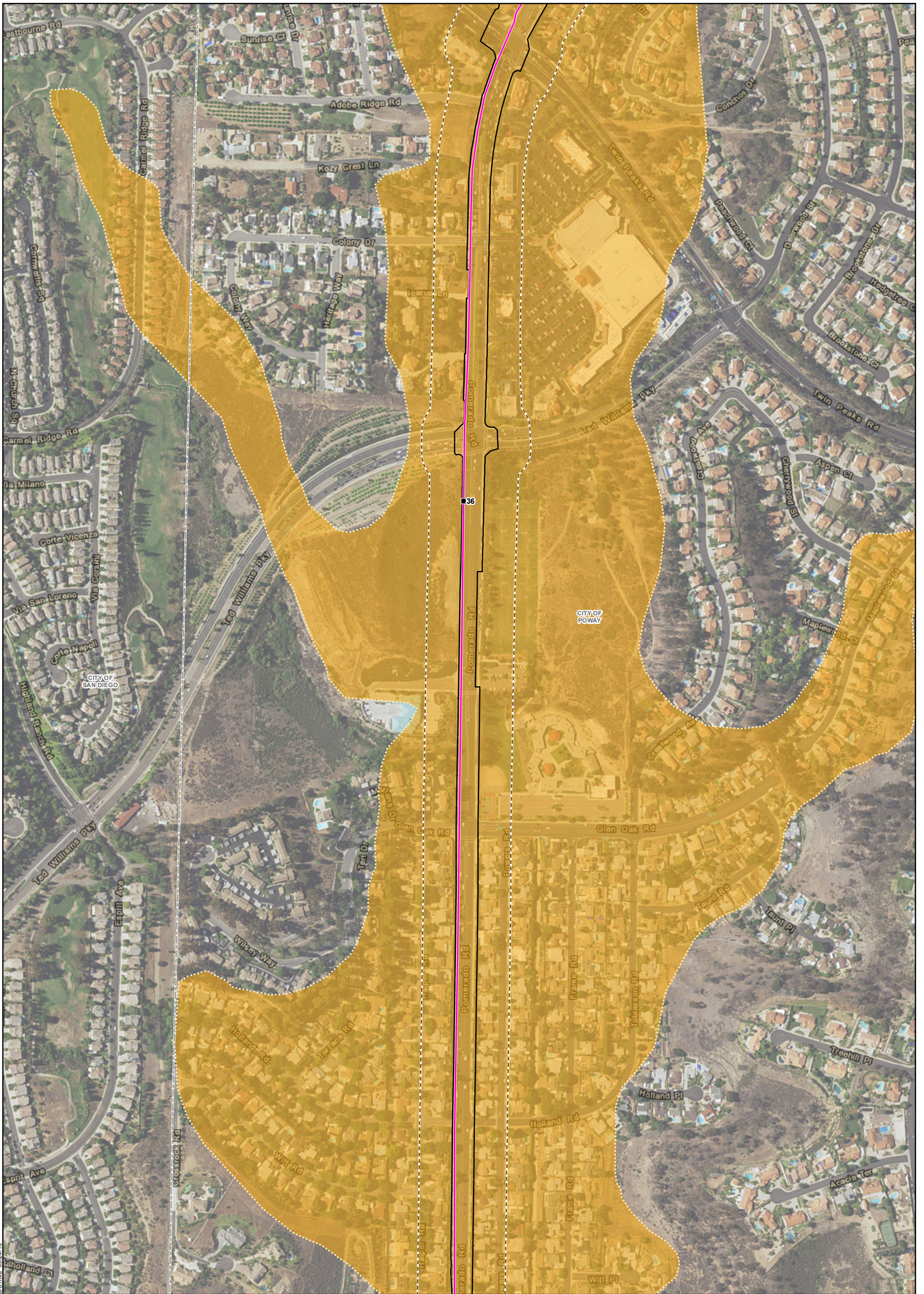
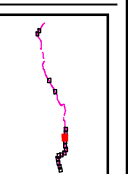
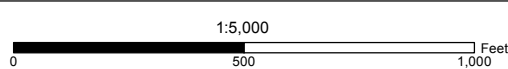


Figure A-5: Clay and Gabbroic Soils Map 7 of 17

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- Milepost
- Proposed Project Route
- Cross-Tie Connector Line
- Permanent Impacts
- Aboveground Facility
- Temporary Impacts
- Laydown Area
- Workspace
- Biological Resource Survey Area
- City/County Boundary
- Soil Unit Boundary
- Clay Soil
- Gabbro Soil

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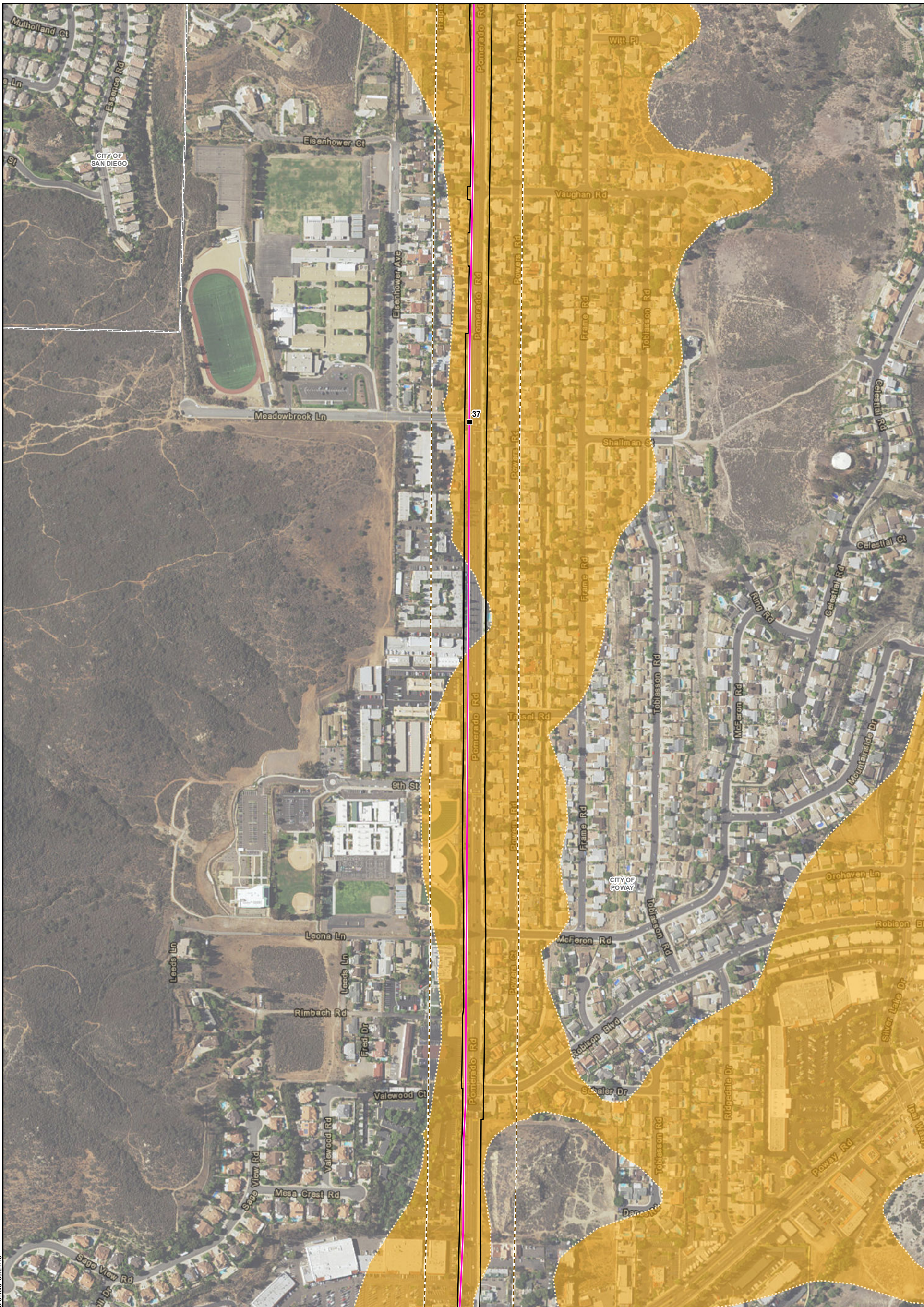
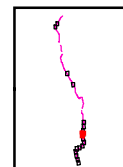
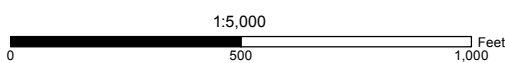


Figure A-5: Clay and Gabbroic Soils Map 8 of 17

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- Milepost
- Proposed Project Route
- Cross-Tie Connector Line
- Permanent Impacts
  - ▭ Aboveground Facility
  - ▭ Laydown Area
  - ▭ Workspace
- Temporary Impacts
  - ▭ Biological Resource Survey Area
  - ▭ City/County Boundary
- Soil Unit Boundary
  - ▭ Clay Soil
  - ▭ Gabbro Soil

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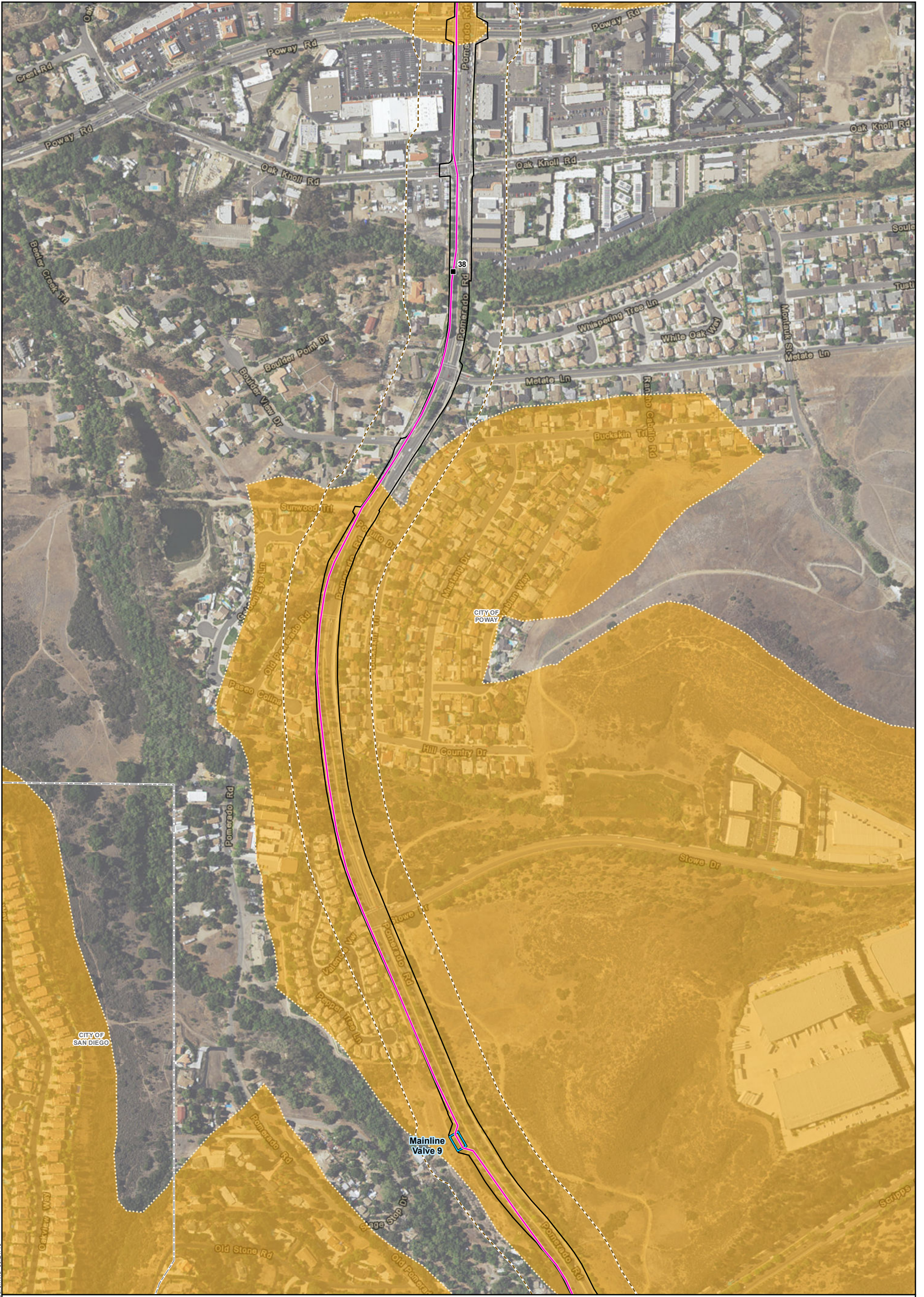
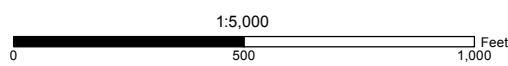


Figure A-5: Clay and Gabbroic Soils Map 9 of 17

- Milepost
- Proposed Project Route
- Cross-Tie Connector Line
- Permanent Impacts
- Aboveground Facility
- Temporary Impacts
- Laydown Area
- Workspace
- Biological Resource Survey Area
- City/County Boundary
- Soil Unit Boundary
- Clay Soil
- Gabbro Soil

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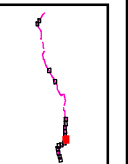
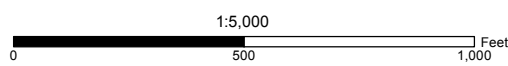
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Figure A-5: Clay and Gabbroic Soils Map 10 of 17

- |                            |                          |                          |                                     |                        |
|----------------------------|--------------------------|--------------------------|-------------------------------------|------------------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | <b>Temporary Impacts</b> | --- Biological Resource Survey Area | --- Soil Unit Boundary |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ Laydown Area           | ▭ City/County Boundary              | ■ Clay Soil            |
| — Cross-Tie Connector Line |                          | ▭ Workspace              |                                     | ■ Gabbro Soil          |

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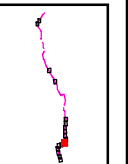
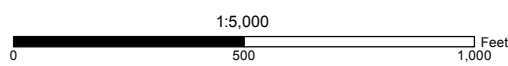
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Figure A-5: Clay and Gabbroic Soils Map 11 of 17

- Milepost
- Proposed Project Route
- Cross-Tie Connector Line
- Permanent Impacts
  - Aboveground Facility
  - Laydown Area
  - Workspace
- Temporary Impacts
  - Biological Resource Survey Area
  - City/County Boundary
- Soil Unit Boundary
  - Clay Soil
  - Gabbro Soil

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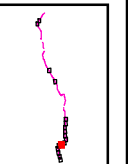
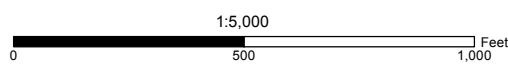
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Figure A-5: Clay and Gabbroic Soils Map 12 of 17

- Milepost
- Proposed Project Route
- Cross-Tie Connector Line
- Permanent Impacts**
- ▭ Aboveground Facility
- Temporary Impacts**
- ▭ Laydown Area
- ▭ Workspace
- ▭ Biological Resource Survey Area
- ▭ City/County Boundary
- ▭ Soil Unit Boundary
- Clay Soil
- Gabbro Soil

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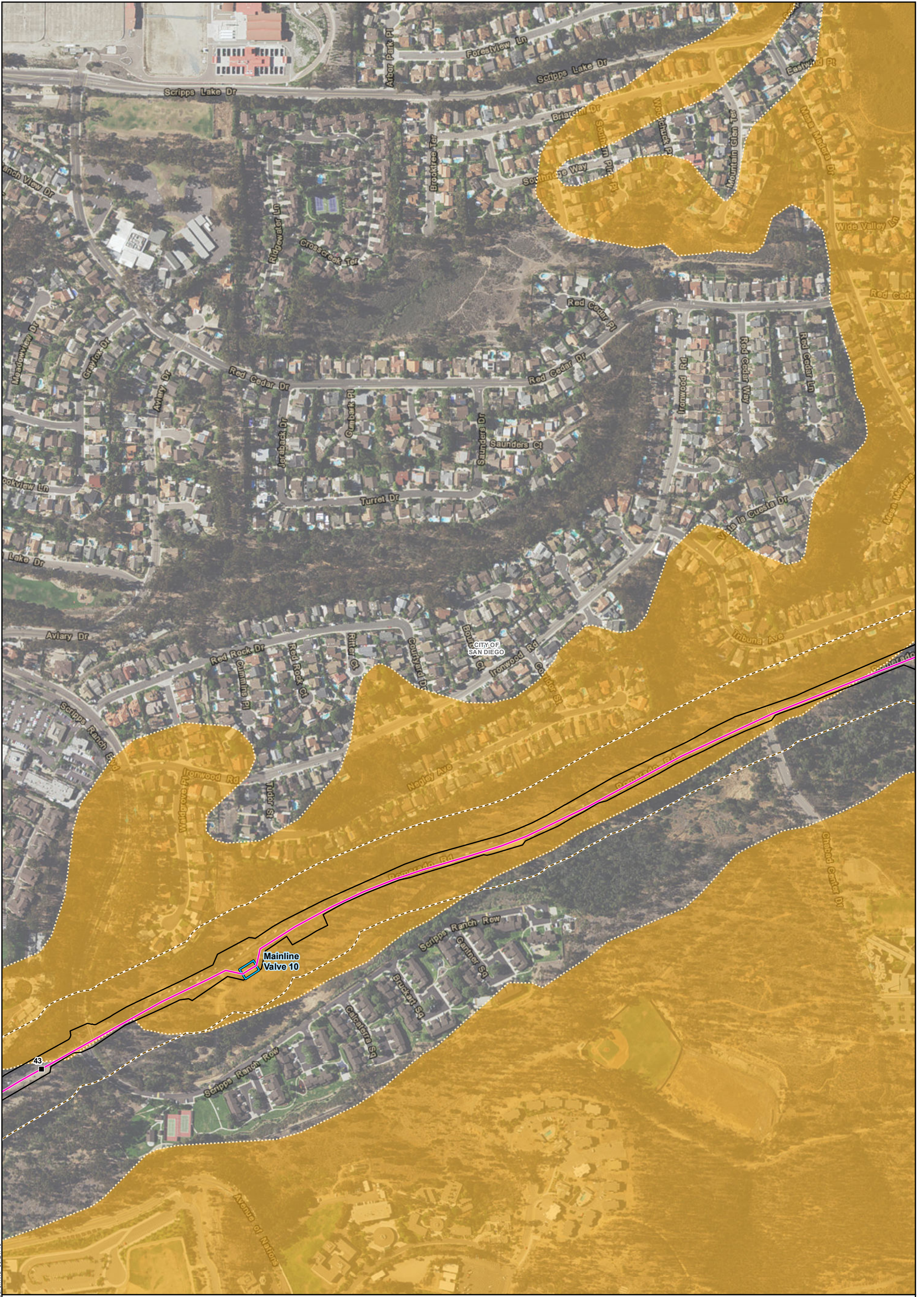
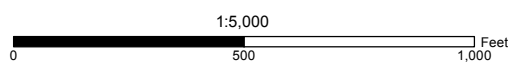


Figure A-5: Clay and Gabbroic Soils Map 13 of 17

- Milepost
- Proposed Project Route
- Cross-Tie Connector Line
- Permanent Impacts**
- ▭ Aboveground Facility
- Temporary Impacts**
- ▭ Laydown Area
- ▭ Workspace
- ▭ Biological Resource Survey Area
- ▭ City/County Boundary
- ▭ Soil Unit Boundary
- ▭ Clay Soil
- ▭ Gabbro Soil

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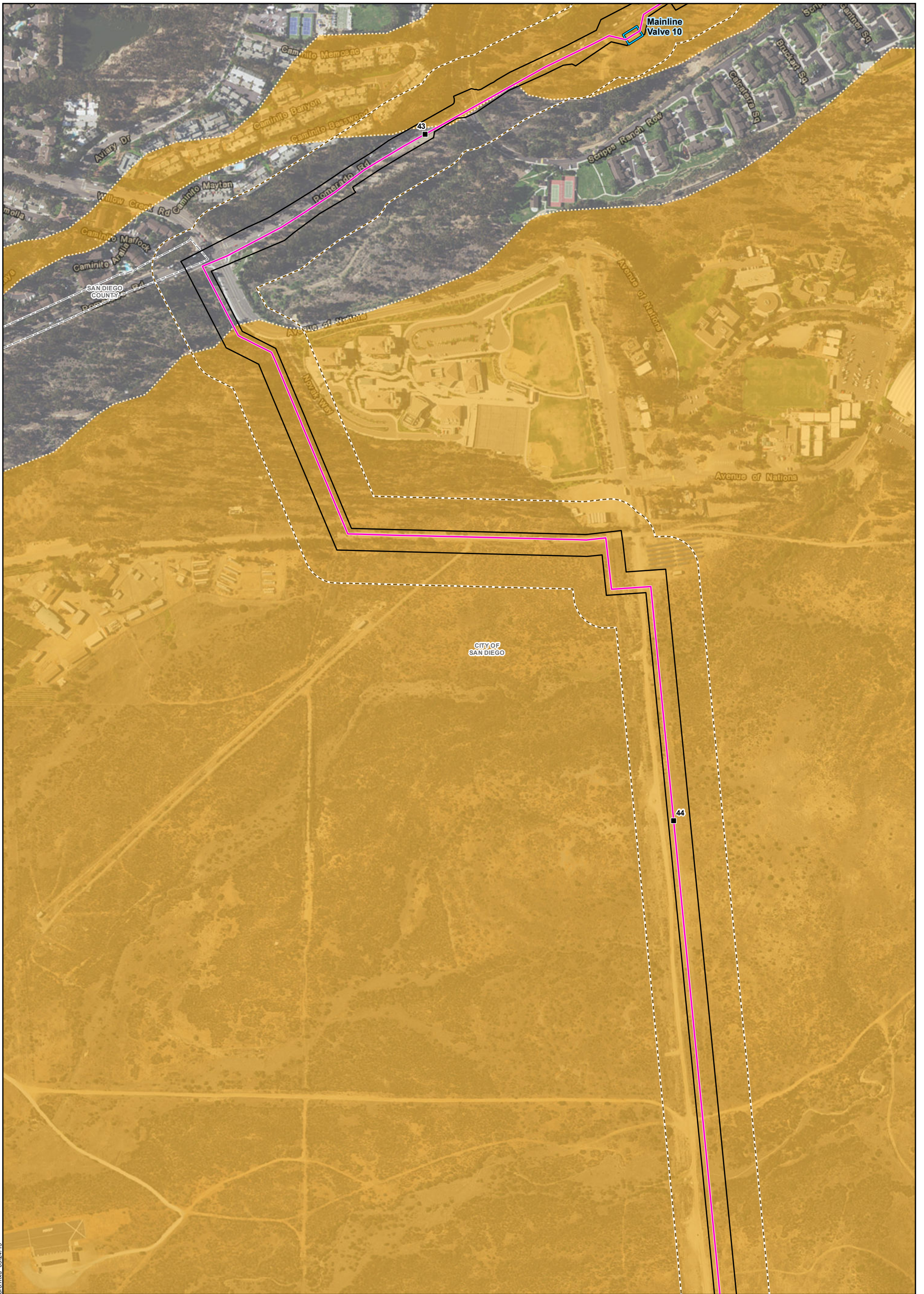
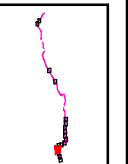
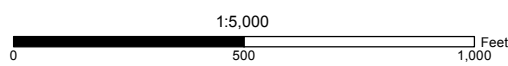


Figure A-5: Clay and Gabbroic Soils Map 14 of 17

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- |                            |                          |                          |                                     |                        |
|----------------------------|--------------------------|--------------------------|-------------------------------------|------------------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | <b>Temporary Impacts</b> | --- Biological Resource Survey Area | --- Soil Unit Boundary |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ Laydown Area           | ▭ City/County Boundary              | ■ Clay Soil            |
| — Cross-Tie Connector Line |                          | ▭ Workspace              |                                     | ■ Gabbro Soil          |

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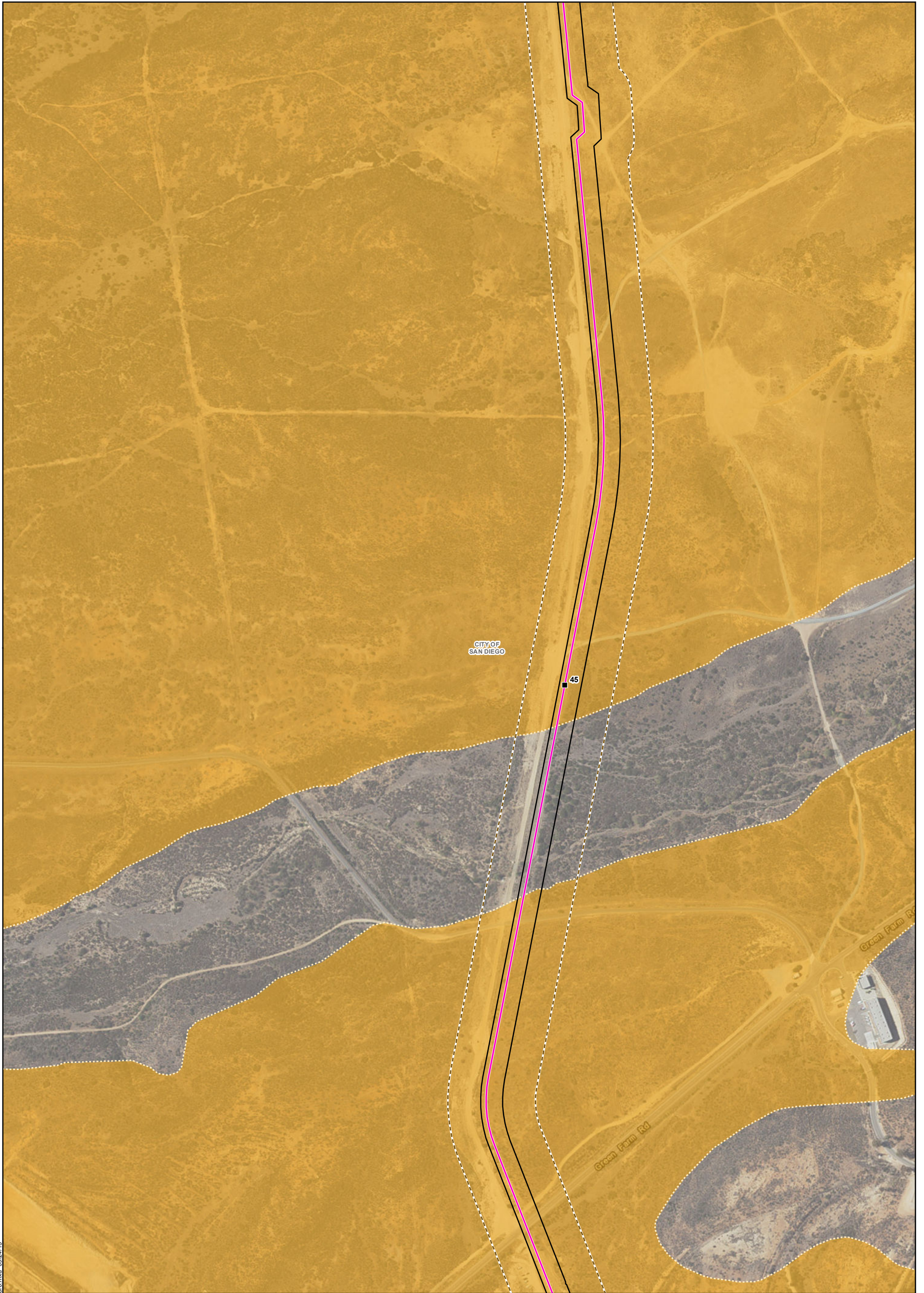
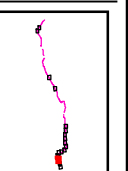


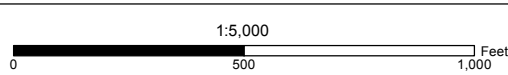
Figure A-5: Clay and Gabbroic Soils Map 15 of 17

Pipeline Safety & Reliability Project

- |                            |                          |                          |                                     |                        |
|----------------------------|--------------------------|--------------------------|-------------------------------------|------------------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | <b>Temporary Impacts</b> | --- Biological Resource Survey Area | --- Soil Unit Boundary |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ Laydown Area           | --- City/County Boundary            | ■ Clay Soil            |
| — Cross-Tie Connector Line |                          | ▭ Workspace              |                                     | ■ Gabbro Soil          |



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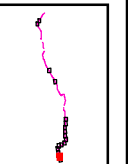
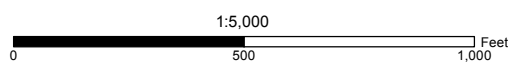


Figure A-5: Clay and Gabbroic Soils Map 16 of 17

Pipeline Safety & Reliability Project

- |                            |                          |                          |                                     |                        |
|----------------------------|--------------------------|--------------------------|-------------------------------------|------------------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | <b>Temporary Impacts</b> | --- Biological Resource Survey Area | --- Soil Unit Boundary |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ Laydown Area           | --- City/County Boundary            | ■ Clay Soil            |
| — Cross-Tie Connector Line |                          | ▭ Workspace              |                                     | ■ Gabbro Soil          |

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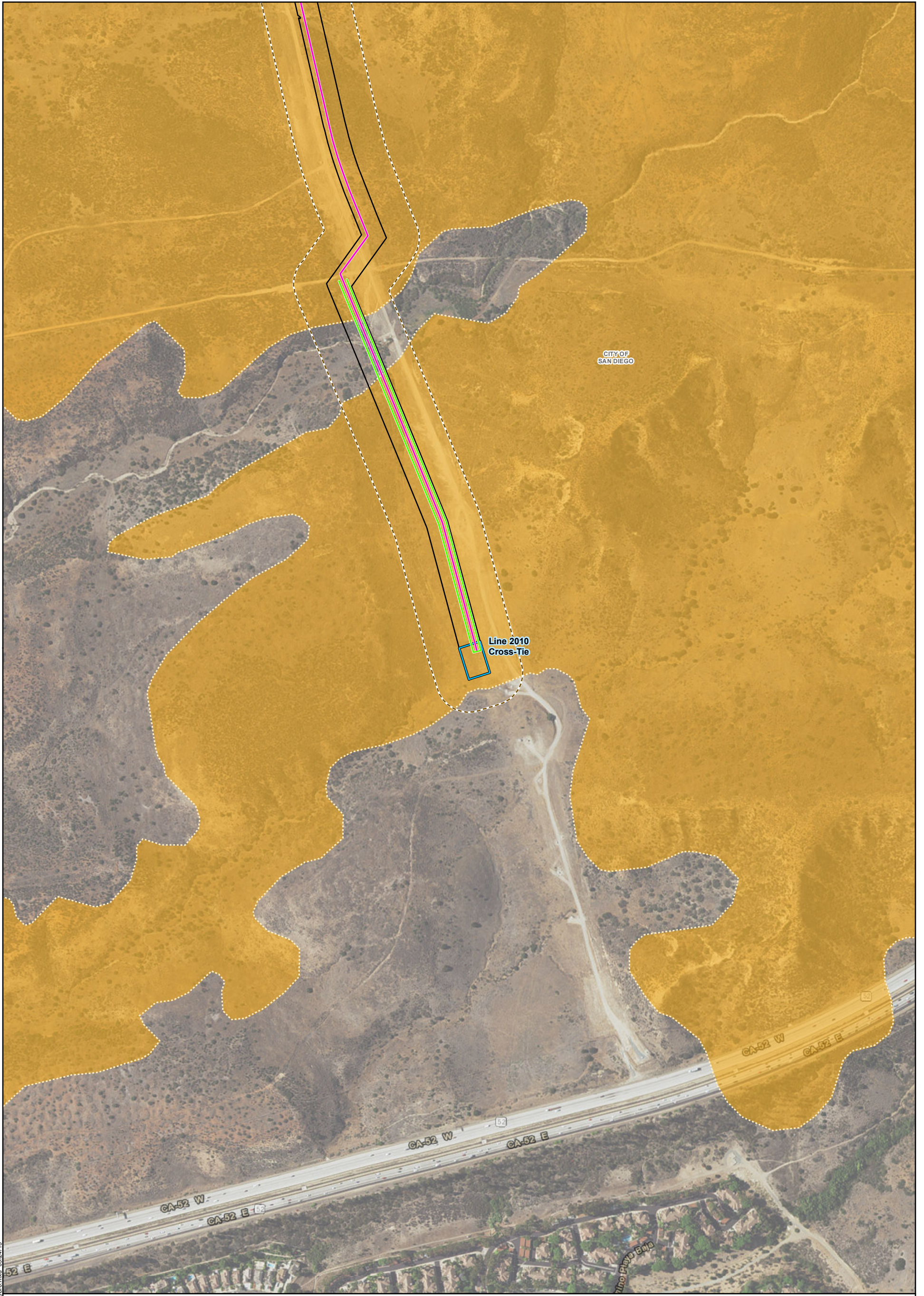
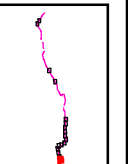
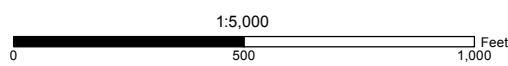


Figure A-5: Clay and Gabbroic Soils Map 17 of 17

Pipeline Safety & Reliability Project

- |                            |                          |                          |                                   |                      |
|----------------------------|--------------------------|--------------------------|-----------------------------------|----------------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | <b>Temporary Impacts</b> | ▭ Biological Resource Survey Area | ▭ Soil Unit Boundary |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ Laydown Area           | ▭ City/County Boundary            | ■ Clay Soil          |
| — Cross-Tie Connector Line |                          | ▭ Workspace              |                                   | ■ Gabbro Soil        |

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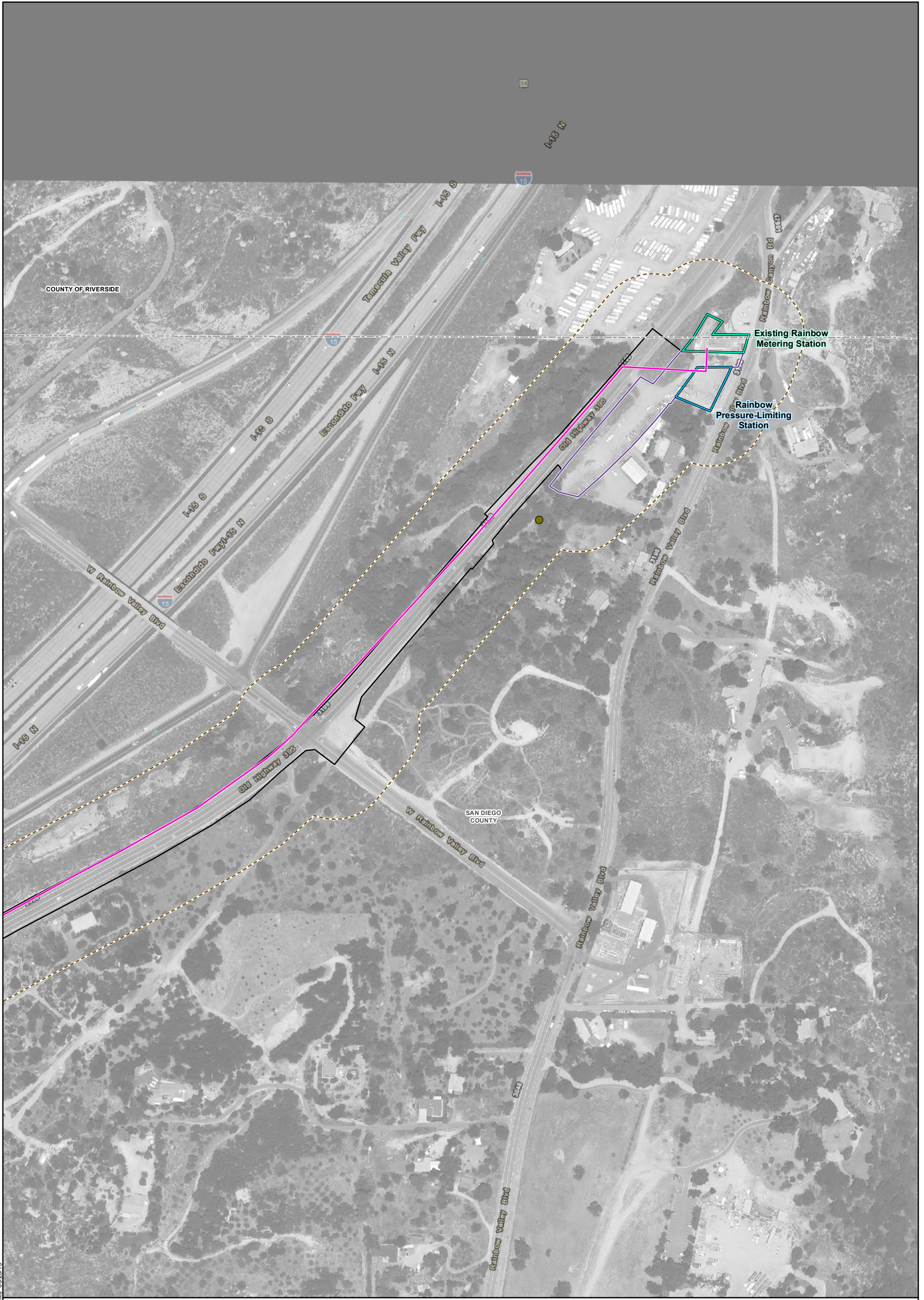
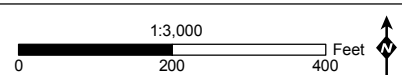


Figure A-6: Special-Status Wildlife Occurrences Map 1 of 33

- Milepost
- Proposed Project Route
- - - Proposed Trenchless Construction
- Cross-Tie Connector Line
- Existing Facility
- Permanent Impacts
- Aboveground Facility
- Temporary Impacts
- Horizontal Directional Drill Workspace
- Laydown Area
- Workspace
- Biological Resource Survey Area
- City/County Boundary
- Yellow warbler



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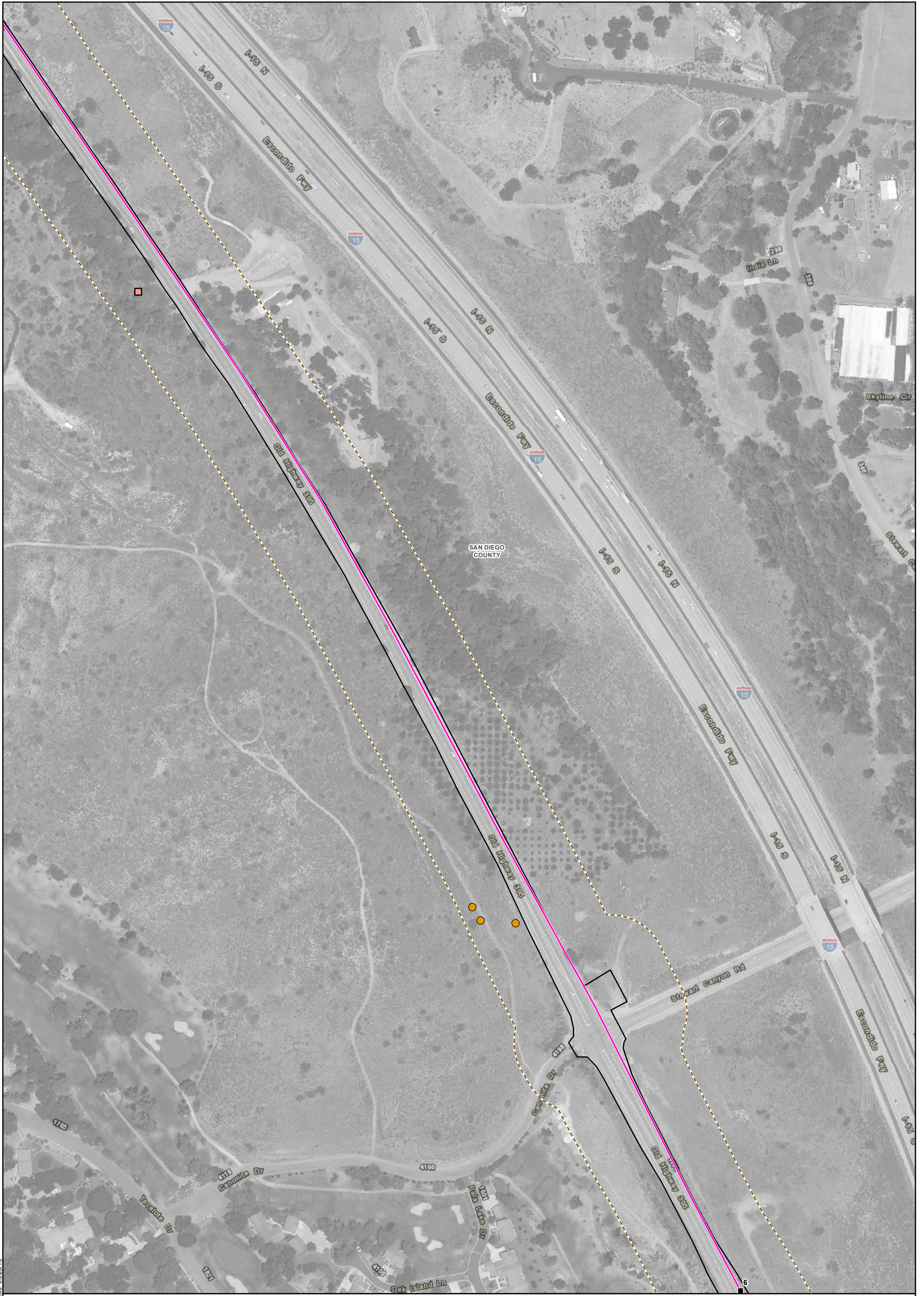
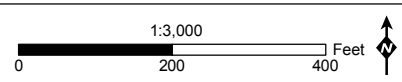
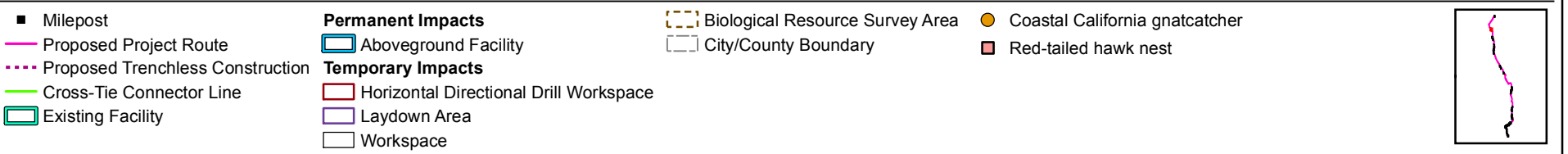


Figure A-6: Special-Status Wildlife Occurrences Map 2 of 33

Pipeline Safety & Reliability Project



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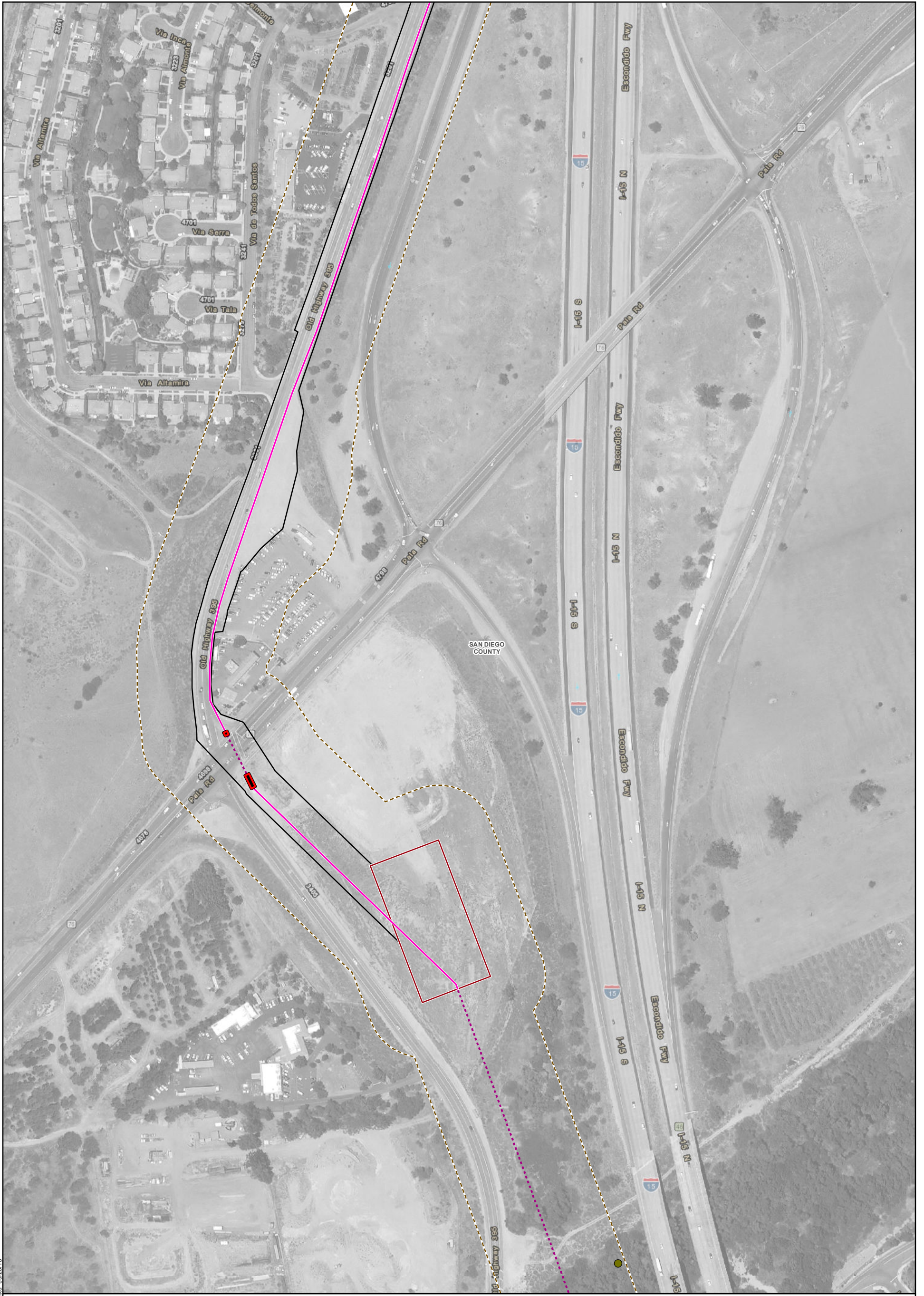
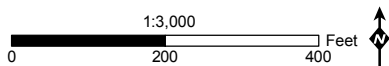
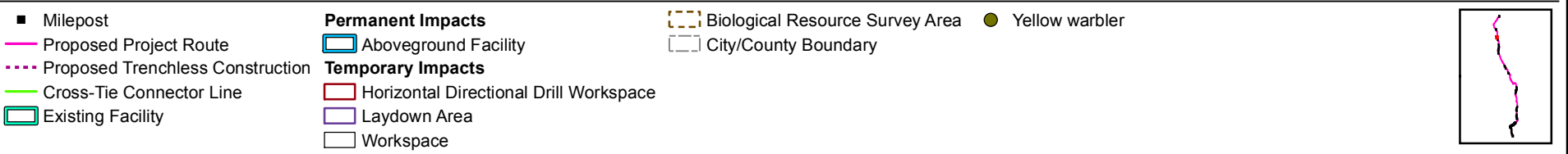


Figure A-6: Special-Status Wildlife Occurrences Map 3 of 33

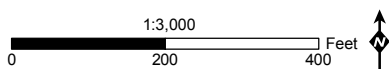


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Figure A-6: Special-Status Wildlife Occurrences Map 4 of 33

- |   |  |   |
|---|--|---|
| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>- - - Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul> | <p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> <p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>▭ Biological Resource Survey Area</li> <li>▭ City/County Boundary</li> <li>● Coastal California gnatcatcher</li> <li>● Least Bell's vireo</li> <li>● Yellow warbler</li> </ul> |
|---|--|---|



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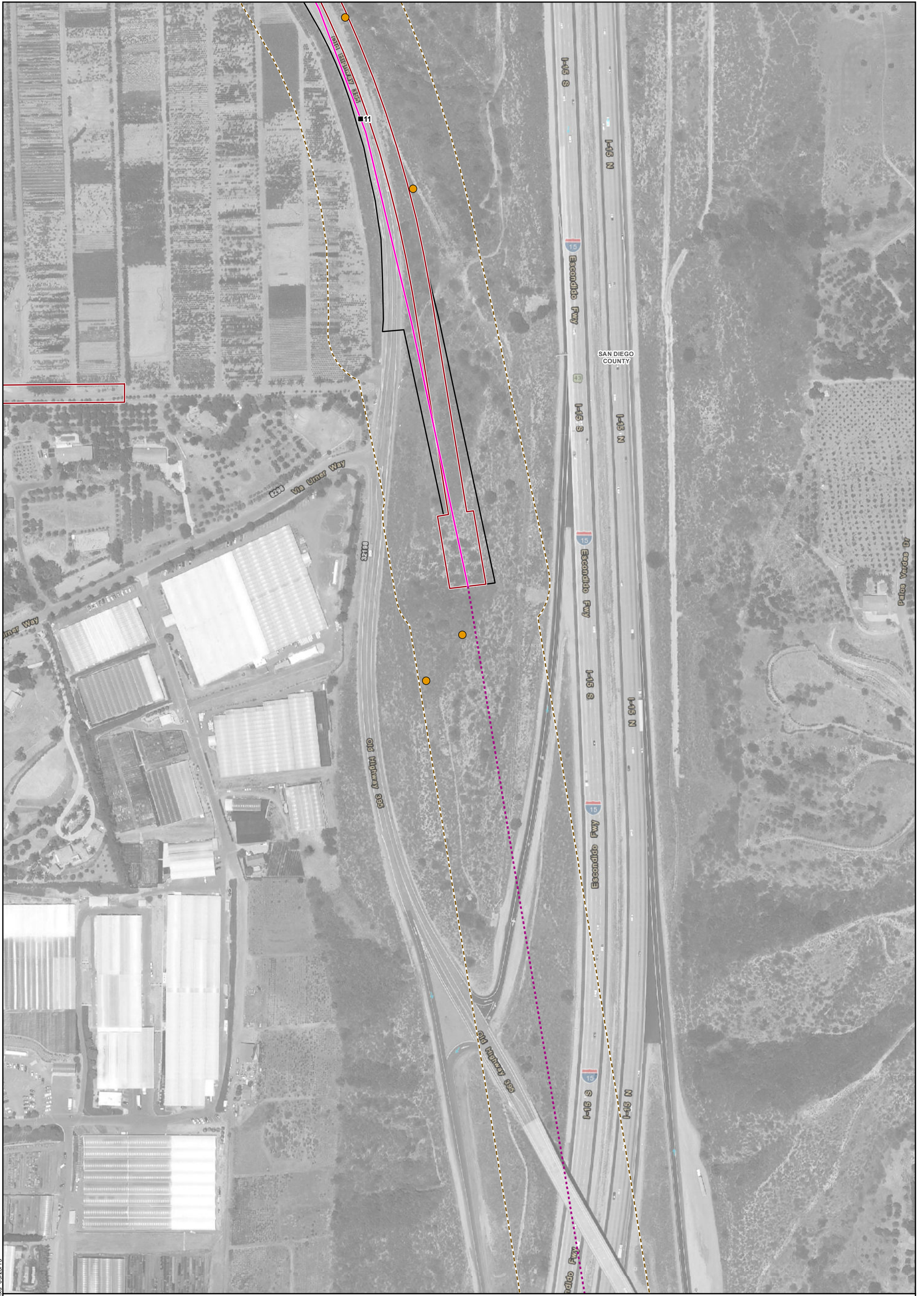
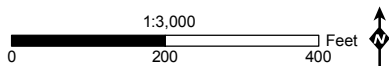
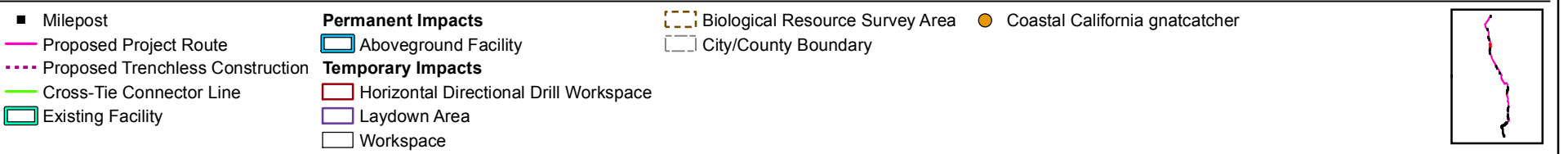


Figure A-6: Special-Status Wildlife Occurrences Map 5 of 33



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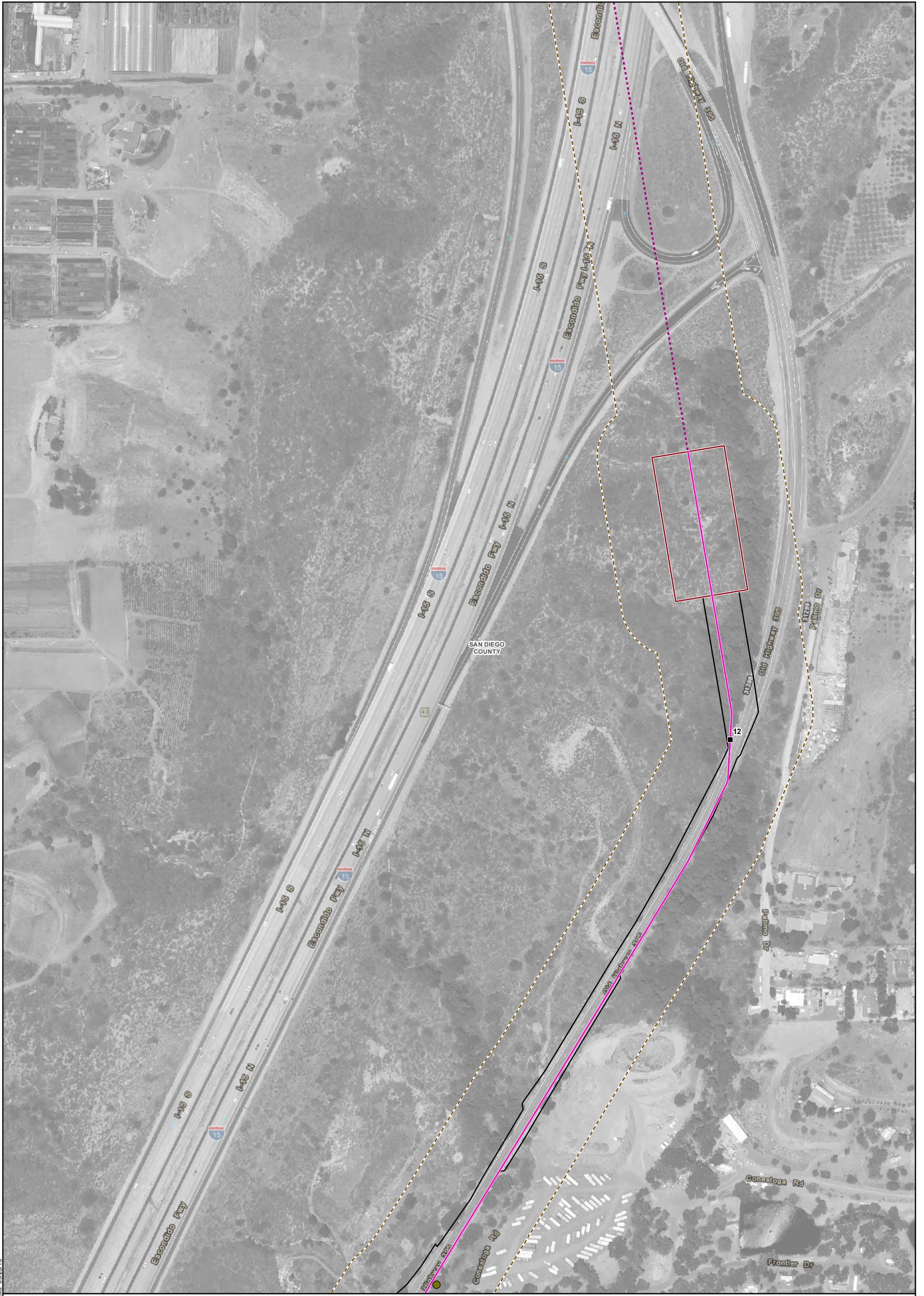
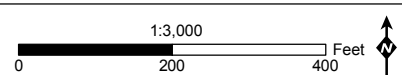
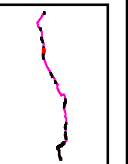


Figure A-6: Special-Status Wildlife Occurrences Map 6 of 33

Pipeline Safety & Reliability Project

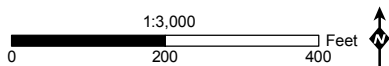
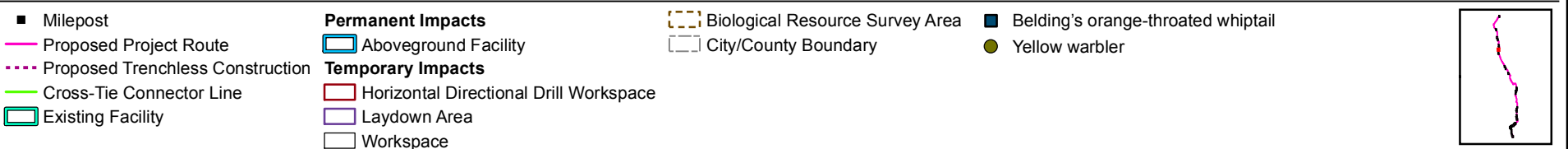
- Milepost
- Proposed Project Route
- - - Proposed Trenchless Construction
- Cross-Tie Connector Line
- Existing Facility
- Permanent Impacts
- Aboveground Facility
- Temporary Impacts
- Horizontal Directional Drill Workspace
- Laydown Area
- Workspace
- Biological Resource Survey Area
- City/County Boundary
- Yellow warbler



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Figure A-6: Special-Status Wildlife Occurrences Map 7 of 33

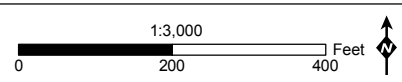


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Figure A-6: Special-Status Wildlife Occurrences Map 8 of 33

■ Milepost	<b>Permanent Impacts</b>	--- Biological Resource Survey Area	■ Belding's orange-throated whiptail
— Proposed Project Route	▭ Aboveground Facility	▭ City/County Boundary	● Western pond turtle
- - - Proposed Trenchless Construction	<b>Temporary Impacts</b>		
— Cross-Tie Connector Line	▭ Horizontal Directional Drill Workspace		
▭ Existing Facility	▭ Laydown Area		
	▭ Workspace		



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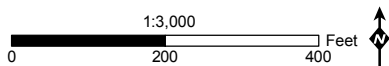




Figure A-6: Special-Status Wildlife Occurrences Map 11 of 33

Pipeline Safety & Reliability Project

- |  |  |                                     |   |
|--|--|-------------------------------------|---|
| ■ Milepost                             | <b>Permanent Impacts</b>                 | --- Biological Resource Survey Area | ● Hermes copper butterfly host plant (spiny redberry) |
| — Proposed Project Route               | ▭ Aboveground Facility                   | --- City/County Boundary            |   |
| - - - Proposed Trenchless Construction | <b>Temporary Impacts</b>                 |                                     |   |
| — Cross-Tie Connector Line             | ▭ Horizontal Directional Drill Workspace |                                     |   |
| ▭ Existing Facility                    | ▭ Laydown Area                           |                                     |   |
|  | ▭ Workspace                              |                                     |   |



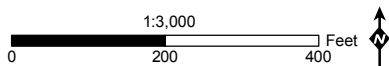
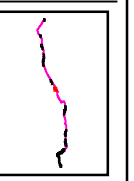
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Figure A-6: Special-Status Wildlife Occurrences Map 12 of 33

Pipeline Safety & Reliability Project

- Milepost
- Proposed Project Route
- Proposed Trenchless Construction
- Cross-Tie Connector Line
- ▭ Existing Facility
- ▭ Permanent Impacts
  - ▭ Aboveground Facility
  - ▭ Temporary Impacts
    - ▭ Horizontal Directional Drill Workspace
    - ▭ Laydown Area
    - ▭ Workspace
- ▭ Biological Resource Survey Area
- ▭ City/County Boundary
- Hermes copper butterfly host plant (spiny redberry)



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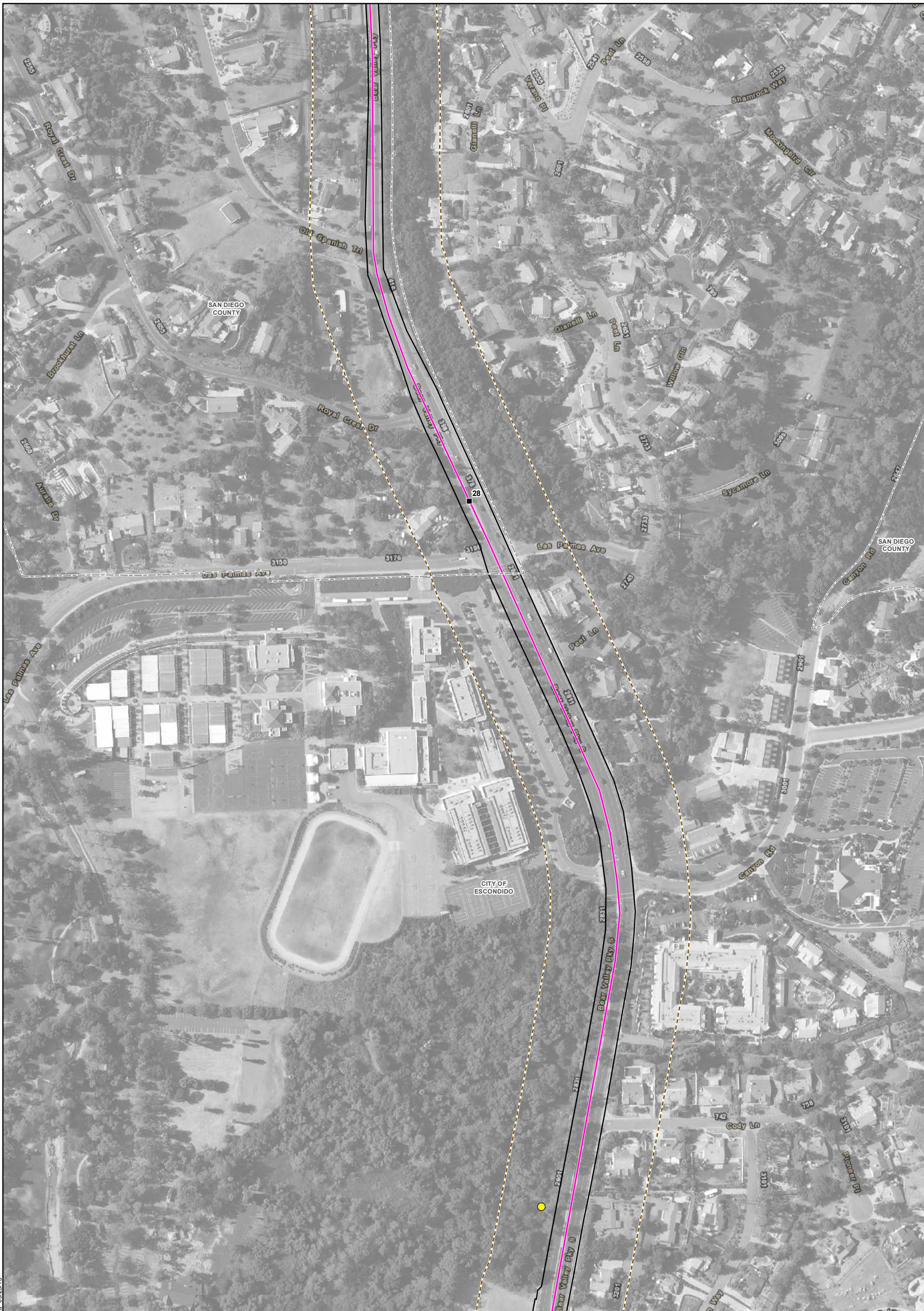
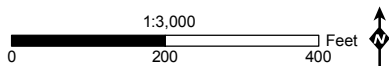


Figure A-6: Special-Status Wildlife Occurrences Map 13 of 33

■ Milepost	<b>Permanent Impacts</b>	--- Biological Resource Survey Area	● Yellow-breasted chat
— Proposed Project Route	▭ Aboveground Facility	--- City/County Boundary	
--- Proposed Trenchless Construction	<b>Temporary Impacts</b>		
— Cross-Tie Connector Line	▭ Horizontal Directional Drill Workspace		
▭ Existing Facility	▭ Laydown Area		
	▭ Workspace		



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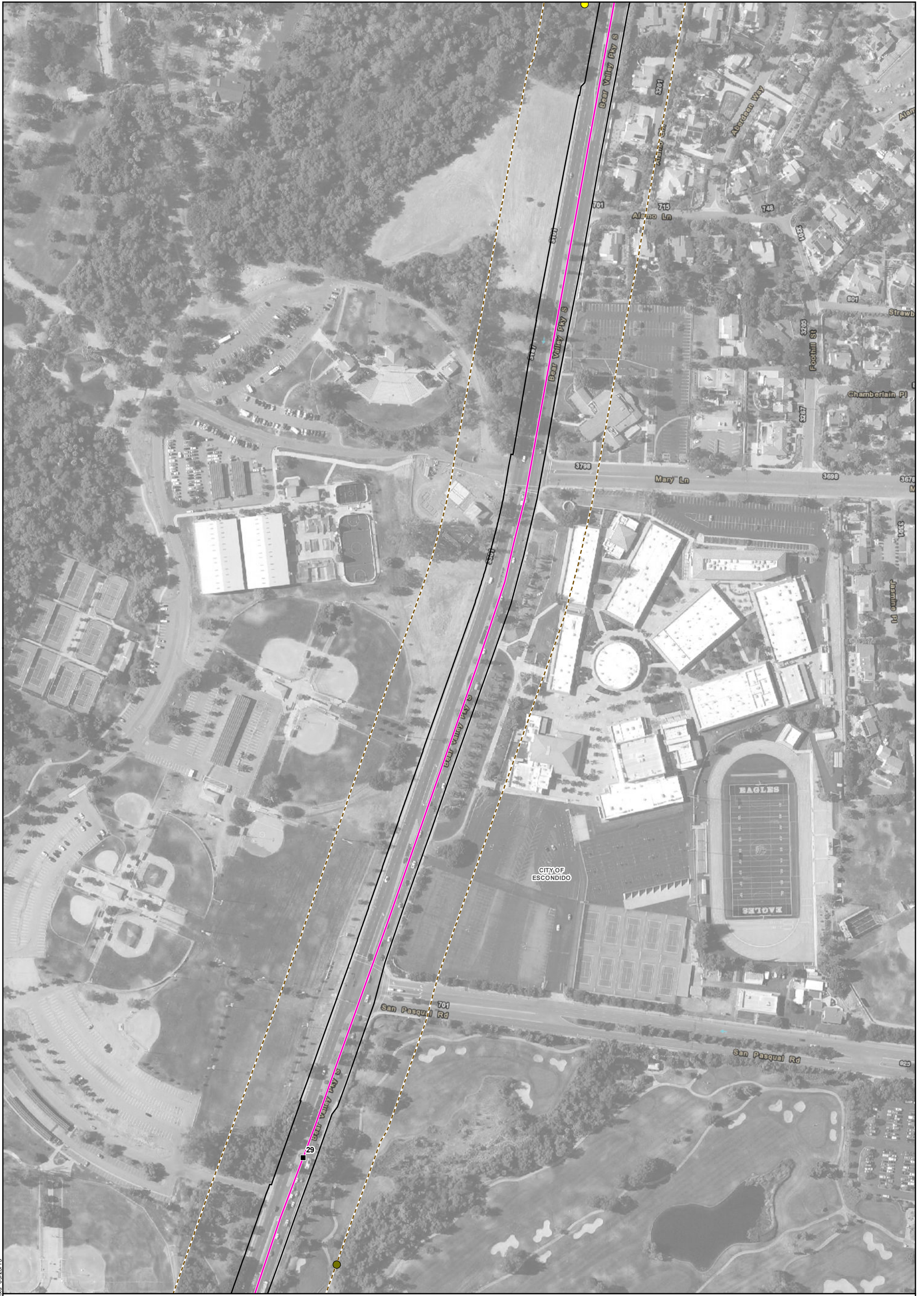
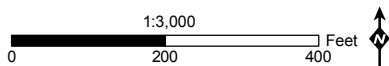
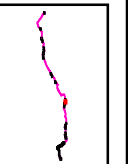
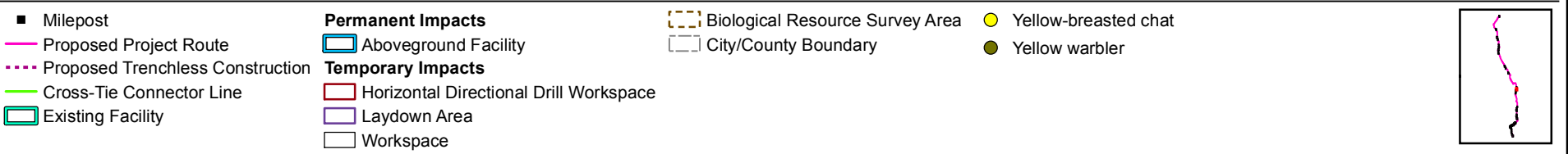


Figure A-6: Special-Status Wildlife Occurrences Map 14 of 33



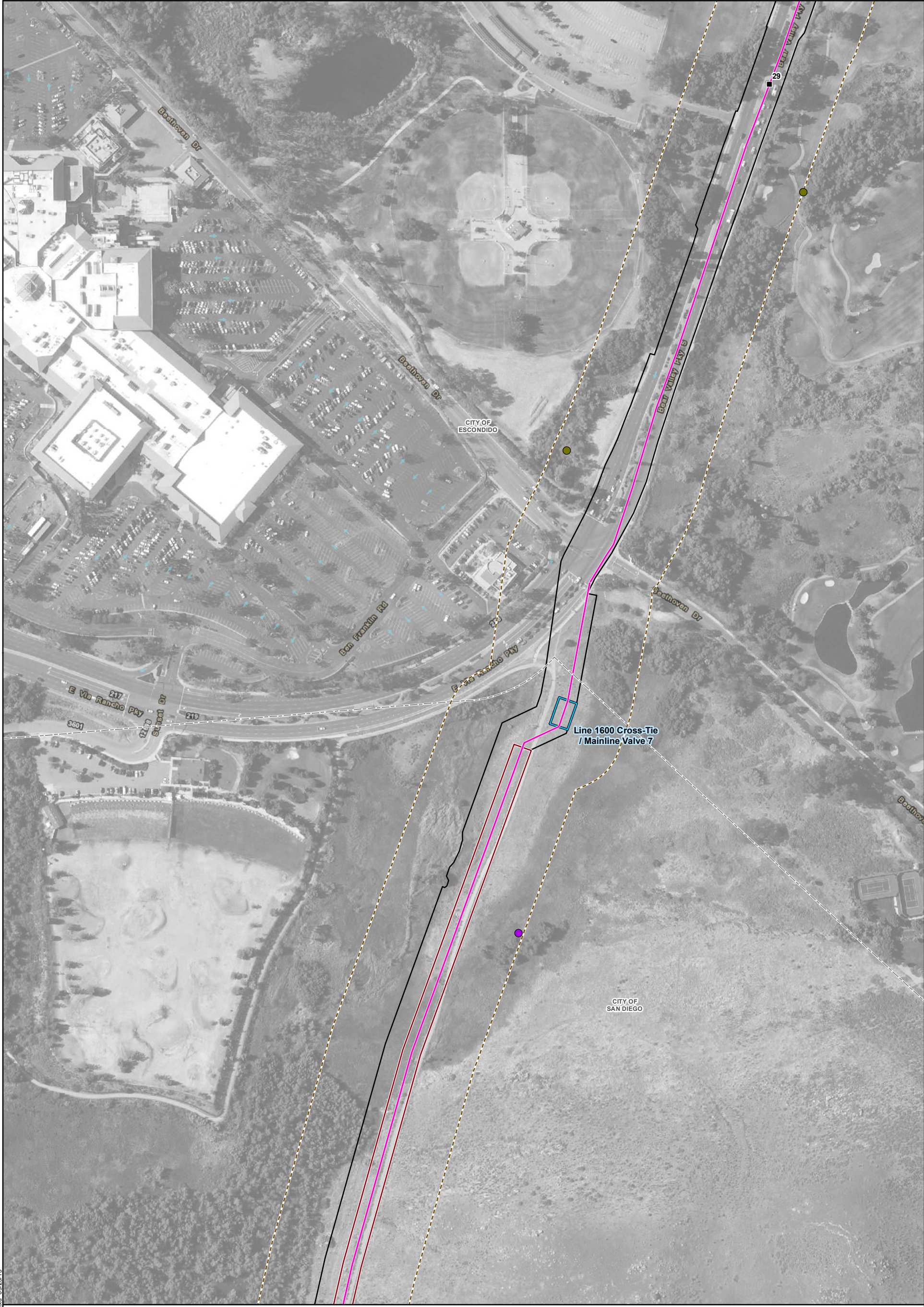
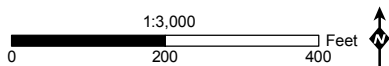


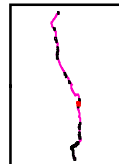
Figure A-6: Special-Status Wildlife Occurrences Map 15 of 33

Pipeline Safety & Reliability Project

- |  |  |                                     |                      |
|--|--|-------------------------------------|----------------------|
| ■ Milepost                             | <b>Permanent Impacts</b>                 | --- Biological Resource Survey Area | ● Least Bell's vireo |
| — Proposed Project Route               | ▭ Aboveground Facility                   | ▭ City/County Boundary              | ● Yellow warbler     |
| - - - Proposed Trenchless Construction | <b>Temporary Impacts</b>                 |                                     |                      |
| — Cross-Tie Connector Line             | ▭ Horizontal Directional Drill Workspace |                                     |                      |
| ▭ Existing Facility                    | ▭ Laydown Area                           |                                     |                      |
|  | ▭ Workspace                              |                                     |                      |

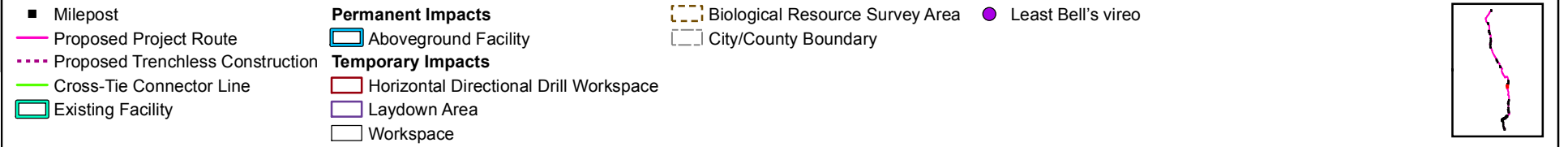


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**Figure A-6: Special-Status Wildlife Occurrences Map 16 of 33** **Pipeline Safety & Reliability Project**



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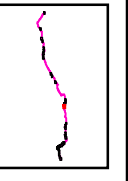
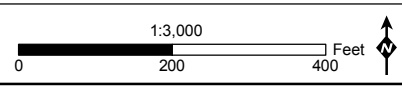
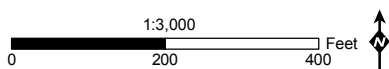




Figure A-6: Special-Status Wildlife Occurrences Map 17 of 33

- Milepost
- Proposed Project Route
- - - Proposed Trenchless Construction
- Cross-Tie Connector Line
- ▭ Existing Facility
- ▭ Permanent Impacts
  - ▭ Aboveground Facility
- ▭ Temporary Impacts
  - ▭ Horizontal Directional Drill Workspace
  - ▭ Laydown Area
  - ▭ Workspace
- ▭ Biological Resource Survey Area
- ▭ City/County Boundary
- Coastal California gnatcatcher

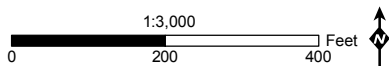


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Figure A-6: Special-Status Wildlife Occurrences Map 18 of 33

■ Milepost	<b>Permanent Impacts</b>	--- Biological Resource Survey Area	● Coastal California gnatcatcher
— Proposed Project Route	▭ Aboveground Facility	▭ City/County Boundary	
- - - Proposed Trenchless Construction	<b>Temporary Impacts</b>		
— Cross-Tie Connector Line	▭ Horizontal Directional Drill Workspace		
▭ Existing Facility	▭ Laydown Area		
	▭ Workspace		



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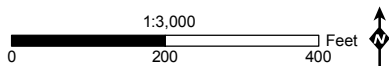
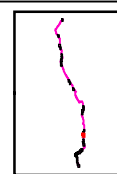




Figure A-6: Special-Status Wildlife Occurrences Map 19 of 33

Pipeline Safety & Reliability Project

- Milepost
- Proposed Project Route
- Proposed Trenchless Construction
- Cross-Tie Connector Line
- ▭ Existing Facility
- ▭ Permanent Impacts
  - ▭ Aboveground Facility
- ▭ Temporary Impacts
  - ▭ Horizontal Directional Drill Workspace
  - ▭ Laydown Area
  - ▭ Workspace
- ▭ Biological Resource Survey Area
- ▭ City/County Boundary
- Coastal California gnatcatcher



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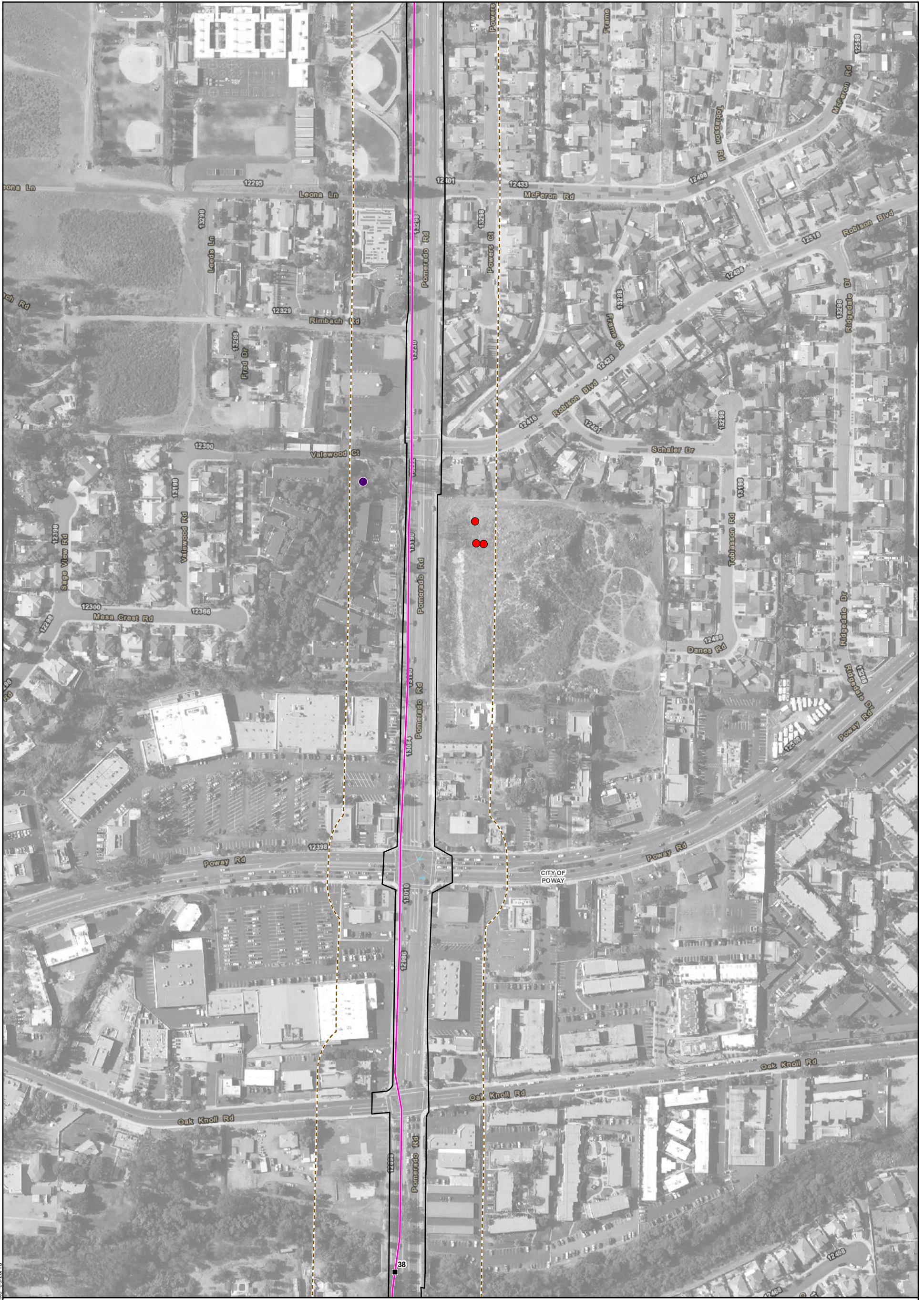
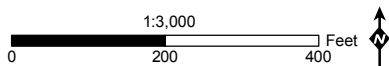
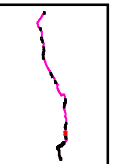


Figure A-6: Special-Status Wildlife Occurrences Map 20 of 33

Pipeline Safety & Reliability Project

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>- - - Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> <p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>- - - Biological Resource Survey Area</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>● Willow flycatcher (subspecies undetermined)</li> <li>● Hermes copper butterfly host plant (spiny redberry)</li> </ul>
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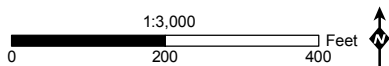
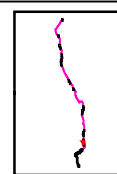


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Figure A-6: Special-Status Wildlife Occurrences Map 21 of 33

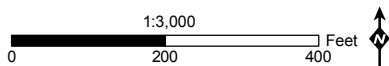
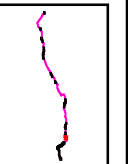
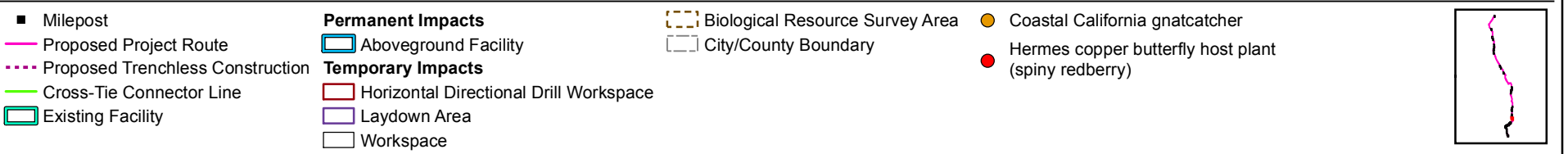
- Milepost
- Proposed Project Route
- - - Proposed Trenchless Construction
- Cross-Tie Connector Line
- ▭ Existing Facility
- ▭ Permanent Impacts
  - ▭ Aboveground Facility
- ▭ Temporary Impacts
  - ▭ Horizontal Directional Drill Workspace
  - ▭ Laydown Area
  - ▭ Workspace
- ▭ Biological Resource Survey Area
- ▭ City/County Boundary
- Hermes copper butterfly host plant (spiny redberry)



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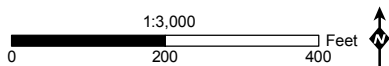
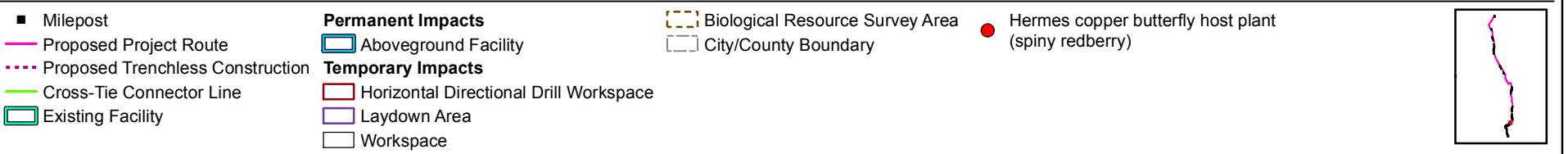
Figure A-6: Special-Status Wildlife Occurrences Map 22 of 33



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Figure A-6: Special-Status Wildlife Occurrences Map 23 of 33



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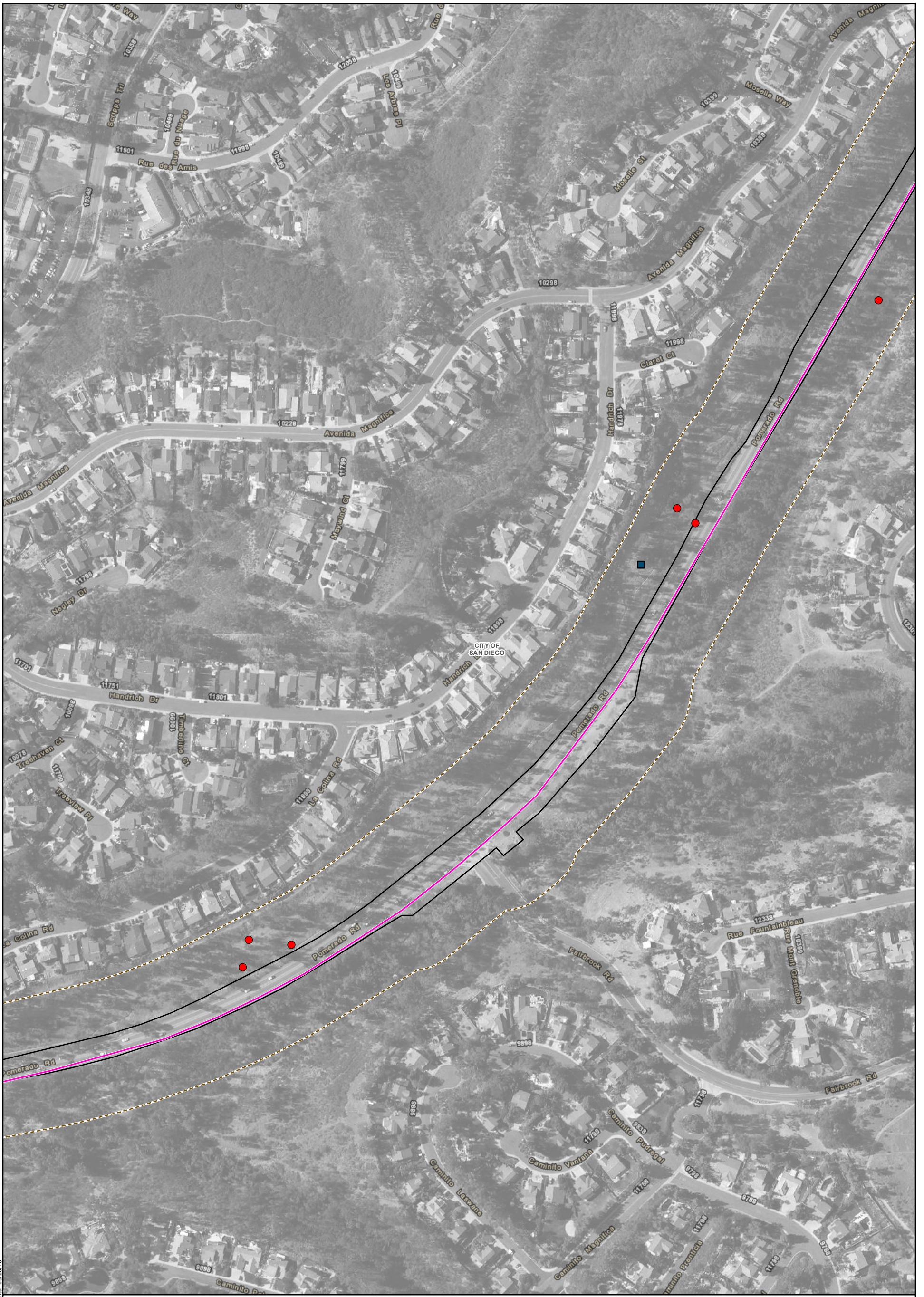
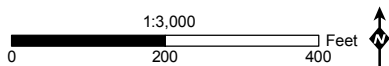


Figure A-6: Special-Status Wildlife Occurrences Map 24 of 33

- |  |  |                                     |   |
|--|--|-------------------------------------|---|
| ■ Milepost                             | <b>Permanent Impacts</b>                 | --- Biological Resource Survey Area | ■ Belding's orange-throated whiptail                  |
| — Proposed Project Route               | ▭ Aboveground Facility                   | ▭ City/County Boundary              | ● Hermes copper butterfly host plant (spiny redberry) |
| - - - Proposed Trenchless Construction | <b>Temporary Impacts</b>                 |                                     |   |
| — Cross-Tie Connector Line             | ▭ Horizontal Directional Drill Workspace |                                     |   |
| ▭ Existing Facility                    | ▭ Laydown Area                           |                                     |   |
|  | ▭ Workspace                              |                                     |   |



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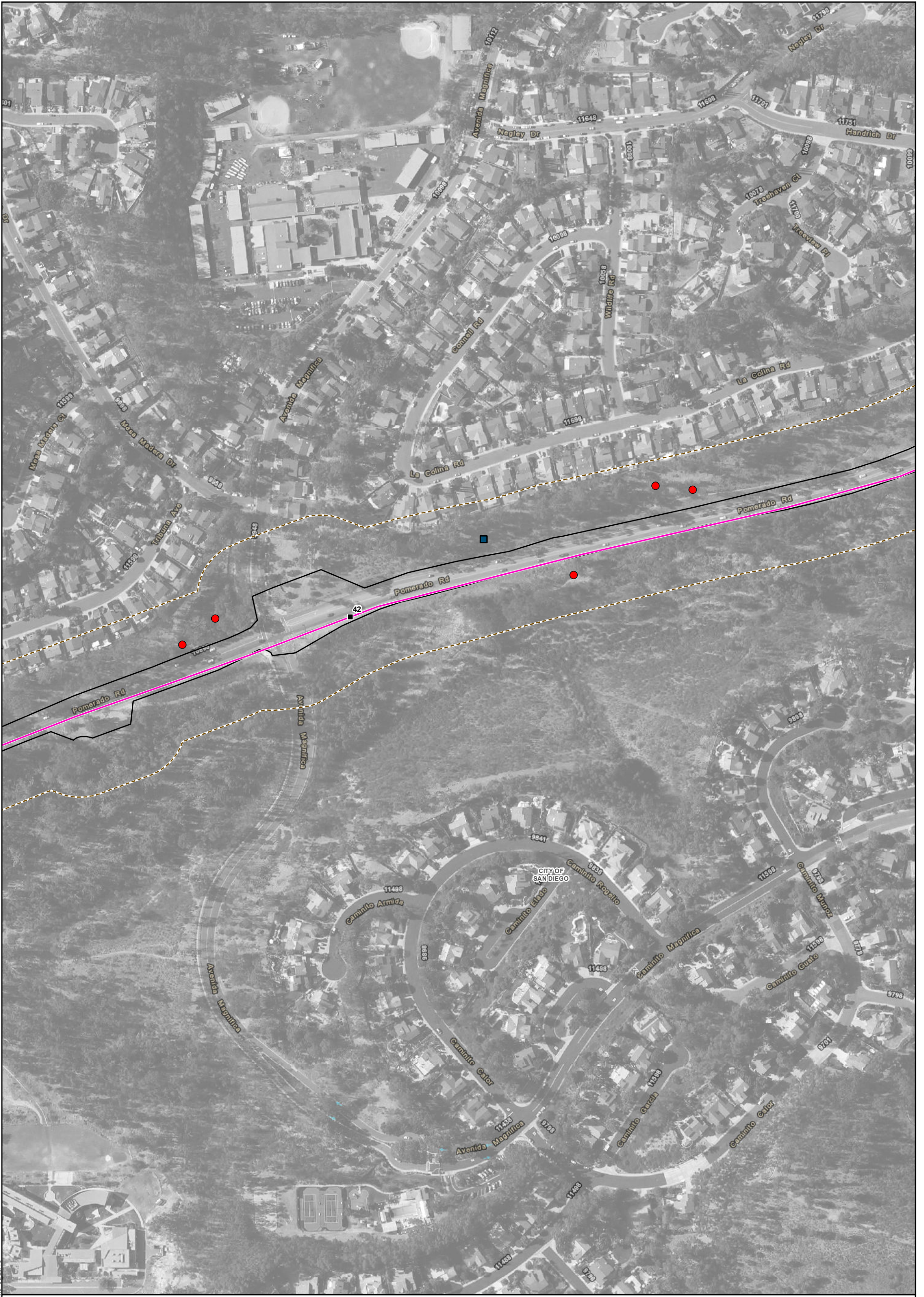
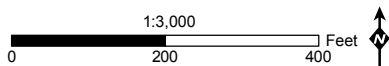


Figure A-6: Special-Status Wildlife Occurrences Map 25 of 33

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>- - - Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> <p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>- - - Biological Resource Survey Area</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>■ Belding's orange-throated whiptail</li> <li>● Hermes copper butterfly host plant (spiny redberry)</li> </ul>
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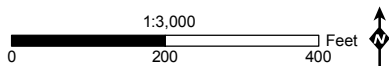
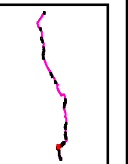
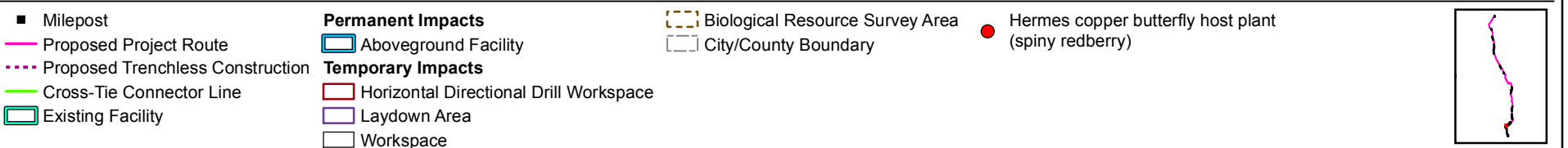






Figure A-6: Special-Status Wildlife Occurrences Map 27 of 33

Pipeline Safety & Reliability Project



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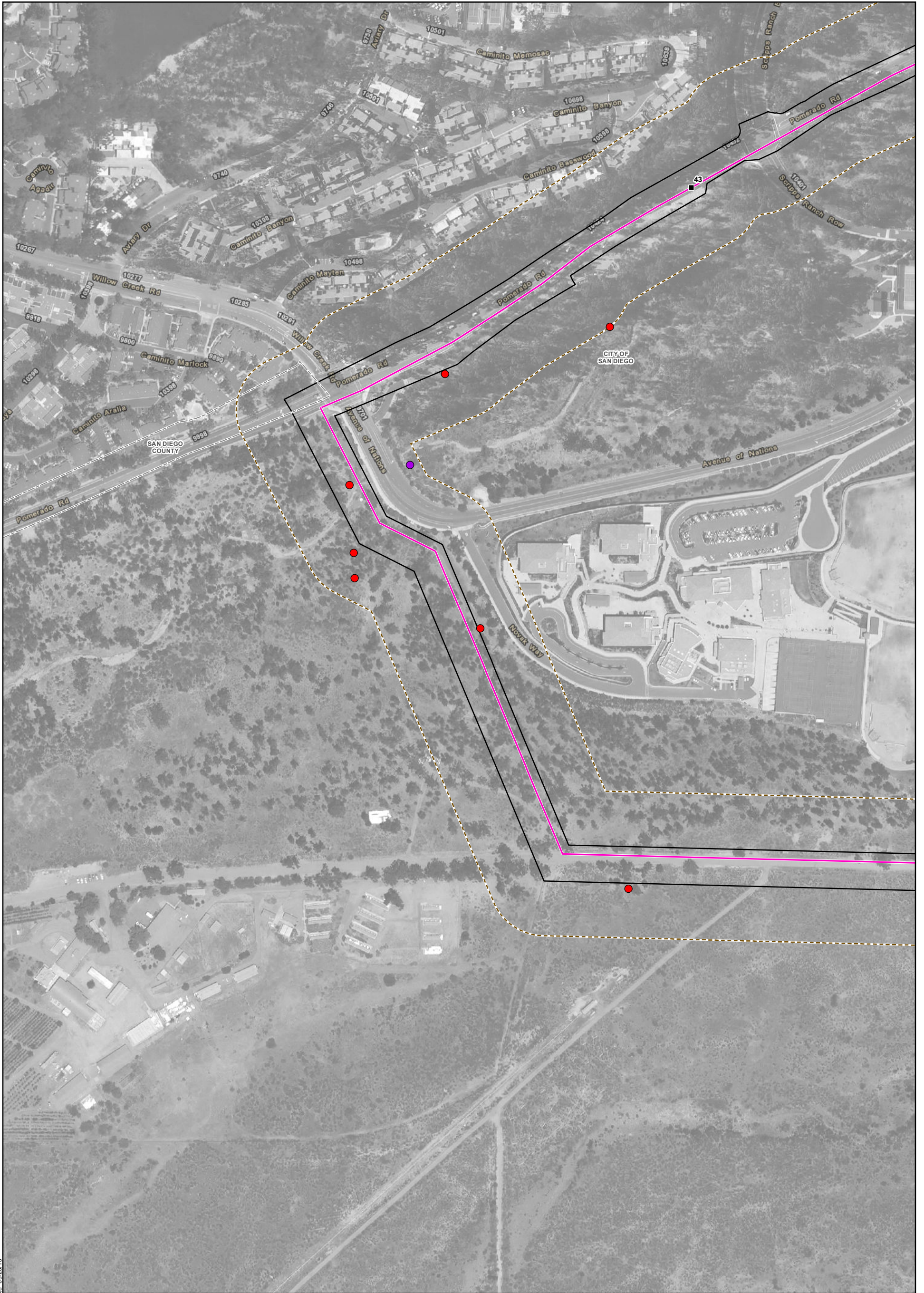
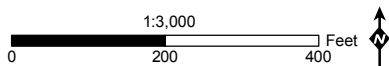


Figure A-6: Special-Status Wildlife Occurrences Map 28 of 33

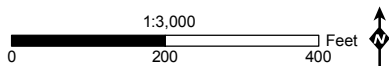
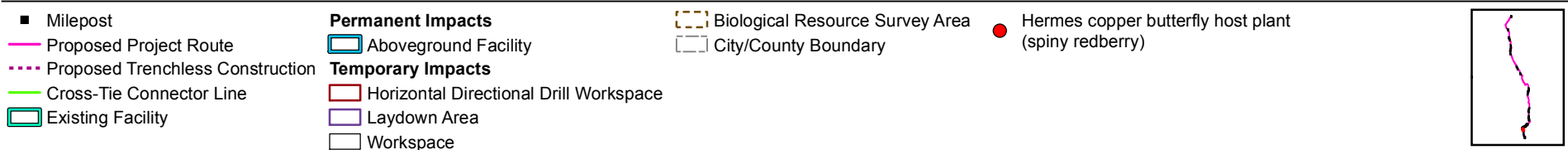
- |                                      |  |                                     |   |
|--------------------------------------|--|-------------------------------------|---|
| ■ Milepost                           | <b>Permanent Impacts</b>                 | --- Biological Resource Survey Area | ● Least Bell's vireo                                  |
| — Proposed Project Route             | ▭ Aboveground Facility                   | --- City/County Boundary            | ● Hermes copper butterfly host plant (spiny redberry) |
| --- Proposed Trenchless Construction | <b>Temporary Impacts</b>                 |                                     |   |
| — Cross-Tie Connector Line           | ▭ Horizontal Directional Drill Workspace |                                     |   |
| ▭ Existing Facility                  | ▭ Laydown Area                           |                                     |   |
|                                      | ▭ Workspace                              |                                     |   |



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Figure A-6: Special-Status Wildlife Occurrences Map 29 of 33



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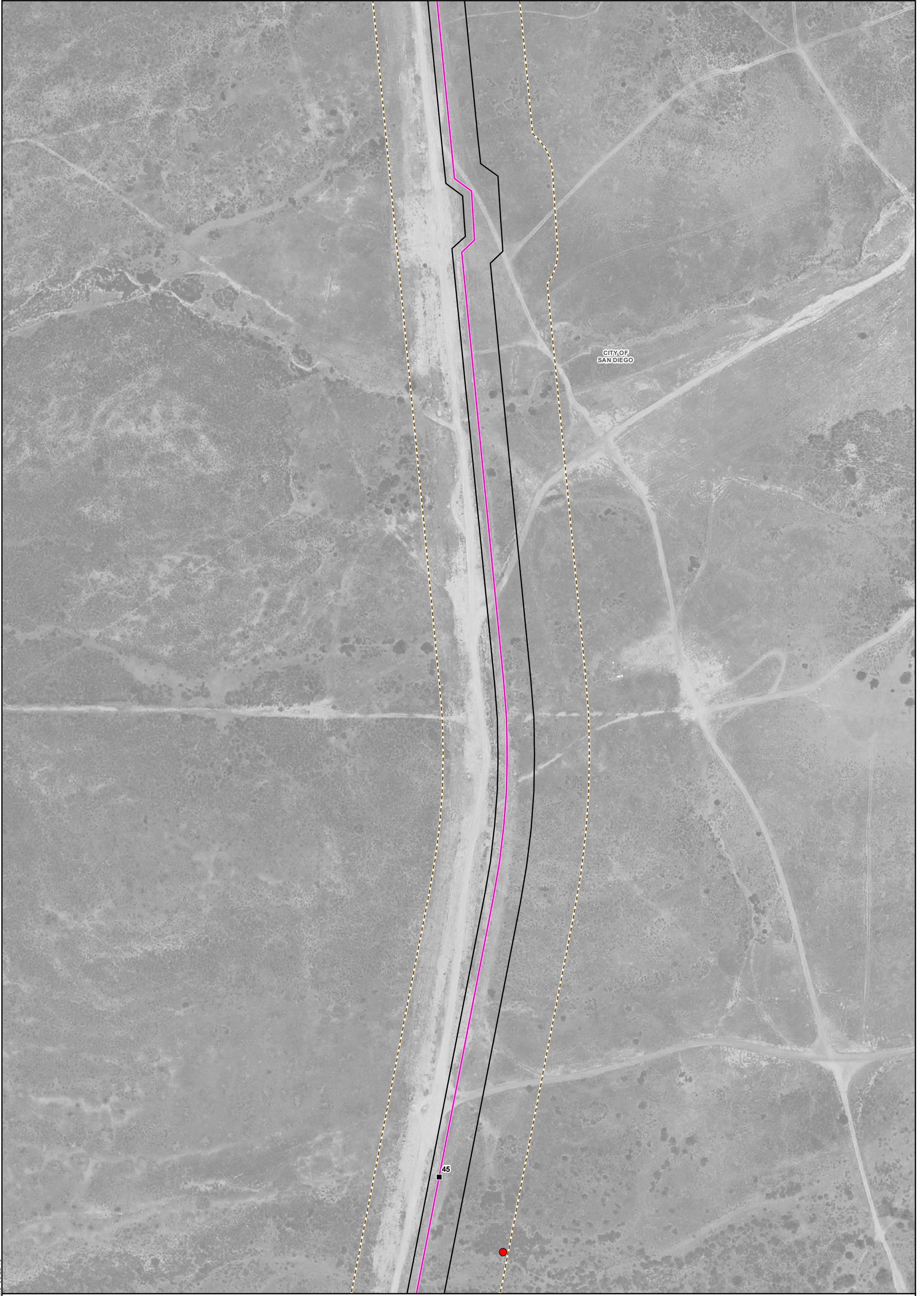
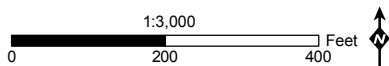


Figure A-6: Special-Status Wildlife Occurrences Map 30 of 33

Pipeline Safety & Reliability Project

- |  |  |                                     |   |
|--|--|-------------------------------------|---|
| ■ Milepost                             | <b>Permanent Impacts</b>                 | --- Biological Resource Survey Area | ● Hermes copper butterfly host plant (spiny redberry) |
| — Proposed Project Route               | ▭ Aboveground Facility                   | ▭ City/County Boundary              |   |
| - - - Proposed Trenchless Construction | <b>Temporary Impacts</b>                 |                                     |   |
| — Cross-Tie Connector Line             | ▭ Horizontal Directional Drill Workspace |                                     |   |
| ▭ Existing Facility                    | ▭ Laydown Area                           |                                     |   |
|  | ▭ Workspace                              |                                     |   |



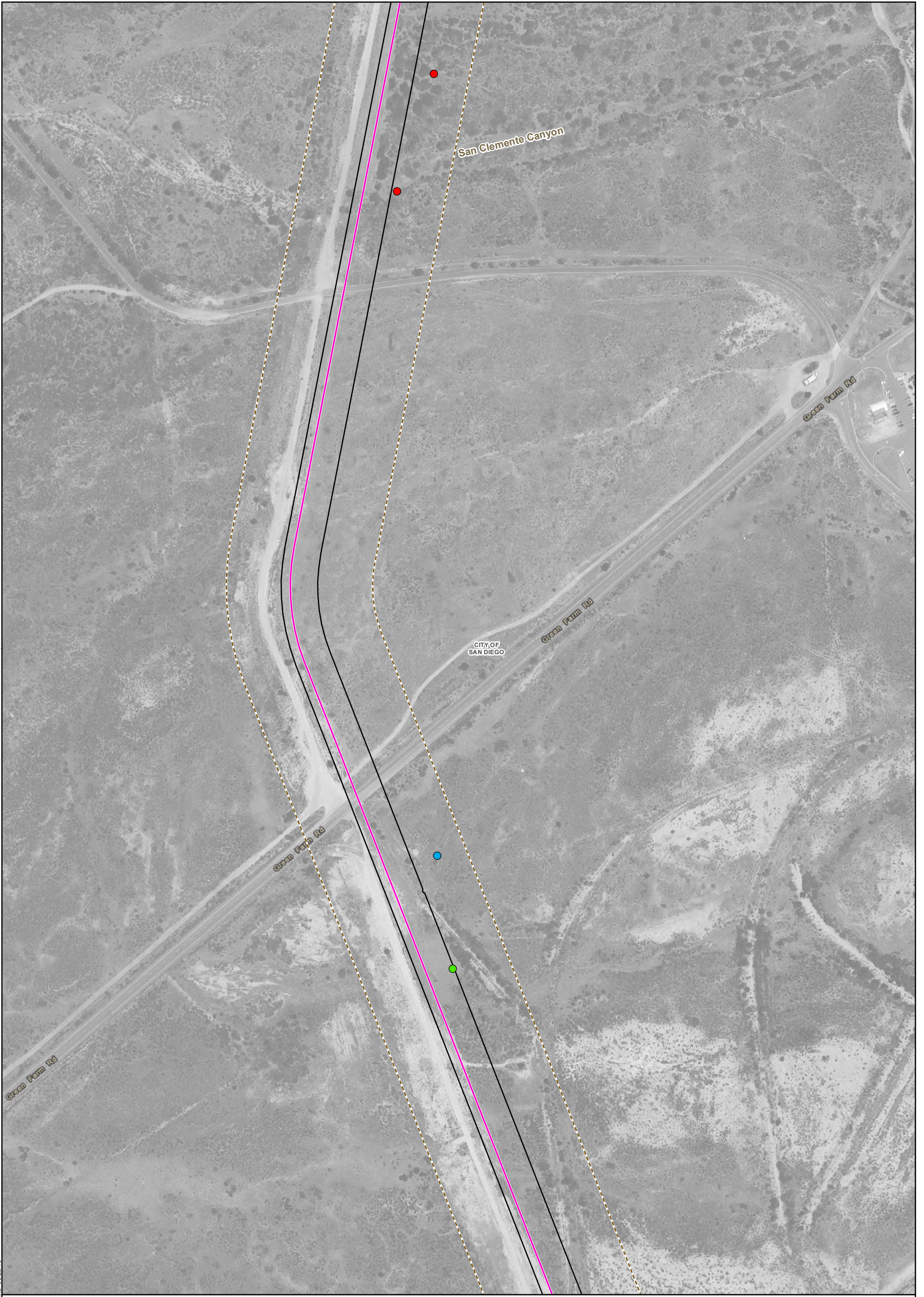
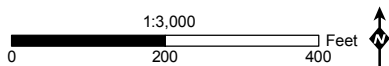


Figure A-6: Special-Status Wildlife Occurrences Map 31 of 33

Pipeline Safety & Reliability Project

- |   |  |   |  |
|---|--|---|--|
| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>- - - Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul> | <p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> <p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>- - - Biological Resource Survey Area</li> <li>- - - City/County Boundary</li> <li>● Coast horned lizard</li> <li>● Northern harrier</li> <li>● Hermes copper butterfly host plant (spiny redberry)</li> </ul> |  |
|---|--|---|--|



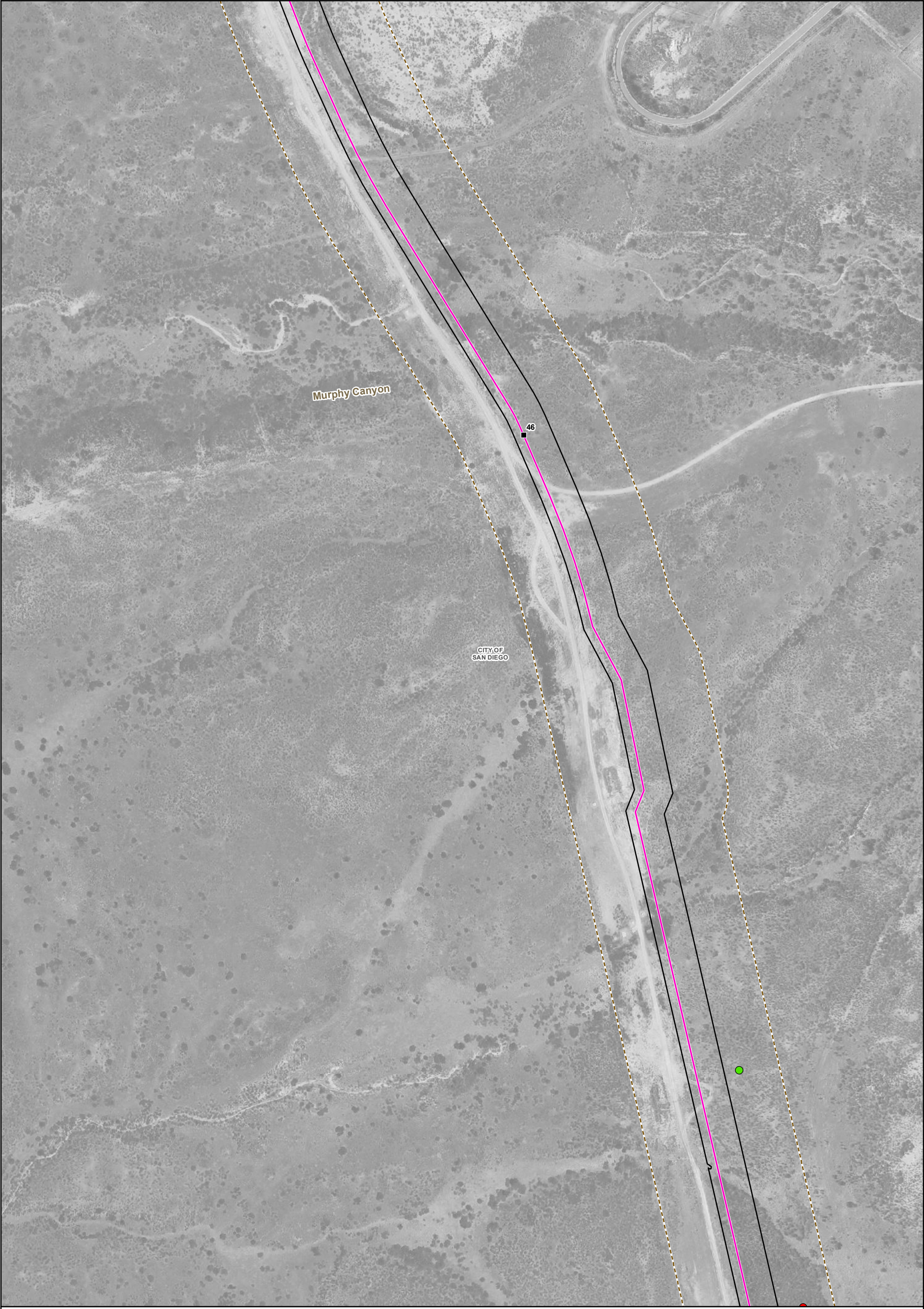
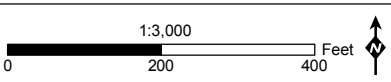


Figure A-6: Special-Status Wildlife Occurrences Map 32 of 33

Pipeline Safety & Reliability Project


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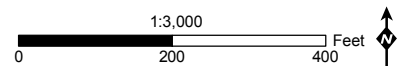


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Figure A-6: Special-Status Wildlife Occurrences Map 33 of 33

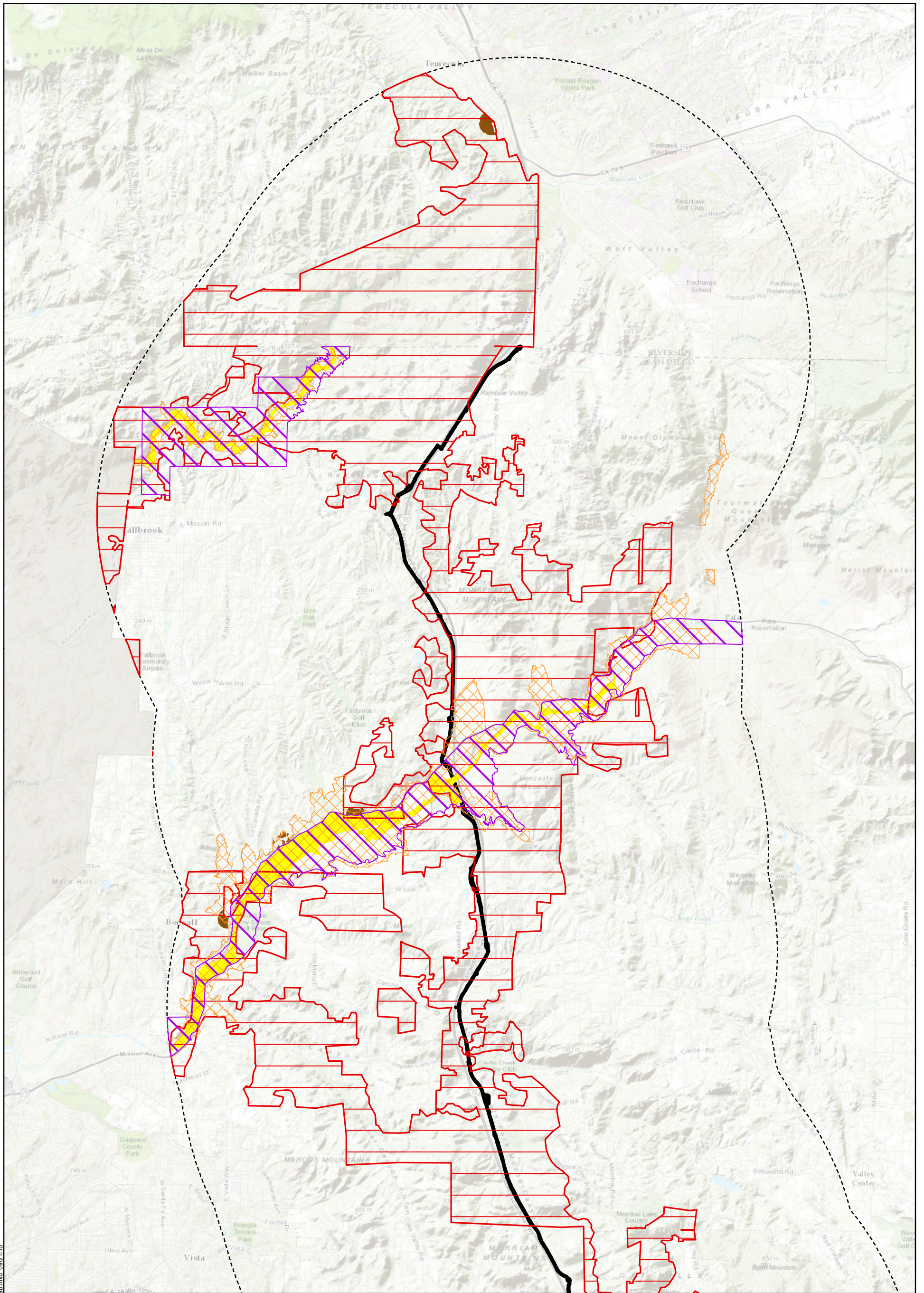
<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>- - - Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>□ Existing Facility</li> </ul>	<p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>□ Aboveground Facility</li> </ul> <p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>□ Horizontal Directional Drill Workspace</li> <li>□ Laydown Area</li> <li>□ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>□ Biological Resource Survey Area</li> <li>□ City/County Boundary</li> </ul> <ul style="list-style-type: none"> <li>● Hermes copper butterfly host plant (spiny redberry)</li> </ul>	
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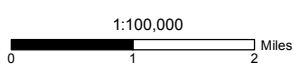


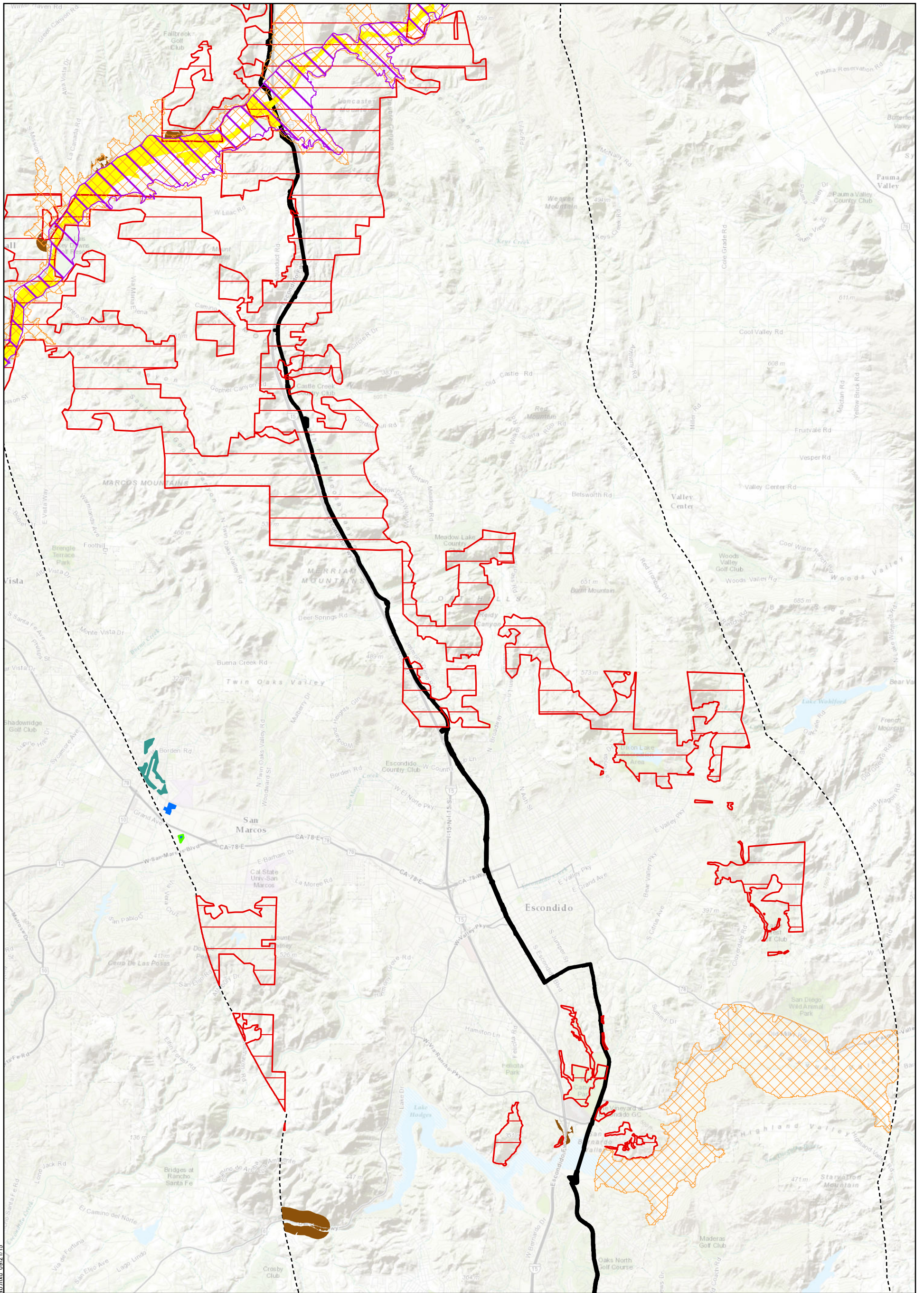


**Figure A-7: Designated Critical Habitat 1 of 3**

**Pipeline Safety & Reliability Project**

- ⬜ Project 5-Mile Buffer
- ▬ Biological Resource Survey Area
- ▨ Arroyo (=arroyo southwestern) toad
- ▨ Coastal California gnatcatcher
- ▨ San Diego ambrosia
- ▨ Southwestern willow flycatcher
- ▨ Least Bell's vireo

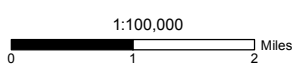


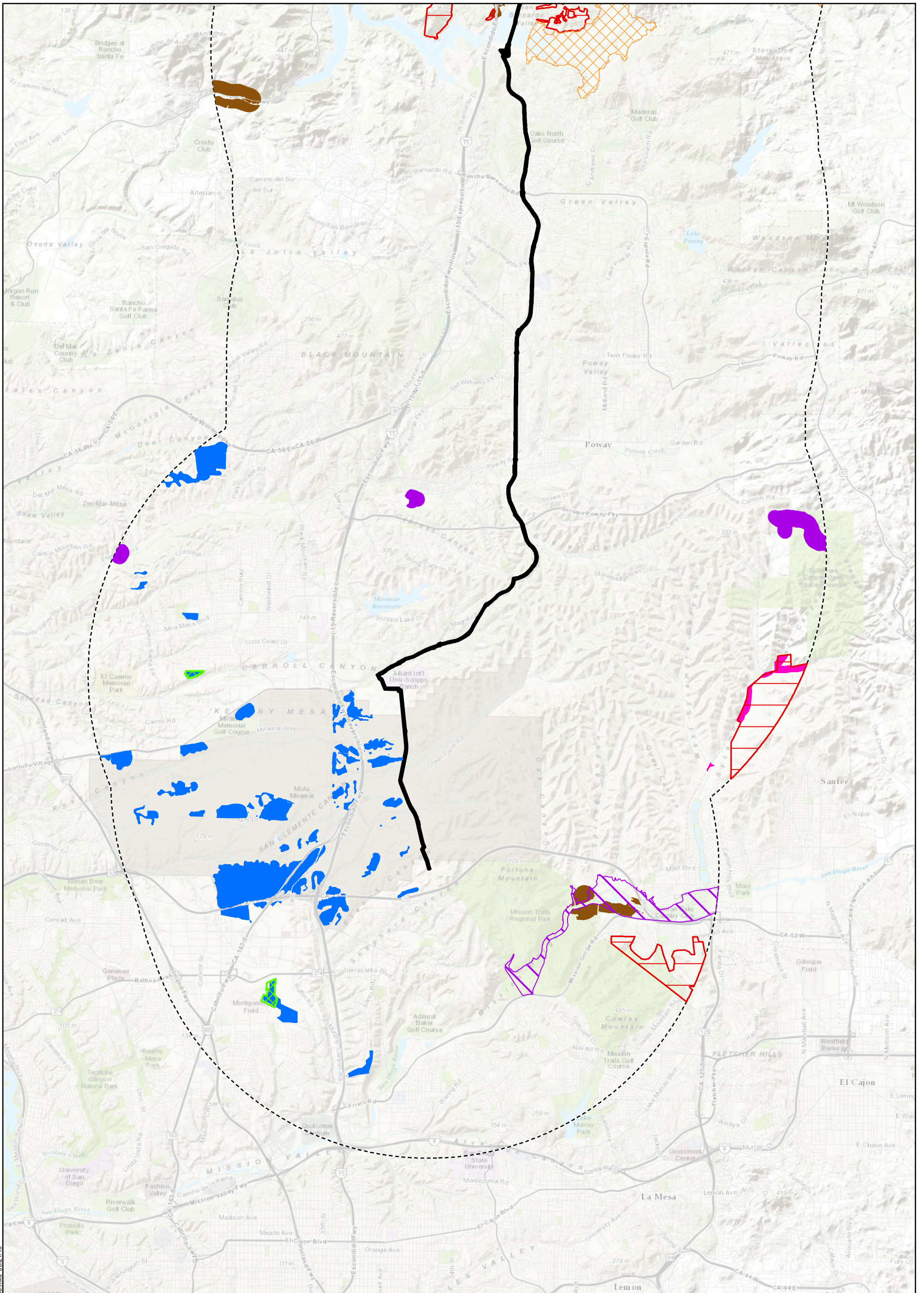


**Figure A-7: Designated Critical Habitat 2 of 3**

**Pipeline Safety & Reliability Project**

- ⬜ Project 5-Mile Buffer
- ▬ Biological Resource Survey Area
- ▨ Arroyo (=arroyo southwestern) toad
- ▭ Coastal California gnatcatcher
- ▭ Least Bell's vireo
- ▭ Spreading navarretia
- ▭ San Diego ambrosia
- ▭ San Diego fairy shrimp
- ▭ Southwestern willow flycatcher
- ▭ Thread-leaved brodiaea

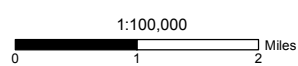




**Figure A-7: Designated Critical Habitat 3 of 3**

**Pipeline Safety & Reliability Project**

- Project 5-Mile Buffer
- Biological Resource Survey Area
- Arroyo (=arroyo southwestern) toad
- Coastal California gnatcatcher
- Least Bell's vireo
- Spreading navarretia
- San Diego ambrosia
- San Diego fairy shrimp
- San Diego thormmint
- Willow monardella





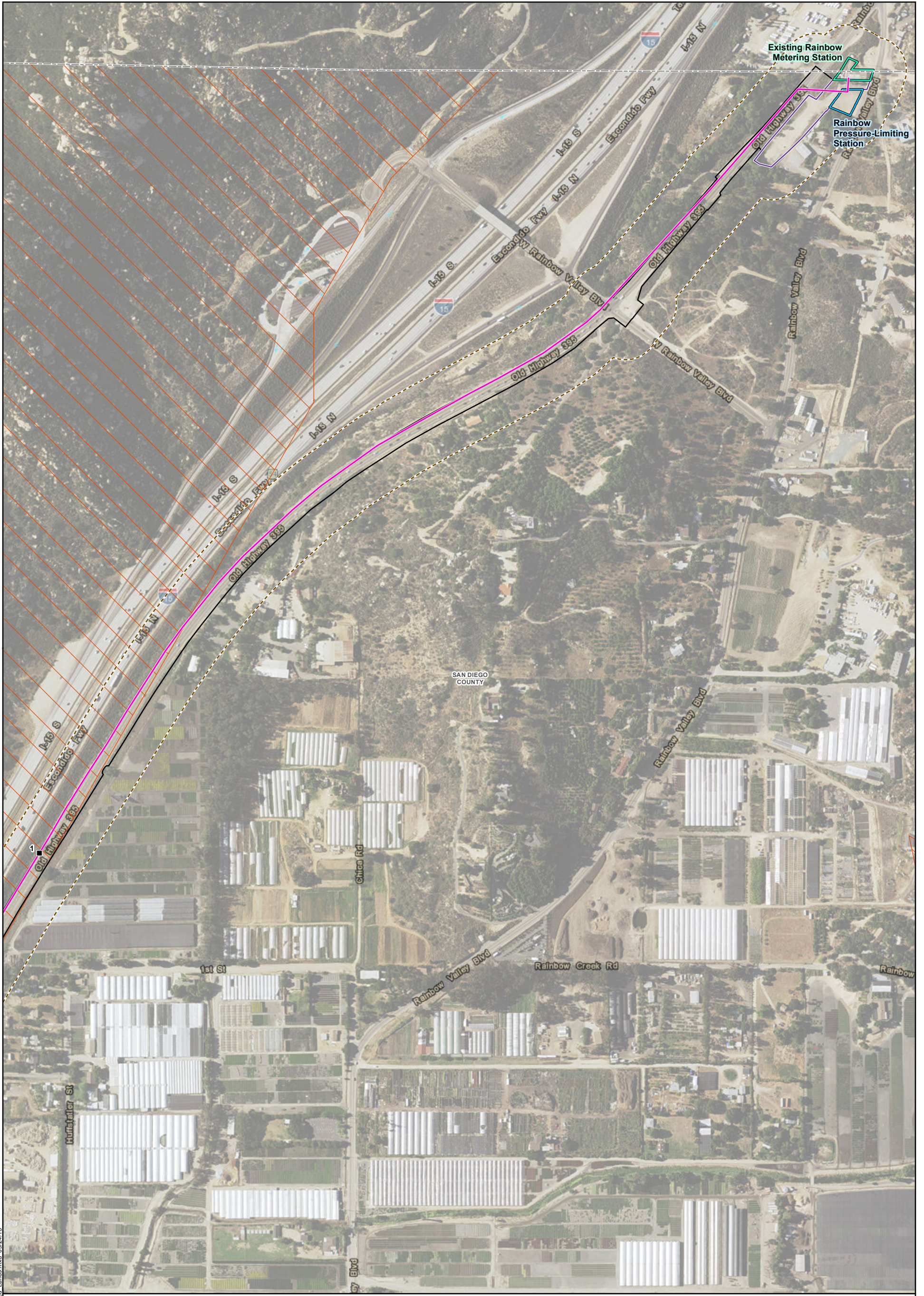
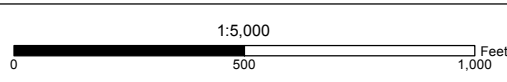
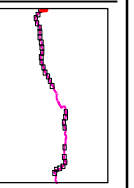


Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 1 of 29

Pipeline Safety & Reliability Project

- |   |  |   |   |   |
|---|--|---|---|---|
| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul> | <p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>Aboveground Facility</li> </ul> | <p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Workspace</li> </ul> | <ul style="list-style-type: none"> <li>Biological Resource Survey Area</li> <li>City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>Conserved Lands (SANDAG, 2015)</li> <li>Pre-Approved Mitigation Area (PAMA)</li> <li>Multi-Habitat Planning Area (MHPA)</li> </ul> |
|---|--|---|---|---|



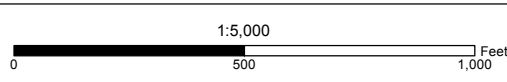
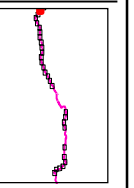
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Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 2 of 29

Pipeline Safety & Reliability Project

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>- - - Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul>	<p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>Aboveground Facility</li> </ul>	<p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Workspace</li> </ul>	<ul style="list-style-type: none"> <li>Biological Resource Survey Area</li> <li>City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>Conserved Lands (SANDAG, 2015)</li> <li>Pre-Approved Mitigation Area (PAMA)</li> <li>Multi-Habitat Planning Area (MHPA)</li> </ul>
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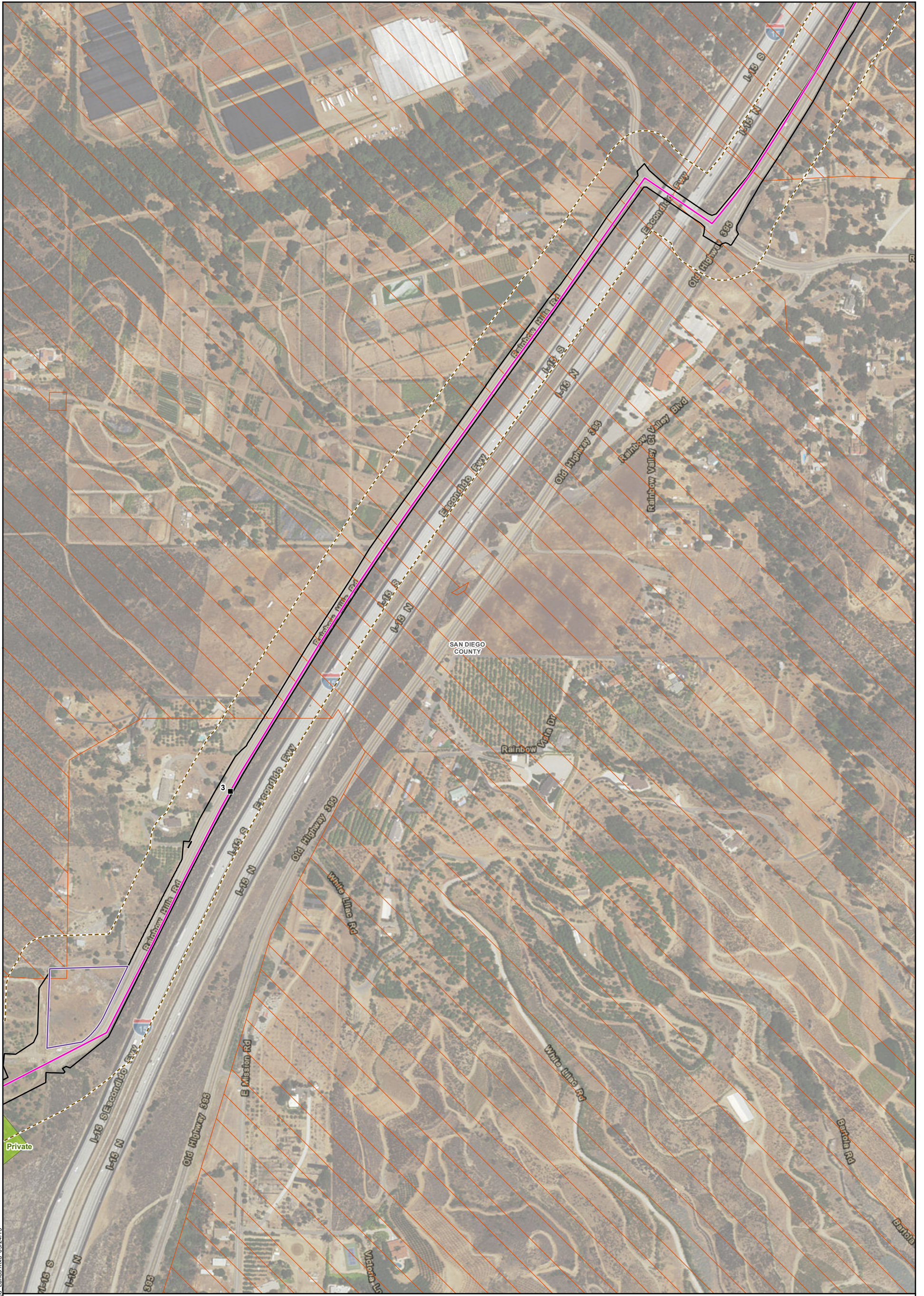
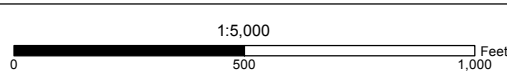
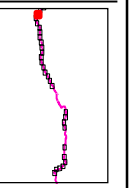


Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 3 of 29

Pipeline Safety & Reliability Project

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>— Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul>	<p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>Aboveground Facility</li> </ul>	<p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Workspace</li> </ul>	<ul style="list-style-type: none"> <li>Biological Resource Survey Area</li> <li>City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>Conserved Lands (SANDAG, 2015)</li> <li>Pre-Approved Mitigation Area (PAMA)</li> <li>Multi-Habitat Planning Area (MHPA)</li> </ul>
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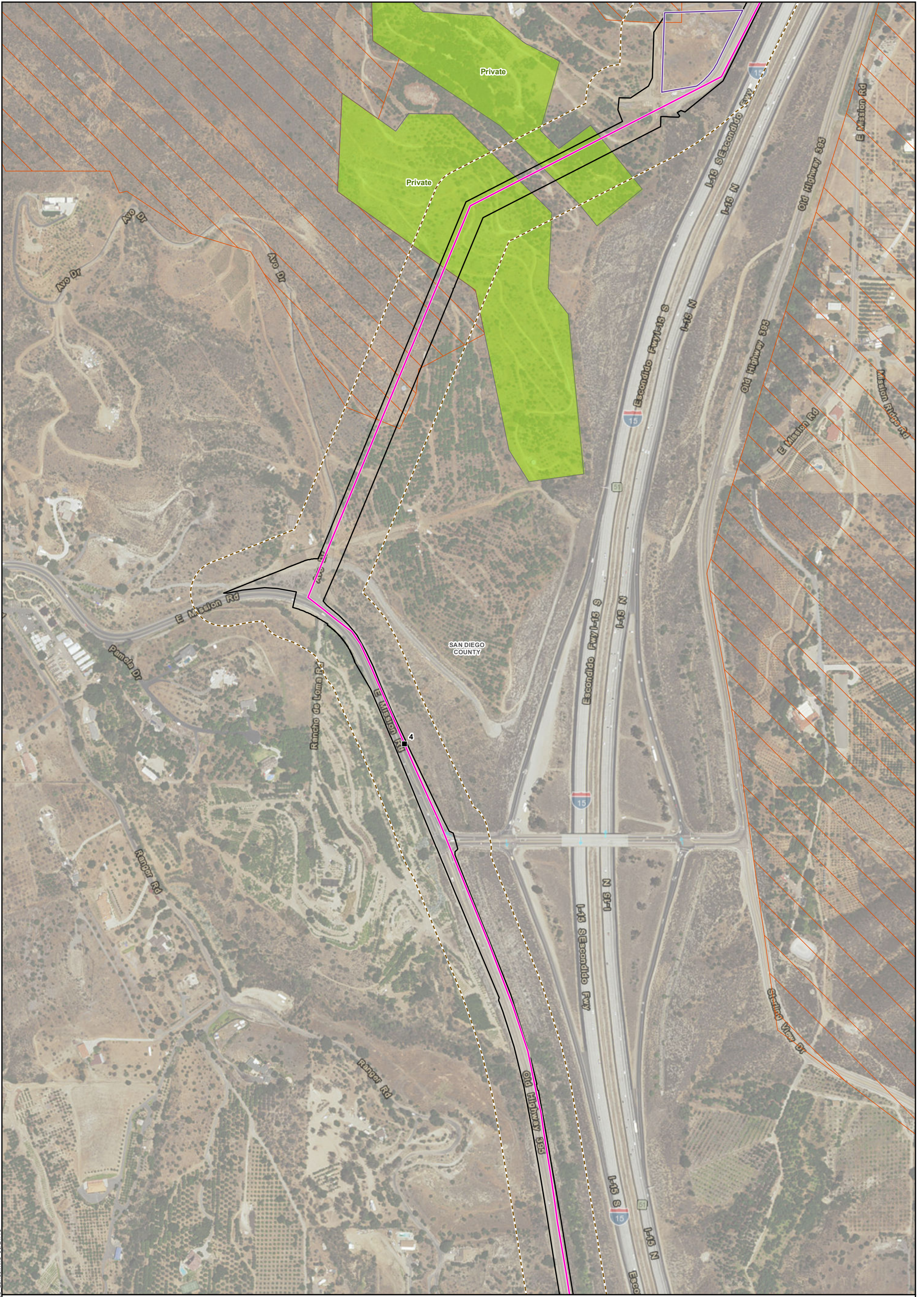
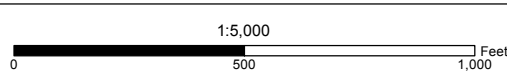
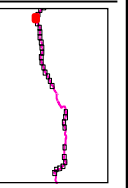


Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 4 of 29

Pipeline Safety & Reliability Project

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>- - - Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey Area</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Conserved Lands (SANDAG, 2015)</li> <li>▭ Pre-Approved Mitigation Area (PAMA)</li> <li>▭ Multi-Habitat Planning Area (MHPA)</li> </ul>
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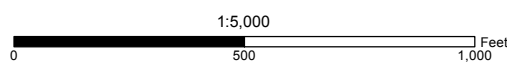
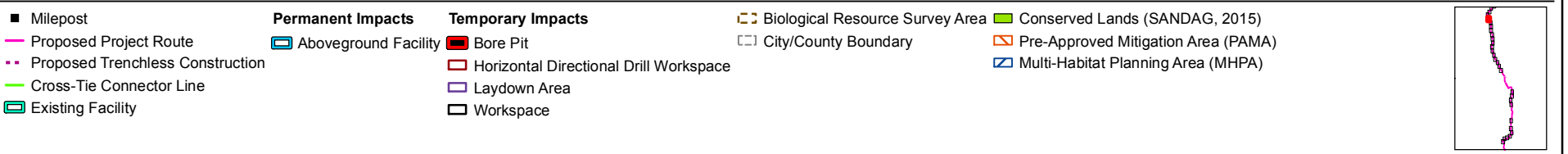
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Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 5 of 29

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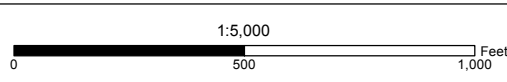
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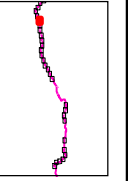
Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 6 of 29

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Permanent Impacts		Temporary Impacts		Conserved Lands (SANDAG, 2015)	
Aboveground Facility	Bore Pit	Horizontal Directional Drill Workspace	Laydown Area	Conserved Lands (SANDAG, 2015)	Pre-Approved Mitigation Area (PAMA)
Proposed Project Route	Milepost	Workspace	City/County Boundary	Multi-Habitat Planning Area (MHPA)	
Proposed Trenchless Construction					
Cross-Tie Connector Line					
Existing Facility					



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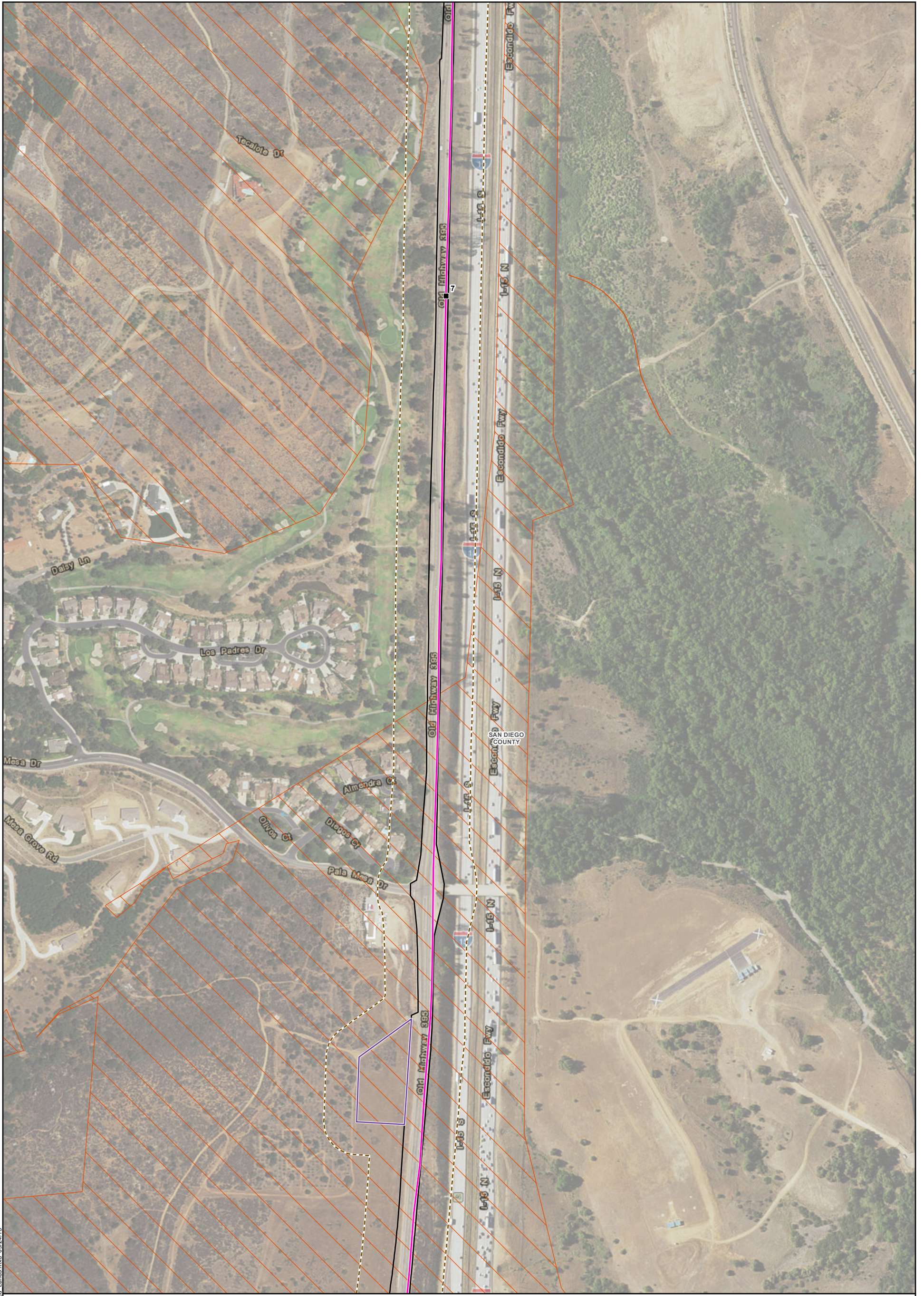
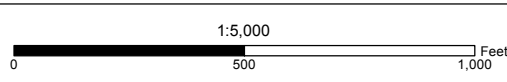
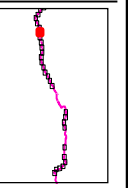


Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 7 of 29

Pipeline Safety & Reliability Project

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>- - - Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey Area</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Conserved Lands (SANDAG, 2015)</li> <li>▭ Pre-Approved Mitigation Area (PAMA)</li> <li>▭ Multi-Habitat Planning Area (MHPA)</li> </ul>
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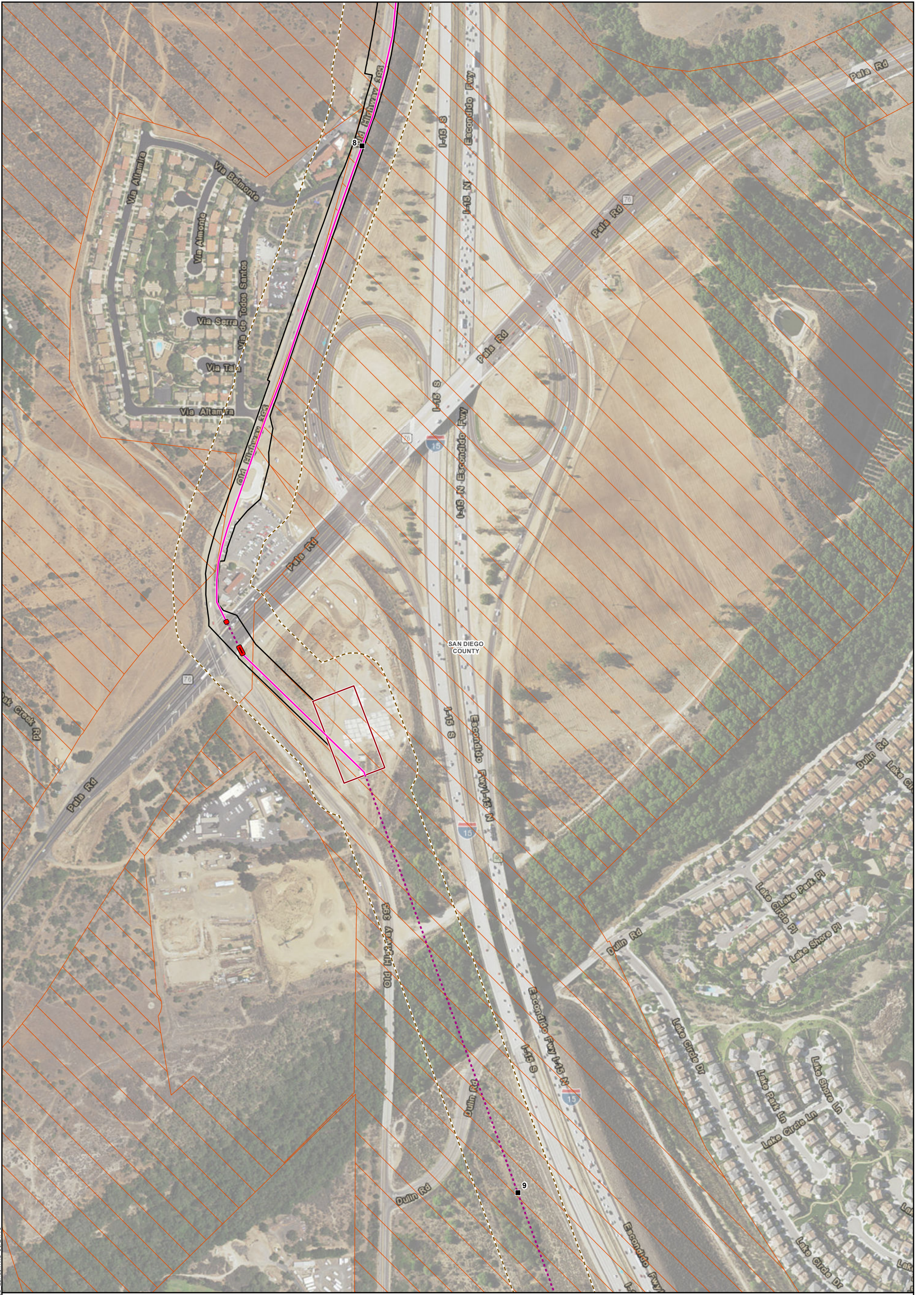
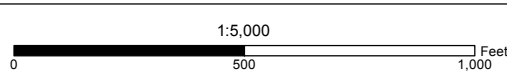
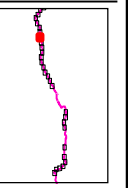


Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 8 of 29

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<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>— Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul>	<p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>Aboveground Facility</li> </ul>	<p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Workspace</li> </ul>	<ul style="list-style-type: none"> <li>Biological Resource Survey Area</li> <li>City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>Conserved Lands (SANDAG, 2015)</li> <li>Pre-Approved Mitigation Area (PAMA)</li> <li>Multi-Habitat Planning Area (MHPA)</li> </ul>
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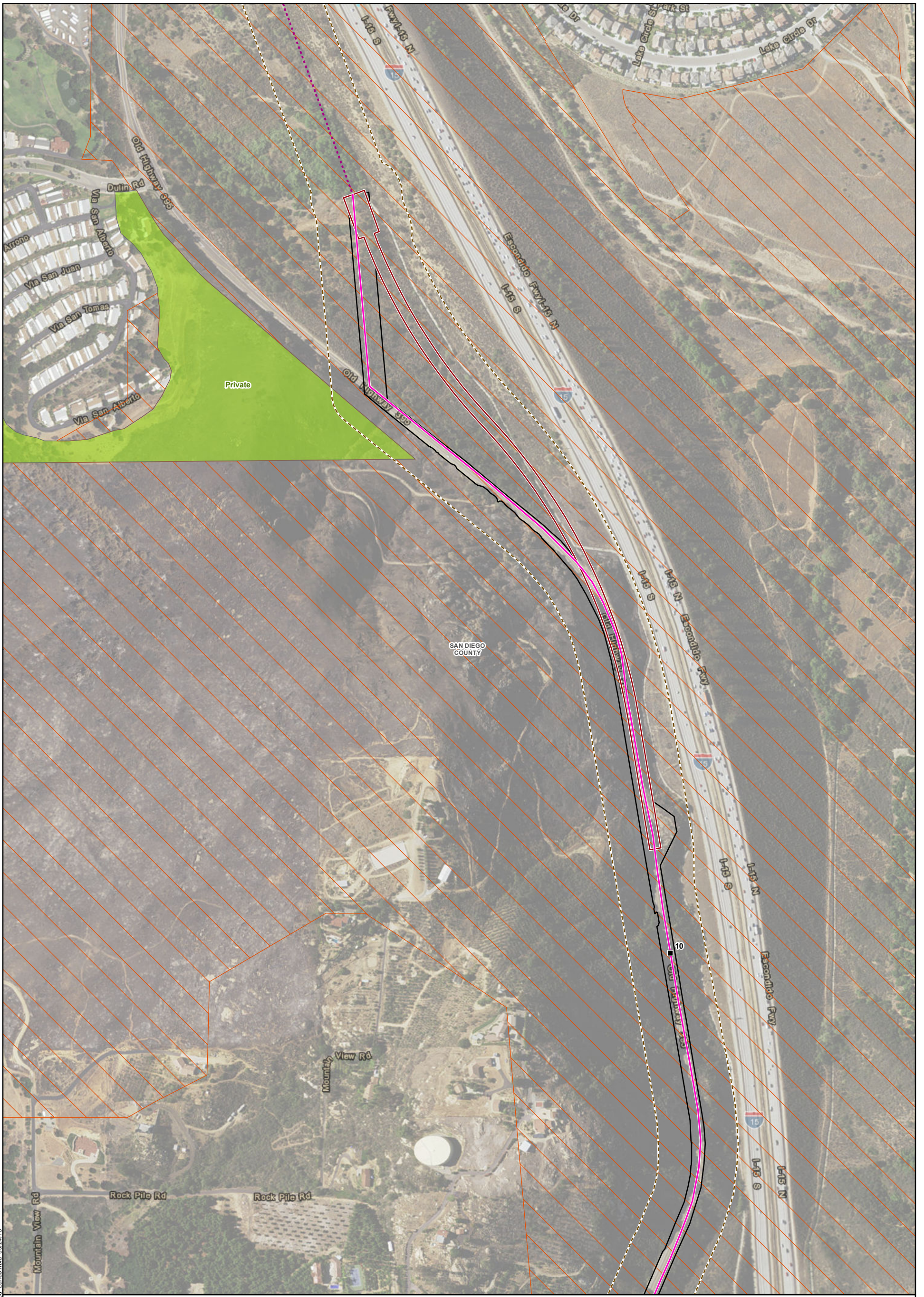
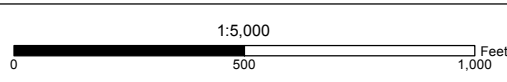
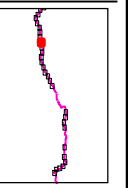
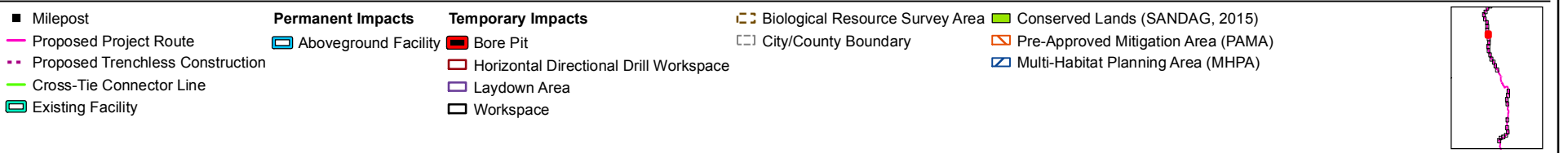


Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 9 of 29

Pipeline Safety & Reliability Project



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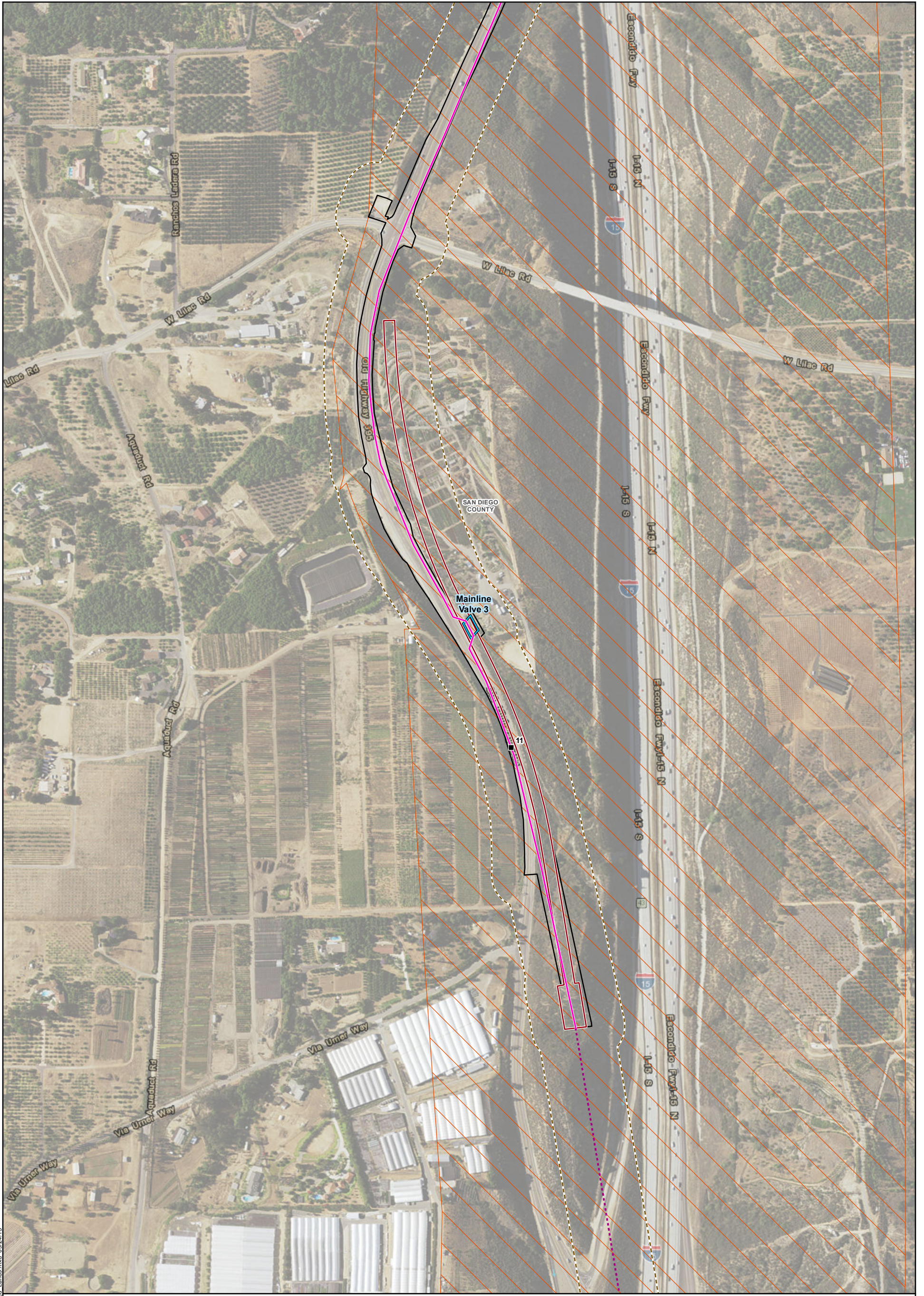
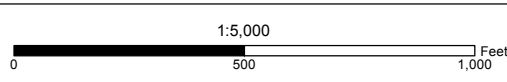
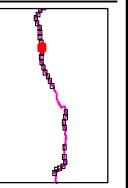
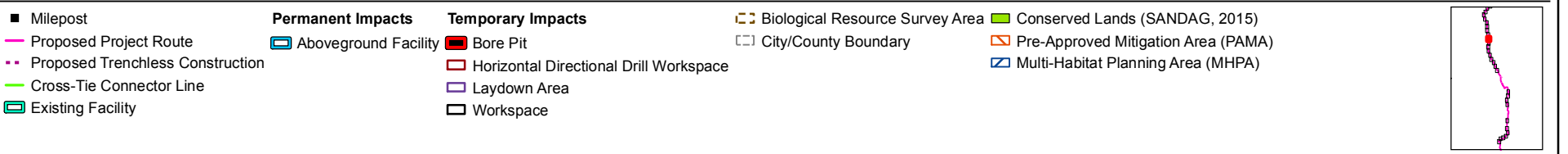


Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 10 of 29

Pipeline Safety & Reliability Project



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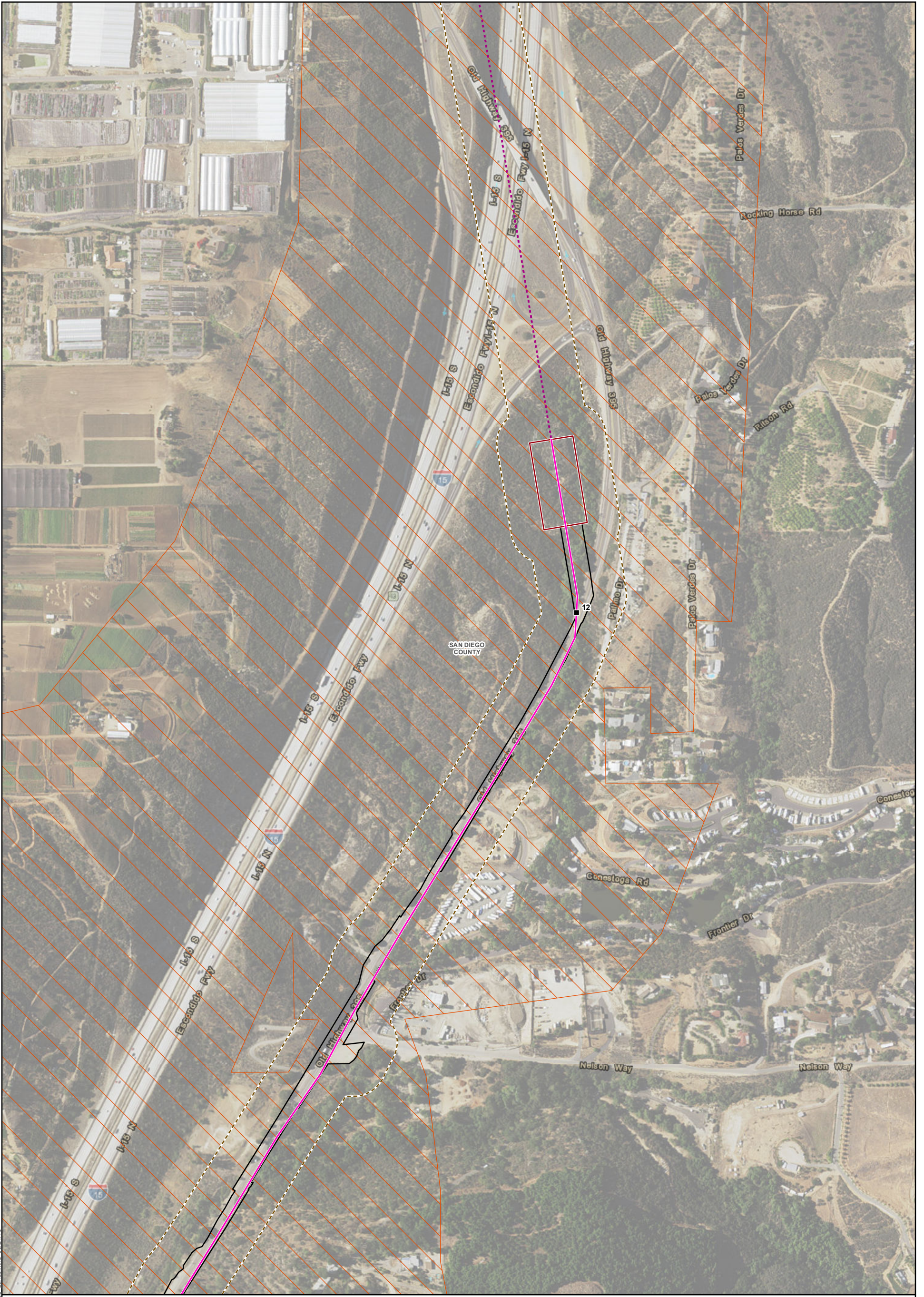
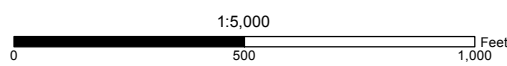


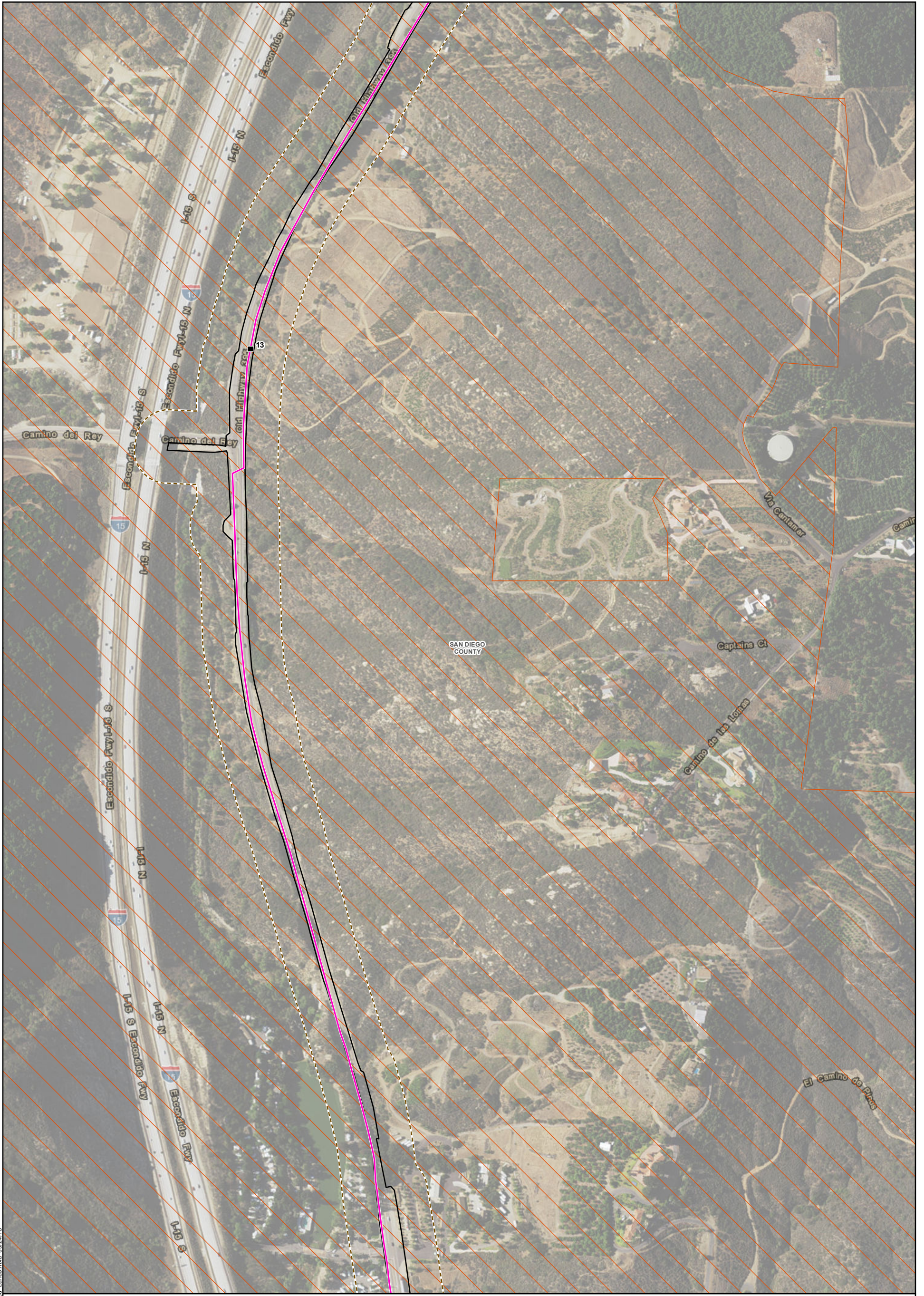
Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 11 of 29

Pipeline Safety & Reliability Project

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>— Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul>	<p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>Aboveground Facility</li> </ul>	<p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Workspace</li> </ul>	<ul style="list-style-type: none"> <li>Biological Resource Survey Area</li> <li>City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>Conserved Lands (SANDAG, 2015)</li> <li>Pre-Approved Mitigation Area (PAMA)</li> <li>Multi-Habitat Planning Area (MHPA)</li> </ul>
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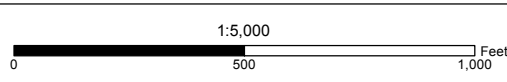
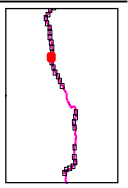


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**Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 12 of 29** **Pipeline Safety & Reliability Project**

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>— Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul>	<p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>Aboveground Facility</li> </ul>	<p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Workspace</li> </ul>	<ul style="list-style-type: none"> <li>Biological Resource Survey Area</li> <li>City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>Conserved Lands (SANDAG, 2015)</li> <li>Pre-Approved Mitigation Area (PAMA)</li> <li>Multi-Habitat Planning Area (MHPA)</li> </ul>
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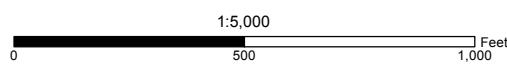
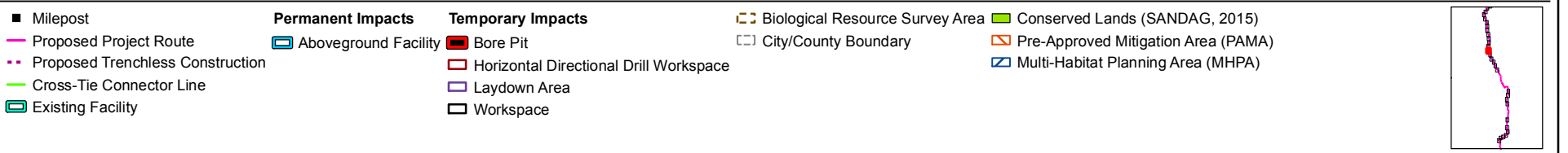
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Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 13 of 29

Pipeline Safety & Reliability Project

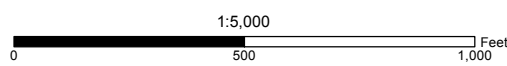
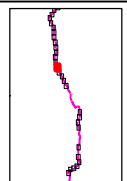


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**Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 14 of 29** **Pipeline Safety & Reliability Project**

- |   |  |   |   |   |
|---|--|---|---|---|
| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>— Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul> | <p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>Aboveground Facility</li> </ul> | <p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Workspace</li> </ul> | <ul style="list-style-type: none"> <li>Biological Resource Survey Area</li> <li>City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>Conserved Lands (SANDAG, 2015)</li> <li>Pre-Approved Mitigation Area (PAMA)</li> <li>Multi-Habitat Planning Area (MHPA)</li> </ul> |
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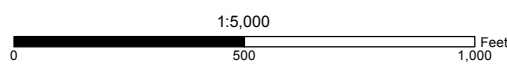
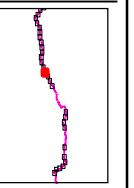


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**Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 15 of 29** **Pipeline Safety & Reliability Project**

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>— Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul>	<p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>Aboveground Facility</li> </ul>	<p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Workspace</li> </ul>	<ul style="list-style-type: none"> <li>Biological Resource Survey Area</li> <li>City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>Conserved Lands (SANDAG, 2015)</li> <li>Pre-Approved Mitigation Area (PAMA)</li> <li>Multi-Habitat Planning Area (MHPA)</li> </ul>
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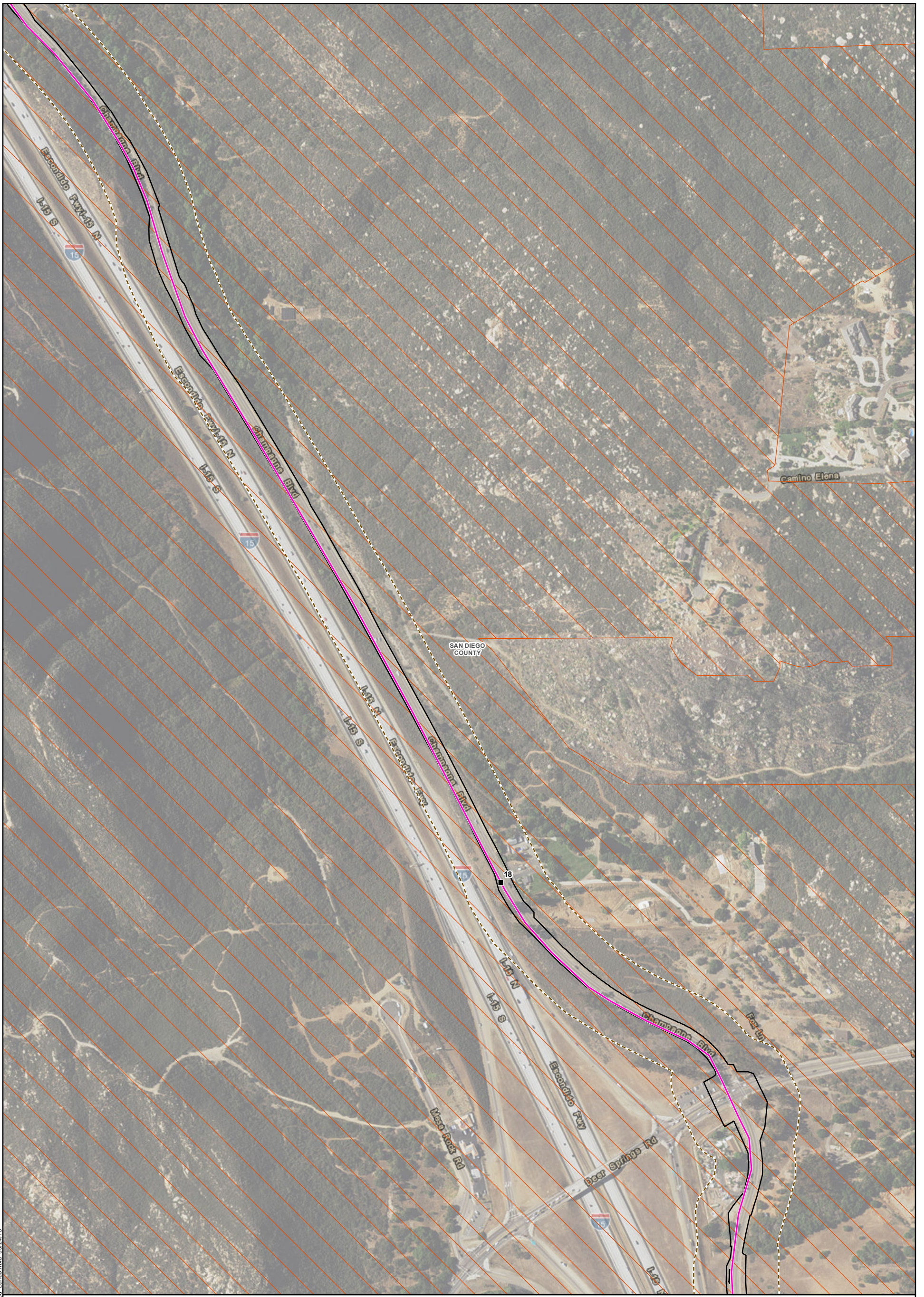
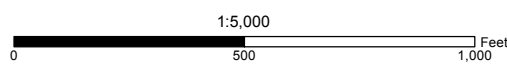
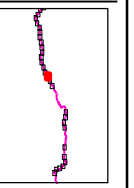


Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 16 of 29

Pipeline Safety & Reliability Project

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>- - - Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul>	<p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul>	<p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>▭ Biological Resource Survey Area</li> <li>▭ City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>▭ Conserved Lands (SANDAG, 2015)</li> <li>▭ Pre-Approved Mitigation Area (PAMA)</li> <li>▭ Multi-Habitat Planning Area (MHPA)</li> </ul>
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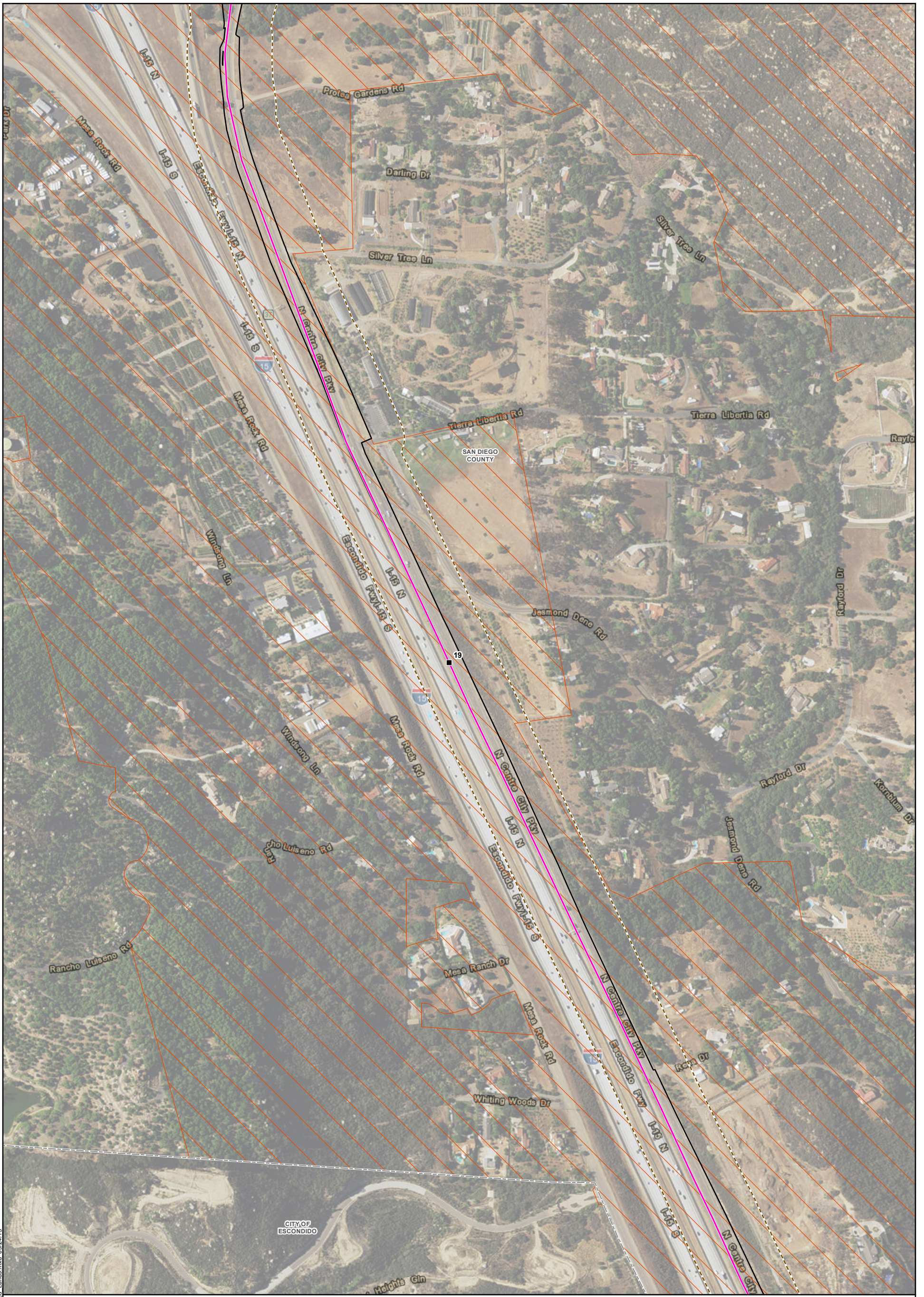
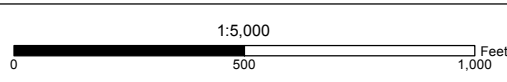
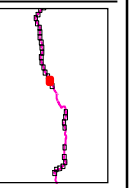


Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 17 of 29

Pipeline Safety & Reliability Project

- |   |  |   |   |   |
|---|--|---|---|---|
| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul> | <p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> | <p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>▭ Biological Resource Survey Area</li> <li>▭ City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>▭ Conserved Lands (SANDAG, 2015)</li> <li>▭ Pre-Approved Mitigation Area (PAMA)</li> <li>▭ Multi-Habitat Planning Area (MHPA)</li> </ul> |
|---|--|---|---|---|



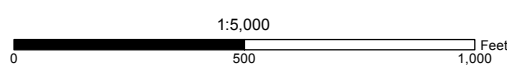
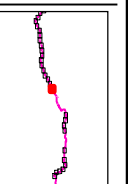
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Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 18 of 29

Pipeline Safety & Reliability Project

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>— Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul>	<p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>Aboveground Facility</li> </ul>	<p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Workspace</li> </ul>	<ul style="list-style-type: none"> <li>Biological Resource Survey Area</li> <li>City/County Boundary</li> </ul>	<ul style="list-style-type: none"> <li>Conserved Lands (SANDAG, 2015)</li> <li>Pre-Approved Mitigation Area (PAMA)</li> <li>Multi-Habitat Planning Area (MHPA)</li> </ul>
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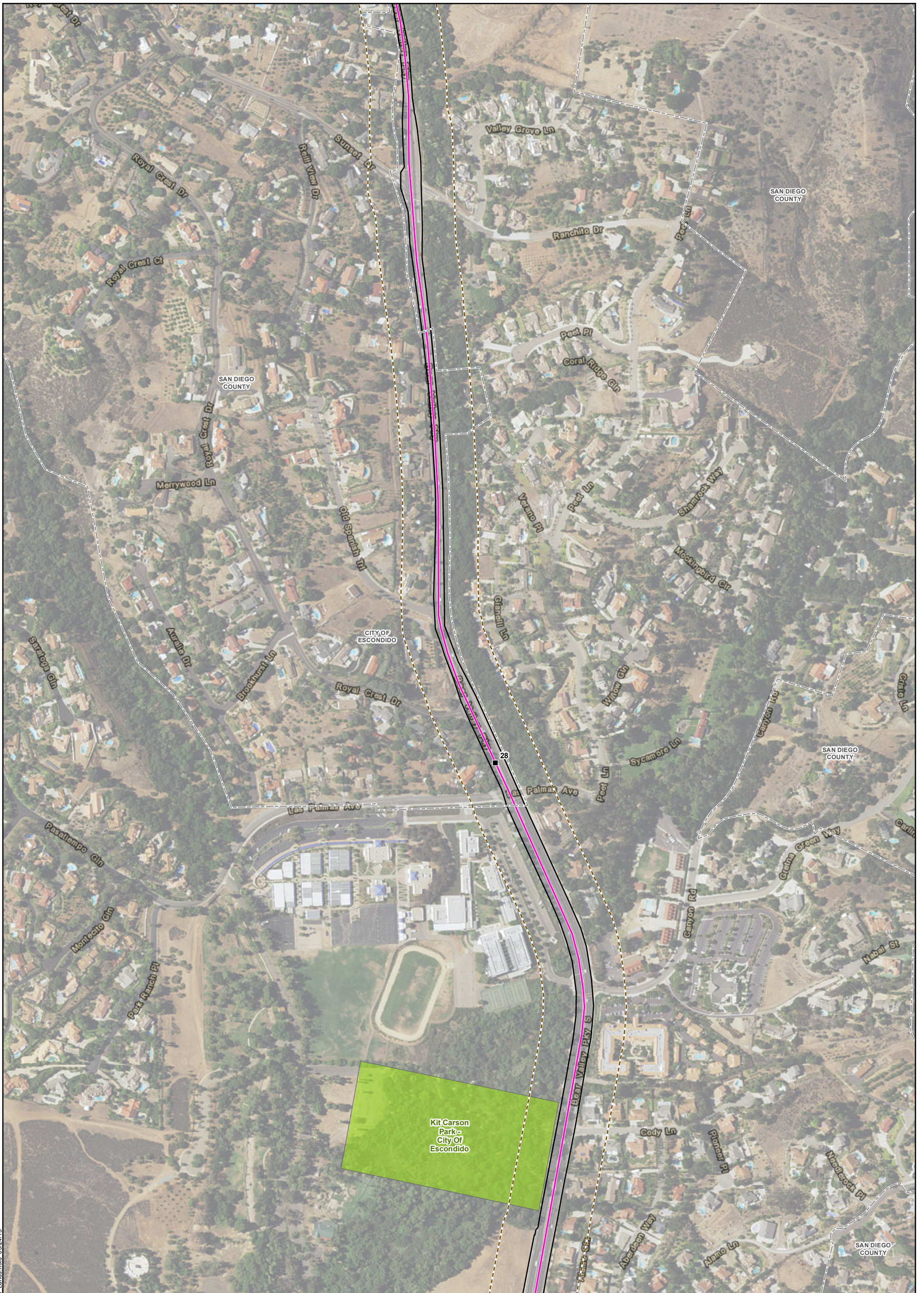
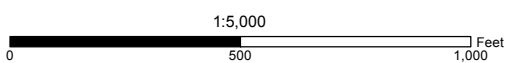
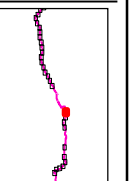
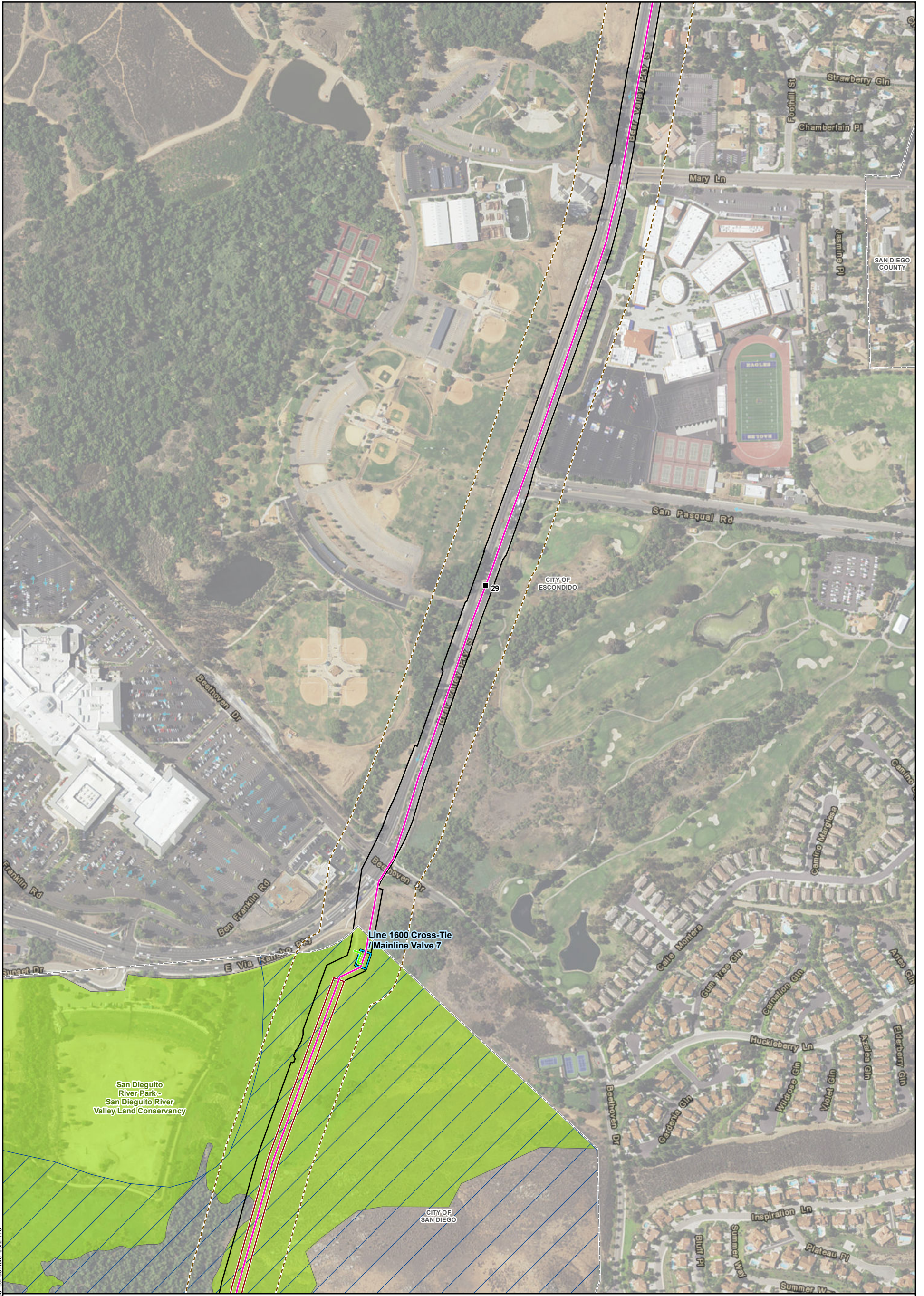


Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 19 of 29

Pipeline Safety & Reliability Project

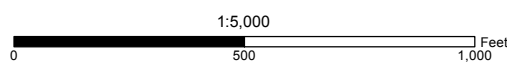
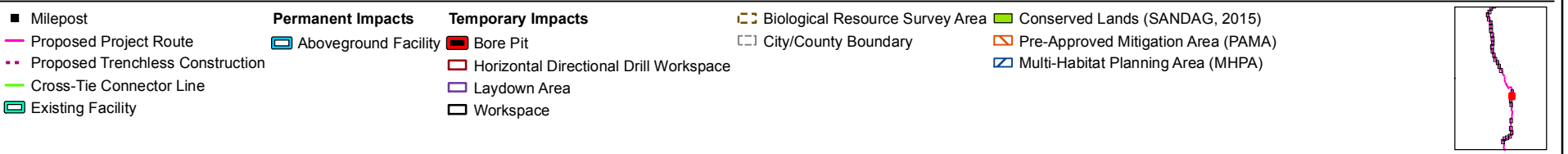
- |   |  |   |   |   |
|---|--|---|---|---|
| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>- - - Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul> | <p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> | <p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>▭ Biological Resource Survey Area</li> <li>▭ City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>▭ Conserved Lands (SANDAG, 2015)</li> <li>▭ Pre-Approved Mitigation Area (PAMA)</li> <li>▭ Multi-Habitat Planning Area (MHPA)</li> </ul> |
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**Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 20 of 29**

**Pipeline Safety & Reliability Project**



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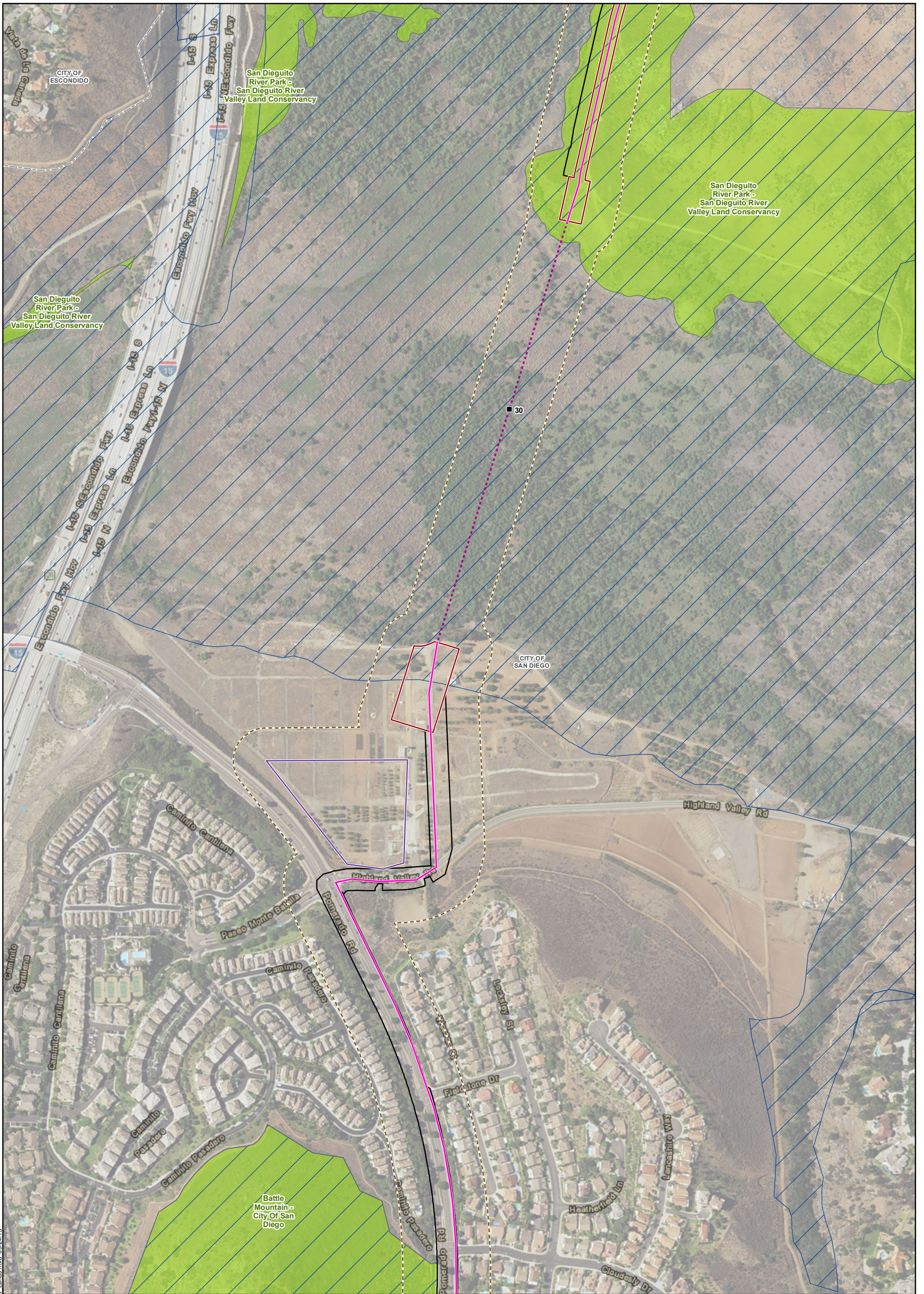
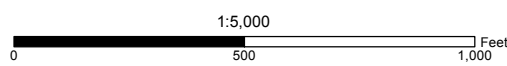
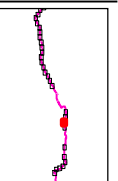


Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 21 of 29

Pipeline Safety & Reliability Project

- |   |  |   |   |   |
|---|--|---|---|---|
| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul> | <p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> | <p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>▭ Biological Resource Survey Area</li> <li>▭ City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>▭ Conserved Lands (SANDAG, 2015)</li> <li>▭ Pre-Approved Mitigation Area (PAMA)</li> <li>▭ Multi-Habitat Planning Area (MHPA)</li> </ul> |
|---|--|---|---|---|

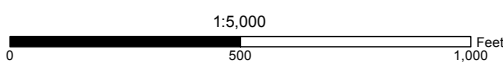
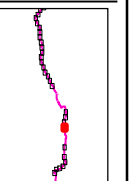


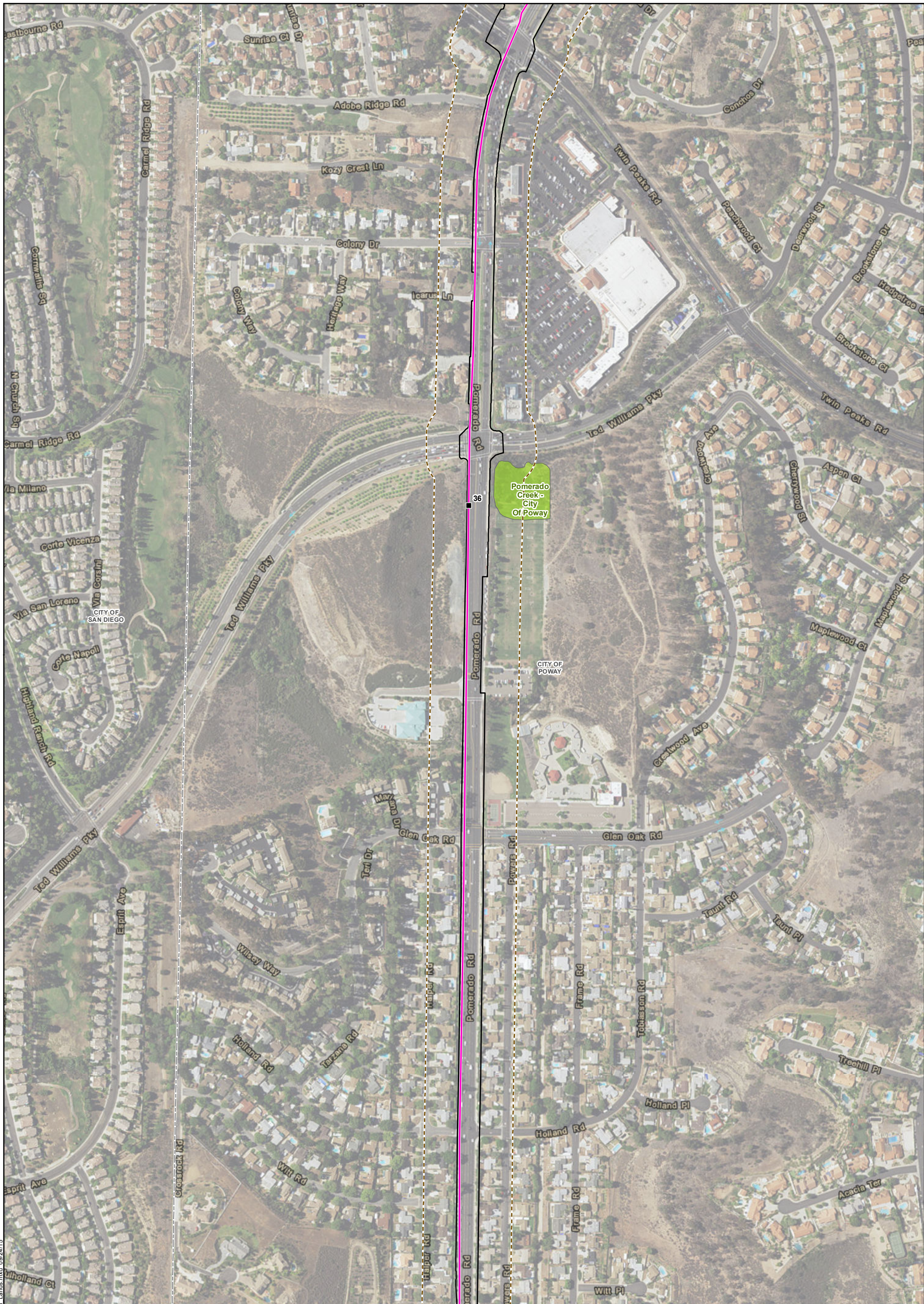
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Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 22 of 29

- |   |  |   |   |   |
|---|--|---|---|---|
| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>- - - Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul> | <p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> | <p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>▭ Biological Resource Survey Area</li> <li>▭ City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>▭ Conserved Lands (SANDAG, 2015)</li> <li>▭ Pre-Approved Mitigation Area (PAMA)</li> <li>▭ Multi-Habitat Planning Area (MHPA)</li> </ul> |
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**Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 23 of 29** **Pipeline Safety & Reliability Project**

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|---|--|---|---|---|
| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>□ Existing Facility</li> </ul> | <p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>□ Aboveground Facility</li> </ul> | <p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>□ Horizontal Directional Drill Workspace</li> <li>□ Laydown Area</li> <li>□ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>--- Biological Resource Survey Area</li> <li>□ City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>■ Conserved Lands (SANDAG, 2015)</li> <li>□ Pre-Approved Mitigation Area (PAMA)</li> <li>□ Multi-Habitat Planning Area (MHPA)</li> </ul> |
|---|--|---|---|---|

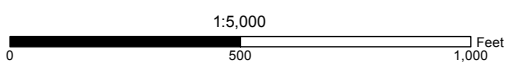
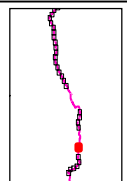
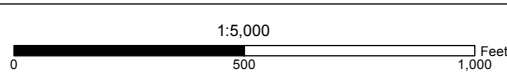
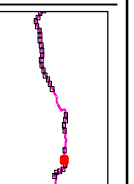




Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 24 of 29

- |   |  |   |   |   |
|---|--|---|---|---|
| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>- - - Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul> | <p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> | <p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>▭ Biological Resource Survey Area</li> <li>▭ City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>▭ Conserved Lands (SANDAG, 2015)</li> <li>▭ Pre-Approved Mitigation Area (PAMA)</li> <li>▭ Multi-Habitat Planning Area (MHPA)</li> </ul> |
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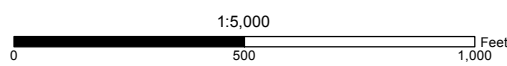
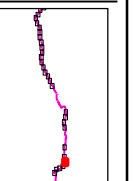
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Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 25 of 29

Pipeline Safety & Reliability Project

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| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>- - - Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul> | <p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> | <p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>- - - Biological Resource Survey Area</li> <li>- - - City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>■ Conserved Lands (SANDAG, 2015)</li> <li>▭ Pre-Approved Mitigation Area (PAMA)</li> <li>▭ Multi-Habitat Planning Area (MHPA)</li> </ul> |
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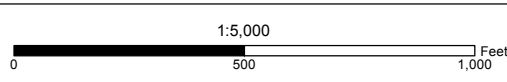
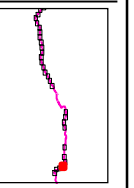
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Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 26 of 29

Pipeline Safety & Reliability Project

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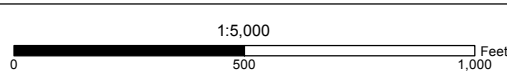
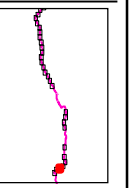
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Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 27 of 29

Pipeline Safety & Reliability Project

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| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>▭ Existing Facility</li> </ul> | <p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>▭ Aboveground Facility</li> </ul> | <p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>▭ Horizontal Directional Drill Workspace</li> <li>▭ Laydown Area</li> <li>▭ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>▭ Biological Resource Survey Area</li> <li>▭ City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>▭ Conserved Lands (SANDAG, 2015)</li> <li>▭ Pre-Approved Mitigation Area (PAMA)</li> <li>▭ Multi-Habitat Planning Area (MHPA)</li> </ul> |
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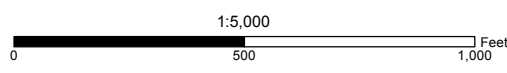
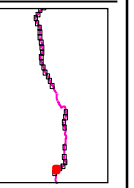
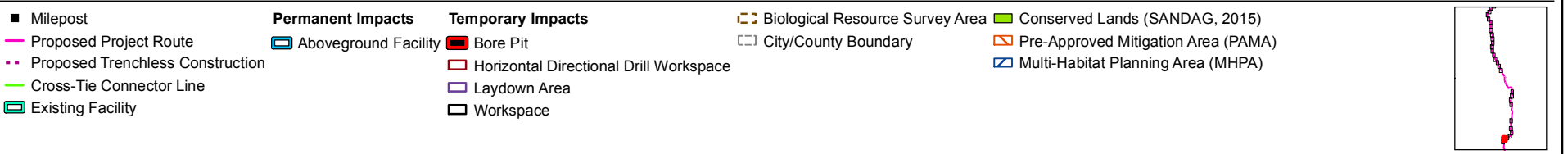


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Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 28 of 29

Pipeline Safety & Reliability Project



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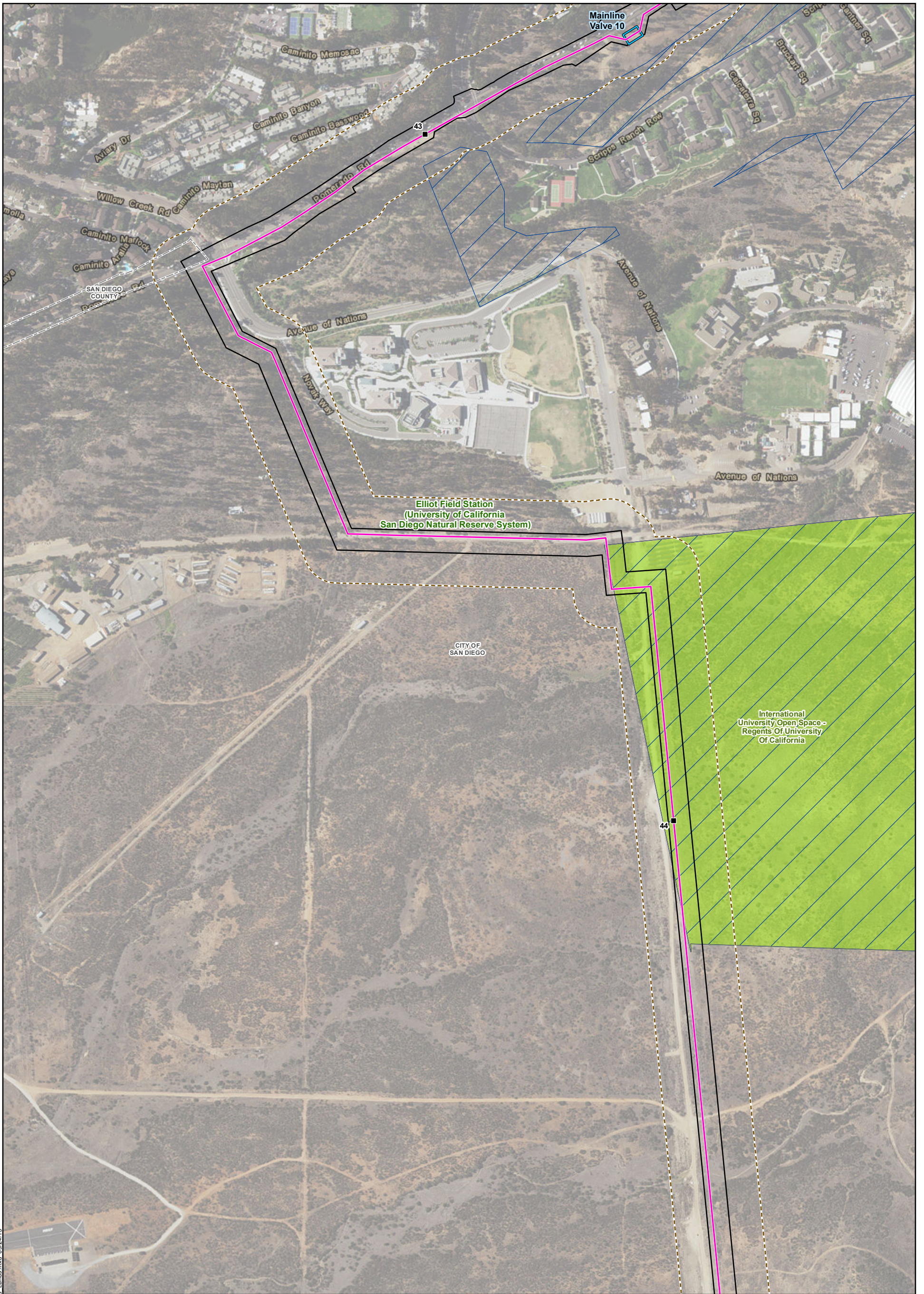
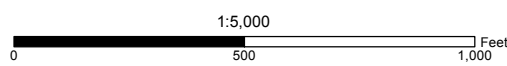
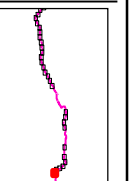


Figure A-8: Conserved Lands within the Biological Resources Survey Area Map of 29 of 29

Pipeline Safety & Reliability Project

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|---|--|---|---|---|
| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul> | <p><b>Permanent Impacts</b></p> <ul style="list-style-type: none"> <li>Aboveground Facility</li> </ul> | <p><b>Temporary Impacts</b></p> <ul style="list-style-type: none"> <li>Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Workspace</li> </ul> | <ul style="list-style-type: none"> <li>Biological Resource Survey Area</li> <li>City/County Boundary</li> </ul> | <ul style="list-style-type: none"> <li>Conserved Lands (SANDAG, 2015)</li> <li>Pre-Approved Mitigation Area (PAMA)</li> <li>Multi-Habitat Planning Area (MHPA)</li> </ul> |
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**ATTACHMENT B: SPECIAL-STATUS PLANT SPECIES SURVEY REPORT**



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**SAN DIEGO GAS & ELECTRIC COMPANY AND SOUTHERN CALIFORNIA GAS COMPANY'S  
PIPELINE SAFETY & RELIABILITY PROJECT  
SPECIAL-STATUS PLANT SPECIES SURVEY REPORT**

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**Prepared for:**



**Prepared by:**



**September 2015**



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- Attachment D: Plant Species Observed
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## 1 – INTRODUCTION

San Diego Gas & Electric (SDG&E) and Southern California Gas Company—herein referred to as the Applicants—are proposing the Pipeline Safety & Reliability Project (Proposed Project), which involves construction, operation, and maintenance of an approximately 47-mile-long, 36-inch-diameter natural gas transmission pipeline that will carry natural gas from SDG&E’s existing Rainbow Metering Station to the pipeline’s terminus on Marine Corps Air Station (MCAS) Miramar.

Insignia Environmental (Insignia) conducted surveys for special-status plant species for the Proposed Project within the Biological Resources Survey Area (BRSA), which includes all Proposed Project components plus an approximately 150-foot buffer on each side of these components. In total, the BRSA covers approximately 2,264 acres. Insignia assessed all areas in the BRSA, except for developed areas (e.g., orchards and vineyards, intensive agricultural areas, ornamental areas, etc.). The surveys were conducted in two passes during the spring of 2015. This Special-Status Plant Species Survey Report provides an overview of the project, summarizes the field methods, and presents the results of Insignia’s 2015 surveys.

## 2 – PROJECT DESCRIPTION

### 2.0 PROJECT OVERVIEW

The Proposed Project involves construction, operation, and maintenance of an approximately 47-mile-long, 36-inch-diameter natural gas transmission pipeline and the following permanent aboveground equipment that will be appurtenant to the pipeline:

- approximately 10 new aboveground mainline valves (MLV) spaced a maximum of five miles apart;
- one pressure-limiting station (i.e., the Rainbow Pressure-Limiting Station);
- three cross-tie facilities (i.e., Line 1600, Line 1601, and Line 2010);
- internal inspection launching and receiving equipment;
- cathodic protection system units with an estimated three rectifiers and three deep-well anode beds at three of the proposed MLVs; and
- an intrusion detection and leak monitoring system.

Construction is scheduled to begin in the first quarter of 2018 and is expected to take 12 to 18 months to complete.<sup>1</sup> The Applicants are required to comply with General Order 112-E in constructing a natural gas transmission pipeline and is choosing to seek a CPCN from the CPUC for the Proposed Project. Federal authorizations will also be required because the Proposed Project route includes land on MCAS Miramar, which is under the jurisdiction of the Department of the Navy/United States (U.S.) Marine Corps (USMC). In addition to the CPCN and the authorization for rights-of-way (ROWs) on MCAS Miramar, the Applicants will obtain all

<sup>1</sup> The construction start date is based on receiving a Certificate of Public Convenience and Necessity (CPCN) from the California Public Utilities Commission (CPUC) by 2017 and issuance of other required permits by late 2017 or early 2018.

required permits for the Proposed Project from federal, state, and local agencies prior to construction.

It is anticipated that the Department of the Navy will serve as the lead federal agency for the Proposed Project under the National Environmental Policy Act because the Proposed Project will require a new easement for ROWs through MCAS Miramar. If the Department of the Navy determines that the authorization for the construction and operation of the Proposed Project “may effect” species listed under the federal Endangered Species Act (FESA), the lead federal agency will be expected to engage in Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS) regarding the effects to listed species.

## **2.1 PROJECT LOCATION AND SETTING**

The Proposed Project is located in San Diego County, California, and crosses the cities of San Diego, Escondido, and Poway. As shown in Figure 1: Project Overview Map, the Proposed Project will be installed primarily within existing roadways and road shoulders. The pipeline will be installed approximately 42 inches below the ground surface using conventional trenching methods. The pipeline alignment will cross several major roads, including Interstate (I-) 15, as well as a number of water features, including the San Luis Rey River, Lake Hodges, and Escondido Creek. At these crossings, horizontal directional drilling and horizontal boring methods will be implemented to minimize impacts to riparian habitat and water quality.

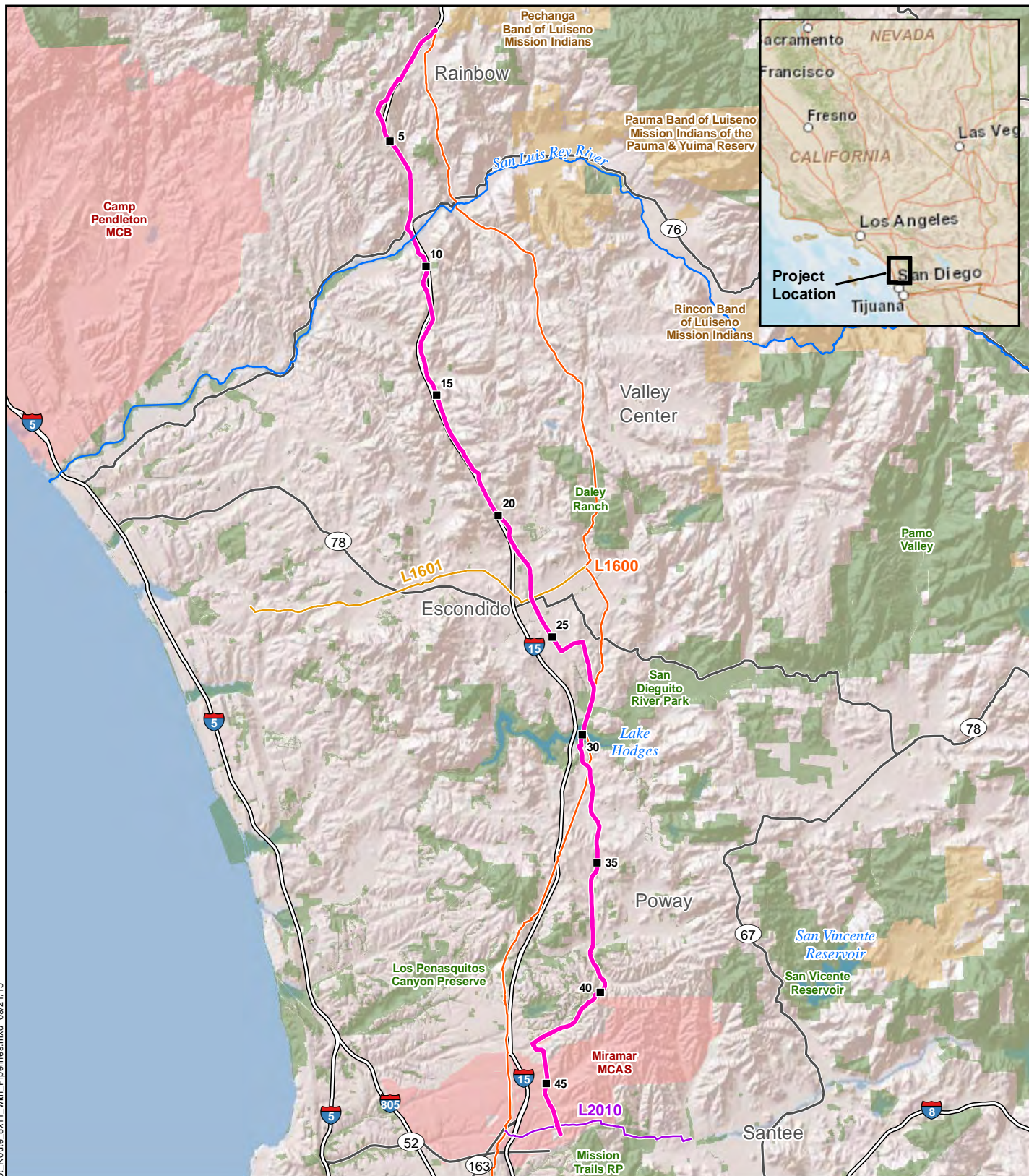
As depicted in Figure 1: Project Overview Map, the potential route begins at SDG&E’s existing Rainbow Metering Station in the unincorporated community of Rainbow and terminates just north of State Route (SR-) 52 within MCAS Miramar. Within MCAS Miramar, the route parallels an unpaved aqueduct road for approximately 2.6 miles. The Proposed Project will tie into the existing Line 2010 at its southern terminus.

# **3 – METHODOLOGY**

This section describes the methods used to perform the literature review (conducted prior to special-status plant species surveys) and the special-status plant species surveys.

## **3.0 BACKGROUND RESEARCH**

Botanical resources data for the BRSA were obtained through a literature review of publicly available spatial data in ArcGIS, including aerial photographs, U.S. Geological Survey (USGS) topographic maps, and San Diego Association of Governments (SANDAG) vegetation mapping (SANDAG 2012). Reference materials were also utilized, such as plant occurrence databases, local guides, and survey protocols and publications. The data provided botanists with a general understanding of the special-status plant species that have the potential to occur within the BRSA.

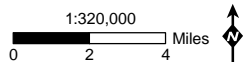


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**Figure 1: Project Overview Map**

**Pipeline Safety & Reliability Project**

- |                          |                            |                            |
|--------------------------|----------------------------|----------------------------|
| ■ Milepost               | — Interstate               | ■ Parks                    |
| — Proposed Project Route | — Major Road/State Highway | ■ Military                 |
| — Line 1601              |                            | ■ Bureau of Indian Affairs |
| — Line 1600              |                            |                            |
| — Line 2010              |                            |                            |





For the purposes of this report, special-status plant species are defined as follows:

- Federally listed species (i.e., plants listed as threatened or endangered under the FESA). FESA gives regulatory authority over terrestrial species to the USFWS.
- State-listed species (i.e., plants listed as threatened or endangered under the California Endangered Species Act [CESA]). The CESA is enforced by the California Department of Fish and Wildlife (CDFW).
- Species that are candidates for possible future listing as threatened or endangered under the FESA (50 Code of Federal Regulations Part 17; Federal Register Vol. 64, No. 205, pages 57533-57547, October 25, 1999) and under the CESA (California Fish and Game Code § 2068).
- Plants that meet the definition of rare or endangered under the California Environmental Quality Act (CEQA) (14 California Code of Regulations [CCR] § 15380 (b) and (d), including the following:
  - Species considered by the California Native Plant Society (CNPS) to be “rare, threatened or endangered in California” (California Rare Plant Ranks [CRPRs] 1A, 1B, 2A, and 2B).
  - Some species included on the California Natural Diversity Database (CNDDDB) Special Plants, Bryophytes, and Lichens List (CDFW 2015b).
  - Plants that are considered a locally significant species, which is a species that is not rare from a statewide perspective, but is rare or uncommon in a local context, such as within a county or region (14 CCR § 15125 [c]), or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G). This includes all List A, B, C, and D plants on the County of San Diego Sensitive Plant List, included in the Guidelines for Determining Significance and Report Format and Content Requirements (County of San Diego 2010). Many of the County of San Diego List C and D plants are also CRPR 3 and 4 plant species.

A list of potentially occurring special-status plant species was developed by compiling all species that are documented in the CNDDDB (CDFW 2015a) within five miles of the Proposed Project, as well as special-status plant species identified in a Nine-Quad Search of the CNPS Inventory of Rare and Endangered Vascular Plants of California (CNPS 2014).<sup>2</sup> The CNPS Nine-Quad Search included special-status plant species documented from the seven USGS quadrangles (quads) overlapping the BRSA (i.e., the Temecula, Bonsall, San Marcos, Valley

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<sup>2</sup> The CNPS Nine-Quad Search covered 27 quadrangles, including Temecula, Bonsall, San Marcos, Valley Center, Escondido, Poway, La Mesa, Wildomar, Murrieta, Bachelor Mountain, Fallbrook, Pechanga, Morro Hill, Pala, San Luis Rey, Encinitas, Rancho Santa Fe, Boucher Hill, Rodrigues Mountain, San Pasqual, Del Mar, San Vicente Reservoir, La Jolla, Point Loma, National City, Jamul Mountains, and El Cajon.

Center, Escondido, Poway, and La Mesa quads) and the adjacent quads. The CNPS Nine-Quad Search returned only CRPR 1A, 1B, and 2 species.

Additional sources of information specifically related to special-status species occurrences, habitat requirements, and geographic distribution and abundance were consulted in determining the species potential to occur within the BRSA. These sources included:

- the CNDDDB RareFind Version 5 website (CDFW 2015c);
- the MCAS Miramar Integrated Natural Resources Management Plan (USMC 2014);
- the USFWS Environmental Conservation Online System Species Profiles (USFWS 2015) and associated documents;
- the San Diego County Natural History Museum (SDNHM) herbarium and associated distribution mapping (SDNHM 2015);
- species accounts from the Rare Plants of San Diego County online resource (Reiser 1994); and
- planning documents relevant to the Proposed Project were also reviewed. Relevant planning documents include the County of San Diego General Plan and SDG&E Subregional Natural Communities Conservation Plan.

### 3.0.0 Special-Status Species' Potential to Occur

Once the list of potentially occurring special-status species was compiled using the previously listed sources, Insignia biologists determined the potential for those species to occur within the BRSA based on information from the literature and database searches and the habitat assessment. The following four categories were developed:

- **No Potential:** No suitable habitat exists or a species is not known to occur from the general area of the BRSA (i.e., generally more than 15 miles outside of the BRSA, or outside of San Diego County). The definition of habitat includes the major vegetation communities (e.g., chaparral or coastal scrub), as well as microhabitat conditions, such as specific edaphic (i.e., soil) requirements. In addition, the elevation range where the species occurs may be more than 300 feet above or below the elevation range within the BRSA, or the species is known to be extirpated from the BRSA.
- **Low Potential:** Habitat for the species is present, but the geographic and/or elevation ranges within the BRSA vary from those documented for the species. Specifically, the species occurs between five and 15 miles of the BRSA, if all occurrences within five miles of the BRSA are more than 30 years old, or the elevation range where the species occurs is between 100 and 300 feet above or below the elevation range of the BRSA.
- **Moderate Potential:** Habitat for the species is present; the geographic and elevation ranges within the BRSA are consistent with those documented for the species; and the species has been documented within one to five miles of the BRSA.

- **High Potential:** Habitat for the species is present; the geographic and elevation ranges within the BRSA are consistent with those documented for the species; and the species has been documented within one mile of the BRSA.

### 3.1 SURVEY METHODOLOGY

Special-status plant surveys were conducted in two passes during the spring of 2015 within 965 acres throughout the BRSA. Special-status plant surveys were conducted in accordance with survey guidelines published by the CNPS (2001), CDFW (2009), and USFWS (1996). These guidelines state that special-status surveys should be conducted at the proper time of year when special-status and locally significant plants are both evident and identifiable. The guidelines also state that the surveys must be floristic in nature, and the species, subspecies, or variety must be identified for every observed plant to determine their rarity status. Finally, these surveys must be conducted in a manner that is consistent with conservation ethics and accepted plant collection and documentation techniques. Following these guidelines, surveys were conducted during the months when special-status plant species from the region are known to be evident and flowering. All areas of the project site were examined by walking transects through potential habitat, and by closely examining any existing microhabitats that could potentially support special-status plants. Developed areas—including orchards and vineyards, intensive agricultural areas, and ornamental areas—were not surveyed. Areas mapped as disturbed habitat, as well as eucalyptus woodlands and non-native woodlands, were surveyed where there was potential for special-status plants to occur.

On April 3, 2015, Insignia botanist Makela Mangrich conducted a reference population check for three federally listed plant species in central San Diego County to ensure that these species were blooming and, therefore, visible and present within the BRSA. These species included San Diego ambrosia (*Ambrosia pumila*), San Diego button celery (*Eryngium aristulatum* var. *parishii*), and San Diego mesa mint (*Pogogyne abramsii*). All three species were blooming at the time of the reference population check. In addition, an Insignia biologist observed the phenology of various plant species during the early spring of 2015 and noted that many species appeared to be blooming earlier than normal, likely due to the high temperatures and low rainfall in the late winter and early spring of 2015. As a result of these observations and the reference population check, it was determined that special-status plant surveys could commence.

The first pass of special-status plant surveys started on April 6, 2015 and was completed on April 21. The second pass of surveys began on May 18, 2015 and was completed on June 2. Table 1: Special-Status Plant Species Survey Schedule provides the botanists conducting the special-status plant surveys and the survey schedule.

**Table 1: Special-Status Plant Species Survey Schedule**

<b>Biologists</b>	<b>Geographic Area</b>	<b>Dates</b>	<b>Weather/ Visibility</b>
<b>First Pass - April 2015</b>			
Makela Mangrich, Isabelle de Geofroy, Sheryl Creer, and Lee Ripma	MCAS Miramar	April 6 and 8, 2015	0% cloud cover/ Excellent
Makela Mangrich, Isabelle de Geofroy, Sheryl Creer, and Melanie Dicus	MCAS Miramar	April 7, 2015	0% to 25% cloud cover/ Excellent
Makela Mangrich, Isabelle de Geofroy, Sheryl Creer, and Melanie Dicus	Urbanized section (community of Scripps Ranch and City of Poway)	April 9, 2015	0% cloud cover/ Excellent
Makela Mangrich, Isabelle de Geofroy, Sheryl Creer, and Jim Rocks	Urbanized section (communities of Scripps Ranch and Rancho Bernardo, and Kit Carson Park)	April 10, 2015	0% cloud cover/ Excellent
Makela Mangrich and Lee Ripma	Urbanized section (Kit Carson Park to the northern portion of the City of Escondido)	April 13, 2015	0% to 25% cloud cover/ Excellent
Sheryl Creer and Lee Ripma	Urbanized section (Northern portion of the city of Escondido to Deer Springs Road)	April 14, 2015	0% to 25% cloud cover/ Excellent
Makela Mangrich and Sheryl Creer	Urbanized section (Deer Springs Road to Pala Mesa area north of SR-76)	April 15 to 17, 2015	0% to 25% cloud cover/ Excellent
Sheryl Creer and Nick Fisher	Urbanized section (Pala Mesa area north of SR-76 to the northern terminus of the BRSA)	April 20 and 21, 2015	0% to 25% cloud cover/ Excellent
<b>Second Pass - May and June 2015</b>			
Makela Mangrich and Lee Ripma	MCAS Miramar	May 18, 2015	0% to 25% cloud cover/ Excellent
Brian Lohstroh and Melanie Dicus	Urbanized section (community of Scripps Ranch and City of Poway)	May 19, 2015	0% to 25% cloud cover/ Excellent
Melanie Dicus and Kristen Lehman	Urbanized section (communities of Scripps Ranch and Rancho Bernardo, and Kit Carson Park)	May 20 and 21, 2015	0% to 25% cloud cover/ Excellent
Makela Mangrich and Lee Ripma	Urbanized section (City of Escondido to Deer Springs Road)	May 27, 2015	70% to 80% cloud cover/ Excellent



<b>Biologists</b>	<b>Geographic Area</b>	<b>Dates</b>	<b>Weather/ Visibility</b>
Melanie Dicus and Sheryl Creer	Urbanized section (Deer Springs Road to Pala Mesa area north of SR-76)	May 28 to 30, 2015	0% to 25% cloud cover/ Excellent
Melanie Dicus and Sheryl Creer	Urbanized section (Pala Mesa area north of SR-76 to the northern terminus of the BRSA)	June 1 and 2, 2015	0% to 25% cloud cover/ Excellent

## **4 – RESULTS**

### **4.0 DATABASE AND LITERATURE REVIEW**

Based on the literature and database review, as well as results from the field surveys, 129 special-status plant species were identified to have the potential to occur within the BRSA. CNDDDB occurrences of special-status plant species are mapped in Attachment A: CNDDDB Occurrences for Special-Status Plant Species. These species, descriptions of their listing status, life history, blooming period, habitat requirements, and a brief assessment of their potential to occur within the BRSA are shown in Attachment B: Special-Status Plant Species with the Potential to Occur. Of those 129 species, 51 occur either in an elevation range outside of the BRSA, or in habitats that do not occur within the BRSA. These species were therefore determined to have no potential to occur within the BRSA.

### **4.1 VEGETATION COMMUNITIES**

A total of 35 vegetation communities were identified within the BRSA. These communities are further detailed in Section 5.1 General Vegetation Communities of the Biological Resources Technical Report (Insignia 2015), to which this Special-Status Plant Species Survey Report is attached.

### **4.2 SPECIAL-STATUS PLANT SURVEY RESULTS**

Nineteen special-status plant species were observed within the BRSA during focused special-status plant surveys conducted in 2015, as summarized in Table 2: Special-Status Plant Species Occurrences within the BRSA and shown in Attachment C: Special-Status Plant Species Occurrences Map. No federally or state-listed special-status plant species were observed within the BRSA during the surveys. The majority of the special-status plant species identified within the BRSA are located in the southern portion of MCAS Miramar and along Pomerado Road. A complete list of all plant species observed during surveys is included in Attachment D: Plant Species Observed. Representative photographs of some of the special-status plant species observed within the BRSA are included in Attachment E: Special-Status Plant Species Photographs.

Thirty-five special-status plant species were determined to not be present within the BRSA. Twenty-four special-status plant species that were not observed during either pass of the special-status plant species surveys are described as “not expected to occur” in Attachment B: Special-Status Plant Species with the Potential to Occur. These species are either annual herbs, perennial rhizomatous herbs, or perennial bulbiferous species that might not have germinated due to the drought conditions of the winter of 2014-2015. Special-status species that could occur within areas that were inaccessible to survey teams were also included in this category.

**Table 2: Special-Status Plant Species Occurrences within the BRSA**

<b>Plant Species</b>	<b>CRPR Status</b>	<b>Number of Plants Identified</b>
Ashy spike-moss ( <i>Selaginella cinerascens</i> )	4.1	33,000 <sup>3</sup>
San Diego sagewort ( <i>Artemisia palmeri</i> )	4.2	37
San Diego County viguiera ( <i>Bahiopsis [Viguiera] laciniata</i> )	4.2	1,334
Graceful tarplant ( <i>Holocarpha virgata</i> ssp. <i>elongata</i> )	4.2	589
Decumbent goldenbush ( <i>Isocoma menziesii</i> var. <i>decumbens</i> )	1B.2	145
Small-flowered microseris ( <i>Microseris douglasii</i> ssp. <i>platycarpha</i> )	4.2	50
Golden-rayed pentachaeta ( <i>Pentachaeta aurea</i> ssp. <i>aurea</i> )	4.2	5,787
San Diego barrel cactus ( <i>Ferocactus viridescens</i> )	2B.1	1
Western dichondra ( <i>Dichondra occidentalis</i> )	4.2	580
Summer holly ( <i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i> )	1B.2	1
Nuttall's scrub oak ( <i>Quercus dumosa</i> )	1B.1	321
Engelmann oak ( <i>Quercus engelmannii</i> )	4.2	67
Brewer's calandrinia ( <i>Calandrinia breweri</i> )	4.2	121
Parry's tetraococcus ( <i>Tetraococcus dioicus</i> )	1B.2	50
Long-spined spineflower ( <i>Chorizanthe polygonoides</i> var. <i>longispina</i> )	1B.2	1,351

<sup>3</sup> This species is difficult to count on an individual level, and most occurrences within the BRSA covered a large area. Therefore, the count for this species is an estimate based on density at each occurrence location.

Special-Status Plant Species Survey Report

<b>Plant Species</b>	<b>CRPR Status</b>	<b>Number of Plants Identified</b>
California adolphia ( <i>Adolphia californica</i> )	2B.1	750
Southwestern spiny rush ( <i>Juncus acutus</i> ssp. <i>leopoldii</i> )	4.2	16
San Diego goldenstar ( <i>Bloomeria clevelandii</i> )	1B.1	3,991
Orcutt's brodiaea ( <i>Brodiaea orcuttii</i> )	1B.1	2,309

#### 4.2.0 Species Present in the BRSA

##### Ashy Spike-Moss

Ashy spike-moss (*Selaginella cinerascens*) is a CRPR 4.1 perennial spore-bearing species in the spike-moss family that occurs in coastal scrub and chaparral habitats from 66 to 2,100 feet in elevation. It is easily identifiable at any time of the year due to its characteristic ashy moss-like vegetation. This species was observed throughout almost all of the undisturbed native habitats on MCAS Miramar. Due to the widespread nature of this species, mapping for this species was conducted to provide only generalized locations.

##### San Diego Sagewort

San Diego sagewort (*Artemisia palmeri*) is a CRPR 4.2 perennial deciduous shrub in the sunflower family that occurs in chaparral, coastal scrub, riparian forest, riparian scrub, and riparian woodland areas between 50 and 3,000 feet in elevation. Thirty-seven occurrences of this species were noted within the BRSA on the southern end of Pomerado Road, and were associated with the large, intermittent drainage south of Pomerado Road.

##### San Diego County Vigiera

San Diego County vigiera (*Bahiopsis [Viguiera] laciniata*) is a CRPR 4.2 perennial shrub in the sunflower family that occurs in chaparral and coastal sage scrub communities from 190 to 2,460 feet in elevation. This species was documented within the BRSA along the southern end of Pomerado Road in the community of Scripps Ranch. These shrubs appear to have been planted during revegetation efforts because they are located immediately along the road edge within a revegetated area. Approximately 1,334 individual shrubs were observed.

##### Graceful Tarplant

Graceful tarplant (*Holocarpha virgata* ssp. *elongata*) is a CRPR 4.2 annual herb in the sunflower family that blooms from May to November. It is usually found in mildly disturbed or overgrazed grasslands, and is often abundant and numbering in the thousands. Because its habitat is usually on relatively level ground where development is common, it is presumed to be declining in San Diego County (Reiser 1994). Graceful tarplant was observed within the BRSA on MCAS Miramar. Approximately 473 graceful tarplant individuals were observed growing under a solar array on the northern portion of MCAS Miramar, and approximately 116 individuals were observed along the west end of the aqueduct road, south of the paved Green Farm Road (also referred to as Rifle Range Road or H Road).

##### Decumbent Goldenbush

Decumbent goldenbush (*Isocoma menziesii* var. *decumbens*) is a CRPR 1B.2 perennial shrub in the sunflower family that occurs in chaparral and sandy, often disturbed coastal scrub habitats between 30 and 450 feet in elevation. Decumbent goldenbush is identifiable during a flowering period from April to November. It is also possible to identify this species outside of the flowering period because it has distinguishing vegetative characters. Approximately 145 individuals were observed north of Scripps Poway Parkway along Pomerado Road.

### **Small-Flowered Microseris**

Small-flowered microseris (*Microseris douglasii* ssp. *platycarpa*) is a CRPR 4.2 annual herb in the sunflower family that occurs within cismontane woodland, coastal scrub, valley and foothill grasslands, and vernal pools from 50 to 3,510 feet in elevation. This species is typically identifiable during a March to May blooming period. Approximately 50 individuals of this species were observed within vernal mesic areas on MCAS Miramar.

### **Golden-Rayed Pentachaeta**

Golden-rayed pentachaeta (*Pentachaeta aurea* ssp. *aurea*) is a CRPR 4.2 annual herb in the sunflower family that occurs in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, and valley and foothill grasslands at elevations between 260 and 6,070 feet. It is normally identifiable from March to July. Golden-rayed pentachaeta was observed during the Quino checkerspot butterfly (QCB) surveys on MCAS Miramar in February 2015, as well as during the first pass of special-status plant surveys in April 2015 on MCAS Miramar and within the Elliot Field Station, which is directly north of MCAS Miramar. Approximately 6,000 individuals were observed within these areas.

### **San Diego Barrel Cactus**

San Diego barrel cactus (*Ferocactus viridescens*) is a CRPR 2B.1 perennial stem succulent in the cactus family that occurs in chaparral, coastal scrub habitats, valley and foothill grasslands, and vernal pool habitat at elevations between nine and 1,480 feet. One individual was mapped within the BRSA along the aqueduct road on MCAS Miramar.

### **Western Dichondra**

Western dichondra (*Dichondra occidentalis*) is a CRPR 4.2 perennial rhizomatous herb in the morning-glory family that usually occurs under shrubs in woodlands, coastal sage scrub, or chaparral between 160 and 1,640 feet in elevation. Although it blooms from January to July, it is identifiable outside of that period by its characteristic leaf shape. Approximately 580 individuals were observed in the understory of trees growing along Pomerado Road in the southern portion of the BRSA.

### **Summer Holly**

Summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*) is a CRPR 1B.2 perennial evergreen shrub in the heath family that occurs in chaparral and cismontane woodland between 980 and 2,595 feet in elevation. Summer holly is normally identifiable during an April to June flowering period, but can also be identified from its characteristic leaf shape. One individual summer holly was observed in a steep, east-facing drainage on the west side of Old Highway 395, north of Deer Springs Road.

### **Nuttall's Scrub Oak**

Nuttall's scrub oak is a CRPR 1B.1 perennial evergreen shrub in the oak family that is found in coastal chaparral habitats (Reiser 1994). On flat terrain, this species appears to favor open coastal chaparral habitat, and this shrub may grow in dense stands on north-facing slopes. It often has a rounded, almost "pruned" appearance, with small, spinose leaves. Reiser (1994) confirms that Nuttall's scrub oak occurs on MCAS Miramar "in considerable numbers" and "in

the hills at Camp Elliott.”<sup>4</sup> The BRSA is situated within an area of overlap between the geographic range of Nuttall’s scrub oak and the common scrub oak.

Approximately 321 individual Nuttall’s scrub oak trees were observed in the southern BRSA along Pomerado Road. These occurrences were found in association with southern mixed chaparral communities on north-facing slopes, and within more open chaparral (e.g., southern mixed chaparral and chamise chaparral) communities on flat terrain.

Nuttall’s scrub oak observed within the BRSA exhibited characteristics indicative of hybridization with the common scrub oak. The most diagnostic character that distinguishes Nuttall’s scrub oak from the common scrub oak is the presence in Nuttall’s scrub oak of two- to six-rayed spreading trichomes (i.e., hairs) on the underside of the leaf that can generally be observed by the unaided eye or with a hand lens under low magnification. The common scrub oak exhibits minute, appressed, four- to 10-rayed trichomes that are generally not visible without magnification. Upon examination of the scrub oak specimens on MCAS Miramar using a microscope, it was noted that some leaves exhibited both the long two- to six-rayed trichomes indicative of Nuttall’s scrub oak, and the minute four- to 10-rayed trichomes indicative of the common scrub oak. As a result, it can be concluded that many of the small, rounded scrub oaks observed within MCAS Miramar and the southern BRSA along Pomerado Road (generally south of Scripps Poway Parkway) are hybrids of these two species. To ensure consistency in mapping Nuttall’s scrub oak in the field, specimens were determined to be Nuttall’s scrub oak only if spreading two- to six-rayed hairs were readily visible with or without the use of a hand lens on the underside of the leaves examined. If biologists did not readily observe these trichomes, they were not mapped and were presumed to be the common scrub oak.

### **Engelmann Oak**

Engelmann oak (*Quercus engelmannii*) is a CRPR 4.2 deciduous tree in the oak family that occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grasslands between 164 and 4,265 feet in elevation. This species is normally identifiable at any time of the year due to its characteristic grey-green foliage, and long, wavy leaves. Sixty-seven Engelmann oak individuals were observed in scattered locations throughout the urbanized areas in the northern portion of the BRSA, often associated with or adjacent to drainages.

Engelmann oak individuals north of Deer Springs Road and south of Gopher Canyon Road appear to be hybridizing with Torrey oak (*Quercus x. acutidens*), a common scrub oak hybrid. Specifically, these Engelmann oak individuals exhibited brighter green leaves, an occasional leaf with serration, and a smaller growth form than other Engelmann oak individuals observed in the BRSA. Consistent with the dichotomous key for the *Quercus* genus in *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al. 2012), leaf color and size—as well as the size of the individual tree—were used as diagnostic characteristics to differentiate these individuals from Torrey oak.

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<sup>4</sup> The former Camp Elliott encompasses portions of the Tierrasanta and West Hills communities, the planned Castlerock community, Mission Trails Region Park, and the East Elliott Community Planning Area. Additionally, portions of the former camp are still used by the U.S. Marine Corps.

### **Brewer's Calandrinia**

Brewer's calandrinia (*Calandrinia breweri*) is a CRPR 4.2 annual herb in the miner's lettuce family that occurs on sandy or loamy soils—as well as disturbed sites and burns—within chaparral and coastal scrub communities between 32 and 4,002 feet in elevation. It is normally identifiable from March to June. Over 100 individuals were observed during the QCB surveys on MCAS Miramar in February 2015. This species was blooming at the time of the observations, which was slightly earlier than normal. However, this was not unexpected given the early precipitation events in the winter of 2014 and the dry January and early February in 2015.

### **Parry's Tetracoccus**

Parry's tetracoccus (*Tetracoccus dioicus*) is a CRPR 1B.2 perennial deciduous shrub in the bitter-tree family that occurs in chaparral and coastal scrub between 540 and 3,280 feet in elevation. This perennial deciduous shrub is normally identifiable during an April to May flowering period, although it is somewhat characteristic in vegetative form and can be identified outside of the flowering period. One CNDDDB occurrence of this species was documented within 0.25 mile of the Proposed Project area. Occurrences have also been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. In addition, the SDNHM includes records of this species within one mile of the northern end of the BRSA, on the west side of I-15 near the community of Rainbow. This species was observed within a drainage on the west side of Rainbow Hills Road within the BRSA. Approximately 50 individual shrubs were observed on the south bank of this drainage.

### **Long-Spined Spineflower**

Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*) is a CRPR 1B.2 annual herb in the buckwheat family that occurs in chaparral, coastal scrub, meadows, seeps, valley and foothill grasslands, and vernal pools below 5,000 feet in elevation and often on clay soils. Five recent CNDDDB occurrences dated from 2003 have been reported within one mile of the BRSA. Long-spined spineflower is normally identifiable during an April to July flowering period.

Approximately 1,350 individual long-spined spineflower individuals were observed in the BRSA across multiple locations within the central portion of MCAS Miramar. Some occurrences were small, with just a few individuals, and others were large, with more than 100 individuals. This species was observed within mapped clay soils, primarily within highly compacted soils with low cover of non-native species (e.g., brome grasses). These occurrences also coincide with the location of a CNDDDB element record for this species.

### **California Adolphia**

California adolphia (*Adolphia californica*) is a CRPR 2B.1 perennial deciduous shrub in the buckthorn family that occurs on clay soils in chaparral, coastal scrub, and valley and foothill grasslands at elevations between 140 and 2,500 feet. California adolphia is typically identifiable during a flowering period from January to April. It is also possible to identify this species outside of the flowering period because it has distinguishing cauline spines.



At least 750 California adolphia individuals were observed within a remnant patch of Diegan coastal sage scrub on an east-facing slope, south of the Lake Hodges area. California adolphia was present in this stand at an absolute cover of 50 to 60 percent and comprised a distinct Diegan coastal sage scrub stand.

### **Southwestern Spiny Rush**

Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*) is a CRPR 4.2 perennial rhizomatous herb in the rush family that occurs in coastal dunes, meadows, and seeps, and occasionally within alkaline seeps, marshes and swamps, and coastal salt marshes. Sixteen individuals were observed within two intermittent drainages in the southern portion of the BRSA.

### **San Diego Goldenstar**

San Diego goldenstar (*Bloomeria clevelandii*) is a CRPR 1B.1 bulbiferous herb in the brodiaea family that occurs on clay substrates in chaparral, coastal scrub, valley and foothill grasslands, and vernal pools between 160 and 1,525 feet in elevation. Fifteen recent occurrences have been reported within one mile of the BRSA, the most recent dating from 2010. Nearly 4,000 individuals were observed throughout MCAS Miramar and within the Elliot Field Station, which is directly north of MCAS Miramar. These occurrences were in peak bloom during the first pass of the special-status plant surveys conducted in April 2015 and were often associated with golden-rayed pentachaeta occurrences. One large population was observed in the understory of a eucalyptus (*Eucalyptus* spp.) grove.

### **Orcutt's Brodiaea**

Orcutt's brodiaea (*Brodiaea orcuttii*) is a CRPR 1B.1 perennial bulbiferous herb in the brodiaea family that occurs in clay soils in closed-cone coniferous forest, chaparral, cismontane woodland, meadows, seeps, valley and foothill grasslands, and vernal pools between 90 and 5,550 feet in elevation. Orcutt's brodiaea is typically identifiable during a May to July flowering period.

Approximately 2,300 Orcutt's brodiaea individuals were observed within mapped clay soils on MCAS Miramar. This species was in peak bloom during the first pass of the special-status plant surveys conducted in April 2015. It was often associated with non-native grasslands, and was often intermixed with or very near to long-spined spineflower and San Diego goldenstar occurrences.

## **5 – DISCUSSION**

Special-status plant surveys conducted within the BRSA during 2015 may underrepresent the total abundance and distribution of special-status plants because of the historic California drought. Between October 1, 2014 and April 26, 2015, the area experienced approximately 66 percent of the normal rainfall, according to the San Diego Lindbergh Field station (National Oceanic and Atmospheric Administration [NOAA] 2015), and temperatures were four to eight degrees above normal from January to April 2015 (U.S. Climate Data 2015). This combination of higher-than-normal temperatures and below-average precipitation resulted in early spring

flowering, with peak bloom on or around April 15, 2015. Drought conditions also likely resulted in lower population numbers than average.

## 6 – REFERENCES

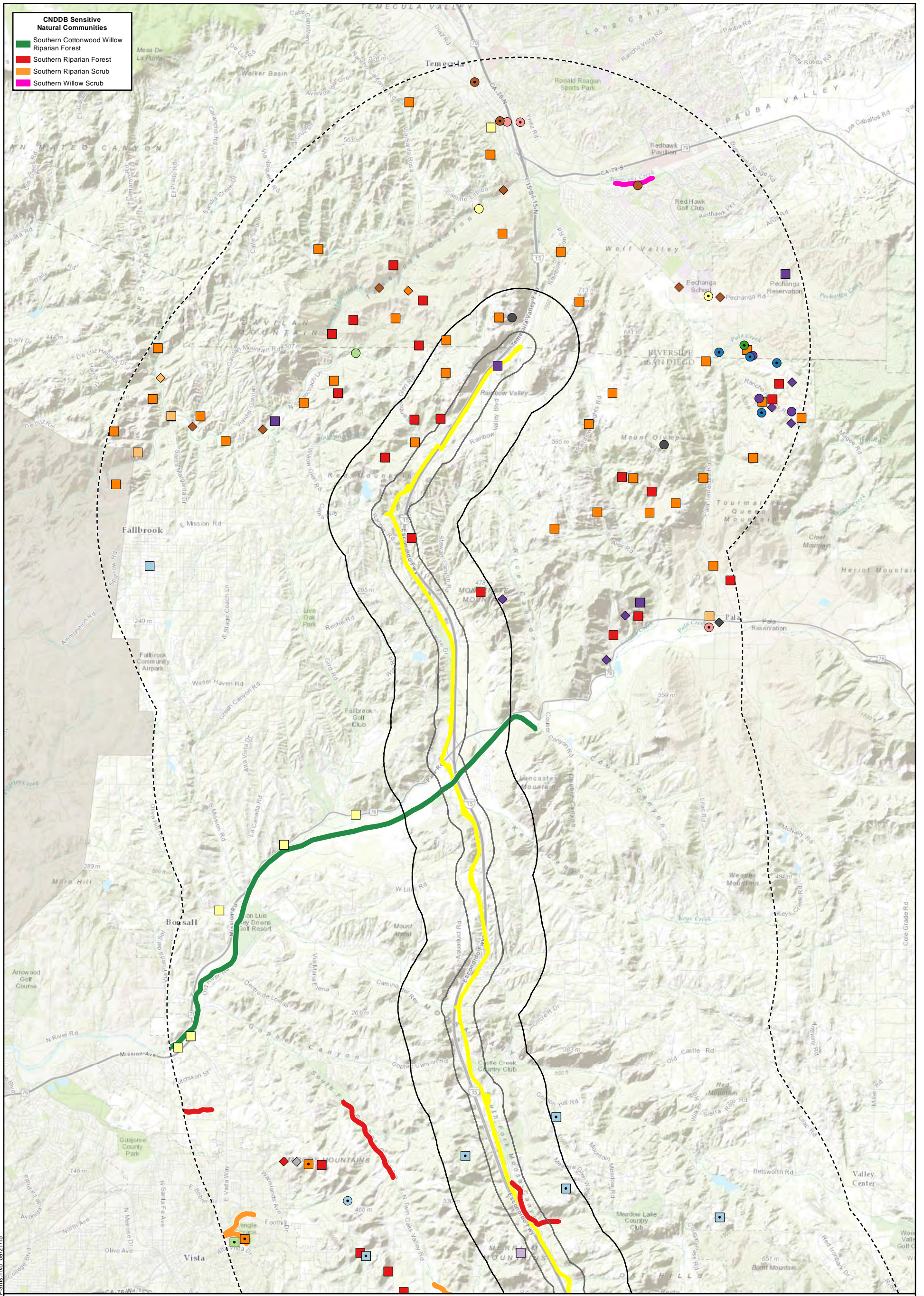
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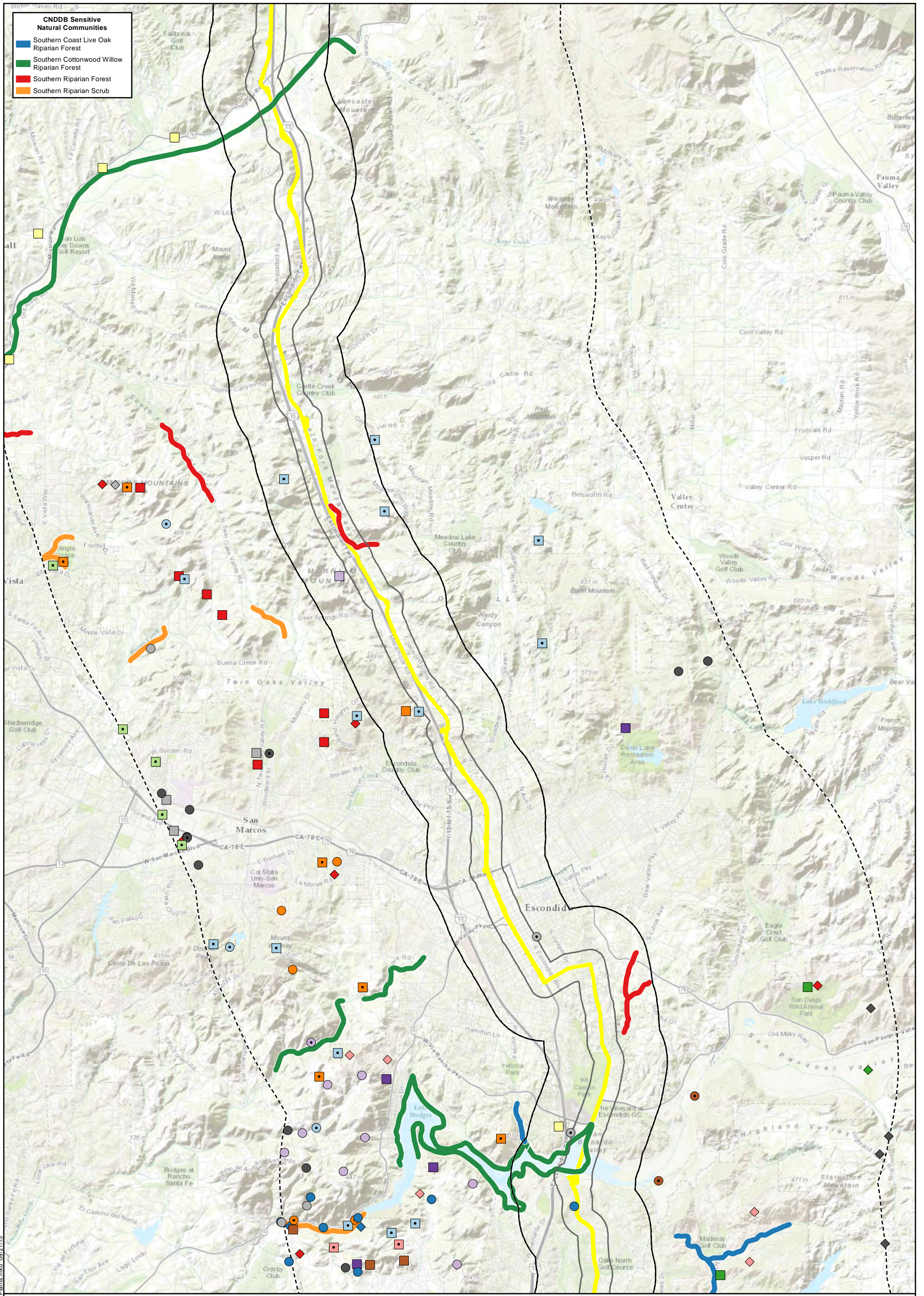


**ATTACHMENT A: CNDDDB OCCURRENCES FOR SPECIAL-STATUS PLANT SPECIES**



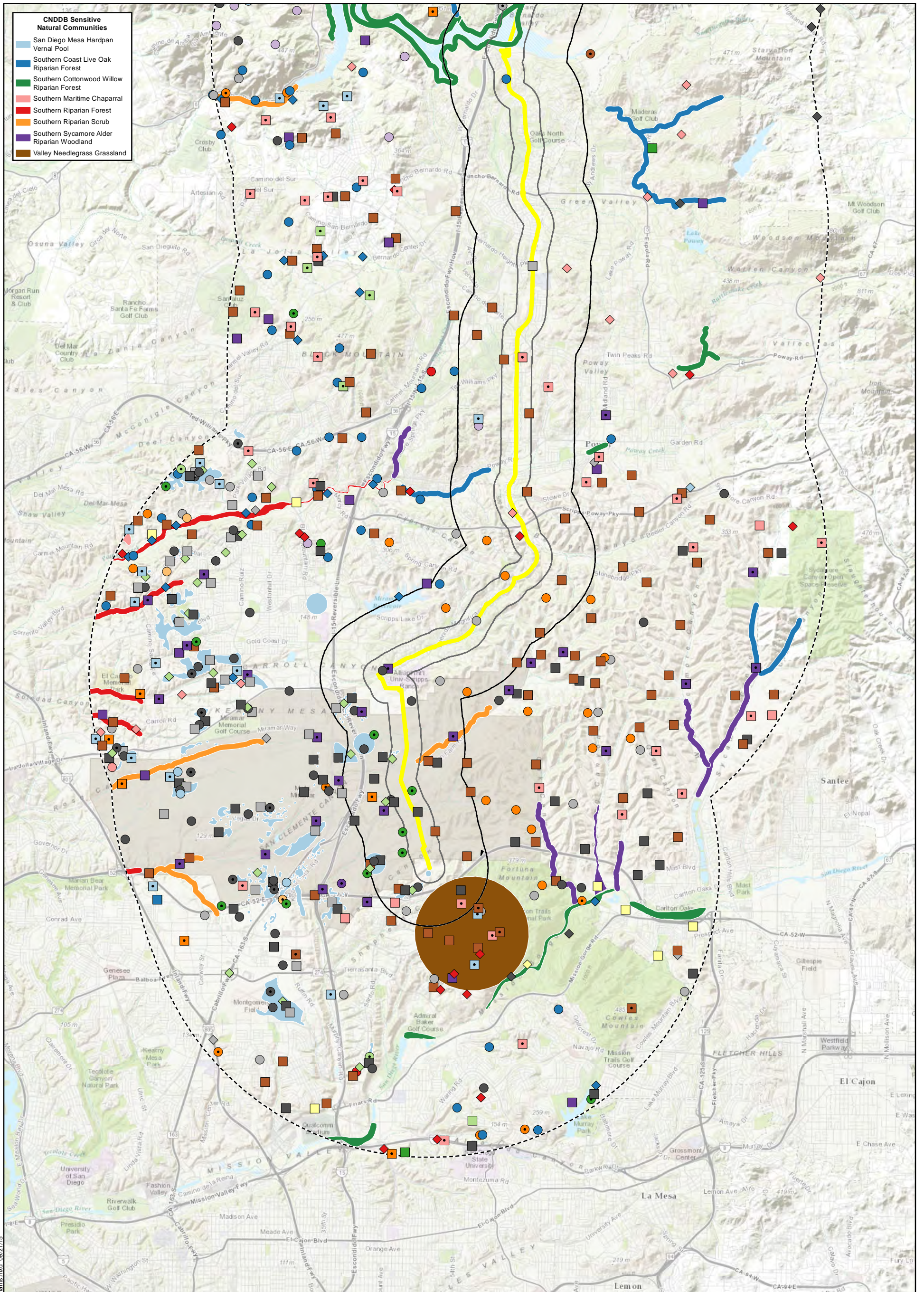


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**ATTACHMENT B: SPECIAL-STATUS PLANT SPECIES WITH THE POTENTIAL TO  
OCCUR**



**ATTACHMENT B: SPECIAL-STATUS PLANT SPECIES WITH THE POTENTIAL TO OCCUR**

Species Name	Federal, State, and CRPR <sup>1</sup>	Habitat Preferences, Distribution Information, and Additional Notes	Flowering Phenology/ Life Form	Known Records <sup>2</sup>	Potential to Occur
<b>BRYOPHYTES - LIVERWORTS</b>					
<i>Sphaerocarpos drewei</i> Bottle liverwort	1B.1	Bottle liverwort occurs on soil in openings in chaparral and coastal scrub between 295 and 1,970 feet in elevation.	Not applicable/ Ephemeral Liverwort	Past occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. However, there are only two records of this species for San Diego County in the CNDDDB and much of the suitable historic habitat for this species has been lost to urbanization. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<b>BRYOPHYTES - MOSSES</b>					
<i>Schizymerium shevockii</i> Shevock's copper moss	1B.2	Shevock's copper moss occurs on metamorphic, rock, and mesic areas in cismontane woodland between 2,460 and 4,600 feet in elevation.	Not applicable/ Moss	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at elevations higher than those within the BRSA. <b>No Potential</b>
<i>Tortula californica</i> California screwmoss	1B.2	California screwmoss occurs in sandy soils in chenopod scrub and valley and foothill grassland between 30 feet and 4,790 feet in elevation.	Not applicable/ Moss	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. One recent CNDDDB occurrence is documented within five miles of the Proposed Project area.	Suitable habitat for this species is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>

<sup>1</sup> Explanation of state and federal listing codes:

Federal listing codes:

-FE: Federally listed as Endangered  
 -FT: Federally listed as Threatened  
 -FPE: Federally proposed for listing as Endangered  
 -FPT: Federally proposed for listing as Threatened  
 -FPD: Federally proposed for delisting  
 -FC: Federal candidate species

California listing codes:

-CE: State-listed as Endangered  
 -CT: State-listed as Threatened  
 -CR: State-listed as Rare  
 -CCE: Candidate for state listing as Endangered  
 -CCT: Candidate for state listing as Threatened  
 -CEQA: Not a state-listed species, but protected under the California Environmental Quality Act (CEQA)

California Rare Plant Ranks (CRPRs):

-1A: Presumed extinct in California  
 -1B: Rare or Endangered in California and elsewhere  
 -2: Rare or Endangered in California, more common elsewhere  
 -3: Plants for which we need more information; a review list  
 -4: Plants of limited distribution; a watch list

CRPR Threat Codes:

-.1: Seriously Endangered in California (over 80 percent of occurrences Threatened/high degree and immediacy of threat)  
 -.2: Fairly Endangered in California (20 to 80 percent of occurrences Threatened)  
 -.3: Not very Endangered in California (less than 20 percent of occurrences Threatened or no current threats known)

Note: CRPR List 1A and some List 3 plant species lacking any threat information receive no threat code extension.

<sup>2</sup> The California Native Plant Society (CNPS) Nine-Quad Search refers to a query of the CNPS Inventory of Rare and Endangered Vascular Plants of California (CNPS Inventory) (CNPS, 2014). All occurrence records in the CNPS Inventory include mention of the United States (U.S.) Geological Survey (USGS) 7.5-minute quads where this species has been documented. The CNPS Nine-Quad Search includes species that have been documented from the USGS quads overlapping the Line 3602 Natural Gas Transmission Project (Proposed Project) area or the quads immediately adjacent to those quads. All species with a CRPR of 1A, 1B, and 2 are included within the CNPS Nine-Quad Search. CRPR List 3 and 4 species have been added to this table if they were observed within the BRSA during field surveys.

Species Name	Federal, State, and CRPR <sup>1</sup>	Habitat Preferences, Distribution Information, and Additional Notes	Flowering Phenology/ Life Form	Known Records <sup>2</sup>	Potential to Occur
<i>Triquetrella californica</i> Coastal triquetrella	1B.2	Coastal triquetrella occurs on soil in coastal bluff scrub and coastal scrub between 30 and 440 feet in elevation. The San Diego occurrence of this species at San Vicente Dam was documented at 650 feet in elevation.	Not applicable/ Moss	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. The remaining 12 occurrences are documented from the Bay Area. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<b>LYCOPHYTES</b>					
<b>Selaginellaceae – Spike Moss Family</b>					
<i>Selaginella cinerascens</i> Ashy spike-moss	4.1	Ashy spike-moss occurs in coastal scrub and chaparral habitats from 60 to 2,100 feet in elevation.	Not applicable/ Perennial rhizomatous herb	There are no California Natural Diversity Database (CNDDDB) occurrences of this species documented within five miles of the Proposed Project area.	This species was observed in patches sporadically throughout Marine Corps Air Station (MCAS) Miramar and nearby areas, primarily within relatively undisturbed Diegan coastal sage scrub, southern mixed chaparral, and chamise chaparral habitats. <b>Present</b>
<b>GYMNOSPERMS</b>					
<b>Cupressaceae – Cypress Family</b>					
<i>Hesperocyparis forbesii</i> Tecate cypress	1B.1	Tecate cypress occurs on clay, gabbroic, or metavolcanic substrates in closed-cone coniferous forest and chaparral between 260 and 4,920 feet in elevation.	Not applicable/ Perennial Evergreen Tree	CNPS occurrences have been reported within USGS 7.5-minute quads surrounding the BRSA. However, the nearest occurrence of this species is approximately 12 miles to the northwest of the BRSA in southern Riverside County. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<b>Pinaceae – Pine Family</b>					
<i>Pinus torreyanna</i> ssp. <i>torreyanna</i> Torrey pine	1B.2	Torrey pine occurs on sandstone in closed-cone coniferous forest and chaparral between 240 and 525 feet in elevation. This species is restricted to the immediate coastal zone of San Diego County and has not been documented east of I-15.	Not applicable/ Perennial Evergreen Tree	CNPS occurrences have been reported within USGS 7.5-minute quads surrounding the BRSA. No occurrences of this species have ever been documented as far inland as the BRSA. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<b>ANGIOSPERMS - DICOTS</b>					
<b>Apiaceae (Umbelliferae) – Carrot Family</b>					
<i>Eryngium aristulatum</i> var. <i>parishii</i> San Diego button-celery	FE CE 1B.1	San Diego button-celery occurs in coastal scrub, valley and foothill grassland, and vernal pools, often in mesic areas below 2,000 feet in elevation.	April-June/ Annual or Perennial Herb	One past CNDDDB occurrence was documented within 0.25 mile of the Proposed Project area in 1983, and one past occurrence was documented within one mile in 1979. Recent occurrences have been documented within five miles of the Proposed Project area. This species occurs on MCAS Miramar.	Suitable habitat for this species is present within the vernal pools on MCAS Miramar, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was confirmed to be blooming during reference population checks in a nearby vernal pool preserve area in April 2015. However, it was not observed within vernal pools occurring in the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>

Species Name	Federal, State, and CRPR <sup>1</sup>	Habitat Preferences, Distribution Information, and Additional Notes	Flowering Phenology/ Life Form	Known Records <sup>2</sup>	Potential to Occur
<i>Eryngium pendletonense</i> Pendleton button-celery	1B.1	Pendleton button-celery occurs on clay soils in vernal mesic areas in coastal bluff scrub, valley and foothill grassland, and vernal pools between 50 and 365 feet in elevation.	April-July/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species is restricted to areas on Marine Corps Base, Camp Pendleton within approximately two miles of the Pacific Ocean, which is approximately 15 miles west of the BRSA. No occurrences of this species have been documented as far inland as the BRSA. <b>No Potential</b>
<b>Asteraceae (Compositae) – Sunflower Family</b>					
<i>Ambrosia chenopodifolia</i> San Diego bur-sage	2B.1	San Diego bur-sage occurs in coastal scrub habitat between 180 and 510 feet in elevation. This species is apparently restricted to the Otay Mesa area of southern San Diego County.	April-June/ Perennial Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species is apparently restricted to the Otay Mesa area of southern San Diego County, approximately 20 miles south of the BRSA. <b>No Potential</b>
<i>Ambrosia monogyra</i> Singlewhorl burrobush	2.2	Singlewhorl burrobush occurs in chaparral and Sonoran desert scrub, often in sandy substrates and below 1,600 feet in elevation. This species is documented from south of SR-52 to the U.S.-Mexico border and as far east as the community of Dulzura.	August- November/ Perennial Shrub	Past CNDDDB occurrences have been reported within one mile of the BRSA. One historic CNDDDB occurrence of this species was documented within one mile of the Proposed Project area in 1979. However, considering the geographic distribution of this species, it would be most likely within MCAS Miramar. This species has never been documented as occurring on MCAS Miramar (USMC 2014).	Suitable habitat for this species is present in the form of chaparral, but this species is a recognizable shrub species and was not observed during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<i>Ambrosia pumila</i> San Diego ambrosia	FE 1B.1	San Diego ambrosia occurs in sandy loam or clay, often in disturbed areas, and sometimes alkaline in chaparral, coastal scrub, valley and foothill grassland, and vernal pools between 60 and 1,365 feet in elevation throughout coastal San Diego County.	April-October/ Perennial Rhizomatous Herb	There is one recent CNDDDB record documented within one mile of the Proposed Project area. Recent occurrences are documented within five miles of the Proposed Project area. The SDNHM reports one occurrence of this species on the west side of I-15 adjacent to Lake Hodges, which is within one mile of the BRSA.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was blooming at the time of reference population checks at a known site near the BRSA. However, this species was not observed during either pass of special-status plant surveys in 2015, and would have been visible if it was present. <b>Not Present</b>
<i>Artemisia palmeri</i> San Diego sagewort	4.2	This species occurs in chaparral, coastal scrub, riparian forest, riparian scrub, and riparian woodland areas between 50 and 3,000 feet in elevation.	February- September/ Perennial deciduous shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within the BRSA on the southern end of Pomerado Road, and is associated with riparian habitat. <b>Present</b>
<i>Baccharis vanessae</i> Encinitas baccharis	FT CE 1B.1	Encinitas baccharis occurs on sandstone in chaparral and cismontane woodland between 190 and 2,370 feet in elevation. It occurs primarily in low-growing chaparral in Corralitos loamy sand, Cienega rocky coarse sandy loam soils or associated with large granitic boulders.	August- November/ Perennial Deciduous Shrub	Recent CNDDDB occurrences are documented within five miles of the Proposed Project area. One past CNDDDB occurrence was documented within one mile in 1984. The SDNHM herbarium includes records from Lake Hodges approximately two miles west of the BRSA.	Suitable habitat for this species is present within Kit Carson Park and the San Dieguito River Park, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. Cienega rocky coarse sandy loam soils also occur within the BRSA. However, this species was not observed within the BRSA during either pass of special-status plant surveys in 2015 and would have been visible if present. In addition, this species' geographic range is fairly narrow within San Diego County, and very little habitat occurs for this species within that geographic range, none of which could be characterized as low-growing chaparral. <b>Not Present</b>

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<i>Bahiopsis laciniata</i> (formerly <i>Viguiera laciniata</i> ) San Diego County viguiera	4.2	San Diego County viguiera occurs in chaparral and coastal sage scrub communities from 190 to 2,460 feet in elevation.	February-August/ Perennial Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was documented within the BRSA along the southern end of Pomerado Road in the community of Scripps Ranch. These individuals appear to have been planted during revegetation efforts because they are located immediately along the road edge within a revegetated area. <b>Present</b>
<i>Centromadia parryi</i> ssp. <i>australis</i> Southern tarplant	1B.1	Southern tarplant occurs in marshes and swamps, occasionally along estuary margins, valley and foothill grasslands, occasionally in vernal mesic areas, and vernal pools below 1,575 feet in elevation.	June-November/ Annual Herb	One recent CNDDDB occurrence is documented within 0.25 mile of the Proposed Project area, and one recent occurrence is documented within one mile. One past occurrence was documented within 0.25 mile of the Proposed Project in 1916. This species occurs within the same general geographic and elevation range as the BRSA.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Centromadia pungens</i> ssp. <i>laevis</i> Smooth tarplant	1B.1	Smooth tarplant occurs in alkaline soils in chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland below 7,200 feet in elevation. This species occurs widely in San Diego County from Marine Corps Base, Camp Pendleton to the City of Santee.	April-September/ Annual Herb	Recent CNDDDB occurrences for this species are recorded within five miles of the Proposed Project area.	Potentially suitable habitat exists in meadows and seeps, riparian woodlands, and grasslands within the BRSA. The extent to which alkaline soils are present within the BRSA is undetermined. No chenopod scrub was observed, but tamarisk scrub was observed directly south of the San Luis Rey River, and on the northern shore of Lake Hodges. While tamarisk is not restricted to alkaline soils, it is well adapted to alkaline conditions. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Chaenactis glabriuscula</i> var. <i>orcuttiana</i> Orcutt's pincushion	1B.1	Orcutt's pincushion occurs in sandy coastal bluff scrub and on coastal dunes below 330 feet in elevation.	January-August/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable bluff scrub or dune habitat for this species is present within the BRSA. <b>No Potential</b>
<i>Corethrogyne filaginifolia</i> var. <i>incana</i> San Diego sand aster	1B.1	San Diego sand aster occurs in coastal bluff scrub, chaparral, and coastal scrub between 10 and 380 feet in elevation.	June-September/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. All SDNHM herbarium records are restricted to areas within the immediate coastal zone, with the exception of one outlier in the southern San Diego mountains.	Although suitable habitat for this species is present, this species typically occurs between five and 15 miles from the BRSA. This species was not observed during either pass of the 2015 special-status plant surveys and would have been visible if present. <b>Not Present</b>
<i>Corethrogyne filaginifolia</i> var. <i>linifolia</i> Del Mar Mesa sand aster	1B.1	Del Mar Mesa sand aster occurs in sand substrates on coastal bluff scrub, chaparral (e.g., maritime and openings), and coastal scrub between 50 and 500 feet in elevation.	May-September/ Perennial Herb	Recent CNDDDB occurrences of this species have been recorded within five miles of the BRSA. This species is known from only the immediate coastal zone, with the majority of the occurrences near the cities of Del Mar and Solana Beach.	No suitable habitat was observed within the BRSA. <b>No Potential</b>



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<i>Deinandra conjugens</i> Otay tarplant	FT CE 1B.1	Otay tarplant occurs on clay soils in coastal scrub and valley and foothill grassland between 80 and 990 feet in elevation.	May-June/ Annual Herb	CNPS occurrences have been reported from within the USGS 7.5-minute quads within or surrounding the BRSA (i.e., the National City and Jamul Mountains quads). However, this species has never been documented north of I-8, with the closest occurrence approximately eight miles to the southeast of the BRSA. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species' geographic range is restricted to areas south of I-8 and was not observed during either pass of the 2015 special-status plant surveys. <b>Not Present</b>
<i>Ericameria palmeri</i> var. <i>palmeri</i> Palmer's goldenbush	1B.1	Palmer's goldenbush occurs in coastal scrub, typically in mesic areas, below 2,000 feet in elevation.	September- November/ Perennial Evergreen Shrub	Recent CNDDDB occurrences of this species have been recorded within five miles of the BRSA. This species has a wide distribution according to SDNHM herbarium records.	Suitable habitat is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during surveys in 2015, and would have been visible in mesic coastal sage scrub stands if present. <b>Not Present</b>
<i>Grindelia hallii</i> San Diego gum plant	1B.2	San Diego gum plant occurs in chaparral, lower montane coniferous forest, meadows, and valley and foothill grassland between 600 and 5,730 feet in elevation.	May- October/Perennial Herb	CNPS occurrences have been reported within the La Mesa and Poway quads. As a result, this species is most likely to be observed within the MCAS Miramar portion of the BRSA and isolated natural areas along Pomerado Road within the City of Poway and the community of Scripps Ranch. This species is not documented in the MCAS Miramar INRMP (USMC 2014). One recent CNDDDB occurrence is documented within five miles of the Proposed Project area.	Suitable habitat for this species is present; the geographic and elevation ranges within the BRSA are consistent with those documented for this species; and this species has been documented within one to five miles of the BRSA. This species was not observed during either pass of 2015 special-status plant surveys. <b>Not Present</b>
<i>Hazardia orcuttii</i> Orcutt's hazardia	CT 1B.1	Orcutt's hazardia occurs in maritime chaparral and coastal scrub, often on clay soils between 260 and 280 feet in elevation.	August-October/ Perennial Evergreen Shrub	CNPS occurrences have been reported from within a USGS 7.5-minute quad adjacent to the BRSA (i.e., the Rancho Santa Fe quad). However, the SDNHM herbarium record for this species is approximately 10 miles southwest of the BRSA, also in the community of Rancho Santa Fe area. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present in the form of coastal scrub, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species typically occurs at lower elevations than the BRSA. This species was not observed during either pass of the 2015 special-status plant surveys. <b>Not Present</b>
<i>Heterotheca sessiliflora</i> ssp. <i>sessiliflora</i> Beach goldenaster	1B.1	Beach goldenaster occurs in coastal chaparral, coastal dunes, and coastal scrub below 4,020 feet in elevation.	March- December/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. No records of this species have been documented east of I-5 because this species is restricted to areas within the immediate coastal zone.	The BRSA is outside of this species' known geographic distribution. <b>No Potential</b>
<i>Holocarpha virgata</i> ssp. <i>elongata</i> Graceful tarplant	4.2	Graceful tarplant occurs in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland communities between 190 and 3,610 feet in elevation.	May-November/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search	Graceful tarplant was observed in two locations within MCAS Miramar—one at the northern end of the aqueduct road and one on the west side of the aqueduct road south of the paved Green Farms Road. <b>Present</b>

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<i>Hulsea californica</i> San Diego sunflower	1B.3	San Diego sunflower occurs in openings and burned areas in chaparral, lower montane coniferous forest, and upper montane coniferous forest between 3,000 and 9,565 feet in elevation.	April-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at significantly higher elevations than the BRSA. <b>No Potential</b>
<i>Isocoma menziesii</i> var. <i>decumbens</i> Decumbent goldenbush	1B.2	Decumbent goldenbush occurs in chaparral and sandy, often disturbed coastal scrub habitats between 30 and 450 feet in elevation.	April-November/ Perennial Shrub	Recent CNDDDB occurrences are recorded within five miles of the Proposed Project area. The SDNHM also has records of this species west of I-15 near Rancho Bernardo, and within a few miles of the BRSA.	Suitable habitat for this species is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. Individual goldenbush ( <i>Isocoma menziesii</i> ) individuals were observed in the BRSA and this intraspecific taxon (i.e., var. <i>decumbens</i> ) was verified within the BRSA during surveys in May 2015. Approximately 145 individuals were observed north of Scripps Poway Parkway along Pomerado Road. <b>Present</b>
<i>Iva hayesiana</i> San Diego marsh-elder	2B.2	San Diego marsh-elder occurs in marshes and swamps and on playas between 30 and 1,640 feet in elevation. This species is widely distributed in San Diego County, with the majority of the SDNHM records documented south of the City of Escondido to the U.S.-Mexico border.	April-October/ Perennial Herb	One historic CNDDDB occurrence was reported within 0.25 mile of the Proposed Project area in 1970. Recent CNDDDB occurrences are documented within five miles of the Proposed Project area. This species was documented from a drainage near Lake Miramar just north of MCAS Miramar, approximately one mile from the BRSA.	Suitable habitat for this species is present in scattered locations throughout the BRSA; the geographic and elevation ranges within the BRSA are consistent with those documented for this species; and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015, but may be present within riparian areas that were inaccessible to special-status plant surveyors. <b>Not Expected</b>
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i> Coulter's goldfields	1B.1	Coulter goldfields occurs in alkaline soils in coastal salt marshes, playas, and vernal pools below 4,600 feet in elevation.	February-June/ Annual Herb	CNDDDB occurrences of this species have been recorded within five miles of the BRSA.	The extent to which alkaline soils are present within the BRSA is undetermined. No chenopod scrub was observed, but tamarisk scrub was observed directly south of the San Luis Rey River and on the northern shore of Lake Hodges. While tamarisk is not restricted to alkaline soils, it is well adapted to alkaline conditions. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Leptosyne maritima</i> Sea-dahlia	2.2	Sea-dahlia occurs in coastal bluff scrub and coastal scrub below 500 feet in elevation. It is geographically restricted to areas immediately along the Pacific Ocean in San Diego County, south of the City of Encinitas.	March-May/ Perennial Herb	Recent CNDDDB occurrences of this species have been recorded within five miles of the BRSA. This species has never been documented as far inland as the BRSA.	The BRSA is outside of this species' known geographic distribution. <b>No Potential</b>

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<i>Microseris douglasii</i> ssp. <i>platycarpa</i> Small-flowered microseris	4.2	Small-flowered microseris occurs within cismontane woodland, coastal scrub, valley and foothill grassland, and vernal pools from 50 to 3,510 feet in elevation.	March-May/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within vernal mesic areas on MCAS Miramar. <b>Present</b>
<i>Packera gander</i> Gander's ragwort	CR 1B.2	Gander's ragwort occurs on burns and gabbroic outcrops in chaparral between 1,310 and 3,940 feet in elevation.	April-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at elevations higher than those within the BRSA, primarily in the mountains east of the City of San Diego. <b>No Potential</b>
<i>Pentachaeta aurea</i> ssp. <i>aurea</i> Golden-rayed pentachaeta	4.2	Golden-rayed pentachaeta occurs in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, and valley and foothill grasslands at elevations between 260 and 6,070 feet.	March-July/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within the BRSA in multiple locations on MCAS Miramar. <b>Present</b>
<i>Pseudognaphalium leucocephalum</i> White rabbit-tobacco	2B.2	White rabbit-tobacco occurs in sandy, gravelly areas in chaparral, cismontane woodland, coastal scrub, and riparian woodland below 6,890 feet in elevation.	July-December/ Perennial Herb	CNPS occurrences have been reported within USGS 7.5-minute quads surrounding the BRSA. However, the nearest documented occurrence of this species is approximately 10 miles away on Marine Corps Base, Camp Pendleton. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed during either pass of special-status plant surveys in 2015 and would have been visible if present. <b>Not Present</b>
<i>Senecio aphanactis</i> Chaparral ragwort	2.2	Chaparral ragwort occurs in chaparral, cismontane woodland, and coastal scrub, below 2,600 feet in elevation.	January-April/ Annual Herb	One historic CNDDDB occurrence was documented within 0.25 mile of the Proposed Project area in 1900, and one occurrence was documented within five miles in 1935.	Suitable habitat for this species is present, but all of the occurrences within five miles of the BRSA are more than 60 years old. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Stylocline citroleum</i> Oil neststraw	1B.1	Oil neststraw occurs in clay soils in chenopod scrub and coastal scrub between 100 and 1,300 feet in elevation.	April/ Annual Herb	One historic CNDDDB occurrence of this species was recorded within five miles of the BRSA. This occurrence was from known from a single collection made in 1883 and the exact location of the collection is not known. The CNDDDB mapped the collection in the "general vicinity of San Diego." It is not included on the most recent checklist of plants in San Diego County.	It is presumed that this species is extirpated from San Diego County. <b>No Potential</b>
<i>Symphotrichum defoliatum</i> San Bernardino aster	1B.2	San Bernardino aster occurs near ditches, streams, and springs in cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and vernal mesic valley and foothill grassland between six and 6,700 feet in elevation. In San Diego County, this species occurs at elevations higher than 3,900 feet.	July-November/ Perennial Rhizomatous herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	In San Diego County, this species occurs at elevation ranges much higher than the BRSA. <b>No Potential</b>

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<b>Beberidaceae – Barberry Family</b>					
<i>Berberis nevinii</i> Nevin's barberry	FE CE 1B.1	Nevin's barberry occurs on sandy or gravelly soils in chaparral, cismontane woodland, coastal scrub, and riparian scrub between 900 and 2,710 feet in elevation.	March-April/ Perennial Evergreen Shrub	One recent CNDDDB occurrence is documented within five miles of the Proposed Project area, specifically along Temecula Creek in the City of Temecula. The only record of this species in the SDNHM herbarium is from east of the Pauma Valley area, approximately 13 miles east of the BRSA	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed during either pass of the 2015 special-status plant surveys, and would have been visible if present. <b>Not Present</b>
<b>Boraginaceae – Borage Family</b>					
<i>Cryptantha wigginsii</i> Wiggin's cryptantha	1B.2	Wiggin's cryptantha occurs in coastal scrub, often on clay soils, between 60 and 910 feet in elevation. This species is apparently restricted to the immediate coastal zone in San Diego County.	February-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. This species is not known from as far inland as the BRSA, with the nearest SDNHM herbarium occurrence reported approximately 11 miles west of the BRSA.	Suitable habitat for this species is present. However, this species typically occurs at elevations below the lowest point within the BRSA, and this species typically occurs between five and 15 miles from the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Nama stenocarpa</i> Mud nama	2B.2	Mud nama occurs in marshes, and in swamps on lake margins and riverbanks between 10 and 1,640 feet in elevation. The extant San Diego sites for this species are all created wetland sites.	January-July/ Annual or Perennial Herb	CNPS occurrences have been reported within the San Luis Rey quad approximately 10 miles west of the BRSA. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present along Lake Hodges and perennial waters such as the San Luis Rey River. However, the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015, nor were any areas of mud observed adjacent to wetlands. <b>Not Present</b>
<i>Phacelia stellaris</i> Brand's star phacelia	1B.1	Brand's star phacelia occurs in coastal dunes and coastal scrub below 650 feet in elevation.	March-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search, but all records of this species have been documented west of or immediately east of I-5 because this species is restricted to coastal areas.	The BRSA is outside of this species' known geographic distribution. <b>No Potential</b>
<b>Brassicaceae (Cruciferae) – Mustard Family</b>					
<i>Erysimum ammophilum</i> Sand-loving wallflower	1B.2	Sand-loving wallflower occurs in sandy openings in maritime chaparral, coastal dunes, and coastal scrub below 200 feet in elevation.	February-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable maritime habitat is present, and this species occurs below the elevations in the BRSA. <b>No Potential</b>
<i>Sibaropsis hammittii</i> Hammitt's clay-cress	1B.2	Hammitt's clay-cress occurs on clay soils in openings in chaparral and in valley and foothill grasslands between 2,360 and 3,500 feet in elevation. The SDNHM's herbarium records are all from the vicinity of the community of Alpine.	March-April/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at elevations higher than those within the BRSA and in a geographically isolated area approximately 20 miles east of the BRSA. <b>No Potential</b>

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<b>Cactaceae – Cactus Family</b>					
<i>Bergerocactus emoryi</i> Golden-spined cereus	2B.2	Golden-spined cereus occurs in sandy soils in closed-cone coniferous forest, chaparral, and coastal scrub between 10 and 1,300 feet in elevation. Maritime succulent scrub is the primary habitat of this coastal cactus and moist ocean breezes may be a key to its habitat requirements.	May-June/ Perennial Stem Succulent	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no recent CNDDDB occurrences within five miles of the Proposed Project area.	There is no maritime succulent scrub within the BRSA and very few stem succulents species were observed within the BRSA. In addition, this species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<i>Cylindropuntia californica</i> var. <i>californica</i> Snake cholla	1B.1	Snake cholla occurs in chaparral and coastal scrub between 90 and 500 feet in elevation. This species is documented from southern San Diego County south of I-8, and from the Del Mar quad.	April-May/ Perennial Stem Succulent	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. However, there are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present. However, this species typically occurs at elevations below the lowest point within the BRSA, and this species typically occurs between five and 15 miles from the BRSA. This species was not observed during either pass of the special-status plant surveys conducted in 2015. <b>Not Present</b>
<i>Ferocactus viridescens</i> San Diego barrel cactus	2B.1	San Diego barrel cactus occurs in chaparral, coastal scrub habitat, valley and foothill grassland, and vernal pools between nine and 1,480 feet in elevation.	May-June/ Perennial Stem Succulent	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within the BRSA at the southern end of the aqueduct road on MCAS Miramar. <b>Present</b>
<b>Chenopodiaceae – Goosefoot Family</b>					
<i>Aphanisma blitoides</i> Aphanisma	1B.2	Aphanisma occurs on sandy soils in coastal bluff scrub, coastal dunes, and coastal scrub below 1,000 feet in elevation.	March-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. No records of this species have been documented east of Interstate (I-) 5 because this species is restricted to areas within the immediate coastal zone.	No suitable habitat is present. The Biological Resources Survey Area (BRSA) is outside of this species' known geographic distribution. <b>No Potential</b>
<i>Atriplex coulteri</i> Coulter's saltbush	1B.2	Coulter's saltbush occurs in alkaline or clay substrates in coastal dunes, coastal scrub, and valley and foothill grassland between seal level and 1,500 feet in elevation. Its suitable microhabitat conditions include ocean bluffs, ridgetops, and alkaline low places.	March-October/ Perennial Herb	In 1971, one past CNDDDB occurrence was documented within one mile of the Proposed Project area and one past occurrence was documented within five miles.	Suitable habitat for this species is present in the form of alkaline low places and ridgetops in coastal scrub and grassland habitats. This species is documented from the same general geographic and elevation ranges occurring within the BRSA. However, this species was not observed during either pass of special-status plant surveys in 2015 and would likely have been visible if present. <b>Not Present</b>
<i>Atriplex pacifica</i> South Coast saltscale	1B.2	South Coast saltscale occurs in coastal bluff scrub, coastal dunes, coastal scrub, and playas below 460 feet in elevation.	March-October/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences within five miles of the Proposed Project area. The nearest SDNHM record is approximately four miles west of the BRSA.	Suitable habitat for this species is present in the form of coastal scrub; the geographic and elevation ranges within the BRSA are consistent with those documented for this species; and this species has been documented within one to five miles of the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>

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<i>Atriplex parishii</i> Parish's brittle scale	1B.1	Parish's brittle scale occurs on alkaline substrates in chenopod scrub, playas, and vernal pools between 80 and 6,240 feet in elevation.	June-October/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable chenopod scrub or playa habitat is present. Vernal pool habitat is present on MCAS Miramar but this species has never been documented on MCAS Miramar (USMC 2014). <b>No Potential</b>
<i>Suaeda esteroa</i> Estuary seablite	1B.2	Estuary seablite occurs in coastal marshes and swamps below 20 feet in elevation.	May-January/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. <b>No Potential</b>
<b>Convolvulaceae – Morning-Glory Family</b>					
<i>Dichondra occidentalis</i> Western dichondra	4.2	Western dichondra occurs usually under shrubs in woodlands, coastal sage scrub, or chaparral between 160 and 1,640 feet.	January – July/ Perennial Rhizomatous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	Suitable habitat for this species is present and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was observed in the understory of trees growing along Pomerado Road in the southern portion of the BRSA, as well as underneath Nuttall's scrub oak on MCAS Miramar. <b>Present</b>
<b>Crassulaceae – Stonecrop Family</b>					
<i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i> Blochman's dudleya	1B.1	Blochman's dudleya occurs on rocky and often clay or serpentinite substrates in coastal bluff scrub, chaparral, coastal scrub, and valley and foothill grassland between 10 and 1,480 feet in elevation.	April-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. All records of this species have been documented west of or immediately east of I-5 because this species is restricted to the coastal zone.	The BRSA is outside of this species' known geographic distribution. <b>No Potential</b>
<i>Dudleya brevifolia</i> Short-leaved dudleya	CE 1B.1	Short-leaved dudleya occurs on Torrey sandstone in maritime openings in chaparral, and coastal scrub between 90 and 820 feet in elevation.	April-May/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable maritime habitat is present within the BRSA. <b>No Potential</b>
<i>Dudleya multicaulis</i> Many-stemmed dudleya	1B.2	Many-stemmed dudleya occurs in chaparral, coastal scrub and alley and foothill grassland, often on clay soils, between 50 feet and 2,600 feet in elevation.	April-July/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. SDNHM herbarium records for this species are exclusively within Marine Corps Base, Camp Pendleton, approximately 17 miles west of the BRSA.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is more than 15 miles from the BRSA. <b>No Potential</b>
<i>Dudleya variegata</i> Variegated dudleya	1B.2	Variegated dudleya occurs on clay soils in chaparral, cismontane woodland, coastal scrub habitat, valley and foothill grassland, and vernal pools between 10 and 1,900 feet in elevation.	April-June/ Perennial Herb	One recent CNDDDB occurrence is documented within 0.25 mile of the Proposed Project area, and two recent occurrences are documented within one mile. Multiple recent occurrences are documented within five miles of the Proposed Project area. This species has also been documented on MCAS Miramar.	Suitable habitat for this species is present and clay soils are known to occur within the BRSA. This species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. This species can be very diminutive and difficult to detect if it occurs within areas dominated by non-native grasslands. Its populations are also smaller during drought years, making it more difficult to detect. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>

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<i>Dudleya viscida</i> Sticky dudleya	1B.2	Sticky dudleya occurs on rocky substrates in coastal bluff scrub, chaparral, cismontane woodland and coastal scrub between 30 and 1,810 feet in elevation.	May-June/ Perennial Herb	CNPS occurrences have been reported within USGS 7.5-minute quads surrounding the BRSA. The nearest documented SDNHM record is approximately 10 miles to the east on Marine Corps Base, Camp Pendleton, with CNPS records from quads adjacent to the BRSA. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed during either pass of the 2015 special-status plant surveys, and would have been visible if present. <b>Not Present</b>
<b>Ericaceae – Heath Family</b>					
<i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i> Del Mar manzanita	FE 1B.1	Del Mar manzanita occurs on sandy maritime mesas and bluffs in chaparral below 1,200 feet in elevation, primarily west of I-15, with the majority of the occurrences in and around the cities of Encinitas, Solana Beach, and Del Mar in coastal San Diego.	December-June/ Perennial Evergreen Shrub	Recent CNDDDB occurrences have been reported within 0.25 mile of the Proposed Project area. This species occurs on MCAS Miramar, and the SDNHM has a specimen that was taken near the intersection of Pomerado Road and Poway Road. However, this occurrence was not located during special-status plant surveys and is presumed extirpated.	Suitable habitat for this species is present on MCAS Miramar, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. However, no manzanita ( <i>Arctostaphylos</i> spp.) was observed within the BRSA on MCAS Miramar or in the southern portion of the BRSA. This species was not observed during 2015 special-status plant surveys. <b>Not Present</b>
<i>Arctostaphylos otayensis</i> Otay manzanita	1B.2	Otay manzanita occurs on metavolcanic soil in chaparral and cismontane woodland between 900 and 5,580 feet in elevation.	January-April/ Perennial Evergreen Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species has never been documented outside of Jamul Mountain and Otay Mountain, which are approximately 20 miles southeast of the BRSA. <b>No Potential</b>
<i>Arctostaphylos rainbowensis</i> Rainbow manzanita	1B.1	Rainbow manzanita occurs in chaparral between 670 and 2,200 feet in elevation. This species has a fairly wide distribution to the north, west, and east of the community of Rainbow, with one physically isolated occurrence north of the City of Escondido on the west side of I-15.	January-February/ Perennial Evergreen Shrub	One recent CNDDDB occurrence and one past CNDDDB occurrence are recorded within 0.25 mile of the Proposed Project area. Recent occurrences are documented within one mile of the Proposed Project area. At least one occurrence of this species has been documented between SR-76 and the City of Escondido.	Suitable habitat for this species is present within the BRSA, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA, within a fairly restricted geographic range near the community of Rainbow. However, this species was not observed within the BRSA during either pass of the 2015 special-status plant surveys. <b>Not Present</b>
<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i> Summer holly	1B.2	Summer holly occurs in chaparral and cismontane woodland between 980 and 2,595 feet in elevation, and is geographically situated west of I-15 and in a few higher-elevation sites in southern San Diego County.	April-June/ Perennial Evergreen Shrub	One recent CNDDDB occurrence was documented within 0.25 mile of the Proposed Project area. Recent CNDDDB occurrences are recorded within one mile of the Proposed Project area. The SDNHM herbarium reports records from just south of the BRSA on Mission Trails Regional Park.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. One individual was observed within the BRSA in a drainage approximately one mile north of Deer Springs Road on the west side of Old Highway 395. <b>Present</b>
<b>Euphorbiaceae – Spurge Family</b>					
<i>Euphorbia misera</i> Cliff spurge	2B.2	Cliff spurge occurs in rocky, coastal bluff scrub, coastal scrub, and Mojavean desert scrub between 320 and 1,640 feet in elevation. Maritime sage scrub with a high incidence of cactus is typical of the preferred habitat for this species.	December-October/ Perennial Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	No suitable habitat in the form of maritime sage scrub with a high incidence of cactus is present with the BRSA. This species appears to be restricted to known sites at Point Loma, La Jolla, Fairbanks Ranch, Otay Mesa, and near San Ysidro. It is presumed that most U.S. populations of cliff spurge have already been discovered. <b>Not Present</b>

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<b>Fabaceae – Legume Family</b>					
<i>Astragalus deanei</i> Dean’s milkvetch	1B.1	Dean’s milkvetch occurs in chaparral in cismontane woodland, coastal scrub, and riparian forest between 240 and 2,280 feet in elevation. This species is documented primarily from Alpine, El Cajon, Jamul Mountains, and Barrett Lake in central San Diego County.	February-May/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. Most occurrences are south and east of MCAS Miramar. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015, but may be present within riparian areas that were inaccessible to special-status plant surveyors. <b>Not Expected</b>
<i>Astragalus oocarpus</i> San Diego milk-vetch	1B.2	San Diego milk-vetch occurs in chaparral (openings) and cismontane woodland between 1,000 and 5,000 feet in elevation.	May-August/ Perennial Herb	One historic CNDDDB occurrence was recorded within five miles of the Proposed Project area in 1900. However, most occurrences are from the mountains in central and northern San Diego County, approximately 25 miles east of the BRSA.	Suitable habitat for this species is present, but the nearest CNDDDB record is more than 60 years old, and the general geographic range of this species is more than 15 miles away from the BRSA. <b>No Potential</b>
<i>Astragalus pachypus</i> var. <i>jaegeri</i> Jaeger’s milkvetch	1B.1	Jaeger’s milkvetch occurs in sandy or rocky soils in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland between 1,200 and 3,000 feet in elevation.	January-December/ Perennial Shrub	Historical CNDDDB occurrences of this species have been recorded within five miles of the BRSA, and suitable habitat exists on site. However, the most recent CNDDDB occurrence was recorded in 1881, and the southern extent of this species’ range is approximately six miles north of the BRSA in the Temecula area. It is not known from San Diego County.	The BRSA is outside of this species’ known geographic distribution. <b>No Potential</b>
<i>Astragalus tener</i> var. <i>titi</i> Coastal dunes milk-vetch	FE CE 1B.1	Coastal dunes milk-vetch prefers vernal mesic areas in sandy coastal bluff scrub, coastal dunes, and mesic coastal prairie between 30 and 165 feet in elevation.	March-May/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. <b>No Potential</b>
<i>Lotus nuttallianus</i> Nuttall’s Acmispon	1B.1	Nuttall’s Acmispon occurs on coastal dunes and in sandy areas in coastal scrub below 30 feet in elevation.	March-July/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. This species occurs at elevations lower than the BRSA. <b>No Potential</b>
<b>Fagaceae – Oak Family</b>					
<i>Quercus cedrosensis</i> Cedros Island oak	2B.2	Cedros Island oak occurs in closed-cone coniferous forest, chaparral, and coastal scrub between 830 and 3,150 feet in elevation.	April-May/ Perennial Evergreen Tree	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present. However, this species occurs at elevations higher than the BRSA and the majority of the documented occurrences of this species in San Diego County are in the Tijuana River valley at the U.S.-Mexico border. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>



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<i>Quercus dumosa</i> Nuttall's scrub oak	1B.1	Nuttall's scrub oak occurs in chaparral, coastal scrub, and closed-cone coniferous forest, often in sandy or clay-loam substrates, below 1,300 feet in elevation.	February-March/ Perennial Evergreen Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed during the special-status plant surveys along Pomerado Road and in one occurrence within the Elliot Field Station. The low-growing scrub oaks observed along aqueduct road on MCAS Miramar were determined to be the common scrub oak ( <i>Quercus berberidifolia</i> ), although with characteristics (e.g., a "pruned" appearance, and occasional spreading stellate hairs on a very small portion of the abaxial leaf surface) demonstrated evidence of hybridization with Nuttall's scrub oak. <b>Present</b>
<i>Quercus engelmannii</i> Engelmann oak	4.2	Engelmann oak occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grasslands between 160 and 4,265 feet in elevation.	March-June/ Perennial Deciduous Tree	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed during the habitat assessment surveys in scattered locations along the urbanized section. <b>Present</b>
<b>Frankeniaceae – Frankenia Family</b>					
<i>Frankenia palmeri</i> Palmer's frankenia	2B.1	Palmer's frankenia occurs in coastal dunes, coastal salt marshes and swamps, and playas below 30 feet in elevation. This species is apparently restricted to the immediate coast, and does not occur in inland salt marsh habitat.	May-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable coastal dune or salt marsh habitat is present within the BRSA. Although cismontane alkali marsh was observed in the immediate vicinity of Lake Hodges, this species would not occur that far inland. <b>No Potential</b>
<b>Geraniaceae – Geranium Family</b>					
<i>California macrophylla</i> Round-leaved filaree	1B.1	Round-leaved filaree occurs on clay soils in cismontane woodland and valley and foothill grassland between 50 and 3,940 feet in elevation.	March-May/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences within five miles of the Proposed Project area.	Suitable habitat for this species is present, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<b>Lamiaceae – Mint Family</b>					
<i>Acanthomintha ilicifolia</i> San Diego thorn-mint	FT CE 1B.1	San Diego thorn-mint occurs in vertisol clay soils in openings of chaparral, coastal scrub, valley and foothill grassland, and vernal pools below 3,000 feet in elevation. This species is widely distributed south of community of Bonsall to the U.S.-Mexico border.	April-June/ Annual Herb	One recent CNDDDB occurrence is documented within 0.25 mile of the Proposed Project area. Multiple recent occurrences are recorded within five miles of the Proposed Project area.	Suitable habitat for this species is present, and clay soils are known to occur within the BRSA. This species is known from the same general geographic and elevation range as the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>

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<i>Clinopodium chandleri</i> San Miguel savory	1B.2	San Miguel savory occurs on rocky, gabbroic, or metavolcanic substrates in chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland between 390 and 3,530 feet in elevation.	March-July/ Perennial Shrub	CNPS occurrences have been reported the Temecula and San Vicente quads. One CNDDDB occurrence was documented within five miles of the Proposed Project area in 1983.	Suitable habitat for this species is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015, but may be present within riparian areas that were inaccessible to special-status plant surveyors. <b>Not Expected</b>
<i>Lepechinia cardiophylla</i> Heart-leaved pitcher sage	1B.2	Heart-leaved pitcher sage occurs in closed-cone coniferous forest, chaparral, and cismontane woodland between 1,700 and 4,500 feet in elevation. The only records of this species in San Diego County are from Iron Mountain.	April-July/ Perennial Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present in the form of chaparral and cismontane woodlands. However, this species occurs at elevations higher than those within the BRSA and in a geographically isolated area approximately six miles east of the BRSA. In addition, this species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<i>Lepechinia ganderi</i> Gander's pitcher sage	1B.3	Gander's pitcher sage occurs on gabbroic or metavolcanic rock in closed-cone coniferous forest, chaparral, coastal scrub and valley and foothill grassland between 1,000 and 3,300 feet in elevation. This species has only been documented in southern San Diego County on mountains, such as Otay Mountain and San Miguel Mountain (SDNHM 2015a; Reiser 1994).	June-July/ Perennial Shrub	Past occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present in the form of chaparral, coastal scrub, and grasslands. However, this species requires specific edaphic conditions (metavolcanic derived soils) not documented within the BRSA and is apparently restricted to a specific area in southern San Diego County, approximately 20 miles south of the BRSA. In addition, this species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<i>Monardella hypoleuca</i> ssp. <i>intermedia</i> Intermediate monardella	1B.3	Intermediate monardella occurs in chaparral, cismontane woodland, and lower montane coniferous forest between 1,310 and 4,100 feet.	April-September/ Perennial Rhizomatous Herb	Recent CNDBB occurrences have been reported within five miles of the Proposed Project area. The SDNHM includes only one herbarium record for this species at the far northwestern corner of San Diego County on Marine Corps Base, Camp Pendleton, approximately 17 miles northwest of the BRSA.	Suitable habitat for this species is present. However, this species is only known from the Santa Ana and Palomar mountains, and many occurrences are historical. In addition, this species occurs at elevations approximately 200 feet higher than those in the northern portion of the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Monardella hypoleuca</i> ssp. <i>lanata</i> Felt-leaved monardella	1B.2	Felt-leaved monardella occurs in chaparral and cismontane woodland between 980 and 5,200 feet in elevation. This species typically occupies undeveloped peaks and mountainous ridgelines.	June-August/ Perennial Rhizomatous Herb	Two past CNDDDB occurrences were documented within five miles of the Proposed Project area in 1978 and 1900. One recent occurrence is documented within five miles of the Proposed Project area.	Suitable habitat for this species is present. However, this species typically occurs at higher elevations than the BRSA, and often on ridgelines and peaks, which were documented in very few isolated locations in the northern urbanized section. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>

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<i>Monardella macrantha</i> ssp. <i>hallii</i> Hall's monardella	1B.3	Hall's monardella occurs in broad-leaf upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland between 2,400 and 7,200 feet in elevation.	June-October/ Perennial Rhizomatous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at elevations higher than those within the BRSA, primarily north of SR-76 in the Santa Rosa Mountains, approximately 15 miles east of the BRSA. <b>No Potential</b>
<i>Monardella nana</i> ssp. <i>leptosiphon</i> San Felipe monardella	1B.2	San Felipe monardella occurs in chaparral and lower montane coniferous forest between 3,930 and 6,090 feet in elevation. This species is known from the Santa Rosa and Laguna mountains of central San Diego County.	June-July/ Perennial Rhizomatous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species typically occurs at elevations much higher than the BRSA and is geographically restricted to an area approximately 30 miles east of the BRSA. <b>No Potential</b>
<i>Monardella viminea</i> Willow monardella	FE CE 1B.1	Willow monardella occurs in alluvial ephemeral washes in chaparral, coastal scrub habitat, riparian forest, riparian scrub, and riparian woodland between 160 and 740 feet in elevation.	June-August/ Perennial Herb	Three recent CNDDDB occurrences have been recorded within 0.25 mile of the Proposed Project area, two of which are presumed extant. One recent CNDDDB occurrence is documented within one mile of the Proposed Project area, and multiple recent occurrences are documented within five miles. This species occurs on MCAS Miramar near the BRSA along an intermittent, cobbly drainage.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. Willow monardella was not observed within the BRSA during either pass of special-status plant surveys in 2015. The CNDDDB occurrence near the BRSA on MCAS Miramar was observed and mapped to confirm its presence outside of the BRSA. <b>Not Present</b>
<i>Pogogyne abramsii</i> San Diego mesa mint	FE CE 1B.1	San Diego mesa mint occurs in vernal pools between 295 and 660 feet in elevation.	March-July/ Annual Herb	One recent CNDDDB occurrence of this species is documented within 0.25 mile of the Proposed Project area, and recent occurrences are documented within one mile. This species occurs on MCAS Miramar.	Suitable habitat for this species is present within the vernal pools on MCAS Miramar, and this species is documented at the same general geographic and elevation ranges that occur within the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Pogogyne nudiuscula</i> Otay Mesa mint	FE CE 1B.1	Otay Mesa mint occurs in vernal pools between 295 and 820 feet in elevation.	May-July/ Annual Herb	Only one CNDDDB occurrence has been documented within five miles of the BRSA and this occurrence has since been extirpated. The majority of the occurrences of this species is in the Otay Mesa area, approximately 20 miles south of the BRSA.	Suitable habitat for this species is present in the vernal pools on MCAS Miramar. However, MCAS Miramar has not documented the presence of this species in its Integrated Natural Resources Management Plan (INRMP) (USMC 2014). In addition, the geographic range of this species is more than 15 miles from the BRSA. <b>No Potential</b>
<i>Salvia munzii</i> Munz's sage	2B.2	Munz's sage occurs in chaparral and coastal scrub between 370 and 3,500 feet in elevation. This shrub is often a dominant plant of the area where it occurs. It is known primarily from southern San Diego County in the Otay and Tijuana river watersheds.	February-April/ Perennial Evergreen Shrub	There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present. However, the geographic range of Munz's sage in San Diego County appears to be approximately 20 miles south of the BRSA. <b>No Potential</b>

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<i>Scutellaria bolanderi</i> ssp. <i>austromontana</i> Southern mountains skullcap	1B.2	Southern mountains skullcap occurs in mesic areas in chaparral, cismontane woodland, and lower montane coniferous forest between 1,390 and 6,560 feet in elevation. In San Diego County, it appears to be restricted to the mountains east of the City of San Diego.	June-August/ Perennial Rhizomatous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No portion of the BRSA is within this species' documented geographic range. <b>No Potential</b>
<b>Limnanthaceae – Meadowfoam Family</b>					
Parish's meadowfoam ( <i>Limnanthes alba</i> ssp. <i>parishii</i> )	CE 1B.2	Parish's meadowfoam occurs in vernal mesic areas in lower montane coniferous forest, meadows and seeps, and vernal pools between 1,960 and 6,560 feet in elevation.	April-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at much higher elevations than the BRSA. <b>No Potential</b>
<b>Malvaceae – Mallow Family</b>					
<i>Ayenia compacta</i> California ayenia	2B.3	California ayenia occurs on rocky substrates in Mojavean and Sonora desert scrub between 490 and 3,600 feet in elevation. The geographic range of this species is the northern Laguna Mountains and southern Santa Rosa Mountains of eastern San Diego County.	March-April/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search, specifically the Wildomar quad in Riverside County. The majority of occurrences of this species in San Diego County are in the Anza Borrego Desert State Park.	No suitable habitat is present and no portion of the Proposed Project is within this species' documented geographic range. <b>No Potential</b>
<i>Fremontodendron mexicanum</i> Mexican flannelbush	FE CR 1B.1	Mexican flannelbush occurs on gabbroic, metavolcanic, or serpentinite soils in closed-cone coniferous forest, chaparral, and cismontane woodland between 30 and 2,350 feet in elevation.	March-June/ Perennial Evergreen Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. However, no SDNHM records have been documented within five miles of the BRSA. In addition, there are no CNDDDB occurrences of this species within five miles of the Proposed Project area. The nearest SDNHM herbarium record is from east of the community of Pala, approximately eight miles east of the BRSA. The majority of documented records of this species are from along Cedar Creek on Otay Mountain in southern San Diego County, approximately 20 miles south of the BRSA.	Suitable habitat for this species is present (i.e., chaparral and cismontane woodland), but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed during either pass of the 2015 special-status plant surveys. <b>Not Present</b>
<b>Montiaceae – Miner's Lettuce Family</b>					
<i>Calandrinia breweri</i> Brewer's calandrinia	4.2	Brewer's calandrinia occurs on sandy or loamy soils, disturbed sites and burns, within chaparral and coastal scrub communities between 30 and 4,010 feet in elevation.	March-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	Over 100 individuals of this species were observed on the MCAS Miramar component of the BRSA. <b>Present</b>

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<b>Nyctaginaceae – Four O’Clock Family</b>					
<i>Abronia villosa</i> var. <i>aurita</i> Chaparral sand-verbena	1B.1	Chaparral sand-verbena occurs on sandy soils in chaparral, coastal scrub, and desert dunes between 240 and 5,250 feet.	January-September/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search, specifically around the community of Fallbrook. The closest records for this species in the SDNHM herbarium are in the Fallbrook area approximately five miles from the BRSA. Recent CNDDDB occurrences are documented within five miles of the Proposed Project area.	Suitable habitat for this species is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<b>Onagraceae – Evening Primrose Family</b>					
<i>Clarkia delicata</i> Delicate clarkia	1B.3	Delicate clarkia often occurs in gabbroic soils in chaparral and cismontane woodland between 770 and 3,280 feet in elevation. This species occurs at the periphery of oak woodlands and cismontane chaparral stands. This species is often observed in areas partially shaded by tree canopy or large shrubs, and typically in vernal mesic areas.	April-June/ Annual Herb	Recent CNDDDB occurrences of this species are documented within five miles of the Proposed Project area. The SDNHM includes multiple records of this species near the BRSA.	Suitable habitat exists within the BRSA and the species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed during special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<b>Orobanchaceae – Broomrape Family</b>					
<i>Chloropyron maritimum</i> ssp. <i>maritimum</i> Salt marsh bird’s-beak	FE CE 1B.2	Salt marsh bird’s-beak occurs on coastal dunes and in coastal salt marshes and swamps below 90 feet in elevation.	May-October/ Annual Hemiparasitic Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable coastal dune or salt marsh habitat is present. This species is not known to occur within the elevation range of the BRSA. <b>No Potential</b>
<i>Dicranostegia orcuttiana</i> Orcutt’s birds-beak	2B.1	Orcutt’s birds-beak occurs in coastal scrub between 30 and 1,150 feet in elevation. The vast majority of SDNHM occurrences of this species are from the Otay and Tijuana river watersheds in southern San Diego County.	March-September/ Annual Hemiparasitic Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	The geographic distribution of this species is more than 15 miles outside of the BRSA. <b>No Potential</b>
<b>Picrodendraceae – Bitter-Tree Family</b>					
<i>Tetracoccus dioicus</i> Parry’s tetracoccus	1B.2	Parry’s tetracoccus occurs in chaparral and coastal scrub between 540 and 3,280 feet in elevation.	April-May/ Perennial Deciduous Shrub	Two CNDDDB occurrences of this species are documented within 0.25 mile of the Proposed Project area. One record is from 1936. Recent CNDDDB occurrences are documented within one mile of the Proposed Project area. In addition, the SDNHM includes records of this species within one mile of the northern end of the BRSA, on the west side of I-15 near the community of Rainbow.	This species was observed within a drainage on the southern end of Rainbow Hills Road within the BRSA. Approximately 50 individuals were observed along the south edge of this drainage. <b>Present</b>

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<b>Plantaginaceae – Plantain Family</b>					
<i>Stemodia durantifolia</i> Purple stemodia	2B.1	Purple stemodia occurs in often mesic, sandy areas in scrub habitat between 590 and 990 feet in elevation.	January-December/ Perennial Herb	Two recent CNDDDB records are within five miles of the BRSA near MCAS Miramar. However, this species has not been documented within MCAS Miramar.	Suitable habitat for this species is present within the BRSA, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015, and would have been visible in mesic scrub habitats if present. <b>Not Present</b>
<b>Polemoniaceae – Phlox Family</b>					
<i>Linanthus orcuttii</i> Orcutt's linanthus	1B.3	Orcutt's linanthus occurs in openings in chaparral, lower montane coniferous forest, and pinyon and juniper woodland between 3,000 and 7,040 feet in elevation.	May-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. This species occurs at elevations higher than the BRSA. <b>No Potential</b>
<i>Navarretia fossalis</i> Spreading navarretia	1B.1	Spreading navarretia occurs in chenopod scrub habitat, assorted shallow freshwater (including marshes and swamps), on playas and in vernal pools between 90 and 2,150 feet in elevation.	April-June/ Annual Herb	Recent CNDDDB occurrences have been reported within five miles of the BRSA.	Suitable habitat for this species is present, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within one to five miles of the BRSA. This species was not observed within the BRSA during either pass of the special-status plant surveys in 2015, but was confirmed blooming during reference population checks in a nearby vernal pool preserve area in April 2015. As a result, this species is presumed not present within the BRSA. <b>Not Present</b>
<i>Navarretia prostrata</i> Prostrate vernal pool navarretia	1B.1	Prostrate vernal pool navarretia occurs in mesic coastal scrub habitats, meadows and seeps, alkaline valley and foothill grassland and vernal pools between 50 and 3,970 feet in elevation.	April-July/ Annual Herb	One historic CNDDDB occurrence was documented within five miles of the Proposed Project area in 1981, specifically in the vernal pools at roughly SR-52 and SR-163. However, the MCAS Miramar INRMP does not include this species as occurring within MCAS Miramar (USMC 2014).	Suitable habitat for this species is present within vernal pools on MCAS Miramar. In addition, the geographic and elevation ranges within the BRSA are consistent with those documented for this species, and this species has been documented within five miles of the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>

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<b>Polygonaceae – Buckwheat Family</b>					
<i>Chorizanthe orcuttiana</i> Orcutt's spineflower	FE CE 1B.1	Orcutt's spineflower occurs in sandy openings in closed-cone coniferous forest, maritime chaparral, and coastal scrub habitats between 10 and 410 feet in elevation. This species requires a distinctive loose sandy substrate. Occurrences are situated within a few miles of the Pacific Ocean.	March-May/ Annual Herb	Only one CNDDDB occurrence has been documented within five miles of the BRSA and this site is probably extirpated. This species has never been documented as far inland as the BRSA.	No suitable maritime scrub habitat is present within the BRSA. <b>No Potential</b>
<i>Chorizanthe parryi</i> var. <i>parryi</i> Parry's spineflower	1B.1	Parry's spineflower occurs on sandy or rocky substrates in openings in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland between 900 and 4,000 feet in elevation.	April-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species range is north of the BRSA within Los Angeles, Riverside, and San Bernardino counties. It is not known in San Diego County. <b>No Potential</b>
<i>Chorizanthe polygonoides</i> var. <i>longispina</i> Long-spined spineflower	1B.2	Long-spined spineflower occurs in chaparral, coastal scrub, meadows, seeps, valley and foothill grassland, and vernal pools, often in clay soils and below 5,000 feet in elevation.	April-July/ Annual Herb	CNDDDB occurrences have been reported within one mile of the BRSA. Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within the BRSA in multiple locations along the aqueduct road on MCAS Miramar during special-status plant surveys in April 2015. <b>Present</b>
<i>Dodecahema leptoceras</i> Slender-horned spineflower	FE CE 1B.1	Slender-horned spineflower occurs on sandy soils in chaparral, cismontane woodland, and alluvial fans in coastal scrub between 650 and 2,500 feet in elevation. The southernmost extent of its geographic range is southern Riverside County, near the City of Temecula.	April-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	The southern extent of this species' range is approximately six miles north of the BRSA in the Temecula area. It is not known from San Diego County. <b>No Potential</b>
<i>Nemacaulis denudata</i> var. <i>denudata</i> Coast wooly-heads	1B.2	Coast wooly-heads occurs on coastal dunes below 330 feet in elevation.	April-September/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. <b>No Potential</b>
<i>Nemacaulis denudata</i> var. <i>gracilis</i> Slender cottonheads	2B.2	Slender cottonheads occurs on coastal dunes, desert dunes, and Sonoran desert scrub below 1,320 feet in elevation. This species is restricted to the immediate coastal zone in San Diego County.	March-May/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. In addition, this species has not been documented as far inland as the BRSA within San Diego County. <b>No Potential</b>
<b>Ranunculaceae – Buttercup Family</b>					
<i>Delphinium hesperium</i> ssp. <i>cuyamaca</i> Cuyamaca larkspur	CR 1B.2	Cuyamaca larkspur occurs in mesic areas in lower montane coniferous forest, meadows, seeps, and vernal pools between 4,000 and 5,350 feet in elevation.	May-July/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at substantially higher elevations than the BRSA. <b>No Potential</b>

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<i>Myosurus minimus</i> ssp. <i>apus</i> Little mousetail	3.1	Little mousetail occurs in vernal pools (alkaline) between 65 and 2,100 feet in elevation.	March-June/ Annual Herb	Two recent CNDDDB occurrences have been reported within five miles of the Proposed Project area. In addition, this species has been documented to occur within MCAS Miramar (U.S. Marine Corps [USMC] 2014).	Suitable vernal pool habitat for this species is present on MCAS Miramar. This species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<b>Rhamnaceae – Buckthorn Family</b>					
<i>Adolphia californica</i> California adolphia	2B.1	California adolphia occurs on clay soils in chaparral, coastal scrub, and valley and foothill grassland between 140 and 2,500 feet in elevation.	January-April/ Perennial Deciduous Shrub	One recent CNDDDB occurrence is recorded within 0.25 mile of the Proposed Project area, and one recent occurrence is documented within one mile. Multiple other recent CNDDDB occurrences are documented within five miles of the Proposed Project area.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was observed in one stand of remnant coastal sage scrub directly south of Lake Hodges. Hundreds of individuals were observed, comprising the dominant species of that coastal sage scrub stand. <b>Present</b>
<i>Ceanothus cyaneus</i> Lakeside ceanothus	1B.2	Lakeside ceanothus occurs in closed-cone coniferous forest and chaparral between 770 and 2,480 feet in elevation.	April-June/ Perennial Evergreen Shrub	There are no CNDDDB records of this species within five miles of the Proposed Project area. All SDNHM records are approximately 10 miles from the BRSA, and the majority are in the community of Lakeside.	Suitable habitat (i.e., chaparral) exists on site but this species' geographic range is between five and 15 miles from the BRSA. This species was not observed within MCAS Miramar or the southern portion of the BRSA during either pass of the 2015 special-status plant surveys, and as a result, is presumed absent. <b>Not Present</b>
<i>Ceanothus ophiochilus</i> Vail Lake ceanothus	FT CE 1B.1	Vail Lake ceanothus occurs on gabbroic or pyroxenite-rich outcrops in chaparral between 1,900 and 3,500 feet.	February-March/ Perennial Evergreen Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species is not known to occur within the elevation range of the BRSA and is not documented from San Diego County. <b>No Potential</b>
<i>Ceanothus otayensis</i> Otay Mountain ceanothus	1B.2	Otay Mountain ceanothus occurs on metavolcanic or gabbroic substrates in chaparral between 1,960 and 3,610 feet in elevation.	January-April/ Perennial Evergreen Shrub	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present, and this species occurs at higher elevations than the BRSA. <b>No Potential</b>
<i>Ceanothus verrucosus</i> Wart-stemmed ceanothus	2B.2	Wart-stemmed ceanothus occurs in chaparral between three and 1,250 feet in elevation, primarily west of I-15.	December-May/ Perennial Evergreen Shrub	Recent CNDDDB occurrences are documented within five miles of the Proposed Project area. One occurrence is located within 0.25 mile, and one occurrence is located within one mile of the Proposed Project area; however, these occurrences were documented in 1939. This species has been observed on MCAS Miramar and is widely distributed within one to five miles of the BRSA.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed during either pass of special-status plant surveys conducted in 2015, but chaparral habitat is difficult to access when it is mature, and visibility within chaparral stands can be limited by tall, dense vegetation. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>



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<b>Rosaceae – Rose Family</b>					
<i>Horkelia cuneata</i> var. <i>puberula</i> Mesa horkelia	1B.1	Mesa horkelia occurs in sandy or gravelly areas in maritime chaparral, cismontane woodland and coastal scrub between 230 and 2,660 feet in elevation. The southernmost extent of its geographic range is northern San Diego County.	February-September/ Perennial Herb	Two past CNDDDB occurrences have been reported within five miles of the Proposed Project area—one in 1926 and one in 1940. There are no SDNHM herbarium records mapped for this species. In addition, the northern portion of the BRSA represents the southernmost end of this species' geographic range.	Suitable habitat for this species is present, but all of the occurrences within five miles of the BRSA are more than 60 years old. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. This species may flower as late as September, and absent flowers, may not have been documented during the special-status plant surveys. <b>Not Expected</b>
<i>Horkelia truncata</i> Ramona horkelia	1B.3	Ramona horkelia occurs in clay and gabbroic substrates in chaparral and cismontane woodland between 1,300 and 4,270 feet in elevation. Geographic distribution in San Diego County is diverse, with occurrences from Marine Corps Base, Camp Pendleton southeast to the southern San Diego mountains near Barrett Lake.	May-June/ Perennial Herb	One past CNDDDB occurrence for this species is recorded within one mile of the Proposed Project area.	Suitable habitat exists on site, but this species typically occurs at higher elevations than the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<b>Rubiaceae – Madder Family</b>					
<i>Galium proliferum</i> Desert bedstraw	2B.2	Desert bedstraw occurs on rocky, carbonate (limestone) in Joshua tree woodland, Mojavean desert scrub, and Pinyon and juniper woodland 3,900 and 5,350 feet in elevation.	March-June/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. <b>No Potential</b>
<b>Violaceae – Violet Family</b>					
<i>Viola purpurea</i> ssp. <i>aurea</i> Golden violet	2B.2	Golden violet occurs in sandy soils in Great Basin scrub and pinyon and juniper woodland between 3,280 and 8,200 feet in elevation.	April-June/ Perennial Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present, and this species occurs at substantially higher elevations than those within the BRSA. <b>No Potential</b>
<b>ANGIOSPERMS - MONOCOTS</b>					
<b>Alliaceae – Onion Family</b>					
<i>Allium munzii</i> Munz's onion	FE CT 1B.1	Munz's onion occurs on mesic, clay soil in chaparral, cismontane woodland, coastal scrub, Pinyon and juniper woodland, and valley and foothill grassland between 970 and 3,510 feet.	March-May/ Perennial Bulbiferous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	The southern extent of this species' range is approximately six miles north of the BRSA in the Temecula area. It is not known from San Diego County. <b>No Potential</b>

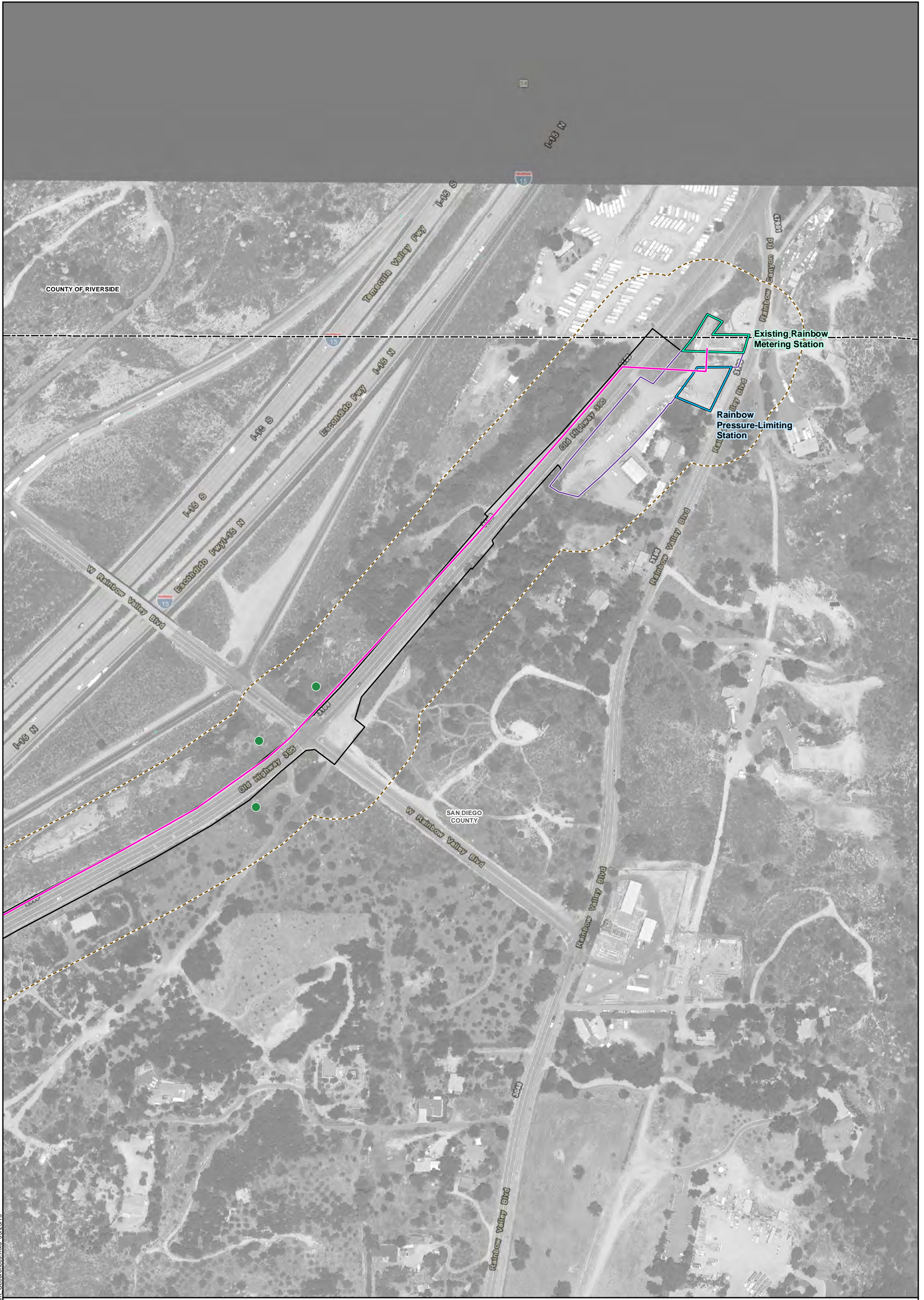
Species Name	Federal, State, and CRPR <sup>1</sup>	Habitat Preferences, Distribution Information, and Additional Notes	Flowering Phenology/ Life Form	Known Records <sup>2</sup>	Potential to Occur
<b>Agavaceae – Agave Family</b>					
<i>Agave shawii</i> var. <i>shawii</i> Shaw's agave	2B.1	Shaw's agave occurs in coastal bluff scrub and coastal scrub between 30 and 400 feet in elevation. It is geographically restricted to areas immediately along the Pacific Ocean in San Diego County, south of the City of Del Mar.	September-May/ Perennial Leaf Succulent	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	The BRSA is outside of this species' known geographic range. This species has never been documented as far inland as the BRSA. <b>No Potential</b>
<b>Juncaceae – Rush Family</b>					
<i>Juncus acutus</i> ssp. <i>leopoldii</i> Southwestern spiny rush	4.2	Southwestern spiny rush occurs in coastal dunes, meadows and seeps (occasionally within alkaline seeps), and marshes and swamps, and occasionally within coastal salt marshes from sea level to 2,950 feet in elevation.	March-June/ Perennial Rhizomatous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species was observed within intermittent drainages in the southern portion of the BRSA. <b>Present</b>
<i>Juncus luciensis</i> Santa Lucia dwarf rush	1B.2	Santa Lucia dwarf rush occurs in chaparral, Great Basin scrub, lower montane coniferous forest, meadows and seeps, and vernal pools between 980 and 6,700 feet in elevation. This species appears to be widely distributed in California, but there is only one recorded location for this species in San Diego County, which is near Cuyamaca Rancho State Park at approximately 4,600 feet in elevation.	April-July/ Annual Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present. However, this species' geographic distribution in San Diego County indicates that it may only be found at higher elevations than in the BRSA. This species was not observed during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<b>Liliaceae – Lily Family</b>					
<i>Calochortus dunnii</i> Dunn's mariposa lily	CR 1B.2	Dunn's mariposa lily occurs on gabbroic or metavolcanic, rocky soils in closed-cone coniferous forest, chaparral, and valley and foothill grassland between 600 and 6,000 feet in elevation.	February-June/ Perennial Bulbiferous Herb	Past occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search. However, the majority of the SDNHM herbarium records are from southern San Diego County (approximately 13 miles south of the BRSA), and eastern San Diego County (approximately 18 miles east of the BRSA). There are no CNDDDB occurrences of this species within five miles of the Proposed Project area.	Suitable habitat for this species is present in the form of chaparral and grasslands, but the nearest documented occurrence of this species is between five and 15 miles from the BRSA. This species was not observed during special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<i>Calochortus weedii</i> var. <i>intermedius</i> Intermediate mariposa lily	1B.2	Intermediate mariposa lily occurs on rocky, calcareous substrates in chaparral, coastal scrub, and valley and foothill grassland between 340 and 2,810 feet in elevation. The southern extent of its known range appears to be in and around the City of Temecula.	May-July/ Perennial Bulbiferous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	The southern extent of this species range is approximately six miles north of the BRSA in the Temecula area. It is not known from San Diego County. <b>No Potential</b>

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<i>Lilium parryi</i> Lemon lily	1B.2	Lemon lily occurs in mesic areas in lower montane coniferous forest, meadows and seeps, riparian forest, and upper montane coniferous forest between 4,000 and 9,010 feet in elevation.	July-August/ Perennial Bulbiferous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	No suitable habitat is present. This species occurs at elevations higher than those within the BRSA. <b>No Potential</b>
<b>Poaceae – Grass Family</b>					
<i>Orcuttia californica</i> California Orcutt grass	FE CE 1B.1	California Orcutt grass occurs in vernal pools between 50 and 2,965 feet in elevation.	April-June/ Annual Herb	Recent CNDDDB occurrences have been recorded within five miles of the Proposed Project area. This species is present on MCAS Miramar.	Suitable habitat for this species is present and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed within vernal pools during either pass of special-status plant surveys in 2015, but drought conditions in the winter of 2014-2015 may have suppressed seedling germination. As a result, this species is not expected to occur within the BRSA. <b>Not Expected</b>
<b>Ruscaceae – Butcher's Broom Family</b>					
<i>Nolina cismontane</i> Chaparral nolina	1B.2	Chaparral nolina occurs in sandstone or gabbroic substrates in chaparral and coastal scrub between 460 and 4,185 feet in elevation. The San Diego Natural History Museum (SDNHM) occurrences nearest to the BRSA are primarily located along and north of State Route (SR-) 76.	March-July/ Perennial Evergreen Shrub	Recent CNDDDB occurrences have been recorded within one mile of the BRSA in the northern BRSA along and north of SR-76.	Suitable habitat is present and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>
<b>Themidaceae – Brodiaea Family</b>					
<i>Bloomeria clevelandii</i> San Diego goldenstar	1B.1	San Diego goldenstar occurs on clay substrates in chaparral, coastal scrub, valley and foothill grassland, and vernal pools between 160 and 1,525 feet in elevation.	April-May/ Perennial Bulbiferous Herb	Two recent CNDDDB occurrences are documented within 0.25 mile of the Proposed Project area. Recent CNDDDB occurrences have been documented within one mile of the Proposed Project area.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was observed on MCAS Miramar during the first pass of special-status plant surveys in 2015. <b>Present</b>
<i>Brodiaea filifolia</i> Thread-leaved brodiaea	FT CE 1B.1	Thread-leaved brodiaea occurs on clay soils in coastal scrub, cismontane woodland, valley and foothill grassland, vernal pools between 80 and 3,680 feet in elevation.	March-June/ Perennial Bulbiferous Herb	Recent CNDDDB occurrences have been recorded within five miles of the BRSA near the cities of Vista and San Marcos and the community of Rancho Santa Fe.	Suitable habitat for this species is present; clay soils are known to occur within the BRSA; the geographic and elevation ranges within the BRSA are consistent with those documented for this species; and this species has been documented within one to five miles of the BRSA. This species was confirmed to be blooming on Marine Corps Base, Camp Pendleton during the first pass of special-status plant surveys. However, this species was not observed within the BRSA during either pass of special-status plant surveys in 2015. <b>Not Present</b>

Species Name	Federal, State, and CRPR <sup>1</sup>	Habitat Preferences, Distribution Information, and Additional Notes	Flowering Phenology/ Life Form	Known Records <sup>2</sup>	Potential to Occur
<i>Brodiaea orcuttii</i> Orcutt's brodiaea	1B.1	Orcutt's brodiaea occurs on clay in closed-cone coniferous forest, chaparral, cismontane woodland, meadows, valley and foothill grassland, vernal pools between 90 and 5,550 feet in elevation.	May-July/ Perennial Bulbiferous Herb	Recent CNDDDB occurrences are documented within 0.25 mile of the Proposed Project area.	Suitable habitat for this species is present, and this species is documented from the same general geographic and elevation ranges occurring within the BRSA. This species was observed in the BRSA at multiple locations within MCAS Miramar during both passes of special-status plant surveys in 2015. <b>Present</b>
<i>Brodiaea santarosae</i> Santa Rosa basalt brodiaea	1B.2	Santa Rosa basalt brodiaea occurs on basaltic substrates in valley and foothill grassland between 1,850 and 3,430 feet in elevation. This species is geographically restricted to the Santa Rosa plateau in Riverside County.	May-June/ Perennial Bulbiferous Herb	Occurrences have been reported from within at least one of the nine quads in the CNPS Nine-Quad Search.	This species occurs at elevations that are at least 300 feet higher than the BRSA, and its geographic range is more than 15 miles from the BRSA. <b>No Potential</b>

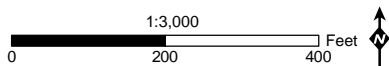
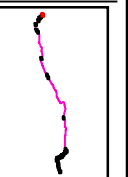
**ATTACHMENT C: SPECIAL-STATUS PLANT SPECIES OCCURRENCES MAP**





Attachment C: Special-Status Plant Species Occurrences Map 1 of 25

- |                            |                          |                                     |                 |
|----------------------------|--------------------------|-------------------------------------|-----------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | --- Biological Resource Survey Area | ● Engelmann oak |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▨ UCSD Chaparral Reserve            |                 |
| — Cross-Tie Connector Line | <b>Temporary Impacts</b> |                                     |                 |
| ▭ Existing Facility        | ▭ Laydown Area           |                                     |                 |
|                            | ▭ Workspace              |                                     |                 |



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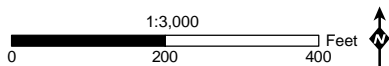
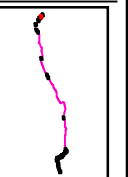


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**Attachment C: Special-Status Plant Species Occurrences Map 2 of 25**

**Pipeline Safety & Reliability Project**

- |                            |                          |                                     |                 |
|----------------------------|--------------------------|-------------------------------------|-----------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | --- Biological Resource Survey Area | ● Engelmann oak |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ UCSD Chaparral Reserve            |                 |
| — Cross-Tie Connector Line | <b>Temporary Impacts</b> |                                     |                 |
| ▭ Existing Facility        | ▭ Laydown Area           |                                     |                 |
|                            | ▭ Workspace              |                                     |                 |





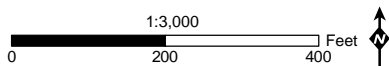
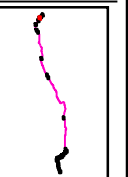


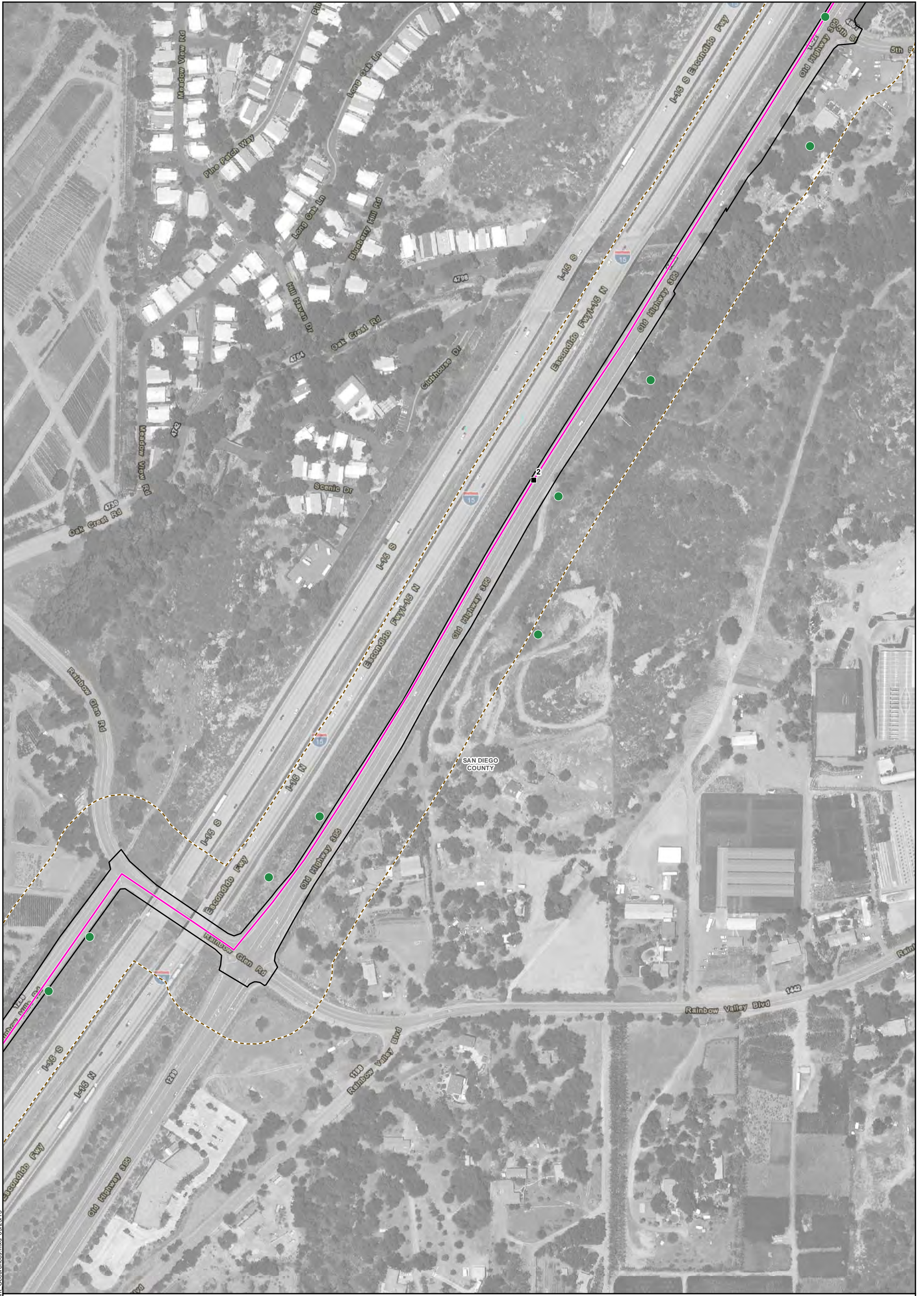
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**Attachment C: Special-Status Plant Species Occurrences Map 3 of 25**

**Pipeline Safety & Reliability Project**

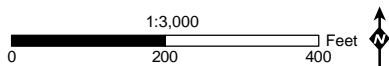
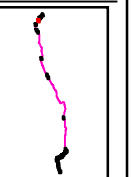
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|----------------------------|--------------------------|-------------------------------------|-----------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | --- Biological Resource Survey Area | ● Engelmann oak |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ UCSD Chaparral Reserve            |                 |
| — Cross-Tie Connector Line | <b>Temporary Impacts</b> |                                     |                 |
| ▭ Existing Facility        | ▭ Laydown Area           |                                     |                 |
|                            | ▭ Workspace              |                                     |                 |



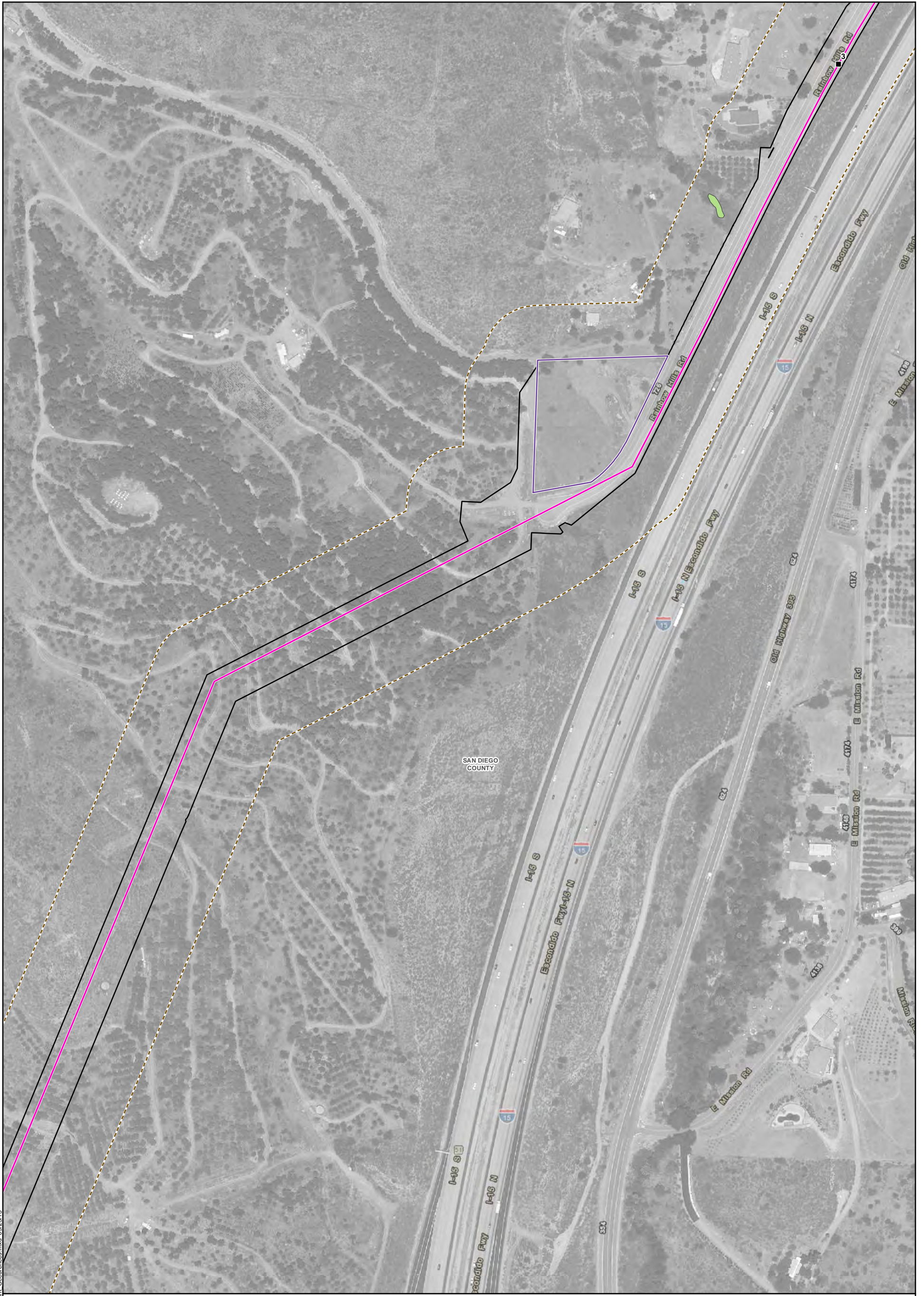


Attachment C: Special-Status Plant Species Occurrences Map 4 of 25

- Milepost
- Permanent Impacts
  - Aboveground Facility
  - UCSD Chaparral Reserve
- Biological Resource Survey Area
- Engelmann oak
- Proposed Project Route
- Cross-Tie Connector Line
- Existing Facility
- Temporary Impacts
  - Laydown Area
  - Workspace



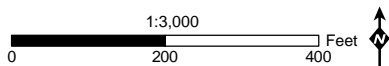
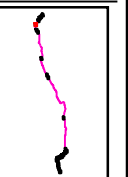
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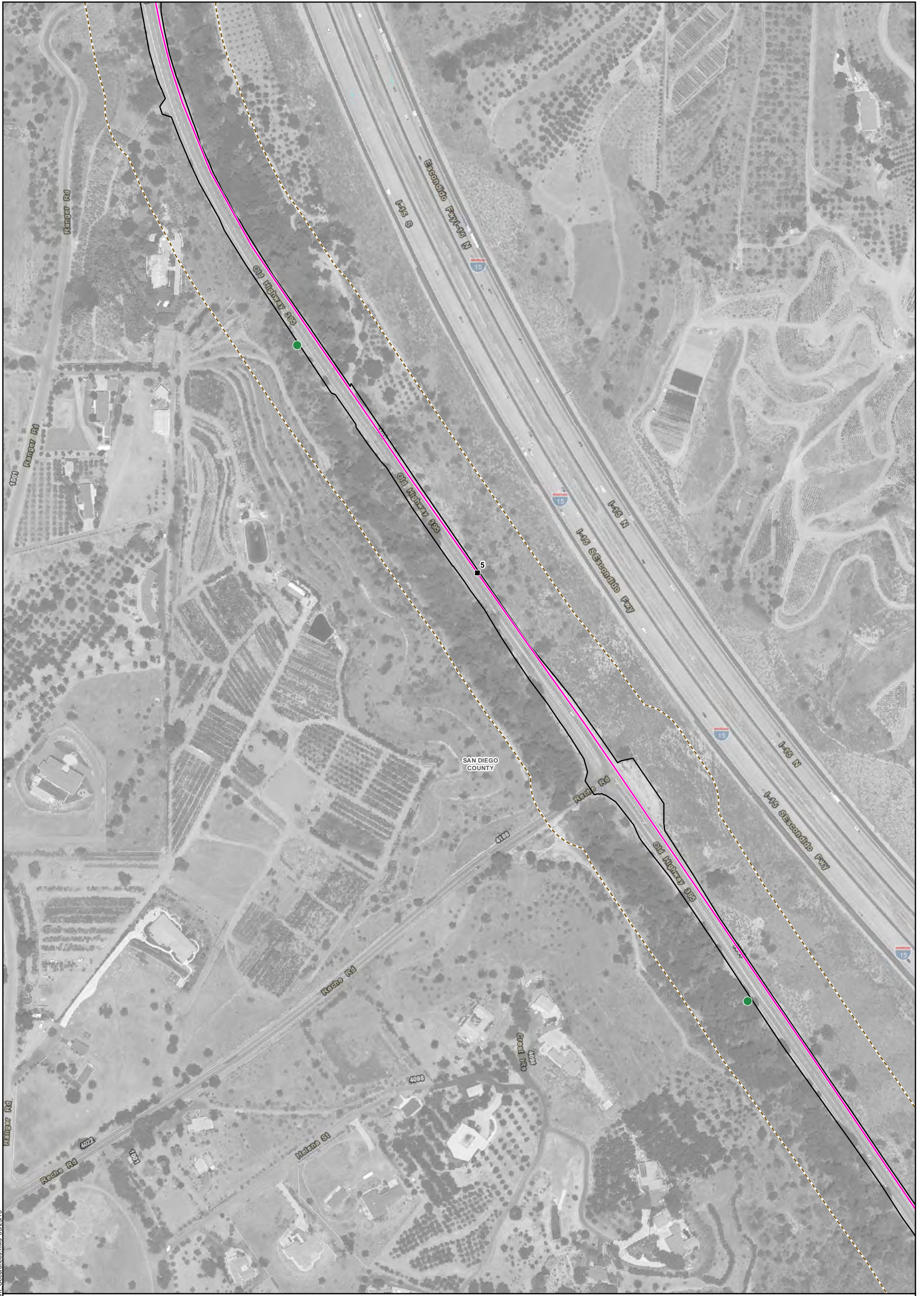
Attachment C: Special-Status Plant Species Occurrences Map 5 of 25

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- Milepost
- Permanent Impacts
  - Aboveground Facility
  - Biological Resource Survey Area
  - Parry's tetracoccus
- Proposed Project Route
- Cross-Tie Connector Line
- Temporary Impacts
  - Laydown Area
  - Workspace
- Existing Facility
- UCSD Chaparral Reserve



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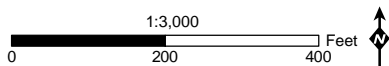
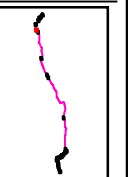


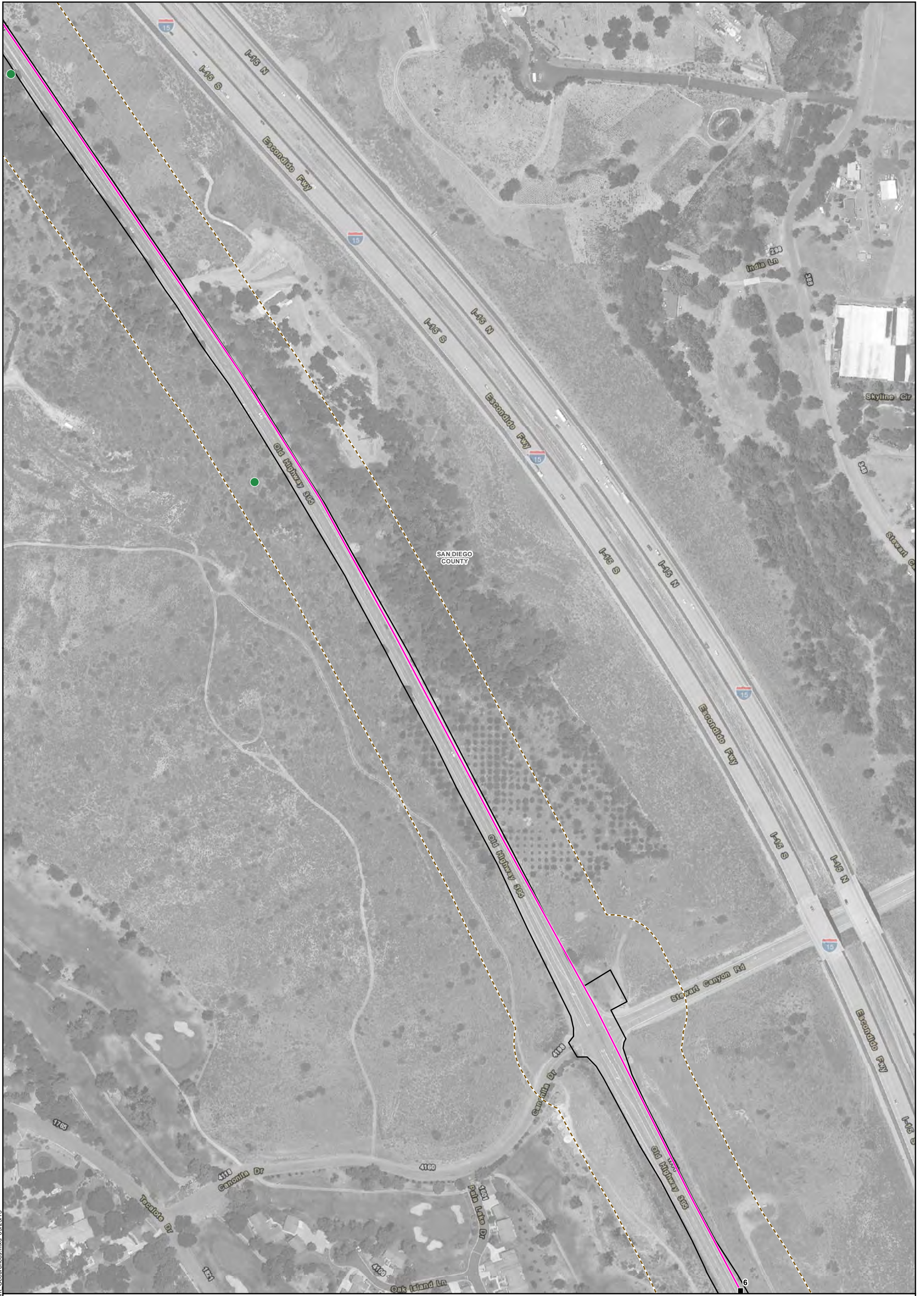
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**Attachment C: Special-Status Plant Species Occurrences Map 6 of 25**

**Pipeline Safety & Reliability Project**

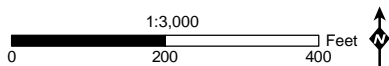
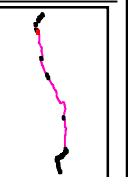
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|----------------------------|--------------------------|-------------------------------------|-----------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | --- Biological Resource Survey Area | ● Engelmann oak |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ UCSD Chaparral Reserve            |                 |
| — Cross-Tie Connector Line | <b>Temporary Impacts</b> |                                     |                 |
| ▭ Existing Facility        | ▭ Laydown Area           |                                     |                 |
|                            | ▭ Workspace              |                                     |                 |





Attachment C: Special-Status Plant Species Occurrences Map 7 of 25

- |                            |                        |                                     |                 |
|----------------------------|------------------------|-------------------------------------|-----------------|
| ■ Milepost                 | Permanent Impacts      | --- Biological Resource Survey Area | ● Engelmann oak |
| — Proposed Project Route   | ▭ Aboveground Facility | ▨ UCSD Chaparral Reserve            |                 |
| — Cross-Tie Connector Line | Temporary Impacts      |                                     |                 |
| ▭ Existing Facility        | ▭ Laydown Area         |                                     |                 |
|                            | ▭ Workspace            |                                     |                 |



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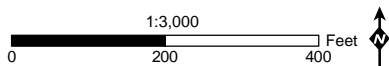


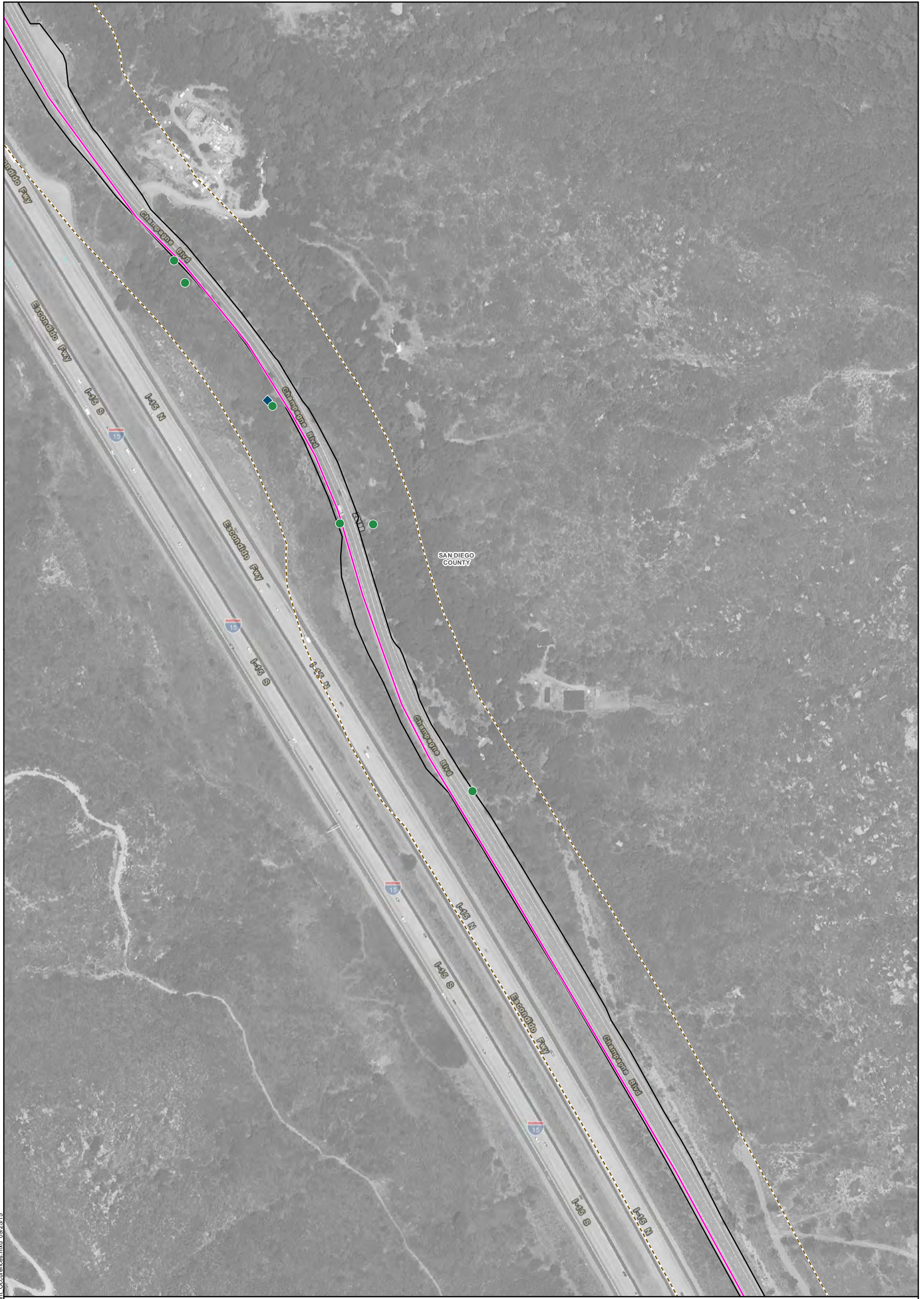
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**Attachment C: Special-Status Plant Species Occurrences Map 8 of 25**

**Pipeline Safety & Reliability Project**

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|----------------------------|--------------------------|-------------------------------------|-----------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | --- Biological Resource Survey Area | ● Engelmann oak |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ UCSD Chaparral Reserve            |                 |
| — Cross-Tie Connector Line | <b>Temporary Impacts</b> |                                     |                 |
| ▭ Existing Facility        | ▭ Laydown Area           |                                     |                 |
|                            | ▭ Workspace              |                                     |                 |



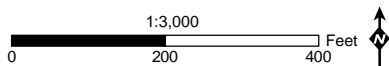
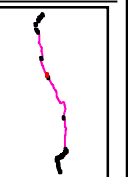


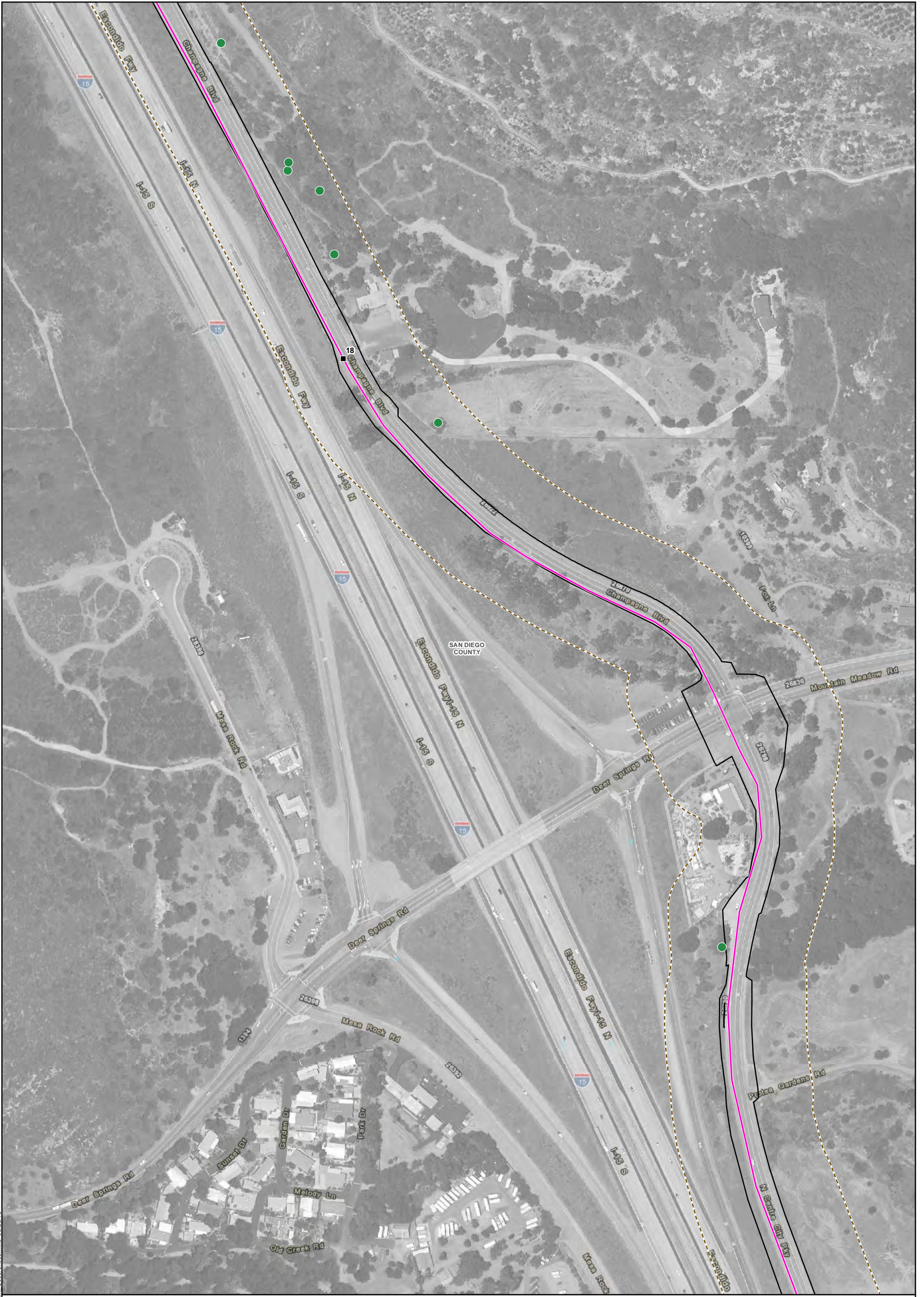
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**Attachment C: Special-Status Plant Species Occurrences Map 9 of 25**

**Pipeline Safety & Reliability Project**

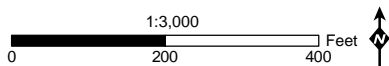
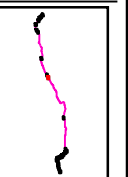
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|----------------------------|--------------------------|-------------------------------------|-----------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | --- Biological Resource Survey Area | ● Engelmann oak |
| — Proposed Project Route   | ▭ Aboveground Facility   | --- UCSD Chaparral Reserve          | ◆ Summer holly  |
| — Cross-Tie Connector Line | <b>Temporary Impacts</b> |                                     |                 |
| ▭ Existing Facility        | ▭ Laydown Area           |                                     |                 |
|                            | ▭ Workspace              |                                     |                 |





Attachment C: Special-Status Plant Species Occurrences Map 10 of 25

- Milepost
- Proposed Project Route
- Cross-Tie Connector Line
- Existing Facility
- Permanent Impacts
  - Aboveground Facility
  - Temporary Impacts
    - Laydown Area
    - Workspace
- Biological Resource Survey Area
- UCSD Chaparral Reserve
- Engelmann oak



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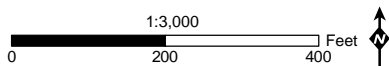
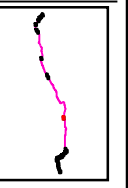


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**Attachment C: Special-Status Plant Species Occurrences Map 11 of 25**

**Pipeline Safety & Reliability Project**

- |                            |                          |                                     |                       |
|----------------------------|--------------------------|-------------------------------------|-----------------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | --- Biological Resource Survey Area | ● Engelmann oak       |
| — Proposed Project Route   | ▭ Aboveground Facility   | --- UCSD Chaparral Reserve          | ■ California adolphia |
| — Cross-Tie Connector Line | <b>Temporary Impacts</b> |                                     |                       |
| ▭ Existing Facility        | ▭ Laydown Area           |                                     |                       |
|                            | ▭ Workspace              |                                     |                       |

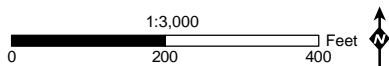
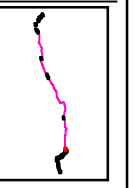




Attachment C: Special-Status Plant Species Occurrences Map 12 of 25

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■ Milepost	<b>Permanent Impacts</b>	--- Biological Resource Survey Area	● Ashy spike-moss	◆ San Diego County viguiera
— Proposed Project Route	▭ Aboveground Facility	▭ UCSD Chaparral Reserve	● Engelman oak	◆ San Diego sagewort
— Cross-Tie Connector Line	<b>Temporary Impacts</b>		● Decumbent goldenbush	◆ Southwestern spiny rush
▭ Existing Facility	▭ Laydown Area		● Graceful tarplant	▭ Nuttall's scrub oak
	▭ Workspace		● Nuttall's scrub oak	

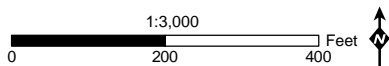


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Attachment C: Special-Status Plant Species Occurrences Map 13 of 25

- Milepost
- Proposed Project Route
- Cross-Tie Connector Line
- Existing Facility
- Permanent Impacts Aboveground Facility
- Temporary Impacts Laydown Area
- Workspace
- Biological Resource Survey Area
- UCSD Chaparral Reserve
- Ashy spike-moss
- Nuttall's scrub oak
- ◆ San Diego County viguiera

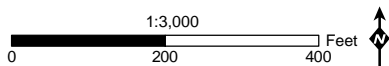
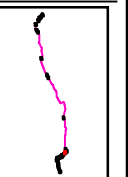


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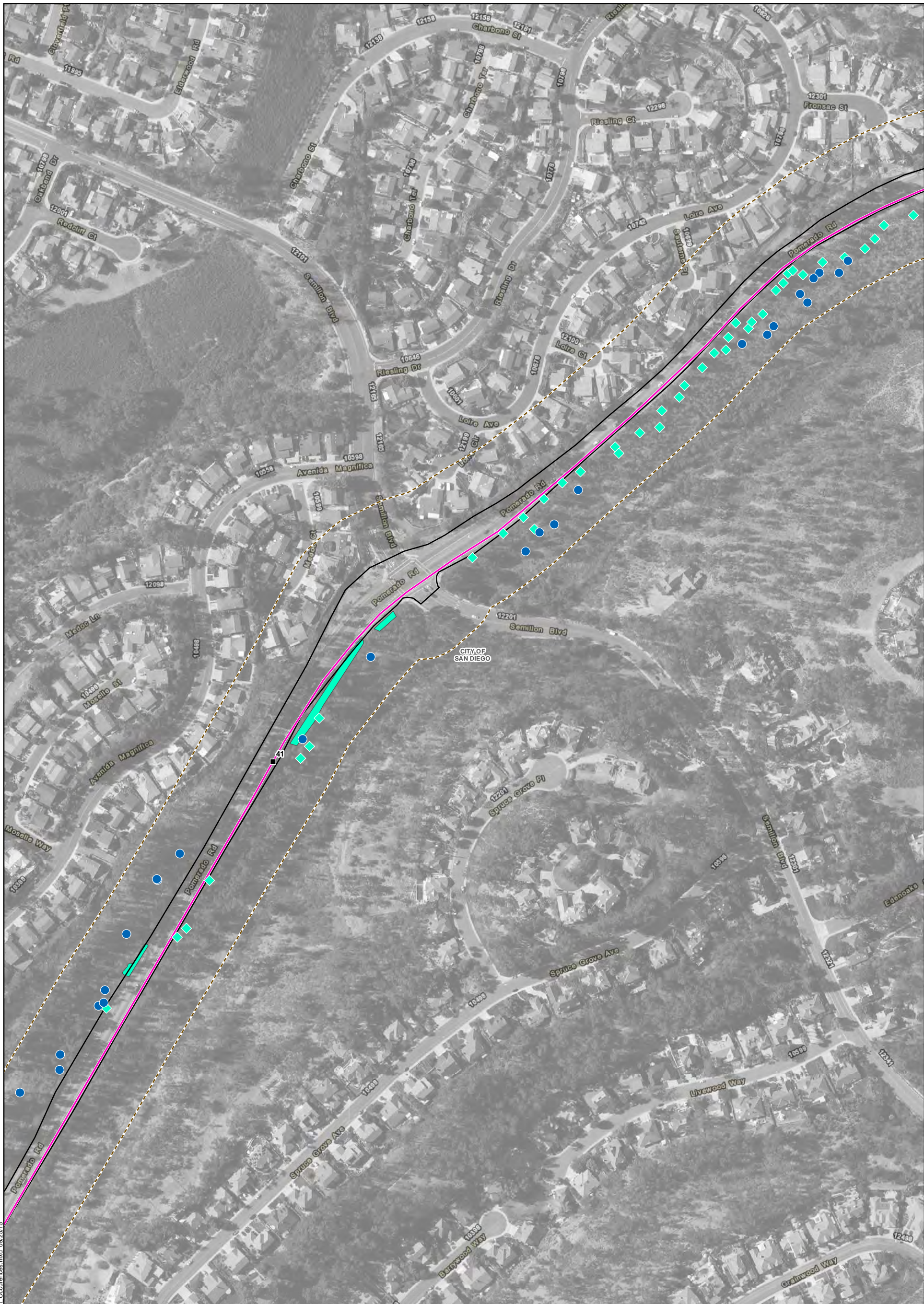


Attachment C: Special-Status Plant Species Occurrences Map 14 of 25

- |                            |                          |                                     |                             |
|----------------------------|--------------------------|-------------------------------------|-----------------------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | --- Biological Resource Survey Area | ● Ashy spike-moss           |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ UCSD Chaparral Reserve            | ◆ San Diego County viguiera |
| — Cross-Tie Connector Line | <b>Temporary Impacts</b> |                                     |                             |
| ▭ Existing Facility        | ▭ Laydown Area           |                                     |                             |
|                            | ▭ Workspace              |                                     |                             |

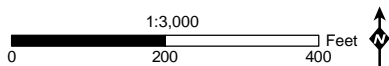


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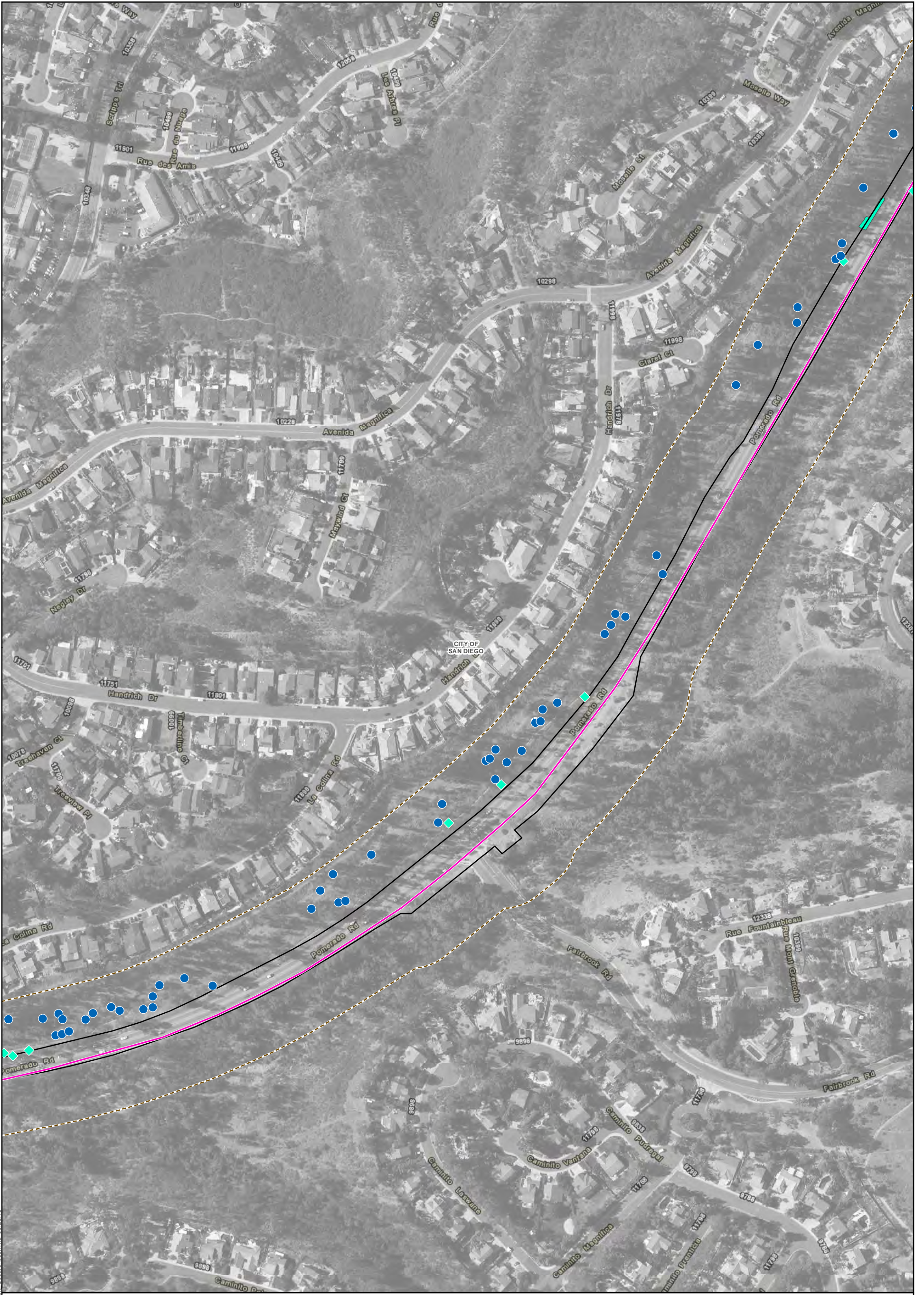


Attachment C: Special-Status Plant Species Occurrences Map 15 of 25

- |                            |                        |                                     |                             |
|----------------------------|------------------------|-------------------------------------|-----------------------------|
| ■ Milepost                 | Permanent Impacts      | --- Biological Resource Survey Area | ● Ashy spike-moss           |
| — Proposed Project Route   | ▭ Aboveground Facility | ▭ UCSD Chaparral Reserve            | ◆ San Diego County viguiera |
| — Cross-Tie Connector Line | Temporary Impacts      |                                     | ▭ San Diego County viguiera |
| ▭ Existing Facility        | ▭ Laydown Area         |                                     |                             |
|                            | ▭ Workspace            |                                     |                             |

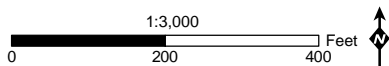
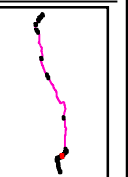


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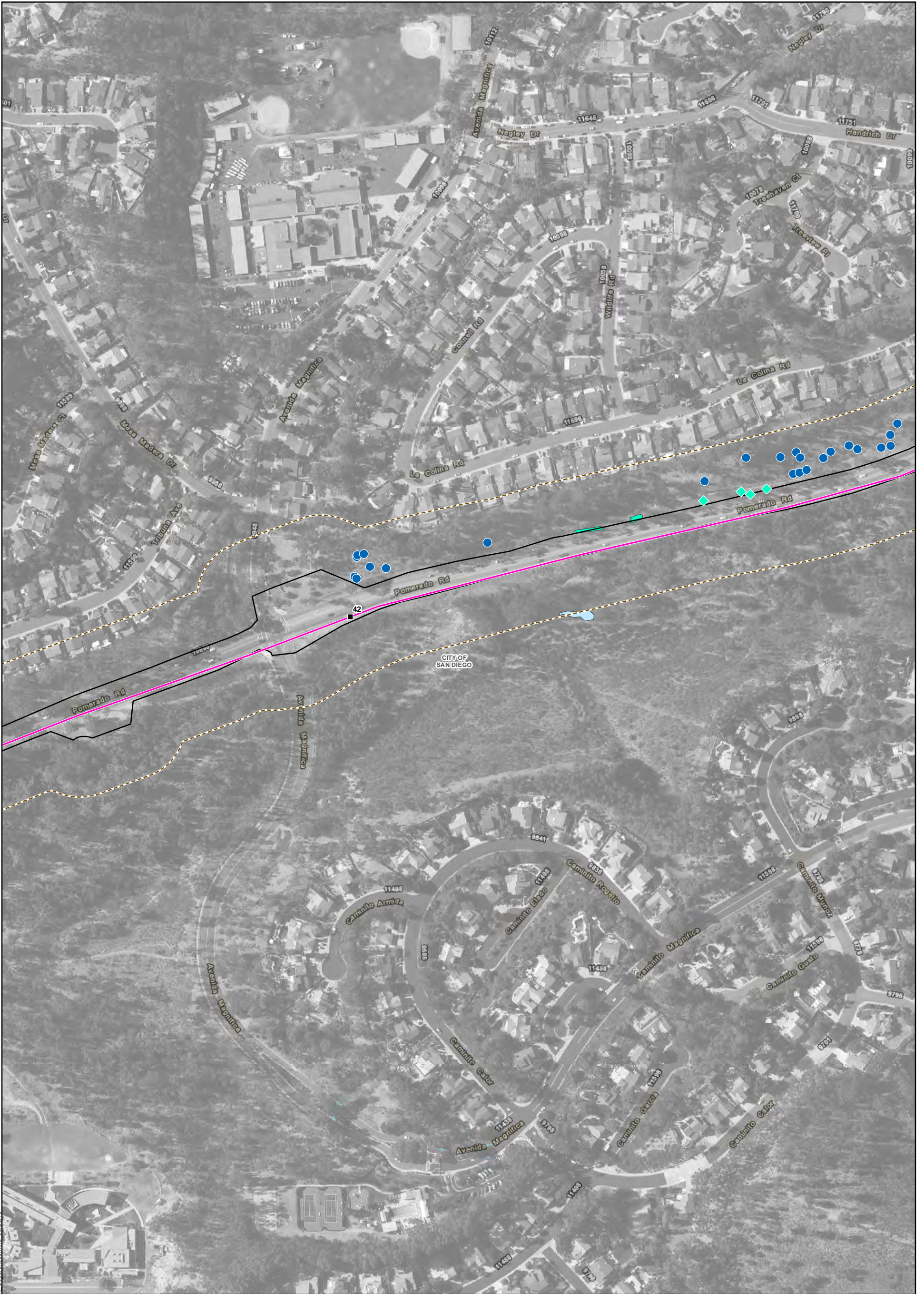


Attachment C: Special-Status Plant Species Occurrences Map 16 of 25

- Milepost
- Permanent Impacts
  - Aboveground Facility
  - Temporary Impacts
    - Laydown Area
    - Workspace
- Biological Resource Survey Area
- Ashy spike-moss
- ◆ San Diego County viguiera
- Proposed Project Route
- Cross-Tie Connector Line
- Existing Facility
- UCSD Chaparral Reserve

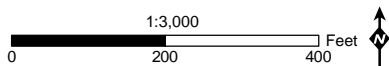


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Attachment C: Special-Status Plant Species Occurrences Map 17 of 25

- |                            |                          |                                     |                             |
|----------------------------|--------------------------|-------------------------------------|-----------------------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | --- Biological Resource Survey Area | ● Ashy spike-moss           |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ UCSD Chaparral Reserve            | ◆ San Diego County viguiera |
| — Cross-Tie Connector Line | <b>Temporary Impacts</b> |                                     | □ Orcutt's brodiaea         |
| ▭ Existing Facility        | ▭ Laydown Area           |                                     | ▭ San Diego County viguiera |
|                            | ▭ Workspace              |                                     |                             |

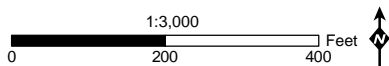


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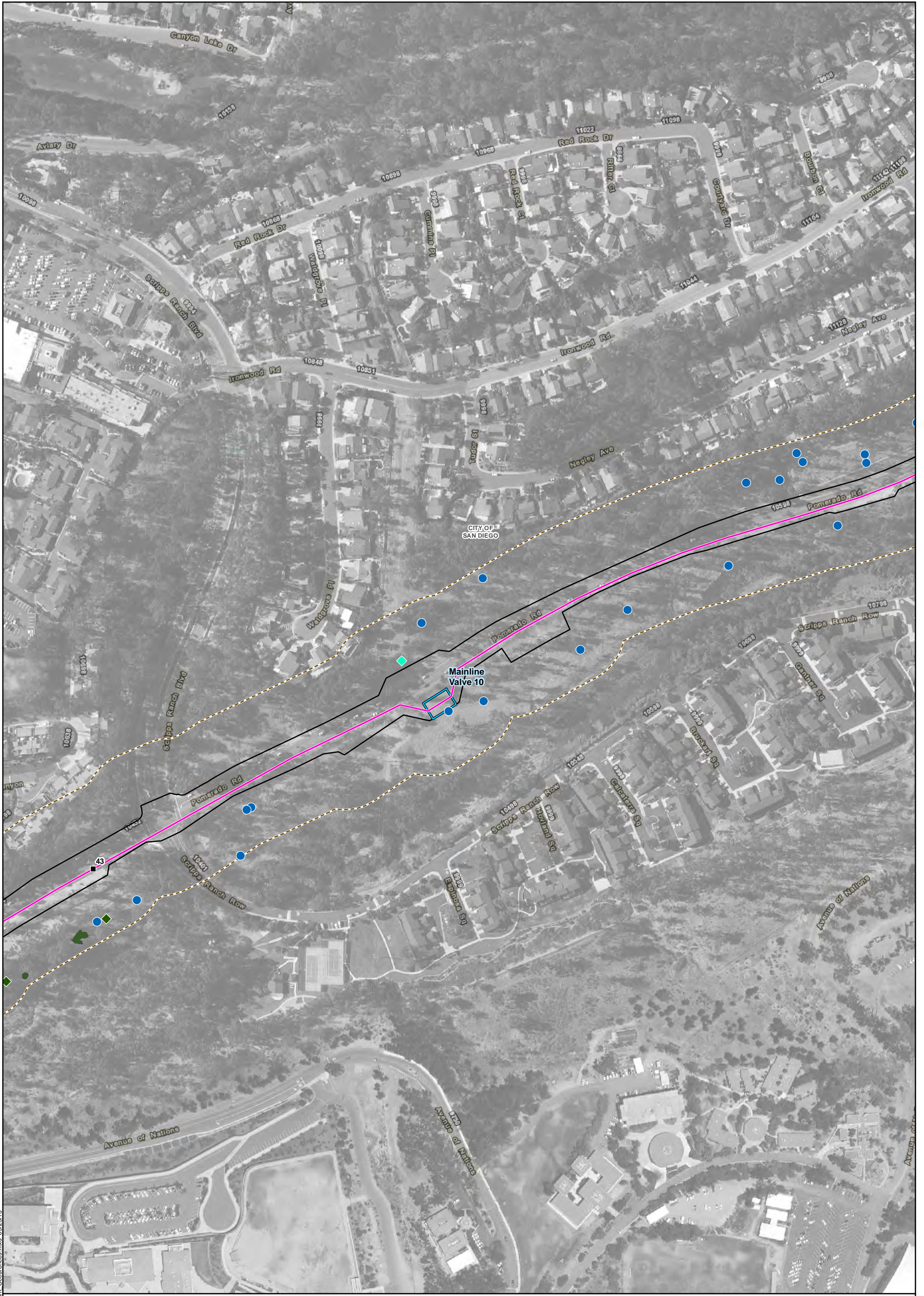
Attachment C: Special-Status Plant Species Occurrences Map 18 of 25

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|----------------------------|--------------------------|-------------------------------------|-----------------------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | --- Biological Resource Survey Area | ● Ashy spike-moss           |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ UCSD Chaparral Reserve            | ◆ San Diego County viguiera |
| — Cross-Tie Connector Line | <b>Temporary Impacts</b> |                                     |                             |
| ▭ Existing Facility        | ▭ Laydown Area           |                                     |                             |
|                            | ▭ Workspace              |                                     |                             |



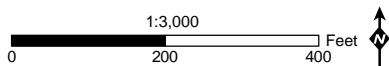
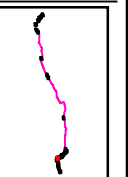
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Attachment C: Special-Status Plant Species Occurrences Map 19 of 25

- Milepost
- Proposed Project Route
- Cross-Tie Connector Line
- Existing Facility
- Permanent Impacts
- Aboveground Facility
- Temporary Impacts
- Laydown Area
- Workspace
- Biological Resource Survey Area
- UCSD Chaparral Reserve
- Ashy spike-moss
- ◆ San Diego County viguiera
- ◆ Western dichondra
- ◆ Western dichondra

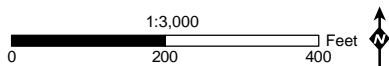
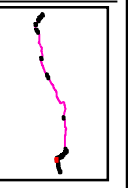


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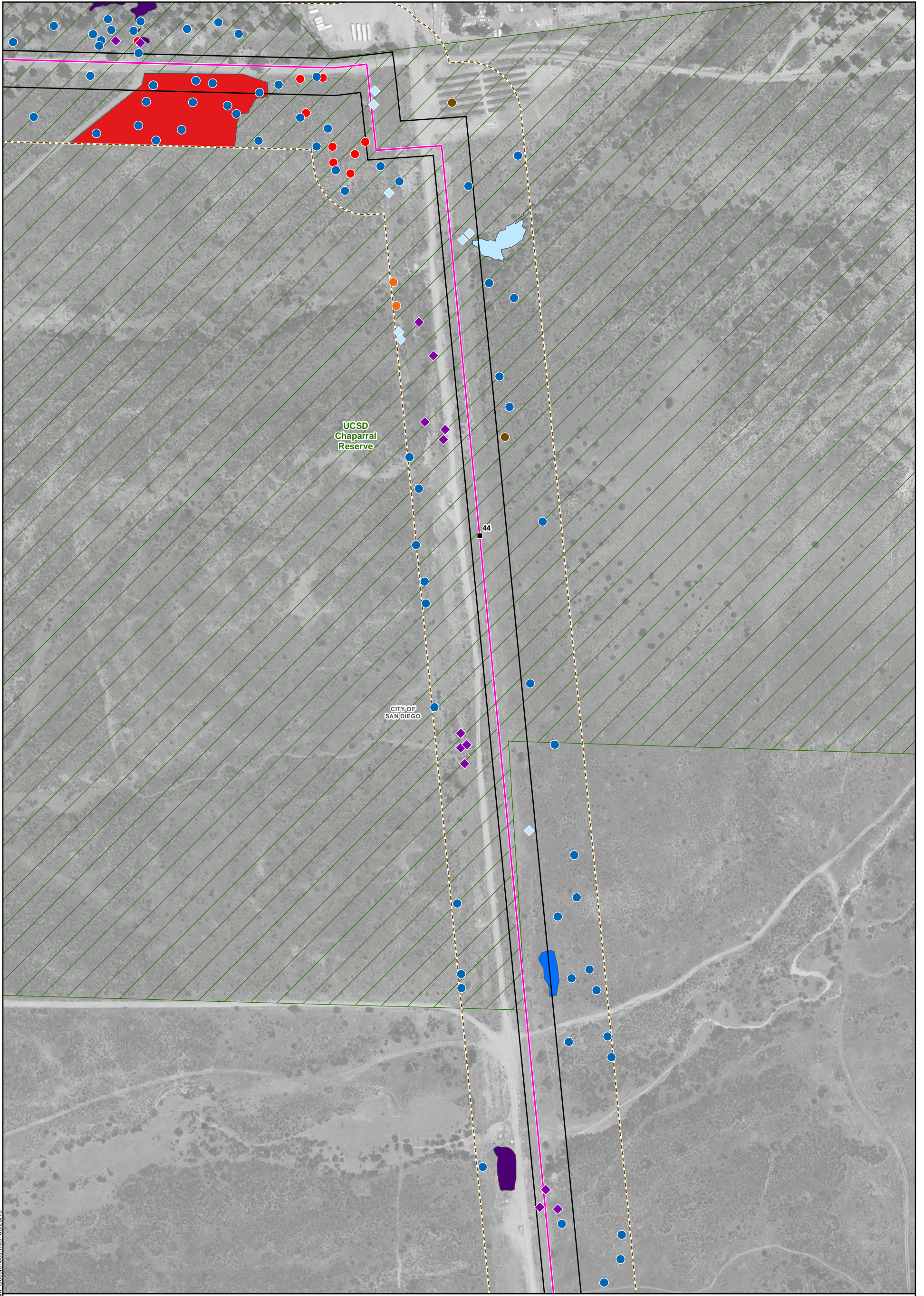


Attachment C: Special-Status Plant Species Occurrences Map 20 of 25

- |                            |                          |                                     |                            |                            |
|----------------------------|--------------------------|-------------------------------------|----------------------------|----------------------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | --- Biological Resource Survey Area | ● Ashy spike-moss          | ◆ Southwestern spiny rush  |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ UCSD Chaparral Reserve            | ● Golden-rayed pentachaeta | ◆ Western dichondra        |
| — Cross-Tie Connector Line | <b>Temporary Impacts</b> |                                     | ● Nuttall's scrub oak      | ■ Golden-rayed pentachaeta |
| ▭ Existing Facility        | ▭ Laydown Area           |                                     | ◆ San Diego goldenstar     | ■ San Diego goldenstar     |
|                            | ▭ Workspace              |                                     | ◆ San Diego sagewort       | ■ Western dichondra        |



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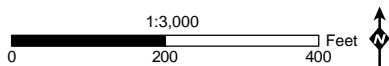
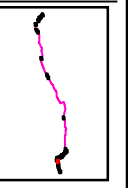


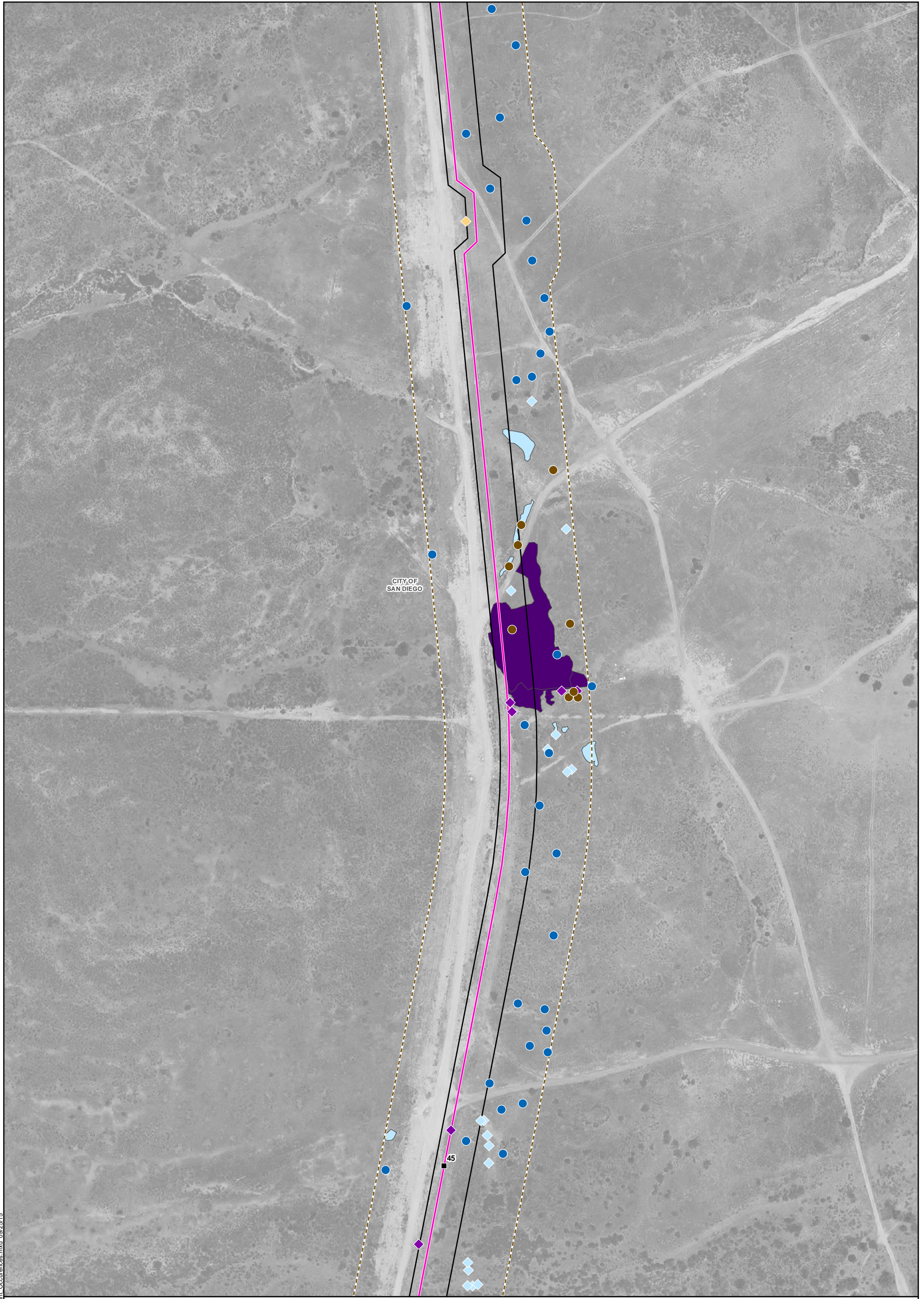
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**Attachment C: Special-Status Plant Species Occurrences Map 21 of 25**

**Pipeline Safety & Reliability Project**

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|----------------------------|--------------------------|-------------------------------------|----------------------------|----------------------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | --- Biological Resource Survey Area | ● Ashy spike-moss          | ◆ San Diego goldenstar     |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ UCSD Chaparral Reserve            | ● Golden-rayed pentachaeta | ▭ Ashy spike-moss          |
| — Cross-Tie Connector Line | <b>Temporary Impacts</b> |                                     | ● Graceful tarplant        | ▭ Golden-rayed pentachaeta |
| ▭ Existing Facility        | ▭ Laydown Area           |                                     | ● Nuttall's scrub oak      | ▭ Orcutt's brodiaea        |
|                            | ▭ Workspace              |                                     | ◆ Orcutt's brodiaea        | ▭ San Diego goldenstar     |

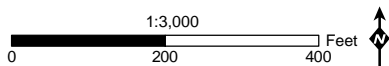
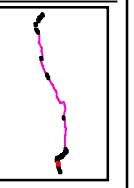




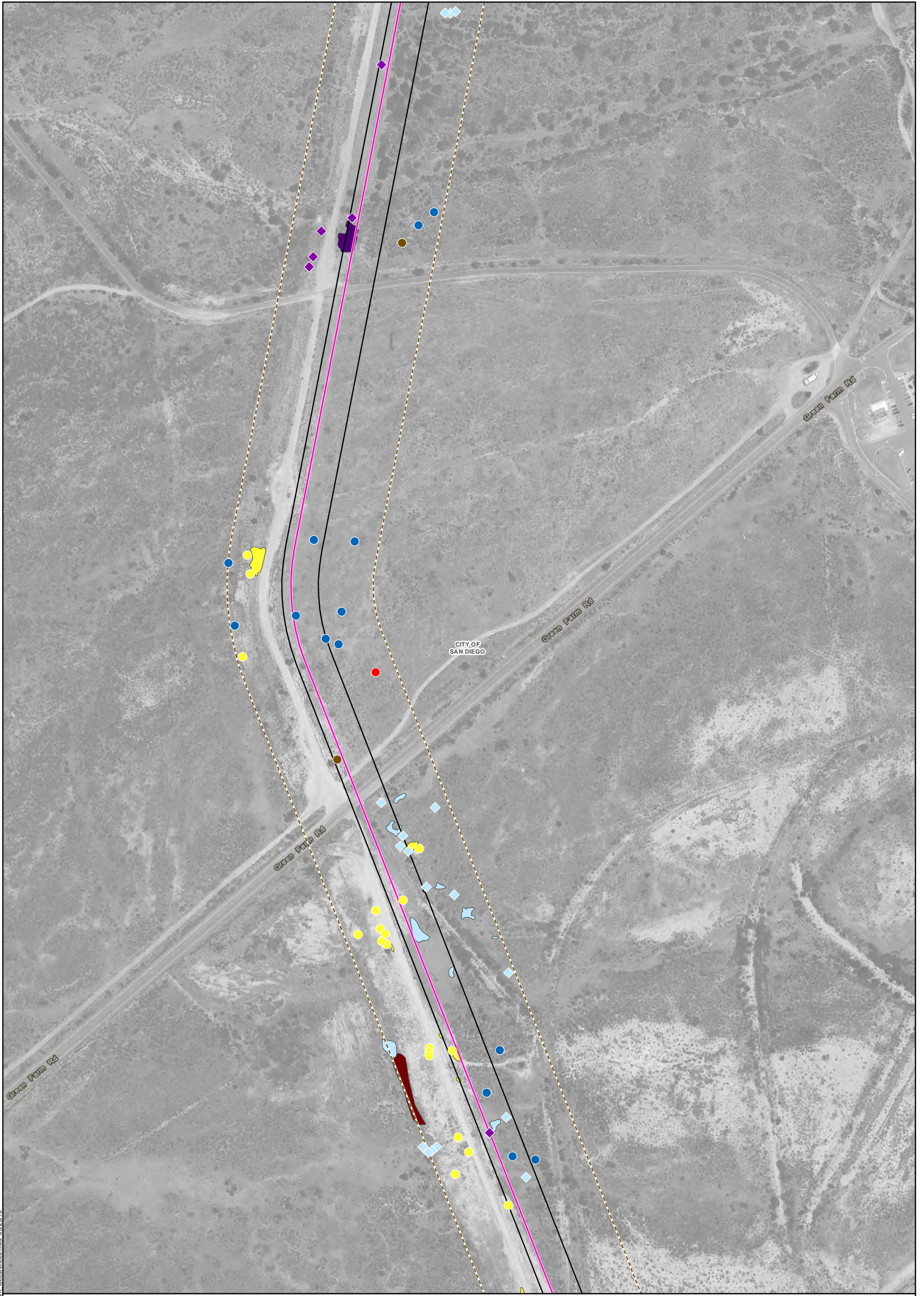
Attachment C: Special-Status Plant Species Occurrences Map 22 of 25

Pipeline Safety & Reliability Project

- |                            |                          |                                     |                             |                        |
|----------------------------|--------------------------|-------------------------------------|-----------------------------|------------------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | --- Biological Resource Survey Area | ● Ashy spike-moss           | ■ Orcutt's brodiaea    |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ UCSD Chaparral Reserve            | ● Graceful tarplant         | ■ San Diego goldenstar |
| — Cross-Tie Connector Line | <b>Temporary Impacts</b> |                                     | ◆ Orcutt's brodiaea         |                        |
| ▭ Existing Facility        | ▭ Laydown Area           |                                     | ◆ San Diego goldenstar      |                        |
|                            | ▭ Workspace              |                                     | ◆ Small-flowered microseris |                        |



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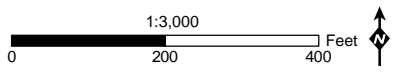
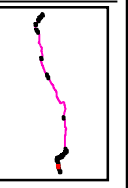


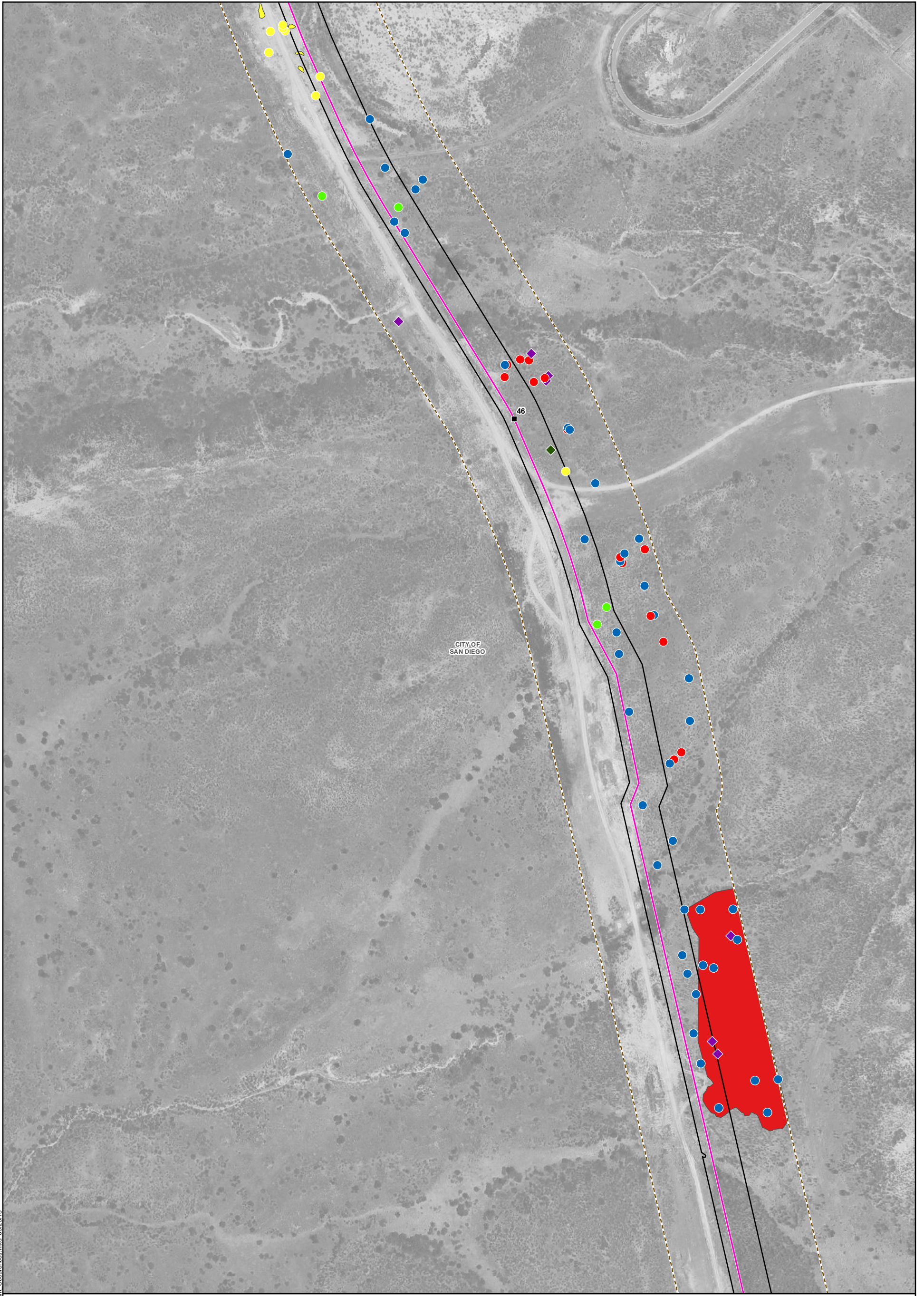
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**Attachment C: Special-Status Plant Species Occurrences Map 23 of 25**

**Pipeline Safety & Reliability Project**

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|----------------------------|--------------------------|-------------------------------------|----------------------------|---------------------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | --- Biological Resource Survey Area | ● Ashy spike-moss          | ◆ San Diego goldenstar    |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ UCSD Chaparral Reserve            | ● Golden-rayed pentachaeta | ▭ Graceful tarplant       |
| — Cross-Tie Connector Line | <b>Temporary Impacts</b> |                                     | ● Graceful tarplant        | ▭ Long-spined spineflower |
| ▭ Existing Facility        | ▭ Laydown Area           |                                     | ● Long-spined spineflower  | ▭ Orcutt's brodiaea       |
|                            | ▭ Workspace              |                                     | ◆ Orcutt's brodiaea        | ▭ San Diego goldenstar    |



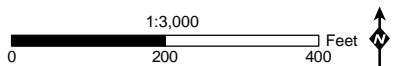
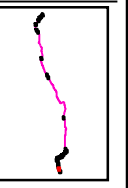


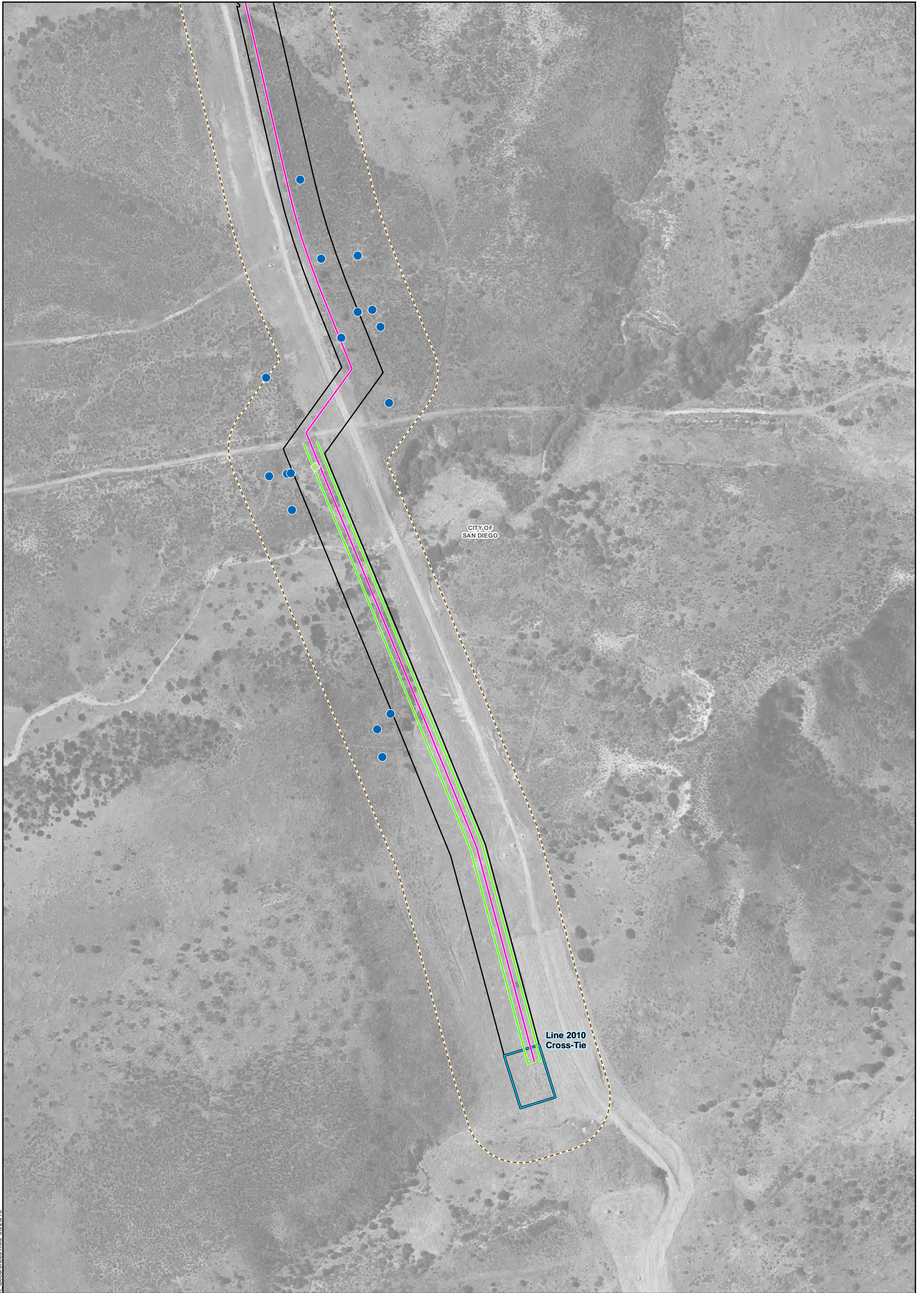
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**Attachment C: Special-Status Plant Species Occurrences Map 24 of 25**

**Pipeline Safety & Reliability Project**

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|----------------------------|--------------------------|-------------------------------------|----------------------------|----------------------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | --- Biological Resource Survey Area | ● Ashy spike-moss          | ◆ Western dichondra        |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ UCSD Chaparral Reserve            | ● Brewer's calandrinia     | ■ Golden-rayed pentachaeta |
| — Cross-Tie Connector Line | <b>Temporary Impacts</b> |                                     | ● Golden-rayed pentachaeta | ● Long-spined spineflower  |
| ▭ Existing Facility        | ▭ Laydown Area           |                                     | ● Long-spined spineflower  | ◆ San Diego goldenstar     |
|                            | ▭ Workspace              |                                     |                            |                            |



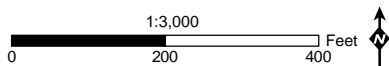
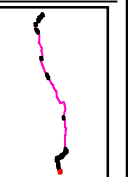


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**Attachment C: Special-Status Plant Species Occurrences Map 25 of 25**

**Pipeline Safety & Reliability Project**

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|----------------------------|--------------------------|-------------------------------------|---------------------------|
| ■ Milepost                 | <b>Permanent Impacts</b> | --- Biological Resource Survey Area | ● Ashy spike-moss         |
| — Proposed Project Route   | ▭ Aboveground Facility   | ▭ UCSD Chaparral Reserve            | ◆ San Diego barrel cactus |
| — Cross-Tie Connector Line | <b>Temporary Impacts</b> |                                     |                           |
| ▭ Existing Facility        | ▭ Laydown Area           |                                     |                           |
|                            | ▭ Workspace              |                                     |                           |







**ATTACHMENT D: PLANT SPECIES OBSERVED**



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## Attachment D

### Plants Species Observed

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#### Ferns and Allies

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##### Polypodiaceae - Polypody Family

*Polypodium californicum* California polypody

##### Pteridaceae - Brake Family

*Cheilanthes newberryi* Newberry's lip fern  
*Pellaea andromedaefolia* Coffee fern  
*Pellaea mucronata* var. *mucronata* Bird's-foot cliff-break  
*Pentagramma triangularis* ssp. *triangularis* Goldback fern

##### Selaginellaceae - Spike-Moss Family

*Selaginella asprella* Bluish spike-moss  
*Selaginella cinerascens* Ashy spike-moss

#### Gymnosperms

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##### Cupressaceae - Cypress Family

*Sequoia sempervirens* Coast redwood

##### Pinaceae - Pine Family

\**Pinus* sp. Pine

#### Angiosperms - Dicots

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##### Adoxaceae - Muskroot Family

*Sambucus nigra* ssp. *caerulea* Blue elderberry

##### Aizoaceae - Fig-Marigold Family

\**Carpobrotus edulis* Fig-marigold  
 \**Mesembryanthemum crystallinum* Crystalline iceplant

##### Amaranthaceae - Amaranth Family

\**Amaranthus albus* Tumble pigweed  
*Amaranthus californicus* California amaranth

##### Anacardiaceae - Cashew or Sumac Family

*Malosma laurina* Laurel sumac  
*Rhus aromatica* Sourberry  
*Rhus integrifolia* Lemonadeberry  
*Rhus ovata* Sugar sumac  
 \**Schinus molle* Peruvian pepper tree  
 \**Schinus terebinthifolius* Brazilian pepper tree  
*Toxicodendron diversilobum* Western poison-oak

##### Apiaceae (Umbelliferae) - Carrot Family

\**Anthriscus caucalis* Bur-chervil  
*Apiastrum angustifolium* Wild celery  
 \**Apium graveolens* Celery  
*Bowlesia incana* Hoary bowlesia  
 \**Conium maculatum* Poison hemlock  
 \**Daucus carota* Queen Anne's lace  
*Daucus pusillus* Southwestern carrot  
 \**Foeniculum vulgare* Sweet fennel  
*Sanicula arguta* Sanicle

## Attachment D: Plant Species Observed

\**Torilis arvensis*

### Apocynaceae - Dogbane/Milkweed Family

*Asclepias fascicularis*

*Asclepias linaria*

\**Vinca major*

### Asteraceae (Compositae) - Sunflower Family

*Achillea millefolium*

*Acourtia microcephala*

*Agoseris retrorsa*

*Ambrosia acanthicarpa*

*Ambrosia psilostachya*

\**Anthemis cotula*

*Artemisia californica*

*Artemisia douglasiana*

*Artemisia palmeri*

*Baccharis pilularis* ssp. *consanguinea*

*Baccharis salicifolia* ssp. *salicifolia*

*Baccharis sarothroides*

*Bahiopsis laciniata*

*Baileya multiradiata*

*Bebbia juncea* var. *aspera*

*Brickellia californica*

\**Centaurea melitensis*

\**Carduus pycnocephalus* ssp. *pycnocephalus*

*Chaenactis artemisiifolia*

*Chaenactis glabriuscula*

\**Cirsium vulgare*

*Corethrogyne filaginifolia*

\**Cotula australis*

\**Cynara cardunculus* ssp. *cardunculus*

*Deinandra fasciculata*

\**Dittrichia graveolens*

*Encelia californica*

*Encelia farinosa*

*Erigeron foliosus* var. *confinis*

*Eriophyllum confertiflorum*

\**Glebionis coronarium*

*Gutierrezia californica*

*Hazardia squarrosa*

\**Hedypnois cretica*

*Helianthus annuus*

*Helianthus californicus*

\**Helminthotheca echioides*

*Heterotheca grandiflora*

*Holocarpha virgata* ssp. *elongata*

\**Hypochaeris glabra*

\**Hypochaeris radicata*

*Isocoma menziesii*

*Isocoma menziesii* var. *decumbens*

*Isocoma menziesii* var. *menziesii*

*Isocoma menziesii* var. *vernonioides*

\**Lactuca serriola*

*Laennecia coulteri*

Knot hedge parsley

Narrow-leaf milkweed

Milkweed

Periwinkle

Common yarrow

Acourtia

Spear-leaf agoseris

Annual bur-sage

Western ragweed

Mayweed

California sagebrush

Douglas' mugwort

San Diego sagewort

Coyote brush

Mulefat

Broom baccharis

San Diego County viguiera

Desert-marigold

Rush sweetbush

California brickell bush

Tocalote

Italian thistle

White pincushion

Pebble pincushion

Spear thistle

Sand-aster

Australian brass-buttons

Artichoke

Clustered moonshine-daisy

Stinkwort

California encelia

Brittlebush

Leafy fleabane

Yellow-yarrow

Garland daisy

California matchweed

Saw-toothed hazardia

Crete weed

Common sunflower

California sunflower

Bristly ox-tongue

Telegraph weed

Graceful tarplant

Smooth cat's-ear

Rough cat's ear

Goldenbush

Decumbent goldenbush

San Diego goldenbush

Coastal goldenbush

Prickly lettuce

Coulter's conyza

<i>Lasthenia californica</i> ssp. <i>californica</i>	California goldfields
<i>Layia platyglossa</i>	Coastal tidy tips
<i>Logfia depressa</i>	Dwarf cottonrose
* <i>Logfia gallica</i>	Narrowleaf cottonrose
* <i>Matricaria discoidea</i>	Pineapple-weed
<i>Microseris douglasii</i> ssp. <i>douglasii</i>	Douglas' silverpuffs
<i>Microseris douglasii</i> ssp. <i>platycarpa</i>	San Diego silverpuffs
<i>Osmadenia tenella</i>	Osmadenia
<i>Pentachaeta aurea</i> ssp. <i>aurea</i>	Golden-rayed pentachaeta
<i>Pluchea odorata</i>	Salt marsh fleabane
<i>Porophyllum gracile</i>	Odora
<i>Pseudognaphalium benolens</i>	White everlasting
<i>Pseudognaphalium biolettii</i>	Bioletti's rabbit-tobacco
<i>Pseudognaphalium californicum</i>	California everlasting
* <i>Pseudognaphalium luteoalbum</i>	Everlasting cudweed
<i>Pseudognaphalium microcephalum</i>	San Diego rabbit-tobacco
<i>Pseudognaphalium stramineum</i>	Cotton-batting plan
<i>Psilocarphus brevissimus</i> var. <i>brevissimus</i>	Dwarf woolly-heads
<i>Psilocarphus tenellus</i>	Slender woolly-marbles
* <i>Silybum marianum</i>	Milk thistle
* <i>Sonchus asper</i> ssp. <i>asper</i>	Prickly sow-thistle
* <i>Sonchus oleraceus</i>	Common sow-thistle
<i>Stephanomeria exigua</i>	Stephanomeria
<i>Stylocline gnaphaloides</i>	Everlasting neststraw
<i>Uropappus lindleyi</i>	Silver puffs
<i>Xanthium strumarium</i>	Cocklebur

### Boraginaceae - Borage Family

<i>Amsinckia menziesii</i>	Rancher's fireweed
<i>Cryptantha intermedia</i> var. <i>hendersonii</i>	Henderson's cryptantha
<i>Cryptantha intermedia</i> var. <i>intermedia</i>	Common cryptantha
<i>Cryptantha micromeres</i>	Minute-flowered cryptantha
<i>Emmenanthe penduliflora</i> ssp. <i>rosea</i>	Whispering bells
<i>Eriodictyon crassifolium</i> var. <i>crassifolium</i>	Thickleaf yerba santa
<i>Eucrypta chrysanthemifolia</i> var. <i>bininnatifida</i>	Eucrypta
<i>Eucrypta chrysanthemifolia</i> var. <i>chrysanthemifolia</i>	Common eucrypta
<i>Heliotropium curassavicum</i> var. <i>oculatum</i>	Salt heliotrope
<i>Nemophila menziesii</i>	Baby blue-eyes
<i>Pectocarya linearis</i> ssp. <i>ferocula</i>	Narrow-toothed pectocarya
<i>Phacelia cicutaria</i> var. <i>hispida</i>	Caterpillar phacelia
<i>Phacelia distans</i>	Common phacelia
<i>Phacelia grandiflora</i>	Grand phacelia
<i>Phacelia parryi</i>	Parry phacelia
<i>Phacelia ramosissima</i>	Branching phacelia
<i>Pholistoma auritum</i> var. <i>auritum</i>	Blue fiesta flower
<i>Pholistoma racemosum</i>	San Diego fiesta flower
<i>Plagiobothrys collinus</i> var. <i>californicus</i>	Californica popcornflower

### Brassicaceae (Cruciferae) - Mustard Family

* <i>Brassica nigra</i>	Black mustard
* <i>Brassica rapa</i>	Field mustard
* <i>Brassica tournefortii</i>	Sahara mustard
<i>Caulanthus lasiophyllus</i>	California mustard
* <i>Lepidium didymum</i>	Wart cress
* <i>Lepidium latifolium</i>	Broad-leaf pepperwort

<i>*Nasturtium officinale</i>	Watercress
<i>*Raphanus sativus</i>	Wild radish
<i>*Sisymbrium altissimum</i>	Tumble mustard
<i>*Sisymbrium orientale</i>	Indian hedge mustard
<b>Cactaceae - Cactus Family</b>	
<i>Cylindropuntia californica</i> var. <i>parkeri</i>	Cane cholla
<i>Ferocactus viridescens</i>	San Diego cactus
<i>*Opuntia ficus-indica</i>	Indian-fig
<i>Opuntia littoralis</i>	Mesa prickly-pear
<b>Caprifoliaceae - Honeysuckle Family</b>	
<i>Lonicera subspicata</i>	Honeysuckle
<b>Caryophyllaceae - Pink Family</b>	
<i>Cerastium arvense</i> ssp. <i>strictum</i>	Field mouse-ear chickweed
<i>*Herniaria hirsuta</i> var. <i>cinerea</i>	Rupturewort
<i>*Silene gallica</i>	Small-flower catchfly
<i>Silene laciniata</i> ssp. <i>laciniata</i>	Mexican pink
<i>*Spergula arvensis</i>	Stickwort
<i>*Spergularia bocconi</i>	Boccone's sand-spurrey
<i>Spergularia macrotheca</i>	Sticky sand-spurrey
<b>Chenopodiaceae - Goosefoot Family</b>	
<i>Atriplex canescens</i> var. <i>canescens</i>	Shadscale
<i>*Atriplex prostrata</i>	Fat-hen
<i>*Atriplex semibaccata</i>	Australian saltbush
<i>*Atriplex suberecta</i>	Sprawling saltbush
<i>*Chenopodium album</i>	Lamb's quarters
<i>*Chenopodium murale</i>	Nettle-leaf goosefoot
<i>*Salsola tragus</i>	Russian thistle
<b>Cistaceae - Rock-Rose Family</b>	
<i>*Cistus ladanifer</i>	Gum cistus
<i>Helianthemum scoparium</i> var. <i>scoparium</i>	Peak rush-rose
<b>Convolvulaceae - Morning-Glory Family</b>	
<i>Calystegia macrostegia</i>	Morning-glory
<i>*Convolvulus arvensis</i>	Bindweed
<i>Cressa truxillensis</i>	Alkali weed
<i>Cuscuta californica</i> var. <i>californica</i>	Dodder
<i>Dichondra occidentalis</i>	Western dichondra
<b>Crassulaceae - Stonecrop Family</b>	
<i>Crassula connata</i>	Sand pygmy-weed
<i>*Crassula ovata</i>	Jade plant
<i>Crassula solieri</i>	Smooth-seed pygmy-weed
<i>Dudleya edulis</i>	Lady-fingers
<i>Dudleya lanceolata</i>	Lance-leaved dudleya
<i>Dudleya pulverulenta</i>	Chalk dudleya
<b>Cucurbitaceae - Gourd Family</b>	
<i>Cucurbita foetidissima</i>	Calabazilla
<i>Marah macrocarpa</i>	Cucamonga manroot
<b>Dipsacaceae - Teasel Family</b>	
<i>*Dipsacus</i> sp.	
<b>Ericaceae - Heath Family</b>	
<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>	Summer holly
<i>Xylococcus bicolor</i>	Mission-manzanita

**Euphorbiaceae - Spurge Family**

<i>Croton californicus</i>	Croton
<i>Croton setigerus</i>	Turkey mullein
* <i>Euphorbia maculata</i>	Spotted spurge
* <i>Euphorbia pepulus</i>	Petty spurge
<i>Euphorbia polycarpa</i>	Prostrate spurge
* <i>Ricinus communis</i>	Castor bean

**Fabaceae (Leguminosae) - Legume Family**

* <i>Acacia cyclops</i>	Western coastal wattle
* <i>Acacia melanoxydon</i>	Blackwood acacia
* <i>Acacia redolens</i>	Vanilla-scented wattle
* <i>Acacia retinoides</i>	Everblooming wattle
<i>Acmispon americanus</i> var. <i>americanus</i>	Spanish lotus
<i>Acmispon glaber</i> var. <i>brevialatus</i>	California broom
<i>Acmispon glaber</i> var. <i>glaber</i>	Deerweed
<i>Acmispon micranthus</i>	Small-flowered lotus
<i>Acmispon strigosus</i>	Strigose lotus
<i>Amorpha californica</i> var. <i>californica</i>	California indigobush
* <i>Lathyrus latifolius</i>	Perennial sweetpea
* <i>Lathyrus sativus</i>	Grass pea
<i>Lathyrus vestitus</i> var. <i>alefeldii</i>	Wild pea
<i>Lupinus bicolor</i>	Miniature lupine
<i>Lupinus formosus</i> var. <i>robustus</i>	Lupine
<i>Lupinus hirsutissimus</i>	Stinging lupine
<i>Lupinus truncatus</i>	Collar lupine
* <i>Medicago polymorpha</i>	California burclover
* <i>Melilotus albus</i>	White sweetcover
* <i>Melilotus indicus</i>	Sourclover
* <i>Parkinsonia aculeata</i>	Mexican palo verde
<i>Senegalia greggii</i>	Catclaw acacia
* <i>Senna marilandica</i>	Maryland senna
* <i>Spartium junceum</i>	Spanish broom
* <i>Trifolium hirtum</i>	Rose clover
<i>Vicia americana</i> ssp. <i>americana</i>	American vetch
* <i>Vicia benghalensis</i>	Purple vetch

**Fagaceae - Oak Family**

<i>Quercus agrifolia</i> var. <i>agrifolia</i>	Coast live oak
<i>Quercus berberidifolia</i>	Scrub oak
<i>Quercus dumosa</i>	Nuttall's scrub oak
<i>Quercus engelmannii</i>	Engelmann oak
<i>Quercus x acutidens</i>	California Scrub Oak

**Frankeniaceae - Frankenia Family**

<i>Frankenia salina</i>	Alkali heath
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**Gentianaceae - Gentian Family**

<i>Zeltnera venusta</i>	California centaury
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**Geraniaceae - Geranium Family**

* <i>Erodium botrys</i>	Broad-leaf filaree
* <i>Erodium cicutarium</i>	Red-stemmed filaree
* <i>Erodium moschatum</i>	White-stem filaree
<i>Geranium carolinianum</i>	Carolina geranium

**Grossulariaceae - Gooseberry Family**

<i>Ribes indecorum</i>	White flowering currant
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Attachment D: Plant Species Observed

<i>Ribes speciosum</i>	Fuchsia-flowered gooseberry
<b>Juglandaceae - Walnut Family</b>	
<i>Juglans hindsii</i>	Northern California black walnut
* <i>Juglans nigra</i>	Black walnut
<b>Lamiaceae (Labiatae) - Mint Family</b>	
* <i>Marrubium vulgare</i>	White horehound
* <i>Rosmarinus officinalis</i>	Rosemary
<i>Salvia apiana</i>	White sage
<i>Salvia columbariae</i>	Chia
<i>Salvia leucophylla</i>	Purple sage
<i>Salvia mellifera</i>	Black sage
* <i>Stachys ajugoides</i>	Bugle hedge-nettle
<i>Trichostema lanatum</i>	Woolly bluecurls
<i>Trichostema lanceolatum</i>	Vinegar weed
<b>Lythraceae - Loosestrife Family</b>	
* <i>Lythrum hyssopifolia</i>	Hyssop loosestrife
<b>Malvaceae - Mallow Family</b>	
<i>Fremontodendron californicum</i>	Fremontia
<i>Malacothamnus densiflorus</i>	Bush mallow
<i>Malacothamnus fasciculatus</i>	Chaparral mallow
* <i>Malva nicaeensis</i>	Bull mallow
* <i>Malva parviflora</i>	Cheeseweed
<i>Sidalcea sparsifolia</i>	Southern checkerbloom
<b>Montiaceae - Miner's Lettuce Family</b>	
<i>Calandrinia breweri</i>	Brewer's calandrinia
<i>Calandrinia ciliata</i>	Red maids
<i>Claytonia perfoliata</i>	Common miner's lettuce
<b>Moraceae - Mulberry Family</b>	
* <i>Ficus carica</i>	Common fig
<b>Myrsinaceae - Myrsine Family</b>	
* <i>Lysimachia arvensis</i>	Scarlet pimpernel
<b>Myrtaceae - Myrtle Family</b>	
* <i>Eucalyptus camaldulensis</i>	Red gum
* <i>Eucalyptus citriodora</i>	Lemon-scented gum
* <i>Eucalyptus cladocalyx</i>	Sugar gum
* <i>Eucalyptus globulus</i>	Blue gum
<b>Nyctaginaceae - Four O'Clock Family</b>	
<i>Mirabilis laevis</i> var. <i>crassifolia</i>	Wishbone bush
<b>Oleaceae - Olive Family</b>	
* <i>Fraxinus udehi</i>	Shamel ash
<i>Fraxinus velutina</i>	Velvet ash
* <i>Olea europaea</i>	Olive
<b>Onagraceae - Evening Primrose Family</b>	
<i>Camissoniopsis bistorta</i>	California sun cup
<i>Camissoniopsis hirtella</i>	Suncup
<i>Clarkia epilobioides</i>	Clarkia
<i>Clarkia purpurea</i> ssp. <i>quadrivulnera</i>	Winecup clarkia
<i>Clarkia unguiculata</i>	Elegant clarkia
<i>Epilobium ciliatum</i>	Fringed willow-herb
<i>Eulobus californicus</i>	Camissonia
<i>Oenothera elata</i> ssp. <i>hookeri</i>	Hooker's evening primrose



<i>*Oenothera speciosa</i>	Evening primrose
<i>Oenothera suffrutescens</i>	Scarlet gaura
<b>Orobanchaceae - Broomrape Family</b>	
<i>Castilleja densiflora</i> ssp. <i>densiflora</i>	Owl's-clover
<i>Castilleja exserta</i> ssp. <i>exserta</i>	Red owl's-clover
<b>Oxalidaceae - Oxalis Family</b>	
<i>*Oxalis pes-caprae</i>	Bermuda buttercup
<b>Paeoniaceae - Peony Family</b>	
<i>Paeonia californica</i>	California peony
<b>Papaveraceae - Poppy Family</b>	
<i>Eschscholzia californica</i>	California poppy
<i>Eschscholzia minutiflora</i>	Poppy
<i>Platystemon californicus</i>	Cream cups
<b>Phrymaceae - Lopseed Family</b>	
<i>Mimulus aurantiacus</i> var. <i>aurantiacus</i>	Orange bush monkeyflower
<i>Mimulus aurantiacus</i> var. <i>puniceus</i>	Sticky monkeyflower
<i>Mimulus guttatus</i>	Common monkeyflower
<b>Picrodendraceae - Bitter-Tree Family</b>	
<i>Tetracoccus dioicus</i>	Parry's tetracoccus
<b>Plantaginaceae - Plantain Family</b>	
<i>Antirrhinum kelloggii</i>	Snapdragon
<i>Antirrhinum nuttallianum</i> ssp. <i>nuttallianum</i>	Snapdragon
<i>Collinsia heterophylla</i> var. <i>austromantana</i>	Downy Chinese houses
<i>Keckiella cordifolia</i>	Straggly keckiella
<i>Nuttallanthus texanus</i>	Blue toadflax
<i>Penstemon spectabilis</i> var. <i>spectabilis</i>	Beardtongue
<i>*Plantago coronopus</i>	Cut-leaf plantain
<i>Plantago erecta</i>	California plantain
<i>*Plantago lanceolata</i>	English plantain
<b>Platanaceae - Plane Tree Family</b>	
<i>Platanus racemosa</i>	Western sycamore
<b>Polemoniaceae - Phlox Family</b>	
<i>Allophyllum glutinosum</i>	Allophyllum
<i>Eriastrum diffusum</i>	Miniature wool star
<i>Eriastrum filifolium</i>	Lavender woolly-star
<i>Eriastrum sapphirinum</i>	Sapphire wool star
<i>Gilia capitata</i>	Globe gilia
<i>Gilia stellata</i>	Star gilia
<i>Navarretia hamata</i> ssp. <i>leptantha</i>	Navarretia
<b>Polygonaceae - Buckwheat Family</b>	
<i>Chorizanthe fimbriata</i> var. <i>fimbriata</i>	Fringed spineflower
<i>Chorizanthe polygonoides</i> var. <i>longispina</i>	Long-spined spineflower
<i>Chorizanthe procumbens</i>	Prostrate spineflower
<i>*Emex spinosa</i>	Devil's thorn
<i>Eriogonum fasciculatum</i> var. <i>fasciculatum</i>	Coastal California buckwheat
<i>Eriogonum fasciculatum</i> var. <i>foliolosum</i>	Leafy California buckwheat
<i>Eriogonum gracile</i> var. <i>gracile</i>	Slender buckwheat
<i>Lastarriaea corriacea</i>	Leather-spineflower
<i>Pterostegia drymarioides</i>	Woodland threadstem
<i>*Rumex crispus</i>	Curly dock
<i>Rumex salicifolius</i>	Willow dock

**Ranunculaceae - Buttercup Family**

<i>Clematis pauciflora</i>	Southern California clematis
<i>Delphinium cardinale</i>	Scarlet larkspur
<i>Delphinium parishii</i> ssp. <i>parishii</i>	Parish's larkspur
<i>Delphinium parishii</i> ssp. <i>subglobosum</i>	Desert larkspur
<i>Thalictrum fendleri</i>	Fendler's meadow-rue

**Rhamnaceae - Buckthorn Family**

<i>Adolphia californica</i>	California adolphia
<i>Ceanothus crassifolius</i> var. <i>crassifolius</i>	Hoaryleaf ceanothus
<i>Ceanothus cuneatus</i> var. <i>cuneatus</i>	Buck brush
<i>Ceanothus leucodermis</i>	Chaparral whitethorn
<i>Ceanothus oliganthus</i> var. <i>orcuttii</i>	Ceanothus
<i>Ceanothus tomentosus</i>	Woollyleaf ceanothus
<i>Rhamnus crocea</i>	Spiny redberry
<i>Rhamnus ilicifolia</i>	Hollyleaf redberry
<i>Rhamnus pilosa</i>	Hairyleaf redberry

**Rosaceae - Rose Family**

<i>Adenostoma fasciculatum</i>	Chamise
<i>Cercocarpus betuloides</i> var. <i>betuloides</i>	Birch-leaf mountain mahogany
<i>Cercocarpus minutiflorus</i>	San Diego mountain mahogany
<i>Drymocallis glandulosa</i>	Glandular cinquefoil
<i>Heteromeles arbutifolia</i>	Toyon
<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	Holly-leaved cherry
<i>Rubus ursinus</i>	California blackberry

**Rubiaceae - Madder Family**

<i>Galium angustifolium</i> ssp. <i>angustifolium</i>	Narrow-leaved bedstraw
<i>Galium aparine</i>	Goose grass
<i>Galium nuttallii</i> ssp. <i>nuttallii</i>	San Diego bedstraw
<i>Galium porrigens</i> var. <i>porrigens</i>	Climbing bedstraw

**Rutaceae - Rue Family**

<i>Cneoridium dumosum</i>	Bushrue
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**Salicaceae - Willow Family**

<i>Populus fremontii</i> ssp. <i>fremontii</i>	Fremont cottonwood
<i>Salix exigua</i>	Narrow-leaved willow
<i>Salix gooddingii</i>	Goodding's black willow
<i>Salix laevigata</i>	Red willow
<i>Salix lasiolepis</i>	Arroyo willow

**Saururaceae - Lizard's-Tail Family**

<i>Anemopsis californica</i>	Yerba mansa
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**Scrophulariaceae - Figwort Family**

<i>Scrophularia californica</i>	California figwort
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**Simaroubaceae - Quassia Family**

* <i>Ailanthus altissima</i>	Tree of heaven
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**Solanaceae - Nightshade Family**

<i>Datura wrightii</i>	Thornapple
* <i>Nicotiana glauca</i>	Tree tobacco
* <i>Solanum elaeagnifolium</i>	White horse-nettle
<i>Solanum parishii</i>	Parish's purple nightshade
<i>Solanum xanti</i>	Purple nightshade

**Tamaricaceae - Tamarisk Family**

* <i>Tamarix ramosissima</i>	Salt cedar
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**Urticaceae - Nettle Family**

<i>Hesperocnide tenella</i>	Western nettle
<i>Parietaria hespera</i>	Western pellitory
<i>Urtica dioica</i> ssp. <i>holosericea</i>	Hoary nettle
* <i>Urtica urens</i>	Dwarf nettle

**Verbenaceae - Vervain Family**

<i>Phyla lanceolata</i>	Lance-leaf frog-fruit
<i>Verbena lasiostachys</i> var. <i>lasiostachys</i>	Western verbena

**Violaceae - Violet Family**

<i>Viola pedunculata</i>	Johnny-jump-up
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**Vitaceae - Grape Family**

* <i>Parthenocissus vitacea</i>	Woodbine
<i>Vitis girdiana</i>	Desert wild grape

**Zygophyllaceae - Caltrop Family**

* <i>Tribulus terrestris</i>	Puncture vine
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**Angiosperms -Monocots****Agavaceae – Agave Family**

<i>Chlorogalum parviflorum</i>	Small-flowered amole
<i>Chlorogalum pomeridianum</i> var. <i>divaricatum</i>	Soaproot
<i>Hesperoyucca whipplei</i>	Our Lord's candle
<i>Yucca schidigera</i>	Mohave yucca

**Alliaceae - Onion Family**

<i>Allium haematochiton</i>	Red-skinned onion
<i>Allium peninsulare</i> var. <i>peninsulare</i>	Peninsular onion
<i>Allium praecox</i>	Onion

**Arecaceae (Palmae) - Palm Family**

* <i>Washingtonia robusta</i>	Mexican fan palm
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**Asparagaceae - Asparagus Family**

* <i>Asparagus asparagoides</i>	Asparagus
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**Asphodelaceae - Asphodel Family**

* <i>Asphodelus fistulosus</i>	Asphodel
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**Cyperaceae - Sedge Family**

<i>Cyperus eragrostis</i>	Tall flatsedge
<i>Eleocharis macrostachya</i>	Creeping spikerush
<i>Schoenoplectus acutus</i> var. <i>occidentalis</i>	Common tule
<i>Schoenoplectus americanus</i>	Olney's bulrush
<i>Schoenoplectus californicus</i>	California bulrush

**Iridaceae - Iris Family**

<i>Sisyrinchium bellum</i>	Western blue-eyed grass
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**Juncaceae - Rush Family**

<i>Juncus acutus</i> ssp. <i>leopoldii</i>	Southwestern spiny rush
<i>Juncus bufonius</i>	Toad rush
<i>Juncus mexicanus</i>	Mexican rush

**Juncaginaceae - Arrow-Grass Family**

<i>Triglochin scilloides</i>	Flowering quillwort
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**Liliaceae - Lily Family**

<i>Calochortus splendens</i>	Lilac mariposa lily
<i>Calochortus weedii</i> var. <i>weedii</i>	Mariposa lily

**Melanthiaceae - Death Camas Family**

*Toxicoscordion fremontii*

Star zygadene

**Poaceae (Gramineae) - Grass Family**

\**Arundo donax*

Giant reed

\**Avena barbata*

Slender wild oat

\**Avena fatua*

Wild oat

\**Brachypodium distachyon*

Purple falsebrome

\**Bromus catharticus* var. *catharticus*

Rescue grass

\**Bromus diandrus*

Ripgut grass

\**Bromus hordeaceus*

Soft chess

\**Bromus madritensis* ssp. *madritensis*

Foxtail chess

\**Bromus madritensis* ssp. *rubens*

Red brome

\**Cortaderia selloana*

Selloa pampas grass

\**Digitaria sanguinalis*

Hairy crabgrass

*Distichlis spicata*

Saltgrass

\**Ehrharta erecta*

Panic veldt grass

*Elymus condensatus*

Giant wildrye

*Elymus triticoides* ssp. *triticoides*

Creeping wildrye

*Festuca microstachys*

Small fescue

\**Festuca myuros*

Rattail sixweeks grass

\**Festuca perennis*

Italian ryegrass

\**Gastridium phleoides*

Nit grass

\**Hordeum murinum*

Foxtail barley

\**Lamarckia aurea*

Goldentop

*Melica imperfecta*

Small-flowered melic

*Melinis repens*

Natal grass

*Muhlenbergia microsperma*

Littleseed muhly

*Muhlenbergia rigens*

Deer grass

\**Parapholis incurva*

Curved sickle grass

\**Paspalum dilatatum*

Dallis grass

\**Pennisetum setaceum*

Crimson fountain grass

\**Phalaris aquatica*

Harding grass

\**Polypogon monspeliensis*

Rabbit's-foot grass

\**Schismus barbatus*

Mediterranean grass

*Stipa lepida*

Foothill needlegrass

*Stipa pulchra*

Purple needlegrass

**Themidaceae - Brodiaea Family**

*Bloomeria clevelandii*

San Diego goldenstar

*Brodiaea orcuttii*

Orcutt's brodiaea

*Dichelostemma capitatum* ssp. *capitatum*

Blue dicks

*Muilla maritima*

Common muilla

**Typhaceae - Cattail Family**

*Typha domingensis*

Southern cattail

**ATTACHMENT E: SPECIAL-STATUS PLANT SPECIES PHOTOGRAPHS**



**ATTACHMENT E: SPECIAL-STATUS PLANT SPECIES PHOTOGRAPHS**



**Photograph 1:**  
A population of Brewer's calandrinia (*Calandrinia breweri*)



**Photograph 2:**  
An individual Engelmann oak (*Quercus engelmannii*)



**Photograph 3:**

An individual long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*).



**Photograph 4:**

Close-up of Orcutt's brodiaea (*Brodiaea orcuttii*)





**Photograph 5:**  
Close-up of fruit on  
Parry's tetracoccus  
(*Tetracoccus dioicus*)



**Photograph 6:**  
Close-up of San Diego  
County viguiera  
(*Bahioopsis* [*Viguiera*]  
*laciniata*)



**Photograph 7:**  
Close-up of summer holly  
(*Comarostaphylis*  
*diversifolia* ssp.  
*diversifolia*)



**Photograph 8:**  
Western dichondra  
(*Dichondra occidentalis*)

**ATTACHMENT C: PRELIMINARY WETLANDS AND WATERS ASSESSMENT**



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**SAN DIEGO GAS & ELECTRIC COMPANY AND SOUTHERN CALIFORNIA GAS COMPANY'S  
PIPELINE SAFETY & RELIABILITY PROJECT  
PRELIMINARY WETLANDS AND WATERS ASSESSMENT**

---

**Prepared for:**



**Prepared by:**



**September 2015**



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- Attachment A: Hydrologic Region Map
- Attachment B: Wetland and Waters Assessment Map
- Attachment C: Wetland and Water Survey Results
- Attachment D: Drainage Photo Log
- Attachment E: Wetland and Waters Impact Summary





## **1 – INTRODUCTION**

San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company—herein referred to as “the Applicants”—are proposing the Pipeline Safety & Reliability Project (Proposed Project), which involves construction, operation, and maintenance of an approximately 47-mile-long, 36-inch-diameter natural gas transmission pipeline that will carry natural gas from SDG&E’s existing Rainbow Metering Station to the pipeline’s terminus on Marine Corps Air Station (MCAS) Miramar.

Insignia Environmental (Insignia) conducted a preliminary assessment of wetlands and waters for the Proposed Project within the Survey Area, which included all Proposed Project components and an approximately 150-foot buffer on each side of these components. In total, the Survey Area covered approximately 2,264 acres. Insignia assessed areas that may fall within the following jurisdictions:

- the United States (U.S.) Army Corps of Engineers (USACE), pursuant to Section 404 of the Clean Water Act (CWA);
- the Regional Water Quality Control Board (RWQCB), pursuant to the Porter-Cologne Water Quality Control Act (California Water Code, Chapter 2, § 13050) or Section 401 of the CWA; and
- the California Department of Fish and Wildlife (CDFW), pursuant to Section 1600 of the California Fish and Game Code.

This Preliminary Wetlands and Waters Assessment summarizes the field methods and results of Insignia’s survey of jurisdictional waters.

## **2 – PROJECT DESCRIPTION**

### **2.0 PROJECT OVERVIEW**

The Proposed Project involves construction, operation, and maintenance of an approximately 47-mile-long, 36-inch-diameter natural gas transmission pipeline and the following permanent aboveground equipment that will be appurtenant to the pipeline:

- approximately 10 new aboveground mainline valves (MLVs) spaced a maximum of five miles apart,
- one pressure-limiting station (i.e., the Rainbow Pressure-Limiting Station),
- three cross-tie facilities (i.e., Line 1600, Line 1601, and Line 2010),
- internal inspection launching and receiving equipment,
- cathodic protection system units with an estimated three rectifiers and three deep-well anode beds at three of the proposed MLVs, and
- an intrusion detection and leak monitoring system.

Construction is scheduled to begin in the first quarter of 2018 and is expected to take 12 to 18 months to complete.<sup>1</sup> The Applicants are required to comply with General Order 112-E in constructing a natural gas transmission pipeline and is choosing to seek a CPCN from the CPUC for the Proposed Project. Because the Proposed Project route includes land under the jurisdiction of the Department of the Navy/U.S. Marine Corps, federal authorization will also be required. It is anticipated that the Department of the Navy will serve as the federal lead agency pursuant to the National Environmental Policy Act. In addition to the CPCN and the authorization for rights-of-way (ROWs) on MCAS Miramar, the Applicants will obtain all required permits for the Proposed Project from federal, state, and local agencies prior to construction.

## **2.1 PROJECT LOCATION AND SETTING**

The Proposed Project is located in San Diego County, California, and crosses the cities of San Diego, Escondido, and Poway. As depicted in Figure 1: Project Overview Map, the route begins at SDG&E's existing Rainbow Metering Station in the unincorporated community of Rainbow and terminates just north of State Route (SR-) 52 within MCAS Miramar. Within MCAS Miramar, the route parallels an unpaved aqueduct road for approximately 2.6 miles. The Proposed Project will tie into the existing Line 2010 at its southern terminus.

The Proposed Project will be installed primarily within existing roadways and road shoulders. Approximately 41 miles (87 percent) of the Proposed Project will be installed in urban areas within existing roadways and road shoulders, and the remaining approximately six miles (approximately 13 percent) of the Proposed Project will be installed cross-country. The pipeline will be installed approximately 42 inches below the ground surface using conventional trenching methods. The pipeline alignment will cross several major roads, including Interstate (I-) 15, as well as a number of water features, including Rainbow Creek, the San Luis Rey River, Moosa Creek, Lake Hodges, Escondido Creek, Poway Creek, and Beeler Creek. At the crossings of the San Luis Rey River and Lake Hodges, horizontal directional drilling (HDD) and horizontal boring methods will be implemented to minimize impacts to riparian habitat and water quality. Horizontal boring may be used to install the pipeline beneath other waterbodies, which will allow the pipeline to be installed without disturbing the surface of the area being crossed.

# **3 – REGULATORY FRAMEWORK**

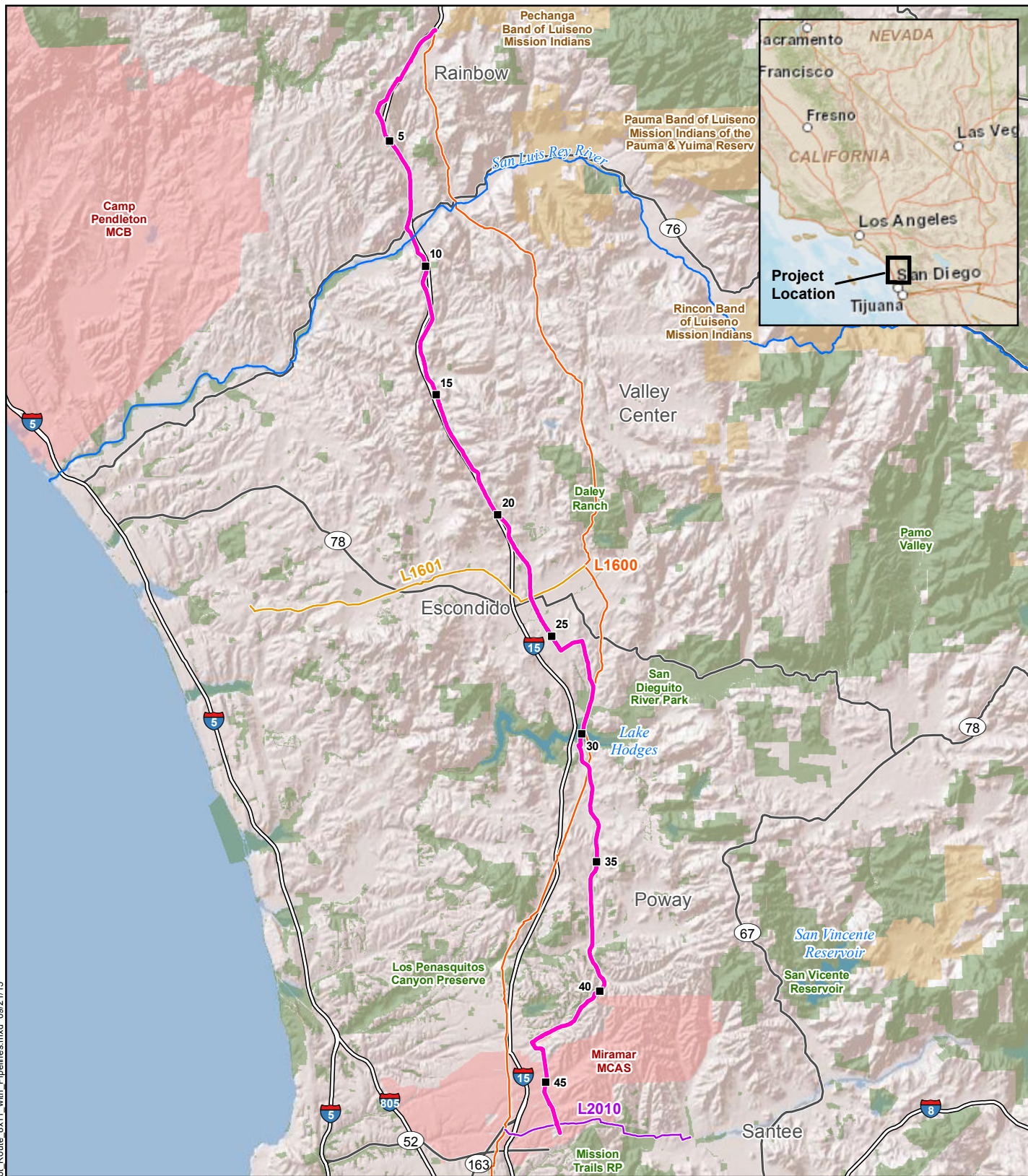
## **3.0 UNITED STATES ARMY CORPS OF ENGINEERS**

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

Under Section 404 of the CWA, the USACE has jurisdiction over waters of the U.S. The purpose of the CWA is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” The USACE has regulatory authority to issue permits for the discharge of dredged or fill material in waters of the U.S., according to Title 33, Section 1344 of the U.S.

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<sup>1</sup> The construction start date is based on receiving a Certificate of Public Convenience and Necessity (CPCN) from the California Public Utilities Commission (CPUC) by 2017 and the issuance of other required permits by late 2017 or early 2018.

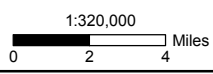


MXDs\PEANP\Fig\_3\_1\_Pot\_Route\_8x11\_with\_Pipelines.mxd\_09/21/15

**Figure 1: Project Overview Map**

**Pipeline Safety & Reliability Project**

- |                          |                            |                            |
|--------------------------|----------------------------|----------------------------|
| ■ Milepost               | — Interstate               | ■ Parks                    |
| — Proposed Project Route | — Major Road/State Highway | ■ Military                 |
| — Line 1601              |                            | ■ Bureau of Indian Affairs |
| — Line 1600              |                            |                            |
| — Line 2010              |                            |                            |





Code. The USACE issues site-specific individual or general permits (i.e., Nationwide Permits) for such discharges. It is anticipated that a Nationwide Permit 12 for Utility Line Activities will be issued for unavoidable impacts to waters of the U.S. as construction of the Proposed Project will not result in a loss of more than 0.5 acre of waters of the U.S. The Proposed Project is under the jurisdiction of the USACE's Los Angeles District.

Two U.S. Supreme Court cases—*Solid Waste Agency of Northern Cook County (SWANCC) v. USACE*, and *Rapanos v. U.S.*—redefined the USACE jurisdiction within the parameters of the CWA. As a result of these court cases, the U.S. Environmental Protection Agency (EPA) and the USACE issued a joint memorandum addressing guidance on determining jurisdiction of waters of the U.S. (EPA and USACE 2008). On June 29, 2015, the USACE and EPA issued *The Clean Water Rule: Definition of Waters of the United States* (CWR), further refining the definition of waters of the U.S. (USACE and EPA 2015). The CWR will be effective August 28, 2015.

The definition of waters of the U.S., as recently defined in the CWR, includes the following:

1. Traditional navigable waters (TNWs).
2. Interstate waters.
3. Territorial seas.
4. Impoundments of waters otherwise identified as waters of the U.S.
5. Tributaries of waterbodies in categories 1 through 3, displaying an ordinary high water mark (OHWM), a bed, and banks.
6. Waters adjacent<sup>2</sup> to a water identified in categories 1 through 5, including wetlands, ponds, vernal pools, lakes, oxbows, impoundments, and similar waters.
7. Waters that are determined, on a case-specific basis, to have a significant nexus<sup>3</sup> to a waterbody in categories 1 through 3.
8. Waters located within the 100-year floodplain of a water identified in categories 1 through 3 and waters within 4,000 feet of the high tide line or OHWM of a waterbody in categories 1 through 5, where they are determined on a case-specific basis to have a significant nexus to a water identified in categories 1 through 3.

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<sup>2</sup> Adjacent waters are all waters within 100 feet of the OHWM of a water in categories 1 through 5; all waters within 1,500 feet of the OHWM of a water in categories 1 through 5 AND within the 100-year floodplain; and all waters within 1,500 feet of the high tide line of a water in categories 1 through 3.

<sup>3</sup> Waters determined to have a significant nexus have a significant effect on the chemical, physical, or biological integrity of a water identified in categories 1 through 3, either alone or in combination with other similarly situated waters in the region.

The following features are not waters of the U.S.:

1. Waste treatment systems, including treatment ponds or lagoons that meet CWA requirements.
2. Prior converted cropland.
3. Ditches:
  - with ephemeral or intermittent flow that are not relocated tributaries or excavated in a tributary;
  - with intermittent flow that do not drain wetlands; or
  - that do not flow (directly or indirectly) into a TNW, interstate water, or territorial sea.
4. Artificially irrigated areas that will revert to dry land.
5. Artificial constructed lakes and ponds created in dry land.
6. Reflecting pools or swimming pools; small ornamental waters; and water-filled depressions that are incidental to mining or construction activity created in dry land.
7. Erosional features: gullies, rills, and other ephemeral drainages that are not tributaries, non-wetland swales, and lawfully constructed grassed waterways.
8. Puddles.
9. Groundwater.
10. Storm water control features constructed to convey, treat, or store storm water that are created in dry land.
11. Wastewater recycling:
  - structures constructed in dry land,
  - detention and retention basins,
  - percolation ponds,
  - groundwater recharge basins, or
  - waste distributary structures.

Title 33, Section 328.3(b) of the Code of Federal Regulations (CFR) defines wetlands as “those 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.” Three parameters—hydrophytic vegetation, hydric soils, and wetland hydrology—must be present to classify an area as a USACE-jurisdictional wetland under normal circumstances.

The limits of USACE jurisdiction are as follows:

1. Territorial Seas: The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles (33 CFR § 329.12).
2. Tidal Waters of the U.S.: The landward limits of jurisdiction in tidal waters:
  - extend to the high tide line, or

- extend to the limits as identified in non-tidal waters of the U.S. when adjacent to non-tidal waters of the U.S.
3. Non-Tidal Waters of the U.S.: The limits of jurisdiction in non-tidal waters:
- extend to the OHWM in the absence of adjacent wetlands,
  - extend beyond the OHWM to the limit of adjacent wetlands when such wetlands are present, and
  - extend to the limit of the wetland when the waters of the U.S. consist only of wetlands.

The application of EPA and USACE guidance results in a formalized oversight process involving both agencies in the adoption of approved jurisdictional determinations. The intent of this formal process is to ensure consistency in how the agencies interpret the rulings and guidance at all levels. The USACE issued Regulatory Guidance Letter No. 08-02 on the subject of Jurisdictional Determinations (USACE 2008c) in order to institute the program by which jurisdictional determinations are made. This guidance creates a distinction between an applicant's request for a preliminary jurisdictional determination (PJD) and an "approved jurisdictional determination" (AJD). If an applicant pursues a PJD, the determination will be inclusive of all features that have historically been regulated by the USACE under Section 404 of the CWA and Sections 9 and 10 of the Rivers and Harbors Appropriation Act of 1899 (i.e., prior to the SWANCC and Rapanos cases). A PJD excludes exempted jurisdictional waters, but not those excluded by court ruling interpretations. An AJD provides a more thorough evaluation of issues of isolation, adjacency, and significant nexus as contemplated by the courts, and excludes from USACE regulation any areas that fail to meet the necessary litmus tests of the court decision and the agencies' implementation guidance. The Applicants are expected to pursue a PJD for the Proposed Project.

### **3.0.1 Rivers and Harbors Appropriation Act of 1899**

Under Section 10 of the Rivers and Harbors Appropriation Act of 1899, the USACE has jurisdiction over navigable waters of the U.S. to the historic limit of mean high water. Section 10 requires that a permit be obtained from the USACE for all activities in navigable waters that involve excavating, filling, dredging, or construction or placement of an obstruction in or to a navigable waterbody. Section 10 jurisdiction extends to the entire surface and bed of all waterbodies subject to tidal action (33 CFR § 329.12[b]).

## **3.1 REGIONAL WATER QUALITY CONTROL BOARD**

### **3.1.0 Section 401 of the Clean Water Act**

The RWQCB regulates activities in waters of the State—including wetlands—through Section 401 of the CWA (RWQCB 2014). While the USACE administers permitting programs that authorize impacts to waters of the U.S., any USACE permit authorized for a proposed project will be invalid unless the RWQCB has issued a project-specific water quality certification or waiver of water quality. A water quality certification requires a finding by the RWQCB that the activities permitted by the USACE will not violate water quality standards individually or cumulatively over

the term of the issued USACE permit. The Proposed Project is under the jurisdiction of the San Diego RWQCB.

### **3.1.1 Porter-Cologne Water Quality Control Act**

The Porter-Cologne Water Quality Control Act (California Water Code § 13260) requires “any person discharging waste, or proposing to discharge waste, within any region that could affect the waters of the State to file a report of discharge” with the RWQCB through an application for waste discharge (California Water Code Section 13260[a][1]) (RWQCB 2014). The term “waters of the State” is defined as any surface water or groundwater, including saline waters, within the boundaries of the state (California Water Code § 13050[e]). Pursuant to the Porter-Cologne Water Quality Control Act, the RWQCB also regulates “isolated wetlands,” or those wetlands considered to be outside of USACE jurisdiction, pursuant to the SWANCC decision.

The RWQCB generally considers filling in waters of the State to be pollution. Pollution is defined as an alteration of the quality of the waters of the State by waste that unreasonably affects its beneficial uses (California Water Code § 13050[1]). To determine whether a project should be regulated pursuant to the Porter-Cologne Water Quality Control Act, the RWQCB’s litmus test is if the action could result in any threat to water quality.

## **3.2 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE**

### **3.2.0 California Fish and Game Code Section 1600**

Sections 1601 through 1606 of the California Fish and Game Code require that a Notification of Lake or Streambed Alteration Agreement application must be submitted to the CDFW for “any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake.” The CDFW reviews the proposed actions and, if necessary, submits (to the applicant) a proposal that includes measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by the CDFW and the applicant is the Lake or Streambed Alteration Agreement.

Generally, the CDFW-jurisdictional boundaries are broader than USACE-jurisdictional boundaries and include the following:

- rivers/streams;
- lakes;
- entire floodplains;
- wetlands associated with rivers, streams, lakes, or wildlife resources; and
- artificial drainage ditches under some circumstances.

The CDFW’s jurisdiction includes the following:

- The definable bed, bank, or channel.
- Areas that support periodic or intermittent flows, perennial flows, or subsurface flows; support fish or other aquatic life; or support riparian or hydrophytic vegetation in association with a streambed.



- Areas that simply have a hydrologic source and/or terminus.

## **4 – METHODS**

### **4.0 LITERATURE REVIEW**

Before conducting the wetlands and waters assessment, Insignia biologists reviewed U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory maps (USFWS 2014) and color aerial photographs (both recent and past) of the Survey Area and surrounding area. In addition, the biologists reviewed and referenced the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey (Soil Survey Staff 2015) for the Survey Area, which lists hydric soils found in San Diego County.

### **4.1 WETLANDS AND WATERS ASSESSMENT**

The wetlands and water assessment within the Survey Area was conducted between February 23 and May 20, 2015. Insignia biologists conducted the wetlands and waters assessment per the timetable outlined in Table 1: Preliminary Wetlands and Waters Assessment Timetable.

#### **4.1.0 Drainage Mapping**

Insignia biologists used guidance from A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States (USACE 2008a) to determine the location and size of drainages potentially under the jurisdiction of the USACE and RWQCB. Culverts were also mapped to assist with determining downstream connectivity for potential jurisdictional features within the Survey Area. The overall landforms, slopes, and climatic and hydrologic conditions were also assessed. Photographs were taken for each drainage feature to record downstream and upstream conditions, as well as OHWM indicators. Evidence supporting the delineation of each potentially jurisdictional drainage feature was recorded on field data forms.

Top-of-bank (TOB) measurements were noted for each drainage to assess the areas that may be CDFW-jurisdictional under Section 1600 of the California Fish and Game Code. In addition, Insignia biologists also mapped the edge of potentially CDFW-jurisdictional riparian canopy using full-color, ortho-corrected aerial photographs. These field maps were printed at a scale of one inch equals 200 feet. Riparian vegetation included in the CDFW riparian vegetation estimates exhibited a continuous canopy associated with the drainages observed within the Survey Area. In instances where riparian canopy was not readily discernible from the aerial photographs, submeter-accurate Global Positioning System (GPS) data were taken to demarcate the boundary between upland and riparian vegetation.

All potential drainages were evaluated to identify their connection to on-site and off-site hydrologic resources. Potential jurisdictional drainages were mapped as such if they did not demonstrate downstream connectivity to a TNW or tributary at the surface, but were identified as either adjacent waters or determined to potentially have a significant nexus to a TNW, as defined by the CWR.

**Table 1: Preliminary Wetlands and Waters Assessment Timetable**

Insignia Biologist(s)	Dates	Approximate Mileposts (MPs) Surveyed
Makela Mangrich and Jesse Byrd	February 23 and 24, 2015	MP 43.8 to MP 46.9
Makela Mangrich and Kevin Kilpatrick	March 3 to 6 and March 9, 2015	MP 0.0 to MP 1.9, MP 21.4 to MP 24.2, MP 30.4 to MP 33.3, and MP 39.0 to MP 46.9
Makela Mangrich and Adam Lievers	April 2, 2015	MP 3.0 to MP 6.8
Makela Mangrich and Sheryl Creer	April 8, 9, 10, 13, 17, and 21, 2015	MP 8.4 to MP 39.0
Sheryl Creer, Nick Fisher, Adam Lievers, and Kevin Kilpatrick	April 22, 2015	MP 6.9 to MP 9.5, and MP 18.3 to MP 21.4
Sheryl Creer, Nick Fisher, Jesse Byrd, and Adam Lievers	April 23, 2015	MP 9.5 to MP 18.3
Sheryl Creer, Nick Fisher, Adam Lievers, and Kevin Kilpatrick	April 24, 2015	MP 26.5 to MP 29.3, and MP 40.0 to 41.5
Nick Fisher and Adam Lievers	April 27, 2015	MP 41.5 to MP 43.2
Makela Mangrich and Jesse Byrd	April 30, 2015	MP 41.5 to MP 43.2
Makela Mangrich	May 13, 2015	MP 5.9 to MP 14.1
Makela Mangrich and Jesse Byrd	May 20, 2015	MP 14.1 to MP 46.9

**4.1.1 Wetlands Mapping**

Insignia biologists also mapped potential wetlands under the jurisdiction of the USACE and RWQCB in conjunction with vegetation mapping conducted for the Proposed Project. A full wetland delineation was not completed for this assessment. Wetlands were assessed in the field during the habitat assessment conducted in the fall and winter of 2014, and during special-status plant surveys conducted in the spring of 2015. Wetland boundaries were determined primarily by aerial interpretation of vegetation boundaries in conjunction with field calibration and verification. The wetland mapping was conducted according to the USACE’s *Wetlands Delineation Manual* (Environmental Laboratory 1987) in conjunction with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008b), with modifications. For an area to be defined as a wetland under normal circumstances, the USACE’s routine, on-site determination methods call for determining the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. No soil pits were dug within potential wetland areas, because not all of the land within the Study Area is within SDG&E’s easement (i.e., much of the land is privately owned). In addition, soil pits were not dug due to concerns about digging on MCAS Miramar, where the potential for unexploded ordnances buried beneath the soil surface had not been verified at the time of the surveys.

Because soil pits were not dug within potential wetland areas, hydric soils and wetland hydrology were not assessed. The wetland assessment relied exclusively on the presence of hydrophytic vegetation. As such, the mapped wetland totals likely overestimate the USACE-jurisdictional wetland areas present within the Survey Area. Hydrophytic vegetation is defined as “the community of macrophytes that occurs in areas where inundation and soil saturation is either permanent, or of sufficient frequency and duration to exert a controlling influence on the plant species present” (USACE 2010). Hydrophytic vegetation is determined to be present when the plant community is dominated by species that can tolerate prolonged inundations or soil saturation during the growing season. The National Wetland Plant List (Lichvar et al. 2014) provides a wetland indicator status for all hydrophytic plant species in the U.S. The wetland indicator status predicts a plant’s likelihood to occur in wetlands, and is defined as follows:

- Obligate Plant (OBL): A plant that almost always occurs in wetlands.
- Facultative Wetland Plant (FACW): A plant that usually occurs in wetlands, but may occur in non-wetlands.
- Facultative Plant (FAC): A plant that occurs in wetlands and non-wetlands.
- Facultative Upland Plant (FACU): A plant that usually occurs in non-wetlands, but may occur in wetlands.
- Upland Plant (UPL): A plant that almost never occurs in wetlands.

Biologists visually estimated absolute percent cover of plant species with stands that could potentially be dominated by hydrophytic vegetation. Wetland determination data forms were filled out for areas where the presence of hydrophytic vegetation could not be determined through a routine vegetation assessment. The wetland indicator status (i.e., OBL, FACW, FAC, FACU, and UPL) of the species was recorded. For species not on the 2014 National Wetland Plant List for the Arid West region, the indicator status was assumed to be UPL. Hydrophytic vegetation was determined to be present if either of the following indicator tests were satisfied:

- Dominance Test (Indicator 1): More than 50 percent of the dominant plant species across all strata are rated OBL, FACW, or FAC.
- Prevalence Test (Indicator 2): The prevalence index, which is a weighted-average wetland indicator status of all plant species in the sampling plot, is 3.0 or less.

No minimum mapping unit for potential wetland areas was established; all potential wetlands that Insignia biologists encountered were mapped. In instances where wetland boundaries were not readily discernible from the aerial photographs, submeter-accurate GPS data were taken to demarcate the boundary between upland and potential wetland areas.

All potential wetland areas (i.e., areas dominated by hydrophytic vegetation) were evaluated to identify their connection to on-site and off-site hydrologic resources. Potentially jurisdictional wetland areas were mapped as such if they were identified as either adjacent waters or determined to potentially have a significant nexus to a TNW, as defined by the CWR, even if they did not demonstrate downstream connectivity to a TNW or tributary at the surface.

#### 4.1.2 Global Positioning System Data Collection

Culvert and drainages were mapped using a Trimble GPS unit with submeter accuracy in locations where biologists could access these features; in some instances, culverts or drainages were obscured under thick brush, or were located within slopes that were either too steep to walk safely or were covered with poison oak (*Toxicodendron diversilobum*). Full-color, ortho-corrected aerial imagery was analyzed to assist with mapping the spatial extents of jurisdictional features that were not accessible during GPS data collection. A data dictionary within the GPS software ensured consistent data collection in the field. All spatial data was collected in the North American Datum 1983 State Plane California Zone 6 (feet) coordinate system. Potential wetlands that Insignia biologists encountered (based on the presence of hydrophytic vegetation) were also mapped.

## 5 – SURVEY RESULTS

### 5.0 ENVIRONMENTAL SETTING

The Survey Area is located within the southwestern portion of the Peninsular Ranges' geomorphic province in the South Coast Floristic Province (Jepson eFlora 2015) and ranges in elevation from 230 to 1,200 feet above mean sea level. From 1981 to 2010, the Survey Area received an average annual precipitation of approximately 10.4 inches with average temperatures ranging from 58 to 72 degrees Fahrenheit (National Oceanic and Atmospheric Administration [NOAA] 2015). The Survey Area includes a large number of diverse upland and wetland/riparian vegetation communities, along with large, developed areas comprising the cities of San Diego, Escondido, and Poway. Topography, hydrology, vegetation, and soil units located in the Survey Area are summarized in the subsections that follow.

#### 5.0.0 Topography and Hydrology

The Survey Area is located in the San Diego River Hydrologic Basin Region (San Diego Region), which covers approximately 3,900 square miles in the southwestern portion of California and includes the majority of San Diego County and portions of Riverside and Orange counties. The San Diego Region is divided into 11 hydrologic units (HUs), 54 hydrologic areas (HAs), and 147 hydrologic subareas (HSAs). As defined in the San Diego RWQCB's Water Quality Control Plan for the San Diego Basin, HUs encompass the entire watershed of one or more streams, HAs encompass major tributaries and/or major groundwater basins within an HU, and HSAs encompass major subdivisions of HAs, including both water-bearing and non-water-bearing formations. Each HU is identified by a unique code. The Survey Area is situated within the following six HUs, which are listed from north to south as follows with their HU codes:

- Santa Margarita (902.00),
- San Luis Rey (903.00),
- Carlsbad (904.00),
- San Dieguito (905.00),
- Peñasquitos (906.00), and
- San Diego (907.00).

Attachment B: Wetland and Waters Assessment Map depicts the HUs, HAs, and HSAs that fall within the Survey Area for the Proposed Project. Table 2: Hydrologic Units, Areas, and Subareas within the Survey Area lists the HUs, HAs, and HSAs that occur within the Proposed Project area. Each of the HUs within the Survey Area ultimately flow west to the Pacific Ocean, which ranges from 10 to 25 miles from the Proposed Project, depending on the location.

**Table 2: Hydrologic Units, Areas, and Subareas within the Survey Area**

<b>HU</b>	<b>HA(s)</b>	<b>HSA(s)</b>
Santa Margarita (902.00)	DeLuz (902.2)	Vallecitos
San Luis Rey (903.00)	Lower San Luis (903.1)	Bonsall
		Moosa
Carlsbad (904.00)	San Marcos (904.5)	Twin Oaks
		Richland
	Escondido Creek (904.6)	Escondido
San Dieguito (905.00)	Hodges (905.2)	Del Dios
		Green
Peñasquitos (906.00)	Miramar Reservoir (906.1)	Undefined
	Poway (906.2)	Undefined
	Miramar (906.4)	Undefined
San Diego (907.00)	Lower San Diego (907.1)	Mission San Diego

Source: San Diego RWQCB 1994

The Survey Area crosses several named rivers, creeks, and other ephemeral waterbodies, including Rainbow Creek, the San Luis Rey River, Moosa Creek, Reidy Canyon Creek, Escondido Creek, the San Dieguito River/Lake Hodges, Poway Creek, Carroll Canyon Creek, Beeler Creek, San Clemente Canyon Creek, the upper reaches of Rose Creek, and Elanus Canyon Creek. In addition, the Survey Area crosses numerous unnamed creeks, drainages, and wetlands, as described in Section 5.1 Wetland and Water Features. Erosional features and man-made conveyance channels (e.g., roadside ditches) also convey water through the Survey Area. Natural hydrologic sources within the Survey Area include groundwater, snowmelt, precipitation, and surface runoff from adjacent uplands.

**5.0.1 Vegetation Communities**

The Survey Area includes a diversity of upland and wetland/riparian vegetation communities. Diegan coastal sage scrub, coast live oak woodlands, and chaparral communities comprise the vast majority of the Survey Area, and large, developed areas comprise the cities of San Diego, Escondido, and Poway. Approximately 1,031 acres (46 percent) of the Survey Area are within urban/developed areas. A total of 35 vegetation communities were identified within the Survey Area, as depicted in Figure A-4: Vegetation Communities within the Biological Resources Technical Report, to which this Preliminary Wetlands and Waters Assessment is attached. Twenty upland vegetation communities and 15 wetland/riparian communities occur within the

Survey Area. Descriptions of each vegetation community are provided in Section 5.1 General Vegetation Communities in the Biological Resources Technical Report.

The vegetation classification system that was used conforms to Oberbauer et al. (2008). Vegetation community descriptions are also derived from Oberbauer et al. (2008), with additional information on wildlife habitat preferences from the CDFW’s Wildlife Habitats – California Wildlife Habitat Relationship System (2015). A complete list of plant species observed within the Survey Area is provided in Attachment H: Plant Species Observed during Surveys in the Biological Resources Technical Report. Nomenclature used for plant names follows *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al. 2012). Nomenclatural changes made after the publication date of *The Jepson Manual* follow the Jepson eFlora (2015) website.

### 5.1 WETLAND AND WATER FEATURES

As summarized in Table 3: Potential Jurisdictional Hydrological Features within the Survey Area and as described further in the following subsections, a total of approximately 149.8 acres of potential USACE- and RWQCB-jurisdictional areas and approximately 157.8 acres of potential CDFW-jurisdictional areas were mapped within the Survey Area.

**Table 3: Potential Jurisdictional Hydrological Features within the Survey Area**

Feature Type	Approximate Potential USACE- and RWQCB-Jurisdictional Area <sup>4</sup>		Approximate Potential CDFW-Jurisdictional Area <sup>5</sup> (acres)
	Acres	Linear Feet	
Wetlands	139.3	(Not Applicable [N/A])	N/A
Ephemeral Drainages	3.4	52,125	10.9
Intermittent Drainages	6.7	43,811	20.0
Perennial Drainages	0.4	363	4.0
Riparian Vegetation	N/A	N/A	122.9
<b>Total Jurisdictional Area<sup>6</sup></b>	<b>149.8</b>	<b>(96,300)</b>	<b>157.8</b>

Potentially jurisdictional hydrologic features with the Survey Area are depicted in Attachment A: Hydrologic Region Map. Attachment C: Wetland and Water Survey Results lists the unique feature identification number, feature type, stream class, OHWM width and depth, TOB width and depth, and the length and acreage for each feature observed within the Survey Area. Attachment D: Drainage Photo Log presents photographs of drainage features observed within the Survey Area.

<sup>4</sup> These numbers include the area within the OHWM for drainages potentially under the jurisdiction of the USACE and RWQCB.

<sup>5</sup> The distance between TOBs was used to measure the area of streams under the jurisdiction of the CDFW.

<sup>6</sup> Figures do not sum due to rounding.

As summarized in Table 4: Impacts to Potentially Jurisdictional Hydrological Features and as described further in the following subsections, a total of approximately 3.51 acres of temporary impacts to USACE- and RWQCB-jurisdictional areas and approximately 3.56 acres of temporary impacts to CDFW-jurisdictional areas will occur during construction of the Proposed Project. Attachment E: Wetland and Waters Impact Summary lists the hydrologic features crossed by the Proposed Project, as well as the MP number, quantity of impacts, and a description of each feature that will be temporarily impacted. No permanent impacts to hydrological features are anticipated as a result of the Proposed Project.

**Table 4: Impacts to Potentially Jurisdictional Hydrological Features**

<b>Feature Type</b>	<b>Approximate Temporary Impacts to USACE- and RWQCB-Jurisdictional Area (acres)</b>	<b>Approximate Temporary Impacts to CDFW-Jurisdictional Area (acres)<sup>7</sup></b>
Wetlands	2.70	N/A
Ephemeral Drainages	0.34	0.93
Intermittent Drainages	0.47	1.56
Perennial Drainages	--	--
Riparian Areas	N/A	1.07
<b>Total Jurisdictional Area</b>	<b>3.51</b>	<b>3.56</b>

**5.1.0 USACE- and RWQCB-Jurisdictional Features**

**Drainages**

Insignia’s biologists identified a total of 145 drainages in the Survey Area that are potentially under the jurisdiction of the USACE and RWQCB and that comprise approximately 10.5 acres (96,299.8 linear feet) within the limits of the OHWM. Table 3: Potential Jurisdictional Hydrological Features within the Survey Area summarizes the acreages and linear feet of drainages mapped within the Survey Area by hydrological regime.

The upstream portions of two USACE-defined TNWs are located within the Survey Area—the San Luis Rey River, and the dammed portion of the San Dieguito River (referred to as Lake Hodges). However, the USACE considers the San Dieguito River a TNW only from the coast to near I-5, which is located more than 10 miles downstream of the Survey Area. The San Luis Rey River is considered a TNW from the coast to SR-76, which is located approximately six miles downstream of the Survey Area. The San Luis Rey River reach within the Survey Area was dry during biological surveys in 2014 (Insignia 2015) and during the wetland and waters assessment in 2015, but upstream and downstream portions of this river do exhibit flow during most of the year. Historic drought conditions may also be causing drier-than-normal hydrological flow. As a result, it is likely that this reach of the San Luis Rey River exhibits perennial flow during

<sup>7</sup> The distance between TOBs was used to measure the area of streams under the jurisdiction of the CDFW.

normal rain years. The portion of the San Dieguito River/Lake Hodges that is within the Survey Area was also dry during surveys in 2014 and 2015. This stretch is presumed to exhibit an intermittent hydrological regime.

In total, 25 intermittent drainages were observed within the Survey Area. These include many of the named drainage features (i.e., Rainbow Creek, Moosa Creek, Reidy Canyon Creek, Escondido Creek, Poway Creek, Beeler Creek, San Clemente Canyon Creek, and Elanus Canyon Creek). Insignia biologists also mapped 119 ephemeral drainages, which are generally considered to be tributaries due their direct or indirect flow into a TNW.

Construction of the Proposed Project will result in temporary impacts to approximately 0.82 acre of potential USACE- and RWQCB-jurisdictional drainages<sup>8</sup>. The Proposed Project activities that will temporarily impact jurisdictional drainages include earth-moving/grading, tree trimming, and vegetation removal associated with the temporary construction ROW, and within the temporary HDD workspace areas. No permanent impacts are anticipated within potential USACE- and RWQCB-jurisdictional drainages.

## **Wetlands**

Potential USACE- and RWQCB-jurisdictional wetlands comprise a total of approximately 139.3 acres within the Survey Area based on the presence of dominant hydrophytic vegetation communities. As previously discussed in Section 4 – Methods, no soil pits were dug within these potential wetland areas; as a result, it was not possible to determine if these areas also met the hydric soil and hydrology parameters of the wetland delineation test, as outlined in the *Wetlands Delineation Manual* (Environmental Laboratory 1987). As such, the mapped wetland totals included in Table 3: Potential Jurisdictional Hydrological Features within the Survey Area likely overestimate the USACE-jurisdictional wetland areas present within the Survey Area.

Construction of the Proposed Project will result in temporary impacts to approximately 2.70 acres of potential USACE- and RWQCB-jurisdictional wetlands. The Proposed Project activities that could temporarily impact these potential jurisdictional wetlands include earth-moving/grading, tree trimming, and vegetation removal associated with the temporary construction ROW, and within the temporary HDD workspace areas. No permanent impacts are anticipated within potential USACE- and RWQCB-jurisdictional wetlands.

### **5.1.1 CDFW-Jurisdictional Features**

A total of approximately 157.8 acres of potential CDFW-jurisdictional features, including 35.0<sup>9</sup> acres of drainages and 122.9 acres of riparian vegetation, were identified within the Survey Area, as summarized in Table 3: Potential Jurisdictional Hydrological Features within the Survey Area and pursuant to Section 1600 of the California Fish and Game Code.

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<sup>8</sup> Within the City of Poway, an approximately one-mile pre-lay segment of existing pipe may be used as part of the Proposed Project and therefore, no temporary or permanent impacts will be needed to construct a new gas pipeline in this location. As a result, no impacts to drainages or wetlands will occur in this pre-lay area. The impact calculations presented in Table 4: Impacts to Potentially Jurisdictional Hydrological Features do not account for the pre-lay area, and as a result, impacts to drainage features and wetlands presented in this report are likely overestimated.

<sup>9</sup> Figures do not sum due to rounding to the nearest tenth.



Construction of the Proposed Project will result in temporary impacts to approximately 3.56 acres of potential CDFW-jurisdictional areas, which includes approximately 2.49 acres of drainages and approximately 1.07 acres of CDFW-jurisdictional riparian areas. The Proposed Project activities that could temporarily impact CDFW-jurisdictional areas include earth-moving/grading, tree trimming, and vegetation removal associated with the temporary construction ROW, and within the temporary HDD workspace areas. No permanent impacts are anticipated within potential CDFW-jurisdictional features.

### 5.1.2 Non-Jurisdictional Features

While mapping drainages, Insignia biologists also noted non-jurisdictional linear features, such as swales, erosional features, and other ephemeral features. These features do not fall under the jurisdiction of the USACE, RWQCB, or CDFW. These non-jurisdictional features are also included in Attachment A: Hydrologic Region Map. Concrete-lined ditches with ephemeral flow that were neither relocated tributaries nor excavated in a tributary were determined to be non-jurisdictional according to the CWR, and were not further documented. These non-jurisdictional ditches appeared to carry water only from anthropogenic sources (e.g., landscape run-off, etc.).

## 6 – DISCUSSION

Based on the data and analysis provided in this report, approximately 349 potentially jurisdictional hydrologic features are located within the Survey Area for the Proposed Project. Of the hydrologic features within the Survey Area, approximately 139.3 acres are wetlands and approximately 10.5 acres are drainages that are potentially under the jurisdiction of the USACE and the RWQCB, pursuant to Sections 404 and 401 of the CWA, respectively. Approximately 157.8 acres of potential CDFW-jurisdictional areas occur within the Survey Area for the Proposed Project.

Approximately 104 hydrologic features (87 drainages and 17 wetlands) potentially under the jurisdiction of the USACE or the RWQCB will be temporarily impacted during construction of the Proposed Project. Of the hydrologic features crossed by the Proposed Project, impacts to approximately 2.70 acres of wetlands and 0.82 acre of drainages that are potentially under the jurisdiction of the USACE and the RWQCB—pursuant to Sections 404 and 401 of the CWA, respectively—will be required to construct the Proposed Project<sup>10</sup>. Approximately 3.56 acres of temporary impacts to CDFW-jurisdictional areas will be required to construct the Proposed Project. No permanent impacts to any potentially jurisdictional water or wetland features are anticipated.

## 7 – REFERENCES

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<sup>10</sup> Impacts to wetlands and drainages reported in this section do not account for the pre-lay segment of existing pipe where new pipe is not required and new construction impacts are not anticipated, as described previously. As a result, impacts to wetlands and drainage features are likely overestimated in this report.

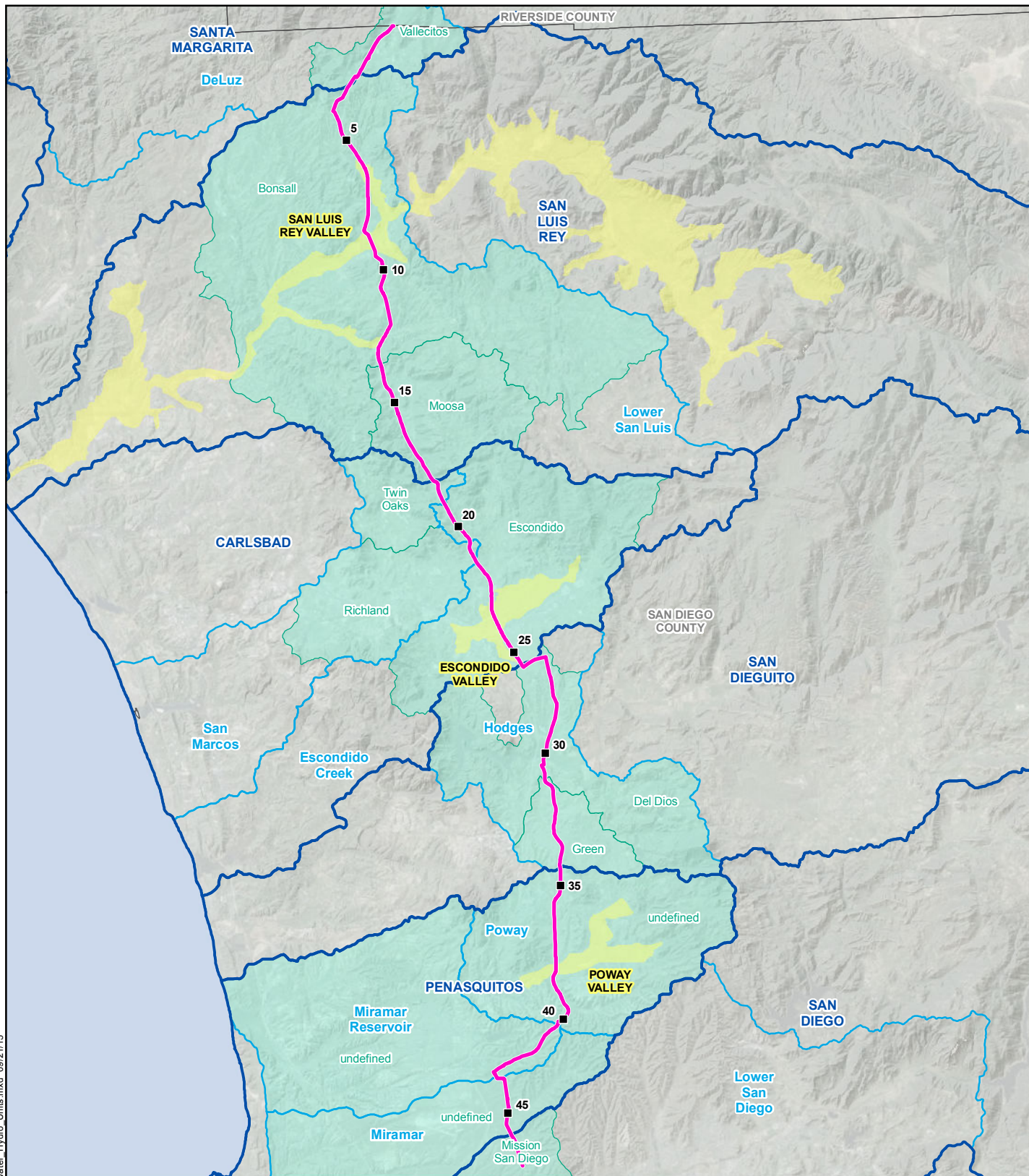
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**ATTACHMENT A: HYDROLOGIC REGION MAP**



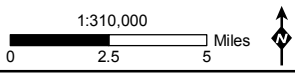


**Attachment A: Hydrologic Region Map**

**Pipeline Safety & Reliability Project**

- Milepost
- Proposed Project Route
- Groundwater Basin
- ▭ Hydrologic Unit
- ▭ Hydrologic Area
- ▭ Hydrologic Subarea

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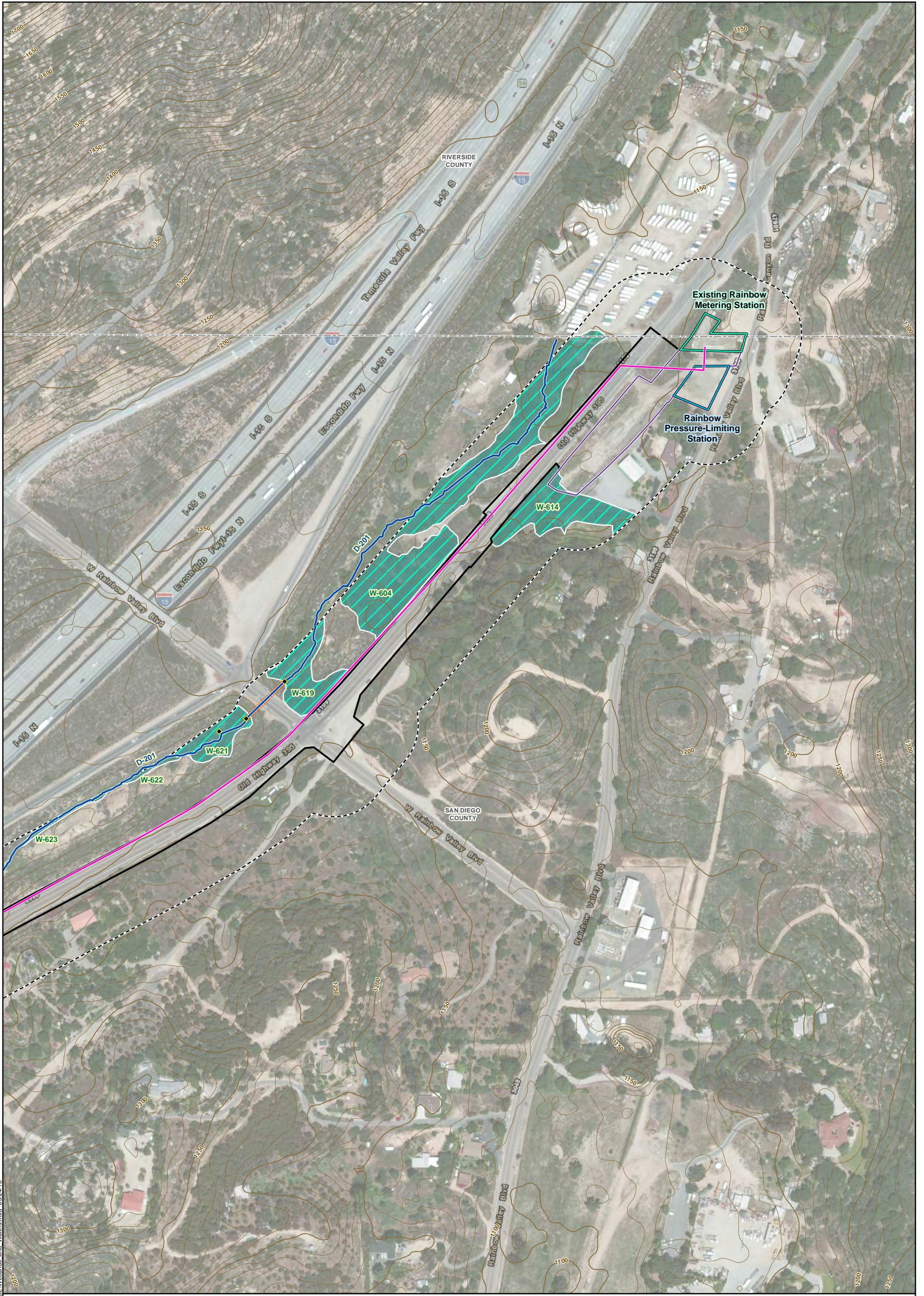






**ATTACHMENT B: WETLAND AND WATERS ASSESSMENT MAP**

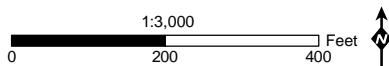




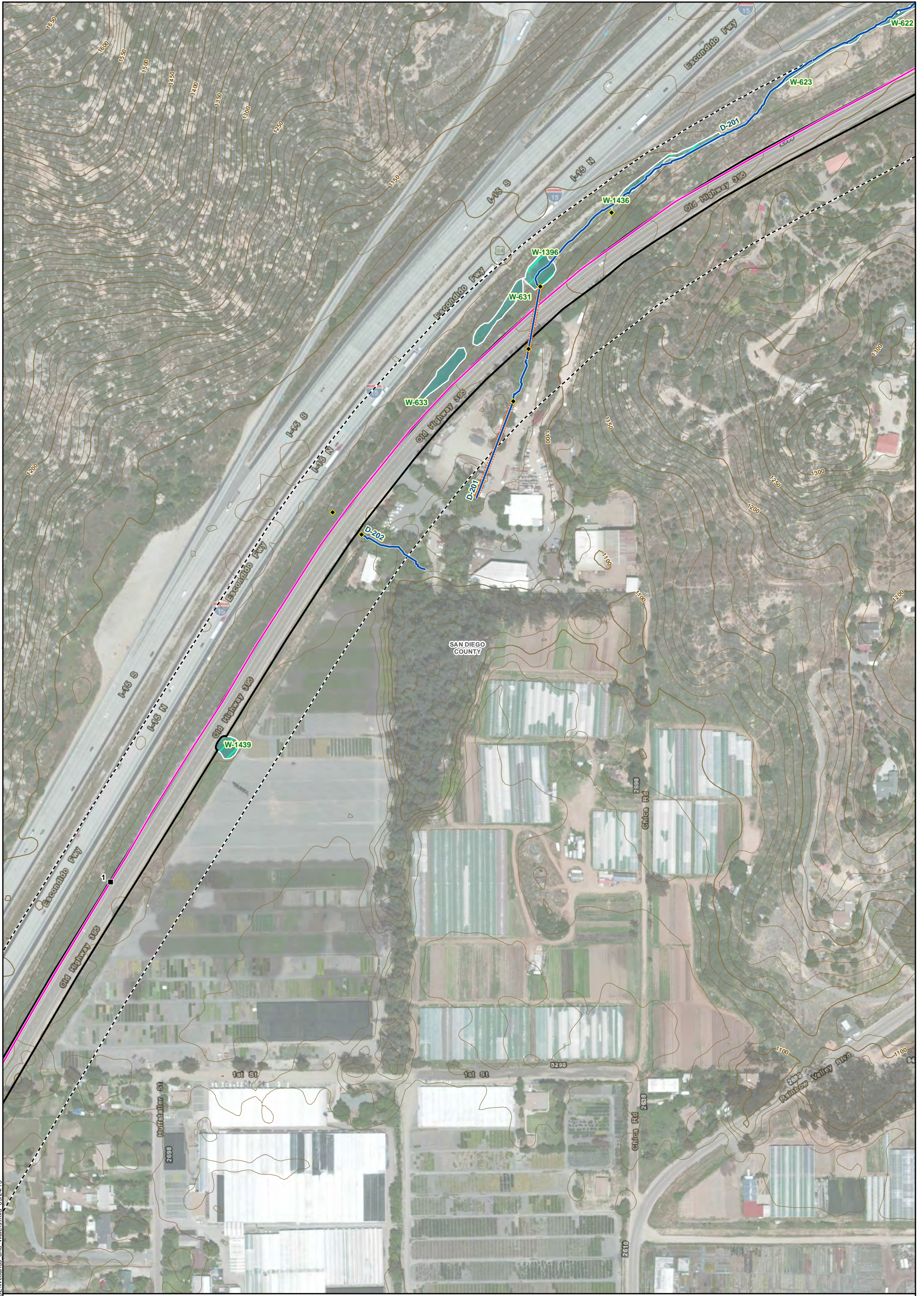
Attachment B: Wetland and Waters Assessment Map 1 of 72

Pipeline Safety & Reliability Project

<ul style="list-style-type: none"> <li>Milepost</li> <li>Proposed Project Route</li> <li>Proposed Trenchless</li> <li>Cross-Tie Connector Line</li> <li>Existing Facility</li> </ul>	<ul style="list-style-type: none"> <li>Permanent Aboveground Facility</li> <li>Temporary Bore Pit</li> <li>Horizontal Directional Drill Workspace</li> <li>Laydown Area</li> <li>Right-of-Way Limits</li> </ul>	<ul style="list-style-type: none"> <li>Contour (10-foot Interval)</li> <li>Biological Resource Survey</li> <li>City/County Boundary</li> <li>Hydrologic Unit Watershed Boundary</li> </ul>	<ul style="list-style-type: none"> <li>Culvert</li> <li>Non-Jurisdictional Feature</li> <li>USACE/RWQCB Drainage</li> <li>Culverted segment</li> </ul>	<ul style="list-style-type: none"> <li>CDFW Riparian Vegetation</li> <li>USACE/RWQCB Wetland</li> <li>USACE/RWQCB Drainage</li> </ul>
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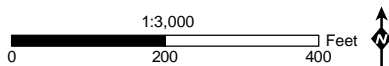
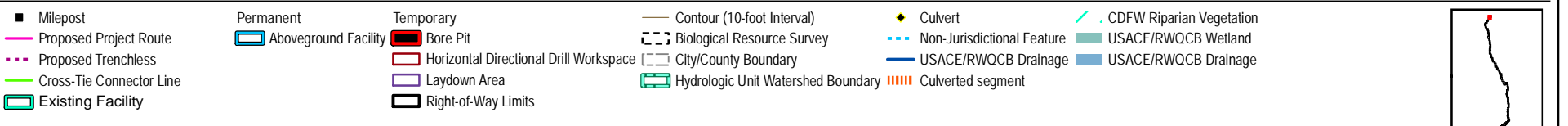


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Attachment B: Wetland and Waters Assessment Map 2 of 72

Pipeline Safety & Reliability Project



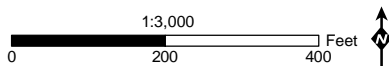
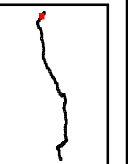
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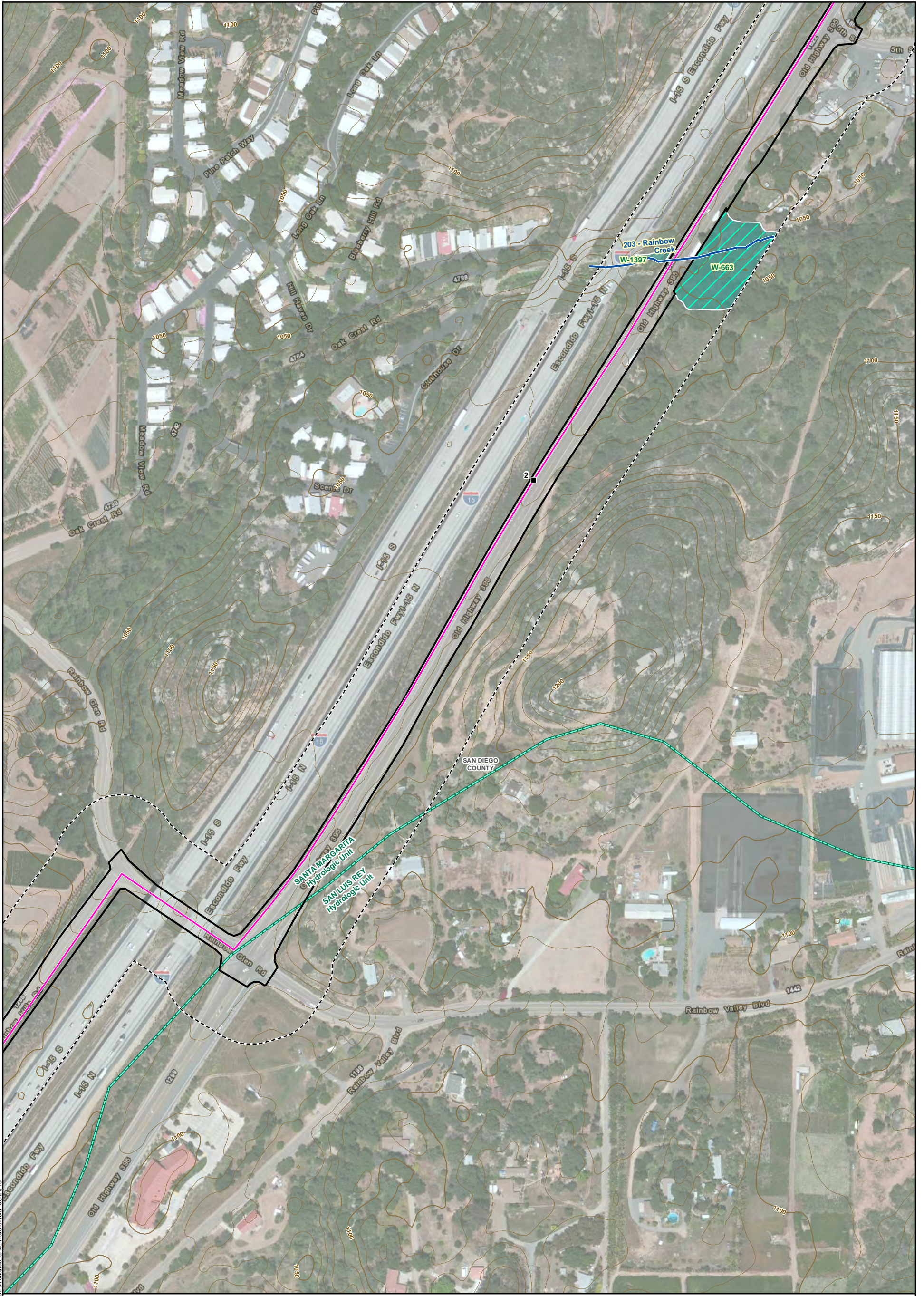
Attachment B: Wetland and Waters Assessment Map 3 of 72

Pipeline Safety & Reliability Project

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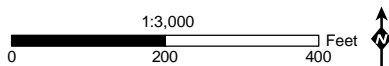
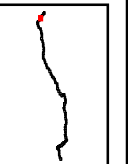
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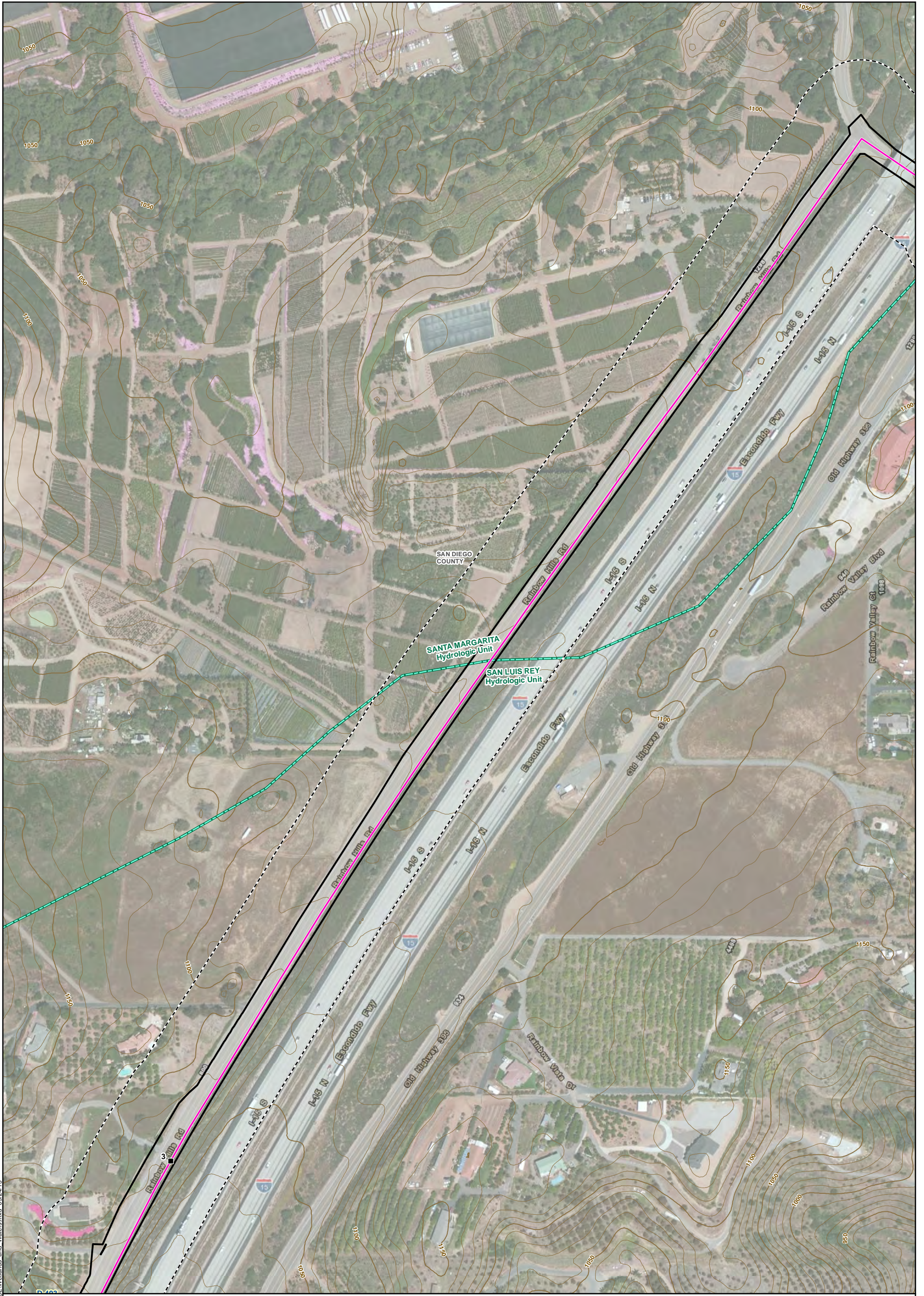
Attachment B: Wetland and Waters Assessment Map 4 of 72

Pipeline Safety & Reliability Project

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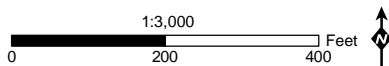
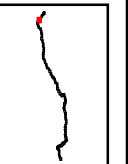
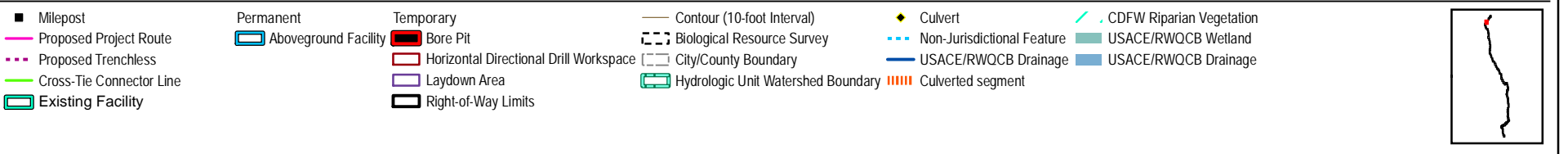


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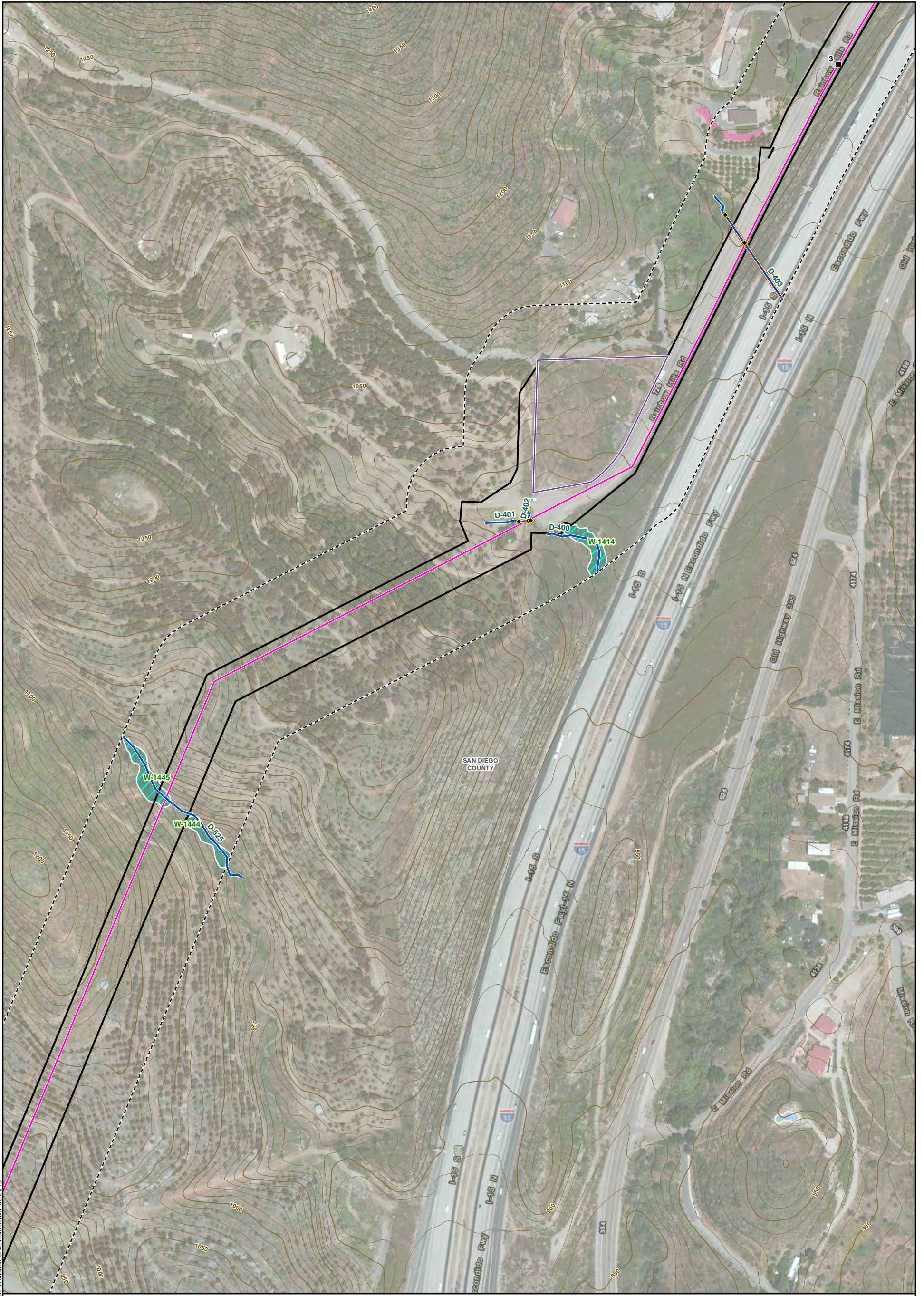


Attachment B: Wetland and Waters Assessment Map 5 of 72

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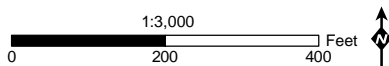
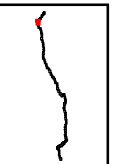
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Attachment B: Wetland and Waters Assessment Map 6 of 72

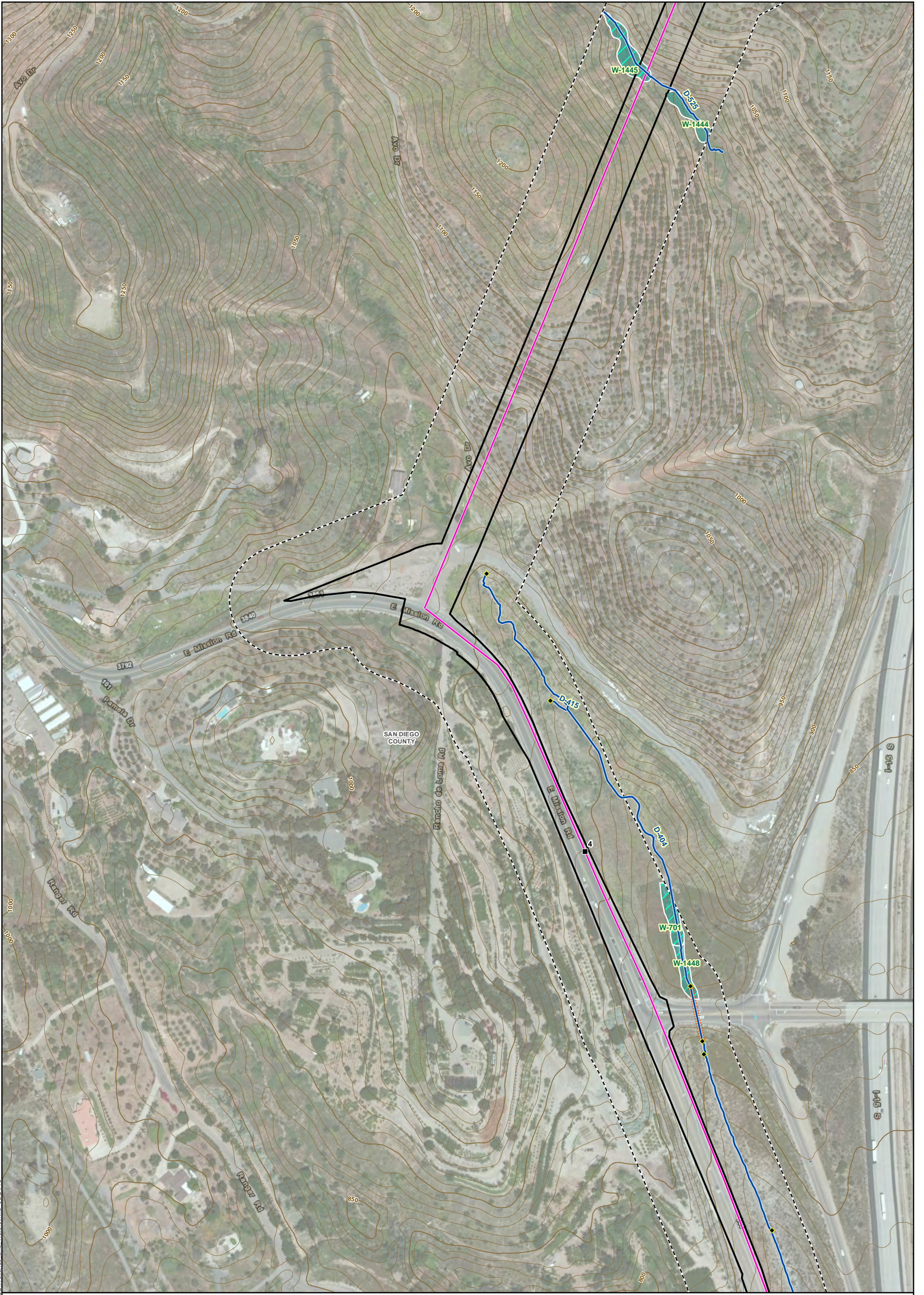
Pipeline Safety & Reliability Project

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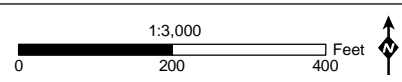
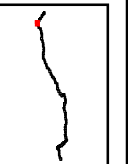




Attachment B: Wetland and Waters Assessment Map 7 of 72

Pipeline Safety & Reliability Project

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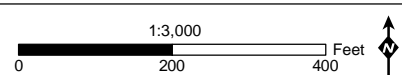
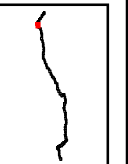
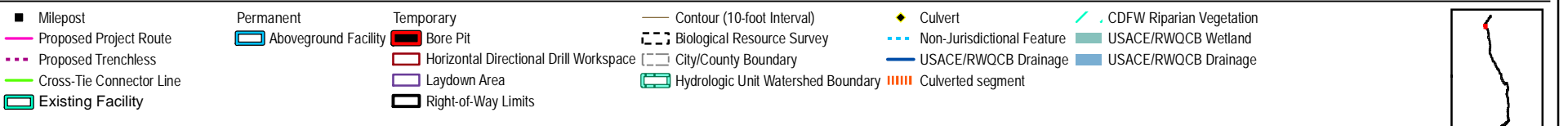


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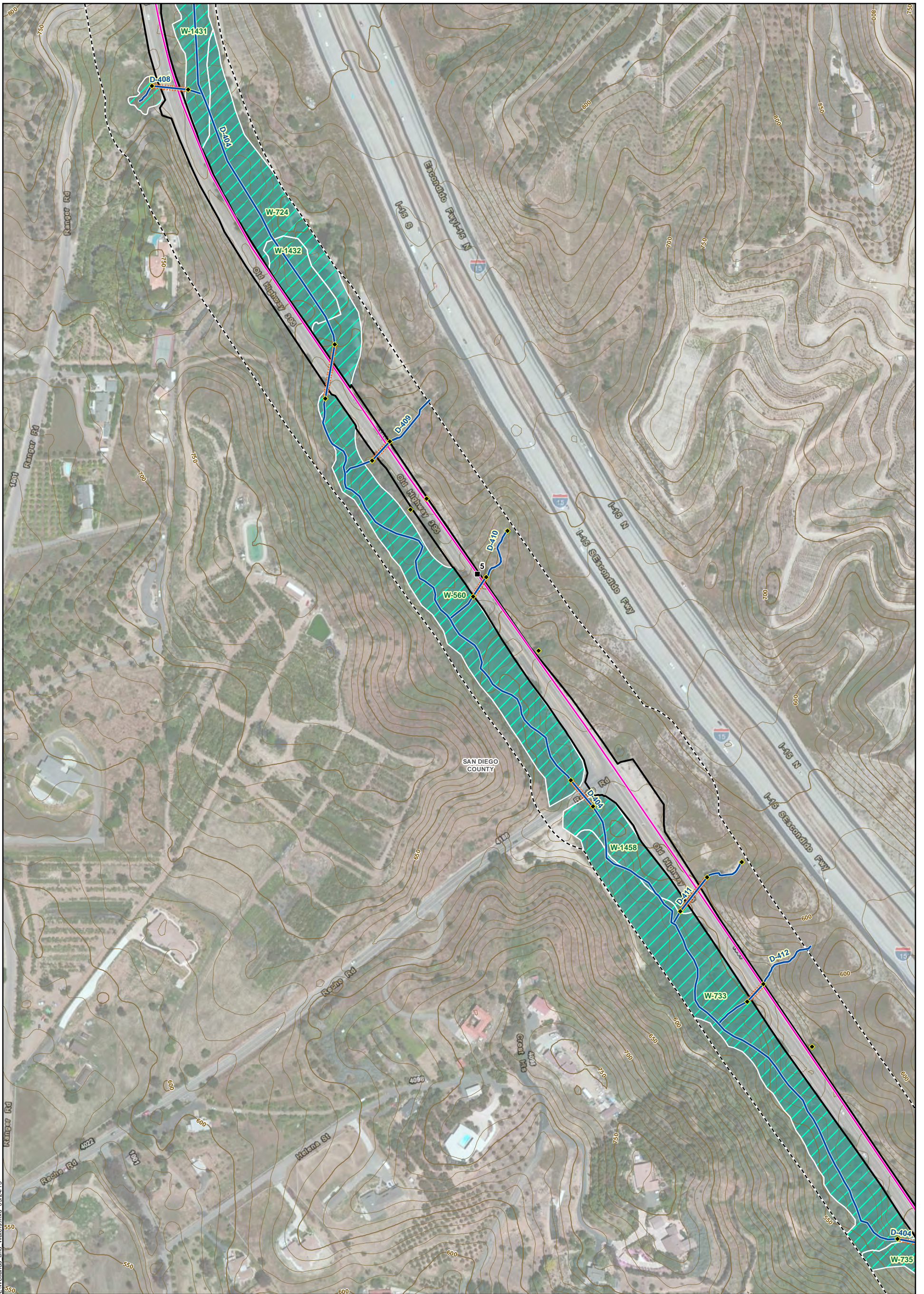


Attachment B: Wetland and Waters Assessment Map 8 of 72

Pipeline Safety & Reliability Project



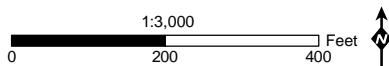
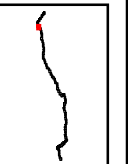
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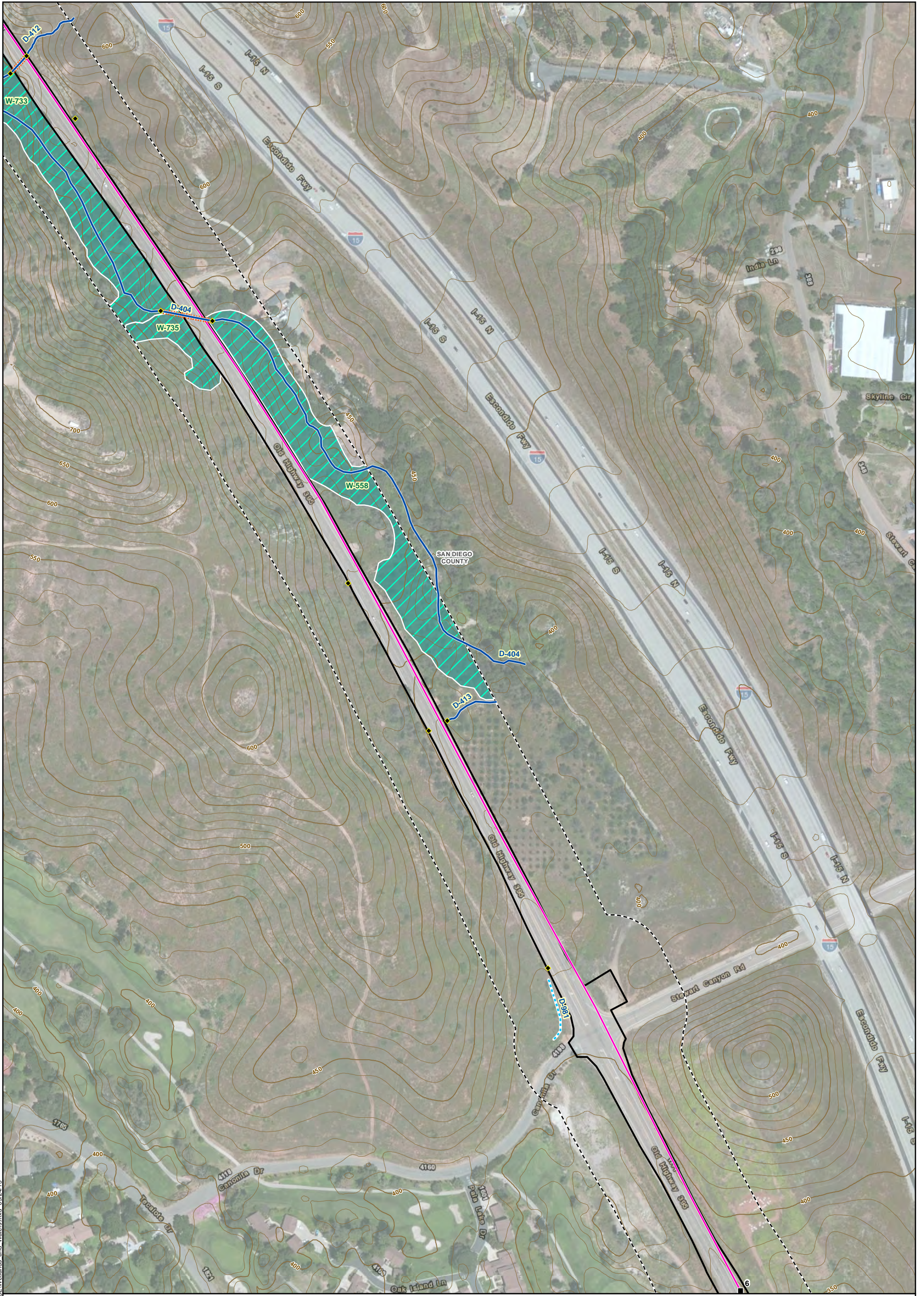
Attachment B: Wetland and Waters Assessment Map 9 of 72

Pipeline Safety & Reliability Project

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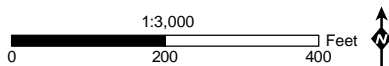
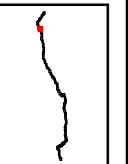
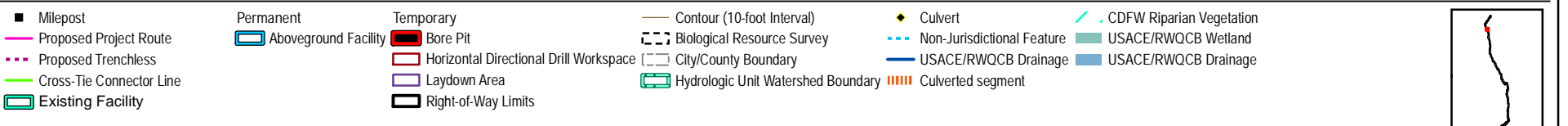


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Attachment B: Wetland and Waters Assessment Map 10 of 72

Pipeline Safety & Reliability Project



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