County of San Diego

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September 12, 2019

MITIGATED NEGATIVE DECLARATION

Project Name: Boulder Oaks Preserve Improvement Project

This Document is Considered Draft Until it is Adopted by the Appropriate County of San Diego Decision-Making Body.

This Mitigated Negative Declaration is composed of this form as well as the accompanying Environmental Initial Study, which includes the following:

a. Initial Study Form

b. Attached extended studies for air quality and greenhouse gases, biological resources, cultural resources, traffic, and MSCP Findings.

1. California Environmental Quality Act Negative Declaration Findings:

Find that this Mitigated Negative Declaration reflects the decision-making body's independent judgment and analysis, and that the decision-making body has reviewed and considered the information contained in this Mitigated Negative Declaration and the comments received during the public review period, and on the basis of the whole record before the decision-making body (including this Mitigated Negative Declaration) that there is no substantial evidence that the project will have a significant effect on the environment.

2. Required Mitigation Measures:

Refer to the attached Environmental Initial Study for the rationale for requiring the following measures:

A. Biological Resources

MM-BIO-1. To mitigate for impacts on up to 0.08 acre of coast live oak woodland, which is a sensitive biological resource identified in the Biological Mitigation Ordinance, mitigation shall occur at a 2:1 ratio for other Tier I habitat located within a biological resource core area (BRCA).

MM-BIO-2. To mitigate for impacts on up to 0.65 acre of Engelmann oak woodland, which is a sensitive biological resource identified in the Biological Mitigation Ordinance, mitigation shall occur at a 2:1 ratio for other Tier I habitat located within a BRCA.

MM-BIO-3. To mitigate for impacts on up to 2.79 acres of non-native grassland, which is a sensitive biological resource identified in the Biological Mitigation Ordinance, mitigation shall occur at a 0.5:1 ratio for other Tier III or

higher habitat located within a BRCA.

MM-BIO-4. To mitigate for impacts on up to 0.27 acre of scrub oak chaparral, which is a sensitive biological resource identified in the Biological Mitigation Ordinance, mitigation shall occur at a 1:1 ratio for other Tier III or higher habitat located within a BRCA.

MM-BIO-5. To mitigate for impacts on up to 3.42 acres of southern mixed chaparral, which is a sensitive biological resource identified in the Biological Mitigation Ordinance, mitigation shall occur at a 1:1 ratio for other Tier III or higher habitat located within a BRCA.

MM-BIO-6: State and Federal laws prohibit killing birds or impacting their eggs or nesting success. To ensure project compliance with State and Federal laws and prevent the potentially significant impacts on sensitive nesting birds and raptors from improperly implemented construction, clearing restrictions shall be implemented. The County shall avoid vegetation removal or ground-disturbing activities during the bird breeding season, defined as January 15 to September 1, which includes the tree-nesting raptor breeding season of January 15 to July 15, and the general avian breeding season of February 1 to September 1. If removal cannot be avoided during this time period, a nesting bird survey would be conducted no more than 72 hours prior to ground-disturbing activities or vegetation removal by a qualified avian biologist through the area to be cleared. This is necessary to definitively ascertain whether raptors or other migratory birds are actively nesting in the project area. If the survey results are positive, the location of active raptor or migratory bird nests shall be mapped by a qualified avian biologist. All construction activities close to active nests shall be delayed or otherwise modified as necessary to prevent nest failure (e.g., nest abandonment). Buffers may be adjusted based on the observations by the biological monitoring on the response of the nesting birds to human activity and shall be conducted in coordination with the resource agencies (U.S. Fish and Wildlife Service and CDFW).

B. Cultural Resources

MM-CUL-1: Prior to the construction of any new trail segments or the ADA trail, all of which were located to avoid cultural resources, the locations of new construction shall be field checked by a qualified archaeologist to ensure that they do indeed avoid known cultural resources.

MM-CUL-2: All ground-disturbing activity related to implementation of the proposed project, including installation of trail signage, potential construction, trenching, and grading associated with trail installation, shall be monitored by a qualified archaeologist and, where the resource involved is a prehistoric archaeological site, a cultural monitor. If cultural resources are discovered during monitoring, all work within 50 feet of the discovery shall stop until a qualified archaeologist can evaluate the find and make appropriate recommendations for treatment. The County shall comply with all recommendations made by the qualified archaeologist.

MM-CUL-3: Permanent fencing with signage (e.g., signs that read “Please Stay on Trail”) shall be placed along the trail route in the northwest portion of

the Preserve in the vicinity of the sensitive cultural resource identified by Native American representatives. The fencing should be placed along that portion of the trail from which the site can be accessed in order to protect the resource from unauthorized visitation.

MM-CUL-4: Any ground-disturbing activities on the Preserve must be considered as having the potential to encounter Native American human remains. Human remains require special handling and must be treated with appropriate dignity. Specific actions must take place pursuant to State CEQA Guidelines Section 15064.5e; Public Resources Code Section 5097.98; and Section 87.429 of the County of San Diego Grading, Clearing and Watercourses Ordinance.

Should Native American human remains be identified during ground-disturbing activities related to the proposed project, whether during construction, maintenance, or any other activity, State and County mandated procedures shall be followed for the treatment and disposition of those remains, as follows:

In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, DPR shall ensure that the following procedures are followed:

1. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
    a. A County (DPR) official is contacted.
    b. The County Coroner is contacted to determine that no investigation of the cause of death is required.
    c. If the Coroner determines the remains are Native American, then:
        i. The coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours.
        ii. The NAHC shall identify the person or persons it believes to be most likely descended from the deceased Native American.
        iii. The Most Likely Descendent (MLD) may make recommendations to the landowner (DPR), or the person responsible for the excavation work, for the treatment of human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.
2. Under the following conditions, the landowner or its authorized representative shall rebury the Native American human remains and associated grave goods on the Preserve in a location not subject to further disturbance:
    a. The NAHC is unable to identify a MLD or the MLD fails to make a recommendation within 24 hours after being notified by the NAHC.
    b. The MLD fails to make a recommendation.
    c. The landowner or his authorized representative rejects the

recommendation of the MLD, and mediation by the NAHC fails to provide measures acceptable to the landowner.

3. Any time human remains are encountered or suspected and soil conditions are appropriate for the technique, ground penetrating radar (GPR) shall be used as part of the survey methodology. In addition, the use of canine forensics shall be considered when searching for human remains. The decision to use GPR or canine forensics shall be made on a case-by-case basis through consultation among the County Archaeologist, the proposed project archaeologist, and the Cultural monitor.
4. Because human remains require special consideration and handling, they must be defined in a broad sense. For the purposes of this document, human remains are defined as:
   a. Cremations, including the soil surrounding the deposit.
   b. Interments, including the soils surrounding the deposit.
   c. Associated grave goods.

   In consultation among the County archaeologist, project archaeologist, and Cultural monitor, additional measures (e.g., wet-screening of soils adjacent to the deposit or on site) may be required to determine the extent of the burial.

C. Greenhouse Gas Emissions

MM-GHG-1: The County shall ensure implementation of the following measures during project construction:

- Require equipment to be maintained in good tune and to reduce excessive idling time.
- Utilize alternative fueled equipment and vehicles, such as renewable diesel, renewable natural gas, compressed natural gas, or electric.
- Require older equipment be retrofitted with advanced engine controls, such as diesel particulate filters, selective catalytic reduction, or cooled exhaust gas recirculation.

D. Transportation and Traffic

MM-TRA-1: The proposed project shall contribute its fair-share fee to the TIF program prior to opening the Preserve for public use.

3. Critical Project Design Elements:

The following project design elements were the result of compliance with specific environmental laws and regulations and were essential in reaching the conclusions within the attached Environmental Initial Study. While the following are not technically mitigation measures, their implementation must be assured to avoid potentially significant environmental effects.

A. Aesthetics

1. The proposed project will conform to the Light Pollution Code (Section 59.101-59.115), including the Zone B lamp type and shielding requirements per fixture and hours of operation limitations for outdoor

lighting and searchlights. In addition, the proposed project will control outdoor lighting and sources of glare in the following ways:

a. The proposed project will not install outdoor lighting that directly illuminates neighboring properties.

b. The proposed project will not install outdoor lighting that would cast a direct beam angle towards a potential observer, such as a motorists, cyclist or pedestrian.

c. The proposed project will not install outdoor lighting for vertical surfaces such as buildings, landscaping, or signs in a manner that would result in useful light or spill light being cast beyond the boundaries of intended area to be lit.

B. Air Quality

1. During construction, the County Department of Parks and Recreation (DPR) will implement dust control measures in compliance with the County of San Diego Air Pollution Control Board Rule 54 and Rule 55, which establish regulations to minimize airborne dust.

C. Cultural Resources

1. The proposed project was designed to avoid cultural resources.

D. Geology and Soils

1. To ensure the structural integrity of all buildings and structures, the proposed project must conform to the Seismic Requirements as outlined within the California Building Code.

2. Although the proposed project involves grading it is required to comply with the San Diego County Code of Regulations, Title 8, Zoning and Land Use Regulations, Division 7, Sections 87.414 (DRAINAGE – EROSION PREVENTION) and 87.417 (PLANTING).

3. The proposed project would comply with the State Water Resource Control Board National Pollution Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (i.e. General Construction Permit). Compliance with the General Construction Permit would require the preparation of a Stormwater Pollution Prevention Plan (SWPPP) outlining best management practices to prevent soil erosion and runoff from the construction site.

4. A Soils Engineering Report would be required prior to construction of the restroom facility and associated septic system as part of County best practices.

5. The proposed project would comply with the improvement requirements identified in the 1997 Uniform Building Code, Division III – Design Standard for Design of Slab-On-Ground Foundations to Resist the Effects of Expansive Soils and Compressible Soils, which ensure suitable structure safety in areas with expansive soils.

6. DPR must obtain an Onsite Wastewater Treatment System (OWTS)

permit for the septic system from the Department of Environmental Health (DEH) prior to installation, at which time, the existing onsite conditions would be analyzed for suitability.

E. Hazards and Hazardous Materials

1. The proposed project will not expose people or structures to a significant risk of loss, injury, or death involving wildland fires because the proposed project will comply with the regulations relating to emergency access, water supply, and defensible space specified in the County Code of Regulatory Ordinances, Title 3, Division 5, Chapter 3 and Appendix II-A of the Uniform Fire Code. The proposed project is also required to comply the Defensible Space for Fire Protection Ordinance, and with the County of San Diego Fire Service Conditions stipulated by the County Fire Services staff (i.e., County Fire Marshall) upon review and approval of the proposed project.
2. The proposed project is required to develop a Wildfire Site Evacuation Plan (SEP) to ensure that County staff, visitors, and customers can safely and quickly evacuate in an emergency. The SEP will include the following:
    a. Facility contact list
        i. Contains the names, responsibilities, and contact numbers of key building contacts.
    b. Building and site map
        i. Evacuation map outlining the evacuation route(s) and assembly area(s) for the Preserve. A copy of this map is provided to emergency responders.
        ii. Plan for fire vehicle access routes and water tank locations.
    c. Exit routes for the Preserve
    d. Personnel roster description
        i. Used to take attendance at the assembly area following an evacuation.
    e. Site evacuation team
        i. Responsible for complete evacuation of, and accounting for all employees, visitors, and customers in their area of responsibility.
    f. Checklist for the facility evacuation coordinator
        i. Ensures consistency and completeness during an emergency.
    g. Checklist for the site warden
        i. Ensures consistency and completeness during an emergency.
    h. Evacuation/fire drill observation form
    i. Voluntary individual site evacuation plan
        i. Designed to assist any employee with limitations or disabilities to evacuate in an emergency; created by the individual employee; is voluntary; and not a confidential document.

j. Fire Safety Plan overview

i. Establishes procedures for identifying fire hazards and preventing fires.

3. The project would comply with guidelines and recommendations provided by the County Vector Control Program, managed by the Department of Health.

F. Hydrology and Water Quality

1. The project would be covered under the County's existing regional Waste Discharge Requirement Permit as long as the project's site design measures and/or source control Best Management Practices (BMPs) are consistent with the San Diego County Jurisdictional Urban Runoff Management Program (JURMP). The project also requires a National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Associated with Construction Activities. Compliance with the General Construction Permit would require the preparation of a SWPPP outlining BMPs that would be implemented during construction activities to prevent pollutants from entering nearby water bodies. The proposed project will comply with all requirements of these permits.

2. DPR must obtain an OWTS permit for the septic system from DEH prior to installation, at which time, the existing onsite conditions would be analyzed for suitability.

3. A Stormwater Management Plan (SWMP) will be prepared for the proposed project that will identify any special site design considerations, site design measures and/or source control BMPs and/or treatment control BMPs to reduce potential pollutants, including sediment from erosion or siltation to the maximum extent practicable from entering stormwater runoff.

G. Noise

1. The proposed project will not generate construction noise that may exceed the standards of the County of San Diego Noise Ordinance (Section 36-410). Construction operations will occur only during permitted hours of operation pursuant to Section 36-410. Also, it is not anticipated that the proposed project will operate construction equipment in excess of an average sound level of 75 decibels (dB) between the hours of 7 a.m. and 7 p.m. Finally, it is not anticipated that the proposed project will operate construction equipment in excess of 75 dB for more than 8 hours during a 24-hour period.

2. The proposed project will not generate construction noise that may exceed the standards of the County of San Diego General Plan, Noise Element, Tables N-1 and N-2, which require a an acoustical study to be prepared for any use that may expose noise-sensitive area to noise in excess of a Community Noise Equivalent Level (CNEL) of 60 A-weighted decibels (dBA).

H. Transportation

1. Project design features include widening an existing portion of the access road that has a sharp turn to 24 feet to accommodate emergency vehicles and allow two vehicles to safely pass.

I. Utilities and Service Systems

1. The proposed project would discharge domestic waste to an OWTS, which would require a permit from the County DEH. DEH would review and approve the OSTS lay-out for the proposed project pursuant to DEH, Land and Water Quality Division's "On-site Wastewater Systems: Permitting Process and Design Criteria."
2. The proposed project will deposit all solid waste at a permitted solid waste facility. Per the County DEH, Local Enforcement Agency issues solid waste facility permits with concurrence from the California Integrated Waste Management Board (CIWMB) under the authority of the Public Resources Code (Sections 44001-44018) and California Code of Regulations Title 27, Division 2, Subdivision 1, Chapter 4 (Section 21440 et seq.).

ADOPTION STATEMENT: This Draft Mitigated Negative Declaration and the above California Environmental Quality Act findings were made by the San Diego County Department of Parks and Recreation on September 12, 2019. This document is considered draft until it is adopted by the appropriate County of San Diego decision-making body.

Signature	Date

Lorrie Bradley, Project Manager, Resource Management Division

County of San Diego Department of Parks and Recreation

Attachments:

California Environmental Quality Act Initial Study

County of San Diego

BRIAN ALBRIGHT
DIRECTOR
PHONE (858) 966-1301

DEPARTMENT OF PARKS AND RECREATION
5500 OVERLAND AVENUE, SUITE 410, SAN DIEGO, CA 92123
www.sdcounty.ca.gov/pds

September 12, 2019

California Environmental Quality Act (CEQA) Initial Study
Environmental Checklist Form
(Based on the State CEQA Guidelines, Appendix G)

1. **Project Name:** Boulder Oaks Preserve Improvement Project

2. **Lead agency Name and Address:**
County of San Diego, Department of Parks and Recreation
5500 Overland Avenue, Suite 410
San Diego, CA 92123-1239

3. **Contact:** Lorrie Bradley, Project Manager
Phone number: (858) 966-1379
E-mail: Lorrie.Bradley@sdcounty.ca.gov

4. **Project Location:**

The project site is located in central San Diego County, California, approximately 5 miles southwest of the center of the unincorporated community of Ramona, and approximately 2 miles south of State Route (SR-) 67 along Mussey Grade Road to the west (Figure 1, *Regional Map*). The project site is the entire Boulder Oaks Preserve (Preserve) property, which encompasses approximately 2,014 acres.

5. **Project Applicant Name and Address:**

County of San Diego Department of Parks and Recreation
500 Overland Avenue, Suite 410
San Diego, CA 92123-1239

6. **General Plan**

Community Plan:	Ramona and Lakeside Community Plans
Land Use Designation:	Open Space-Conservation (OS-C) and Rural Land 40 (RL-40)

7. **Zoning**

Use Regulation:	Open Space (S80) and Limited Agricultural Use (A70)
Minimum Lot Size:	4 acres
Special Area Regulation:	C

8. **Description of Project:**

The Preserve (project site) is west of Mussey Grade Road, approximately 2 miles south of SR-67 within the unincorporated area of San Diego County (see Figure 1, *Regional Map*). The northern portion falls under the jurisdiction of the Ramona Community Plan and the southern portion falls under the Lakeside Community Plan jurisdiction. The project site is subject to the General Plan Rural Lands Regional Category, with an Open Space-Conservation (OS-C) land use designation in the northern portion and a Rural Lands (RL-40) land use designation in the southern portion. Zoning for the site is A70, Limited Agricultural Use, and S80, Open Space. A small area in the northern portion of the proposed project boundary is designated with a special area regulation (C) Airport Land Use Compatibility.

The Preserve is in the central foothills of San Diego County where the topography consists of steep mountain uplands with ridgelines separated by numerous canyons, ravines, and drainages. The western edge of the northern portion approaches the ridgeline that extends from Mt. Woodson to Iron Mountain. The valley of the west branch of San Vicente Creek lies along the Preserve's eastern boundary. The central portion of the Preserve includes relatively flat grasslands and woodlands whereas the southern portion is characterized by an east–west trending valley surrounded by steep slopes. Elevations on the Preserve range from 2,400 feet above mean sea level along the ridge tops to approximately 1,300 feet at the northeastern corner along Mussey Grade Road (see Figure 2, *Project Vicinity).*

The approximately 2,014-acre Preserve currently contains 14.5 miles of existing trails, footpaths and access roads, of which 6.7 miles would be retained; a pond; a ranger station; a ranger residence; a volunteer pad; a restroom facility; a barn; and associated ancillary structures, including water tanks used for fire suppression, a paved parking lot, a gazebo, a dock, fencing, a stone wall, and a decorative fountain. There is an inholding on the property that is approximately 61.26 acres and is currently owned by the Church of Jesus Christ of Latter-day Saints (LDS). The ranger station serves as the headquarters for the County of San Diego Department of Parks and Recreation (DPR) Ramona Preserves workgroup. One ranger and the ranger's family live in the ranger residence. Two volunteers currently live at the volunteer pad in a recreational vehicle (RV). Two additional rangers and two park maintenance workers work at the ranger station and commute on and off site.

The proposed project includes improvements to the Boulder Oaks Preserve in preparation of opening the Preserve to the public. The Preserve has been closed to the public since the acquisition by the County. Existing trails within the Preserve were established as part of the former Salvation Army camp, as well as informal footpaths and portions of the historic Iron Mountain Truck Trail and Foster Truck Trail. In addition to the existing trails to be retained, the proposed project includes the addition of 7.2 miles of proposed trails, three staging areas (vehicle parking), a second volunteer pad, and the renovation of an existing restroom facility and associated septic system; the entrance and internal roads in the Preserve; replacement of the entrance gate; and new fencing, landscaping, and interpretive features such as signage, maps, and vegetative screening (see Figure 3, *Public Access Plan*).

The proposed project includes the addition of 5.7 miles of new native trails and 1.5 miles of American with Disabilities Act (ADA)–compliant trails. A total of 6.7 miles of existing trails would remain open, while 7.8 miles would be closed to the public, but either open to County staff and San Diego Gas & Electric (SDG&E) employees accessing facilities or restored to natural habitat. The 5.7 miles of new trails would be primitive in nature and would be approximately 2 to 4 feet wide. The ADA-compliant trail would have two sides: one suitable for mobility devices and pedestrians and one suitable for bicycles and equestrian users. The two sides would be separated by a barrier made of wood posts supporting a wooden beam. The ADA-complaint trail would be 8 feet wide (4 feet per side) and would include 60-inch resting/passing areas staggered every 1,000 feet. These resting/passing areas would be approximately 48 inches by 60 inches and would contain a bench if site conditions allow. The ADA-accessible trail would be graded and constructed with stabilized decomposed granite (DG). The existing trails would be maintained at their current width, and the existing access road would be widened in some portions to a consistent 24 feet wide to accommodate emergency vehicles.

The proposed addition of three permanent staging areas would be graded and constructed with decomposed granite (DG) material, and would be utilized as vehicle parking areas (see Figure 4, *Aerial Map*). The three staging areas would provide parking spaces for 24 passenger vehicles and eight equestrian trailers. Staging Area 1 would be in the northern portion of the Boulder Oaks Preserve, approximately 0.40 mile south of the entrance to the park. Staging Area 1 would cover 0.16 acre and would provide parking for eight passenger vehicle spaces. Staging Area 2 would be in the central portion of the Boulder Oaks Preserve, adjacent to the existing ranger station. Staging Area 2 would cover 0.29 acre and would provide parking for 16 passenger vehicle spaces. Staging Area 3 would be the designated Equestrian Staging Area and would be north of Staging Area 2, covering 0.89 acre. Staging Area 3 would provide parking for eight pull-through equestrian vehicles. The three staging areas would contain receptacles for waste and equestrian manure.

The entrance to the project site from Mussey Grade Road would be improved from a dirt road to a solid surface (concrete or asphaltic concrete [AC]), and portions of the entrance road (inside the property gate) would be widened to 24 feet across for emergency vehicle access. In addition, portions of the internal road that are not solid surface may be improved to concrete or AC.

The existing restroom structure adjacent to the ranger station may be reconstructed to provide two bathroom stalls and an ADA-accessible restroom. The existing structure is approximately 15 by 15 feet and, if constructed, the new facility would be increased to approximately 20 by 20 feet.

The current septic system, which serves the restroom, ranger station, ranger residence, and volunteer pad, would have its current capacity assessed and potentially expanded to increase capacity for the remodeled restroom facility, if necessary. It is anticipated that the proposed septic system would be increased by no more than 2,000 square feet, and would be no greater than 36 inches deep. The expansion of the septic leach field would be confined to urban/developed areas.

A 15- by 50-foot solid surface volunteer pad is proposed at two possible locations (see Figure 4, *Aerial Map*). A volunteer pad is a permanent staging area for an RV or similar vehicles. DPR volunteers stay at these pads in exchange for volunteer time at the Preserve. Option A would be north of the existing barn and approximately 150 feet north of the existing volunteer pad. Electric facilities at the ranger station would be extended approximately 300 feet to connect to the volunteer pad at Option A. Option B would be approximately 50 feet northeast of the ranger station. For Option A, the existing electrical lines would be extended overhead from the ranger station by approximately 50 feet to connect to the volunteer pad. For Option B, the existing electrical box at the barn would be upgraded to serve the volunteer pad.

Other improvements to the site include picnic tables and shade structures in the staging areas and previously disturbed areas; interpretive features, such as signs, maps, or placards; and fencing and landscaping, where necessary or appropriate. The existing electric gate at the entrance to the Preserve at Mussey Grade Road would be replaced with an automatic gate, operated on solar power to accommodate the 24-foot-width requirement for fire apparatus. The automatic gate would continue to allow for off-hours access by LDS facility staff and adjacent property owners with legal access. New manual internal gates would be installed at the trailhead of the existing Foster Truck Trail and other locations deemed necessary for access control within previously disturbed areas. A fence would be installed around the ADA-accessible trail to separate it from 57 acres of land currently used for grazing leases.

Construction is anticipated to commence in 2019 and would occur over approximately 3 years, based on funding. Approximately 5.5 acres of grading would occur along with approximately 700 cubic yards of imported materials. The proposed project would be implemented in phases, based on funding, with maintenance of existing trails and proposed infrastructure improvements in the first phase, construction of a portion of the new trails in the second phase, and construction of additional new trails in the third phase. Construction equipment would include trail dozers, graders, backhoes, front loaders, case skid steers, and pickup trucks.

Operation of the proposed project would be expected to serve regional residents and visitors, and is anticipated to have approximately 42 guests on an average weekday and 221 guests on an average weekend day (Appendix A). The proposed project would be open to the public from sunrise to sunset. Dogs on leashes would be allowed. During operation, “No Parking” signs may be installed along the shoulder of Mussey Grade Road, if deemed necessary by the Department of Public Works (DPW) Traffic Division, to prevent potential overflow parking on Mussey Grade Road. The proposed project would result in up to two additional volunteers stationed at the project site for a total of one onsite ranger, two commuter rangers, two maintenance staff, and four volunteers. The two additional volunteers would live on site full time along with the existing volunteers and staff to help with maintenance and management of the property.

9. Surrounding land uses and setting:

The surrounding land uses include recreation, open space conservation, agriculture, semi-rural residential, public agency lands, and vacant/undeveloped land. SR-67 is located to the north and south of the Preserve. The Iron Mountain recreational area is to

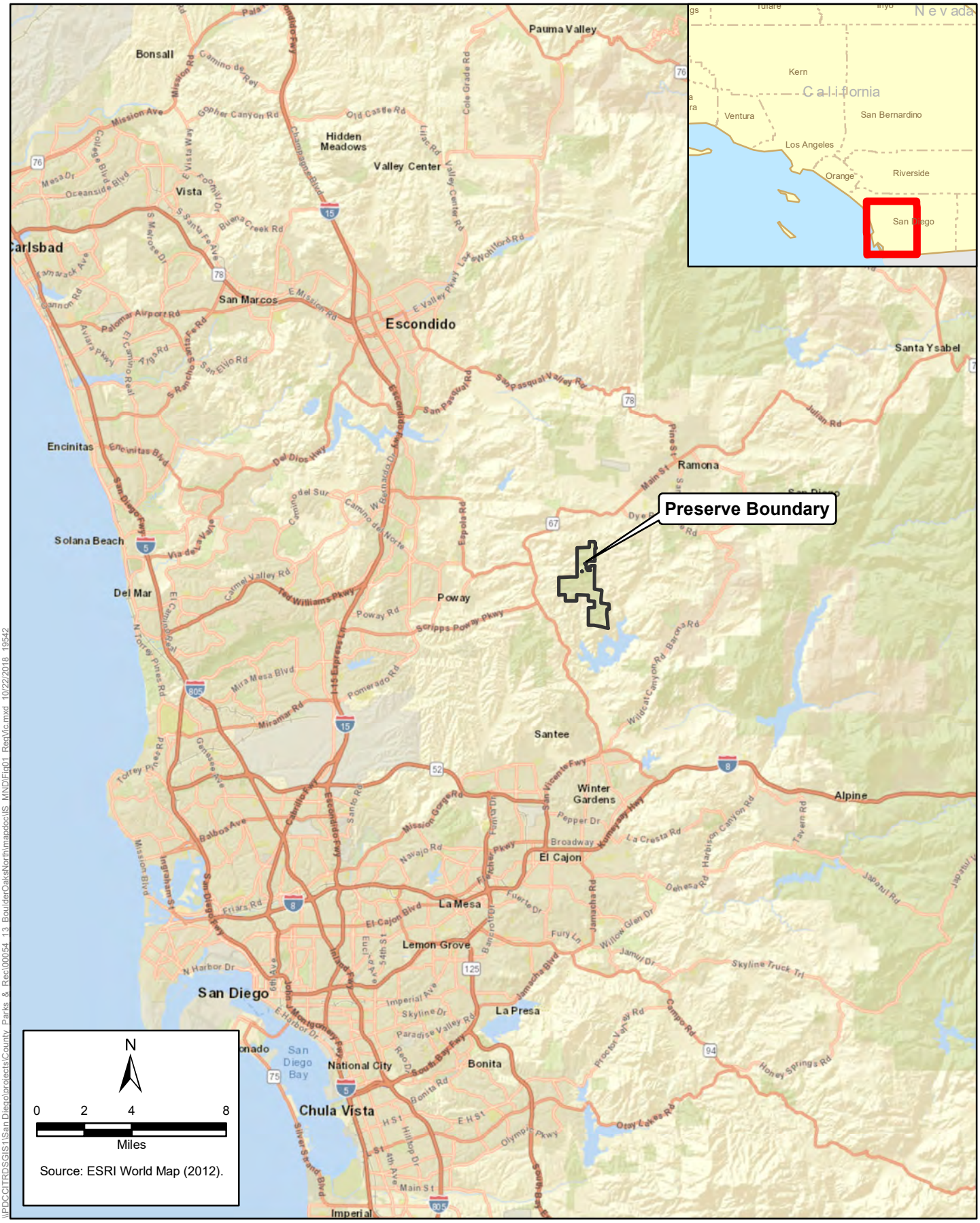

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Figure 1
Regional Map
Boulder Oaks Preserve Improvement Project - MND

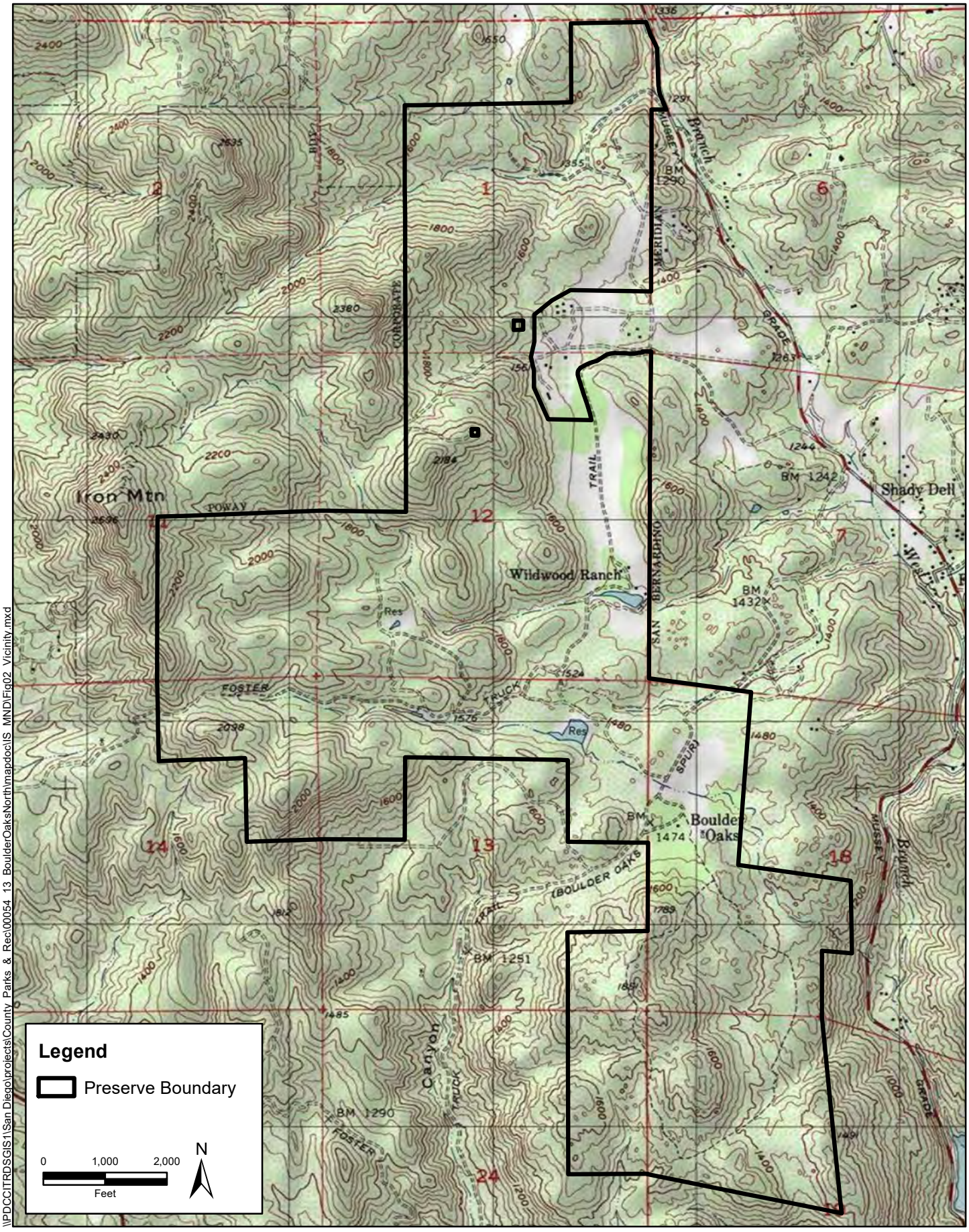

Figure 2
Project Vicinity
Boulder Oaks Preserve Improvement Project - MND

Boulder Oaks Trail Mileage	
Existing Trails	6.7
Proposed Trails	5.7
Proposed ADA Trails	1.5
Total Mileage of Trails:	**13.9**
Total Mileage of Trail Closures	**7.8**

City of Poway

Iron Mountain
Elevation 2680'

Staging Area 1
6-8 Passenger vehicle spaces

Equestrian Staging Area
8 Pull-through spaces

Staging Area 2
16 Passenger vehicle spaces

San Vicente Reservoir

SR-67
WYEPORT
OAK VALLEY
ARDEES
MAHOGANY RANCH
DOS HERMANOS
PUBLIC
MUSSEY GRADE
LAUREL
ROMAN
CRESTLINE
IRON MTN
FERNBROOK
KIMBALL VALLEY
RIO MARIA
FOSTER TRUCK
LAZY ACRES
WILAJOBI
SYCAMORE PARK
0.5
Miles

Location Map

Boulder Oaks Preserve
Conserved Lands

Trail System
Existing Trails
Staging Area

Trail System Proposed Changes
Proposed (2' - 4')
ADA Accessible
Trail Closures

Date: 1/5/2018
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Figure 3
Project Vicinity
Boulder Oaks Preserve Improvement Project- MND

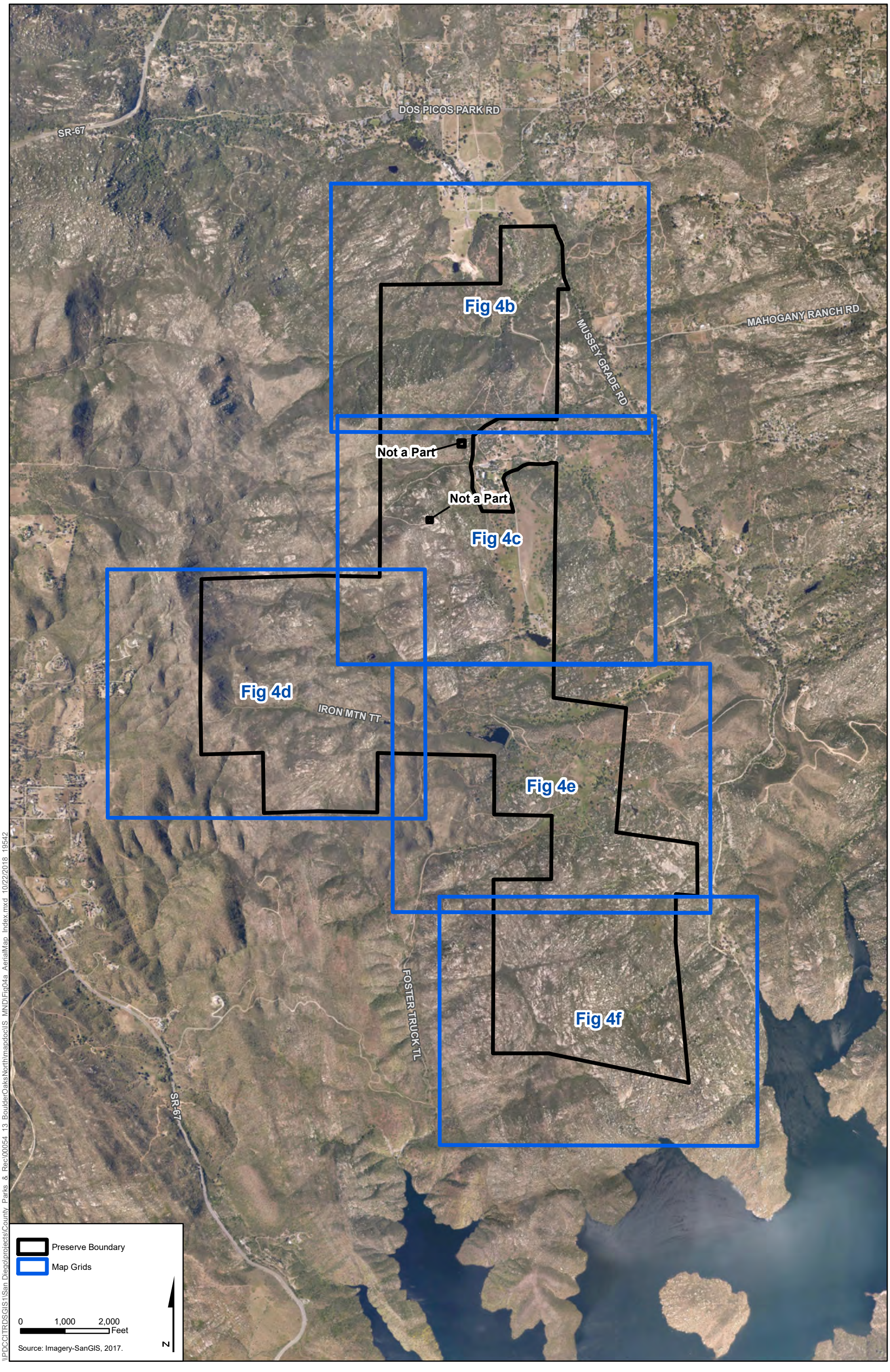

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Figure 4a
Aerial Map
Boulder Oaks Preserve Improvement Project - MND

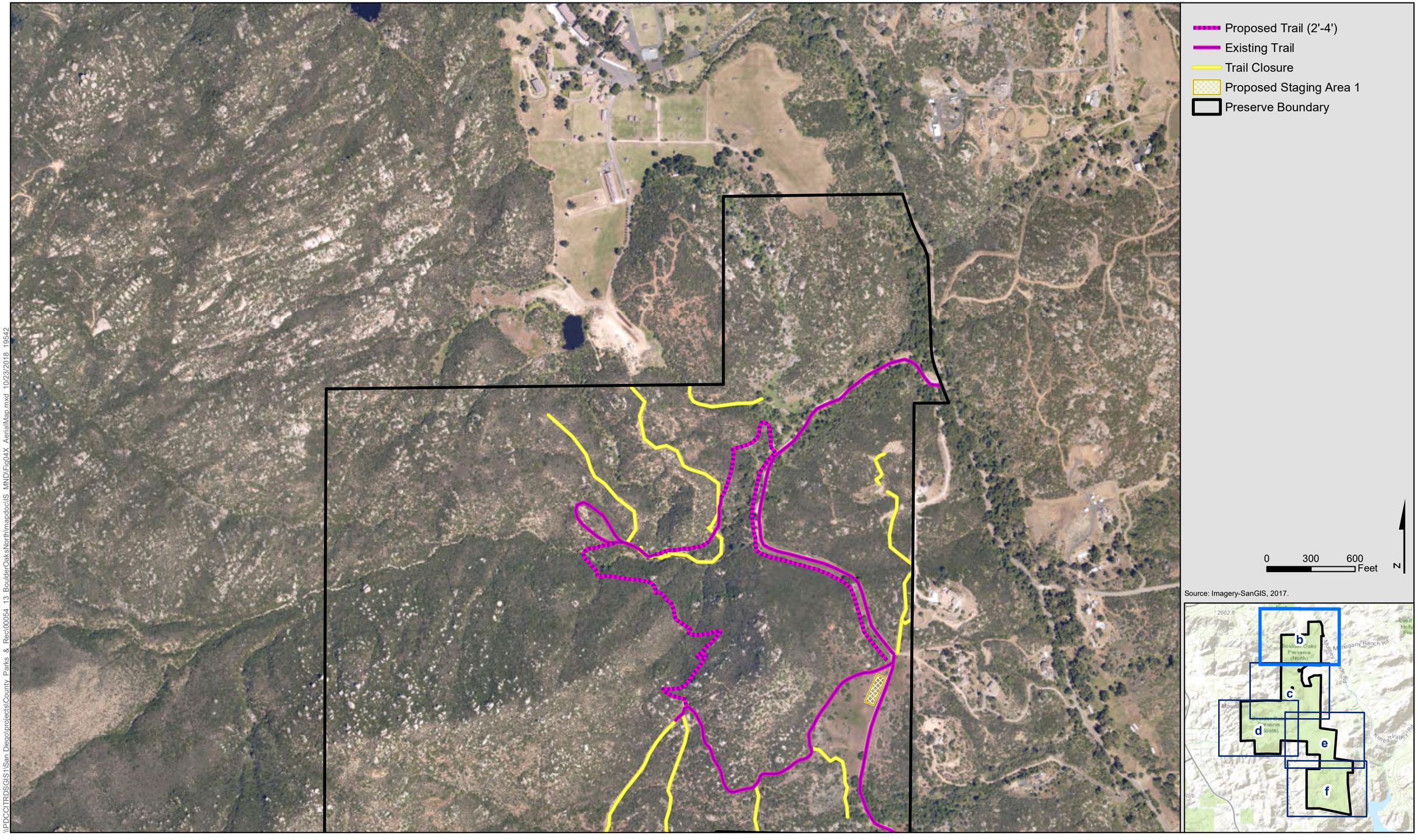

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Figure 4b
Aerial Map
Boulder Oaks Preserve Improvement Project - MND

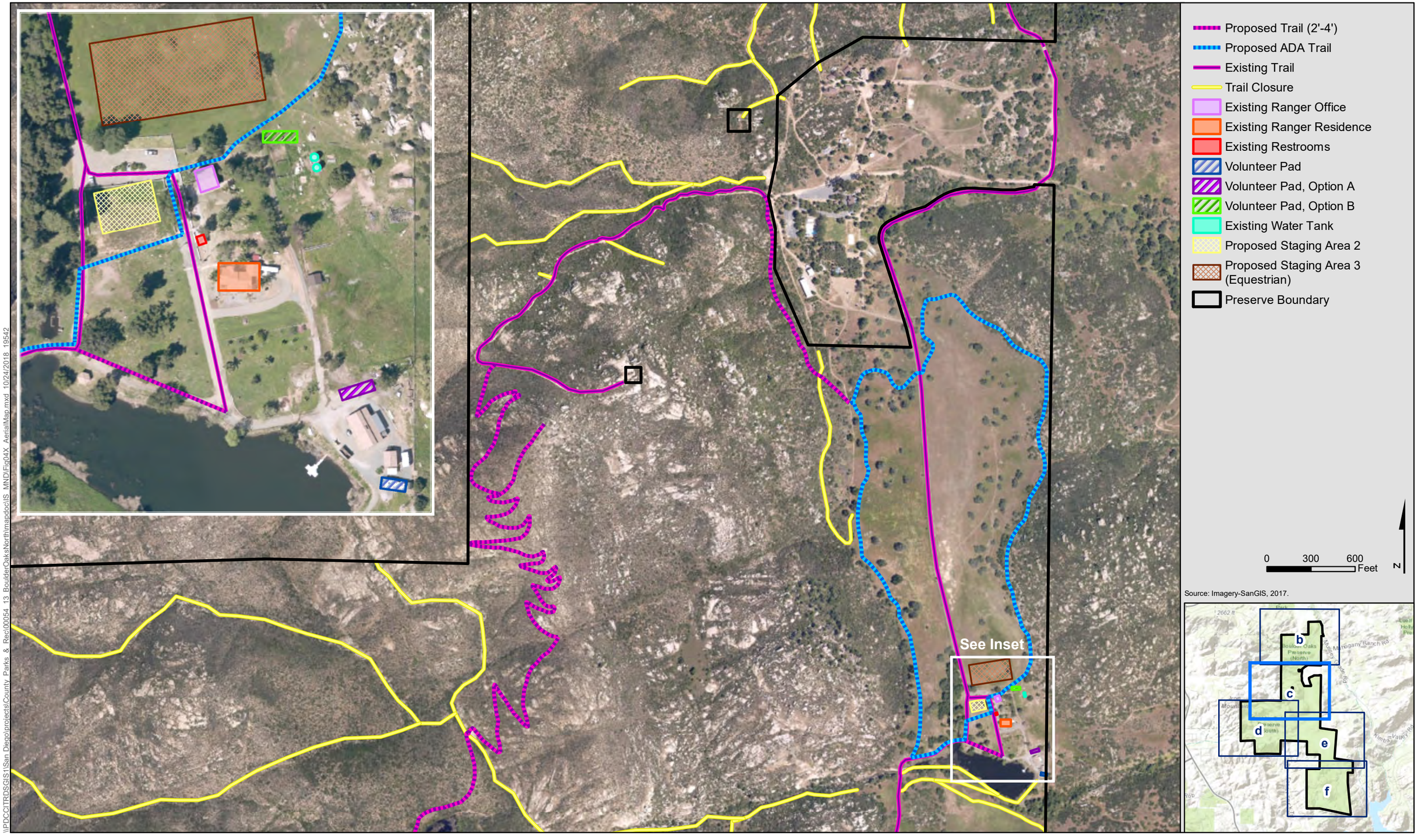

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Figure 4c
Aerial Map
Boulder Oaks Preserve Improvement Project - MND

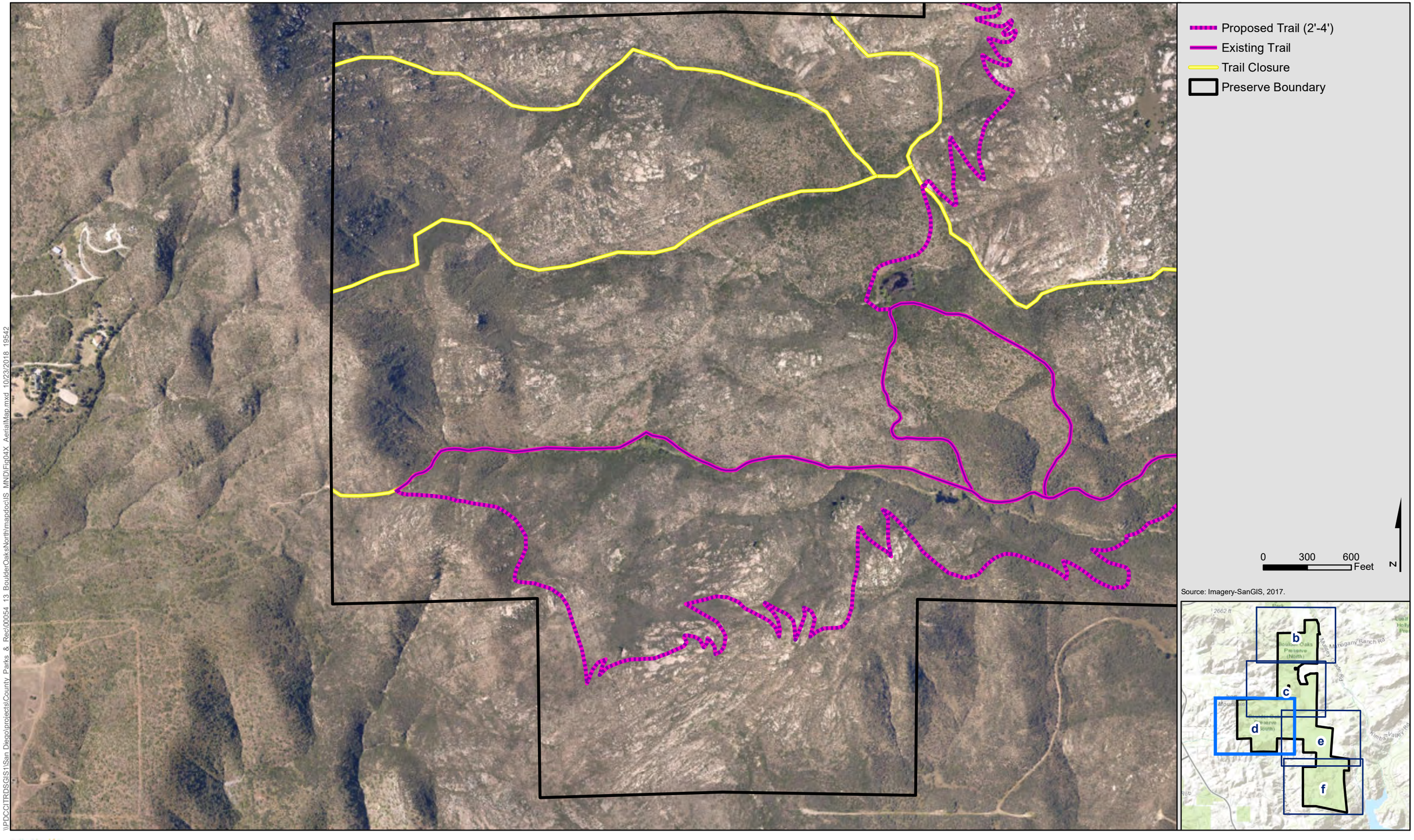

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Figure 4d
Aerial Map
Boulder Oaks Preserve Improvement Project - MND

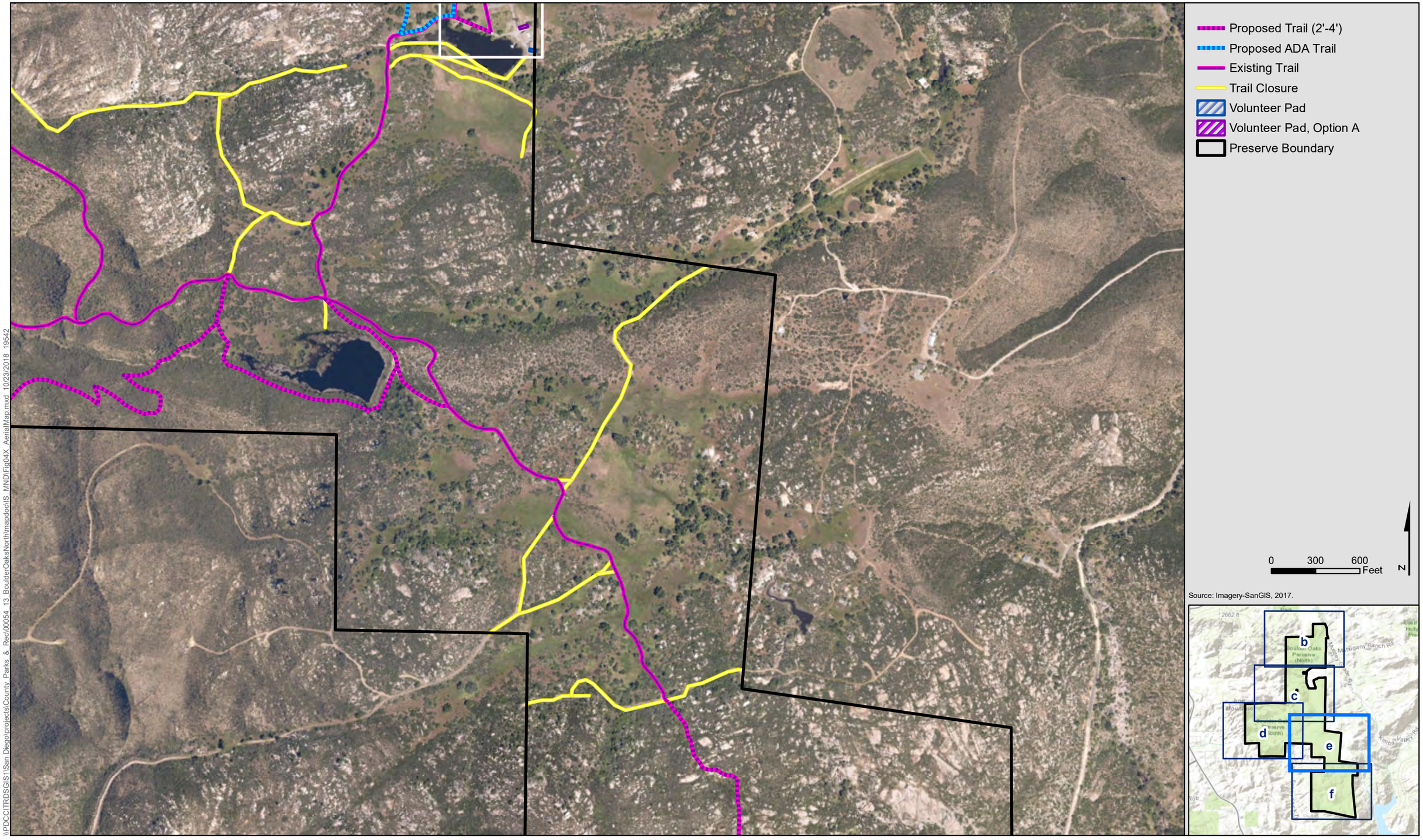

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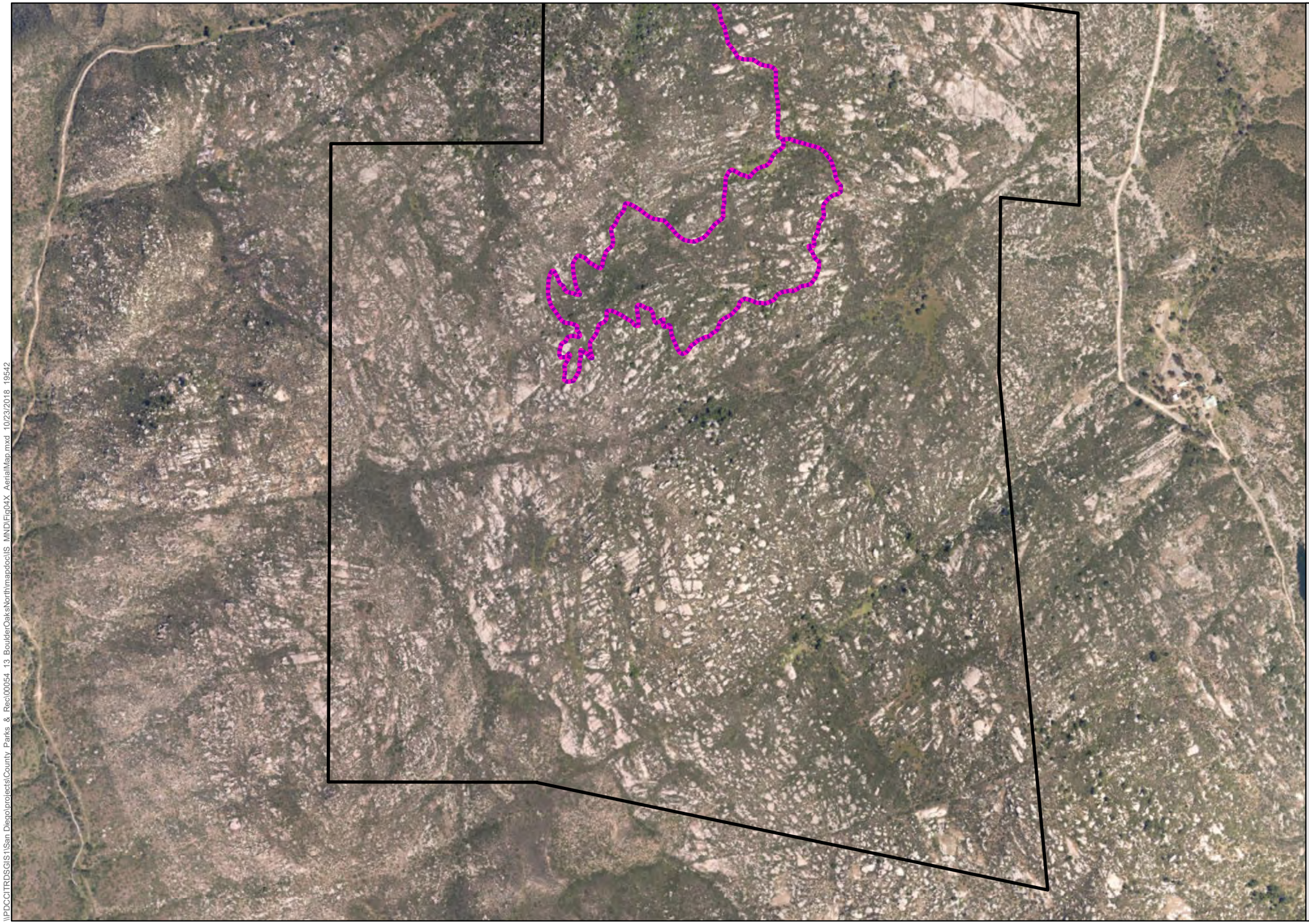
Figure 4e
Aerial Map
Boulder Oaks Preserve Improvement Project - MND



Source: Imagery-SanGIS, 2017.

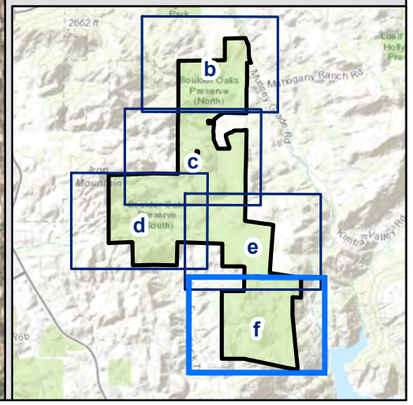


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Figure 4f
Aerial Map
Boulder Oaks Preserve Improvement Project - MND

the west, with its peak approximately 670 feet from the Preserve. The City of Poway's Iron Mountain Preserve borders the Boulder Oaks Preserve to the northwest, and the California Department of Fish and Wildlife (CDFW) San Vicente Highlands Open Space Preserve is on the southwest side. San Vicente Creek is to the east of the Preserve area, and the San Vicente Reservoir is approximately 0.3 mile south of the southern boundary of the Preserve. To the north of the Preserve there is a privately held equestrian ranch, undeveloped land, and Dos Picos County Park. Parcels east of the Preserve are generally privately owned rural residential properties. The Church of Jesus Christ of Latter-day Saints' property is an inholding located in the northeastern portion of the project site and is used as a private recreational camp and retreat center.

Lands surrounding the project site are used for environmental open space, habitat preserve, horse ranching, cattle grazing, rural residential properties, and recreational activities such as camping, hiking, mountain biking, and equestrian trails. The topography of the project site and adjacent land is mountainous, sloping to the east towards Mussey Grade Road.

10. Other public agencies whose approval may be required (e.g., permits, financing approval, or participation agreement):

Permit Type/Action	**Agency**
General Construction Storm Water Permit	Regional Water Quality Control Board (RWQCB)
Onsite Wastewater Treatment System (Septic) Permit	County of San Diego Department of Environmental Health
Building Permit	County of San Diego

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

YES ☐ NO ☒

Consultation letters were sent to tribes traditionally and culturally affiliated with the project area, dated September 22, 2015. No requests for consultation were received within the 30-day consultation request period.

Note: Conducting consultation early in the CEQA process allows tribal governments, public lead agencies, and proposed project proponents to discuss the level of environmental review, identify and address potential adverse impacts on tribal cultural resources, and to reduce the potential for delay and conflict in the environmental review process (see Public Resources Code §21083.3.2). Information is also available from the Native American Heritage Commission's Sacred Lands File per Public Resources Code §5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code §21082.3(e) contains provisions specific to confidentiality.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: The environmental factors checked below would be potentially affected by this proposed project and involve at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forest Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology & Soils	☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☐ Hydrology and Water Quality	☐ Land Use & Planning	☐ Mineral Resources
☐ Noise	☐ Population & Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities and Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ On the basis of this Initial Study, Department of Parks and Recreation finds that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ On the basis of this Initial Study, Department of Parks and Recreation finds that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ On the basis of this Initial Study, Department of Parks and Recreation finds that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Signature **Date**

Lorrie Bradley, Environmental Planner

Printed Name, Title

INSTRUCTIONS ON EVALUATION OF ENVIRONMENTAL IMPACTS

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

I. AESTHETICS. Except as provided in Public Resources Code Section 21099, would the project:

a) Have a substantial adverse effect on a scenic vista?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: A vista is a view from a particular location or composite views along a roadway or trail. Scenic vistas often refer to views of natural lands, but may also be compositions of natural and developed areas, or even entirely of developed and unnatural areas, such as a scenic vista of a rural town and surrounding agricultural lands. What is scenic to one person may not be scenic to another, so the assessment of what constitutes a scenic vista must consider the perceptions of a variety of viewer groups.

The elements that can be seen within a vista are visual resources. Adverse impacts on individual visual resources or the addition of structures or developed areas may or may not adversely affect the vista. Determining the level of impact on a scenic vista requires analyzing the changes to the vista as a whole and also to individual visual resources.

The proposed project is located within the Boulder Oaks Preserve, a habitat preserve currently closed to the public that contains natural habitat, trails, a ranger station, ranger residence, restroom facility, water tanks, a barn, and a gazebo. There are wide viewsheds available from the Preserve to the surrounding open space landscapes. In addition, there are views from surrounding uses to the Preserve that consist of westerly views from Mussey Grade Road to the Preserve and easterly views from Iron Mountain (a public recreational use) to the Preserve.

As the Preserve provides views of scenic landscapes as well as natural landscapes, it is considered to be within the viewshed of a scenic vista. The viewshed and visible components of the landscape within that viewshed, including the underlying landform and overlaying land cover, establish the visual environment for the scenic vista. The visual environment of the subject scenic vista extends from Dos Picos Park Road to the north, SR-67 to the west, San Vincente Reservoir to the south, and Mussey Grade Road to the east. The visual composition consists of several peaks with rocky ridges and vegetated slopes and valleys. Seasonal pools (which occur during the rainy season), rock outcroppings, and meadows can all be visible throughout the viewshed. Primitive trails and rural residential structures are occasionally visible in the viewshed.

The proposed project involves the improvement of Boulder Oaks Preserve in preparation of opening the Preserve to the public. The proposed project would not include any structures that would interrupt or block a currently uninterrupted viewshed, or prevent individuals from accessing an existing viewshed. The proposed project would provide additional public viewsheds by allowing for public access to the Preserve, which would allow the public to take advantage of viewsheds available in the area.

The project site currently has 14.5 miles of existing trails, footpaths, and access roads throughout the site and several structures concentrated in the central portion of the Preserve, including a ranger residence, ranger station, barn, restroom facility, water tanks, and fencing. Improvements would consist of trails for hiking, biking, equestrian use, and ADA access with

associated staging areas and infrastructure improvements. A total of 1.5 miles of trail would be constructed using a stabilized DG for ADA access. The proposed project structures would be in the developed area of the Preserve that currently contains several buildings associated with the Preserve. The proposed project would have minimal grading (approximately 700 cubic yards across 5.5 acres within a 2,014-acre preserve), primarily to maintain existing trails and create new trails and staging areas. The proposed trails would be unpaved, consistent with the primitive design of the existing trails, and would connect many of the existing trails.

The existing restroom is approximately 15 by 15 feet, which may be replaced with an approximately 20- by 20-foot restroom building to accommodate an ADA-accessible bathroom stall. The volunteer pad would provide an area for an RV to be parked on the site long-term to house volunteers. The new volunteer pad would be built at one of two locations. Option A is adjacent to the north side of the existing barn, and Option B is approximately 50 feet northeast of the existing ranger station; neither location would block or interrupt an existing viewshed. Because the proposed project would not include structures that would block uninterrupted viewsheds, and would expand public availability of the existing viewshed, the proposed project would not have a substantial direct or indirect adverse effect on a scenic vista.

Section XXI, *Mandatory Findings of Significance*, provides a comprehensive list of the past, present, and probable future projects considered. These cumulative projects are approximately 1 mile from the project site and would not create a cumulative impact because they would not interrupt the viewshed provided to or from the Preserve. In addition, due to the mountainous topography of the area, any cumulative projects at or over approximately 1 mile from the project site would not be visible from the project site and would thus not be in the same viewshed. Therefore, no significant cumulative scenic vista impact is present, and implementation of the proposed project would not result in a cumulatively considerable impact on a scenic vista.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☒	No Impact

No Impact: State scenic highways refer to those highways that are officially designated by the California Department of Transportation (Caltrans) as scenic (Caltrans - California Scenic Highway Program). Generally, the area defined within a State scenic highway is the land adjacent to and visible from the vehicular right-of-way. The dimension of a scenic highway is usually identified using a motorist's line of vision, but a reasonable boundary is selected when the view extends to the distant horizon. The scenic highway corridor extends to the visual limits of the landscape abutting the scenic highway.

The proposed project is not near or visible within the composite viewshed of a State scenic highway and would not damage or remove visual resources within a State scenic highway. The proposed project is between 1 and 2 miles of SR-67, which has been designated as a County Scenic Highway from the Santee city limits to SR-78 (excluding the portion within the City of Poway) by the County of San Diego General Plan, Conservation and Open Space Element (2011). The project site would not be visible from this segment of SR-67 due to the elevation of

the landforms bordering the highway. Therefore, the proposed project would not have any substantial adverse effect on a scenic resource within a State scenic highway.

Section XXI provides a comprehensive list of the past, present, and probable future projects considered. These cumulative projects may be visible from a scenic highway (SR-67). The cumulative projects could result in a reasonably foreseeable impact on the view from a scenic highway if they include cutting or grading of a scenic outcropping or a structure that would interrupt an existing view. Therefore, a cumulatively significant impact from past, present, and probable future projects on a scenic resource from a State scenic highway could occur. Because the proposed project is not visible within the composite viewshed of SR-67, and would not include structures or features that would impact scenic resources, the proposed project would not result in a cumulatively considerable contribution to a cumulative impact on a scenic resource within a State scenic highway.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: Visual character is the objective composition of the visible landscape within a viewshed. Visual character is based on the organization of the pattern elements line, form, color, and texture. Visual character is commonly discussed in terms of dominance, scale, diversity, and continuity. Visual quality is the viewer's perception of the visual environment and varies based on exposure, sensitivity, and expectation of the viewers. The existing visual character and quality of the project site and its surroundings can be described as a natural landscape characterized by rock outcroppings, slopes and peaks, which are separated by canyons, ravines, and drainages. The western edge of the Preserve is mountainous, with the peak of Iron Mountain approximately 670 feet west of the boundary of the Preserve. The eastern portion of the Preserve is bounded by the west branch of the San Vincente Creek valley. The setting has a high continuity, interrupted infrequently by rural residential structures. The Church of Jesus Christ of Latter-day Saints facility, which is on a parcel of land surrounded by the Preserve in the northern portion of the project site, and the equestrian facility located to the north of the project site are characteristic of the type of development in the project vicinity.

The proposed project is a proposed trail system, staging areas, and associated infrastructure, the purpose of which is to open the Preserve to the public for recreational use. The proposed project is compatible with the existing visual environment's visual character and quality because the proposed trails would be narrow and constructed of natural materials. The proposed trails are planned for either flat areas (the ADA-accessible trail) or are intended to be primitive and rugged, and therefore, would not significantly alter the existing landforms. The proposed infrastructure development in the central portion of the project site includes the demolition and reconstruction of the existing restroom facility, and construction of a volunteer pad, picnic tables,

and shade structures. This development would not represent a major alteration to the visual character because it would be consistent with the scale of the existing uses onsite. It would not result in visual screening of visual resources because the proposed development would occur adjacent to the existing structures and is not at a scale that would substantially degrade the existing visual character and/or visual quality of the site or in the surrounding area. Therefore, the proposed project would not substantially degrade the existing visual character and/or visual quality of public views of the site or the surrounding area.

Section XXI provides a comprehensive list of the past, present, and probable future projects considered. These cumulative projects are approximately one mile or more from the project site and are not located within the viewshed surrounding the project site. The cumulative projects would not contribute to a cumulative impact on the visual character or public views of the project site because, due to the surrounding mountainous topography, the cumulative projects would not be visible from public views of the project site and would not alter the public experience of the views of the site or surrounding area. In addition, the cumulative projects do not include development of features that would conflict with the visual character of the project vicinity. The proposed project would not include development that would alter the experience from a public view of the project site, or include features that would conflict with the rural character of the project site. Therefore, the proposed project would not result in a cumulatively considerable impact on visual character or quality on site or in the surrounding area.

d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: Construction of the proposed project would comply with the San Diego County Noise Ordinance, which limits construction activities to between the hours of 7 a.m. to 7 p.m. Monday through Saturday. There would not be any nighttime construction and there would be no nighttime lighting associated with construction.

The proposed project does not propose any use of outdoor lighting or building materials with highly reflective properties such as highly reflective glass or high-gloss surface colors. The Preserve would be open only to the public during daylight hours, from sunrise to sunset; thus, the use of vehicle headlights at night would not increase significantly due to the proposed project. Currently, nighttime light from vehicle headlights is generated infrequently by the ranger and volunteers living on the existing Preserve. The proposed project would potentially increase brief nighttime vehicle headlight use from vehicle trips generated by the two new live-on volunteers coming and going during personal time; however, the length of exposure from intermittent new light coming from vehicle headlights would be insubstantial and fleeting once the vehicle had left the area or parked. Consequently, the proposed project would not create a substantial source of light pollution that could contribute to sky glow, light trespass, or glare and adversely affect day or nighttime views in area.

The proposed project would not contribute to significant cumulative impacts from substantial sources of light or glare on day or nighttime views because the proposed project would not

propose nighttime lighting or the use of reflective materials; thus, create a significant new source of light or glare. In addition, the proposed project would comply with the County's Light Pollution Code. The Code was developed by the San Diego County Planning & Development Services and Department of Public Works in cooperation with lighting engineers, astronomers, and land use planners from San Diego Gas and Electric, Palomar and Mount Laguna observatories, and local community planning and sponsor groups to effectively address and minimize the impact of new sources of light pollution on nighttime views. The standards in the Code are the result of this collaborative effort and establish an acceptable level for new lighting. Compliance with the Code is required prior to issuance of any building permit for any project. The cumulative projects in the vicinity of the proposed project would comply with the Code and, therefore, would not result in substantial light pollution. Mandatory compliance for all new building permits ensures that this project, in combination with all past, present and future projects, would not contribute to a cumulatively considerable impact. Therefore, compliance with the Code ensures that the proposed project would not create a significant new source of substantial light or glare, which would adversely affect daytime or nighttime views in the area, on a project or cumulative level.

II. AGRICULTURE AND FORESTRY RESOURCES -- Would the project:

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

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The project site has land designated as Prime Farmland, Farmland of Local Importance, and Grazing Land according to the State Farmland Mapping and Monitoring Program (FMMP). The project site consists of approximately 463.2 acres of Grazing Land, which is mapped along the eastern side of the northern and central portions of the Preserve. Approximately 273.5 acres of Farmland of Local Importance are also mapped in the eastern portion of the project site, overlapping with the mapped Grazing Land in areas. In addition, approximately 0.6 acre of Prime Farmland is mapped on the northern boundary of the project site. Approximately 57 acres of the Preserve, in the eastern-central portion (north of the ranger station) have historically been, and would continue to be, used for grazing.

The proposed project would continue to allow grazing in the 57-acre area of the Preserve and would include the installation of fencing to separate the grazing area from the proposed use areas. The multi-use trails proposed in this area would not interfere with or prevent the grazing activities from continuing or affect future agricultural cultivation. The proposed project does not propose any improvements on Prime Farmland and would not involve any elements that would prevent the use of Prime Farmland as agricultural land in the future. Therefore, a significant impact regarding conversion of agricultural resources to non-agricultural would not result from implementation of the proposed project, and impacts would remain less than significant.

Section XXI provides a comprehensive list of the past, present, and probable future projects considered in the cumulative analysis for this document. The cumulative conversion of agricultural resources in the region from past, present, and probable future projects is considered a significant cumulative impact; however, because the proposed project would not involve changes to land uses that would result in conversion of agricultural land to non-agricultural resources, the proposed project would not result in a cumulatively considerable contribution to the impact.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The project site is zoned Open Space (S80) and Limited Agricultural Use (A70), which is considered to be an agricultural zone. The project site is currently a habitat preserve, and, consequently, no agricultural cultivation is presently occurring

on the site. Moreover, land within the project site is not under a Williamson Act Contract (SanGIS 2019). Lastly, grazing leases occur on 57 acres of the Preserve.

The proposed project would not result in a conflict with zoning for agricultural use because passive recreation uses are allowed uses in these zones and would not impact other agricultural uses on or adjacent to the project site. Moreover, the proposed project would not preclude the Preserve from being used for agricultural cultivation in the future. Finally, the County of San Diego Department of Parks and Recreation's park facilities are exempt from the Zoning Ordinance in accordance with County Ordinance No. 10095 (San Diego County 2010). Therefore, the proposed project would not result in a conflict with agricultural zoning.

Additionally, because there are no Williamson Act contracts present within the project site and the proposed project would not remove any such contracts, there would be no conflict with an existing Williamson Act contract.

A significant cumulative impact would be present if the past, present, and future projects on the cumulative project list proposed changes to land use or zoning that would conflict with agricultural uses or land under an existing Williamson Act contract. Even small amounts of land-use conflicts could result in a cumulatively considerable impact. The proposed project would not change the land use or zoning of the Preserve, and would not prohibit grazing or agricultural activities from occurring in the future. Therefore, the proposed project would not result in a cumulatively considerable impact.

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

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☒	No Impact

No Impact: Public Resources Code Section 12220(g) identifies forest land as land that can support 10% native tree cover of any species, including hardwoods under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality recreation, and other public benefits. The project site does not contain land zoned as forest lands or timberland. The County of San Diego does not have any existing Timberland Production Zones (County of San Diego 2017).

The proposed project is consistent with existing zoning and a rezone of the property is not proposed. Therefore, project implementation would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland production zones. The visitor-serving area in the southern part of the Preserve, currently developed with the ranger station, barn, restroom, and volunteer pad, may have historically supported woodland, which would be considered forest land per Public Resources Code 12220(g). However, this area is currently developed with structures, dirt roads, and fencing and no longer supports woodland. The proposed trails would be located outside areas that could support woodlands. Therefore, the proposed project would

not result in any conflict with existing zoning for forest land or timberland, or otherwise conflict with forest land or timberland production.

Finally, because the proposed project would not result in any conflict with existing zoning for forest land or timberland, or otherwise conflict with forest land or timberland production, the proposed project would not result in a cumulatively considerable contribution to the cumulative loss of forest lands or timberland in the region.

d) Result in the loss of forest land, conversion of forest land to non-forest use, or involve other changes in the existing environment, which, due to their location or nature, could result in conversion of forest land to non-forest use?

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☐	Less Than Significant with Mitigation Incorporated	☒	No Impact

No Impact: As described in threshold II.c, the proposed project development area does not contain any forest lands as defined in Public Resources Code Section 12220(g).

Refer to the response to threshold II.c above. Implementation of the proposed project would not result in the loss or conversion of forest land to a non-forest use. The proposed trails and other improvements would not convert forest land to other land uses. In addition, the proposed project is not located in the vicinity of, and would not indirectly affect, offsite forest resources. Therefore, implementation of the proposed project would not result in the disturbance, loss, or conversion of forest resources to a non-forest use.

A project-related cumulatively considerable impact could occur if the cumulative projects identified in Section XXI converted forest land to non-forest uses and the proposed project further contributed to this regional cumulative loss. However, because the proposed project would not convert existing forest land to non-forest uses, or indirectly result in the conversion of forest resources, the proposed project would not result in any contribution to a significant cumulative impact, and a cumulatively considerable impact would not occur.

e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Important Farmland or other agricultural resources, to non-agricultural use?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The project site has approximately 463.2 acres of Grazing Land, 273.5 acres of Farmland of Local Importance, and 0.6 acre of Prime Farmland mapped within its boundaries. Currently, 57 acres of grazing leases are present on the project site. No other active agricultural uses exist on the project site.

The proposed trails and associated improvements would be separated from the area used for grazing by a fence, which would allow passive recreation to occur concurrently with grazing.

Because grazing would be able to continue after implementation, the proposed project would not interfere with the current grazing uses of the project site. The proposed project would include the establishment of 7.2 miles of new trails, and recreation on these new facilities could also occur concurrently with grazing. Therefore, the new trails would not limit or prevent the project site from being used as grazing land or agricultural operations in the future.

This area is not currently used as farmland, and the proposed project would not develop any features that would limit, restrict or cease Prime Farmland from being developed for agricultural resources in the future. As a result, the proposed project would not have a significant adverse impact related to the conversion of Prime Farmland, Unique Farmland, Farmland of Statewide or Local Importance, or active agricultural operations to a non-agricultural use.

A project-related cumulatively considerable impact could occur if the cumulative projects identified in Section XXI resulted in the conversion of Important Farmland or other agricultural resources to non-agricultural use, and the proposed project further contributed to this regional cumulative conversion. However, because the proposed project would not result in any conversions of agricultural resources to non-agricultural uses, it would not contribute to a significant cumulative impact, and a cumulatively considerable impact would not occur.

III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the San Diego Regional Air Quality Strategy (RAQS) or applicable portions of the State Implementation Plan (SIP)?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: San Diego County is currently designated as a nonattainment area for the Federal standards for ozone (O_3) as well as the State standards for O_3, particulate matter less than or equal to 10 microns (PM_{10}), and particulate matter less than or equal to 2.5 microns ($PM_{2.5}$). The RAQS and the San Diego region's portion of the SIP are the region's plans for attainment and maintaining air quality standards. The RAQS rely on information from the California Air Resources Board (CARB) and the San Diego Association of Governments (SANDAG), including projected growth in the County, and mobile area, and all other source emissions in order to project future emissions and determine the strategies necessary to reduce stationary source emissions through regulatory controls.

Projects that propose development that is consistent with the land use designations and growth anticipated by the local general plans and SANDAG are, by definition, consistent with the RAQS and SIP. The proposed project does not propose any changes to existing or planned land uses that would facilitate unplanned growth; thus, the proposed project is consistent with the land use and zoning designations in the General Plan and Ramona and Lakeside Community Plans. Because the proposed project includes development that is consistent with the planned uses for the site, the proposed project would not conflict with or obstruct implementation of the RAQS or SIP.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: As discussed under the response to threshold III.a., San Diego County is presently in non-attainment for O_3 under the National Ambient Air Quality Standard (NAAQS). San Diego County is also presently in non-attainment for both PM_{10} and $PM_{2.5}$ under the CAAQS. O_3 is formed when volatile organic compounds (VOCs) and nitrogen oxides (NO_X) react in the presence of sunlight. VOC sources include any source that burns fuels (e.g., gasoline, natural gas, wood, oil), solvents, petroleum processing and storage, and pesticides. Sources of PM_{10} and $PM_{2.5}$ in both urban and rural areas include: motor vehicles, wood burning stoves and fireplaces, dust from construction, landfills, agriculture, wildfires, brush/waste burning, and industrial sources of windblown dust from open lands.

Air quality emissions associated with the proposed project include emissions of PM_{10}, $PM_{2.5}$, NO_X, and VOCs from construction/grading activities, as well as PM_{10} and $PM_{2.5}$, NO_X, and VOCs that result from increased traffic from proposed operations at the Preserve. During construction, DPR will implement dust control measures in compliance with the County of San Diego Air Pollution Control Board (APCB) Rule 54 and Rule 55, which establish regulations to minimize airborne dust (SDAPCD 1997, 2009). Emissions from the construction phase would be minimal and localized, resulting in emissions below the screening-level criteria established by the *County of San Diego Guidelines for Determining Significance – Air Quality* (2007). The vehicle trips generated from the proposed project would result in 42 Average Daily Trips (ADTs) on the weekdays, and 221 ADTs on Saturdays. Based on the findings of the technical memorandum prepared by ICF, dated March 1, 2019 (Appendix B), the operational emissions from the proposed project would be below the screening levels, and subsequently would not result in a cumulatively considerable net increase of any criteria pollutant.

In addition, none of the past, present and probable future projects within the surrounding area, as identified in Section XXI, currently or will emit significant amounts of criteria pollutants. The proposed project, in combination with past, present, and future projects within the surrounding area, would not result in emissions in excess of the criteria established by the County's guidelines for determining significance for nonattainment pollutants; therefore, the construction and operational emissions associated with the proposed project are not expected to create a cumulatively considerable impact nor a considerable net increase of PM_{10}, $PM_{2.5}$, or any O_3 precursors.

c) Expose sensitive receptors to substantial pollutant concentrations?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant with Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: Air quality regulators typically define sensitive receptors as schools (Preschool–12th Grade), hospitals, resident care facilities, or day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. The County of San Diego also considers residences as sensitive receptors because they house children and the elderly.

One sensitive receptor has been identified within a quarter-mile (the radius determined by the South Coast Air Quality Management District [SCAQMD] in which the dilution of pollutants is typically significant) of the proposed project: The Church of Jesus Christ of Latter-day Saints property in the northeastern portion of the proposed project, which is used as a private recreational camp and retreat center. However, the proposed project does not propose uses or activities that would result in exposure of these identified sensitive receptors to significant pollutant concentrations (see Appendix B). Construction would be short-term, sporadic, and transitory, and operations would mostly be related to gasoline-powered passenger vehicles; therefore exposure to project-generated emissions is expected to be minimal. The proposed project would also not place receptors within 500 feet of a signalized intersection operating at or below Level of Service (LOS) E and therefore would not place sensitive receptors near carbon monoxide hotspots.

In addition, the proposed project would not contribute to a cumulatively considerable exposure of sensitive receptors to substantial pollutant concentrations because the proposed project, in combination with past, present, and future projects within the surrounding area, would not result in emissions in excess of the criteria established by the *County of San Diego Guidelines for Determining Significance* (see Section XXI).

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant with Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: According to CARB's *Air Quality and Land Use Handbook*, typical sources of emissions leading to odors include sewage treatment plants, landfills, livestock operations, and recycling facilities, among other uses.

The proposed project does not include any uses that would generate significant ongoing odors. Construction of the proposed project may produce discernible odors typical of most construction sites, such as exhaust from construction equipment. Additionally, material deliveries and heavy-duty haul trucks could create an occasional "whiff" of diesel exhaust for nearby receptors. However, such odors would be a temporary source of nuisance to adjacent uses and would not affect a substantial number of people or violate San Diego Air Pollution Control District Rule 51. The improvements at the project site would also not generate any additional odors during normal operations, relative to existing conditions. As such, impacts as a result of odors generated by the proposed project would be less than significant.

A list of past, present and future projects within the surrounding area were evaluated, and none would create objectionable odors (see Section XXI); also, none would result in other emissions (such as those leading to odors) that would adversely affect a substantial number of people. Moreover, the effects of any small generation of objectionable odors would be localized to the immediate surrounding area and would not result in a cumulatively considerable impact.

IV. BIOLOGICAL RESOURCES -- Would the project:

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

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☒	Less Than Significant with Mitigation Incorporated	☐	No Impact

Less than Significant with Mitigation Incorporated: A Biological Resources Report (BRR) was prepared by ICF and dated December 2018 (Appendix C). The BRR is a comprehensive review of the biological resources present and potentially present at the project site, determined by several surveys completed in 2007, 2013, and 2018. The intensive biological survey of "Boulder Oaks South", the 1,268-acre portion of the Preserve acquired by DPR in 2003, was conducted in 2007. The intensive biological survey of "Boulder Oaks North", the 747.8-acre portion of the Preserve acquired by DPR in 2012, was conducted in 2013. The jurisdictional delineation survey was conducted in 2018. The total study area consisted of 2,014 acres. Figure 5, *Biological Resources Impacts,* depicts the biological resources and potential project impacts on biological resources.

Based on the findings of the BRR, 11 sensitive plant species and 26 sensitive animal species were either observed within the study area or had high potential to occur. Three sensitive plant species were observed in the study area but not highly likely to occur within the proposed project impact area. Four highly sensitive animal species, known from the vicinity, were determined not to have a high potential to occur within the study area.

As concluded in the BRR, the proposed project would result in direct and permanent impacts on up to 7.65 acres, including 0.08 acre of coast live oak woodland, 0.19 acre of disturbed habitat, 0.65 acre of Engelmann oak woodland, 2.79 acres of non-native grassland, 0.27 acre of scrub oak chaparral, 3.42 acres of southern mixed chaparral, and 0.25 acre of urban/developed. The BRR includes the following determinations of no impact, potential adverse impacts that would be less than significant, and impacts that would be potentially significant:

- No species listed as Federally or State endangered or threatened were observed or determined to have a high potential to occur within the study area, and no impacts are expected.
- Onsite populations of a County List A or B plant species, a County Group I animal species, or a species listed as a California Species of Special Concern that exist within the study area include the following:
    - The proposed project would remove up to 7.21 acres of potential habitat for coast horned lizard, red diamond rattlesnake, Belding's orange-throated whiptail, three-lined boa, coastal western whiptail, Coronado skink, and Dulzura pocket mouse. These species are California Species of Special Concern and/or County Group I species. No direct impacts are expected on these species. Loss of potential habitat could be considered a potentially significant impact. Impacts on native and naturalized communities would be mitigated

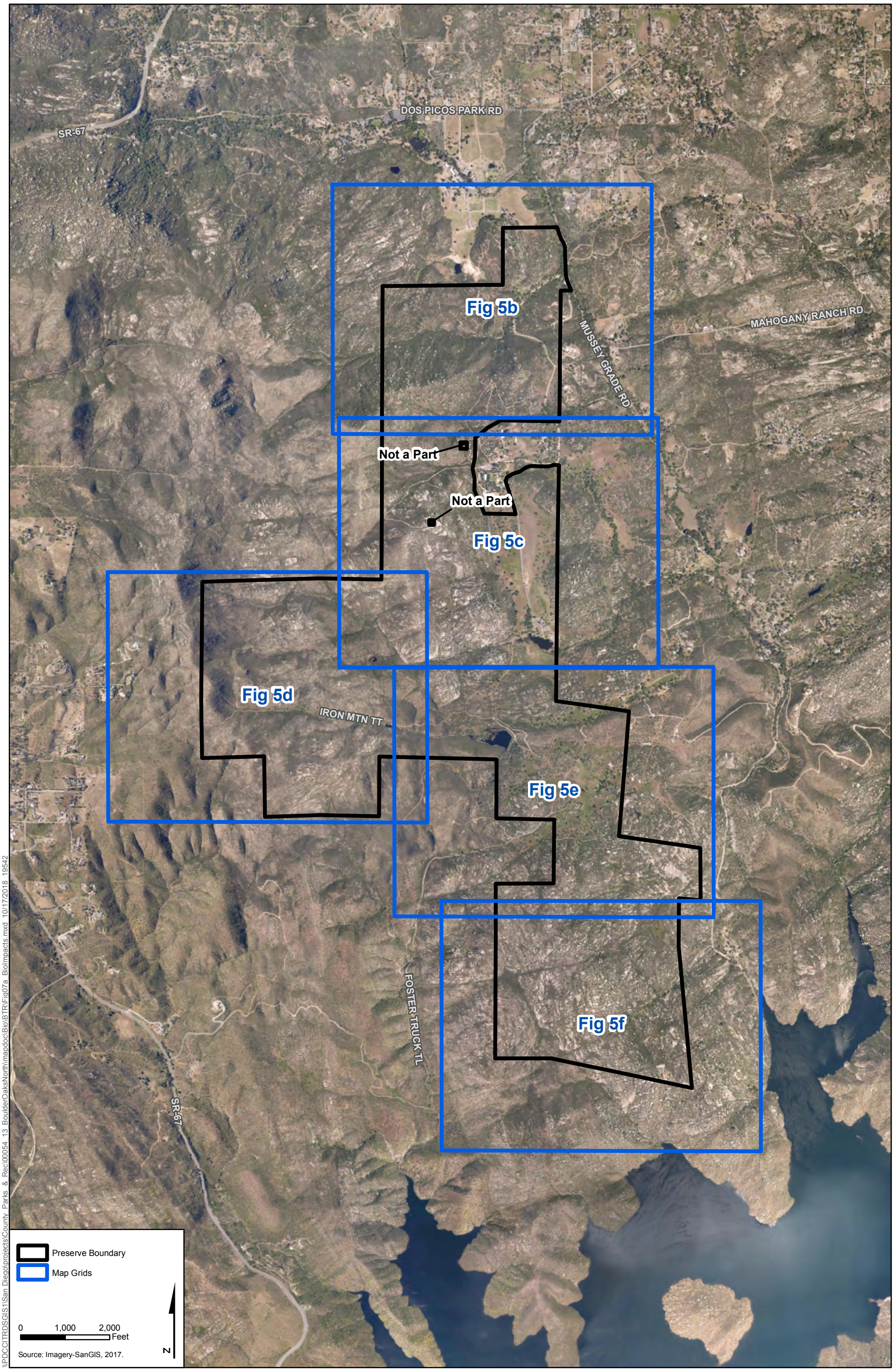

Figure 5a
Biological Resource Map with Project Impacts
Boulder Oaks Preserve Improvement Project - MND

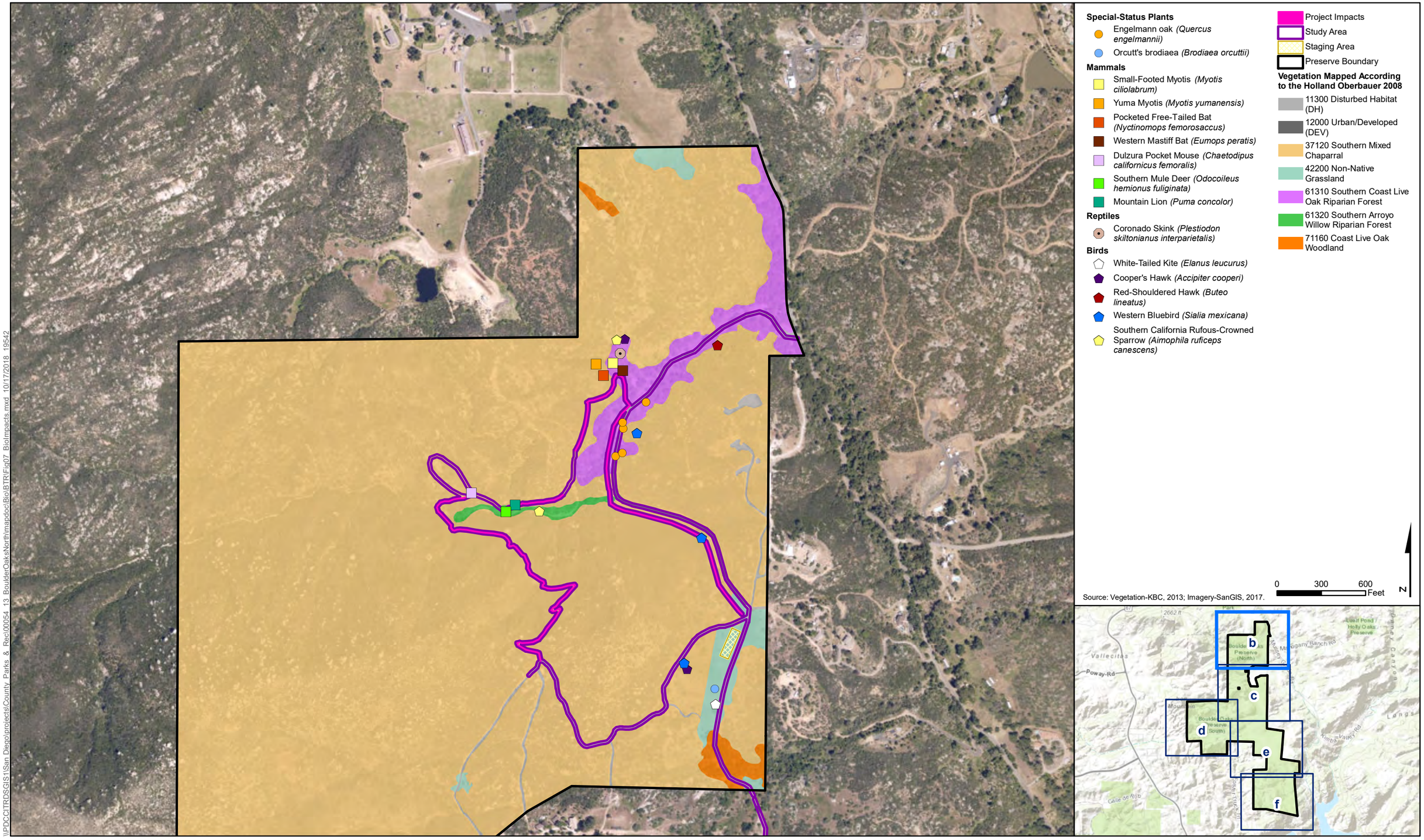

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Figure 5b
Biological Resource Map with Project Impacts
Boulder Oaks Preserve Improvement Project - MND

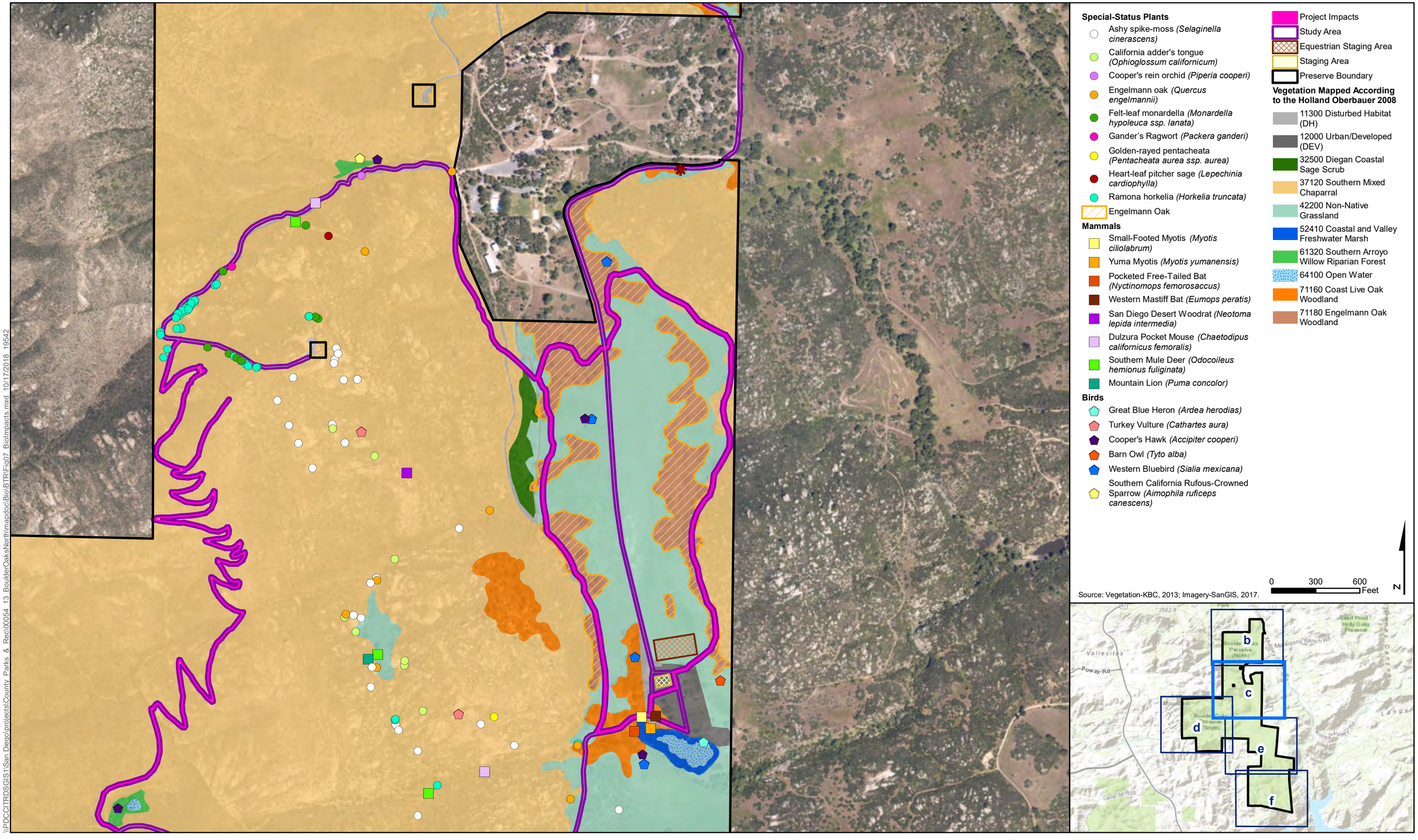

Figure 5c
Biological Resource Map with Project Impacts
Boulder Oaks Preserve Improvement Project - MND

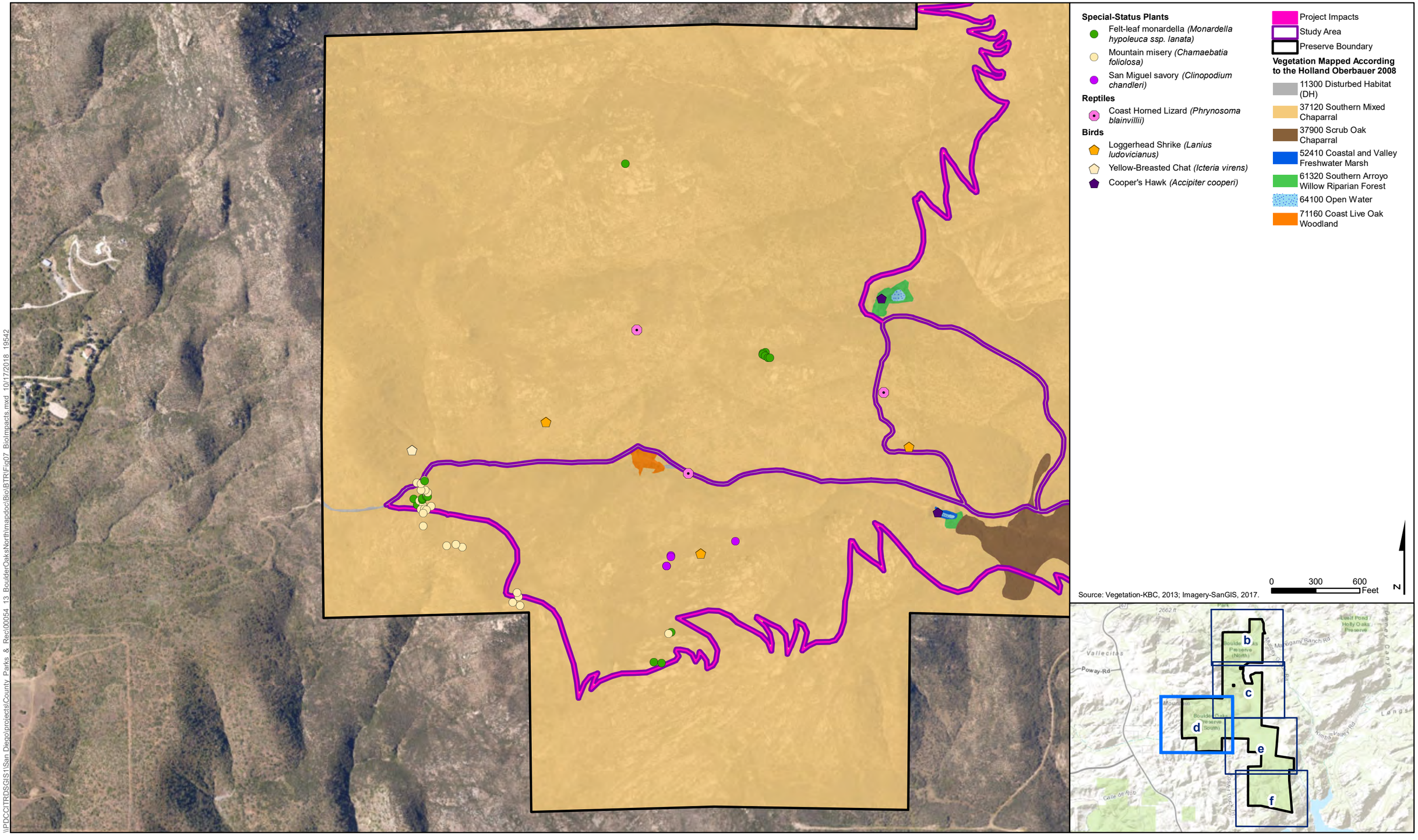

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Figure 5d
Biological Resource Map with Project Impacts
Boulder Oaks Preserve Improvement Project - MND

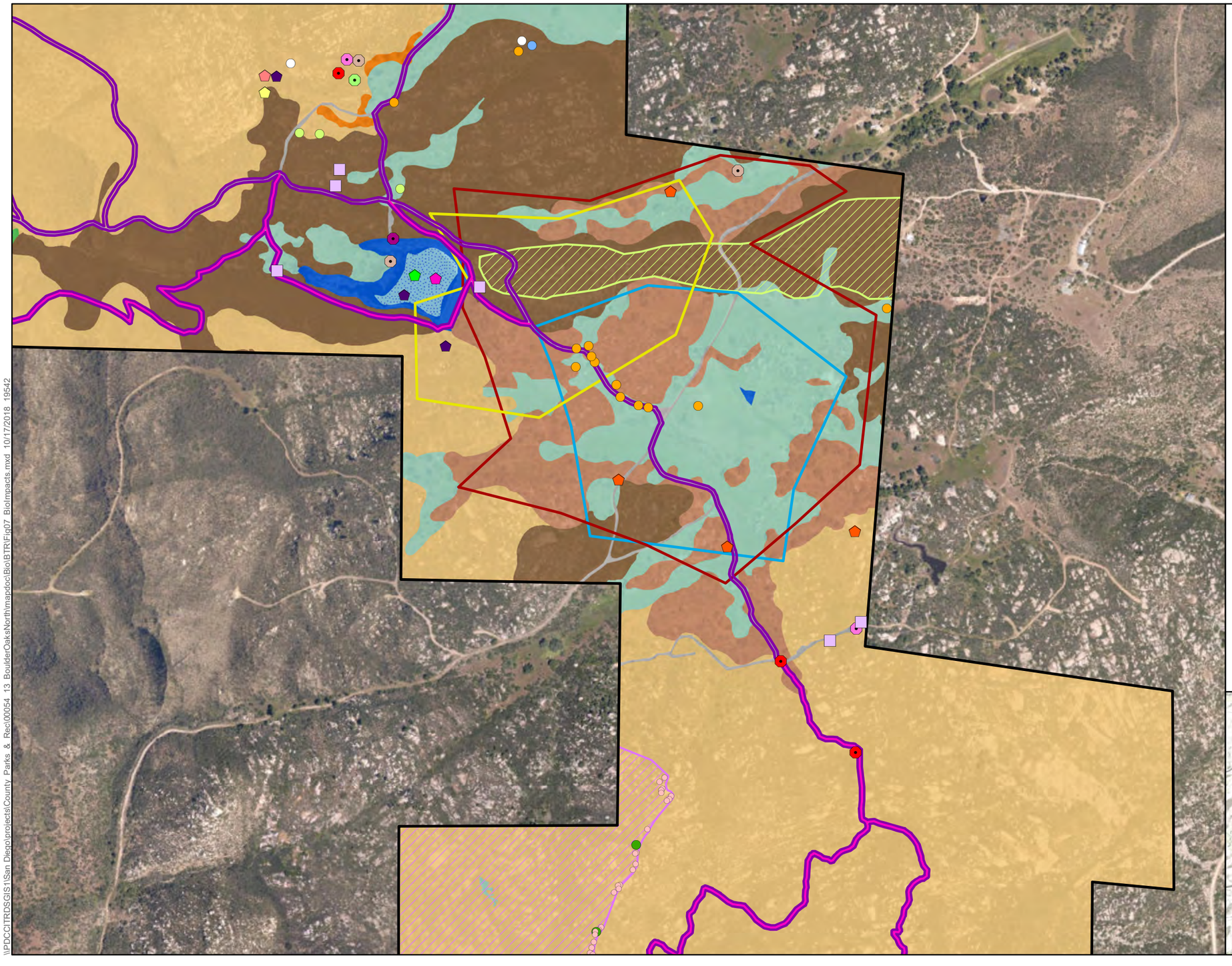

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Figure 5e
Biological Resource Map with Project Impacts
Boulder Oaks Preserve Improvement Project - MND

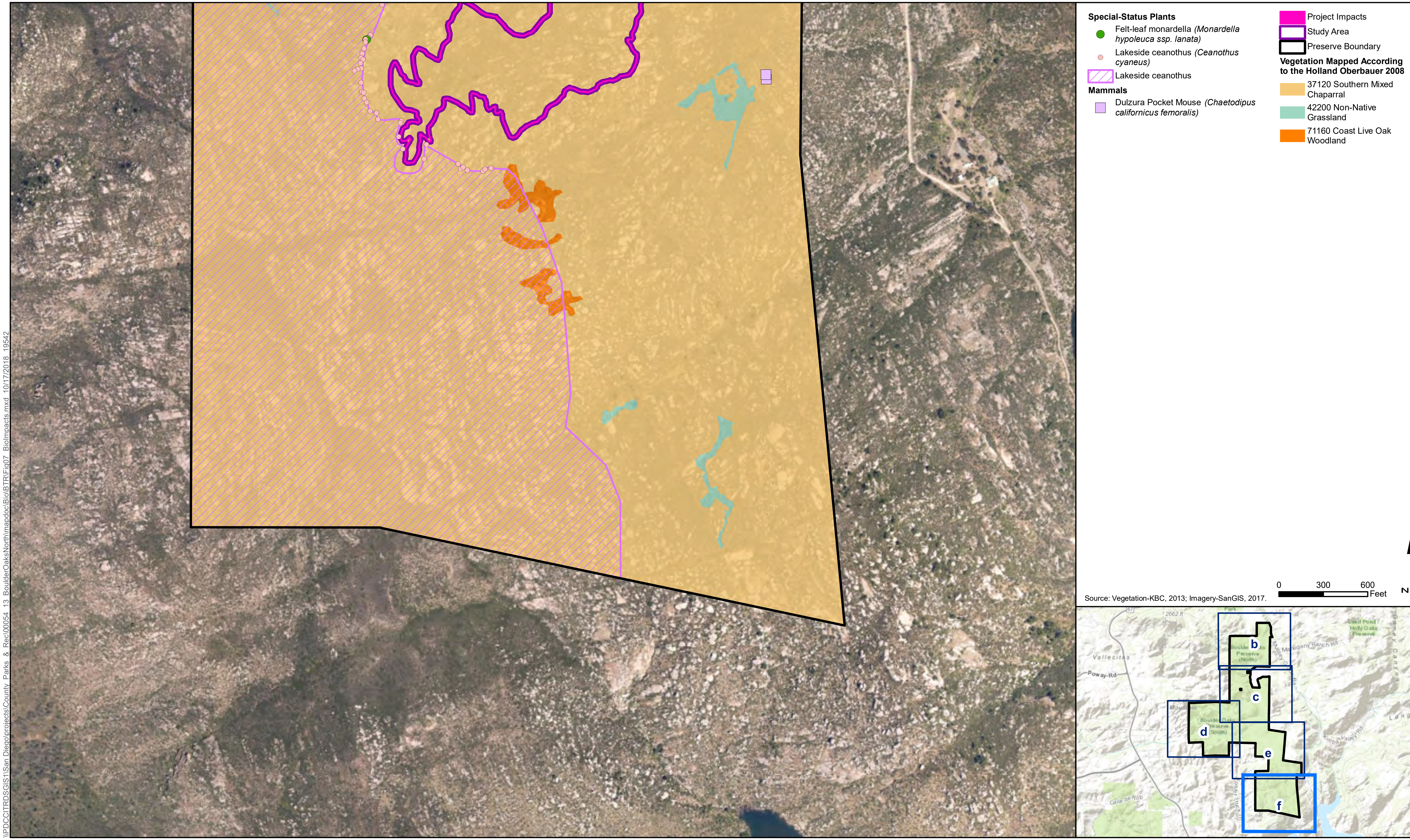

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Figure 5f
Biological Resource Map with Project Impacts
Boulder Oaks Preserve Improvement Project - MND

following the ratios consistent with the Biological Mitigation Ordinance (BMO) as described in **MM-BIO-1** through **MM-BIO-5**.

- The proposed project would remove up to 3.69 acres of chaparral, which is potential habitat for Bell's sparrow, Southern California rufous-crowned sparrow, and San Diego desert woodrat. These animals are California Species of Special Concern or County Group I species. No direct impacts on these species are expected. Loss of potential habitat could be considered a potentially significant impact. Impacts on native and naturalized communities would be mitigated following the ratios consistent with the BMO as described in **MM-BIO-4** and **MM-BIO-5**.
- The proposed project would remove up to 3.69 acres of potential chaparral habitat for County List A plants San Miguel savory, Ramona horkelia, and felt-leaved monardella. These species are not known from the study area, but have potential to be present and to be impacted. Loss of potential habitat could be considered a potentially significant impact. Impacts on native and naturalized communities would be mitigated following the ratios consistent with the BMO as described in **MM-BIO-4** and **MM-BIO-5**.

- The proposed project would not impact the local long-term survival of a County List C or D species, or a County Group II animal species.
  - The proposed project would remove up to 7.21 acres of potential habitat for three-lined boa, southern mule deer, and mountain lion, which are County Group II species. No direct impacts are expected on these species. These species are not considered endangered, threatened, or rare under CEQA and impacts on these species would only be considered sensitive under County Guidelines if the proposed project impacted their local long-term survival. Conversion of 7.21 acres of habitat to trails and parking areas is not expected to impact the local long-term survival of these species. Additionally, impacts on native and naturalized communities would be mitigated following the ratios consistent with the BMO as described in **MM-BIO-1** through **MM-BIO-5**.
  - The proposed project would remove up to 3.52 acres foraging habitat for western bluebird, a County Group II species. Removal of 3.52 acres of the total 128.7 acres of grasslands would not have a significant impact on foraging habitat for this species. The primary issues for this species are loss of nesting cavities to development and competition for nesting cavities from nonnative species such as European starling. No nesting habitat for this species would be removed and the proposed project would not have an effect on the distribution of non-native cavity-nesting species. The proposed project would not impact the local long-term survival of this species. Additionally, impacts on native and naturalized communities would be mitigated following the ratios consistent with the BMO as described in **MM-BIO-1** through **MM-BIO-3**.
  - The proposed project would remove up to 2.79 acres of potential grassland habitat for California horned lark, a County Group II species, which would be a small amount of the total 128.7 acres of grassland. No direct impacts are expected on this species, and development of 2.79 acres of suitable habitat would not have a substantial adverse effect on the local long-term survival of California horned lark. Additionally, impacts on native and naturalized communities would be mitigated following the ratios consistent with the BMO as described in **MM-BIO-4**.

- California adder's tongue, a County List D species, is known to occur in the study area. No new project features would occur in areas supporting California adder's tongue, and this species would not be impacted by the proposed project. Therefore, the proposed project would not impact the local long-term survival of this species.
- The proposed project would remove up to 7.21 acres of potential natural habitat for County List D plant species gander's ragwort, golden-rayed pentachaeta, Cooper's rein orchid, ashy spike-moss, and rush chaparral star. However, 1,975.29 acres of natural habitat would be conserved within the Preserve, so the removal of up to 7.21 acres would not represent a substantial adverse effect on the local long-term survival of the species. Additionally, impacts on native and naturalized communities would be mitigated following the ratios in the BMO as described in **MM-BIO-1** through **MM-BIO-5**.
- The proposed project would alter up to 0.65 acre of habitat mapped as Engelmann oak woodland; however, no healthy trees would be removed as a result of proposed project implementation. The placement of trails within 0.65 acre of Engelmann oak woodland would not impact trees to a level that would affect the local long-term survival of this species. However, impacts on this community would be mitigated following the ratios in the BMO as described in **MM-BIO-3**.

The proposed project has the potential to reduce potential habitat for sensitive species. To reduce the potential permanent impact from the development of habitat for sensitive species, mitigation measures **MM-BIO-1** through **MM-BIO-5** shall be implemented to reduce any potential impacts from loss of habitat to below a level of significance.

MM-BIO-1. To mitigate for impacts on up to 0.08 acre of coast live oak woodland, which is a sensitive biological resource identified in the Biological Mitigation Ordinance, mitigation shall occur at a 2:1 ratio for other Tier I habitat located within a biological resource core area (BRCA).

MM-BIO-2. To mitigate for impacts on up to 0.65 acre of Engelmann oak woodland, which is a sensitive biological resource identified in the Biological Mitigation Ordinance mitigation shall occur at a 2:1 ratio for other Tier I habitat located within a BRCA.

MM-BIO-3. To mitigate for impacts on up to 2.79 acres of non-native grassland, which is a sensitive biological resource identified in the Biological Mitigation Ordinance, mitigation shall occur at a 0.5:1 ratio for other Tier III or higher habitat located within a BRCA.

MM-BIO-4. To mitigate for impacts on up to 0.27 acre of scrub oak chaparral, which is a sensitive biological resource identified in the Biological Mitigation Ordinance, mitigation shall occur at a 1:1 ratio for other Tier III or higher habitat located within a BRCA.

MM-BIO-5. To mitigate for impacts on up to 3.42 acres of southern mixed chaparral, which is a sensitive biological resource identified in the Biological Mitigation Ordinance, mitigation shall occur at a 1:1 ratio for other Tier III or higher habitat located within a BRCA.

- No suitable arroyo toad breeding or aestivation habitat occurs on site. Arroyo toad is not known in the area. No impacts would occur on arroyo toad.
- The proposed project would not have a substantial adverse effect on the long-term survival of golden eagle individuals. The proposed project would convert up to 2.79 acres of grassland to disturbed habitat such as trails and parking lots. This conversion of 2.79

acres would leave 2,011 acres of the Preserve, including 125.9 acres of grassland habitat, available for the golden eagle. This would not be expected to result in a loss of functions of the Preserve as foraging habitat for golden eagle.

  - Parking for this proposed project has been proposed with a maximum of 24 vehicle spots and 8 horse trailers spots, with the plan to restrict usage of the Preserve. The proposed trail system includes a total of 13.9 miles of trails, with a majority being outside of the grasslands. The proposed project would keep Preserve usage at a low level to avoid significant impacts on golden eagle foraging.
  - No proposed project elements are proposed within 4,000 feet of a golden eagle nest.

- The proposed project would convert up to 7.21 acres of native or naturalized habitat to disturbed habitat. This conversion of 7.21 acres of the 2,014-acre Preserve would leave 2,006.8 acres that are not impacted and conserved as part of the Preserve, and would not be expected to result in a loss of functions of the Preserve as foraging habitat for barn owl, red-shouldered hawk, Cooper's hawk, or white-tailed kite. Additionally, impacts on native and naturalized communities would be mitigated within the San Diego Multiple Species Conservation Program (MSCP) area following the ratios in the BMO as described in **MM-BIO-1** through **MM-BIO-5**.
- While the Preserve is considered a core wildlife area, the limited impacts associated with the proposed project would not affect the viability of the site to function as a core wildlife area. Hiking, biking, and equestrian uses are resource-dependent activities. Access would be constrained to daylight hours, and public access would be kept at lower levels by the parking limitations.
- The proposed project would not cause indirect impacts to levels likely to harm sensitive species over the long term per the County's *Guidelines for Determining Significance Biological Resources*. Public access to the Preserve would be kept to low levels and would only occur during daylight hours. Dogs would be required to be on leash at all times. The proposed project does not include nighttime lighting. In addition, noise levels associated with proposed project construction or operation (i.e., trail usage) is not anticipated to result in levels above ambient that would adversely affect special-status wildlife species.
- The proposed project would not have impacts on occupied burrowing owl habitat. Burrowing owl have not been observed at the Preserve.
- The proposed project would not have impacts on cactus wren habitat. No cactus wren habitat occurs within the Preserve, and no coastal cactus wren or suitable cactus wren habitat was observed within the study area.
- The proposed project would not have impacts on Hermes copper butterfly habitat. Suitable habitat for Hermes copper butterfly was not observed within the Preserve or study area.

The implementation of the proposed project would have the potential to impact the nesting success of sensitive animals if brush clearing is conducted during the breeding season. Impacts on the nesting success of sensitive birds would be a potentially significant impact, and a violation of State and Federal laws (i.e., the Migratory Bird Treaty Act [MBTA] and California Fish and

Game Code [CFGC]). The implementation of mitigation measure **MM-BIO-6** would help ensure that impacts to nesting birds are avoided, and therefore, that significant impacts are avoided.

> **MM-BIO-6:** State and Federal laws prohibit killing birds or impacting their eggs or nesting success. To ensure project compliance with State and Federal laws and prevent the potentially significant impacts on sensitive nesting birds and raptors from improperly implemented construction, clearing restrictions shall be implemented. A qualified biological monitor shall be onsite during all clearing activities. In addition, the County shall avoid vegetation removal or ground-disturbing activities during the bird breeding season, defined as January 15 to September 1, which includes the tree-nesting raptor breeding season of January 15 to July 15, and the general avian breeding season of February 1 to September 1. If removal cannot be avoided during this time period, a nesting bird survey would be conducted no more than 72 hours prior to ground-disturbing activities or vegetation removal by a qualified avian biologist through the area to be cleared. This is necessary to definitively ascertain whether raptors or other migratory birds are actively nesting in the project area. If the survey results are positive, the location of active raptor or migratory bird nests shall be mapped by a qualified avian biologist. All construction activities close to active nests shall be delayed or otherwise modified as necessary to prevent nest failure (e.g., nest abandonment). Buffers may be adjusted based on the observations by the biological monitoring on the response of the nesting birds to human activity and shall be conducted in coordination with the resource agencies (U.S. Fish and Wildlife Service and CDFW).

Therefore, with the incorporation of **MM-BIO-1** through **MM-BIO-6,** potentially significant impacts would be mitigated to below a level of significance.

The proposed project is entirely within the MSCP. The *County of San Diego Guidelines for Determining Significance* (2010) states that projects entirely within and consistent with the MSCP do not result in cumulatively significant impacts (Appendix D). The cumulative impacts for projects within the MSCP were addressed and mitigated in the Environmental Impact Report for the MSCP. Therefore, any potential project impacts would not be cumulatively considerable.

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

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less than Significant with Mitigation Incorporated: Based on the findings of the ICF BRR (Appendix C), the proposed project would result in direct and permanent impacts on sensitive native or naturalized habitat. This includes up to 0.08 acre of coast live oak woodland within a biological resource core area (BRCA); up to 0.65 acre of Engelmann oak woodland, a Tier I vegetation community, within a BRCA; up to 2.79 acres of non-native grassland, a Tier III vegetation community, within a BRCA; up to 0.27 acre of scrub oak chaparral, a Tier III vegetation community, within a BRCA; and up to 3.42 acres of southern mixed chaparral, a Tier III vegetation community, within a BRCA. In order to reduce the potential permanent impact, **MM-BIO-1** through **MM-BIO-5** would be implemented as part of the proposed project.

The proposed project would not impact U.S. Army Corps of Engineers (USACE), RWQCB, CDFW, or County jurisdictional habitat and drainages. Road crossings of jurisdictional features occurs over existing bridges or culverts. Multi-use trail crossings of jurisdictional features would occur at grade and would not constitute a discharge of fill material into jurisdictional waters. The proposed project has been designed to avoid impacts to waters or riparian habitats. In addition, the proposed project would not use additional groundwater (the onsite well currently uses groundwater in the event of a fire emergency, and would continue to be used for fire emergencies as part of the proposed project) and thus would not draw down the groundwater table to the detriment of groundwater-dependent habitat. Lastly, the proposed project would not significantly increase long-term indirect impacts on the site. Development of the Preserve has been kept to low levels, and proposed public use would be constrained. No operational activities would occur that would be likely to harm sensitive habitats over the long term. Mitigation measures **MM-BIO-1** through **MM-BIO-5** would mitigate the impacts on sensitive vegetation communities pursuant to the BMO by acquiring mitigation credits or conducting onsite restoration for coast live oak woodland, Engelmann oak woodland, non-native grassland, scrub oak chaparral, and southern mixed chaparral. Therefore, with the implementation of mitigation measures **MM-BIO-1** though **MM-BIO-5**, the potential impacts on riparian habitat would be reduced, and the proposed project would result in less-than-significant impacts on riparian habitat or other sensitive natural community. Because the impacted vegetation communities would be fully mitigated per mitigation ratios in the BMO. As stated previously, the *County of San Diego Guidelines for Determining Significance* (2010) state that projects entirely within and consistent with the MSCP do not result in cumulatively significant impacts. The cumulative impacts for projects within the MSCP were addressed and mitigated in the Environmental Impact Report for the MSCP. Because the proposed project is entirely within and consistent with the MSCP, the proposed project would not result in cumulatively considerable impacts.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: A jurisdictional wetland delineation was performed on the project site on March 19, March 20, and October 10, 2018 (Appendix C). Eight features were identified, evaluated, and mapped for potential State and Federal jurisdiction. Very small sections of CDFW riparian habitat were observed within the study area, and no Federal wetlands were observed within the study area.

No CDFW riparian habitat would be impacted by construction of the proposed project. A total of 0.033 acre (282 linear feet) of waters of the U.S. may be subject to USACE and RWQCB regulatory jurisdiction pursuant to Sections 404 and 401 of the Clean Water Act. Additionally, 0.079 acre (282 linear feet) of streambed and riparian resources occur within the study area and would be subject to CDFW jurisdiction pursuant to Sections 1600–1616 of the California Fish and Game Code. However, the BRR determined the proposed project would not impact jurisdictional features because the at-grade crossings proposed as part of the proposed project

would not grade, develop, or alter the substrate of the features, nor would they utilize mechanized earth moving equipment as part of construction. In addition, loose soil material kicked up from walking, riding, or biking across the features would not constitute a discharge of fill material to jurisdictional non-wetland waters. The proposed project would not modify existing culverts, channels, or streams. Thus, no impacts on the identified features or on CDFW jurisdictional habitat would occur. In addition, the proposed project does not propose any new uses for groundwater that would otherwise impact the functions and values of existing wetlands on the Preserve. Therefore, the proposed project would result in less-than-significant impacts, and would not result in cumulatively considerable impacts, on potentially jurisdictional waterways. No State or Federally protected wetlands would be impacted, and therefore no direct, indirect, or cumulative impacts would occur on State or Federally protected wetlands.

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

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less than Significant Impact: The Preserve is in a relatively undeveloped part of San Diego County and is bordered by other large preserves such as San Vicente Highlands and Iron Mountain. The east-west trending valley and ridgelines provide corridors for wildlife movement in and across the Preserve. For these reasons the Preserve would be considered a core area or regional linkage of importance. The proposed project would impact up to 7.21 acres of native and naturalized habitat; however, this impact would be spread across the 2,014-acre Preserve. While these impacts may affect certain sensitive species, as discussed above in the answers to thresholds IV.a through IV.c, the development of the public access plan and daytime usage of the Preserve would not significantly impact the functioning of the Preserve as a core wildlife area. The proposed project would not propose any nighttime lighting or nighttime usage of the Preserve, interfere with connectivity, or impede movement along the wildlife corridor. Therefore, the impacts would be less than significant. The proposed project is consistent with the MSCP and BMO, and is entirely within lands covered by the MSCP. By conforming with the MSCP, the proposed project would not result in cumulatively considerable impacts.

e) Conflict with the provisions of any adopted Habitat Conservation Plan, Natural Communities Conservation Plan, other approved local, regional or state habitat conservation plan or any other local policies or ordinances that protect biological resources?

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less than Significant With Mitigation Incorporated: Based on the findings of the BRR (Appendix C), the proposed project is covered by the MSCP, which is an adopted Natural

Community Conservation Plan (NCCP), and the County of San Diego maintains an Implementing Agreement with CDFW and United States Fish and Wildlife Service (USFWS). The Preserve is located within the Metro-Lakeside-Jamul segment of the County of San Diego MSCP Subarea Plan.

The proposed project would not result in a conflict with the following local policies, ordinances, and adopted plans:

- The proposed project would have no impacts on coastal sage scrub.
- The proposed project is consistent with an existing NCCP —the County of San Diego MSCP Subarea Plan — and would not prelude the preparation of another subregional NCCP.
- The Resource Protection Ordinance (RPO) does not apply to this project as the proposed project is not a listed project type in RPO Section 86.603 (a). The proposed project is consistent with the BMO.
- This proposed project is consistent with the County of San Diego MSCP Subarea Plan. Boulder Oaks South is managed under an existing Resource Management Plan (RMP). The County will be updating the existing RMP to manage the entire Preserve. The RMP would be consistent with the MSCP and would promote the implementation of the MSCP preserve system.
- The proposed project does not preclude connectivity. No features of the proposed project would block the movement of animals. Additional trails would be expected to be used by nocturnal mammals and reptiles for movement.
- The proposed project would not result in impacts on existing movement corridors or habitat linkages.
- Narrow endemic species are present on the Preserve. The proposed project was sited to avoid all impacts on narrow endemic species.
- The proposed project would not reduce the likelihood of recovery of listed species. No listed species are known to occur on the Preserve, and no listed species were determined to have a potential to be impacted by the proposed project.
- The proposed project would not result in take of golden eagles. The proposed project is situated within eagle foraging habitat, but the small impacts associated with implementation of the proposed project and Preserve access would not significantly impact eagle foraging. No trails or other project elements are proposed within 4,000 feet of a golden eagle nest.

The proposed project may include construction-related activities that could result in the killing of migratory birds or destruction of active migratory bird nests and/or eggs protected under the MBTA and CFGC during breeding season. However, implementation of mitigation measure **MM-BIO-6** would help ensure that potential violation of the MBTA or CFGC would be avoided an impacts would not occur.

Because this site is within the MSCP, it has been designed to minimize impacts on BRCAs and Pre-Approved Mitigation Areas (PAMAs). Multi-use trails are an allowed use in the MSCP Preserve and have been designed to be as narrow as possible while allowing for the resource-dependent use of public access.

The proposed project is consistent with the MSCP and BMO, is entirely within lands covered by the MSCP, and would not conflict with any local policies or ordinances or any HCP, NCCP, or other approved local, regional, or State HCP. Therefore, the proposed project would not add to cumulative impacts related to local policies or plans.

V. CULTURAL RESOURCES -- Would the project:

a) Cause a substantial adverse change in the significance of a historical resource pursuant to 15064.5?

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant With Mitigation Incorporated: A file search and field survey were conducted for the proposed project to determine the presence or potential presence of historic resources within the project site. The results are documented in the confidential Cultural Resources Impact Assessment for the Boulder Oaks Preserve Public Access Plan, San Diego County, California (Appendix E) and summarized below.

A records and literature search was conducted at the South Coastal Information Center (SCIC) at San Diego State University in 2007 and 2013 for previously recorded cultural resources inside or within 0.25 mile of the Preserve and to assess the potential for certain resource types within the boundaries. The study did not involve original fieldwork for the trails, but rather is based on the results of previous inventories conducted for the entire Preserve in 2007 and 2013, and subsequent survey in 2018 for the ADA-accessible trail (Appendix E). The reports also included the results of records searches that were undertaken for the Preserve and a 0.25-mile buffer around the Preserve. The SCIC cultural resources records search and subsequent cultural resources surveys identified a total of 95 cultural resources that have been recorded within 0.25 mile of the Preserve, of which 13 are within 20 feet and 6 are within 50 feet of the proposed trails. The 19 resources include 8 historic age resources, consisting primarily of built resources.

After review of all records and literature and their specific locations, it was determined that the proposed trail segments are not anticipated to impact historic resources. Any future adjustments to the proposed route would need to take these historic resources into consideration. To ensure proposed trails would avoid known historical resources, mitigation measure **MM-CUL-1** would be implemented when the proposed project is initiated.

> **MM-CUL-1:** Prior to the construction of any new trail segments or the ADA trail, all of which were located to avoid cultural resources, the locations of new construction shall be field checked by a qualified archaeologist to ensure that they do indeed avoid known cultural resources.
>
> All trail signs, markers, fencing, and gates in the Preserve should be placed in areas that avoid known cultural resources. To ensure the proposed project would not impact known cultural resources or previously unknown cultural resources encountered during implementation, **MM-CUL-2** shall be followed during installation.
>
> **MM-CUL-2:** All ground-disturbing activity related to implementation of the proposed project, including installation of trail signage, potential construction, trenching, and grading associated with trail installation, shall be monitored by a qualified archaeologist, and where the resource involved is a prehistoric archaeological site, a cultural monitor. If cultural resources are discovered during monitoring, all work within 50 feet of the discovery shall stop until a qualified archaeologist can evaluate the find and make appropriate recommendations

for treatment. The County shall comply with all recommendations made by the qualified archaeologist.

Because the development of the proposed project was designed to avoid historic resources, and because the implementation of **MM-CUL-1** and **MM-CUL-2** would ensure the historic resources are avoided, the proposed project would not result in a significant impact on historic resources. Moreover, because the historic resources are completely protected and would not be modified, the proposed project would not contribute to a potentially significant cumulative impact on historical resources.

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

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant With Mitigation Incorporated: A file search and field survey were conducted for the proposed project to determine the presence or potential presence of archaeological resources within the project site. The Cultural Resources Impact Assessment for the Boulder Oaks Preserve Public Access Plan, San Diego County, California identified 19 cultural resources within 50 feet of a proposed project element.

Ground-disturbing construction activities could damage or destroy subsurface cultural resources. However, the trails have been designed to avoid the identified cultural resources, and the infrastructure development would occur within the currently developed/previously disturbed area. There is the potential that the cultural resources sites extend beyond their currently understood boundaries. If this is the case, the proposed trails that are adjacent to known cultural resource sites may impact these resources. To reduce this potential impact, mitigation measure **MM-CUL-1** would be implemented as part of the proposed project. It is possible ground-disturbing activity, even in areas with no known cultural resources, could impact previously unrecorded cultural resources and human remains. For this reason, provisions for the unanticipated discovery of unrecorded cultural resources are included in mitigation measure **MM-CUL-2.** Therefore, implementation of **MM-CUL-1** and **MM-CUL-2** would reduce the potential impact of the proposed project on identified or previously unrecorded resources to less than significant.

It is possible that resources in the vicinity of the existing trails might be impacted by visitor-caused damage, such as looting or vandalism, because the resources located along the trails may contain artifacts that could be collected by visitors. This potential impact would be mitigated by implementation of mitigation measure **MM-CUL-3**.

MM-CUL-3: Permanent fencing with signage (e.g., signs that read “Please Stay on Trail”) shall be placed along the trail route in the northwest portion of the Preserve in the vicinity of the sensitive cultural resource identified by Native American representatives. The fencing should be placed along that portion of the trail from which the site can be accessed in order to protect the resource from unauthorized visitation.

With the implementation of mitigation measures **MM-CUL-1**, **MM-CUL-2**, and **MM-CUL-3,** the potential impact on archeological resources would be reduced to a less-than-significant level. The potential disturbance or adverse change to archaeological resources at the project site could contribute to the cumulative impacts on regional archaeological resources. However, the features of the proposed project would avoid all known archaeological resources, and implementation of mitigation measures **MM-CUL-1**, **MM-CUL-2**, and **MM-CUL-3** would ensure the proper protection of any previously unrecorded cultural resources and their vicinity. Therefore, because an impact on cultural resources would be avoided, the proposed project would not contribute to a cumulatively significant impact on archaeological resources.

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

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant With Mitigation Incorporated: As previously discussed, a file search and field survey were conducted for the proposed project to determine the presence or potential presence of cultural resources, including human remains, within the project site. The results documented in the confidential Cultural Resources Impact Assessment for the Boulder Oaks Preserve Public Access Plan, San Diego County, California (Appendix E) did not identify previously recorded sites with human remains within the project site.

Although no previously recorded sites with human remains were identified within the project site, due to the number of archaeological resources recorded in the surrounding area, there is still a potential for unidentified human remains to be present within the project site. If present, the human remains could be damaged by ground-disturbing activities associated with the proposed project. Mitigation measure **MM-CUL-4** would reduce impacts to a level less than significant.

> **MM-CUL-4:** Any ground-disturbing activities on the Preserve must be considered as having the potential to encounter Native American human remains. Human remains require special handling and must be treated with appropriate dignity. Specific actions must take place pursuant to State CEQA Guidelines Section 15064.5e; Public Resources Code Section 5097.98; and Section 87.429 of the County of San Diego Grading, Clearing and Watercourses Ordinance.
>
> Should Native American human remains be identified during ground-disturbing activities related to the proposed project, whether during construction, maintenance, or any other activity, State and County mandated procedures shall be followed for the treatment and disposition of those remains, as follows:
>
> In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, DPR shall ensure that the following procedures are followed:
>
> 1. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
>
>   a. A County (DPR) official is contacted.

b. The County Coroner is contacted to determine that no investigation of the cause of death is required.

c. If the Coroner determines the remains are Native American, then:

i. The coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours.

ii. The NAHC shall identify the person or persons it believes to be most likely descended from the deceased Native American.

iii. The Most Likely Descendent (MLD) may make recommendations to the landowner (DPR), or the person responsible for the excavation work, for the treatment of human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.

2. Under the following conditions, the landowner or its authorized representative shall rebury the Native American human remains and associated grave goods on the Preserve in a location not subject to further disturbance:

a. The NAHC is unable to identify a MLD or the MLD fails to make a recommendation within 24 hours after being notified by the NAHC.

b. The MLD fails to make a recommendation.

c. The landowner or his authorized representative rejects the recommendation of the MLD, and mediation by the NAHC fails to provide measures acceptable to the landowner.

3. Any time human remains are encountered or suspected and soil conditions are appropriate for the technique, ground penetrating radar (GPR) shall be used as part of the survey methodology. In addition, the use of canine forensics shall be considered when searching for human remains. The decision to use GPR or canine forensics shall be made on a case-by-case basis through consultation among the County Archaeologist, the proposed project archaeologist, and the Cultural monitor.

4. Because human remains require special consideration and handling, they must be defined in a broad sense. For the purposes of this document, human remains are defined as:

a. Cremations, including the soil surrounding the deposit.

b. Interments, including the soils surrounding the deposit.

c. Associated grave goods.

In consultation among the County archaeologist, project archaeologist, and Cultural monitor, additional measures (e.g., wet-screening of soils adjacent to the deposit or on site) may be required to determine the extent of the burial.

Implementation of mitigation measure **MM-CUL-4** would protect any potential human remains that could be encountered at the project site. Therefore, the proposed project would not result in significant impacts or cumulatively considerable impacts on human remains.

VI. Energy -- Would the project:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less-Than-Significant Impact: San Diego County is served by San Diego Gas and Electric, which provides energy service to over 3.4 million customers (with 1.4 million accounts) in the county and portions of southern Orange County. The utility has a diverse power production portfolio, composed of a variety of renewable and non-renewable sources. Energy production typically varies by season and by year. Regional electricity loads also tend to be higher in the summer because the higher summer temperatures drive increased demand for air-conditioning. In contrast, natural gas loads are higher in the winter because the colder temperatures drive increased demand for natural gas heating.

The proposed project would improve public access to the Preserve. Permanent energy consumption would be negligible, as the renovation of the restroom is not expected to substantially increase the restroom size, and the electric hook-up at the new volunteer pad would represent negligible energy consumption. The remainder of energy consumption would be in the form of fuel consumed to construct the improvements or from motor vehicles used to access the site once operational.

Estimated fuel energy usage for the proposed project has been quantified on an annual basis using the Climate Registry's default emission factors for general reporting protocols and energy intensity for transportation fuels. Based on the calculations (see Appendix B), the proposed project would consume approximately 48,000 gallons of fuel during construction, which equates to 5,933 million British thermal units (BTUs), and approximately 11,000 gallons of fuel during operations, which equates to 1,440 million BTUs annually during operations. This represents a small demand on local and regional fuel supplies that would be easily accommodated because this demand for fuel would have no noticeable effect on peak or baseline demands for energy. Therefore, the proposed project would not result in a wasteful, inefficient, or unnecessary usage of direct or indirect energy.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☒	No Impact

No Impact: The applicable renewable energy plan for the project area would be the State Renewable Portfolio Standards (RPS), which requires utility agencies to ensure a certain percentage of the electricity they sell is from a renewable source. Senate Bill (SB) 350 requires

retail sellers and publicly owned utilities to procure 50% of their electricity from eligible renewable energy resources by 2030. Moreover, the County has installed renewable energy at many of its facilities. The County itself produces 2.9 megawatts each year, which offsets some of the County's consumption, and the County is expected to increase production to a total of 13 megawatts by the end of 2019 (Department of General Services 2019).

The proposed project would provide improvements to an existing facility to support visitors to the Preserve for recreational uses. The proposed project would not conflict with the electricity provider’s ability to provide renewable energy resources, and would not obstruct the implementation of the RPS, nor would it result in energy consumption that would require the County to install more production. The continuation of the use of the proposed project as a recreational site would not result in cumulatively considerable impacts on applicable State renewable energy plans.

VII. GEOLOGY AND SOILS -- Would the project:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

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

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☒	No Impact

No Impact: The proposed project is not located in a fault rupture hazard zone identified by the Alquist-Priolo Earthquake Fault Zoning Act, Special Publication 42, Revised 1997, Fault-Rupture Hazards Zones in California, or located within a County Special Study Zone (County of San Diego 2007). Because the project site is not located in a fault rupture zone, there would be no direct or indirect impact from a known fault-rupture hazard zone as a result of this proposed project. Moreover, the proposed project and the listed cumulative projects (see Section XXI) would not involve elements that would exacerbate the existing conditions of fault rupture hazard zones and, therefore, would not result in a cumulatively significant impact.

ii. Strong seismic ground shaking?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The County of San Diego is located within a seismically active region, and the entire County could be subject to seismic ground shaking. The proposed project would include a restroom facility and shade structures. To ensure the structural integrity of all buildings and structures, the proposed project must conform to the Seismic Requirements as outlined within the California Building Code. The County Code requires a soils compaction report with proposed foundation recommendations to be approved before the issuance of a building permit.

The proposed reconstruction of the restroom building would require compliance with the California Building Code. Therefore, compliance with the California Building Code and the County Code ensures structural integrity of the proposed restroom building, and the proposed project would not result in a potentially significant impact related to the potential risk of loss, injury, or death due to string seismic ground shaking.

A cumulatively considerable impact would result if the proposed project, in combination with the cumulative projects, resulted in the risk of loss, injury, or death related to the potential adverse effects from strong seismic ground shaking. Because the cumulative projects would also be subject to the California Building Code and the County Code, the cumulative projects would

comply with all requirements to ensure structural integrity and safety. Consequently, there would not be a significant cumulative impact, and the proposed project would not contribute to a cumulative impact from the exposure of people or structures to potential adverse effects from strong seismic ground shaking.

iii. Seismic-related ground failure, including liquefaction?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The project site is not within a "Potential Liquefaction Area" as identified in the County Guidelines for Determining Significance for Geologic Hazards (2007a). In addition, the site is not underlain by poor artificial fill or located within a floodplain (FEMA 2012).

Because the project site is not within a potential liquefaction area and is not underlain by unsuitable fill or prone to flooding, there would be a less-than-significant impact from the exposure of people or structures to adverse effects from a known area susceptible to ground failure, including liquefaction. In addition, because liquefaction potential at the site is low, earthquake-induced lateral spreading is not considered to be a seismic hazard at the site, and impacts would be less than significant. The proposed project would not include features that would exacerbate the liquefaction potential at the project site and, thus, would not result in a cumulatively considerable impact.

iv. Landslides?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The project site is located within a "Landslide Susceptibility Area" in areas where slopes are greater than 25%, as identified in the County Guidelines for Determining Significance for Geologic Hazards (2007a). Landslide Susceptibility Areas were developed based on landslide risk profiles included in the *Multi-Jurisdictional Hazard Mitigation Plan, San Diego, CA* (URS 2004). Landslide risk areas from this plan were based on data including steep slopes (greater than 25%); soil series data (SANDAG based on USGS 1970s series); soil-slip susceptibility from USGS; and Landslide Hazard Zone Maps (limited to western portion of the County) developed by the California Department of Conservation, Division of Mines and Geology. Also included within Landslide Susceptibility Areas are gabbroic soils on slopes steeper than 15% in grade because these soils are slide prone.

The proposed project involves constructing multi-use trails, improving the existing entrance road, reconstructing a restroom building, and installing superficial improvements, such as interpretive features, picnic tables, and shade structures. These project elements are primarily located in previously disturbed areas and would not involve activities that would exacerbate existing landslide susceptibility conditions on the project site. Demolition and expansion of the existing

restroom facility would occur in the same relatively flat location that has been previously prepared for construction when the restroom was built in approximately 2005. The new restroom would be constructed in compliance with the California Building Code requirements to ensure structural stability. Therefore, there would be no potentially significant impact from the exposure of people or structures to adverse effects of landslides.

A cumulative impact could occur if the proposed project, in combination with the cumulative projects, would include features that would exacerbate existing geological conditions, such as resource extraction, or unsafe construction on unstable, landslide-prone land. Because the proposed project and the relevant cumulative projects would comply with regulations and would not exacerbate existing conditions, there would not be a significant cumulative impact related to directly or indirectly causing potential substantial adverse effects, including the risk of loss, injury, or death involving landslides.

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

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: According to the Soil Survey of San Diego County, the soils in the area that is currently developed with the restroom, barn, and ranger station are identified as Arlington course sandy loam, 2 to 9% percent slopes (AvC) that has a soil erodibility rating of "severe" as indicated by the Soil Survey for the San Diego Area, prepared by the U.S. Department of Agriculture, Soil Conservation and Forest Service dated December 1973. The soils underlying the proposed Staging Area 1 are identified as Cieneba course sandy loam, 5 to 15% slopes (CID2) that has an erodibility rating of "severe." Both Staging Areas 2 and 3 would be underlain by Arlington coarse sandy loam, 2 to 9% slopes, and Visalia sandy loam, 2 to 5% slopes, which both have an erodibility rating of "severe."

The staging areas would be graded using construction equipment such as a bulldozer, backhoe, and a dump truck; and the trails would be primarily constructed with hand tools. The trails would be developed throughout the rest of the Preserve, and would be built on several different soil types, listed below. All of these soil types have an erodibility rating of severe.

- Cieneba course sandy loam, 5 to 15% slopes (CID2)
- Arlington course sandy loam, 2 to 9% percent slopes (AvC)
- Acid igneous rock land (AcG)
- Cieneba rocky coarse sandy loam, 9 to 30% slopes, eroded (CmE2)
- Cieneba very rocky coarse sandy loam, 30 to 75% slopes (CmrG)
- Friant rocky fine sandy loam, 9 to 30% slopes (FxE)
- Olivenhain cobbly loam, 9 to 30% slopes (OhE)
- Vista rocky coarse sandy loam, 30 to 65% slopes (VvG)
- Visalia sandy loam, 2 to 5%slopes (VaB)

- Fallbrook rocky sandy loam, 9 to 30% slopes (FeE)
- Friant rocky fine sandy loam, 30 to 70% slopes (FxG)

The proposed development within these soils would involve minimal ground disturbance. The proposed restroom and associated septic tank, volunteer pad, and associated electrical improvements are underlain by AvC soils, which have a “severe” rating for erodibility. The ground disturbance required for the restroom and associated improvements would be in previously disturbed areas with existing development. The proposed project is required to comply with the San Diego County Code of Regulations, Title 8, Zoning and Land Use Regulations, Division 7, Sections 87.414 (Drainage – Erosion Prevention) and 87.417 (Planting). Section 87.414 contains requirements for erosion prevention during excavation or grading activities, including specific requirements if grading is to occur between November 1 and April 30. Section 87.417 contains requirements for planting and groundcover on slopes that experienced ground disturbance. Compliance with these regulations minimizes the potential for water and wind erosion, because they protect exposed soils that are susceptible to erosion.

The proposed project would be required to obtain from the State Water Resource Control Board (SWRCB) National Pollution Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (General Construction Permit). The General Construction Permit was adopted by SWRCB as Water Quality Order 2012-0006-DWQ and became effective on July 17, 2012. Compliance with the General Construction Permit would require the preparation of a Stormwater Pollution Prevention Plan (SWPPP) for the project site, which would outline the Best Management Practices (BMPs) that would be implemented during construction activities to prevent soil erosion and runoff from the construction site to nearby water bodies. In addition, a Storm Water Management Plan (SWMP) would be completed as part of the proposed project. The plan would include operational BMPs to ensure sediment does not erode from the project site. Please see Section X, *Hydrology and Water Quality*, for further discussion of the SWPPP and the SWMP to be prepared for the proposed project. Due to these factors, it has been found that the proposed project would not result in substantial soil erosion or the loss of topsoil on a project level due to stormwater.

In addition, the proposed project would not contribute to a cumulatively considerable impact because all of the past, present, and future projects included on the list of projects that involve grading or land disturbance are required to follow the requirements of the San Diego County Code of Regulations, Title 8, Zoning and Land Use Regulations, Division 7, Sections 87.414 (Drainage – Erosion Prevention) and 87.417 (Planting); Order 2001-01 (NPDES No. CAS 0108758), adopted by the San Diego Region RWQCB on February 21, 2001; County Watershed Protection, Storm Water Management, and Discharge Control Ordinance (WPO) (Ord. No. 9424); and County Storm Water Standards Manual adopted on February 20, 2002, and amended January 10, 2003 (Ordinance No. 9426). By complying with the applicable regulations, and implementing stormwater management and site-specific BMPs, the cumulative projects would not result in a cumulatively considerable impact, and the proposed project would not result in a cumulatively considerable contribution. Refer to Section XXI for a comprehensive list of the projects considered.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in an on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The proposed project involves minor soil disturbance for the construction of the proposed trails and staging yards. The proposed project would include approximately 5.5 acres of grading and approximately 700 cubic yards of imported material. Other proposed structures would include shade structures, fencing, and the expansion of the existing restroom building and septic facility. In order to assure that any proposed structures are adequately supported (whether on native soils, cut or fill), a Soils Engineering Report would be required prior to construction of the restroom facility and associated septic system. Consistent with County and State practices and regulations, the report will provide the geotechnical recommendations required to ensure proposed building and proposed septic system meet the structural stability standards required by the California Building Code and County engineering standards. Therefore, with compliance with the geotechnical requirements provided in the Soils Engineering Report, impacts would be less than significant. For further information regarding landslides, liquefaction, and lateral spreading, refer to threshold VII.a (iii–iv) above.

Cumulative impacts could occur if the cumulative projects exacerbate the existing geologic and soil conditions in the region, and result in a risk to structures or people related to landslides, lateral spreading, subsidence, liquefaction, or collapse. Because the proposed project would comply with the requirements of the Soil Engineer Report and all cumulative projects are and would continue to be subject to the building permitting process, they would not contribute to a potentially significant cumulative project.

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

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: Two of the 11 soils identified in the discussion for threshold VI.b—OhE and FeE—are identified as having “moderate” shrink-swell behavior based on the Soil Survey for the San Diego Area, prepared by the U.S. Department of Agriculture, Soil Conservation and Forest Service dated December 1973. Soils in the moderate or high categories are considered to have the potential for expansion, and would be consistent with the categories of medium, high, or very high, as defined within Table 18-I-B of the Uniform Building Code (1994).

The soils under the proposed structures are identified as having a low shrink swell potential that is not categorized as expansive (USDA 1973). Expansive soils underlying the proposed trails would not pose a threat to life or property because they would be used for passive recreation

and would not include the development of any structures. In addition, the proposed project would not have any significant impacts because the proposed project is required to comply with the improvement requirements identified in the 1997 Uniform Building Code, Division III – Design Standard for Design of Slab-On-Ground Foundations to Resist the Effects of Expansive Soils and Compressible Soils, which ensure suitable structure safety in areas with expansive soils. Therefore, location of the proposed project on these soils would not create direct or indirect substantial risks to life or property, nor would the proposed project result in impacts that would be cumulatively considerable.

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

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The proposed project proposes to discharge domestic waste to an onsite wastewater treatment systems (OWTS), also known a septic system. The proposed project would reconstruct the existing bathroom facility and evaluate the existing septic system in order to support more visitors on site. The septic system is currently located in the central portion of the Preserve, slightly east of the existing restroom and ranger station. If the evaluation of the septic system indicates expanding the septic system would be necessary to support the renovated restroom, the septic system would be replaced in kind, and enlarged by no more than 2,000 square feet. The soil underlying the location of the proposed septic system has a septic tank effluent disposal rating of “severe” (USDA 1973).

Discharged wastewater must conform to the RWQCB’s applicable standards, including the Regional Basin Plan and the California Water Code. California Water Code Section 13282 allows RWQCBs to authorize a local public agency to issue permits for an Onsite Wastewater Treatment System (OWTS) “to ensure that systems are adequately designed, located, sized, spaced, constructed and maintained.” The RWQCB has authorized the County of San Diego, Department of Environmental Health (DEH) to issue certain OWTS permits throughout the County and within the incorporated cities.

DPR must obtain an OWTS permit for the septic system from DEH prior to installation, at which time, the existing onsite conditions would be analyzed for suitability. DEH is responsible for reviewing and approving the OWTS layout for the proposed project pursuant to DEH, Land and Water Quality Division’s On-site Wastewater Systems: Permitting Process and Design Criteria. To obtain a permit, the septic system must be a system approved by the International Association of Plumbing and Mechanical Officials (IAPMO), and must be the correct size for the proposed project. The size of the system is determined by soil permeability, unsaturated soil interval, peak daily flow, and net usable land area (DEH 2010). Soil permeability is determined by a percolation test, which measures permeability by a percolation rate in minutes per inch (MPI). The percolation test must be performed by a registered civil engineer, registered geologist, or registered environmental health specialist, certified by DEH for testing within San Diego County. In addition to the percolation test, a Layout Design must be submitted and

approved by DEH in order to obtain an OWTS permit. DPR would also be required to comply with any requirements included in the permit, once issued. In addition, the proposed project would comply with the San Diego County Code of Regulatory Ordinances, Title 6, Div. 8, Chap. 3, Septic Tanks and Seepage Pits. Therefore, DPR would comply with all requirements of the DEH OWTS permit, and with Title 6, Div. 8, Chap. 3 of the County Code, which would ensure the soils are determined to be adequate for supporting an OWTS prior to the installation of the septic system. Because oversight is already in place, including a standard permitting process, impacts related to unsuitable soils for septic systems would be less than significant and would not be considered cumulatively considerable.

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

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☒	No Impact

No Impact: San Diego County has a variety of geologic environments and geologic processes that generally occur in other parts of the state, country, and the world. However, some features stand out as being unique in one way or another within the boundaries of the County.

A review of the County's Paleontological Resources Maps indicates that the proposed project is located entirely on plutonic igneous rock and has no potential of containing fossil remains. In addition, the project site does not contain any unique geologic features that have been listed in the County's Guidelines for Determining Significance for Unique Geology Resources (2007b) nor does the site support any known geologic characteristics that have the potential to support unique geologic features. A cumulative impact would occur if the listed cumulative projects (see Section XXI) would result in impacts on paleontologically or geologically significant areas that would negatively affect the integrity of potential paleontological and geologic resources. Because there are no potential fossil or geologic features at the project site, the proposed project would not contribute to a potential cumulative impact. Therefore, the proposed project would have no potential for direct or cumulative impacts on fossil remains or unique geologic features.

VIII. GREENHOUSE GAS EMISSIONS -- Would the project:

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

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact With Mitigation Incorporated: The State of California has developed guidelines to address the significance of climate change impacts based on Appendix G of the CEQA Guidelines, which contains two significance criteria for evaluating greenhouse gas (GHG) emissions of a project. A project would have a significant environmental impact if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The two questions were intended to satisfy the Legislative directive in Public Resources Code Section 21083.05. Therefore, the analysis contained herein relies upon Appendix G of the CEQA Guidelines as the threshold of significance for evaluating the environmental effects of GHG emissions of the proposed project. CEQA Guidelines Section 15064.4 states that the "determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project."

Section 15064.4(b) further states that a lead agency should consider the following nonexclusive list of factors when assessing the significance of GHG emissions:

1. The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
2. The extent to which project emissions exceed a threshold of significance that the lead agency determines applies to the project; and
3. The extent to which the project complies with regulations or requirements adopted to implement statewide, regional, or local plans for the reduction or mitigation for GHG emissions.

CEQA Guidelines Section 15064(h)(1) states that "the lead agency shall consider whether the cumulative impact is significant and whether the effects of the project are cumulatively considerable." A cumulative impact may be significant when the proposed project's incremental effect, though individually limited, is cumulatively considerable. As discussed above, climate change is the product of incremental contributions of GHG emissions on a global scale.

GHGs include carbon dioxide, methane, halocarbons (HFCs), and nitrous oxide, among others. Human-induced GHG emissions are a result of energy production and consumption, and personal vehicle use, among other sources.

Full results of the GHG study are documented in the Air Quality and Greenhouse Gas Memorandum (Appendix B) and are summarized below.

GHG emissions associated with project construction and operations at the facility would result from activities to construct the proposed project and install project components. Once constructed, operational emissions would primarily result from motor vehicles visiting the site. Based on the findings of the technical memo prepared by ICF, dated March 1, 2019 (Appendix B), total project emissions (115 metric tons of carbon dioxide-equivalent [$MTCO_2e$]; the sum of average annual construction and operations) would be far below any relevant numerical threshold in the state, including the 900 $MTCO_2e$ screening level used here to identify projects that require further analysis and potential mitigation.

Moreover, the proposed project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. The most applicable plan, policy, or regulation is the County's Climate Action Plan (CAP), which was adopted by the Board of Supervisors on February 14, 2018[1]. The CAP outlines actions that the County would undertake to meet its GHG emissions reduction targets. Implementation of the CAP would require new developer-initiated and County-sponsored development projects to incorporate more sustainable design standards and implement applicable reduction measures consistent with the CAP. To help plan and design projects consistent with the CAP, and to assist County staff in implementing the CAP and determining the consistency of proposed projects with the CAP during development review, the County has prepared a CAP Consistency Review Checklist (Checklist). This Checklist, in conjunction with the CAP, provides a streamlined review process for proposed discretionary developer-initiated projects that require environmental review pursuant to CEQA. Refer to the County's *Guidelines for Determining Significance for Climate Change* (Guidelines) for more information on GHG emissions, climate change impact requirements, thresholds of significance, and compliance with State CEQA Guidelines Section 15183.5.

Although the CAP cannot be used to streamline the review of GHG emissions from the proposed project, a project-specific climate change and GHG emissions analysis, which involved review of the proposed project's consistency with applicable CAP measures as well as statewide goals

[1] In March 2018, several petitioners filed a lawsuit against the County, alleging that the CAP and, in particular, M-GHG-1 were inconsistent with General Plan Goal COS-20 and Policy COS-20.1. In December 2018, the San Diego Superior Court (Judge Timothy B. Taylor, presiding) issued a writ ordering the approval of the CAP and its EIR to be set aside, and enjoining reliance on the County CAP's mitigation measure M-GHG-1. (See Judge Taylor's Minute Order, dated December 24, 2018, at page 17.) In January 2019, the County appealed the San Diego Superior Court ruling, which stayed the above described writ issued by Judge Taylor. Given the current legal uncertainty concerning the County's CAP, the CEQA analysis prepared for the proposed project did not rely on the CAP to streamline the proposed project's environmental analysis under State CEQA Guidelines Section 15183.5. Rather, the proposed project's significance determination used the criteria contained in State CEQA Guidelines Appendix G (informed by State CEQA Guidelines Section 15064.4) and mitigation strategies (informed by State CEQA Guidelines Section 15126.4(c)) that are independent of the CAP. As such, in the event that the CAP does not withstand judicial scrutiny, the proposed project has undergone a separate, stand-alone analysis for determining whether the proposed project's GHG emissions would significantly impact the environment.

and actions, concluded that the proposed project would be consistent with the CAP as well as other statewide and regional plans, policies, and regulatory programs after implementation of mitigation. Measure T-3.2 of the County's CAP requires that County projects use alternative fuels in 100% of construction equipment during construction by 2030. Because the proposed project as designed does not include use of alternative fuel in 100% of construction equipment, mitigation measure **MM-GHG-1**[2] has been included to ensure consistency with the T-3.2 CAP measure by implementing best management practices during construction.

MM-GHG-1: The County shall ensure implementation of the following measures during project construction:

- Require equipment to be maintained in good tune and to reduce excessive idling time.
- Utilize alternative fueled equipment and vehicles, such as renewable diesel, renewable natural gas, compressed natural gas, or electric.
- Require older equipment be retrofitted with advanced engine controls, such as diesel particulate filters, selective catalytic reduction, or cooled exhaust gas recirculation.

With the incorporation of mitigation measure **MM-GHG-1,** potentially significant impacts would be mitigated to below a level of significance. The proposed project is consistent with the zoning and land use projections for the project site. Thus, the proposed project's GHG emissions have been accounted for in the CAP's projections. Moreover, the proposed project is consistent with the County General Plan, as it would support development of recreational opportunities while preserving habitat within the MSCP area, and the Scoping Plan, as it would not hinder progress towards statewide reduction targets, while project emissions would decrease over the life of the proposed project as State measures are implemented.

Therefore, the proposed project's incremental contribution to cumulative GHG emissions is determined to not be cumulatively considerable because emissions are far below relevant numerical thresholds, and the proposed project is consistent with the CAP, General Plan, and Scoping Plan.

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

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: Based on Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact if it would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. The State passed the Global Warming Solutions Act of 2006, commonly referred to as Assembly Bill (AB) 32, which set the GHG emissions reduction goal for the State of California into law. The law requires that by 2020, state emissions must be reduced to 1990 levels by reducing GHG emissions from significant sources via regulation, market mechanisms, and other actions. The

[2] MM-GHG-1 is not the same as the CAP M-GHG-1

State subsequently passed SB 32, which set the new GHG emissions reduction goal for the State of California into law. The law requires that by 2030, state emissions must be reduced to 40% below 1990 levels by reducing GHG emissions from significant sources via regulation, market mechanisms, and other actions.

To implement State mandates to address climate change in local land use planning, local land use jurisdictions are generally preparing GHG emission inventories and reduction plans and incorporating climate change policies into local general plans to ensure development is guided by a land use plan that reduces GHG emissions. The County's General Plan incorporates various climate change goals and policies. These policies provide direction for individual development projects to reduce GHG emissions and help the County meet its GHG emission reduction targets identified in the County's CAP. The CAP includes GHG reduction measures that, if fully implemented, would achieve an emissions reduction target that is consistent with the State-mandated reduction target embodied for 2020 (AB 32) and 2030 (SB 32) and demonstrates progress towards the State's 2050 GHG reduction goals. A set of project-specific implementing thresholds are included in the County's Guidelines for Determining Significance and are used to ensure project consistency with the County's CAP, GHG emission reduction target, and the various General Plan goals and policies related to GHG emissions that support CAP goals. Regardless of CAP implementation, consistency with the CAP would help ensure consistency with other regional and statewide plans, policies, and regulations.

As noted in the response to threshold VIII.a above, the proposed project's incremental contribution to cumulative GHG emissions is determined to not be cumulatively considerable because it is determined to be consistent with the CAP, General Plan, and Scoping Plan after mitigation, which together are the most applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs. Therefore, the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

IX. HAZARDS AND HAZARDOUS MATERIALS -- Would the project:

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

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The proposed project would develop a system of trails and visitor-serving infrastructure improvements, such as staging areas for parking, interpretive features, and the reconstruction of the existing restroom facility and the expansion of the septic system. Construction of the proposed project may involve the temporary use and storage of small amounts of hazardous materials, including solvents, paints, oils, and lubricants. However, the proposed project would not result in a significant hazard to the public or environment because all storage, handling, transport, emission and disposal of hazardous substances would be in full compliance with applicable regulations such as the Federal Resource Conservation and Recovery Act (RCRA), Department of Transportation (DOT) Hazardous Materials Regulations, and the local Certified Unified Program Agency (CUPA) regulations. These regulations provide tracking methods, standards and procedures for the management of hazardous materials, as well as spill response measures. Because compliance with these regulations is mandatory, construction activities are not anticipated to create a significant hazard to the public through use, transport, or disposal of hazardous materials.

Operation of the proposed project as a recreational facility would not involve the routine use and storage of hazardous materials. California Government Code Section 65850.2 requires that no final certificate of occupancy or its substantial equivalent be issued unless there is verification that the owner or authorized agent has met, or is meeting, the applicable requirements of the Health and Safety Code, Division 20, Chapter 6.95, Article 2, Section 25500-25520.

The San Diego County Department of Environmental Health Hazardous Materials Division (DEH HMD) is the CUPA for San Diego County responsible for enforcing Chapter 6.95 of the Health and Safety Code. As the CUPA, the DEH HMD is required to regulate hazardous materials business plans and chemical inventory, hazardous waste and tiered permitting, underground storage tanks, and risk management plans. The Hazardous Materials Business Plan is required to contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of on site. The plan also contains an emergency response plan that describes the procedures for mitigating a hazardous release, procedures and equipment for minimizing the potential damage of a hazardous materials release, and provisions for immediate notification of the HMD, the Office of Emergency Services, and other emergency response personnel such as the local fire agency having jurisdiction. Implementation of the emergency response plan facilitates rapid response in the event of an accidental spill or release, thereby reducing potential adverse impacts. Furthermore, the DEH HMD is required to conduct ongoing routine inspections to ensure compliance with existing laws and regulations, to identify safety hazards that could cause or contribute to an accidental spill or release, and to suggest preventative measures to minimize the risk of a spill or release of hazardous substances.

The use of lead based paint (LBP) and asbestos containing materials (ACM) was phased out of construction materials in the 1980s. The structures on the project site were constructed after 2003. Thus, LBP and ACMs are not likely to be encountered during reconstruction of the restroom facility.

Therefore, due to the low quantity of hazardous materials used during construction, the strict requirements that regulate hazardous substances outlined above, and the fact that the initial planning, ongoing monitoring, and inspections would occur in compliance with local, State, and Federal regulation, the proposed project would not result in any potentially significant, or cumulatively considerable, impacts related to the routine transport, use, and disposal of hazardous materials.

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

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: Construction of the proposed project would include the use of small amounts of standard hazardous materials typically used for construction equipment, such as fuels, oils, paint, and solvents. As discussed in the response to threshold IX.a, all storage, handling, transport, emission, and disposal of hazardous substances would be in full compliance with applicable regulations such as the RCRA, DOT Hazardous Materials Regulations, and the local CUPA regulations. These regulations address spill response measures in order to reduce potential impacts on the public or the environment due to accidental spills. The local CUPA, the DEH HMD, develops and implements risk management plans and emergency response plans containing procedures to prevent accidental releases and to appropriately respond if accidental releases occur. Based on a regulatory database search of the State of California Hazardous Waste and Substances sites list compiled pursuant to Government Code Section 65962.5, the project site has not been subject to a release of hazardous substances (see response to threshold IX.d for further discussion of the database search). Thus, the proposed project would not increase the risk of accidental release of hazardous materials due to the release of historic contamination on site. Therefore, due to the low quantity of hazardous materials used during construction, the compliance with Federal, State and local regulations, and the absence of historic contamination on the project site, the impact would be less than significant. Similarly, because past, present, and reasonably foreseeable future projects would have to comply with applicable regulations such as the RCRA, DOT Hazardous Materials Regulations, and the local CUPA regulations, a cumulative impact would not occur.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☒	No Impact

No Impact: The proposed project is not located within one-quarter mile of an existing or proposed school. The Church of Jesus Christ of Latter-day Saints facility is a camp for children consisting of short-term programs and would not be considered a school. Therefore, the proposed project would not have a direct or cumulatively considerable impact on an existing or proposed school.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, or is otherwise known to have been subject to a release of hazardous substances and, as a result, would it create a significant hazard to the public or the environment?

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☒	No Impact

No Impact: Based on a regulatory database search, the project site has not been subject to a release of hazardous substances. The project site is not included in any of the following lists or databases: the State of California Hazardous Waste and Substances sites list compiled pursuant to Government Code Section 65962.5, the San Diego County Hazardous Materials Establishment database, the San Diego County DEH Site Assessment and Mitigation (SAM) Case Listing, the Department of Toxic Substances Control (DTSC) Site Mitigation and Brownfields Reuse Program Database ("CalSites" Envirostor Database), the Resource Conservation and Recovery Information System (RCRIS) listing, the U.S. Environmental Protection Agency's (EPA's) Superfund CERCLIS database, or the EPA's National Priorities List (NPL). Additionally, the proposed project does not propose significant linear excavation within 1,000 feet of an open, abandoned, or closed landfill; is not located on or within 250 feet of the boundary of a parcel identified as containing burn ash (from the historic burning of trash); is not on or within 1,000 feet of a Formerly Used Defense Site (FUDS); does not contain a leaking Underground Storage Tank; and is not located on a site with the potential for contamination from historic uses such as intensive agriculture, industrial uses, a gas station or vehicle repair shop. Therefore, the proposed project would not create a significant hazard to the public or environment or result in cumulatively considerable impacts related hazardous materials sites.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: According to the Marine Corps Air Station Miramar Airport Land Use Compatibility Plan (ALUCP), the northernmost portion of the project site (approximately 55 acres) is located within the Airport Influence Area, Review Area 2, and the Overflight Notification Area for the Marine Corps Air Station (MCAS) Miramar (ALUC 2011). The Review Area 2 is beyond Review Area I of the Airport Influence Area but is within the airspace overflight area. The only restrictions on land uses within Review Area 2 are height restrictions, particularly in areas of high terrain. The proposed project does not propose construction of any structures in this portion of the project site. The only improvements would be a new trail and enhancement of the existing access road. Also, the proposed project does not propose construction of any structure equal to or greater than 150 feet in height, constituting a safety hazard to aircraft and/or operations from an airport or heliport. Therefore, the proposed project would not result in a safety hazard or excessive noise for people residing or working in the project area, and would not result in a cumulatively considerable impact related to such a safety hazard.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

The following sections summarize the proposed project's consistency with applicable emergency response plans or emergency evacuation plans.

i. Operational Area Emergency Plan and multi-jurisdictional hazard mitigation plan:

Less Than Significant Impact: The Operational Area Emergency Plan is a comprehensive emergency plan that defines responsibilities, establishes an emergency organization, defines lines of communications, and is designed to be part of the statewide Standardized Emergency Management System. The Operational Area Emergency Plan provides guidance for emergency planning and requires subsequent plans to be established by each jurisdiction that has responsibilities in a disaster situation. The Multi-Jurisdictional Hazard Mitigation Plan includes an overview of the risk assessment process, identifies hazards present in the jurisdiction, hazard profiles, and vulnerability assessments. The plan also identifies goals, objectives, and actions for each jurisdiction in San Diego County, including all cities and the County unincorporated areas. The unincorporated County developed 13 goals for their Hazard Mitigation Plan:

1. Promote Disaster-resistant future development.

2. Increase public understanding and support for effective hazard mitigation.
3. Build and support local capacity and commitment to become less vulnerable to hazards.
4. Enhance hazard mitigation coordination and communication with federal, state, local and tribal governments.

"Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and County-owned facilities, due to":

1. Dam Failure
2. Earthquake and Liquefaction
3. Coastal Storm/Erosion/Tsunami
4. Landslides
5. Floods
6. Structural Fire/Wildfire
7. Extreme Weather and Drought
8. Manmade Hazards
9. Hazardous Materials Release

The County developed a wide-ranging list of objectives and actions to address each of these goals. Opening the Preserve as a passive recreational facility for the public would not interfere with the County's ability to carry out actions to achieve their goals. As discussed in Section VII, *Geology and Soils*, Section XX, *Wildfire,* and throughout this section, the proposed project would not exacerbate existing geological hazards, increase the risk of hazardous conditions, or increase risk of wildfire to a significant level. Therefore, the proposed project would not conflict with the goals and objectives of this plan.

The proposed project would not interfere with The Operational Area Emergency Plan or the Multi-Jurisdictional Hazard Mitigation Plan because it would not prohibit subsequent plans from being established or prevent the goals and objectives of existing plans from being carried out.

ii. San Diego County Nuclear Power Station Emergency Response Plan

No Impact: The proposed project would not interfere with the San Diego County Nuclear Power Station Emergency Response Plan due to their locations, and the specific requirements of the plan. The emergency plan for the San Onofre Nuclear Generating Station includes an emergency planning zone within a 10-mile radius. All land area within 10 miles of the plant is not within the jurisdiction of the unincorporated County, and as such a project in the unincorporated area is not expected to interfere with any response or evacuation.

iii. Oil Spill Contingency Element

No Impact: The proposed project would not interfere with the Oil Spill Contingency Element because the proposed project is not located along the coastal zone or coastline.

iv. Emergency Water Contingencies Annex and Energy Shortage Response Plan

No Impact: The proposed project would not interfere with the Emergency Water Contingencies Annex and Energy Shortage Response Plan because the proposed project does not propose altering major water or energy supply infrastructure, such as the California Aqueduct.

v. Dam Evacuation Plan

No Impact: The proposed project would not interfere with the Dam Evacuation Plan because the proposed project is not located within a dam inundation zone.

Due to the proposed project's consistency with all applicable emergency response plans or emergency evacuation plans, the proposed project would not have the potential to result in cumulatively considerable impacts related to emergency planning.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The project site is within a Very High Fire Hazard Severity Zone as designated by the California Department of Forestry and Fire Protection (CAL FIRE) in the "Very High Fire Hazard Severity Zones in LRA" (CAL FIRE 2009). The Preserve has burned during previous wildfires, including the 2003 Cedar Fire, which burned the entire Preserve.

The proposed project could exacerbate existing conditions on the project site by introducing people and additional structures to a Very High Fire Hazard Severity Zone, which could increase the possibility of fires started from human-made sources (i.e., lighters, campfires, sparks from vehicles, etc.). However, the proposed project would include several standard operational procedures that DPR typically implements at all park facilities. Several of these are currently implemented at the Preserve and would continue to be implemented once the Preserve has been made available to the public (San Diego County Code Title 4, Division 1, Chapter 1, Article 1, Section 41.101 and following). The park entrance road and historic truck trails in the Preserve are periodically managed for brush encroachment in an effort to keep the roads open for wildland firefighting efforts. SDG&E also conducts brush clearing as well to maintain its easements for access to its electric facilities. As a County best practice, vehicles are equipped with a fire extinguisher to eliminate and prevent the spread of a fire if a spark were to result from fire prevention or maintenance activities. The Preserve currently has a groundwater well in the southern portion of the project site, which is used to fill two water tanks (located near the ranger station and restroom) that are used for fire suppression. In addition, there are several spigots located along the internal road that could provide a water source in the event of a fire. Furthermore, the County has allowed grazing on the Preserve, which helps with fuel management in fire-prone areas. The proposed project would allow for grazing to continue on 57 acres of the Preserve.

Several regulations have also been developed by the County to reduce risk of loss of property, injury, or death due to exposure to wildland fire throughout the County jurisdiction. The proposed project would comply with the regulations relating to emergency access, water supply, and

defensible space specified in the County Code of Regulatory Ordinances, Title 3, Division 5, Chapter 3 and Appendix II-A of the Uniform Fire Code. DPR currently complies with the Defensible Space for Fire Protection Ordinance (2011), and would continue to comply with the requirements of the ordinance as part of the proposed project. The ordinance requires combustible vegetation; dead, dying, or diseased trees; green waste; rubbish; or other flammable materials to be cleared within 30 feet of the property line and 10 feet of each side of a highway, private road, or driveway in order to maintain defensible space (County of San Diego 2011).The proposed project is also required to comply with the County of San Diego Fire Service Conditions stipulated by the County Fire Services staff (i.e., County Fire Marshall) upon review and approval of the proposed project.

The Preserve would be closed to the public during a wildfire event, and County DPR would work closely, in compliance with the Operational Area Emergency Plan, with the San Diego County Fire Authority, CAL FIRE, and the County Office of Emergency Services to manage potential wildfire events. The proposed project would also be consistent with the Ramona Community Wildfire Protection Plan, which identifies areas of potential risk and provides hazard reduction priorities (Fire Safe Council 2006). On September 19, 2018, DPR met with the County Fire Authority and CAL FIRE to discuss the existing wildfire conditions in the project area (Pine and Nissen pers. comm.). CALFIRE indicated standard fire protection measures should be implemented at the project site, including maintaining fire breaks and enforcing safety regulations at the DPR facility, as listed below.

The County would post and enforce park rules in accordance with the San Diego County Code of Regulatory Ordinances, Title 4 Public Property, Division 1. Parks and Recreation, Chapter 1. County Parks and Recreation, which include, but are not limited to:

- Smoking is prohibited.
- Campfires and open flames are prohibited.
- No person is allowed to use, transport, carry, fire, or discharge any fireworks, firearm, weapon, air gun, archery device, slingshot, or explosive of any kind across, in or into a County park.
- Parking must occur in designated staging areas.

These park rules would reduce potential impacts related to human-caused wildland fires in the Preserve. Additionally, the County park ranger and maintenance staff would be on site during business hours and would patrol the Preserve for potential safety, including fire risks.

Lastly, a Wildfire Site Evacuation Plan would be developed for the project site as part of standard operational planning procedures for County park facilities. The purpose of the Wildfire Site Evacuation Plan is to assist staff during an evacuation of the Preserve. The SEP only pertains to evacuation procedures within the Preserve boundaries; it is the responsibility of OES and County Fire Department to facilitate evacuation planning and implementation for the region.

The Wildfire Site Evacuation Plan would be developed to include the following:

- Facility contact list
    - Contains the names, responsibilities, and contact numbers of key building contacts.
- Building and site map

  - Evacuation map outlining the evacuation route(s) and assembly area(s) for the Preserve. A copy of this map is provided to emergency responders.
  - Plan for fire vehicle access routes and water tank locations.
- Exit routes for the Preserve.
- Personnel roster description
  - Used to take attendance at the assembly area following an evacuation of staff.
- Site evacuation team
  - Responsible for complete evacuation of, and accounting for all employees, visitors, and customers in their area of responsibility.
- Checklist for the facility evacuation coordinator
  - Ensures consistency and completeness during an emergency.
- Checklist for the site warden
  - Ensures consistency and completeness during an emergency.
- Evacuation/fire drill observation form
- Voluntary individual site evacuation plan
  - Designed to assist any employee with limitations or disabilities to evacuate in an emergency; created by the individual employee; is voluntary; and not a confidential document.
- Fire Safety Plan overview
  - Establishes procedures for identifying fire hazards and preventing fires.

Therefore, based on compliance with the County Code of Regulatory Ordinances, Title 3, Division 5, Chapter 3 and Appendix II-A of the Uniform Fire Code, compliance with the County of San Diego Fire Service conditions, enforcement of County park rules and regulations, and development of the Wildfire Site Evacuation Plan, the potential impact related to exposure of people or structures either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires would be reduced to less than significant. Moreover, the proposed project would not contribute to a cumulatively considerable impact. While development within Very High Fire Hazard Severity Zones could result in cumulative impacts on the region related to increased risk of damage due to wildland fire, the proposed project would open an existing preserve to the public. While the project site has recently been closed to the public, it has been used by the County as a headquarters for park rangers in the region. Prior to the establishment of the Preserve, the project site was owned by the Salvation Army and operated as a recreational facility open to the public. The proposed project would consist of an open recreational facility that would be consistent with past uses of the property and would not introduce new uses to the site. Additionally, the proposed project, as well as the past, present, and future projects, are all required to comply with the County Code of Regulatory Ordinances and the Uniform Fire Code. Therefore, the proposed project would not have a cumulatively considerable contribution to the potential cumulative impact.

h) Propose a use, or place residents adjacent to an existing or reasonably foreseeable use that would substantially increase current or future resident's exposure to vectors, including mosquitoes, rats or flies, which are capable of transmitting significant public health diseases or nuisances?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: There are two existing ponds located in the Preserve that allow water to stand for more than 72 hours (3 days). Standing water is a potential breeding ground for mosquitos. The County Vector Control Program (VCP), managed by DEH, implements vector management activities to protect public health from the impacts of vector-borne diseases. DEH regularly inspects and treats as necessary, mosquito-breeding sources. Treatment may include biological control, such as fish, or chemical control.

The proposed project would comply with guidelines and recommendations provided by the VCP. The proposed project would involve uses that would produce additional animal waste at the site by providing trails for equestrian day-use. It is anticipated that a few equestrian users would visit the project site each weekday, with up to eight equestrian users per weekend day. Manure from the equestrian uses could attract flies or other vectors; however, a covered dumpster would be available on site for disposal of manure and other trash. The proposed project is for day-use only and does not propose residences or permanent horse stalls, so it would not expose existing or future residents to vectors. Additionally, the County park rangers and volunteers working on site would assist in maintaining the cleanliness of the public trails and staging areas as necessary.

Therefore, the proposed project would not substantially increase current or future residents' exposure to vectors, including mosquitoes, rats, or flies or create a cumulatively considerable impact because no proposed uses on site would produce significant sources of vectors.

X. HYDROLOGY AND WATER QUALITY -- Would the project:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The construction of the proposed project would include activities that would disturb surface soils, such as grading, leveling, and trenching. During construction, exposed soils have the potential to temporarily increase the amount of sediment in runoff from the project site during a storm event. The proposed project would disturb over 1 acre of land; therefore, it would be required to obtain from the SWRCB an NPDES General Construction Permit. The General Construction Permit was adopted by SWRCB as Water Quality Order 2012-0006-DWQ and became effective on July 17, 2012. Compliance with the General Construction Permit would require the preparation of a SWPPP for the project site, which would identify potential pollutants and outline the BMPs that would be implemented during construction activities to prevent those pollutants from entering nearby water bodies.

In addition, the proposed project would be covered under the County's existing regional Waste Discharge Requirements. Under the requirement the project site would be required to implement site design measures and/or source control BMPs and/or treatment control BMPs to reduce potential pollutants to the maximum extent practicable from entering stormwater runoff that would be consistent with the County of San Diego Jurisdictional Runoff Management Plan (JRMP) and the Best Management Practice (BMP) Design Manual. These measures would enable the proposed project to meet waste discharge requirements for discharges to surface or groundwater as required. Therefore, the proposed project would not violate waste discharge requirements or substantially degrade surface or ground water quality.

The proposed project would discharge domestic waste to an OWTS. Discharged wastewater must conform to the RWQCB's applicable standards, including the Regional Basin Plan and the California Water Code. California Water Code Section 13282 allows RWQCBs to authorize a local public agency to issue permits for OWTS "to ensure that systems are adequately designed, located, sized, spaced, constructed and maintained." The RWQCBs has authorized DEH to issue certain OWTS permits throughout the County and within the incorporated cities. DEH will review the OWTS layout for the project pursuant to DEH, Land and Water Quality Division's, *On-site Wastewater Systems: Permitting Process and Design Criteria*. DEH would also be the approving body for the project's OWTS. Therefore, the onsite sewer advanced treatment system would not violate waste discharge requirements, as determined by the RWQCB-authorized local public agency, DEH.

Finally, the proposed project's conformance to the waste discharge requirements listed above ensures the proposed project would not create cumulatively considerable water quality impacts related to waste discharge because, through the permit, the proposed project would conform to Countywide watershed standards in the JRMP and BMP Design Manual, derived from State regulation to address human health and water quality concerns. Therefore, the proposed project

would not contribute to a cumulatively considerable impact on water quality from waste discharges.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The proposed project would obtain its water supply from the Ramona Municipal Water District, which purchases water from the San Diego County Water Authority. San Diego County Water Authority supplies include water purchased from the Metropolitan Water Authority, Colorado River water, and desalinated water.

The proposed project would not use any groundwater for irrigation or domestic or commercial use demands. However, in certain cases, groundwater may be used in the event of a wildland fire on the project site. Discrete use of groundwater for emergency situations would not result in a substantial decrease in groundwater supplies or interfere substantially with groundwater recharge. In addition, the proposed project does not involve operations that would interfere substantially with groundwater recharge including, but not limited to, the following: the proposed project does not involve regional diversion of water to another groundwater basin or diversion or channelization of a stream course or waterway with impervious layers, such as concrete lining or culverts, for substantial distances (e.g. ¼ mile). These activities and operations can substantially affect rates of groundwater recharge. Therefore, no direct or cumulative impact on groundwater resources is anticipated.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i. Result in substantial erosion or siltation on- or off-site?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The proposed project would develop the existing Preserve with additional multi-use trails, an ADA-accessible trail, staging areas for vehicles, and infrastructure improvements. Impervious surfaces would be limited to the expansion of the existing restroom facility up to 25 feet, and improvements associated with the widening of the entrance from Mussey Grade Road to the Preserve access road to provide a consistent width (24 feet across) for emergency vehicle access and a volunteer pad. All other trails and improvements would be constructed with pervious materials. As previously discussed, a SWMP would be prepared for the project site, which would contain site-specific design measures, source control, and/or treatment control BMPs to reduce potential pollutants, including sediment from erosion or

siltation, to the maximum extent practicable from entering stormwater runoff. These measures would control erosion and sedimentation and satisfy waste discharge requirements as required by the Land-Use Planning for New Development and Redevelopment Component of the San Diego Municipal Permit (San Diego RWQCB Order No. R9-2013-0001), as implemented by the San Diego County JRMP and County BMP Design Manual. The SWMP would specify and describe the implementation process of all BMPs that would address equipment operation and materials management, prevent the erosion process from occurring, and prevent sedimentation in any onsite and downstream drainage swales. The DPW would ensure that the Plan is implemented as proposed (in compliance with County of San Diego Watershed Protection Ordinance and regional MS4 Permit), which would ensure the proposed project would not result in significantly increased erosion or sedimentation potential and would not alter any drainage patterns of the site or area on- or off site. In addition, because erosion and sedimentation would be controlled within the boundaries of the proposed project, the proposed project would not contribute to a cumulatively considerable impact. For further information on soil erosion refer to Section VII, *Geology and Soils*, threshold VII.b.

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: Based on the Federal Emergency Management Agency Flood Map for the project area, the project site is not located within a floodway; it is located within “zone x,” which is defined as an area of minimal flood hazard (FEMA 2012).Construction of the proposed project, including the demolition and reconstruction of the restroom facility, the expansion of the septic system, and the electrical expansion to the volunteer pad, would involve construction activities that may temporarily alter drainage patterns, such as grading and trenching. However, these are temporary activities, and construction BMPs would be implemented as part of the SWPPP required for the proposed project in order to reduce potential impacts on drainage patterns.

Impervious surfaces associated with the proposed project would be related to the improvements to the existing restroom facility, road widening for emergency vehicle access, and paving of existing dirt access road with concrete or AC to improve conditions. The existing restroom facility would be reconstructed to accommodate more bathroom stalls and would be expanded by approximately 25 feet. All other improvements to the existing facilities, including the volunteer pad, the ADA trail, and the staging areas, would be constructed with a pervious DG material. Operation of the proposed project would include design features for drainage where necessary. The proposed project would not significantly alter established drainage patterns or significantly increase the amount of runoff for the following reasons:

- Drainage would be conveyed to either natural drainage channels or design features.
- The proposed project would not increase water surface elevation in a watercourse with a watershed equal to or greater 1 square mile by 1 foot or more in height.

- This project does not propose grading that would substantially modify existing landforms or create significant changes in the existing drainage patterns in the project area which would result in flooding on- or off site.

Therefore, the proposed project would not substantially increase impervious surfaces at the project site in such a way that would substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off site. Moreover, the proposed project would not contribute to a cumulatively considerable increase in the rate or amount of runoff because the proposed project would not substantially increase water surface elevation or runoff exiting the site, as detailed above.

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: There are no existing or planned stormwater drainage systems proposed by the proposed project, nor does the proposed project require such systems. The proposed project would be primitive and would not involve significant amounts of new impervious surface areas. The proposed project proposes to expand the existing restroom facility by 25 square feet and pave the existing dirt access road. This amount of conversion to impervious surfaces would not contribute runoff water that would exceed the capacity of existing stormwater drainage systems. Due to the large amounts of natural and pervious surfaces on the project site, stormwater would generally percolate and recharge the groundwater table.

The proposed project would include trails, a restroom facility, shade structures, and staging areas in the existing Preserve. The staging areas could represent an additional source of polluted runoff from leaking oil or gasoline from vehicles; however, the staging areas would be constructed with DG and would not be paved, which allows for infiltration and would prevent polluted runoff from draining from the staging yards. As previously mentioned in the response to threshold X.e.ii, operation of the proposed project would include design features for the control of drainage on the site where necessary. The proposed project would not include other sources of polluted runoff. Therefore, the proposed project would result in less than significant impacts related to stormwater drainage systems, and would not have the potential for cumulatively considerable impacts.

iv. Impede or redirect flood flows?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: There are no existing or planned stormwater drainage systems proposed by the proposed project, nor does the proposed project require such systems. The

proposed project would not include substantial grading or earthmoving that would impede or redirect water flow on site in the case of a flood. The proposed project would involve several primitive improvements including staging areas, trails, a restroom, and shade structures. The proposed project would involve a small amount of impervious surfaces, with the vast majority of the Preserve remaining as native habitat. Therefore, the proposed project would not include features that would result in a significant impact, or potentially cumulatively considerable impact, on flood flows.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

i. Flood

Less Than Significant Impact: based on the federal emergency management agency flood map for the project area, the project site is not located within a floodway; it is located within "zone x," which is defined as an area of minimal flood hazard (fema 2012). the proposed project would not be inundated due to flood conditions.

ii. Seiche

No Impact: two small ponds are present within the project site; however, the proposed project is not located along the shoreline of a lake or reservoir; therefore, it could not be inundated by a seiche.

iii. Tsunami

No Impact: The project site is located more than a mile from the coast; therefore, in the event of a tsunami, it would not be inundated.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The San Diego County JURMP and SUSMP are the countywide water quality management plans that apply to the proposed project. As discussed under threshold X.a, the proposed project would be covered under the County's existing regional Waste Discharge Requirement Permit, which would require the proposed project to implement site design measures and BMPs to reduce or prevent runoff pollution, that would be consistent with the JRMP and the SUSMP. Therefore, the proposed project would not be in conflict with or obstruct implementation of the applicable water quality management plans for the region. In addition, the proposed project's conformance with the site design measures and BMPs of the

required permit would ensure the proposed project's contribution to potentially conflict or obstruct implementation of applicable plans would not be cumulatively considerable.

XI. LAND USE AND PLANNING -- Would the project:

a) Physically divide an established community?

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☒	No Impact

No Impact: The proposed project does not propose the introduction of new infrastructure such as major roadways or water supply systems, or utilities to the area. The proposed project is anticipated to utilize the existing onsite water connection to receive water provided by the Ramona Municipal Water District, and would replace the existing septic system to manage the wastewater created by the proposed project. Additionally, the proposed project would include improvements within the Bolder Oaks Preserve, which is owned by the County of San Diego and operated by the County's Department of Parks and Recreation as a habitat preserve. There are rural residences in the vicinity of the Preserve, but the improvements within the Preserve would not interfere with, or physically divide, nearby residences. Therefore, the proposed project would not significantly disrupt or divide the established community. In addition, because the proposed project would not disrupt or divide an established community, the proposed project would not have the potential for cumulatively considerable impacts on an established community.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The proposed project is subject to the General Plan Rural Lands Regional Category and contains lands with the Open Space-Conservation (OS-C) Land Use Designation. No residential development is allowed in this land use designation. The proposed project does not propose residential development and is consistent with the General Plan. The proposed project would include a solid surface pad with electrical and potable water hook-ups to support an RV to accommodate volunteers at the Preserve.

The General Plan establishes the OS-C Land Use Designation for large tracts of land dedicated to conservation, usually owned by an agency or jurisdiction. The OS-C Land Use Designation allows for uses including passive recreation and habitat preserves. The General Plan Land Use Element states, "Grazing and other uses or structures ancillary to the primary open space use may be permitted if they do not substantially diminish protected resources or alter the character of the area."

In addition, the following goals and policies of the Land Use Element are relevant to the proposed project:

Goal LU-6: Development – Environmental Balance. A built environment in balance with the natural environment, scarce resources, natural hazards, and the unique local character of individual communities.

Policy LU-6.7: Open Space Network: Require projects with open space to design contiguous open space areas that protect wildlife habitat and corridors; preserve scenic vistas and areas; and connect with existing or planned recreational opportunities.

The proposed project would be consistent with this open space policy because it would not diminish the existing opportunities for habitat preservation, and would connect the existing trails, add new recreational trails, and connect to the greater regional trail system.

The northern portion of the project site is within the jurisdiction of the Ramona Community Plan, and is designated as Open Space (Conservation). The southern portion is within the jurisdiction of the Lakeside Community Plan and is designated as Rural Lands (RL-40). The proposed project would be subject to the policies of both community plans.

The following goal and policy established by the Ramona Community Plan would be relevant to the proposed project:

Goal COS 2.1: A comprehensive park system providing well maintained active recreational parks areas and facilities for all ages, and passive parks preserving critical natural and ecological features of Ramona.

Policy COS 2.1.22: Require regional and local recreational facilities are in harmony with the community character.

The following goals and policies established by the Lakeside Community Plan would be relevant to the proposed project:

Community Character Goal: Foster development which will preserve a rural atmosphere and enhance a sense of spaciousness.

Environmental Goal: Provide a desirable, healthy, and comfortable environment for living, while preserving lakeside's rural atmosphere and unique resources.

Policy 2: Preserve the best natural features of the area in their natural state and avoid the creation of a totally urbanized landscape.

Policy 4: Ensure that land uses within or adjacent to recreational, natural preserve, agricultural or industrial areas are compatible with those areas.

Recreation Goal: Provide a wide variety of recreational activities and facilities that will meet the needs and enrich the lives of all the residents of Lakeside.

Policy 1: Maintain a high level of recreational programs and services appropriate to Lakeside to obtain maximum benefit from parks and recreational facilities.

Policy 15: Promote a system of trails for horseback riding, bicycling, and hiking, for both transportation and recreation.

The County Trails Program Community Trails Master Plan (2005) reflects countywide goals to increase the access to non-motorized trails throughout the region. The Countywide Goals and Policies included in this planning document were also part of the Public Facilities Element of the General Plan. The following goals and policies are relevant to the proposed project.

Goal 1: Provide a system of "non-motorized trails" (trails) that meets the needs of County residents by providing scenic and enjoyable experiences that include connections with other public facilities, such as parks, open spaces, trail systems of other jurisdictions, points of interest, and/or sites with educational or historical significance.

Policy 1.1: Continue to provide and expand the variety of trail experiences, including urban/suburban, rural, wilderness, multi-use and single use, staging areas and support facilities.

Policy 1.2: Encourage trail routes that highlight the County's recreational and educational resources, including natural, scenic, cultural and historic resources whenever possible.

Policy 1.3: Provide a variety of linear distances for users to experience such as trails that offer long distance experiences and connect with other public trail systems, points of interest or transit facilities; and trails that offer short distance and loop experiences.

Goal 2: Initiate and sustain an effective and efficient trail system, using the Regional Trails Map contained within the General Plan and a Community Trails Master Plan as the basis for future planning, coordination, implementation, and management of the trail system.

Policy 2.4: Consider long-range "connectivity" as a principal planning element for regional trails.

Goal 3: Consider both public and private lands for trail implementation.

Policy 3.1: Seek opportunities to designate or construct future trails on County-owned lands, such as parks, open space preserves and/or lands within the MSCP or other lands already under public ownership or proposed for public acquisition.

Goal 4: Strive to manage, operate, and maintain trails so that proper use is encouraged, and that user safety, resource conditions, the environment, and adjacent land uses are not compromised.

Policy 4.1: Coordinate the operations and maintenance of pathways with similar activities for adjacent roads and road rights-of-way.

Policy 4.2: Public improvement projects, such as road widening, bridge construction, and flood control projects, which may impact trails or pathways in the Regional Trail Plan or Community Trails Master Plan should incorporate such facilities in project design and construction.

Policy 4.5: Establish specific guidelines for trails in areas with active agricultural operations or active grazing lands that will minimize potential impacts and accommodate operational necessities through proper location, design, construction, and active management.

Policy 4.7: When locating specific trail segments, prioritize locations that avoid significant impacts to sensitive environmental resources.

Policy 4.8: Establish and designate trails, whenever feasible, that correspond to existing (nondesignated) trails, paths, or unpaved roadbeds that already have a disturbed tread.

Policy 4.9: Trails should be closed when conditions become unsafe or environmental resources are severely impacted. Such conditions could include soil erosion, flooding, fire hazard, environmental damage, or failure to follow an outlined management plan.

The proposed project would open parts of the Preserve to the public, and provide regionally connected trails and multiple trail experiences. As such, the proposed project would support the achievement of the goals of the Community Trails Master Plan.

The County of San Diego Parks Master Plan (2016) uses countywide park trends analysis, community input, and level of service analysis to shape the development of future parks. Community input and trend analysis showed that multi-use trails and hiking trails were the most important facilities to residents of the County. While the Boulder Oaks Preserve is not identified as a future park in the Parks Master Plan, the proposed project would help fulfill the needs and priorities addressed in the Parks Master Plan.

The proposed project would be consistent with the above-mentioned goals and policies because the proposed project would provide passive recreation for the local and regional citizens while maintaining the habitat preserve.

Finally, the County of San Diego Department of Parks and Recreation's park facilities are exempt from the Zoning Ordinance in accordance with County Ordinance No. 10095 (San Diego County 2010). Therefore, the proposed project would not result in a conflict with the applicable land use plans, ordinances, and policies, and would have a less-than-significant impact.

The past, present, and future projects in the vicinity are land use projects that do not conflict with the applicable land use policies and plans; thus, they do not result in a cumulatively considerable impact. The proposed project would not result in a potential cumulative impact related to an environmental effect due to a conflict with an applicable plan because there would not be a cumulative impact in the communities in which the cumulative projects are located (see Section XXI for a comprehensive list of the projects considered).

XII. MINERAL RESOURCES -- Would the project:

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

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The lands within the project site have not been classified by the California Department of Conservation – Division of Mines and Geology (Update of Mineral Land Classification: Aggregate Materials in the Western San Diego Production-Consumption Region, 1996). The project site is underlain by Cretaceous crystalline rocks and Upper Jurassic metavolcanics which may contain mineral resource deposits suitable for crushed rock (County of San Diego 2008). However, due to the expense of mining and processing of crushed rock combined with transportation costs, crushed rock operations are restricted to urbanized areas within the Western San Diego Consumption Region of the County. Additionally**,** the Preserve is zoned Open Space – Conservation, and mining is not a permitted use in this zone.

The development of the proposed project at the Preserve would not change the zoning and thus would not result in the loss of mineral resources that were previously available. Therefore, no potentially significant loss of availability of a known mineral resource of value to the region and the residents of the State would result from project implementation. Moreover, because the resources are not considered significant mineral deposits, the proposed project would not contribute to a potentially significant cumulative impact.

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

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☒	No Impact

No Impact: The project site is not in an area that has Mineral Resource Zone (MRZ)-2 designated lands or within 1,300 feet of such lands (DOC 1996). MRZ-2 denotes areas designated for the managed production of mineral resources. See also the discussion under threshold XII.a above.

The project site does not contain MRZ-2 areas and does not currently contain active mineral extraction. The proposed project would not result in the loss of availability of locally important mineral resource(s).Therefore, no potentially significant loss of availability of a known mineral resource of locally important mineral resource recovery (extraction) site delineated on a local general plan, specific plan, or other land use plan would result from project implementation. The proposed project would not result in a loss of a known mineral resource; thus, it would not contribute to the cumulative loss of a mineral resource.

XIII. NOISE -- Would the project result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The existing facilities on the project site include a residence, a ranger station, a volunteer pad, and a restroom facility. Sources of noise currently consist of vehicles from the resident and rangers working on site, maintenance equipment used for routine brush clearing and general operational maintenance, and occasional SDG&E equipment to maintain their easement. The proposed project proposes maintenance of existing and the construction of new trails (including ADA-compliant trails, equestrian trails, rehabilitated existing trails, and closure of some existing trails) and supporting facilities (restrooms, staging areas, and volunteer pad) and would be occupied by daytime hikers, walkers, mobility device users, and horseback riders. A review of mapping and aerial photography of the site vicinity completed by ICF on October 18, 2018, indicates that the surrounding area supports primarily open space and is occupied by campgrounds, private camp facilities, parks, and very low density residential properties, the latter of which are typically located on large lots.

The proposed project would not involve any uses that may create substantial temporary or periodic increases in ambient noise levels in the project vicinity including, but not limited to, extractive industry; outdoor commercial or industrial uses that involve crushing, cutting, drilling, grinding, or blasting of raw materials; truck depots, transfer stations, or delivery areas; or outdoor sound systems. Periodic maintenance of the new trails and supporting facilities would be similar to the maintenance activities (mowing, trimming, etc.) that currently occur for existing facilities and would not involve high-intensity noise sources. All maintenance-related noise would be temporary and would only occur for a short time period at any single location.

Also, general construction noise is not expected to exceed the construction noise limits of the County of San Diego Noise Ordinance (Section 36.409), which are derived from State regulations to address human health and quality of life concerns. Construction operations would occur only during permitted hours of operation pursuant to Section 36-410. Also, it is not anticipated that the proposed project would operate construction equipment in excess of 75 decibels (dB) for more than 8 hours during a 24-hour period. Therefore, the proposed project would not result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity.

The proposed project involves the following permanent noise sources that may increase the ambient noise level: increased traffic on local roadways, activities at the proposed new parking areas, and users of the trails. As indicated in the discussion below, the proposed project would not expose existing or planned noise-sensitive areas in the vicinity to a substantial permanent increase in noise levels that exceed the allowable limits of the County of San Diego General Plan, County of San Diego Noise Ordinance, and other applicable local, State, and Federal noise control regulations.

Also, the proposed project is not expected to expose existing or planned noise-sensitive areas to direct noise impacts. Project-related vehicular traffic increases on nearby roadways are estimated to be up to 221 ADT. The proposed project's traffic contributions would not double the existing traffic volumes, and, therefore, traffic noise increases would be less than 3 dB. Because 3 dB is considered to be a barely perceptible noise increase, the direct noise impacts on existing or planned noise-sensitive land uses would be less than significant. The three proposed parking areas would be small (24 total vehicle spaces) and would generate noise only sporadically as trail users come and go; as a result, average noise levels would be very low. The trails themselves would be passive uses and not open to motor vehicles. The only noise from the trails would generally be from the conversations of trail users, which would generate very low levels of noise. Given the low noise levels and the distances to the closest offsite receptors, operational noise from onsite activities would not increase existing ambient noise levels by 10 A-weighted decibels (dBA) or more. Studies completed by the Organization of Industry Standards (ISO 362, ISO 1996 1-3, ISO 3095, and ISO 3740-3747) show that an increase of 10 dB is perceived as twice as loud and is perceived as a significant increase in the ambient noise level.

The proposed project would not result in cumulative noise impacts based on the evaluation of past, present, and future projects in the vicinity. It was determined that the proposed project in combination with a list of past, present, and future projects would not expose existing or planned noise-sensitive areas to noise 10 dB Community Noise Equivalent Level (CNEL) over existing ambient noise levels. Refer to Section XXI for a comprehensive list of the projects considered.

The proposed project would not expose people to potentially significant noise levels that exceed the allowable limits of the County of San Diego General Plan, County of San Diego Noise Ordinance, and other applicable standards for the following reasons:

General Plan – Noise Element

The County of San Diego General Plan, Noise Element (Tables N-1 and N-2) addresses noise-sensitive areas and requires an acoustical study be prepared for any use that may expose noise-sensitive areas to noise in excess of 60 dBA CNEL for single residences (including senior housing, convalescent homes), and 65 dBA CNEL for multi-family residences (including mixed-use commercial/residential). Moreover, if the proposed project exceeds the 60 or 65 dBA CNELs, modifications must be made to the proposed project to reduce noise levels. Noise-sensitive areas include residences, hospitals, schools, libraries or similar facilities as mentioned in Tables N-1 and N-2. Project implementation is not expected to expose existing or planned noise sensitive areas to road, airport, heliport, railroad, industrial, or other noise in excess of 60 or 65 dBA CNEL. This is based on ICF's review of projected County noise contour maps (CNEL 60 dB(A) contours) and the general location of the project site in a sparsely developed area, away from major arterials, freeways, railroads, airports, and industrial uses. Therefore, the proposed project would not expose people to potentially significant noise levels that exceed the allowable limits of the County of San Diego General Plan, Noise Element.

Noise Ordinance – Section 36.404

Non-transportation noise generated by the proposed project is not expected to exceed the standards of the County of San Diego Noise Ordinance (Section 36.404) at or beyond the proposed project's property line. The site is zoned open space, which has a 1-hour average sound limit of 50 dBA. The adjacent properties are zoned agricultural and do not have a specifically defined 1-hour average sound limit; however, a limit of 50 dBA is assumed based

on the presence of residential uses. Based on review by ICF on October, 18, 2018, the proposed project's noise levels are not anticipated to impact adjoining properties or exceed the County Noise Standard, which is 50 dBA, because the proposed project does not involve any noise-producing equipment that would exceed applicable noise levels at the adjoining property line.

Noise Ordinance – Section 36.409

The proposed project would not generate construction noise that may exceed the standards of the County of San Diego Noise Ordinance (Section 36.409). Construction operations would occur only during permitted hours of operation pursuant to Section 36.409. Also, it is not anticipated that the proposed project would operate construction equipment in excess of an average sound level of 75 dBA between the hours of 7 a.m. and 7 p.m. due to the limited use of mechanized construction equipment, the relatively small areas to be constructed, and the large distances (typically hundreds, or even thousands, of feet) to the nearest offsite sensitive receptors, depending on the location under construction.

Finally, the proposed project's conformance to the County of San Diego General Plan Noise Element and County of San Diego Noise Ordinance (Section 36-404 and 36.410) ensures the proposed project would not create cumulatively considerable noise impacts, because the proposed project would not exceed the local noise standards for noise-sensitive areas and would not exceed the applicable noise level limits at the property line or construction noise limits, derived from State regulation to address human health and quality of life concerns. Therefore, the proposed project would not contribute to a cumulatively considerable exposure of persons or generation of noise levels in excess of standards established in the local general plan, noise ordinance, and applicable standards of other agencies.

b) Generation of excessive groundborne vibration or groundborne noise levels?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The proposed project does not propose any of the following land uses that can be impacted by groundborne vibration or groundborne noise levels.

1. Buildings where low ambient vibration is essential for interior operation, including research and manufacturing facilities with special vibration constraints.
2. Residences and buildings where people normally sleep including hotels, hospitals, residences and where low ambient vibration is preferred.
3. Civic and institutional land uses including schools, churches, libraries, other institutions, and quiet office where low ambient vibration is preferred.
4. Concert halls for symphonies or other special use facilities where low ambient vibration is preferred.

Also, the proposed project does not propose any major, new or expanded infrastructure such as mass transit, highways or major roadways or intensive extractive industry that could generate excessive groundborne vibration or groundborne noise levels on site or in the surrounding area.

Construction activities such as ground clearing and grading would generate some localized temporary groundborne vibration, but the proposed project would not use high-intensity methods such as pile driving or blasting. Given the relatively small areas to be constructed and the large distances (typically hundreds, or even thousands, of feet) to the nearest offsite sensitive receptors, construction would not generate excessive vibration levels.

Therefore, the proposed project would not generate excessive groundborne vibration or groundborne noise levels on a project or cumulative level.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☒	No Impact

No Impact: The proposed project is not located within an ALUCP for airports or within 2 miles of a public airport or public use airport. The proposed project is located within the Airport Influence Area, Review Area 2, and the Overflight Notification Area for the MCAS Miramar; however, the proposed project is not located within a CNEL 60 dB noise contour (ALUC 2011). Refer to threshold IX.e for a further discussion of potential safety impacts related to MCAS Miramar. Therefore, the proposed project would not expose people residing or working in the project area to excessive airport-related noise levels.

In addition, based on the list of past, present, and future projects there are no new or expanded public airports projects in the vicinity that may extend the boundaries of the CNEL 60 dB noise contour. Refer to Section XXI for a comprehensive list of the projects considered. Therefore, the proposed project would not expose people residing or working in the project area to excessive airport-related noise on a project or cumulative level.

XIV. POPULATION AND HOUSING -- Would the project:

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

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The proposed project would construct one new volunteer pad that would accommodate up to two additional volunteers at the site; however, the volunteer pad is considered an operations facility with an electric hook-up and would not be considered a residential development. Volunteer pads are for temporary use by volunteers during their term of service. The proposed project would not induce substantial population growth in an area because it does not propose any physical or regulatory change that would remove a restriction to or encourage population growth in an area including, but limited to, the following: new or extended infrastructure or public facilities; new commercial or industrial facilities; large-scale residential development; accelerated conversion of homes to commercial or multi-family use; or regulatory changes such as General Plan amendments, specific plan amendments, zone reclassifications, sewer or water annexations, or Local Agency Formation Commission (LAFCO) annexation actions. Therefore, the proposed project would not induce substantial unplanned population growth in the project area, nor would it result in cumulative impacts related to unplanned population growth when considered in combination with the cumulative projects in the area.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☒	No Impact

No Impact: One residence (ranger residence) is located within the project boundary. The proposed project would not displace the existing ranger residence on the site. Therefore, the ranger would not be displaced as part of the proposed project, and construction of replacement housing elsewhere would not be necessary.

XV. PUBLIC SERVICES -- Would the project:

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

i. Fire protection?

ii. Police protection?

iii. Schools?

iv. Parks?

v. Other public facilities?

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant with Mitigation Incorporated: The proposed project involves the expansion of an existing governmental facility, the Boulder Oaks Preserve, which would provide public access to multi-use trails and a passive recreational area. The construction of the proposed project is not necessary to maintain acceptable service ratios, response times, or other performance service ratios or objectives for any public services. The proposed project is being conducted to provide additional recreational facilities for the existing and planned population. Because the proposed project is not growth accommodating, new or physically altered government facilities, including fire stations, police stations, schools, other park facilities, or other public facilities, would not be required. The proposed project would include the construction of new primitive trails, an ADA accessible trail, staging areas, a reconstructed restroom facility, a new volunteer pad, shade structures, and improvements to the access road. The proposed project would also open the previously closed Preserve to the public. This Initial Study outlines the potential environmental impacts resulting from the proposed project. The new facilities would not result in a substantial adverse physical impact because all related impacts from the proposed recreation facilities have been mitigated to a level below significance. Mitigation incorporated into this Initial Study include **MM-BIO-1, MM-BIO-2, MM-BIO-3, MM-BIO-4, MM-BIO-5,** and **MM-BIO-6,** which would mitigate impacts on biological resources to below a significant level; **MM-CUL-1, MM-CUL-2, MM-CUL-3,** and **MM-CUL-4,** which would reduce impacts on historical resources, archaeological resources, and tribal cultural resources; **MM-GHG-1,** which would reduce impacts associated with greenhouse gas emissions; and **MM-TRA-1,** which would reduce cumulative impacts on roadways associated with the proposed project to less than significant. Refer to sections IV. *Biological Resources*, V. *Cultural Resources*, VIII. *Greenhouse Gas Emissions*, XVII. Transportation, and XVIII. *Tribal Cultural Resources*, for more information. This proposed project, in combination with cumulative projects in the vicinity, would not contribute to more demand on public services, and would not have the potential for cumulatively considerable adverse physical effects on the environment. The proposed project would provide

more access to public parks, thus reducing overall demand on regional parks; therefore, it would not result in a cumulatively considerable impact.

XVI. RECREATION -- Would the project:

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant with Mitigation Incorporated: The proposed project does not propose any residential use, including, but not limited to, a residential subdivision, mobile home park, or construction for a single-family residence that may increase the use of existing neighborhood and regional parks or other recreational facilities in the vicinity. The proposed project would open the Boulder Oaks Preserve to the public as a recreational facility and would develop several features in the Preserve, including new trails, a reconstructed restroom facility, staging areas, and a volunteer pad, as well as make access road improvements. By opening the Preserve to the public, the proposed project would increase the use of the Preserve and also the need for maintenance at the site.

The new park facilities were designed in a sustainable manner to reduce potential physical deterioration. The proposed project would include two volunteers and existing staff to conduct maintenance activities at the park on a regular basis, including cleaning debris, trail maintenance, vegetation management, and invasive species management. As outlined in this Initial Study, the new facility would not result in adverse physical effect on the environment because all related impacts from the proposed recreation facilities have been mitigated to a level below significance. Refer to sections IV. *Biological Resources*, V. *Cultural Resources*, VIII. *Greenhouse Gas Emissions*, XVII. Transportation, and XVIII. *Tribal Cultural Resources*, for more information. Additionally, the proposed project would open a new recreational facility to the public, which would reduce the demand on other similar recreational facilities in the region. Therefore, the proposed project would not result in significant impacts related to the physical deterioration of a recreational facility. Because the proposed project is itself a recreational facility, it would reduce the demand on regional recreational facilities and would not have a cumulatively considerable contribution to a cumulative impact.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant With Mitigation Incorporated: The proposed project involves opening the Boulder Oaks Preserve to the public and developing additional trails and improvements to provide recreational facilities. However, as outlined in this environmental analysis, the new facilities would not result in adverse physical effect on the environment because all related

impacts from the proposed recreation facilities have been mitigated to a level below significance. Refer to sections IV. *Biological Resources*, V. *Cultural Resources*, VIII. *Greenhouse Gas Emissions*, XVII. Transportation, and XVIII. *Tribal Cultural Resources*, for more information. The proposed project would provide an additional recreational facility in the region, which would reduce overall demand on the existing regional parks and facilities, thereby reducing deterioration of existing regional facilities. Therefore, the proposed project would result in a less-than-significant impact due to the construction of recreational facilities. Additionally, because the proposed project would not result in significant adverse physical effects on the environment, and because it would improve the regional park system, the proposed project would not result in a cumulatively considerable impact.

XVII. TRANSPORTATION -- Would the project:

a) Conflict with a program plan, ordinance or policy addressing the performance of the circulation system, including transit, roadway, bicycle and pedestrian facilities?

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant With Mitigation Incorporated: The County of San Diego Guidelines for Determining Significance for Traffic and Transportation (Guidelines) establish measures of effectiveness for the performance of the circulation system. These Guidelines incorporate standards from the County of San Diego Public Road Standards and Mobility Element, the County of San Diego Transportation Impact Fee Program, and the Congestion Management Program.

Construction activities for the proposed project is planned for three phases. Phase 1 includes the grading and development of the staging areas and structures, which would occur over 17 days and would utilize three trucks and other construction equipment. Phases 2 and 3 involve the development of the trails, which would be constructed using hand tools. Phases 2 and 3 are anticipated to occur over several years, depending on available funding, and would require one to two trucks per day for construction. Due to the small number of vehicles and the temporary nature of the construction activities, the three phases of construction are not anticipated to result in significant impacts on the circulation system, including bicycle and pedestrian facilities.

A Transportation Impact Analysis (TIA) memorandum was prepared by Chen Ryan, on February 14, 2019, to identify vehicular impacts associated with the operation of the proposed project. The detailed technical report can be found in Appendix A. The TIA was performed in accordance with the County of San Diego Traffic Impact Guidelines.

Based on the findings of the TIA, operation of the proposed project would result in a total of 42 daily trips on a weekday, including 10 AM peak hour trips and 11 PM peak hour trips. Within the County of San Diego, traffic-related impacts are typically only analyzed during weekdays; however, an analysis of Saturday conditions was also included in the TIA because county parks may generate over five times the number of trips on Saturdays as on a typical weekday (as provided in the Institute of Transportation Engineers' Trip Generation Manual, 9th Edition, 2012). The TIA concluded the proposed project would result in 221 daily trips on a typical Saturday, including 40 midday peak hour trips (23 in and 17 out). It is considered a significant impact when the proposed project traffic adds 225 or more daily trips to a two-lane highway that carries over 22,900 average daily trips. Because the proposed project would result in a maximum of 221 daily trips on a weekend day, it would not represent an impact on Mussey Grade Road (a two-lane roadway) or SR-67 (a two-lane highway).

The Mussey Grade Road/SR-67 intersection operates at LOS E and F during the AM and PM weekday peak hours, respectively, which is failing operations during the weekday PM peak hour at this intersection. This intersection operates at a LOS E during the Saturday midday peak hour. The proposed project traffic from the proposed improvements would further degrade the already failing operations in the weekday PM peak hour. However, based on the County of San Diego's

Unsignalized Intersection Impact Criteria, it is considered a direct impact if the proposed project adds five or more peak hour trips to a critical movement at the intersection. As noted in Tables 1 and 2 of the TIA, the proposed improvements are not anticipated to generate more than 4 peak hour directional trips during the weekday PM peak hour at the critical movement. Additionally, it is considered a direct impact if the proposed project adds 20 or more peak hour trips to a critical movement at the intersection when the intersections anticipated to operate at LOS E. The weekday AM peak and Saturday midday peak hour is anticipated to generate a maximum of 2 and 12 peak hour directional trips, respectively, at the critical movement. Therefore, the additional traffic generated by the proposed improvements would be below the critical value threshold in all scenarios, and would not result in a direct significant impact on the Mussey Grade Road /SR-67 intersection. The proposed project would not have a significant impact related to a conflict with any performance measures establishing measures of effectiveness of the circulation system because the addition of the proposed project's traffic would not exceed County roadway segment and intersection LOS standards and thresholds. The proposed project trips would not result in a substantial increase in the number of vehicle trips, volume of capacity ratio on roads, or congestion at intersections in relation to existing conditions. In addition, the proposed project would not conflict with policies related to non-motorized travel such as mass transit, pedestrian, or bicycle facilities.

Four cumulative projects were identified within the vicinity of the proposed project study area. None of the cumulative projects in the vicinity are residential, commercial, or industrial uses that would generate large numbers of vehicle trips. However, the proposed projects may contribute some vehicle trips to the surrounding roadways. The additional traffic generated from the proposed improvements would increase delay to the currently failing Mussey Grade Road/SR-67 intersection. These project trips therefore contribute to a potential significant cumulative impact and mitigation is required. To reduce this cumulative impact, the TIA recommends the proposed project participate in the County of San Diego Transportation Impact Fee (TIF) program through fee contributions (mitigation measure **MM-TRA-1**). The potential growth represented by this project was included in the growth projections upon which the TIF program is based.

> **MM-TRA-1:** The proposed project shall contribute its fair-share fee to the TIF program prior to opening the Preserve for public use.

By ensuring TIF funds are spent for the specific roadway improvements identified in the TIF Program, the CEQA mitigation requirement is satisfied and the Mitigation Fee nexus is met. Therefore, payment of the TIF, which would be required prior to opening the Preserve to the public, in combination with other components of the program described above, would mitigate potential cumulative traffic impacts to less than significant.

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

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant With Mitigation Incorporated: Based on the findings of the TIA prepared by Chen Ryan (Appendix A), the proposed project would not result in impacts on the level of service of Mussey Grade Road or SR-67, and would not result in a direct significant impact on the Mussey Grade Road /SR-67 intersection. In addition, the proposed project would not conflict with policies related to non-motorized travel such as mass transit, pedestrian, or bicycle facilities. The TIA identified a potential cumulative impact on the currently failing Mussey Grade Road/SR-67 intersection due to additional trips generated by the proposed project, which could conflict with LOS standards established for the region. However, implementation of **MM-TRA-1,** which requires participation in the County of San Diego TIF program through fee contributions, would reduce the potential cumulative impact. Therefore, based on the findings of the TIA, the proposed project would not conflict with existing County LOS standards, and the direct and cumulative impact would be less than significant.

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

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The proposed project would include improvements to the Boulder Oaks Preserve access road entrance off of Mussey Grade Road. The improvements would include concrete or AC along the entry apron to improve the stability for vehicles. The proposed project has received an approved Design Exception from the County of San Diego DPW for the entrance to the access road from Mussey Grade Road for an exception to the sight distance standards. Sight distance is blocked at the intersection of the access road and Mussey Grade Road by a grove of mature oak trees and other trees, and because the County of San Diego is actively trying to preserve oak trees, DPR requested a deviation from the standard 450-foot sight distance to a 275-foot sight distance. The Design Exception was approved on October 12, 2016 (Diss pers. comm.). The proposed project would also include widening an existing portion of the access road that has a sharp turn to 24 feet to accommodate emergency vehicles and allow two vehicles to safely pass. The proposed project would not alter traffic patterns or roadway design, place incompatible uses (e.g., farm equipment) on existing roadways, or create or place curves, slopes, or walls that impede adequate site distance on a road. Therefore, the proposed project would result in less-than-significant project impacts. The

proposed project would not generate cumulatively considerable impacts related to substantially increasing hazards due to geometric design features.

d) Result in inadequate emergency access?

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant With Mitigation Incorporated: The proposed project would include improvements to the Boulder Oaks Preserve access road to ensure it is accessible for emergency response vehicles. The proposed project would not close roads or access points for the project site. The TIA determined that because the proposed project is only anticipated to generate a low number of daily trips to the Boulder Oaks Preserve facility, no new direct emergency access–related impacts would be associated with the proposed improvements. In addition, the proposed project would require a Wildfire Site Evacuation Plan to be prepared for the project site. The Wildfire Site Evacuation Plan would provide additional measures and steps for fire safety procedures. DPR would continue to work with OES and County Fire Department to coordinate emergency access and evacuation procedure as necessary. Therefore, the proposed project would result in a less-than-significant impact related to inadequate emergency access.

Four cumulative projects were identified within the vicinity of the project study area. None of the cumulative projects within a mile of the project site are residential, commercial, or industrial uses that would generate large numbers of vehicle trips. One cumulative project is located approximately 1.4 mile north of the project site, at the corner of SR-67 and Highland Valley Road; if approved, that project would generate residential uses and additional traffic in the area. The additional traffic generated from the proposed project improvements would increase delay to the currently failing Mussey Grade Road/SR-67 intersection. Therefore, the proposed project would result in a cumulative contribution to delays near SR-67, with potential cumulative impacts associated with inadequate emergency access. Implementation of mitigation measure **MM-TRA-1** would reduce potential cumulative impacts to less than significant.

XVIII. TRIBAL CULTURAL RESOURCES -- Would the project:

a) Cause a substantial adverse change in the significance of a tribal cultural resource, as defined in Public Resources Code §21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

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

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

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less than Significant with Mitigation Incorporated: Native American participation and contact was conducted during the previous inventories for the Preserve, and the results have been summarized in the Cultural Resources Impact Assessment for the Boulder Oaks Preserve Public Access Plan, and are included below.

A letter was sent to the Native American Heritage Commission (NAHC) on February 23, 2007, for the southern 1,268 acres of the Preserve. A search of the NAHC Sacred Lands File failed to indicate the presence of resources in the immediate area of the proposed project. On March 19, 2007, letters were sent to the local Native American contacts provided by the NAHC requesting further consultation. On March 21, 2007, an email response from Clint Linton of the Santa Ysabel Band of Diegueño Indians was received. Mr. Linton requested in his response that a Native American Monitor be present during each survey. Mr. Linton also provided an analysis of Kumeyaay interpretation of Yoni features.

ICF archaeologist Robin Hoffman, MA, sent a letter to the NAHC on February 6, 2013, for the then recently acquired north parcel (752 acres) requesting a review of the Sacred Lands File. A response letter from Dave Singleton of the NAHC, dated February 12, 2013, was received via fax the same day. The search of the Sacred Lands files by the NAHC did not indicate the presence of Native American sacred lands within the immediate vicinity of the Preserve but did include a list of 20 local Native American contacts who may have additional information. However, the NAHC response letter stated that the negative results of the search were for the "immediate project areas of the 'Community of Templeton'." As a result, on February 19, 2013, ICF requested confirmation from NAHC that the Sacred Lands File results pertained to the current study. Singleton replied the same day with a revised results letter referring to the north parcel; this letter included the same Native American contacts and also indicated that the Sacred

Lands File has no record of any Native American sacred lands within the immediate vicinity of the north parcel.

On February 22, 2013, ICF sent letters to each of the 20 Native American contacts provided by the NAHC. The letters described the proposed project, cultural resources survey, and NAHC and SCIC records search results. Also, the letters invited contacts to share, if so desired, information that they may have about any Native American cultural resources in the vicinity of, or in, the north parcel. In addition, the County sent consultation letters to those traditionally and culturally affiliated with the area on September 22, 2015. No responses were received requesting consultation during the 30-day review period.

During the field survey for the ADA trail in 2018, Ms. Carmen Lucas of the Kwaaymii Band of Laguna Indians was present. The purpose of Ms. Lucas' presence during the survey was to solicit input from Native American representatives on the proposed trail system and identify any Native American resources of concern. Ms. Lucas asked that the trails avoid cultural resources whenever possible and that monitoring by Native Americans be conducted when trails were constructed.

Based on the request of Ms. Carmen Lucas of the Kwaaymii Band of Laguna Indians, as well as the cultural sensitivity of the project area, mitigation measures **MM-CUL-2** and **MM CUL-3** were developed. Please see Section V. *Cultural Resources*, for a description of these mitigation measures. The implementation of **MM-CUL-2** and **MM CUL-3** would reduce impacts to less than significant.

XIX. UTILITIES AND SERVICE SYSTEMS -- Would the project:

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment facilities or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant with Mitigation Incorporated: The proposed project, including the proposed septic system capacity expansion and water pipeline connection, does not include new or expanded municipal water or wastewater treatment facilities. The proposed septic system would replace the existing septic system in the same location, and would provide additional capacity to meet the needs of a larger restroom facility. The potential effects related to the proposed septic system have been analyzed as a component of the proposed project throughout this document. The proposed project would not result in significant impacts related to the expansion of a wastewater treatment system because all related impacts from the proposed project have been mitigated to a level below significance. Mitigation incorporated into this Initial Study include **MM-BIO-1, MM-BIO-2, MM-BIO-3, MM-BIO-4, MM-BIO-5,** and **MM-BIO-6,** which would mitigate impacts on biological resources to below a significant level; **MM-CUL-1, MM-CUL-2, MM-CUL-3,** and **MM-CUL-4,** which would reduce impacts on historical resources, archaeological resources, and tribal cultural resources to below a significant level; **MM-GHG-1,** which would reduce impacts associated with greenhouse gas emissions; and **MM-TRA-1,** which would reduce cumulative impacts on roadways associated with the proposed project to less than significant. Refer to sections IV. *Biological Resources*, V. *Cultural Resources*, VIII. *Greenhouse Gas Emissions*, XVII. *Transportation*, and XVIII. *Tribal Cultural Resources*, for more information. In addition, the proposed project does not require the construction or expansion of municipal water or wastewater treatment facilities, because existing treatment facilities have the capacity to support the proposed project (see threshold XIX.b). Therefore, the proposed project would not require any construction of new or expanded municipal water or wastewater treatment facilities, which could cause significant environmental effects.

The proposed project, including the proposed septic expansion and water pipeline connection, involves new stormwater drainage facilities during construction and operation. The SQMP, as discussed in the project description and Section X, *Hydrology and Water Quality*, would include BMPs that would be implemented during construction. In addition post-construction BMPs would be implemented. The proposed project would result in an increase of 25 square feet of additional impervious surfaces, in addition to the minor improvements to the Boulder Oaks Preserve access road at the entrance from Mussey Grade Road and certain portions that are not stable, which would be upgraded to concrete or asphaltic concrete. New or expanded drainage facilities would not be required to support the proposed project.

Existing electrical facilities at the project site would be upgraded to better serve the proposed improvements. At volunteer pad Option A, the existing electrical lines would be extended from the existing ranger station by approximately 50 feet to connect to the proposed volunteer pad.

At volunteer pad Option B, the existing electrical box at the barn (at a maximum of 300 feet away) would be upgraded to serve this volunteer pad. The existing residence and ranger station, and the proposed reconstructed restroom, would continue to be served by existing electric connections. Electric and water use may increase due to an increase in daily visitors and the volunteer pad. However, utilities would not be expanded to other areas beyond the disturbed/developed area of the Preserve, which already contains utility hook-ups. The proposed project would not substantially increase demand on existing utilities because it would not change the use of the recreational facility to any other uses that would demand more water or electrical use, such as residential or commercial uses. Therefore, the proposed project would not result in the environmental impacts due to the reconstruction or relocation of water, wastewater, or electrical facilities, or result in related cumulatively considerable impacts.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: The proposed project requires water service from the Ramona Municipal Water District (RMWD). The Boulder Oaks Preserve is currently served by the RMWD for the ranger station, ranger residence, and restroom facility.

The proposed project includes expanding the restroom to include an additional restroom stall. There would be approximately 42 daily visitors on a weekday and 221 daily visitors on a weekend day anticipated at the project site. The proposed improvements represent a minor increase in water demand for the proposed site. Furthermore, the improvements to the restroom would include low flow fixtures to comply with California water conservation regulations. According to the RMWD's 2015 Urban Water Management Plan (UWMP), the RMWD delivered a total of 4,653 acre-feet. The projected water delivery for the year 2020 is 7,328 acre-feet per year (RMWD 2015). The 2015 UWMP concluded supply would meet demand for normal, single dry, and multiple dry years through the year 2040. The County would consult with the RMWD during the design and implementation phase of the proposed project. Therefore, the proposed project would have sufficient water supplies available. Because RMWD has concluded the available water supply would meet demand of projected growth for normal, single dry, and multiple dry years through 2040, this would include the proposed project as well as the listed cumulative projects, and the proposed project would not result in a cumulatively considerable impact.

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

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☒	No Impact

No Impact: Portable restroom facilities would be provided for workers during construction of the proposed project. Wastewater generated at the portable restroom facilities would be minimal and not be disposed of at the project site, but would be hauled away, and the waste disposed at an appropriate facility in accordance with applicable regulations.

The proposed project with the onsite advanced sewer treatment system would rely completely on an OWTS (i.e., septic system); therefore, the proposed project would not interfere with any wastewater treatment provider's service capacity. Because the proposed project would not contribute any wastewater to the wastewater treatment system, the proposed project would not contribute to a cumulatively considerable impact on the regional wastewater treatment system.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant Impact: Implementation of the proposed project would generate solid waste. All solid waste facilities, including landfills, require solid waste facility permits to operate. In San Diego County, the County Department of Environmental Health, Local Enforcement Agency issues solid waste facility permits with concurrence from the California Integrated Waste Management Board (CIWMB) under the authority of the Public Resources Code (Sections 44001-44018) and California Code of Regulations Title 27, Division 2, Subdivision 1, Chapter 4 (Section 21440et seq.). There are five permitted active landfills in San Diego County with remaining capacity. Therefore, there is sufficient existing permitted solid waste capacity to accommodate the proposed project's solid waste disposal needs. Due to the sufficient capacity of solid waste landfills in the region, the proposed project, in combination with the listed cumulative projects (see Section XXI), would not result in a cumulatively considerable impact on solid waste infrastructure.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less than Significant Impact: In San Diego County, the County Department of Environmental Health, Local Enforcement Agency issues solid waste facility permits with concurrence from the CIWMB under the authority of the Public Resources Code (Sections 44001-44018) and California Code of Regulations Title 27, Division 2, Subdivision 1, Chapter 4 (Section 21440 et seq.).

Implementation of the proposed project would generate solid waste. All solid waste facilities, including landfills, require solid waste facility permits to operate. The proposed project would

deposit all solid waste at a permitted solid waste facility and, therefore, would comply with Federal, State, and local statutes and regulations related to solid waste. All cumulative projects in the region would be required to comply with the aforementioned regulations associated with solid waste facilities intended to manage and reduce solid waste disposal. Therefore, in combination with the cumulative projects, the proposed project would not result in cumulatively considerable impacts related to conflict with existing State, local, and Federal statutes and regulations.

XX. WILDFIRE – If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

☐ **Potentially Significant Impact** ☒ **Less than Significant Impact**

☐ Less Than Significant With Mitigation Incorporated ☐ No Impact

Less Than Significant Impact: As discussed under threshold IX.e, the proposed project would not conflict with the Operational Area Emergency Plan, the Multi-Jurisdictional Hazard Mitigation Plan, the San Diego County Nuclear Power Station Emergency Response Plan, the Oil Spill Contingency Element, the Emergency Water Contingencies Annex and Energy Shortage Response Plan, or the Dam Evacuation Plan for the County of San Diego. The proposed project also would not conflict with the Ramona Community Wildfire Protection Plan, which identifies areas of potential risk and provides hazard reduction priorities. The proposed project would not conflict with any of the priorities and would not conflict with mapped evacuation routes. In addition, a Wildfire Site Evacuation Plan would be prepared for the project site, which would include guidance for emergency response and evacuation in the case of a wildland fire (refer to Section IX. *Hazards and Hazardous Materials,* for further discussion of the contents of the Wildfire Site Evacuation Plan). This Wildfire Site Evacuation Plan would be developed to be consistent with the existing Operational Area Emergency Plan, the Multi-Jurisdictional Hazard Mitigation Plan, and the Ramona Community Wildfire Protection Plan, which provide guidance for regional emergency response. The Boulder Oaks Wildfire Site Evacuation Plan would provide evacuation routes, safety procedures, and emergency contact information to assist staff during an evacuation of the park facility. The Site Evacuation Plan would only apply to the Preserve boundaries and would supplement and not conflict with the OES and the Operational Area Emergency Plan evacuation planning and guidance for the region. Therefore, the proposed project would not substantially impair an adopted emergency response plan or emergency evacuation plan. The proposed project would not contribute to a cumulatively considerable impact because future projects are required to comply with the County Codes and emergency evacuation plans. Potential impacts related to conflict with an adopted emergency response or emergency evacuation plan would be less than significant.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

☐ **Potentially Significant Impact** ☒ **Less than Significant Impact**

☐ Less Than Significant With Mitigation Incorporated ☐ No Impact

Less Than Significant Impact: The Preserve is located within a Very High Fire Hazard Severity Zone as designated by CAL FIRE in their *San Diego County Very High Fire Hazard Severity Zones in LRA* (CAL FIRE 2009). The conditions of the Preserve, including the climate and

vegetation, make it suitable for potential wildland fires, and the Preserve has burned during wildland fire events in the past. The Preserve currently has a groundwater well and two water tanks located near the ranger station, which are used for fire suppression. The park road and truck trails in the southern portion of the Preserve are periodically managed for brush encroachment, in an effort to keep the roads open for wildland firefighting efforts.

The proposed project would improve existing facilities and develop trails for recreational use throughout the Preserve. One additional volunteer pad would allow for temporary occupation of an RV on site; otherwise, the proposed project would not allow for additional permanent residential use on the Preserve. The primary use would be daytime passive recreation by walkers, hikers, bicyclists, and equestrian users. The proposed project would not change existing conditions or introduce new conditions to the project site that would exacerbate the existing high fire threat. However, by opening the Preserve up to the public, the proposed project could expose more people to the threat of wildfire, and the pollutant concentrations that result from wildfire events.

DPR would implement several standard operating procedures as part of the proposed project that would reduce the risk of wildfire spread on the project site and would ensure the safety of visitors, workers, and residents at the Preserve. Firstly, the proposed project would comply with County Code of Regulatory Ordinances, Title 3, Division 5, Chapter 3 and Appendix II-A of the Uniform Fire Code. DPR currently complies with the Defensible Space for Fire Protection Ordinance (2011), and would continue to comply with the requirements of the ordinance as part of the proposed project. The ordinance requires combustible vegetation; dead, dying, or diseased trees; green waste; rubbish; or other flammable materials to be cleared within 30 feet of the property line and 10 feet of each side of a highway, private road, or driveway in order to maintain defensible space (County of San Diego 2011). The proposed project is also required to comply with the County of San Diego Fire Service Conditions stipulated by the County Fire Services staff (i.e., County Fire Marshall) upon review and approval of the proposed project. Secondly, as part of operations of the proposed project, signs would be clearly posted containing park rules and regulations that would be enforced at the Preserve, in compliance with San Diego County Code of Regulatory Ordinances, Title 4 Public Property, Division 1. Parks and Recreation, Chapter 1. County Parks and Recreation. These rules would be enforced by park ranges and include, but are not limited to, the following:

- Smoking is prohibited.
- Campfires and open flames are prohibited.
- No person is allowed to use, transport, carry, fire, or discharge any fireworks, firearm, weapon, air gun, archery device, slingshot, or explosive of any kind across, in or into a County park.
- Parking must occur in designated staging areas.

Additionally, DPR would continue best management practices for fire protection, including the following:

- All maintenance vehicles must carry a fire extinguisher in case of accidental fire ignition.
- Brush encroachment along roads and truck trails will be managed.
- Two water tanks will be maintained for purposes of fire suppression.

- Grazing will be allowed for fuel management.

Lastly, DPR would prepare a Wildfire Site Evacuation Plan as part of operational planning for the proposed project. The Wildfire Site Evacuation Plan would include emergency contact information, evacuation routes and established meeting places, and safety protocol to ensure the safe evacuation of visitors, employees, and residents of the Preserve. The Wildfire Site Evacuation Plan would be prepared to complement the existing Ramona Community Wildfire Protection Plan and the Operational Area Emergency Plan, which guide evacuation planning for the region. The Preserve would be closed to the public during a fire event or time of high fire risk.

Therefore, with implementation of the BMPs listed above, compliance with the applicable County regulations, and implementation of the Wildfire Site Evacuation Plan, the proposed project would result in a less-than-significant impact related to the exacerbation of wildfire risks exposing occupants to pollutants or the uncontrollable spread of wildfire. Additionally, in combination with the cumulative projects, the proposed project would not result in cumulatively considerable impacts from the exposure of occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire because all future projects would also be required to comply with applicable County regulations, as well as with the County of San Diego Fire Service Conditions stipulated by the County Fire Services staff (i.e., County Fire Marshall) upon review and approval of those projects.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less than Significant Impact: The proposed project would involve the widening of the existing entrance road into the Preserve to allow easier access for emergency vehicles to the project site, the expansion of the existing septic system, and the extension of overhead electricity from the ranger station to the proposed volunteer pad. These elements of the proposed project are improvements on the existing infrastructure present at the project site. Otherwise, the proposed project would not include installation of other new infrastructure, or ongoing maintenance of infrastructure that would not already occur as general maintenance at the project site. Water and electric utilities are currently present on site. A groundwater well is utilized on site to fill the two existing water tanks used for fire suppression during an emergency fire event. While utilities would be expanded at the site, DPR would continue to maintain existing fire breaks and regularly conduct brush management; and would comply with the existing County regulations developed for the purpose of fire protection, including the Uniform Fire Code and Defensible Space for Fire Protection Ordinance (please see Section IX *Hazards and Hazardous Materials,* question g) for further discussion of these regulations). The proposed project would not include any other fire prevention or suppression infrastructure, such as new fire breaks, that would result in impacts on the environment. Therefore, the proposed project would not include any activities related to

infrastructure that would result in direct or cumulatively considerable impacts on the environment.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

☐	**Potentially Significant Impact**	☒	**Less than Significant Impact**
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less than Significant Impact: The project site is located in a climate and topography that is prone to wildfires, and has natural habitats of vegetation that could be a fuel source for wildfires, especially during droughts or dry periods. Wildfire risk tends to be high in locations where dense vegetation occurs on a steep slope. Post-wildfire risks associated with slopes, including mudflow or landslides, could occur when the vegetation that anchors soils to the hillside has burned, increasing the potential for mudflow or landslide in the event of heavy rains (CAL FIRE 2018).

The proposed project does not include features that would alter or exacerbate these existing conditions on the project site because the proposed project would rebuild the restroom building and associated septic system at the site of the existing restroom, and would not otherwise alter the existing slopes, hills, and other landform features of the Preserve. The proposed project would allow daily visitors to the Preserve, which is currently closed to the public, but it would not introduce new residential development. The proposed project would expose more people to the risk of post-wildfire hazards, including mudflow, landslide, or other forms of slope instability by allowing more people to use the Preserve for recreational purposes. However, the proposed project would not permanently alter drainage patterns or increase surface runoff in such a way that would result in significant downslope flooding or landslides. While utilities would be expanded at the site, the County would implement standard safety practices, and would close parts of, or the entire Preserve, if safety risks associated with mudflows, landslides, or other post-fire hazards are identified at the Preserve. It is standard operating procedure for DPR to evaluate a park facility after a natural disaster, such as a wildfire, for possible unsafe conditions (i.e., downed power lines, fallen/unstable trees, unstable slopes, or washed out trails) prior to reopening the facility to the public. DPR would also continue to maintain fire breaks, manage brush on the project site, and to comply with the Uniform Fire Code and Defensible Space for Fire Protection Ordinance, which require the implementation of best practices for fire protection (please see Section IX *Hazards and Hazardous Materials,* threshold question g. for further discussion of these regulations). By complying with these measures, the proposed project would reduce potential wildfire risks within the project site. Therefore, with implementation of the standard operating safety procedures and compliance with regulations related to fire risk and protection, the proposed project would not result in significant direct, or cumulative, impacts related to exposing structures or people to significant risk associated with post-fire downslope flooding or landslides.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE:

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

☐ **Potentially Significant Impact** ☐ **Less than Significant Impact**

☒ Less Than Significant With Mitigation Incorporated ☐ No Impact

Less Than Significant With Mitigation Incorporated. The potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory were considered in the response to each question in sections IV,V, and XVIII of this form. In addition to project specific impacts, this evaluation considered the proposed projects potential for significant cumulative effects. Resources that have been evaluated as significant would be potentially impacted by the proposed project, particularly biological resources, cultural resources, and tribal cultural resources. However, mitigation has been included that clearly reduces these effects to a level below significance. This mitigation includes mitigation measures **MM-BIO-1** through **MM-BIO-6** to reduce potential impacts on sensitive species; **MM-CUL-1** through **MM-CUL-3** to avoid potential impacts on historic or buried cultural resources; and **MM-CUL-4** to protect human remains. As a result of this evaluation, there is no substantial evidence that, after mitigation, significant effects associated with this project would result. Therefore, this project has been determined not to meet this Mandatory Finding of Significance.

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

☐ **Potentially Significant Impact** ☐ **Less than Significant Impact**

☒ Less Than Significant With Mitigation Incorporated ☐ No Impact

Less Than Significant With Mitigation Incorporated: The following list of past, present and future projects were considered and evaluated as a part of this Initial Study:

PROJECT NAME	**PERMIT/MAP NUMBER**
Boundary Adjustment along Mussey Grade Road	PDS2017-BC-17-0112/ APN 327-011-44-00

PROJECT NAME	PERMIT/MAP NUMBER
Initial Consultation for countywide cell sites	PDS2018-IC-18-001 / APN 324-01073-00
Boundary adjustment/certificate of compliance	PDS2010-3720-10-0097/ APN 327-102-27-00
Tentative Map Time Extension for 125 lots subdivision (Time extension approved 7/20/18) (1.4 miles from project boundary)	PDS2017-TM-5344TE / APNs 283-041-26-00 & 283-041-25-00

The potential for adverse cumulative effects were considered in the response to each question in sections I through XX of this form. In addition to project specific impacts, this evaluation considered the proposed project's potential for incremental effects that are cumulatively considerable. As a result of this evaluation, there were determined to be potentially significant cumulative effects related to additional traffic associated with the proposed project. However, mitigation has been included that clearly reduces these cumulative effects to a level below significance. This mitigation includes mitigation measure **MM-TRA-1**, which requires participation in the County TIF program to reduce potential impacts related to additional traffic. As a result of this evaluation, there is no substantial evidence that, after mitigation, there are cumulative effects associated with the proposed project. Therefore, the proposed project has been determined not to meet this Mandatory Finding of Significance.

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

☐	**Potentially Significant Impact**	☐	**Less than Significant Impact**
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Less Than Significant With Mitigation Incorporated. In the evaluation of environmental impacts in this Initial Study, the potential for adverse direct or indirect impacts on human beings were considered in the response to certain questions in sections I. *Aesthetics*, III. *Air Quality*, VII. *Geology and Soils*, VIII. *Greenhouse Gas*, IX. *Hazards and Hazardous Materials*, X. *Hydrology and Water Quality,* XIII. *Noise*, XIV. *Population and Housing,* XVII. *Transportation*, and XX. *Wildfire*. As a result of this evaluation, there were determined to be potentially significant effects for human beings related to greenhouse gas and additional traffic related to the proposed project. However, mitigation has been included that clearly reduces these effects to a level below significance. This mitigation includes **MM-GHG-1** to ensure best management practices are implemented during construction (consistency with the CAP); and **MM-TRA-1**, which requires participation in the County TIF program to reduce impacts related to additional traffic. As a result of this evaluation, there is no substantial evidence that, after mitigation, there are adverse effects to human beings associated with the proposed project. Therefore, the proposed project has been determined not to meet this Mandatory Finding of Significance.

XXII. REFERENCES USED IN THE COMPLETION OF THE INITIAL STUDY CHECKLIST

All references to Federal, State and local regulations are available on the Internet. For Federal regulations refer to http://www4.law.cornell.edu/uscode/. For State regulations refer to www.leginfo.ca.gov. For County regulations refer to www.amlegal.com. All other references are available upon request.

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Appendix A
Traffic Analysis

CHEN RYAN

MEMORANDUM

TO: Elizabeth Doalson, ICF

FROM: Nicholas Mesler EIT, Chen Ryan Associates

DATE: April 25, 2019

RE: **Boulder Oaks Preserve Improvement Project Traffic Analysis**

The purpose of this technical memorandum is to provide a preliminary assessment of the potential traffic related impacts associated with the proposed improvements to the Boulder Oaks Preserve, located within the unincorporated community of Ramona within the County of San Diego.

Project Description

The County of San Diego Department of Parks and Recreation is proposing to open a recreational/equestrian trails park located within the Bolder Oaks Preserve, which includes several miles of new trails. Access to the preserve is located off of Mussey Grade Road (to the west) and is approximately 3 miles south of SR-67. The Proposed Project would provide public access to 18.17 acres of the preserve. The proposed project would provide access to 6.7 miles of existing trails, construct and additional 7.2 miles of new trails, and provide three staging areas for parking within 1.34 acres, for a total feature installation of 18.17 acres. Additionally, the driveway apron at Mussey Grade Road will be improved to a solid surface (concrete or AC). Portions of the entrance road (inside the property gate) will be widened to 24 feet to meet emergency vehicle requirements. No other public parking is proposed or will be allowed within the Boulder Oaks Preserve.

See **Figure 1** for an aerial map of the proposed improvements at Boulder Oaks Preserve.

Trip Generation Estimate

Within the unincorporated County of San Diego, the SANDAG (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region is typically used to estimate the trip generation of a proposed project. However, the SANDAG guide does not provide a trip generation rate for improvements to recreational/equestrian trail related facilities or a land use of a similar nature. Based on a review of both regional and national trip generation guides/publications as well as a review of previous Traffic Impact Studies (TIS) that evaluated similar recreational/equestrian based land uses (See **Attachment 1**), it was found that the rate that best represents the proposed improvements is the County Park rate (412) provided in the 9th Edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual. This land use is the most applicable to the project since the County is proposing to further develop and improve a County park resource. **Table 1** displays the number of daily and peak hour (AM & PM) trips the proposed improvements (all project features) are anticipated to generate during a typical weekday.

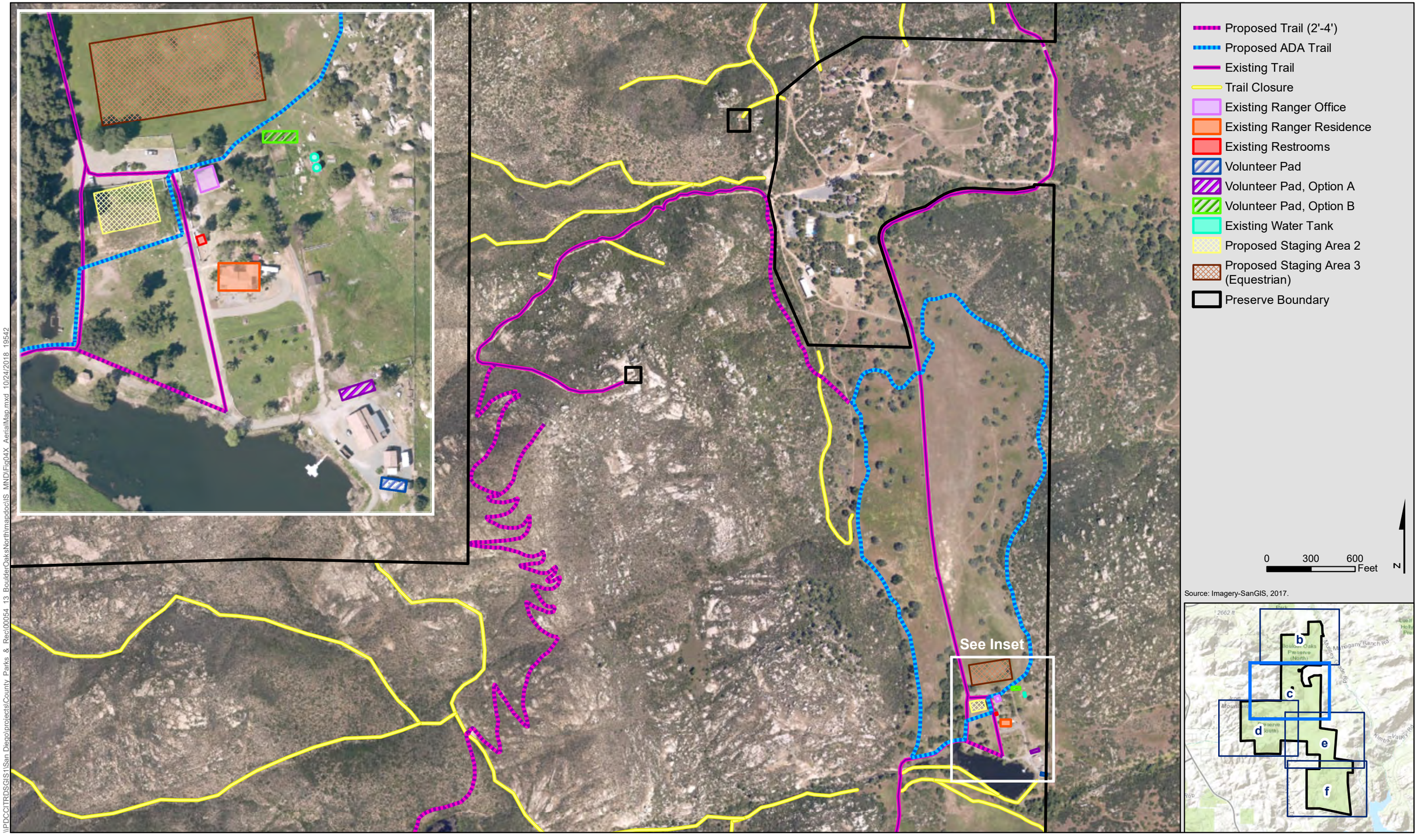

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Figure 1
Aerial Map
Boulder Oaks Preserve Improvement Project - MND

Table 1 Boulder Oak Preserve Improvement Project Trip Generation Estimate (Weekday)

			AM Peak Hour			PM Peak Hour		
	Units	Daily Trips	Total	In	Out	Total	In	Out
Improvements	Acres	2.28	0.52	71%	29%	0.58	35%	65%
Boulder Oaks Preserve	18.17	42	10	7	3	11	4	7

Source: Chen Ryan Associated, February 2019 & ITE Trip Generation Manual, 9th Edition

As shown in Table 1, the combined acreage of the proposed improvements is anticipated to generate 42 daily trips on a typical weekday with ten (10) AM and eleven (11) PM peak hour trips.

Within the County of San Diego, traffic related impacts are typically only analyzed during weekdays; however, an analysis of Saturday conditions was also conducted since County Parks generate over 5 times the number of trips on Saturdays as compared to a typical weekday. **Table 2** displays the number of daily and peak hour (Mid-Day) trips the proposed improvements are anticipated to generate on Saturdays. Saturday intersection turning movement volumes were found to be similar to counts collected previously in 2014, thus similar traffic patterns were assumed and an equivalent midday turning movement peak volumes were maintained for analysis.

Table 2
Boulder Oak Preserve Improvement Project
Trip Generation Estimate (Saturday)

			Mid-Day Peak Hour		
	Units	Daily Trips	Total	In	Out
Improvements	Acres	12.14	2.21	57%	43%
Boulder Oaks Preserve	18.17	221	40	23	17

Source: Chen Ryan Associated, February 2019 & ITE Trip Generation Manual, 9th Edition

As shown in Table 2, the combined acreage of the proposed improvements are anticipated to generate 221 daily trips on a typical Saturday with 40 midday peak hour trips.

County of San Diego Traffic Impact Criteria and Preliminary Impact Assessment

Based on the project location, traffic generated by the proposed improvements to the Boulder Oaks Preserve could potentially impact the following County of San Diego roadway facilities:

Mobility Element Roadway Segments

1. Mussey Grade Road – South of SR-67

Two-Lane Highways when Signalized Intersection Spacing Over One Mile

1. SR-67 – East of Mussey Grade Road
2. SR-67 – West of Mussey Grade Road

Unsignalized Intersections

1. Mussey Grade Road / SR-67

The following sub-sections outline the County of San Diego Traffic Impact Criteria for each facility type listed above, as well as a preliminary assessment of the potential impacts in which the traffic generated by the proposed improvements could be associated with.

Roadway Segments Level of Service Standards and Thresholds

Roadway segment Level of Service standards and thresholds provide the basis for analysis of arterial roadway segment performance. The analysis of roadway segment Level of Service is based on the functional classification of the roadway, the maximum capacity, roadway geometrics, and existing or forecast Average Daily Traffic (ADT) volumes**. Table 3** presents the roadway segment capacity and Level of Service standards utilized to analyze roadway segments within the County of San Diego.

Table 3 County of San Diego Roadway Classification and LOS Standards

No.	Travel Lanes	Design Speed	Road Classification	Level of Service (in ADT)				
				A	B	C	D	E
6.1	6	65 mph	Expressway	36,000	54,000	70,000	86,000	108,000
6.2	6	65 mph	Prime Arterial	22,200	37,000	44,600	50,000	57,000
4.1A	4	55 mph	Major Road with Raised Median	14,800	24,700	29,600	33,400	37,000
4.1B			Major Road with Intermittent Turn Lanes	13,700	22,800	27,400	30,800	34,200
4.2A	4	40 mph	Boulevard with Raised Median	18,000	21,000	24,000	27,000	30,000
4.2B			Boulevard with Intermittent Turn Lane	16,800	19,600	22,500	25,000	28,000
2.1A	2	45 mph	Community Collector with Raised Median	10,000	11,700	13,400	15,000	19,000
2.1B			Community Collector w/ Continuous Turn Lane	3,000	6,000	9,500	13,500	19,000
2.1C			Community Collector w/ Intermittent Turn Lane	3,000	6,000	9,500	13,500	19,000
2.1D			Community Collector with Improvement Options	3,000	6,000	9,500	13,500	19,000

Table 3 County of San Diego Roadway Classification and LOS Standards

No.	Travel Lanes	Design Speed	Road Classification	Level of Service (in ADT)				
				A	B	C	D	E
2.1E	2	45 mph	Community Collector	1,900	4,100	7,100	10,900	16,200
2.2A	2	40 mph	Light Collector with Raised Median	3,000	6,000	9,500	13,500	19,000
2.2B			Light Collector with Continuous Turn Lane	3,000	6,000	9,500	13,500	19,000
2.2C			Light Collector with Intermittent Turn Lanes	3,000	6,000	9,500	13,500	19,000
2.2D			Light Collector with Improvement Options	3,000	6,000	9,500	13,500	19,000
2.2E			Light Collector	1,900	4,100	7,100	10,900	16,200
2.2F			Light Collector with Reduced Shoulder	5,800	6,800	7,800	8,700	9,700
2.3A	2	35 mph	Minor Collector with Raised Median	3,000	6,000	7,000	8,000	9,000
2.3B			Minor Collector with Intermittent Turn Lane	3,000	6,000	7,000	8,000	9,000
2.3C			Minor Collector	1,900	4,100	6,000	7,000	8,000
Non-Mobility Element Roads				Level of Service (in ADT)				
-	2	≥30 mph	Residential Collector			4,500		
-	2	≥30 mph	Rural Residential Collector			4,500		
-	2	≥30 mph	Residential Road			1,500		
-	2	≥30 mph	Rural Residential Road			1,500		
-	2	≥30 mph	Rural Cul-de-Sac or Loop Road			200		

Source: County of San Diego Public Road Standards; March 2012

Note:
Bold numbers indicate the ADT thresholds for acceptable LOS.

Impact Criteria

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic volume or level of service traffic impact on a road segment, unless specific facts show that there are other circumstances that mitigate or avoid such impacts:

- The additional or redistributed ADT generated by the proposed project will significantly increase congestion on a Mobility Element Road or State Highway currently operating at LOS E or LOS F, or will cause a Mobility Element Road or State Highway to operate at LOS E or LOS F as a result of the proposed project; or

- the additional or redistributed ADT generated by the proposed project will cause a residential street to exceed its design capacity.

Impact Analysis

This section evaluates the potential traffic impacts on Mussey Grade Road by the proposed improvements. Mussey Grade Road, south of SR-67 is currently a two-lane undivided roadway with a speed limit of 45 mph and an average daily traffic (ADT) of 3,360 trips on a typical weekday and an ADT of 2,660 on a typical Saturday. Mussey Grade Road functions as a Rural Residential Collector with a capacity of 4,500 ADT. Traffic Counts are provided in **Attachment 2.**

As noted in Table 3, a Rural Residential Collector has a design capacity of 4,500 ADT. As noted in Tables 1 and 2, the Proposed Project would result in an increase of 42 daily trips on Mussey Grade Road for a typical weekday, yielding an ADT of 3,402, and would result in an increase of 221 daily trips on Mussey Grade Road for a typical Saturday, yielding an ADT of 2,881. Therefore, the additional traffic generated by the Proposed Project would not exceed 4,500 ADT on a typical weekday or typical Saturday. Thus, implementation of the Proposed Project would not result in a direct impact on Mussey Grade Road.

Two-Lane Highways when Signalized Intersection Spacing Over One Mile

This section evaluates the potential traffic related impacts on SR-67 by the proposed project. SR-67 between Wood Rock Lane and Carol Lane currently functions as a two-lane highway with posted a speed limit of 55 mph and serves approximately 23,800 daily trips.

Impact Criteria

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic volume or level of service traffic impact on a two-lane highway facility with signalized intersection spacing greater than one mile:

- The additional or redistributed ADT generated by the proposed project will significantly increase congestion on a two-lane highway segment currently operating at LOS E or LOS F, as identified in **Table 4**, or will cause a two-lane highway segment to operate at LOS E or LOS F as a result of the proposed project.

Table 4
Measures of Significant Project Impacts to Congestion:
Allowable Increases on Two-Lane Highways
With Signalized Intersection Spacing Over One Mile

LOS	LOS Criteria	Impact Significance Level
LOS E	> 16,200 ADT	> 325 ADT
LOS F	> 22,900 ADT	> 225 ADT

Source: County of San Diego

Note:
Where detailed data are available, the Director of Public Works may also accept a detailed level of service analysis based upon the two-lane highway analysis procedures provided in the Chapter 20 Highway Capacity Manual.

Impact Analysis

As noted in Table 4, it is considered a significant impact when the project traffic adds 225 or more daily trips to a two-lane highway that carries over 22,900 ADT. As noted in Tables 1 and 2, the proposed improvements would generation a maximum 221 daily trips; therefore, the Proposed Project would not result in a direct impact on SR-67.

Unsignalized Intersections

The Mussey Grade Road / SR-67 intersection is currently a side street stop-controlled intersection, with the northbound Mussey Grade Road approach being controlled. The intersection currently has an eastbound deceleration right-turn lane, westbound left-turn lane and a second receiving lane for northbound to westbound left-turn movements to accelerate in before entering mixed-flow traffic on SR-67. **Figure 2** displays the current intersection configuration for the SR-67/Mussey Grade Road intersection.

Figure 2 Mussey Grade Road Intersection Layout

Impact Criteria

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic volume or level of service traffic impact on a road segment:

- The additional or redistributed ADT generated by the proposed project will add 20 or more peak hour trips to a critical movement of an unsignalized intersection, and cause an unsignalized intersection to operate below LOS D, or
- The additional or redistributed ADT generated by the proposed project will add 20 or more peak hour trips to a critical movement of an unsignalized intersection currently operating at LOS E, or
- The additional or redistributed ADT generated by the proposed project will add 5 or more peak hour trips to a critical movement of an unsignalized intersection, and cause the unsignalized intersection to operate at LOS F, or
- The additional or redistributed ADT generated by the proposed project will add 5 or more peak hour trips to a critical movement of an unsignalized intersection currently operating at LOS F, or
- Based upon an evaluation of existing accident rates, the signal priority list, intersection geometrics, proximity of adjacent driveways, sight distance or other factors, the project would significantly impact the operations of the intersection.

Impact Analysis

Figure 3 displays the assumed trip distribution patterns based on existing travel patterns, population centers, and mobility element connectivity. **Table 5** summarizes the delay and Level of Service (LOS) results for the Mussey Grade Road / SR-67 intersection during the Weekday AM & PM peak hour, as well as the Saturday Mid-Day peak hour. Peak hour intersection analysis was conducted based on the methodologies outlined in the *2010 Highway Capacity Manual (HCM)*.

Figure 3 Intersection Trip Distribution Pattern

Table 5
Peak Hour Intersection Operations Analysis Mussey Grade Road / SR-67

Intersection	Traffic Control	Weekday (AM Peak Hour) Avg. Delay (sec)	LOS	Weekday (PM Peak Hour) Avg. Delay (sec)	LOS	Saturday (Mid-Day Peak Hour) Avg. Delay (sec)	LOS	Change in Critical Movement Volume AM / PM / Sat	SI?
Mussey Grade Road / SR-67	SSSC	44.7	E	131.7	F	30.7	D	2 / 4 / 10	No

Source: Chen Ryan Associates, February *2019*

Note:
SSSC = Side-Street Stop-Controlled, displays the worst delay for the stop-controlled leg of the intersection.
Assumed 2 Vehicles in Median Storage based on SR-67 acceleration lane creating a two-stage maneuver on the northbound left approach.

As shown, the Mussey Grade Road / SR-67 intersection currently operates at LOS E and LOS F during the AM and PM weekday peak hours, respectively, and LOS D during the Saturday midday peak hour. The addition of traffic from the proposed improvements would further degrade the already failing operations in the weekday PM peak hour at this intersection.

However, based on the County of San Diego's Unsignalized Intersection Impact Criteria, it is considered a direct impact if the project adds 5 or more peak hour trips to a critical movement at the intersection when the intersection is anticipated to operate at LOS F. As noted in Table 1 and Figure 3, the proposed improvements are anticipated to generate a maximum of 4 peak hour directional trips during the weekday PM peak at the critical movement. Additionally, in accordance to the County of San Diego's Unsignalized Intersection Impact Criteria, it is considered a direct impact if the project adds 20 or more peak hour trips to a critical movement at the intersection when the intersection is anticipated to operate at LOS E. As noted in Tables 1 and Figure 3, the weekday AM peak is anticipated to generate a maximum of 2 trips at the critical movement. The Saturday midday peak hour is anticipated to operate at an acceptable LOS D with the addition of project traffic, which would not trigger a significant and direct impact. Therefore, the additional traffic generated by the proposed improvements would not result in a direct significant impact to the Mussey Grade Road / SR-67 intersection at any peak hours. Synchro worksheets for the studied scenarios are provided in **Attachment 3**.

Cumulative Impacts

As displayed in Table 5, the additional traffic generated from the proposed improvements would increase delay to the currently failing operations at the Mussey Grade Road / SR-67 intersection, resulting in a cumulative impact. To mitigate this cumulative impact, it is recommended the proposed project participate in the County of San Diego Transportation Impact Fee (TIF) program through fee contributions.

Other Potential Impacts

The following section presents a series of potential traffic related impacts that are not outlined in the County of San Diego Traffic Impact Study Guidelines, but would still be pertinent to the proposed project.

Emergency Access

The staging area proposes to take access off Mussey Grade Road approximately 3 miles south of SR-67. Mussey Grade Road dead-ends at approximately 2.5 miles south of the proposed project access point, at the San Vicente Reservoir, without providing a secondary access point to the regional roadway network. It is determined that since the project is only anticipated to generate a low number of daily trips to the Boulder Oaks Preserve facility, well below the operational potential of the proposed paved roadways, no new emergency access related impacts would be associated with the proposed improvements.

Project Turning Radii

Since the proposed project site is expected to attract recreational horse-trailer vehicles at Staging Area B, special considerations were taken to determine if the proposed paved facilities would be able to accommodate these larger vehicles. Upon review of the proposed project access roads and Staging Area B parking lot, it was concluded that proposed and current facilities would be acceptable. Using CAD AutoTURN software, a standard pickup truck/passenger car vehicle with a large horse-trailer-length trailer hitched to the rear of the vehicle was analyzed. The test vehicle was a standard 19' long with a RV trailer of 30' long and an 18' hitch-to-axle length with dual axels, representing similar dimensions of a horse-trailer to simulate the turning radii of a typical recreational horse-trailer vehicle using the equestrian facilities proposed at Boulder Oaks Preserve. See Figures 4.1 & 4.2 of **Attachment 4** for a visual representation of the test vehicle used in determining the sufficiency of a horse-trailer negotiating the turns.

The AutoTURN analysis determined that the existing and planned roadways will sustain the required turning radii to access the proposed horse-trailer parking lot location. The Proposed Staging Area B parking facility location with 8 horse-trailer staging areas will sufficiently allow for the vehicles to turn in and out of the staging area onto the paved roadway without encroachment onto the opposing lane of traffic. See Figure 4.3 of Attachment 4 for a visual representation of the test vehicle turning into the Staging Area B parking lot and Figures 4.4-4.6 for a visual representation of the vehicle negotiating the most pronounced horizontal curves along the roadway approaching Mussey Grade Road. AutoTURN analysis was additionally conducted for the Staging Areas A & C and concluded that the geometrics would not be sufficient for horse-trailer vehicles. Therefore, it is recommended that signs prohibiting horse-trailers at Staging Areas A & C and signs warning these vehicles to not travel beyond Staging Area B be posted to ensure safe and definitive circulation throughout the roadways and Staging Areas. No additional recommendations are made at the proposed Staging Area B horse-trailer parking lot as the AutoTURN analysis concluded that the existing roadway geometrics will allow for safe movement along the facilities.

Parking Occupancy Survey

Since the proposed project site is located within unincorporated County and accessing a County roadway, a parking occupancy survey was conducted to determine if the existing project access roadway and the immediate quasi-parking area adjacent to the roadway were currently experiencing vehicle traffic parking on Mussey Grade Road or in the dirt entrance lot to the park facilities. A parking survey conducted on Wednesday, July 11, 2018 found that no vehicles were parking on Mussey Grade near the entrance of the facility or in the lot during the AM or PM peak hours. See **Attachment 5** for photos taken at the project site on the aforementioned date depicting the existing access driveway on-street environment. As shown, there are no parked vehicles along Mussey Grade Road on in the lot.

It is recommended that the conditions along Mussey Grade Road be monitored over time to ensure that excess parking demand from the proposed project is not spilling onto the roadway. Parking is currently restricted on Mussey Grade Road due to the limited shoulder widths; however, no signs are currently posted stating the restriction. If it is found that excess parking demand from the proposed project site is spilling onto Mussey Grade Road, it is recommended that the County of San Diego post no-parking signs along the roadway, to inform motorists of the current parking restrictions. Parking signs should be implemented along the roadway to at least one mile south and at least 4,200 feet north of the project driveway (to Dos Picos Park Road). Signs should be placed on both sides of the roadway at a recommended spacing of 350 feet, yielding a total of 54 no-parking signs.

Staging Area Access Sight Distance

Due to the rural nature of Mussey Grade Road at the project location, a sight distance analysis was performed at the proposed project access point to ensure that adequate sight distance is available for vehicles accessing the project site. **Attachment 6** presents a detailed sight distance analysis for the Mussey Grade Road at the proposed project driveway access point, and an associated approved Design Exception Request submitted on October 12, 2016.

Conclusions

Due to the low number of new vehicular trips associated with the proposed improvements, the proposed project would not result in any direct, significant traffic related impacts. However, the proposed improvements could potentially cause a cumulative impact at the Mussey Grade Road / SR-67 intersection and therefore should participate in the County of San Diego's TIF Program to mitigate this cumulative impact. No further considerations should be made in consideration of vehicles parking on Mussey Grade Road as no current parking was found in a parking survey and the proposed project is anticipated to supply more vehicle spaces than the peak generated demand. Additionally, sign installation considerations should be made in regard to the circulation of a typical large horse-trailer to only access the appropriate Staging Area B facility.

CHEN RYAN

Attachment 1

Trip Generation Rates Used in Similar Studies

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

I-210 Freeway & La Tuna Canyon Road
DOT Case No. SFV 03-009

Date: July 17, 2003

To: Emily Gabel-Luddy, Associate Zoning Administrator
Department of City Planning

From: Sergio D. Valdez, Transportation Engineer
Department of Transportation

Subject: **TRAFFIC ASSESSMENT FOR THE PROPOSED 280 SINGLE FAMILY DWELLING UNITS (CANYON HILLS) AND AN EQUESTRIAN PARK AT I-210 FREEWAY AND LA TUNA CANYON ROAD.**

The Department of Transportation (DOT) has completed the traffic assessment for the proposed 280 single-family dwelling units and an equestrian park in Tujunga. The proposed development will be constructed on approximately 887 acres of vacant land. The development will be located on approximately 202 acres, with the remaining 685 acres preserved as open space. Construction is estimated to begin in 2004, with an estimated completion in 2009. This traffic assessment is based on a traffic study prepared by Linscott, Law and Greenspan Engineers (dated March 2003). After a careful review of the pertinent data, DOT has determined that the traffic study, as revised, adequately describes the project related traffic impacts of the proposed development.

DISCUSSION AND FINDINGS

The proposed residential development will consists of 211 homes (Development Area "A") north of I-210 Freeway and 69 homes (Development Area "B") south of the I-210 Freeway. The equestrian park will be located on three-acres adjacent to La Tuna Canyon Road west of Development Area "B". The project will generate 2,694 daily trips with 212 trips in the a.m. peak hour and 284 trips in the p.m. peak hour. The trip generation estimates are based on formulas published by the Institute of Transportation Engineers (ITE) Trip Generation, 6th Edition, 1997and shown below:

Land Use	Size	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
Propose:		Total	In	Out	Total	In	Out	Total
Single Family Residential*	280 DU*	2,680	53	158	211	181	102	283
Equestrian Park**	3 Acres	14	1	0	1	0	1	1
TOTAL		2,694	54	158	212	181	103	284

* ITE Land Use Code 210; DU = Dwelling Units
** Compatible to ITE Land Use Code 417, Regional Park

The traffic study was revised by modifying the striping at the studied intersections to reflect the existing conditions and by adjusting assumed functional right-turn only lanes at Foothill Boulevard and Tujunga Canyon Boulevard and at I-210 Freeway eastbound off-ramp and La Tuna Canyon Road, to conform with DOT policies and procedures: "Assumed unmarked lanes will be allowed in the capacity calculation if the lane is a minimum of 22 feet wide, with no bus stops and low pedestrian volume in the peak hour."

PROJECT TRAFFIC GENERATION

Traffic volumes expected to be generated by the proposed project during the AM and PM peak hours, as well as on a daily basis, were estimated using rates published in the Institute of Transportation Engineers' (ITE) *Trip Generation* manual, 6th Edition, 1997. Traffic volumes expected to be generated by the proposed residential project were forecast based on the number of single-family residential dwelling units. Traffic volumes expected to be generated by the equestrian park were forecast based on number of acres.

ITE Land Use Code 210 (Single Family Residential) average trip generation rates were used to forecast the traffic volumes expected to be generated by the single-family residential component of the proposed project. However, the ITE *Trip Generation* manual does not include a specific trip generation rate for an equestrian park. Therefore, ITE Land Use Code 417 (Regional Park) average peak hour of generator trip generation rates were used to forecast the traffic volumes expected to be generated by the equestrian park component of the proposed project. The ITE Regional Park land use includes sites with hiking trails, lakes, pools, ball fields, picnic facilities, etc., which activities will not occur in the equestrian park. Therefore, the trip generation forecast for the equestrian park using the ITE Regional Park trip generation rates likely overstates the number of vehicular trips that will be generated by the equestrian park and the trip generation forecast for the equestrian park portion of the Canyon Hills project provides a conservative ("worst case") analysis. The project trip generation forecast for the proposed project is summarized in Table 2.

As shown in Table 2, the proposed project is expected to generate 212 net new vehicle trips (54 inbound and 158 outbound) during the AM peak hour. During the PM peak hour, the proposed project is expected to generate 284 net new vehicle trips (181 inbound and 103 outbound). Over a 24-hour period, the proposed project is forecasted to generate 2,694 net new daily trip ends during a

5. Project Traffic

To estimate project-related traffic volumes at various points on the street network, a three step process is utilized. First, the traffic that will be generated by the proposed development is determined. Second, the traffic volumes are geographically distributed to major attractions of trips, such as employment centers, commercial centers, recreational areas or residential areas. Finally, the trips are assigned to specific roadways and the project-related traffic volumes are determined on a route-by-route basis.

Traffic Generation

The traffic generated by the project is determined by multiplying an appropriate trip generation rate by the quantity of land use. Trip generation rates are expressed in terms of trip ends per person, trip ends per employee, trip ends per acre, trip ends per dwelling, or trip ends per thousand square feet of floor space. For instance, if a particular land use generates six outbound trips per acre in the morning peak hour, then six vehicles are expected to leave the site in the morning peak hour for each acre of development.

Significant research efforts have been made by the Institute of Transportation Engineers and others to establish the correlation between trips and land use. From this body of information, trip generation rates can be estimated with reasonable accuracy for various land uses.

Trip generation rates are predicated on the assumption that energy costs, the availability of roadway capacity, the availability of vehicles to drive, and our life styles remain similar to what we know today. A major change in these variables may affect trip generation rates.

Trip generation rates were determined for daily traffic, morning peak hour inbound and outbound traffic, and evening peak hour inbound and outbound traffic for the proposed land uses. The trip generation rates are from Trip Generation, Sixth Edition, Institute of Transportation Engineers, 1997.

The traffic generation rates have been modified to account for what is called pass-by traffic. Pass-by traffic is already on the street and would pass-by the site anyway, even if the land use did not exist. Pass-by traffic ranges from zero percent in the case of residential and employment uses, up to nearly 100 percent in some cases such as rural highway commercial such as a gas station. The Institute of Transportation Engineers, Trip

Generation Handbook, 1997, contains substantial amounts of data on pass-by traffic. From the date in the Handbook, it can be seen that the amount of pass-by trips assumed in Table 9 is far lower than what could be assumed.

By multiplying the traffic generation rates by the land use quantities, the traffic volumes are determined. Table 9 exhibits the traffic generation rates and the peak hour and daily traffic volumes.

Traffic Distribution and Assignment

Traffic distribution is the determination of the directional orientation of traffic. It is based on the geographical location of employment centers, commercial centers, recreational areas, or residential area concentrations.

Traffic assignment is the determination of which specific route development traffic will use, once the generalized traffic distribution is determined. The basic factors affecting route selection are minimum time path and minimum distance path.

Figures 6, 7, and 8 contain the directional distribution and assignment of the project traffic for the proposed land uses.

The traffic distributions were jointly prepared by Kunzman Associates and Al Grover and Associates (who is under contract by the City of Fullerton for conducting traffic analyses).

Project-Related Traffic

Based on the identified traffic generation and distributions, project related traffic volumes are shown in Figure 9.

Table 9

PROJECT TRAFFIC GENERATION

ITE LU Code	Land Use	Land Use Quantity	Units	Daily	AM Peak Hour			PM Peak Hour			Pass-By Rate (Median Value)
					In	Out	Total	In	Out	Total	
	Traffic Generation Rates										
210	Single Family Detached	609	Dwelling Units	9.57	0.19	0.58	0.77	0.65	0.37	1.02	0%
220	Multi Family	221	Dwelling Units	6.63	0.08	0.43	0.51	0.42	0.20	0.62	0%
412	Equestrian Center	14	Acres	2.28	0.01	0.01	0.02	0.02	0.04	0.06	0%
520	Elementary School	600	Students	1.02	0.17	0.13	0.30	0.14	0.12	0.26	0%
820	Shopping Center	82	1,000 Sq. Ft.	42.92	0.63	0.40	1.03	1.80	1.94	3.74	36%
	Trafic Generated Before Commercial Pass-By Rate Applied										
210	Single Family Detached	609	Dwelling Units	5,828	116	353	469	396	225	621	0%
220	Multi Family	221	Dwelling Units	1,465	18	95	113	92	45	137	0%
412	Equestrian Center	14	Acres	32	0	0	0	0	1	1	0%
520	Elementary School	600	Students	612	102	78	180	84	72	156	0%
820	Shopping Center	82	1,000 Sq. Ft.	3,519	52	33	84	148	159	307	36%
	TOTAL			11,457	288	559	846	720	502	1222	
	Traffic Generation With Commercial Pass-By Rate Adjustment Applied										
210	Single Family Detached	609	Dwelling Units	5,828	116	353	469	396	225	621	0%
220	Multi Family	221	Dwelling Units	1,465	18	95	113	92	45	137	0%
412	Equestrian Center	14	Acres	32	0	0	0	0	1	1	0%
520	Elementary School	600	Students	612	102	78	180	84	72	156	0%
820	Shopping Center	82	1,000 Sq. Ft.	2,640	39	25	63	111	119	230	25%
	TOTAL			10,577	275	551	825	683	462	1145	
	Traffic Generation With 12 Percent Internal Interaction Adjustment Applied										
210	Single Family Detached	609	Dwelling Units	5,129	102	311	413	348	198	547	
220	Multi Family	221	Dwelling Units	1,289	16	83	99	81	40	121	
412	Equestrian Center	14	Acres	28	0	0	0	0	0	1	
520	Elementary School	600	Students	539	90	69	158	74	63	137	
820	Shopping Center	82	1,000 Sq. Ft.	2,323	34	22	56	97	105	202	
	TOTAL			9,308	242	485	726	601	407	1008	

SOURCE: Trip Generation, 6th Edition, Institute of Transportation Engineers, 1997.

NOTES:

1. The fire station and nature park have been assumed to generate no peak hour traffic generation.
2. Totals may be off by as much as 1 because of rounding.
3. Pass-By traffic is retail commercial traffic that is already on the street and driving by the sight anyway. The driver merely stops to shop on their way home for instance. The pass-by rates are for peak hours of adjacent street.
4. The internal interaction adjustment eliminates double counted trips. For instance a trip generated by a residential land use that goes to the elementary school, is the same trip that is generated at the elementary school and that comes from a residential land use. Otherwise the same trip is double counted.
5. The traffic generation rate used for an equestrian center is a county park.

TABLE 5.15-4
TRIP GENERATION ESTIMATES

MDPI Planning Area	Existing		Proposed					WEEKDAY TRIPS				WEEKEND TRIPS			
								Weekday Daily	PM Peak Hour			Weekend Daily	Midday Peak Hour		
	Use	Size	Use	Size		Net New Size			Inbound	Outbound	Total		Inbound	Outbound	Total
Area A	Soccer Fields	10 fields	Soccer Fields	16	fields	6	fields	428	86	38	124	705	83	89	172
Area A	BMX Facility	27 ksf	Skate Park or Court Sports	27	ksf	27	ksf	618	14	25	39	246	16	13	29
Area A	Undeveloped area	--	Natural River Parks (3 sites)	4.5	acres	4.5	acres	38	2	2	4	65	5	5	10
Area B	Undeveloped area	--	Amphitheater/ Special Events Area	250	seats	0	seats	0	0	0	0	0	0	0	0
Area B	Undeveloped area	--	Playground	20	ksf	20	ksf	510	23	28	51	400	29	31	60
Area B	Undeveloped area	--	Loop Trails (Picnic Loop)	1.5	miles	1.5	miles	57	3	3	6	86	4	5	9
Area C	Archery Range	14 targets	Archery Range Reconstruction	14	targets	0	targets	0	0	0	0	0	0	0	0
Area C	Undeveloped area	--	Disc Golf Areas	18	holes	18	holes	322	11	14	25	366	20	21	41
Area C	Undeveloped area	--	Mountain Bike Facility	5	miles	5	miles	274	12	15	27	342	24	27	51
Area C	Undeveloped area	--	Natural Area River Park (1)	1.5	acres	1.5	acres	13	0	1	1	22	1	2	3
Area C	Undeveloped area	--	Loop Trails	1.5	miles	1.5	miles	57	3	3	6	86	4	5	9
Areas D/E	Fishing Pier, Fishing/Boating Lakes	--	Additional Fishing Areas	1	area	1	area	20	0	1	1	27	1	2	3
Areas D/E	Fitness routes	--	Additional Fitness Stations	2	stations	2	stations	38	2	2	4	38	2	2	4
Areas D/E	Undeveloped area	--	Waterplay/splash park	5	ksf	5	ksf	129	3	3	6	101	7	8	15
Areas D/E	Undeveloped area	--	Welcome Center	2,500	sf	2,500	sf	0	0	0	0	0	0	0	0
Areas D/E	Undeveloped area	--	Green Streets	--	--	--	--	0	0	0	0	0	0	0	0
Areas D/E	Undeveloped area	--	Traffic Calming Measures	--	--	--	--	0	0	0	0	0	0	0	0
Area F Bicentennial Campground/ Sports Arena/Equestrian Center	Campgrounds	55 campsites	Campground Restoration	55	campsites	0	campsites	13	3	2	5	84	4	4	8
Area F Bicentennial Campground/ Sports Arena/Equestrian Center	Undeveloped area	--	Performance Pavilions/Group Picnic Areas	3	pavilions	3	pavilions	51	10	3	13	164	16	17	33
Area F Bicentennial Campground/ Sports Arena/Equestrian Center	Undeveloped area	--	Loop Trails (Use campground roadway network)	1.5	miles	1.5	miles	57	3	3	6	86	4	5	9
Area F Bicentennial Campground/ Sports Arena/Equestrian Center	Undeveloped area	--	Natural Area River Parks (2 sites)	3	acres	3	acres	25	1	2	3	43	3	4	7
South of Dam	Urban Roadways	--	Green Streets	--	--	--	--	0	0	0	0	0	0	0	0
Streets Near WNDBRA	Urban Roadways	--	Traffic Calming Measures	--	--	--	--	0	0	0	0	0	0	0	0
							Total	**2.650**	**176**	**145**	**321**	**2.861**	**223**	**240**	**463**

MDPI: Master Development Plan Input; PM: afternoon; WNDBRA: Whittier Narrows Dam Basin Recreation Area; sf: square feet; ksf: thousand square feet ; -- not applicable

Note: Improvements proposed in the MDPI (e.g., Arundo Removal and Riparian Enhancement, Reintroduction of Native Species, Water Quality Improvement Programs in Natural Areas, Storm Water BMPs, Riparian Restoration at Islands at Legg Lake) and other facilities (e.g., Entry Signage, River crossings along the Rio Hondo) are not expected to generate vehicle trips as they would not create use areas that may attract visitors.

Source: Fehr and Peers 2010

FEHR & PEERS
TRANSPORTATION CONSULTANTS

January 3, 2008

Ms Clara Lawson, P.E.
Washoe County Public Works Department
PO Box 11130
Reno, NV 89520-0027

Re: Crazy Wilcox Ranch Equestrian Facility Trip Generation

Dear Ms Lawson,

The purpose of this letter is to present information regarding anticipated vehicle trip generation for the proposed Crazy Wilcox Ranch Equestrian Facility in Washoe County, Nevada. The intent of the letter is to satisfy proposed condition of approval 12.g. recommended for Special Use Permit Case No. SB07-018. We surveyed three existing equestrian facilities to identify their trip generation characteristics and estimated vehicle trips for the proposed Crazy Wilcox Ranch.

SURVEY OF EXISTING EQUESTRIAN FACILITIES

We surveyed three existing equestrian facilities in the area and estimated their vehicle trip generation. Information was obtained through telephone interviews with representatives of the facilities and a review of facility websites. We surveyed the Equest Training Center, Franktown Meadows, and Maplewood Stables. Copies of *Equestrian Facility Summary Information and Estimated Vehicle Trips* forms for each site are provided as attachments to this letter.

TABLE 1 - EXISTING FACILITY SURVEY INFORMATION AND CALCULATED DAILY TRIPS

Facility Name	# of Horse Stalls[1]	Est. # of Owners[1]	Est. Weekday Owner Visits[1]	Calc. Weekday Daily Trips[2]	Calc. Weekday Trip Rate[3]	Est. Sat or Sun Owner Visits[1]	Calc. Saturday or Sunday Trips[2]	Calc. Saturday or Sunday Trip Rate[3]
Equest	30	23	7 (30%)	18	0.60	12 (52%)	28	0.93
Franktown	80	60	20 (33%)	58	0.725	35 (58%)	88	1.10
Maplewood	60	40	10 (25%)	40	0.67	22 (55%)	64	1.07

Notes: [1] Information provided by equestrian facility representative.
[2] Calculation of daily trips includes two trips/owner visit and two trips/employee.
[3] Trip rate per horse stall per day.
Sources: Equestrian Facility Representatives, Fehr & Peers, December 2007

We used the survey information to estimate daily trip rates and vehicle trips for weekday, weekend day, horse show event (weekend day), and clinic event (weekend day) conditions. The variables used in the calculations were the number of horse boarding stalls for weekday and weekend day conditions, and the number of participating horses for show and clinic event days. Employee trips were accounted for through the assumption of two trips per employee per day. The trip generation estimates were calculated on 100 percent occupancy of the horse boarding stalls.

The facility representatives provided information regarding the number of horse boarding stalls and employees, and estimated the number of horse owners, site visits by owners, and participation in shows and clinics. As many horse owners board more than one horse at a facility, the estimated ratios of horses boarded to owners ranged between 1.30 and 1.50 to one. Weekend visits by owners are more frequent on weekend days, with 52% - 58% of owners estimated on weekend days in comparison to 25% - 33% of owners visiting the stables on weekdays. As shown in **Table 1** weekday trip rates were calculated at 0.60 – 0.725 trips/horse stall, and weekend day trip rates at 0.93 – 1.10 trips/horse stall.

The event day estimates show more variability, primarily due to the variances in estimated horse participation. The event day values include the trip numbers associated with regular weekend day activity. As some owners who would routinely visit the sites on a weekend day also participate in events, the event participant (owner) trip generation was reduced by 25% to avoid double counting trips by those owners.

CRAZY WILCOX RANCH EQUESTRIAN FACILITY TRIP GENERATION

We estimated weekday, weekend day, show event day, clinic event day, and average annual day trips for the proposed Crazy Wilcox Ranch facility. The facility and trip information for the Crazy Wilcox Ranch is also provided as an attachment; summary estimated vehicle trip information is presented in **Table 2** below.

TABLE 2 - CRAZY WILCOX RANCH – ESTIMATED TRIP GENERATION

Day/Condition	Trips		Trip Rate Notes
	Daily	Peak Hour	
Weekday	30	5	Daily trips include 10 employee trips, and 29% of the owners visiting the site. The resulting trip rate is 0.65 trips/weekday/horse stall.
Weekend Day	48	7	Daily trips include 10 employee trips, and 56% of owners visiting the site. The resulting trip rate is 1.04 trips/weekend day/horse stall.
Show Event Day	108	34	Peak hour trip estimate assumptions include 75% of owner event participants leaving the site and 15% of other trips during the peak hour.
Clinic Event Day	70	17	Peak hour trip estimate assumptions include 75% of owner event participants leaving the site and 15% of other trips during the peak hour.
Annual Average Day	36	N/A	6 show event days and 6 clinic event days held during the year

Source: Fehr & Peers 2007

We estimated weekday and weekend day trips for the proposed Crazy Wilcox Ranch facility using average horse ownership ratio and owner site visitation rates derived from the survey of existing

equestrian facilities. Those values included a ratio of horses boarded to owners of 1.35/1.0 with 29% of owners visiting the site on weekdays and 56% of the owners visiting the site on weekend days. The calculated trips include an assumption of a 100 percent occupancy rate of the 46 horse boarding stalls proposed for the facility. The resulting trips/day/horse stall rates of 0.65 and 1.04 were within the range of rates resulting from the survey of existing equestrian facilities.

It is anticipated the Crazy Wilcox Ranch will have five employees, three of whom will live on-site. Employee trips were estimated at two trips per employee per day for all of the scenarios.

The estimates of owner trips for show event and clinic event days were based on the estimated numbers of horses participating in the event. In addition, the event day trip estimates include employee trips and normal weekend day visits to the site by owners. Owner trips involving event participation are reduced by 25% to account for those owners who would otherwise routinely visit the site on a weekend day. The assumption of 50 horses for a show event is likely a conservative (high) value. The owner's representative reports horse participation in the range of 35 to 40 when operating a comparable stable in the Midwest.

As the condition and maintenance of the unpaved roadways that provide access to the site is a concern, we also calculated an annual average daily trip value. That calculation takes into account the proposed six annual show event days, six annual clinic event days, and higher owner visitation of the site on weekend days. As shown in **Table 1**, that estimated weighted annual average daily value is 36 trips. The proposed annual six show event days and six clinic event days is consistent with the event schedules of the existing equestrian centers surveyed.

Please contact me at 826-3200 if you have any questions regarding the information presented.

Sincerely,

FEHR & PEERS

Keith Lockard, P.E.
Senior Project Manager

01/03/2008

EXP 12/31/2009

RN07-0354

XC: Paul Forsch, Algoma Construction

Ronald Olson, Crazy Wilcox LLC

Al Salzano, Architect

Attachments: *Equestrian Facility Summary Information and Estimated Vehicle Trips* forms (4)

CHEN RYAN

Attachment 2
Traffic Counts

Prepared by NDS/ATD

VOLUME

Mussey Grade Rd S/O SR-67 & Dye St

Day: Thursday
Date: 7/12/2018

City: Ramona
Project #: CA18_4253_001

DAILY TOTALS	NB	SB	EB	WB	Total
	1,713	1,647	0	0	3,360

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	1		4				5		12:00	27		24				51	
00:15	2		7				9		12:15	30		27				57	
00:30	1		5				6		12:30	29		25				54	
00:45	3	7	1	17			4	24	12:45	46	132	26	102			72	234
01:00	0		3				3		13:00	17		24				41	
01:15	0		1				1		13:15	18		21				39	
01:30	1		1				2		13:30	34		31				65	
01:45	0	1	2	7			2	8	13:45	31	100	26	102			57	202
02:00	0		0				0		14:00	22		29				51	
02:15	1		1				2		14:15	35		31				66	
02:30	0		0				0		14:30	26		32				58	
02:45	0	1	2	3			2	4	14:45	32	115	28	120			60	235
03:00	0		0				0		15:00	36		30				66	
03:15	0		0				0		15:15	23		33				56	
03:30	1		0				1		15:30	27		34				61	
03:45	0	1	0				0	1	15:45	21	107	41	138			62	245
04:00	3		2				5		16:00	30		34				64	
04:15	6		3				9		16:15	30		29				59	
04:30	7		0				7		16:30	21		38				59	
04:45	10	26	0	5			10	31	16:45	28	109	38	139			66	248
05:00	13		3				16		17:00	24		41				65	
05:15	19		1				20		17:15	17		32				49	
05:30	22		4				26		17:30	24		42				66	
05:45	23	77	7	15			30	92	17:45	29	94	41	156			70	250
06:00	29		10				39		18:00	18		35				53	
06:15	20		9				29		18:15	24		33				57	
06:30	31		10				41		18:30	10		33				43	
06:45	30	110	15	44			45	154	18:45	16	68	30	131			46	199
07:00	30		12				42		19:00	21		21				42	
07:15	37		12				49		19:15	14		44				58	
07:30	37		12				49		19:30	13		29				42	
07:45	35	139	16	52			51	191	19:45	20	68	27	121			47	189
08:00	28		11				39		20:00	19		31				50	
08:15	26		11				37		20:15	13		29				42	
08:30	28		23				51		20:30	20		16				36	
08:45	32	114	21	66			53	180	20:45	17	69	22	98			39	167
09:00	22		11				33		21:00	6		23				29	
09:15	25		21				46		21:15	7		21				28	
09:30	30		12				42		21:30	7		20				27	
09:45	29	106	15	59			44	165	21:45	11	31	16	80			27	111
10:00	26		15				41		22:00	7		10				17	
10:15	28		22				50		22:15	6		10				16	
10:30	21		25				46		22:30	2		11				13	
10:45	32	107	14	76			46	183	22:45	5	20	5	36			10	56
11:00	35		19				54		23:00	3		7				10	
11:15	21		19				40		23:15	1		4				5	
11:30	17		15				32		23:30	2		1				3	
11:45	31	104	13	66			44	170	23:45	1	7	2	14			3	21
TOTALS		793		410				**1203**	**TOTALS**		920		1237				**2157**
SPLIT %		65.9%		34.1%				**35.8%**	**SPLIT %**		42.7%		57.3%				**64.2%**

DAILY TOTALS	NB	SB	EB	WB	Total
	1,713	1,647	0	0	3,360

AM Peak Hour	07:00	11:45			**11:45**	**PM Peak Hour**	12:00	17:00			**14:15**
AM Pk Volume	139	89			**206**	**PM Pk Volume**	132	156			**250**
Pk Hr Factor	0.939	0.824			**0.904**	**Pk Hr Factor**	0.717	0.929			**0.947**
7 - 9 Volume	253	118	0	0	**371**	**4 - 6 Volume**	203	295	0	0	**498**
7 - 9 Peak Hour	07:00	08:00			**07:00**	**4 - 6 Peak Hour**	16:00	17:00			**17:00**
7 - 9 Pk Volume	139	66	0	0	**191**	**4 - 6 Pk Volume**	109	156	0	0	**250**
Pk Hr Factor	0.939	0.717	0.000	0.000	**0.936**	**Pk Hr Factor**	0.908	0.929	0.000	0.000	**0.893**

Prepared by NDS/ATD

VOLUME

Mussey Grade Rd Bet. Split Rock Rd & Dye St

Day: Saturday
Date: 2/9/2019

City: Ramona
Project #: CA19_4061_001

DAILY TOTALS	NB	SB	EB	WB	Total
	1,318	1,342	0	0	2,660

AM Period	NB		SB		EB		WB		TOTAL	
00:00	0		5						5	
00:15	1		3						4	
00:30	0		4						4	
00:45	1	2	3	15					4	17
01:00	0		2						2	
01:15	3		2						5	
01:30	1		1						2	
01:45	0	4	1	6					1	10
02:00	0		1						1	
02:15	1		2						3	
02:30	2		2						4	
02:45	1	4	2	7					3	11
03:00	2		2						4	
03:15	0		2						2	
03:30	2		0						2	
03:45	0	4	0	4					0	8
04:00	1		1						2	
04:15	1		0						1	
04:30	0		0						0	
04:45	1	3	0	1					1	4
05:00	1		0						1	
05:15	1		2						3	
05:30	6		0						6	
05:45	5	13	4	6					9	19
06:00	12		0						12	
06:15	12		2						14	
06:30	2		10						12	
06:45	11	37	6	18					17	55
07:00	11		5						16	
07:15	13		9						22	
07:30	19		8						27	
07:45	16	59	9	31					25	90
08:00	19		17						36	
08:15	24		6						30	
08:30	29		13						42	
08:45	14	86	17	53					31	139
09:00	26		5						31	
09:15	30		18						48	
09:30	31		15						46	
09:45	19	106	24	62					43	168
10:00	24		13						37	
10:15	25		24						49	
10:30	31		25						56	
10:45	31	111	18	80					49	191
11:00	21		27						48	
11:15	39		27						66	
11:30	35		18						53	
11:45	26	121	28	100					54	221
TOTALS		550		383						933
SPLIT %		58.9%		41.1%						35.1%

PM Period	NB		SB		EB		WB		TOTAL	
12:00	17		29						46	
12:15	30		31						61	
12:30	29		30						59	
12:45	22	98	33	123					55	221
13:00	27		25						52	
13:15	25		29						54	
13:30	24		24						48	
13:45	31	107	21	99					52	206
14:00	29		30						59	
14:15	18		27						45	
14:30	28		23						51	
14:45	24	99	25	105					49	204
15:00	25		29						54	
15:15	26		32						58	
15:30	19		22						41	
15:45	22	92	23	106					45	198
16:00	27		36						63	
16:15	21		21						42	
16:30	16		26						42	
16:45	23	87	19	102					42	189
17:00	25		34						59	
17:15	22		19						41	
17:30	23		24						47	
17:45	13	83	25	102					38	185
18:00	22		26						48	
18:15	15		23						38	
18:30	16		11						27	
18:45	11	64	18	78					29	142
19:00	10		23						33	
19:15	7		11						18	
19:30	12		14						26	
19:45	5	34	15	63					20	97
20:00	16		22						38	
20:15	5		18						23	
20:30	12		18						30	
20:45	5	38	14	72					19	110
21:00	9		10						19	
21:15	11		18						29	
21:30	4		9						13	
21:45	3	27	15	52					18	79
22:00	5		11						16	
22:15	7		11						18	
22:30	8		6						14	
22:45	5	25	8	36					13	61
23:00	3		6						9	
23:15	7		8						15	
23:30	2		2						4	
23:45	2	14	5	21					7	35
TOTALS		768		959						1727
SPLIT %		44.5%		55.5%						64.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	1,318	1,342	0	0	2,660

AM Peak Hour	10:45	11:45			11:00
AM Pk Volume	126	118			221
Pk Hr Factor	0.808	0.952			0.837
7 - 9 Volume	145	84	0	0	229
7 - 9 Peak Hour	07:45	08:00			08:00
7 - 9 Pk Volume	88	53	0	0	139
Pk Hr Factor	0.759	0.779	0.000	0.000	0.827

PM Peak Hour	13:15	12:00			12:15
PM Pk Volume	109	123			227
Pk Hr Factor	0.879	0.932			0.930
4 - 6 Volume	170	204	0	0	374
4 - 6 Peak Hour	16:45	16:00			16:00
4 - 6 Pk Volume	93	102	0	0	189
Pk Hr Factor	0.930	0.708	0.000	0.000	0.750

Prepared by National Data & Surveying Services

Mussey Grade Rd & SR-67

Peak Hour Turning Movement Count

ID: 18-04252-001
City: Ramona

Day: Thursday
Date: 07/12/2018

PEAK HOURS	
AM	07:00 AM - 08:00 AM
NOON	NONE
PM	04:00 PM - 05:00 PM

COUNT PERIODS	
AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

Mussey Grade Rd — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

SR-67 — EASTBOUND

AM	NOON	PM		
1384	0	575	⇦	
0	0	0	↶	0
0	0	0	↱	0
393	0	1419	→	1
17	0	65	↴	1
AM	NOON	PM		

CONTROL

1-Way Stop (NB)

TEV	1885 AM	0 NOON	2207 PM
PHF	0.91		0.98

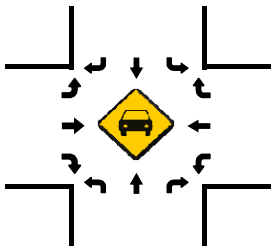
WESTBOUND — SR-67

0	↰	0	0	0
1	←	546	0	1312
1	↰	77	0	29
0	↶	0	0	1
	⇨	1490	0	455
		PM	NOON	AM

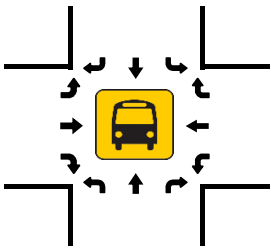
Mussey Grade Rd — NORTHBOUND

PM	142	0	29	0	71	PM
NOON	0	0	0	0	0	NOON
AM	46	0	72	0	61	AM
	⇩	0	0.5	0	0.5	
		↰	↰	↑	↱	

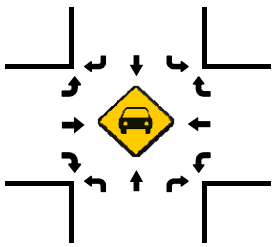
Total Vehicles (AM)



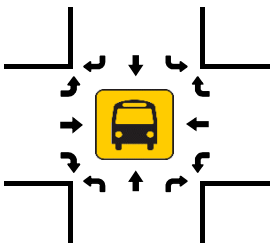
Total Vehicles (AM)



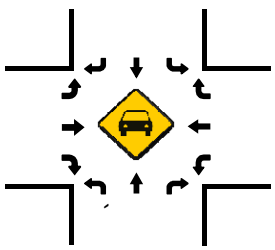
Total Vehicles (NOON)



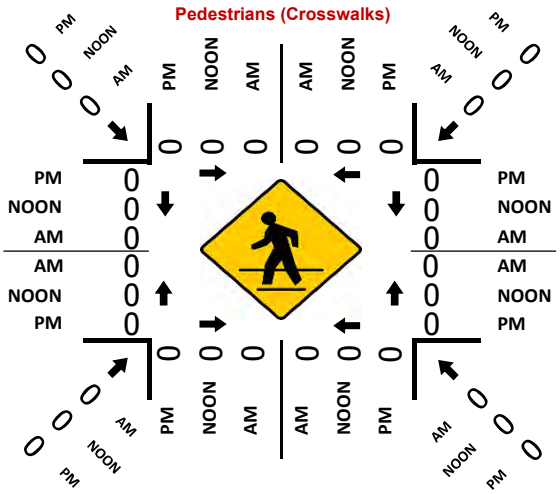
Total Vehicles (NOON)



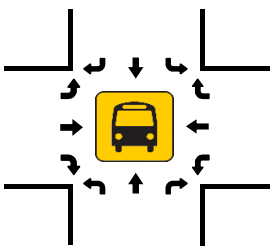
Total Vehicles (PM)



Pedestrians (Crosswalks)



Total Vehicles (PM)



Prepared by National Data & Surveying Services

Mussey Grade Rd & SR-67

Peak Hour Turning Movement Count

ID: 19-04060-001
City: Ramona

Day: Saturday
Date: 02/09/2019

PEAK HOURS

AM	NONE
NOON	12:00 PM - 01:00 PM
PM	NONE

COUNT PERIODS

AM	NONE
NOON	11:00 AM - 01:00 PM
PM	NONE

Mussey Grade Rd — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

SR-67 — EASTBOUND

AM	NOON	PM	
0	832	0	
0	0	0	0
0	0	0	0
0	819	0	1
0	51	0	1

SR-67 — WESTBOUND

PM	NOON	AM	
0	0	0	0
0	793	0	1
0	74	0	1
0	0	0	0
0	880	0	

CONTROL: 1-Way Stop (NB)

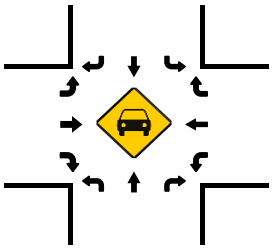
	AM	NOON	PM
TEV	0	1837	0
PHF		0.94	

PM	0	0	0	0	0	PM
NOON	125	0	39	0	61	NOON
AM	0	0	0	0	0	AM

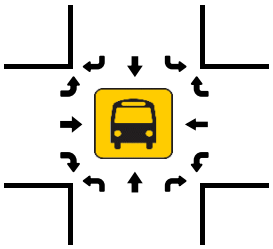
0 0 0 0 — 0 0.5 0 0.5

Mussey Grade Rd — NORTHBOUND

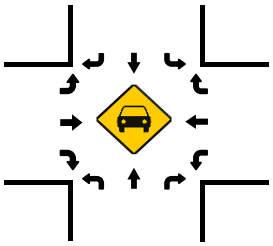
Total Vehicles (AM)



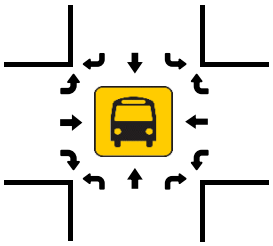
Total Vehicles (AM)



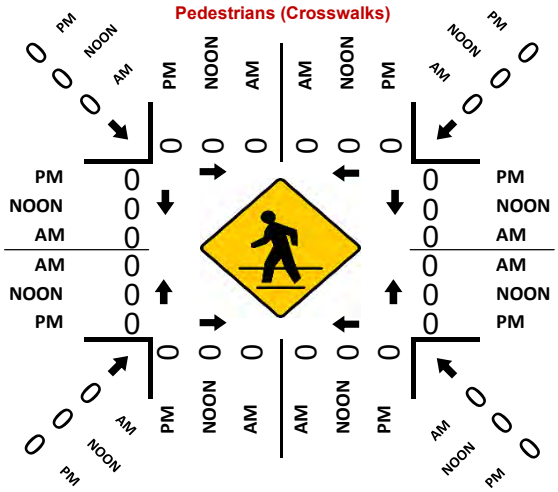
Total Vehicles (NOON)



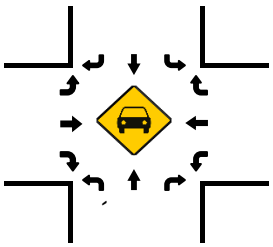
Total Vehicles (NOON)



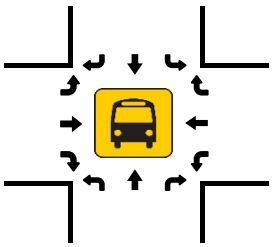
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



CHEN RYAN

Attachment 3
Synchro Worksheets

Intersection	
Int Delay, s/veh	3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	393	17	30	1312	72	61
Future Vol, veh/h	393	17	30	1312	72	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	420	200	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	447	19	33	1458	80	68

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	466	0	1971	447
Stage 1	-	-	-	-	447	-
Stage 2	-	-	-	-	1524	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1095	-	~ 69	612
Stage 1	-	-	-	-	644	-
Stage 2	-	-	-	-	198	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1095	-	~ 67	612
Mov Cap-2 Maneuver	-	-	-	-	154	-
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	198	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	43.5
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	234	-	-	1095	-
HCM Lane V/C Ratio	0.632	-	-	0.03	-
HCM Control Delay (s)	43.5	-	-	8.4	-
HCM Lane LOS	E	-	-	A	-
HCM 95th %tile Q(veh)	3.8	-	-	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	5.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1419	65	77	546	29	71
Future Vol, veh/h	1419	65	77	546	29	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	420	200	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1613	74	86	607	32	79

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1687	0	2392	1613
Stage 1	-	-	-	-	1613	-
Stage 2	-	-	-	-	779	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	379	-	37	128
Stage 1	-	-	-	-	179	-
Stage 2	-	-	-	-	452	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	379	-	~ 29	128
Mov Cap-2 Maneuver	-	-	-	-	123	-
Stage 1	-	-	-	-	138	-
Stage 2	-	-	-	-	452	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	114.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	127	-	-	379	-
HCM Lane V/C Ratio	0.875	-	-	0.226	-
HCM Control Delay (s)	114.5	-	-	17.2	-
HCM Lane LOS	F	-	-	C	-
HCM 95th %tile Q(veh)	5.5	-	-	0.9	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	819	51	74	793	39	61
Future Vol, veh/h	819	51	74	793	39	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	420	200	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	890	55	80	862	42	66

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	945	0	1912	890
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	1022	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	726	-	75	342
Stage 1	-	-	-	-	401	-
Stage 2	-	-	-	-	347	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	726	-	67	342
Mov Cap-2 Maneuver	-	-	-	-	212	-
Stage 1	-	-	-	-	357	-
Stage 2	-	-	-	-	347	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	26.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	276	-	-	726	-
HCM Lane V/C Ratio	0.394	-	-	0.111	-
HCM Control Delay (s)	26.3	-	-	10.6	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	1.8	-	-	0.4	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	393	21	30	1315	74	62
Future Vol, veh/h	393	21	30	1315	74	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	420	200	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	447	24	33	1461	82	69

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	471	0	1974	447
Stage 1	-	-	-	-	447	-
Stage 2	-	-	-	-	1527	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1091	-	~ 68	612
Stage 1	-	-	-	-	644	-
Stage 2	-	-	-	-	198	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1091	-	~ 66	612
Mov Cap-2 Maneuver	-	-	-	-	154	-
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	198	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	44.7
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	234	-	-	1091	-
HCM Lane V/C Ratio	0.646	-	-	0.031	-
HCM Control Delay (s)	44.7	-	-	8.4	-
HCM Lane LOS	E	-	-	A	-
HCM 95th %tile Q(veh)	4	-	-	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	6.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1419	67	79	546	33	74
Future Vol, veh/h	1419	67	79	546	33	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	420	200	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1613	76	88	607	37	82

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1689	0	2396	1613
Stage 1	-	-	-	-	1613	-
Stage 2	-	-	-	-	783	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	378	-	37	128
Stage 1	-	-	-	-	179	-
Stage 2	-	-	-	-	450	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	378	-	~ 28	128
Mov Cap-2 Maneuver	-	-	-	-	122	-
Stage 1	-	-	-	-	137	-
Stage 2	-	-	-	-	450	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	131.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	126	-	-	378	-
HCM Lane V/C Ratio	0.944	-	-	0.232	-
HCM Control Delay (s)	131.7	-	-	17.4	-
HCM Lane LOS	F	-	-	C	-
HCM 95th %tile Q(veh)	6.2	-	-	0.9	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	819	65	83	793	49	68
Future Vol, veh/h	819	65	83	793	49	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	420	200	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	890	71	90	862	53	74

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	961	0	1932	890
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	1042	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	716	-	73	342
Stage 1	-	-	-	-	401	-
Stage 2	-	-	-	-	340	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	716	-	64	342
Mov Cap-2 Maneuver	-	-	-	-	201	-
Stage 1	-	-	-	-	350	-
Stage 2	-	-	-	-	340	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	30.7
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	264	-	-	716	-
HCM Lane V/C Ratio	0.482	-	-	0.126	-
HCM Control Delay (s)	30.7	-	-	10.8	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	2.4	-	-	0.4	-

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Attachment 4
AutoTURN Turning Radii

Figure 4.1 AutoTURN Vehicle Dimension Screenshot

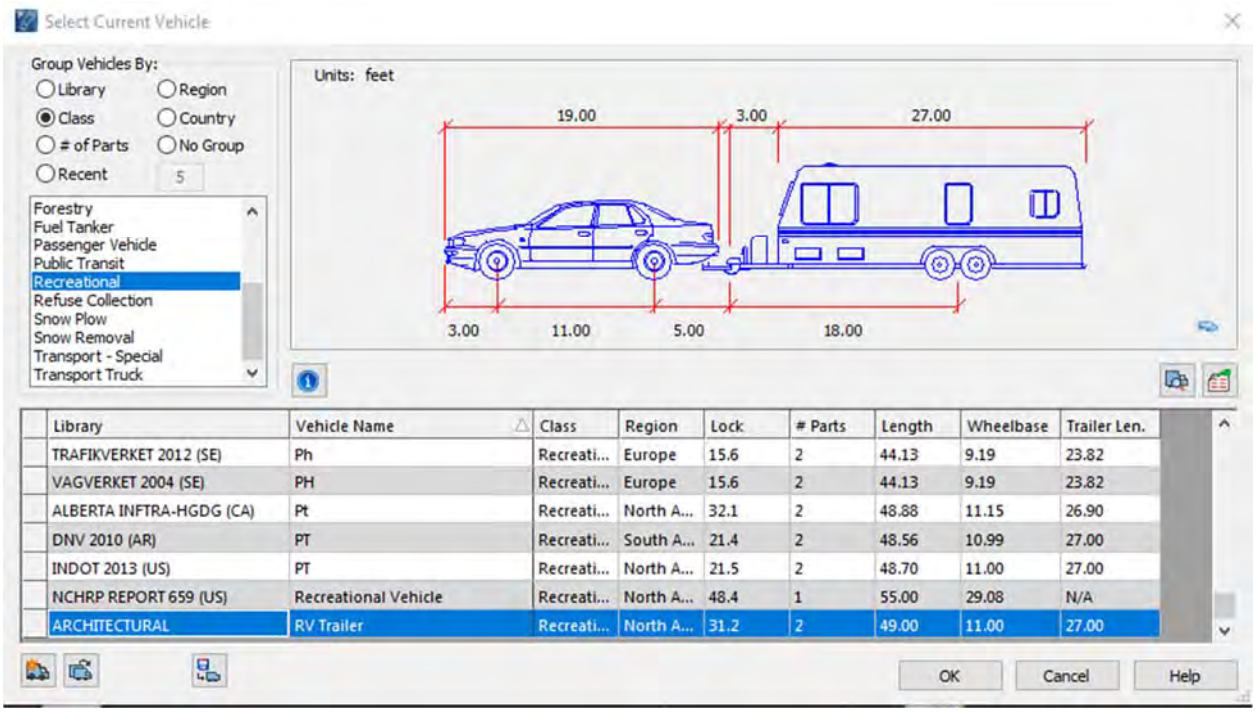


Figure 4.2 AutoTURN Vehicle Specificaitons Screenshot

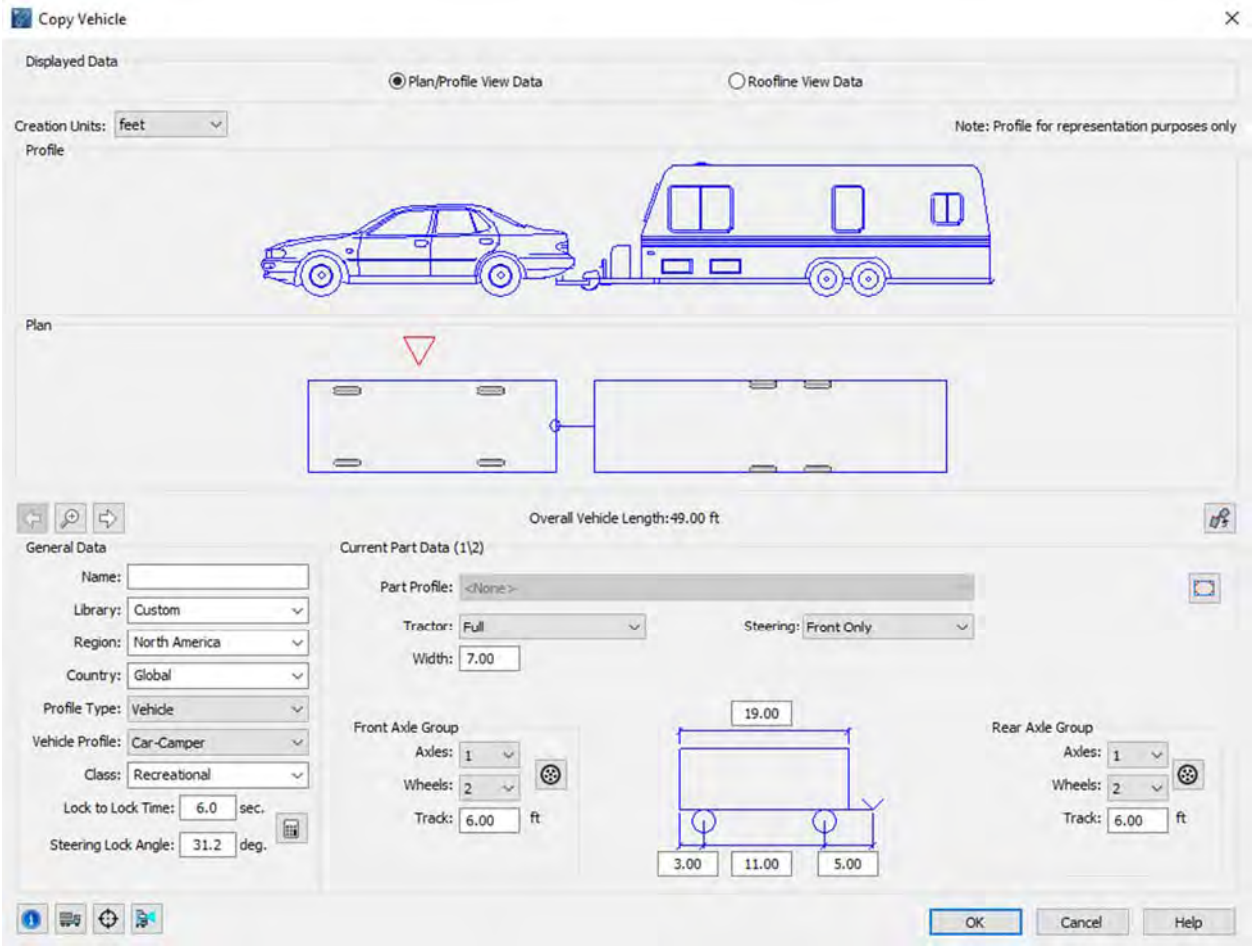


FIGURE 4.3

0’ 40’ 80’

SCALE: 1”= 40’

FIGURE 4.4

0’ 40’ 80’

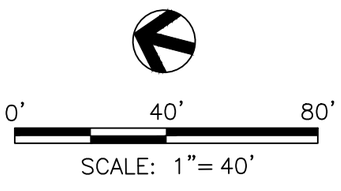
SCALE: 1”= 40’

FIGURE 4.5

0’ 40’ 80’

SCALE: 1”= 40’

FIGURE 4.6



Attachment 5
Site Visit Photos of Mussey Grade Road Parking Environment

Site Visit Photos of Mussey Grade Road Parking Environment

Site Visit Photos of Mussey Grade Road Parking Environment

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Attachment 6
Project Access Design Exception Request

DEPARTMENT OF PUBLIC WORKS

Request for a Design Exception to a Road Standard and/or Modification to Project Conditions

Project Number: 542043 Date of Request: Oct 12, 2016

Project Location: The intersection of Mussey Grade Road and Wildwood Ranch Driveway

Thos. Bros. Map/Grid: _____ APN: _____

Requestor Name: Department of Parks and Recreation Telephone: (858) 966-1321

Address: 5500 Overland Avenue, Suite 410 San Diego, CA 921213

Requested Design Exception (attach engineering sketches showing existing layout, details and notes):

The design exception request is for an exception to sight distance standards (2012 County Public Roads Standard Section 6.1.E Table 5) at the project driveway. Corner sight distance for a 45 MPH road is 450' per table 5 of the 2012 County Public Road Standards. The deviation request is from the standard 450' to 275'. See the attachment.

Reason for requested Design Exception (provide attachment if additional space is required):

The intersection of Wildwood Ranch Driveway and Mussey Grade Road is located in a grove of trees. There is a stand of eight mature Oak and other trees next to the intersection which combine to block the driver's view of approaching vehicles. The County of San Diego is actively trying to preserve Oak Trees due to the large number of Oaks lost to draught and infestations.

List alternatives that could mitigate the requested Design Exception (attach engineering sketches showing proposed layouts, details and notes):

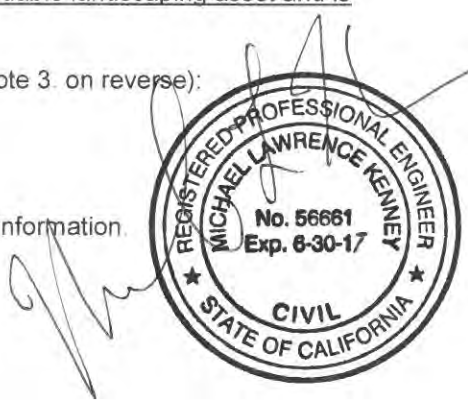
Alternatives to the Design Exception include removing as many trees as necessary to achieve the required sight distance or to abandon the project (a no-build alternative).

Describe the hardship(s) to the property owner(s) and/or neighbor(s) if the request is not approved (see note 3. on reverse):

The County of San Diego is committed to preserving as many mature oak trees as possible due to the large die off of oak trees in recent years. Mature oaks trees can take hundreds of years to grow. Unnecessary removal of oak trees deprive County residents of a valuable landscaping asset and is contrary to the County's Live Well initiative.

Provide Design and Cost Estimate for meeting the Condition (see note 3. on reverse):

The cost of removing oak trees is negligible.



See reverse for directions and important information.

Revised: Aug 20, 2010

This form is to be used for the following:

A. Request design exception to a Road Standard and/or modify DPW Conditions included in the **Preliminary Approval** *prior* to the issuance of the Final Approval.
B. Request design exception to a Road Standard and/or modify DPW Conditions included in the **Final Approval** document(s) *prior* to the recordation of the map, which may also require an amendment of conditions.

Note: Request for modifications to conditions of a recorded map, in most cases, requires a map modification, which is a separate process.

This request may be initiated by the owner or by an agent or consultant, the local fire prevention district or the local planning group acting on behalf of the owner. Where professional opinions, judgments, analysis, etc., are included, these documents shall be signed, sealed and dated by the responsible licensed professional.

The following guidelines apply to this request:

1. Incomplete or unclear requests, or requests not supported by appropriate documents will be returned as incomplete applications. Requests must be specific and clear.
2. This request must be completed and submitted with supporting attachments. Attachments may consist of documents from the relevant County departments. Regulatory agencies, fire prevention districts, water and utility districts, planning groups. Photos, plan and profile sketches, diagrams, engineering studies, certifications, cost estimates, and other pertinent information may also be included.
3. Provide detailed cost estimates for work included in this request. Single figure summary and "bottom line" cost estimates will not be accepted. Please note that financial hardship cannot be the sole basis of a modification request.

   Example 1: A request to reduce an intersectional sight distance condition must, as a minimum, be supported by a detailed plan of the intersection showing the right-of-way easements, the available/required line(s) of sight and the existing obstructions to the line(s) of sight, a certification by a registered engineer of the prevailing speed along the major road, certification as to the minimum acceptable sight distance and the availability of such distance, as well as a detailed cost estimate for compliance with the initial condition.

   Example 2: A request to reduce the road width improvement standard must, as a minimum, cite the reasons necessitating the request, a letter from the local Fire Prevention District stipulating the acceptable changes to the road(s), plan and profile sketches of the road showing centerline stationing, nature, size and location of utilities that are impacted, and a detailed cost estimate for compliance with the initial improvement condition(s).

4. The applicant will be contacted if additional information or clarification is required. Your request may be forwarded to the local planning group for input. The DPW Project Team responsible for the project area will evaluate the request and make a recommendation to the Director through the Deputy Director. The Director's decision, which is final, will be conveyed to the applicant in writing, with copies to all parties and agencies concerned.

5. Requests take an average of ten (10) working days to process. They may take longer if submitted without the proper supporting documents or if there is insufficient balance in the project account.
6. Mail or submit your completed request(s) to the Department of Public Works (DPW), 5201 Ruffin Road (MS-0336), Suite D, San Diego, CA, 92123. An emailed pdf copy is recommended, also.

CHEN RYAN

October 10, 2016

Laurel Lees
Adjunct Staff – Land Use/Environmental Planner III
County of San Diego Department of Parks and Recreation
5500 Overland Avenue, Suite 410
San Diego, CA 92123

Re: Design Exception Request for Sight Distance as Part of the Boulder Oaks Project

Dear Ms. Lees,

The County of San Diego Department of Parks and Recreation is proposing to develop an enhanced staging area to allow better access to the existing recreational/equestrian trails located within the Bolder Oaks Preserve (proposed improvements). This staging area will be located off of 4488 Mussey Grade Road (to the west), approximately 3 miles south of SR-67 and providing parking for both cars and horse trailers at a trail head of an existing trail system.

Corner Sight Distance Assessment

Since the proposed project site is located within the unincorporated County and accessing a County roadway, the County of San Diego Public Road Standards (March 3, 2010) were utilized to evaluate sight distance. Corner sight distance is measured along the direction of travel from a point on the minor road at least 10 feet from the edge of the major road pavement. It is measured from an eye height of 3.5 feet on the minor road to a height of an object 4.25 feet on the major road. The design speed used to determine the minimum sight distance requirement shall be the greater of the current prevailing speed (if known) and the minimum design speed of the respective road classification. Additional corner intersection sight distance may be require for left turns at divided highways, left turns on to two-way highways with more than two lanes, or grades which exceed 3 percent, as per "AASHTO A Policy on Design of Highways and Streets". The County Public Road Standards state that sight distance requirements at all intersections shall conform to the intersection sight distance criteria, as shown in **Table 1** below.

TABLE 1
STANDARD CORNER SIGHT DISTANCE AT INTERSECTIONS

Design Speed (mph)	Minimum Corner Intersection Sight Distance (ft)
60	600
50	500
45	450[1]
40	400
30	300
20	200

Source: County of San Diego Public Road Standards, March 2010

Note:
[1]Distance interpolated based on roadway speed

FIELD REVIEWS/CALCULATIONS

An engineering field study was conducted for this site utilizing the aforementioned methods to determine the corner sight distance. Mussey Grade Road is a 2-lane roadway with 12-foot wide travel lanes in each direction and 2-foot paved shoulders. Mussey Grade Road is considered a Local Public Road with an average daily traffic volume of around 2,800 trips per day. The posted speed limit along Mussey Grade Road is 45 mph.

Prevailing speeds along the subject section of Mussey Grade Road were collected by the project engineer using the floating car method. Based on an average of 10 runs in each direction, the prevailing speeds along Mussey Grade Road were calculated to be 45 mph traveling in both the northbound and southbound directions.

Figures 1 and **2** display the driver's view from the currently proposed driveway looking towards the north and south directions along Mussey Road.

Figure 1: Mussey Grade Road/Project Driveway Intersection
North of Project Driveway

Corner Sight Distance Looking North from Project Driveway = 550 feet

Figure 2: Mussey Grade Road/Project Driveway Intersection
Looking South along Mussey Grade Road

Corner Sight Distance Looking South from Project Driveway = 155 feet

The sight distance analysis, summarized in **Table 2** indicate that the proposed project driveway location does not meet the County's corner sight distance standards in the southern direction due to several mature oak trees obstructing the driver's view. A partially obstructed line of sight can be established by removing two of the larger trees as shown in **Figure 3.** By removing two of the trees (the second and third trees away from the intersection) , approaching vehicles can be seen through the remaining trees. Portions of the approaching vehicle may be obstructed by the remaining trees at any point in time but enough of the vehicle will be visible for drivers to make good decisions and drive safely. The partially obstructed line of sight is estimated to be 275'.

TABLE 2
PROJECT DRIVEWAY CORNER SIGHT DISTANCE ANALYSIS

Location	Prevailing Speed (mph)	Corner Sight Distance		
		Measured (ft)	Required (ft)	Adequate?
North of Driveway	45	550	450	Yes
South of Driveway	45	155	450	No

Source: Chen Ryan Associates, October 2016

Figure 3
Trees proposed to be removed to achieve Partial Sight Distance

Stopping Sight Distance Assessment

Caltrans' Highway Design Manual (Section 405.1 (b)) states that in instances where corner or intersectional sight distance cannot be met, stopping sight distance should be met.

> **Where restrictive conditions exist, similar to those listed in Index 405.1(2)(a), the minimum value for corner sight distance at both signalized and unsignalized intersections shall be equal to the stopping sight distance as given in Table 201.1, measured as previously described.**

Stopping sight distance is the distance required for an approaching vehicle to stop when the driver sees an obstruction in the path of travel. Stopping sight distance is comprised to two elements; the distance traveled by the vehicle during the driver's perception-reaction time and the distance traveled by the vehicle after the brakes are applied. The formula is:

$$d = 1.47Vt + 1.075\frac{V^2}{a}$$

Source AASHTO manual " Apolicy on Geometric Design of Highways and Streets"

Where *d* is the stopping sight distance , *V* is the degn speed (MPH), *t* is reation time (seconds), *a* is the deceleration rate (ft/sec).

The reation time (*t*) and deceleration rate (*a*) are determined emperically and published in the AASHTO Manual. They are respectively 2.5 sec for reaction time and and 11.2 ft/sec for deceleration. Based on the values provided the stopping sight distance for a 45 MPH roadway is 360 ft as shown in **Table 3**.

Stopping sight distance for new construction is based on achieving ideal conditions. It's recognized that when evaluating existing conditions ideal conditions cannot always be met, so more practical considerations are applied.

The AASHTO manual also studies shown drivers who are alerted to the stopping conditon need only 1.5 sec of reaction time instead of the higher 2.5 sec. In additon, the deceleration rate of 11.2 ft/sec. is refered to as a comfort deceleration yet 90% of all drivers exceed the the 11.2 ft/sec rate with most drivers decelerateting at a higher 14.8 ft/sec when confronted by an unexpected need to stop. The stopping sight distance recalucluated with these values provides a stopping sight distiacne of 246'.

In short, if the stopping sight distance were recalculated using the lower reation time and the higher deceleration rate, the stopping sight distance would be 246'. The available stopping sight distance is greater that the required stopping sight distance of 275'.

TABLE 3
PROJECT DRIVEWAY STOPPING SIGHT DISTANCE ANALYSIS

Location	Prevailing Speed (mph)	Stopping Sight Distance		
		Measured (ft)	Required (ft)	Adequate?
North of Driveway	45	550	360	Yes
South of Driveway	45	155	360	No
South of Driveway (partially obstructed)	45	275	360	No
South of Driveway (partially obstructed)	45	275	246*	Yes

Source: Chen Ryan Associates, October 2016

*Based on perception reaction time of 1.5 sec and a deceleration rate of 14.8 ft/sec.

Recommendation

The recommendation is to install a warning sign indicating the approaching intersection for northbound drivers on Mussey Grade Road approaching Wildwood Ranch Driveway, as well as to remove two of the

trees that are within the line of sight, and to approve the Design Exception Request for reduced Sight Distance.

Appendix B
Air Quality and Greenhouse Gas Memorandum

Memorandum

To:	Ms. Lorrie Bradley, Environmental Planner County of San Diego Department of Parks and Recreation
Date:	March 1, 2019
Re:	**Air Quality and Greenhouse Gas Memorandum for the Boulder Oaks Preserve Public Access Plan Project**

The purpose of this memorandum is to support the County of San Diego (County) environmental review process and provide information regarding potential effects of air quality and greenhouse gas (GHG) emissions associated with the proposed Boulder Oaks Preserve Public Access Plan (proposed project). The proposed project includes trails, staging areas, a volunteer pad, picnic tables, shade structures, interpretive features, and new gates, as well as and of an existing restroom facility. A detailed description of the project is provided in the Initial Study. The analysis provided in this memorandum evaluates the potential for short- and long-term air quality and GHG impacts associated with project construction and operation. This report summarizes the regulations and environmental setting applicable to air quality and GHG emissions, describes the methodology used to estimate emissions and the applicable CEQA significance thresholds, and presents the findings used to evaluate the impacts. Modeling output sheets are provided in Attachment A to this report.

Background

Overview of Regulations

The project is subject to air quality regulations developed and implemented at the federal, state, and local levels. At the federal level, the U.S. Environmental Protection Agency (EPA) is responsible for implementation of the Clean Air Act (CAA). Some portions of the CAA (e.g., certain mobile-source and other requirements) are implemented directly by EPA. Other portions (e.g., stationary-source requirements) are implemented by state and local agencies. Both the EPA (National Ambient Air Quality Standards [NAAQS]) and the California Air Resources Board (CARB) (California Ambient Air Quality Standards [CAAQS]) have established ambient air quality standards for various common pollutants (see below). The EPA and CARB designate areas as either attainment or nonattainment for each criteria pollutant based on whether the appropriate ambient NAAQS (and CAAQS in California) have been achieved. Through the CAA, the EPA grants CARB authority to govern air quality in California, and CARB has granted regional governing authority to the various air districts.

San Diego Air Pollution Control District (SDAPCD) is the local agency responsible for the administration and enforcement of air quality regulations in San Diego County. SDAPCD' s primary roles include controlling air pollution from stationary sources, developing and monitoring the County's portion of the State Implementation Plan (SIP), and developing rules for attaining NAAQS and CAAQS. SDAPCD is responsible for establishing and enforcing local air quality rules and regulations in order to attain air quality standards, and SDAPCD has adopted numerous rules and regulations to reduce emission from sources under its control.

Pollutants of Concern

The analysis focuses on the following pollutants that are of greatest concern for the proposed project:

- Criteria pollutants – Pollutants for which the federal and state governments have set ambient air quality standards or that are chemical precursors to compounds for which ambient standards have been set. The criteria pollutants associated with the project are ozone (O_3) and the precursors thereof (reactive organic gasses [ROG] and nitrogen oxides [NO_X]), particulate matter (PM) (PM10 is PM smaller than or equal to 10 microns in diameter, and PM2.5 is PM smaller than or equal than 2.5 microns in diameter), carbon monoxide (CO), and sulfur dioxide (SO_2).
    - All criteria pollutants can have human health and environmental effects at certain concentrations. The ambient air quality standards for these pollutants are set by federal and state agencies to protect public health and the environment within an adequate margin of safety (CAA Section 109). Epidemiological, controlled human exposure, and toxicology studies evaluate potential health and environmental effects of criteria pollutants, and form the scientific basis for new and revised ambient air quality standards. Most health studies have focused on two key pollutants: ozone and PM2.5.
        - For ozone, evidence suggest that sensitive populations (e.g., asthmatics) may be affected on days when the 8-hour maximum ozone concentration reaches 80 parts per billion, or 0.080 parts per million.[1] Of note: the federal 8-hour standard for ozone is 70 parts per billion, or 0.070 parts per million.
        - For PM2.5, an extensive body of scientific evidence documented in PM ISA indicates that PM2.5 can penetrate deep into the lungs and cause serious health effects, including premature death and other non-fatal illnesses. CARB indicates that, based on air quality data from 2009–2011, PM2.5 exposure contributes to an estimated 7,200 premature deaths due to cardiopulmonary causes, 1,900 hospitalizations for exacerbated cardiopulmonary diseases, and 5,200 emergency room visits for asthma each year in California.[2]

[1] See the discussion here for more information: https://www.epa.gov/ozone-pollution-and-your-patients-health/health-effects-ozone-general-population

[2] See the discussion here for more information: https://www.arb.ca.gov/research/aaqs/common-pollutants/pm/pm.htm

- Toxic air contaminants (TACs) – A defined set of airborne pollutants that may pose a present or potential hazard to human health. TACs are separated into carcinogenic and non-carcinogenic. The primary TAC of concern associated with construction and operation of the proposed project is diesel particulate matter (DPM), which is a special class of particulates and a subset of PM2.5.
- Greenhouse gases –According to State CEQA Guidelines (Section 15364.5), the principal GHGs that contribute to global climate change include carbon dioxide (CO_2), methane (CH_4), and nitrous oxides (N_2O), perfluorinated carbons, sulfur hexafluoride, and hydrofluorocarbons. Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (human-made) sources. The primary GHGs of concern associated with the project are CO_2, CH_4, and N_2O, which are primarily associated with fuel combustion in on- and off-road motor vehicles.

Thresholds of Significance

Air Quality

The following significance criteria are based on Appendix G of the State CEQA Guidelines and provide the basis for determining significance of impacts associated with air quality and GHG emissions resulting from the proposed project. The determination of whether an air quality or GHG impact would be significant is based on the applicable thresholds and the professional judgment of the County as Lead Agency. The guidelines state that the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the significance determination of whether a project would violate or impede attainment of air quality standards. As noted above, both the EPA and CARB designate areas as either attainment or nonattainment for each criteria pollutant based on whether the appropriate NAAQS and CAAQS have been achieved. Attainment status for each pollutant is assigned for the entire air basin. In San Diego, the San Diego Air Basin (SDAB) is defined as "all of San Diego County" (see 17 California Code of Regulations [CCR] 60110). The current attainment status for the entire San Diego region, which includes nonattainment status for ozone NAAQS, ozone CAAQS, PM10 CAAQS, and PM2.5 CAAQS, applies to the entire county (SDAPCD 2019).

Although SDAPCD has not developed specific thresholds of significance to evaluate construction and operational impacts within CEQA documents, SDAPCD's Regulation II, Rules 20.2 and 20.3 (new source review for non-major and major stationary sources, respectively), outline Air Quality Impact Analysis (AQIA) Trigger Levels for criteria pollutants for new or modified sources. Based on SDAPCD's AQIA Trigger Levels, as well as EPA rulemaking and CEQA thresholds adopted by the South Coast Air Quality Management District (SCAQMD), the County of San Diego has established screening-level thresholds (SLTs) to assist lead agencies in determining the significance of project-level air quality impacts within the county (as shown in Table 1). SDAPCD does not provide AQIA trigger levels for volatile organic compound (VOC) or PM2.5 AQIA Trigger Levels. Thus, the County has adopted a PM2.5 SLT based on EPA's "Proposed Rule to Implement the Fine Particle National

Ambient Air Quality Standards" published on September 8, 2005,[3] which is also consistent with SCAQMD's Air Quality Significance Thresholds (SCAQMD 2006, 2015). Further, the County has adopted a VOC SLT that is based on the threshold of significance for VOCs from the SCAQMD for the Coachella Valley and Antelope Valley portions of the Southeast Desert Air Basin from its *CEQA Air Quality Handbook* (SCAQMD 1993). Emissions in excess of San Diego County's SLTs, shown in Table 1, would be expected to have a significant impact on air quality as an exceedance of the SLTs is anticipated to contribute to CAAQS and NAAQS violations in the County because an exceedance of the trigger levels established by SDAPCD, the PM2.5 threshold identified in EPA rulemaking, and the VOC thresholds levels adopted from SCAQMD, contribute to CAAQS and NAAQS violations.

The County's SLTs are based on SDAPCD AQIA Trigger Levels, which are based on emissions levels identified under the "New Source Review" (NSR) program, which is a permitting program established by Congress as part of the CAA Amendments of 1990 to ensure that air quality is not significantly degraded by new or modified sources of emissions. The NSR program requires that stationary sources receive permits before construction begins and/or the use of equipment. By permitting large stationary sources, the NSR program ensures that new emissions would not slow regional progress toward attaining the NAAQS. SDAPCD implements the NSR program through Rules 20.2 and 20.3, and has concluded that the stationary pollutants described under the NSR program are equally significant as those pollutants generated with land use projects. SDAPCD's Trigger Levels were set as the total emission thresholds associated with the NSR program to help attain and maintain the NAAQS from new and modified non-major stationary sources.[4] SDAPCD's Trigger Levels take into account the region's attainment status, emission profile, inventory, and projections, and represent levels above which project-generated emissions could affect SDAPCD's commitment to attain the state and federal standards in the region. Consistent with Section 15064.7(c) of the State CEQA Guidelines,[5] the evidence in support of the air quality thresholds shown in Table 1 is deemed appropriate for their use in this analysis and in this location within the greater SDAB.

Table 1. San Diego County Screening-Level Thresholds

	Emission Rate		
Air Contaminant	**(pounds per hour)**	**(pounds per day)[a]**	**(tons per year)**
Respirable Particulate Matter (PM10)	--	100	15
Fine Particulate Matter (PM2.5)[b]	--	55	10
Nitrogen Oxides (NO_X)	25	250	40
Sulfur Oxides (SO_X)	25	250	40
Carbon Monoxide (CO)	100	550	100
Lead (Pb)[c]	--	3.2	0.6

[3] To derive the 55 pounds per day threshold, SCAQMD converted the annual rate in EPA's proposed rulemaking of 10 tons per year into a daily rate of approximately 55 pounds per day (10 tons x 2,000 pounds per ton divided by 365 days per year).

[4] San Diego Air Pollution Control District, Rule 20.2, Table 20.2-1, hereby incorporated by reference: http://www.sdapcd.org/rules/Reg2pdf/R20-2.pdf.

[5] "When adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence."

Air Contaminant	Emission Rate (pounds per hour)	(pounds per day)[a]	(tons per year)
Volatile Organic Compounds (VOC)/Reactive Organic Gasses (ROG)[d]	--	75	13.7[e]

Source: County of San Diego 2007.

[a] The County's Guidelines for Determining Significance for Air Quality states that daily SLTs are most appropriate when assessing impacts from standard construction and operational emissions. Therefore, daily SLTs are used to evaluate project significance, while hourly and annual SLTs are provided for informational purposes only.

[b] Based on EPA's "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published September 8, 2005, and also SCAQMD's Air Quality Significance Thresholds (SCAQMD 2015).

[c] Lead and lead compounds.

[d] County SLTs for VOCs were originally based on the threshold of significance for VOCs from SCAQMD for the Coachella Valley. The terms VOC and ROG are used interchangeably herein, although the City and County use the term VOC.

[e] 13.7 tons per year threshold is based on 75 pounds per day multiplied by 365 days per year and divided by 2,000 pounds per ton.

The following County of San Diego criteria were used to determine whether the project would expose sensitive receptors to substantial pollutant concentrations.

- Would the project place sensitive receptors near CO "hotspots" or create CO "hotspots" near sensitive receptors?
- Would the project result in exposure to TACs resulting in a maximum incremental cancer risk greater than 1 in 1 million without application of Toxics Best Available Control Technology, or a health hazard index greater than 1, and thus be deemed as having a potentially significant impact?
- Would project either generate objectionable odors or place sensitive receptors next to existing objectionable odors, which would affect a considerable number of persons or the public?

Also, the following County of San Diego criteria were used to determine whether the project would result in cumulative air quality impacts.

- A project that has a significant direct impact on air quality with regard to emissions of PM10, PM2.5, NO_X, and/or VOCs would also have a significant cumulatively considerable net increase.
- In the event direct impacts from the proposed project are less than significant, a project may still have a cumulatively considerable impact on air quality if the emissions of concern from the proposed project, in combination with the emissions of concern from other past, present, or reasonably foreseeable future projects within the proximity relevant to the pollutants of concern, are in excess of direct air quality impact thresholds.

Health-Based Thresholds for Project-Generated Pollutants of Human Health Concern

In December 2018, the California Supreme Court issued its decision in *Sierra Club v. County of Fresno* (226 Cal.App.4th 704) (hereafter referred to as the Friant Ranch Decision). The case reviewed the long-term, regional air quality analysis contained in the environmental impact report (EIR) for the

proposed Friant Ranch development. The Friant Ranch project is a 942-acre master-plan development in unincorporated Fresno County within the San Joaquin Valley Air Basin, an air basin currently in nonattainment for the ozone and PM2.5 NAAQS and CAAQS. The Court found that the air quality analysis was inadequate because it failed to provide enough detail "for the public to translate the bare [criteria pollutant emissions] numbers provided into adverse health impacts or to understand why such a translation is not possible at this time." The Court's decision clarifies that environmental documents must connect a project's air quality impacts to specific health effects or explain why it is not technically feasible to perform such an analysis.

As discussed above, all criteria pollutants that would be generated by the proposed project are associated with some form of health risk (e.g., asthma). Criteria pollutants can be classified as either regional or localized pollutants. Regional pollutants can be transported over long distances and affect ambient air quality far from the emissions source. Localized pollutants affect ambient air quality near the emissions source. Ozone and NO_2 are considered regional criteria pollutants, whereas CO, SO_2, and Pb are localized pollutants. PM can be both a local and a regional pollutant, depending on its composition. As discussed above, the primary criteria pollutants of concern in the study area are ozone (including ROG and NO_X) and PM (including DPM).

Regional Project-Generated Criteria Pollutants (Ozone Precursors and Regional PM)

Adverse health effects induced by regional criteria pollutant emissions generated by the proposed project are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, the number and character of exposed individuals [e.g., age, gender]). For these reasons, ozone precursors (ROG and NO_X) contribute to the formation of ground-borne ozone on a regional scale, where emissions of ROG and NO_X generated in one area may not equate to a specific ozone concentration in that same area. Similarly, some types of particulate pollutant may be transported over long-distances or formed through atmospheric reactions. As such, the magnitude and locations of specific health effects from exposure to increased ozone or regional PM concentrations are the product of emissions generated by numerous sources throughout a region, as opposed to a single individual project. While models and tools have been developed to correlate regional criteria pollutant emissions to potential community health impacts, these tools were developed to support regional planning and policy analysis and have limited sensitivity to small changes in criteria pollutant concentrations induced by individual projects. Therefore, translating project-generated criteria pollutants to the locations where specific health effects could occur or the resultant number of additional days of nonattainment cannot be estimated with a high degree of accuracy.

As discussed above, air districts develop region-specific CEQA thresholds of significance in consideration of existing air quality concentrations and attainment or nonattainment designations under the NAAQS and CAAQS. The NAAQS and CAAQS are informed from the findings of a wide range of scientific evidence that demonstrates "safe" exposure to criteria pollutants. While recognizing that air quality is a cumulative problem, air districts typically consider projects that generate criteria pollutant and ozone precursor emissions below these thresholds to be minor in nature and would not adversely affect air quality such that the NAAQS or CAAQS would be exceeded. Emissions generated by the project could increase photochemical reactions and the formation of tropospheric ozone and secondary PM, which at certain concentrations could lead to increased

incidence of specific health consequences. Although these health effects are associated with ozone and particulate pollution, they are a result of cumulative and regional emissions. As such, a project's incremental contribution cannot be traced to specific health outcomes on a regional scale, and a quantitative correlation of project-generated regional criteria pollutant emissions to specific human health impacts is not included in this analysis. As discussed below, emissions from project construction and operations are minor and are far below thresholds. Therefore, the project would not adversely affect air quality such that the NAAQS or CAAQS would be exceeded.

Localized Project-Generated Criteria Pollutants (PM and CO) and Air Toxics (DPM)

Localized pollutants generated by a project are deposited near the emissions source. Because these pollutants are not transported over long distances and do not undergo complex photochemical or atmospheric reactions (notwithstanding secondary PM2.5 formation), emissions from individual projects can result in direct and material health impacts to adjacent sensitive receptors. Models and thresholds are readily available to quantify these potential health effects and evaluate their significance (CAPCOA 2009, OEHHA 2015, CARB 2000). Thus, the discussion below related to localized pollutants focuses on pollutants with adopted thresholds, specifically DPM and CO.[6]

Greenhouse Gases

The section below includes a summary of the State CEQA Guidelines regarding GHG analyses, rulings and direction from relevant and recent case law, a summary of threshold types and their applicability, and a summary of the recommended threshold approach for the proposed project. Note that the discussion below and analysis herein is based on the state of the GHG practice at the time of analysis, and the approach proposed may not be appropriate for each project implemented by County of San Diego Department of Parks and Recreation in the future.

State CEQA Guidelines

The State CEQA Guidelines, Appendix G (14 CCR 15000 et seq.), identify significance criteria to be considered for determining whether a project could have significant impacts on existing GHG emissions and climate change. A project impact would be considered significant if construction or operation of the proposed project would cause either of the following:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The State CEQA Guidelines do not indicate what amount of GHG emissions would constitute a significant impact on the environment. Instead, they authorize the lead agency to consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is

[6] Although SO_2 and lead may also concentrate locally, the project does not represent a significant source of these pollutants. Accordingly, they are not discussed or evaluated further.

supported by substantial evidence (State CEQA Guidelines Sections 15064.4(a) and 15064.7(c)). CEQA offers two paths to evaluating GHG emissions impacts in CEQA documents:

1. Projects can tier off a "qualified" GHG Reduction Plan (State CEQA Guidelines Section 15183.5), and
2. Projects can determine significance by utilizing a model to calculate GHG emissions and assess their significance (CEQA Guidelines Section 15064.4).

A number of agencies throughout the state, including multiple air districts, have drafted and/or adopted varying threshold approaches and guidelines for assessing the significance of GHG emissions in CEQA documents. However, none of these are binding; they are only recommendations for consideration by CEQA lead agencies.

Regardless of the threshold chosen, the lead agency must provide substantial evidence to support determinations. The term *substantial evidence* is defined in the CEQA statute to mean "fact, a reasonable assumption predicated upon fact, or expert opinion supported by fact. Substantial evidence is not argument, speculation, unsubstantiated opinion or narrative, evidence that is clearly inaccurate or erroneous, or evidence of social or economic impacts that do not contribute to, or are not caused by, physical impacts on the environment" (Section 21080 [d]). Substantial evidence in this case should consist of a logical explanation of how a given project's compliance with a particular threshold would result in GHG emissions consistent with statewide GHG reduction targets over time.

Case Law

The Courts have ruled on various matters related to GHG analyses in CEQA documents. The various Court rulings have established legal requirements for adequate analysis of GHG emissions under CEQA, including setting thresholds, properly defining the level of significance, and identifying mitigation measures. Overall, the Courts have reaffirmed lead agency discretion in setting appropriate thresholds in determining impacts under CEQA, provided that the use of the threshold in question is based on substantial evidence, that the threshold is appropriate and fits with a particular project, and that the analysis is in line with the state of the science. Both the *Newhall Ranch*[7] and *Golden Door*[8] decisions made it clear that the thresholds that rely on statewide data must be justified for use at the project level in a given location and based on the project type. In its rulings, the courts have made it clear the Scoping Plan does not include a requirement or recommendation for individual projects, while stating that it "seems that new development must be more GHG-efficient than average" to meet statewide reduction goals. Thus, while the Courts have validated the use of "consistency with statewide reduction targets" (e.g., Assembly Bill [AB] 32 and Senate Bill [SB] 32) as a CEQA criterion, they have made it clear the Scoping Plan does not include a requirement or recommendation for individual projects, further stating that it "seems that new development must be more GHG-efficient than average" to meet statewide reduction goals. Further, the court re-affirmed in SANDAG case that CEQA analyses need to stay in step with evolving scientific knowledge and state regulatory schemes. Moreover, the SANDAG ruling reaffirmed that a

[7] *Center for Biological Diversity et al. vs. California Department of Fish and Wildlife, the Newhall Land and Farming Company* (November 30, 2015, Case No. S217763)

[8] *Golden Door Properties LLC vs. County of San Diego* (September 28, 2018, Appeals Case No. D075328

lead agency may choose to review a project's environmental impacts using more than one threshold of significance so long as this review adequately informs readers of potential GHG and climate change impacts.[9]

Applicability of Available Thresholds

As noted above, CEQA leaves it up to the lead agency to adopt or recommend the appropriate threshold approach, which can vary on a project-by-project basis. A number of threshold approaches have been adopted, drafted, or recommended throughout the state by lead agencies or by air districts. However, none of these are legally binding, and each has distinct advantages and disadvantages in terms of legal defensibility and practical application. Some commonly used threshold approaches include (1) consistency with a qualified GHG reduction plan, (2) performance-based reductions,[10] (3) numeric "bright-line" thresholds, (4) efficiency-based thresholds, and (5) compliance with regulations. The applicability of these thresholds is discussed below.

Compliance with a Qualified GHG Reduction Plan

CEQA promotes the tiering or streamlining of environmental review from previously adopted programmatic documents. According to the state's Office of Planning and Research (OPR), the Legislature has made it clear that lead agencies should tier or streamline their environmental documents whenever feasible, and that GHG emission resulting from individual projects may be best analyzed and mitigated at a programmatic level through a GHG emission reduction plan, such as a climate action plan (OPR 2018). A GHG reduction plan that is consistent with the criteria established under State CEQA Guidelines Sections 15183.5 (b) and 15064.4 is considered "qualified" for tiering, and later project-specific environmental documents may tier from and/or incorporate by reference the GHG plan in question. The County Board of Supervisors adopted the County's Climate Action Plan (CAP) and its EIR on February 14, 2018. The CAP and EIR are consistent with requirements of State CEQA Guidelines Section 15183.5. The CAP is a comprehensive plan outlining the specific activities that the County will undertake to reduce GHG emissions in its unincorporated communities. The CAP will also help the County meet GHG reduction targets established by State Regulations including AB 32, SB 32, and Executive Orders B-30-15 and S-3-05. To meet these reduction targets, the County will need to reduce their emissions to levels specified in the County's CAP. Table 2 provides a summary of the County's GHG emissions inventory, projections, and the reduction targets from the CAP for baseline (2014) and CAP horizon years (2020, 2030, and 2050). The CAP's reduction targets are as follows:

- 2% below 2014 levels by 2020 (equivalent to achieving 1990 levels per AB 32);
- 40% below 2014 levels by 2030 (equivalent to achieving 40% below 1990 levels per SB 32); and
- 77% below 2014 levels by 2050 (equivalent to achieving or demonstrating progress towards 80% below 1990 levels per EO-S-3-05).

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[9] *Cleveland National Forest Foundation v. San Diego Assn. of Governments* (July 13, 2017, Case No. S223603).

[10] Performance-based reductions include the "percentage below business-as-usual" threshold approach and are generally based solely on statewide targets, which has been used widely in the past. This approach was the subject of the *Newhall Ranch* case.

Table 2. County of San Diego Emissions Inventory, Projections, and Reduction Targets

Scenario	Annual $MTCO_2e$			
	2014	2020	2030	2050
Total Without Any Legislative Reductions (BAU Total)	3,211,505	3,407,168	3,723,596	4,220,560
Total With Legislative Reductions	3,211,505	3,018,671	2,824,049	2,991,507
Total With CAP Measures	--	2,886,465	1,926,903	2,165,367
Reduction Targets	--	3,147,275	1,926,903	738,646
Additional Reductions Needed	--	0	0	1,426,721

$MTCO_2e$ = metric tons of CO_2 equivalent
BAU = business as usual

The CAP relies on 11 strategies and 26 measures to reduce GHG emissions to the specified targets from all sources of emissions in the County, including vehicle, building energy, water consumption, agriculture, and open space, among others. The CAP includes measures that are applicable to privately-initiated and/or County-sponsored projects.

Measures relevant to the proposed County-sponsored project include the following:

- T-2.3: Reduce County Employee Vehicle Miles Traveled
- T-3.2: Use Alternative Fuels in County Projects
- T-3.4: Reduce the County's Fleet Emissions
- Measure E-1.4: Reduce Energy Use Intensity at County Facilities
- Measure E-2.4: Increase Use of On-Site Renewable Electricity Generation for County Operations
- Measure W-1.3: Reduce Potable Water Consumption at County FacilitiesA-2.2: Increase County Tree Planting

Generally, proposed projects are found to have a less-than-significant cumulatively considerable contribution to climate change impacts if the project is found to be consistent with the County's CAP (County 2018c). For discretionary development projects, consistency with the CAP is determined through the CAP Consistency Review Checklist, which is included as Appendix A of the Guidelines for Determining Significance CAP document (County 2018b).

While the CAP checklist is specifically designed for discretionary development projects, and not for County-sponsored projects, the CAP checklist does provide the basic criteria for determining consistency with the assumptions and strategies in the CAP. The CAP Consistency Checklist is the County's significance threshold utilized to ensure project-by-project consistency with the underlying assumptions in the CAP and to ensure that the County would achieve its emission reduction targets identified in the CAP. The CAP Consistency Checklist includes a two-step process to determine if the project would result in a GHG impact. Step 1 consists of an evaluation to determine the project's consistency with existing General Plan, land use designations, and zoning designations for the site. Step 2 consists of an evaluation of the project's design features' compliance with the CAP strategies.

Again, while the checklist is intended for discretionary development projects, the same criteria for determining significance can be applied to County-sponsored projects.

The County's CAP does not provide separate criteria or measures for GHG emissions associated with project construction. Construction emissions are often short-term and are typically a small percentage of a project's total GHG emissions. To achieve the state's GHG reduction goals, GHG emissions from a project's operational and land uses components will need to be the focus of discrete actions to reduce emissions. As such, the County does not recommend a quantitative construction GHG threshold at this time. Regardless, the analysis below includes quantification and evaluation of construction-related GHG emissions.

Note that the Superior Court ruled that mitigation measure (MM) GHG-1 of the CAP was inconsistent with the General Plan. An injunction was declared that forbids any project that relies on MM-GHG-1 from moving forward, but further states that projects that do not rely on the MM-GHG-1 program can proceed. MM-GHG-1 applies only to in-process or future General Plan Amendments (GPAs). The proposed project does not rely on the requirement of MM-GHG-1 in that it is does not require a GPA. Therefore, the CAP and CAP checklist remain a valid means of analyzing the cumulatively considerable contribution of the project to climate change. Note that the County has appealed this decision.

However, because of the CAP lawsuit, and the constantly-evolving direction from the courts on other cases, the analysis herein includes a good faith effort to consider all potential significance criteria under the current state of the CEQA practice. Therefore, the discussion below includes a summary of other threshold approaches and their applicability to the proposed project.

Numerical Bright-Line

In general, numerical bright-line thresholds identify the point at which additional analysis and mitigation of project-related GHG emission impacts is necessary. Bright-line thresholds have been developed for commercial projects, residential projects, and stationary sources by various agencies and air districts throughout the state. Commercial and residential bright-line thresholds are typically based on a market capture rate or a gap analysis,[11] which is tied back to AB 32 reduction targets (1990 levels by 2020). These bright-line thresholds reflect local or regional land use conditions, particularly residential and commercial density and access to transit. For example, the Bay Area Air Quality Management District's (BAAQMD) bright-line threshold of 1,100 $MTCO_2e$ captures land use conditions present in the Bay Area at the time of analysis and does not necessarily reflect conditions in other areas of the state, that may display varying land use patterns and density. In addition to BAAQMD, other air districts that have adopted or drafted bright-line thresholds for land use development projects include SCAQMD (3,000 $MTCO_2e$ for residential/commercial or mixed use; 3,500 $MTCO_2e$ for residential only; 1,400 $MTCO_2e$ for commercial only; never adopted), San Luis Obispo Air Pollution Control District (SLOAPCD) (1,150 $MTCO_2e$; adopted) and Sacramento Metropolitan Air Quality Management District (SMAQMD) (1,100 $MTCO_2e$; adopted, with an updated expected in 2019)(AEP 2016).

[11] The gap analysis demonstrates the reductions needed at the residential and commercial land use levels to achieve state targets. Capture is the process of estimating the portion of projects that would result in emissions that exceed a significance threshold and would be subject to mitigation.

As shown, there is considerable variation in the bright line significance threshold throughout the state. Air districts and lead agencies consider emissions from the type and number of local projects implemented in their region or jurisdiction when setting the mass emissions threshold. Also, of note is that each of these numerical thresholds are currently designed to capture or fill in the gap to ensure statewide targets for 2020 are met. These thresholds do not yet take into account the capture or gap that needs to be filled to achieve post-2020 targets. Regardless, they can serve as a reasonable conservative screening criterion to evaluate project-generated emissions during both the 2020 and post-2020 timeframe.

Another threshold that has been historically used by various lead agencies in the region is the 900 $MTCO_2e$ screening level threshold that first appeared in the California Air Pollution Control Officers Association (CAPCOA) 2008 *CEQA & Climate Change* White Paper. The 900 $MTCO_2e$ level served as a theoretical approach to identify commercial or residential projects that require further analysis and potential mitigation; projects above this screening level required further analysis, and projects below this screening level would result in sufficiently low GHG emissions to be less than cumulatively considerable without mitigation. Both the County and City of San Diego previously recommended this 900 $MTCO_2e$ threshold level. This 900 $MTCO_2e$ screening level is based on emission sources associated with typical land use development projects (e.g., on-road passenger vehicle and trucks, electricity consumption). Emission sources associated with park and recreational uses are similar in that emissions are primarily associated with on-road passenger vehicles. Accordingly, the 900 $MTCO_2e$ threshold is applicable to the proposed project and meets the criteria identified in recent case law related to appropriately analyzing project-level GHG emissions using a threshold that is appropriate for a particular project (e.g., the threshold is based on similar math and emission sources as the project).

Air districts have permitting authority as the lead agency for stationary sources and can therefore enforce stationary source GHG emissions thresholds. Based on this, many air districts have adopted rules and bright-line thresholds for stationary sources. The most common stationary source bright-line threshold is 10,000 $MTCO_2e$, which has been adopted by multiple air districts and other agencies as part of the permitting process, including BAAQMD, Monterey Bay Unified Air Pollution Control District, Placer County Air Pollution Control District, SCAQMD, SLOAPCD, and SMAQMD. In addition, other stationary source thresholds include the 100,000 $MTCO_2e$ threshold adopted by both the Antelope Valley Air Quality Management District and Mojave Desert Air Quality Management District; and the 25,000 $MTCO_2e$ threshold adopted by East Kern Air Pollution Control District. However, while many of these thresholds have been adopted, thresholds used for CEQA evaluation need to apply to the type of project being evaluated. Because stationary source thresholds were developed for the evaluation of permitted stationary sources, their use on the proposed project would be inappropriate.

Efficiency-Based

Efficiency thresholds are quantitative thresholds that are based on a measurement of GHG efficiency for a given project, regardless of the amount of mass emissions. Projects that attain the efficiency target, with or without mitigation, would achieve California's GHG emissions target established under AB 32 and SB 32. While recent case law has not specifically recommended the efficiency-based approach, the rulings have noted that numerical threshold approaches may be appropriate for

determining significance of GHG emissions and to emphasize the consideration of GHG efficiency, but that its use must be substantiated by explaining why the efficiency metric in question is appropriate for a given project in a given location.

GHG efficiency thresholds for CEQA analyses have traditionally been developed based on service population (residents+ jobs) methodology, and have been targeted to residential, commercial, and mixed-use projects. These types of projects include GHG emissions resulting from a mixture of building energy, transportation, solid waste, and other emissions similar in proportion to that of the overall land use sector and that occur in a roughly linear relationship to the number of employees and/or residential population. No efficiency threshold has been developed for park uses.

CARB's Scoping Plan includes a recommendation for local governments to support the statewide target efficiency of no more than six $MTCO_2e$ per capita by 2030 and no more than two $MTCO_2e$ per capita by 2050. These per capita estimates are based on 2030 and 2050 targets divided by total population projections from California Department of Finance. CARB notes that these goals are appropriate for the plan level (city, county, subregional, or regional level, as appropriate) analyses, but are not appropriate for specific individual projects because the targets include all emissions sectors in the state, and that local governments should evaluate and adopt robust and quantitative locally-appropriate goals that align with and support the statewide per capita targets. Thus, consistent with case law and CARB's recommendation, reference to or use of these statewide per capita targets must be substantiated explaining why CARB's efficiency metric is appropriate for a given project in a given location.

As noted, efficiency-based thresholds are most appropriate for development projects that include some form of occupancy by which to benchmark emissions (e.g., the number of residences or jobs) or at the plan level (e.g., the number of population a plan serves). Park uses do not generate significant direct employment or other forms of meaningful output to easily benchmark emissions. Accordingly, efficiency thresholds are not applicable to the proposed project.

Performance-Based Reductions (e.g., BAU)

Performance-based thresholds are based on a percentage reduction from a projected future condition. For example, reducing future BAU emissions by the AB 32 target of 29% (below 2020 BAU levels) through a combination of state measures, project design features (e.g., renewable energy), or mitigation is a performance-based threshold. The performance-based approach is based on the project's reduction in emissions from an unmitigated condition. Various lead agencies have adopted performance-based targets that are all tied to the AB 32 target of achieving 1990 levels by 2020, but the prescribed percentage reduction can vary depending on the version of the Scoping Plan and targets therein that were used. For example, San Joaquin Valley Air Pollution Control District recommends a 29% reduction, which is based on the 2008 Scoping Plan, while Sacramento Metro Air Quality Management District previously recommended a 21.7% reduction from a projected no action taken (NAT) scenario,[12] which is based on the 2011 re-adopted Scoping Plan, whose emission targets vary slightly from 2008 to account for revised estimates for future fuel and energy demand.

[12] The NAT scenario does not include any state regulations designed to reduce GHG emissions, including improvements to the Title 24 standards, Renewable Portfolio Standard, Low Carbon Fuel Standard, or Pavley Rules.

With the *Newhall Ranch* decision, relating a given project to the achievement of state reduction targets likely requires adjustments to CARB's statewide BAU model not only to isolate new development emissions but also to consider unique geographic conditions and operational characteristics that would be required to use the BAU performance-based methodology for a specific project. To date, this type of adjustment to the statewide BAU target has not been formulated and, therefore, is not appropriate for the project's analysis. The primary value of a performance-based target, as indicated in *Newhall Ranch*, is that it can provide a scenario by which to evaluate the effectiveness of a project's efficiency and conservation measures to reduce GHG emissions. As such, future year targets can be used to benchmark performance, using either statewide or regional emission targets, to determine a project's fair share of mitigation.

Compliance with Regulatory Programs

Another approach for determining whether a project would result in significant GHG emission impacts is determining whether a proposed project is in compliance with regulatory programs designed to reduce GHG emissions from particular activities. To the extent a project complies with or exceeds those programs adopted by CARB or other regional or state agencies, a lead agency could rely on this compliance to demonstrate less-than-significant impacts. However, such analysis is only applicable within the area governed by the regulations. For example, consistency with regulations addressing building efficiency would not suffice to determine that the project would not have significant GHG emissions from transportation. The proposed project's compliance with regulatory programs adopted by CARB or other regional or state agencies is used, in part, for the proposed project's GHG emission analysis.

Chosen Threshold Approach

Based on the available threshold concepts recommended by expert agencies and recognized by the courts, and based on the fact that the proposed project is a park project that will be built out around the 2020 timeframe, the GHG analysis is based on the following approach:

1) Consistent with CEQA Guidelines Section 15064.4(a), which requires that lead agencies make a good faith effort to describe, calculate, or estimate GHG emissions for a project, emissions directly and indirectly related to project construction and operations are quantified. For purposes of CEQA analysis, sources of direct emissions occur at or near the project site, and include on-road transportation, natural gas combustion, construction and operational equipment use, and any land cover changes, while sources of indirect emissions occur away from the project site but result from project uses, such as electricity, water/wastewater, and solid waste.

2) Consistent with State CEQA Guidelines Section 15064.4(b)(1) and (2), the analysis discusses the following in terms of determining significance:

    i. whether project emissions exceed a threshold of significance that the lead agency determines applies to the project, and

    ii. the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG

emissions.

Project emissions are first compared to the threshold of significance that the lead agency determines applies to the project. A numerical bright-line value based solely on County-sponsored and/or park projects does not exist. Moreover, no bright-line threshold has been formally adopted by an air district or other lead agencies for use in the San Diego region. Both the City and County of San Diego have in the past recommend an interim 900 $MTCO_2e$ screening level as a theoretical approach to identify projects that require further analysis and potential mitigation, but both agencies no longer provide any numerical bright-line recommendations. While most guidance and case law encourage CEQA analyses to focus on the GHG efficiency of a proposed project, some projects are sufficiently small such that it is highly unlikely they would generate a level of GHGs that would be cumulatively considerable. This screening level identifies the point at which additional analysis and mitigation of project-related GHG emission impacts is necessary. Projects below this 900 $MTCO_2e$ level are sufficiently small enough that it is highly unlikely they would generate a level of GHGs that would be cumulatively considerable. Projects above this 900 $MTCO_2e$ level require further analysis and identification of project design features or potential mitigation measures with regard to GHG emissions. This 900 $MTCO_2e$ level is the lowest numerical threshold developed in the state, so it serves as a reasonably worst-cast and conservative criterion.

In addition, the analysis below analyzes project consistency with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Relevant statewide, regional, or local plans include but are not limited to CARB's Scoping Plan and supporting plans and strategies; SANDAG's Regional Plan and other plans and strategies at the regional level; as well as the County's General Plan, CAP, and associated plans and strategies. Note that while the CAP ruling is currently being appealed, the CAP itself does contain various mitigation strategies that are relevant to the proposed project and all County-sponsored projects. In the event that the CAP is implemented, the County will ensure it is doing its fair share towards statewide reductions. In the event that the CAP is not implemented or requires revisions based on direction from the courts, projects such as the proposed project that do not tier from the CAP can still use the CAP and its mitigation measures to mitigate project-related impacts regardless of the status of the CAP.

The analysis for compliance with regulatory programs only applies to the individual area or source category addressed by the regulatory program. For example, project-generated on-road transportation sources and emissions are discussed within the context of statewide, regional, and local strategies to reduce vehicle miles traveled (VMT) and overall mobile source emissions only.

Methodology

Air quality and GHG impacts associated with construction and operation of the project were assessed and quantified using industry standard and accepted software tools, techniques, and emission factors. A summary of the methodology is provided below.

Construction Emissions

Construction of the proposed project would result in the short-term generation of criteria pollutant and GHG emissions. Emissions were estimated based on grading equipment and grading schedule details, as well as other project information provided by the County's Department of Parks and Recreation (DPR) staff, as well as assumptions from various sources, including the California Emissions Estimator Model (CalEEMod).

A specific construction schedule is not known at this time. However, because the emissions intensity of equipment and trucks varies by year and trend down over time due to fleet turnover (i.e., emission factors are higher in 2019 than in 2020), it was conservatively assumed that construction would commence in December 2018 and continue over a 5-month period. If construction occurs in later years (e.g., in 2020 or beyond), then emissions are likely to be lower than those presented herein, as emission factors per unit of activity are likely to be lower than assumed herein.

Construction activities would occur Monday through Friday, with average hours of operation depending on phase and equipment necessary. For purposes of presenting a conservative analysis, it was assumed that all construction activities would occur concurrently on a given day. Emissions from construction equipment were estimated based on CalEEMod (version 2016.3.2) using grading schedule and equipment details provided by DPR, as well as default construction information for schedule, equipment, vehicle trips, as well as horsepower rating and load factors for each piece of equipment associated with demolition, building construction, and paving. Criteria pollutant emissions are summed at the daily time scale and compared to San Diego County's SLTs shown in Table 1. Construction GHG emissions are summed and amortized over the expected life of the project (assumed to be 30 years), consistent with industry standards and the life of the project.

Operational Emissions

Once operational, the proposed project could result in the long-term generation of criteria pollutant and GHG emissions in different quantities than existing conditions. The project's operational emission sources would be associated with motor vehicles visiting the site, area source emissions associated with the use of consumer goods, energy consumption, and solid waste generation. For purposes of analysis, it was assumed the project would be fully operational in 2019.

Modeling of mass mobile-source emissions was based on the number of daily vehicle trips that would result from the project's new recreational uses. Project trip generation rates for the site were obtained from the transportation impact analysis prepared for the project (Chen Ryan 2019), which estimate 42 daily vehicle trips on typical weekdays and 221 daily vehicle trips on Saturdays. Modeling was performed using CalEEMod (version 2016.3.2) for a typical "city park" in rural San Diego County. Emissions associated with area source emissions associated with consumer products and landscaping are also based on CalEEMod defaults for park uses. Criteria pollutant emissions are summed at the daily time scale and compared to San Diego County's SLTs shown in Table 1. GHG emissions from operations are summed annually and combined with amortized construction emissions to provide an estimate of total project annual emissions.

Impact Analysis

Air Quality

A significant impact on air quality would occur if the proposed project conflicted with applicable air quality plans, violated any air quality standard, exposed sensitive receptors to substantial pollutant concentrations, or created objectionable odors. Each of these issues is evaluated below. The analysis below is based on the evaluation guidance and threshold recommendations with the County's *Guidelines for Determining Significance for Air Quality* (2007).

Conflict with or obstruct implementation of the San Diego Regional Air Quality Strategy or applicable portions of the State Implementation Plan

San Diego County is currently designated as a nonattainment area for the federal 8-hour O_3 standard and the state O_3, PM10, and PM2.5 standards. San Diego County is required, pursuant to the federal and California Clean Air Acts, to reduce emissions of criteria pollutants for which the County and air basin are in nonattainment. The most recent air quality attainment plans are the 2016 San Diego Regional Air Quality Strategy (RAQS) and the 2016 O_3 attainment plan. The RAQS is the region's plan for improving air quality and attaining the state air quality standards, while the O_3 attainment plan is the region's plan for attaining the federal standard for O_3. Both the RAQS and attainment plan rely on information from CARB and SANDAG to project future emissions and determine appropriate emissions reduction strategies. SDAPCD has also adopted an ozone maintenance plan.

The proposed project does not include any amendments to the existing Zoning Ordinance, and no changes in land use would occur as the proposed project would remain consistent with the existing land use designation as delineated in the County General Plan. Therefore, because the proposed project includes development that is consistent with the uses allowed by the Land Use Element and Zoning Ordinance, the new development was anticipated in SANDAG growth projections used in establishing the RAQS and SIP. Consequently, it conforms to the forecast and would not conflict or obstruct implementation of the air quality plans. **Impacts related to implementation of the Regional Air Quality Strategy or the SIP would be less than significant, and no mitigation measures are required**.

Violate any air quality standard or contribute substantially to an existing or projected air quality violation

Potential violation of air quality standards is analyzed separately for construction and operations.

Project Construction

Table 3 summarizes the modeled peak daily emissions of criteria air pollutants and ozone precursors associated with construction of the project. As shown, the maximum level of daily construction emissions generated by the project would not exceed the County's SLT for any criteria pollutants during any of the construction phases. **Therefore, impacts related to construction-phase emissions would be less than significant, and no mitigation measures are required.**

Table 3. Summary of Construction Criteria Pollutant Emission Estimates (pounds per day)

Construction Phase	ROG	NO_X	CO	SO_X	PM10	PM2.5
Demolition	4	38	23	<1	2	2
Grading	1	10	9	<1	1	1
Building Construction	10	73	67	<1	11	5
Gate and Shade Structure Delivery	<1	1	<1	<1	<1	<1
Paving	3	18	15	<1	1	1
Daily Concurrent Construction Emissions	**17**	**140**	**114**	**<1**	**16**	**9**
County SLTs	*75*	*250*	*550*	*250*	*100*	*55*
Exceed SLT?	No	No	No	No	No	No

Source: Modeling outputs provided in Attachment A. Values may not add up due to rounding.

Project Operation

Implementation of the proposed project would result in long-term regional emissions of criteria air pollutants or ozone precursors associated with periodic application of architectural coatings, use of consumer products, landscaping, and motor vehicle emissions. According to the Transportation Impact Analysis prepared by Chen Ryan, implementation of the proposed project would result in a net increase in the number of vehicle trips per weekday (i.e., 42 trips), and per Saturday (i.e., 221 trips) when compared with existing baseline conditions.

Table 4 presents estimated daily operational emissions generated by the project broken down by source. As shown in Table 4, the proposed project would result in long-term regional emissions of criteria air pollutants and ozone precursors that would be below the County's SLTs. **Therefore, impacts related to the project's operational emissions would be less than significant, and no mitigation measures are required**.

Table 4. Summary of Operational Criteria Pollutant Emission Estimates (pounds per day)

Operational Element	ROG	NO_X	CO	SO_X	PM10	PM2.5
Area Sources	<1	<1	<1	<1	<1	<1
Motor Vehicles	<1	2	5	<1	1	<1
Daily Operational Emissions	**1**	**2**	**5**	**<1**	**1**	**<1**
County SLTs	*75*	*250*	*550*	*250*	*100*	*55*
Exceed SLT?	No	No	No	No	No	No

Source: Modeling outputs provided in Attachment A. Values may not add up due to rounding.

Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)

Project activities would not result in a cumulatively considerable net increase of criteria pollutants in a nonattainment region. The project site is within the SDAB, which is classified as a nonattainment

area for the federal O_3 standard and for the state O_3, PM10, and PM2.5 standards. Construction and operation of the proposed project would result in emissions of PM10, PM2.5, as well as NO_X and ROG, which are precursors to O_3. However, because neither construction nor operation of the proposed project would result in emissions that exceed the County's SLTs, emissions would not be in amounts that would result in a cumulatively considerable increase in criteria pollutants for which the project region is a nonattainment area. The proposed project would also comply with all SDAPCD control measures, including fugitive dust control during construction. Compliance with these measures would ensure that the cumulative contribution of criteria pollutants during construction would be less than significant. **Impacts related to a cumulatively considerable net increase of ozone, PM10, and PM2.5 would be less than significant, and no mitigation measures are required**.

Expose sensitive receptors to substantial pollutant concentrations

The analysis of project-related impacts on human health focuses on those localized pollutants with the greatest potential to result in a significant, material impact on human health. This is consistent with the current state-of-practice and published guidance by the California Air Pollution Control Officers Association (2009), Office of Environmental Health Hazard Assessment (2015), and CARB (2005). These pollutants are locally concentrated DPM and CO.

Diesel Particulate Matter

DPM is classified as a carcinogenic toxic air contaminant by CARB, and is the primary pollutant of concern with regard to health risks to sensitive receptors. Diesel-powered construction equipment as well as heavy duty truck movement and hauling both on- and off site would emit DPM that could potentially expose nearby sensitive receptors to pollutant concentrations. Health risks related to DPM are assessed qualitatively based on anticipated project emissions and proximity to sensitive receptors, which include the campsite at the Boulder Oaks Preserve.

Construction is not anticipated to exceed a year, which is much shorter than the assumed 70-year exposure period used to estimate lifetime cancer risks. DPM emitted by these sources can remain airborne for several days but dissipate as a function of distance from the emissions source. Receptors that access the campsite and open space areas immediately adjacent to the project site would have limited exposure to diesel exhaust, with exposure limited to visitation that coincides with weekday construction activities. Also, construction activities would be sporadic, transitory, and short-term in nature. Once construction activities have ceased, so too will the source emissions. Diesel activity occurring on site would be short-term and occur at distances not expected to expose sensitive receptor locations to substantial pollutant concentrations. Once operational, the project would result in increased visitation to the preserve, but vehicle emissions generated by these visits would mostly be generated by gasoline-powered passenger vehicles, which do not emit DPM. Therefore, operation of the project would not result in an increase in DPM emissions.

In addition, SDAPCD Rule 1200 establishes acceptable risk levels and emission control requirements for new and modified facilities that may emit operational TACs, including DPM.[13] Under Rule 1200,

[13] Specifically, Rule 1200 applies to any new, relocated, or modified emission unit that may increase emissions of one or more TAC and for which an Authority to Construct or Permit to Operate is required pursuant to Rule 10, or

permits to operate may not be issued when emissions of TACs result in an incremental cancer risk greater than 1 in 1 million without application of best available control technology or a health hazard index (chronic and acute) greater than one.

Given the brief construction schedule, the nature of project operations, and the required compliance with SDAPCD Rule 1200, implementation of the project is not anticipated to expose sensitive receptors to substantial DPM concentrations. **Impacts related to sensitive receptor exposure to substantial DPM concentrations would be less than significant, and no mitigation measures are required**.

Carbon Monoxide Hot-Spots

The project would not place receptors within 500 feet of a signalized intersection with more than 3,000 peak-hour trips that operates at or below level of service (LOS) E. Likewise, the project would not cause intersections with more than 3,000 intersection peak-hour trips to operate at or below a LOS E. The project therefore satisfies the County of San Diego's screening criteria, and **the impact related to sensitive receptor exposure to substantial CO concentrations is considered less than significant, and no mitigation measures are required.**

Create objectionable odors affecting a substantial number of people

During construction of the proposed project, exhaust from equipment and activities associated with the application of architectural coatings may produce discernible odors typical of most construction sites. Such odors would be a temporary source of nuisance to adjacent uses but would not affect a substantial number of people. Operational activities associated with the proposed project are not anticipated to create objectionable odors. **Impacts related to odors would be less than significant, and no mitigation measures are required.**

Greenhouse Gas Emissions

A significant impact related to GHG emissions would occur if the proposed project would exceed a threshold of significance or conflict with plans, policies, and regulatory programs adopted for the purpose of reducing the emissions of GHGs. Both issue areas are evaluated together. The analysis below is adapted from the evaluation guidance from the County's *Guidelines for Determining Significance for Climate Change* (County 2018c).

Exceed a GHG threshold of significance and/or conflict with plans, policies, and regulatory programs adopted for the purpose of reducing the emissions of GHGs

Table 5 summarizes the anticipated GHG emissions from construction of the proposed project. As shown in Table 5, the project would generate approximately 465 $MTCO_2e$ over the entire construction period. These construction-related GHG emissions were amortized over a 30-year period and added to operational emissions, as discussed below.

for which a Notice of Intention or Application for Certification has been accepted by the California Energy Commission.

Table 6 summarizes estimated GHG emissions from operation of the proposed project. As shown, operational emissions are estimated to equal approximately 100 $MTCO_2e$ annually at opening year. When combined with amortized construction, project emissions are estimated to equal approximately 116 $MTCO_2e$ annually. This is far below the 900 $MTCO_2e$ numerical criteria discussed herein. As such, it is highly likely that the proposed project is sufficiently small that it would not generate a level of GHGs that would be cumulatively considerable. Regardless, additional analysis is provided to discuss project consistency with plans, policies, and regulatory programs adopted for the purpose of reducing the emissions of GHGs.

Table 5. Summary of Construction Greenhouse Gas Emission Estimates (metric tons)

Construction Phase	CO_2	CH_4	N_2O	CO_2e
Demolition	18	<1	<1	19
Grading	14	<1	<1	14
Building Construction	408	<1	<1	409
Gate and Shade Structure Delivery	1	<1	<1	1
Paving	23	<1	<1	23
Total Construction Emissions	**464**	**<1**	**<1**	**465**
Amortized Construction (averaged over a 30-year period)	--	--	--	16

Source: Modeling output provided in Attachment A. Values may not add up due to rounding.

Table 6. Summary of Operational Greenhouse Gas Emission Estimates (metric tons per year)

Operational Element	CO_2	CH_4	N_2O	CO_2e
Area Sources	<1	<1	<1	<1
Vehicles	99	<1	<1	99
Waste	<1	<1	<1	<1
Total Annual Operation Emissions	**100**	**<1**	**<1**	**100**
Amortized Construction	--	--	--	16
Total Project Emissions	**--**	**--**	**--**	**115**

Source: Modeling output provided in Attachment A. Values may not add up due to rounding.

As discussed above, the proposed project is a public access plan that would provide recreational opportunities for residents. Construction would be required to clear trails and provide amenities, including parking, a renovated restroom, and staffing. The project is not expected to result in population, employment, or development growth that is currently unplanned. As discussed below, the proposed project is small

The most relevant plan, policy, and regulatory program adopted for the purpose of reducing the emissions of GHGs is the County's CAP. Given the current legal status of the CAP, the discussion herein also analyzes consistency with the County's General Plan as well as CARB's Scoping Plan, which is the state's GHG reduction plan.

The proposed project's consistency with relevant CAP measures is provided in Table 7. As shown in Table 7, the project would be consistent with all but one relevant County-specific measure prior to mitigation. Mitigation would ensure compliance with the CAP. Specifically, **MM-GHG-1** would require best practices during construction to ensure compliance with CAP measure T-3.2, which directs the County to use alternative fuels in 100% of construction equipment by 2030. The project would be consistent with and/or not hinder other measures relevant to County operations. Therefore, after mitigation, the proposed project would be consistent with the CAP. Despite the CAP's current legal status, it remains the most relevant plan, policy, and regulatory program adopted for the purpose of reducing the emissions of GHGs.

The County's General Plan lays out the long-term land use planning framework for future growth and development patterns within the unincorporated areas of the County. As discussed in the *Land Use and Planning* section of the Initial Study for this project, the project would be consistent with Policy LU-6.7 of the General Plan because the project would not diminish the existing opportunities for habitat preservation, and would connect the existing trails, add new recreational trails, and connect to the greater regional trail system. Moreover, the project would be consistent with goals and policies within the Ramona Community Plan, specifically Goal COS 2.1, which calls for parks that preserve natural and ecological features, and Policy COS 2.1.22, which requires recreational facilities are in harmony with the community character.

Lastly, the project would be consistent with goals and policies within the Lakeside Community Plan, specifically Policy 2, which calls on the County to preserve the best natural features of the area in their natural state and avoid the creation of a totally urbanized landscape, and Policy 4, which ensures that land uses within or adjacent to recreational, natural preserve, agricultural or industrial areas are compatible with those areas.

In addition, at the state level, CARB's SB 32 Scoping Plan outlines the framework and strategies the state will take to achieve its emission reduction targets. The SB 32 Scoping Plan Update proposes to meet the 2030 goal by accelerating the focus on zero and near-zero technologies for moving freight, continued investment in renewables, greater use of low-carbon fuels including electricity and hydrogen, stronger efforts to reduce emissions of short-lived climate pollutants, further efforts to create walkable communities with expanded mass transit and other alternatives to traveling by car, continuing the cap-and-trade program, and ensuring that natural lands become carbon sinks to provide additional emissions reductions and flexibility in meeting the target (CARB 2017).

For all measures in the Scoping Plan, the project would be consistent without implementation of mitigation. In each case, the state program requires no action at the project level, and benefits to project-related emission sources will be realized over time. For example, the Scoping Plan incorporates SB 350, which extends the Renewable Portfolio Standard to a 50% target by 2030 while doubling the energy efficiency savings expected statewide. In addition, CARB expanded the Low Carbon Fuel Standard, aiming to achieve an 18% reduction in the carbon intensity of transportation fuels. Further, the Mobile Source Strategy aims to support the transition to 1.5 million zero emission vehicles (plug-in hybrid electric, battery-electric, and hydrogen fuel cell) by 2025 and 4.2 million by 2030, while also ramping up GHG stringency for all light-duty vehicles. Each of these measures will be implemented over time, and benefits to project-related emission sources will be realized over time.

Table 7. Project Consistency with Applicable CAP Measures

Measure Number	Measure Name	Measure Summary	Applicability/Consistency
T-2.3	Reduce County Employee Vehicle Miles Traveled	Reduce County employee commute Vehicle Miles Traveled (VMT) by 20% by 2030	**This policy is not applicable**. The goal of this measure is to encourage participation in alternative work schedules or telecommute options. The County currently subsidizes monthly transit passes, vanpool, and carpool services for employees. The project would result in up to two additional volunteers stationed at the project site for a total of one onsite ranger, four commuter rangers, and four volunteers. Alternative work schedules or telecommute options are not an option for this project as the volunteers and rangers must be present at the site. However, the project would not hinder implementation at other County locations.
T-3.2	Use Alternative Fuels in County Projects	Require County projects to use alternative fuels in 100% of construction equipment during construction by 2030	**Consistent After Mitigation**. **MM-GHG-1** requires the County to utilize best practices to reduce GHG emissions during construction.
T-3.4	Reduce the County's Fleet Emissions	Reduce the County fleet GHG emissions levels, including on-road and non-construction off-road vehicles, by 10% by 2020 and 20% by 2030	**Consistent Prior to Mitigation.** The County has already accomplished this 10% reduction in fleet emissions.[a] The project would not hinder implementation at other County locations.
E-1.4	Reduce Energy Use Intensity at County Facilities	Reduce energy use intensity at County facilities by 10% below 2014 levels by 2020 and by 20% below 2014 levels by 2030	**Consistent Prior to Mitigation.** The County adopted Board Policy Number G-15, which establishes design standards for County facilities. Specifically, this policy requires the County to evaluate and incorporate cost-effective technologies to reduce energy consumption during facility planning, design, construction, maintenance, operation, and replacement.[b] The project would not result in an increase in energy consumption and would thus not hinder implementation of this measure.

Measure Number	Measure Name	Measure Summary	Applicability/Consistency
E-2.4	Increase Use of On-Site Renewable Electricity Generation for County Operations	Generate 10% of the County's operational electricity on site with renewables by 2020 and 20% by 2030	**Consistent Prior to Mitigation.** The County currently generates almost 2.9 megawatts of renewable energy each year, which provides clean and renewable energy for 2.6% of the County's annual energy usage. The County is expected to add a total of 13 megawatts at 8 sites by the end of 2019.[c] The project would not result in an increase in energy consumption and would thus not hinder implementation of this measure.
W-1.3	Reduce Potable Water Consumption at County Facilities	Reduce potable water consumption at County facilities by 15% below 2014 levels by 2020 and 20% below 2014 levels by 2030	**Consistent Prior to Mitigation.** Board Policy Number G-15 requires the County to evaluate and incorporate cost-effective technologies to reduce water consumption during facility planning, design, construction, maintenance, operation, and replacement. The project would not result in an increase in water consumption, as the restroom facility is on septic, and there would be no other potable water consumption sources. Thus, the project would not hinder implementation of this measure.
A-2.2	Increase County Tree Planting	Prepare and implement a tree planting program for the unincorporated county to plant a minimum of 3,500 trees annually starting in 2017	**Consistent Prior to Mitigation.** The project would result in direct and permanent impacts on plant species within the project area, but mitigation measures MM-BIO-2 through MM-BIO 6 would ensure trees are re-planted according to appropriate offset ratios. Thus, the project would not hinder implementation of this measure.

[a] Available at: https://www.sandiegocounty.gov/content/sdc/general_services/Energy/Energy_Vehicle.html

[b] Available at: https://www.sandiegocounty.gov/content/dam/sdc/cob/docs/policy/G-15.pdf

[c] Available at: https://www.sandiegocounty.gov/content/sdc/general_services/Energy/Energy_Renew_Energy.html

The project would not exceed the 900 $MTCO_2e$ threshold used for discussion and would be consistent with and not hinder implementation of the County CAP, County General Plan, and State Scoping Plan by providing for uses that are consistent with the County's General Plan and relevant Community Plans. These uses would not hinder the state's ability to meet the reduction goals of SB 32 and would not hinder implementation of countywide reduction goals specified in the CAP.

For the reasons given above, impacts related to exceeding a GHG threshold of significance and/or conflicting with plans, policies, and regulatory programs adopted for the purpose of reducing the emissions of GHGs would be potentially significant. Mitigation measure MM-GHG-1 would be necessary to reduce the impact related to GHG emissions to less than significant.

Mitigation Measures

MM-GHG-1: Construction Best Management Practices. The County shall ensure implementation of the following measures during project construction:

- Require equipment to be maintained in good tune and to reduce excessive idling time.
- Utilize alternative fueled equipment and vehicles, such as renewable diesel, renewable natural gas, compressed natural gas, or electric.
- Require older equipment be retrofitted with advanced engine controls, such as diesel particulate filters, selective catalytic reduction, or cooled exhaust gas recirculation.

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Attachment A
Modeling Output Files

Boulder Oaks Public Access Plan 2019 Update

San Diego Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	6.20	Acre	6.20	270,072.00	0
City Park	8.80	Acre	8.80	383,328.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2019
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	533.5	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Boulder Oaks Public Access Plan 2019 Update - San Diego Air Basin, Annual

Project Characteristics - 2016 SDG&E CO2e EF, based on 2018 Electric Procurement Revenue Requirement Forecasts and GHG-Related Forecasts, November 2017.

Land Use - City Park includes the three staging areas (1.3 ac), the native trail (2.8 ac), the ADA trail (1.5 ac), the existing trails (3.3 ac), as well as the 400 sq-ft bathroom structure.
Other Asphalt Surfaces includes the Mussey Grade Road solid surface improvements (5.5 ac) and the mobility device/pesdestrian side of the ADA trail (0.7 ac).

Construction Phase - Gate and Shade material delivery only assumed to occur for one week. Grading phase only 17 days, per applicant. Demolition only 10 days per Appendix D for 225 sq-ft bathroom structure. Building Construction only 100 days per Appendix D for 400 sq-ft bathroom structure.

Off-road Equipment - Equipment provided by applicant: Cat backhoe 420 CT- emission state control number BT3P99, Case skid steer 416E- emission state control number KJ8E89, John Deere 210 LE front loader-emission control number XG3V68. Used CalEEMod default HP and LF.

Off-road Equipment -

Off-road Equipment - Gate and Shade delivery phase requires no off-road equipment. Only a phase to account for truck trips.

Off-road Equipment -

Grading - Grading - Grading acreage: native trail (2.76 ac), ADA trail (1.45 ac), Staging Area 1 (0.16 ac), Staging Area 2 (0.29 ac), Equestrian Staging Area (0.89 ac) =5.56 acres.
Imported material (D/G): Staging Area 1 (85 CY), Staging Area 2 (154 CY), Equestrian Staging Area (474 CY) = 713 CY. Assumed 4" depth of D/G according to County's Parking Design Manual.

Demolition - Demolition of the existing bathroom structure.

Trips and VMT - Gate delivery assumes 6 truck trips per day (vendor trips using HHDT). Shade material delivery requires just one truck trip (2 total haul trips) to deliver posts and cloth. Structure put together by hand.

Vehicle Trips - Chen Ryan Traffic Analysis found 42 ADT on weekdays, and 221 ADT on Saturdays.

Energy Use -

Water And Wastewater - Assuming no water for irrigation.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	300.00	100.00
tblConstructionPhase	NumDays	300.00	5.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	30.00	17.00
tblGrading	AcresOfGrading	0.00	5.56
tblGrading	MaterialImported	0.00	713.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0
tblProjectCharacteristics	CO2IntensityFactor	720.49	533.5
tblProjectCharacteristics	N2OIntensityFactor	0.006	0
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	107.00	6.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	8.00	30.00
tblTripsAndVMT	WorkerTripNumber	274.00	0.00
tblVehicleTrips	ST_TR	22.75	25.11
tblVehicleTrips	SU_TR	16.74	25.11
tblVehicleTrips	WD_TR	1.89	4.77
tblWater	OutdoorWaterUseRate	10,485,035.88	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.1042	0.8565	0.7044	1.5500e-003	0.0526	0.0412	0.0938	0.0137	0.0384	0.0520	0.0000	142.3388	142.3388	0.0238	0.0000	142.9330
2019	0.1718	1.3865	1.2723	3.5100e-003	0.1603	0.0552	0.2156	0.0432	0.0520	0.0952	0.0000	321.2565	321.2565	0.0351	0.0000	322.1340
Maximum	**0.1718**	**1.3865**	**1.2723**	**3.5100e-003**	**0.1603**	**0.0552**	**0.2156**	**0.0432**	**0.0520**	**0.0952**	**0.0000**	**321.2565**	**321.2565**	**0.0351**	**0.0000**	**322.1340**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.1042	0.8565	0.7044	1.5500e-003	0.0526	0.0412	0.0938	0.0137	0.0384	0.0520	0.0000	142.3387	142.3387	0.0238	0.0000	142.9329
2019	0.1718	1.3865	1.2723	3.5100e-003	0.1603	0.0552	0.2156	0.0432	0.0520	0.0952	0.0000	321.2564	321.2564	0.0351	0.0000	322.1339
Maximum	**0.1718**	**1.3865**	**1.2723**	**3.5100e-003**	**0.1603**	**0.0552**	**0.2156**	**0.0432**	**0.0520**	**0.0952**	**0.0000**	**321.2564**	**321.2564**	**0.0351**	**0.0000**	**322.1339**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	12-1-2018	2-28-2019	1.8245	1.8245
2	3-1-2019	5-31-2019	0.7035	0.7035
		Highest	1.8245	1.8245

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0325	0.0000	1.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.7000e-004	2.7000e-004	0.0000	0.0000	2.9000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0315	0.1366	0.3603	1.0800e-003	0.0866	1.2400e-003	0.0878	0.0232	1.1700e-003	0.0244	0.0000	99.3461	99.3461	5.7400e-003	0.0000	99.4895
Waste						0.0000	0.0000		0.0000	0.0000	0.1543	0.0000	0.1543	9.1200e-003	0.0000	0.3822
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0640**	**0.1366**	**0.3605**	**1.0800e-003**	**0.0866**	**1.2400e-003**	**0.0878**	**0.0232**	**1.1700e-003**	**0.0244**	**0.1543**	**99.3464**	**99.5006**	**0.0149**	**0.0000**	**99.8720**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0325	0.0000	1.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.7000e-004	2.7000e-004	0.0000	0.0000	2.9000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0315	0.1366	0.3603	1.0800e-003	0.0866	1.2400e-003	0.0878	0.0232	1.1700e-003	0.0244	0.0000	99.3461	99.3461	5.7400e-003	0.0000	99.4895
Waste						0.0000	0.0000		0.0000	0.0000	0.1543	0.0000	0.1543	9.1200e-003	0.0000	0.3822
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0640**	**0.1366**	**0.3605**	**1.0800e-003**	**0.0866**	**1.2400e-003**	**0.0878**	**0.0232**	**1.1700e-003**	**0.0244**	**0.1543**	**99.3464**	**99.5006**	**0.0149**	**0.0000**	**99.8720**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Boulder Oaks Public Access Plan 2019 Update - San Diego Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/1/2018	12/14/2018	5	10	
2	Grading	Grading	12/1/2018	12/25/2018	5	17	
3	Building Construction	Building Construction	12/1/2018	4/19/2019	5	100	
4	Gate and Shade Delivery	Building Construction	12/1/2018	12/7/2018	5	5	
5	Paving	Paving	12/1/2018	12/28/2018	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 5.56

Acres of Paving: 6.2

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Gate and Shade Delivery	Cranes	0	7.00	231	0.29
Gate and Shade Delivery	Forklifts	0	8.00	89	0.20
Gate and Shade Delivery	Generator Sets	0	8.00	84	0.74
Gate and Shade Delivery	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Gate and Shade Delivery	Welders	0	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	1.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	30.00	0.00	89.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	274.00	107.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Gate and Shade Delivery	0	0.00	6.00	2.00	16.80	6.60	20.00	LD_Mix	HHDT	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1000e-004	0.0000	1.1000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0186	0.1916	0.1115	1.9000e-004		9.6900e-003	9.6900e-003		9.0200e-003	9.0200e-003	0.0000	17.5620	17.5620	4.8400e-003	0.0000	17.6830
Total	**0.0186**	**0.1916**	**0.1115**	**1.9000e-004**	**1.1000e-004**	**9.6900e-003**	**9.8000e-003**	**2.0000e-005**	**9.0200e-003**	**9.0400e-003**	**0.0000**	**17.5620**	**17.5620**	**4.8400e-003**	**0.0000**	**17.6830**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	1.6000e-004	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0394	0.0394	0.0000	0.0000	0.0395
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	3.8000e-004	3.5200e-003	1.0000e-005	9.4000e-004	1.0000e-005	9.4000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.8913	0.8913	3.0000e-005	0.0000	0.8921
Total	**4.5000e-004**	**5.4000e-004**	**3.5500e-003**	**1.0000e-005**	**9.5000e-004**	**1.0000e-005**	**9.5000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.9307**	**0.9307**	**3.0000e-005**	**0.0000**	**0.9316**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1000e-004	0.0000	1.1000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0186	0.1916	0.1115	1.9000e-004		9.6900e-003	9.6900e-003		9.0200e-003	9.0200e-003	0.0000	17.5620	17.5620	4.8400e-003	0.0000	17.6830
Total	**0.0186**	**0.1916**	**0.1115**	**1.9000e-004**	**1.1000e-004**	**9.6900e-003**	**9.8000e-003**	**2.0000e-005**	**9.0200e-003**	**9.0400e-003**	**0.0000**	**17.5620**	**17.5620**	**4.8400e-003**	**0.0000**	**17.6830**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	1.6000e-004	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0394	0.0394	0.0000	0.0000	0.0395
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	3.8000e-004	3.5200e-003	1.0000e-005	9.4000e-004	1.0000e-005	9.4000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.8913	0.8913	3.0000e-005	0.0000	0.8921
Total	**4.5000e-004**	**5.4000e-004**	**3.5500e-003**	**1.0000e-005**	**9.5000e-004**	**1.0000e-005**	**9.5000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.9307**	**0.9307**	**3.0000e-005**	**0.0000**	**0.9316**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.0000e-003	0.0000	3.0000e-003	3.3000e-004	0.0000	3.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.7900e-003	0.0671	0.0596	8.0000e-005		4.7500e-003	4.7500e-003		4.3700e-003	4.3700e-003	0.0000	7.2355	7.2355	2.2500e-003	0.0000	7.2918
Total	**6.7900e-003**	**0.0671**	**0.0596**	**8.0000e-005**	**3.0000e-003**	**4.7500e-003**	**7.7500e-003**	**3.3000e-004**	**4.3700e-003**	**4.7000e-003**	**0.0000**	**7.2355**	**7.2355**	**2.2500e-003**	**0.0000**	**7.2918**

3.3 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.1000e-004	0.0145	3.0100e-003	4.0000e-005	7.6000e-004	6.0000e-005	8.2000e-004	2.1000e-004	5.0000e-005	2.6000e-004	0.0000	3.5068	3.5068	3.2000e-004	0.0000	3.5147
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5300e-003	1.2800e-003	0.0120	3.0000e-005	3.1800e-003	2.0000e-005	3.2000e-003	8.4000e-004	2.0000e-005	8.7000e-004	0.0000	3.0305	3.0305	1.0000e-004	0.0000	3.0331
Total	**1.9400e-003**	**0.0157**	**0.0150**	**7.0000e-005**	**3.9400e-003**	**8.0000e-005**	**4.0200e-003**	**1.0500e-003**	**7.0000e-005**	**1.1300e-003**	**0.0000**	**6.5373**	**6.5373**	**4.2000e-004**	**0.0000**	**6.5477**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.0000e-003	0.0000	3.0000e-003	3.3000e-004	0.0000	3.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.7900e-003	0.0671	0.0596	8.0000e-005		4.7500e-003	4.7500e-003		4.3700e-003	4.3700e-003	0.0000	7.2355	7.2355	2.2500e-003	0.0000	7.2918
Total	**6.7900e-003**	**0.0671**	**0.0596**	**8.0000e-005**	**3.0000e-003**	**4.7500e-003**	**7.7500e-003**	**3.3000e-004**	**4.3700e-003**	**4.7000e-003**	**0.0000**	**7.2355**	**7.2355**	**2.2500e-003**	**0.0000**	**7.2918**

3.3 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.1000e-004	0.0145	3.0100e-003	4.0000e-005	7.6000e-004	6.0000e-005	8.2000e-004	2.1000e-004	5.0000e-005	2.6000e-004	0.0000	3.5068	3.5068	3.2000e-004	0.0000	3.5147
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5300e-003	1.2800e-003	0.0120	3.0000e-005	3.1800e-003	2.0000e-005	3.2000e-003	8.4000e-004	2.0000e-005	8.7000e-004	0.0000	3.0305	3.0305	1.0000e-004	0.0000	3.0331
Total	**1.9400e-003**	**0.0157**	**0.0150**	**7.0000e-005**	**3.9400e-003**	**8.0000e-005**	**4.0200e-003**	**1.0500e-003**	**7.0000e-005**	**1.1300e-003**	**0.0000**	**6.5373**	**6.5373**	**4.2000e-004**	**0.0000**	**6.5477**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0281	0.2456	0.1846	2.8000e-004		0.0158	0.0158		0.0148	0.0148	0.0000	24.9656	24.9656	6.1200e-003	0.0000	25.1185
Total	**0.0281**	**0.2456**	**0.1846**	**2.8000e-004**		**0.0158**	**0.0158**		**0.0148**	**0.0148**	**0.0000**	**24.9656**	**24.9656**	**6.1200e-003**	**0.0000**	**25.1185**

3.4 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.5300e-003	0.1426	0.0393	2.9000e-004	6.7400e-003	1.0600e-003	7.8100e-003	1.9500e-003	1.0200e-003	2.9600e-003	0.0000	27.7539	27.7539	2.3700e-003	0.0000	27.8131
Worker	0.0173	0.0145	0.1352	3.8000e-004	0.0359	2.5000e-004	0.0361	9.5300e-003	2.3000e-004	9.7600e-003	0.0000	34.1917	34.1917	1.1400e-003	0.0000	34.2202
Total	**0.0228**	**0.1570**	**0.1745**	**6.7000e-004**	**0.0426**	**1.3100e-003**	**0.0439**	**0.0115**	**1.2500e-003**	**0.0127**	**0.0000**	**61.9455**	**61.9455**	**3.5100e-003**	**0.0000**	**62.0332**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0281	0.2456	0.1846	2.8000e-004		0.0158	0.0158		0.0148	0.0148	0.0000	24.9655	24.9655	6.1200e-003	0.0000	25.1184
Total	**0.0281**	**0.2456**	**0.1846**	**2.8000e-004**		**0.0158**	**0.0158**		**0.0148**	**0.0148**	**0.0000**	**24.9655**	**24.9655**	**6.1200e-003**	**0.0000**	**25.1184**

3.4 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.5300e-003	0.1426	0.0393	2.9000e-004	6.7400e-003	1.0600e-003	7.8100e-003	1.9500e-003	1.0200e-003	2.9600e-003	0.0000	27.7539	27.7539	2.3700e-003	0.0000	27.8131
Worker	0.0173	0.0145	0.1352	3.8000e-004	0.0359	2.5000e-004	0.0361	9.5300e-003	2.3000e-004	9.7600e-003	0.0000	34.1917	34.1917	1.1400e-003	0.0000	34.2202
Total	**0.0228**	**0.1570**	**0.1745**	**6.7000e-004**	**0.0426**	**1.3100e-003**	**0.0439**	**0.0115**	**1.2500e-003**	**0.0127**	**0.0000**	**61.9455**	**61.9455**	**3.5100e-003**	**0.0000**	**62.0332**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0933	0.8326	0.6780	1.0600e-003		0.0510	0.0510		0.0479	0.0479	0.0000	92.8662	92.8662	0.0226	0.0000	93.4317
Total	**0.0933**	**0.8326**	**0.6780**	**1.0600e-003**		**0.0510**	**0.0510**		**0.0479**	**0.0479**	**0.0000**	**92.8662**	**92.8662**	**0.0226**	**0.0000**	**93.4317**

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0186	0.5053	0.1359	1.0700e-003	0.0254	3.3400e-003	0.0287	7.3300e-003	3.2000e-003	0.0105	0.0000	103.6485	103.6485	8.6000e-003	0.0000	103.8634
Worker	0.0599	0.0486	0.4585	1.3800e-003	0.1350	9.5000e-004	0.1359	0.0359	8.7000e-004	0.0367	0.0000	124.7419	124.7419	3.8800e-003	0.0000	124.8389
Total	**0.0785**	**0.5539**	**0.5944**	**2.4500e-003**	**0.1603**	**4.2900e-003**	**0.1646**	**0.0432**	**4.0700e-003**	**0.0473**	**0.0000**	**228.3904**	**228.3904**	**0.0125**	**0.0000**	**228.7023**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0933	0.8326	0.6780	1.0600e-003		0.0510	0.0510		0.0479	0.0479	0.0000	92.8661	92.8661	0.0226	0.0000	93.4316
Total	**0.0933**	**0.8326**	**0.6780**	**1.0600e-003**		**0.0510**	**0.0510**		**0.0479**	**0.0479**	**0.0000**	**92.8661**	**92.8661**	**0.0226**	**0.0000**	**93.4316**

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0186	0.5053	0.1359	1.0700e-003	0.0254	3.3400e-003	0.0287	7.3300e-003	3.2000e-003	0.0105	0.0000	103.6485	103.6485	8.6000e-003	0.0000	103.8634
Worker	0.0599	0.0486	0.4585	1.3800e-003	0.1350	9.5000e-004	0.1359	0.0359	8.7000e-004	0.0367	0.0000	124.7419	124.7419	3.8800e-003	0.0000	124.8389
Total	**0.0785**	**0.5539**	**0.5944**	**2.4500e-003**	**0.1603**	**4.2900e-003**	**0.1646**	**0.0432**	**4.0700e-003**	**0.0473**	**0.0000**	**228.3904**	**228.3904**	**0.0125**	**0.0000**	**228.7023**

3.5 Gate and Shade Delivery - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Gate and Shade Delivery - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	3.2000e-004	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0788	0.0788	1.0000e-005	0.0000	0.0790
Vendor	7.0000e-005	2.6300e-003	5.0000e-004	0.0000	8.0000e-005	1.0000e-005	9.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.4890	0.4890	6.0000e-005	0.0000	0.4904
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.0000e-005**	**2.9500e-003**	**5.7000e-004**	**0.0000**	**1.0000e-004**	**1.0000e-005**	**1.1000e-004**	**2.0000e-005**	**1.0000e-005**	**4.0000e-005**	**0.0000**	**0.5678**	**0.5678**	**7.0000e-005**	**0.0000**	**0.5694**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Gate and Shade Delivery - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	3.2000e-004	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0788	0.0788	1.0000e-005	0.0000	0.0790
Vendor	7.0000e-005	2.6300e-003	5.0000e-004	0.0000	8.0000e-005	1.0000e-005	9.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.4890	0.4890	6.0000e-005	0.0000	0.4904
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.0000e-005**	**2.9500e-003**	**5.7000e-004**	**0.0000**	**1.0000e-004**	**1.0000e-005**	**1.1000e-004**	**2.0000e-005**	**1.0000e-005**	**4.0000e-005**	**0.0000**	**0.5678**	**0.5678**	**7.0000e-005**	**0.0000**	**0.5694**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0164	0.1752	0.1480	2.3000e-004		9.5600e-003	9.5600e-003		8.8000e-003	8.8000e-003	0.0000	20.8116	20.8116	6.4800e-003	0.0000	20.9736
Paving	8.1200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0246**	**0.1752**	**0.1480**	**2.3000e-004**		**9.5600e-003**	**9.5600e-003**		**8.8000e-003**	**8.8000e-003**	**0.0000**	**20.8116**	**20.8116**	**6.4800e-003**	**0.0000**	**20.9736**

3.6 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-004	7.5000e-004	7.0500e-003	2.0000e-005	1.8700e-003	1.0000e-005	1.8800e-003	5.0000e-004	1.0000e-005	5.1000e-004	0.0000	1.7827	1.7827	6.0000e-005	0.0000	1.7842
Total	**9.0000e-004**	**7.5000e-004**	**7.0500e-003**	**2.0000e-005**	**1.8700e-003**	**1.0000e-005**	**1.8800e-003**	**5.0000e-004**	**1.0000e-005**	**5.1000e-004**	**0.0000**	**1.7827**	**1.7827**	**6.0000e-005**	**0.0000**	**1.7842**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0164	0.1752	0.1480	2.3000e-004		9.5600e-003	9.5600e-003		8.8000e-003	8.8000e-003	0.0000	20.8116	20.8116	6.4800e-003	0.0000	20.9736
Paving	8.1200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0246**	**0.1752**	**0.1480**	**2.3000e-004**		**9.5600e-003**	**9.5600e-003**		**8.8000e-003**	**8.8000e-003**	**0.0000**	**20.8116**	**20.8116**	**6.4800e-003**	**0.0000**	**20.9736**

3.6 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-004	7.5000e-004	7.0500e-003	2.0000e-005	1.8700e-003	1.0000e-005	1.8800e-003	5.0000e-004	1.0000e-005	5.1000e-004	0.0000	1.7827	1.7827	6.0000e-005	0.0000	1.7842
Total	**9.0000e-004**	**7.5000e-004**	**7.0500e-003**	**2.0000e-005**	**1.8700e-003**	**1.0000e-005**	**1.8800e-003**	**5.0000e-004**	**1.0000e-005**	**5.1000e-004**	**0.0000**	**1.7827**	**1.7827**	**6.0000e-005**	**0.0000**	**1.7842**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0315	0.1366	0.3603	1.0800e-003	0.0866	1.2400e-003	0.0878	0.0232	1.1700e-003	0.0244	0.0000	99.3461	99.3461	5.7400e-003	0.0000	99.4895
Unmitigated	0.0315	0.1366	0.3603	1.0800e-003	0.0866	1.2400e-003	0.0878	0.0232	1.1700e-003	0.0244	0.0000	99.3461	99.3461	5.7400e-003	0.0000	99.4895

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	41.98	220.97	220.97	229,645	229,645
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	41.98	220.97	220.97	229,645	229,645

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.581689	0.044135	0.186694	0.113515	0.018244	0.005600	0.015197	0.022573	0.001888	0.002088	0.006279	0.000742	0.001357
Other Asphalt Surfaces	0.581689	0.044135	0.186694	0.113515	0.018244	0.005600	0.015197	0.022573	0.001888	0.002088	0.006279	0.000742	0.001357

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0325	0.0000	1.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.7000e-004	2.7000e-004	0.0000	0.0000	2.9000e-004
Unmitigated	0.0325	0.0000	1.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.7000e-004	2.7000e-004	0.0000	0.0000	2.9000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.8500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0226					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.7000e-004	2.7000e-004	0.0000	0.0000	2.9000e-004
Total	**0.0325**	**0.0000**	**1.4000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.7000e-004**	**2.7000e-004**	**0.0000**	**0.0000**	**2.9000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.8500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0226					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.7000e-004	2.7000e-004	0.0000	0.0000	2.9000e-004
Total	**0.0325**	**0.0000**	**1.4000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.7000e-004**	**2.7000e-004**	**0.0000**	**0.0000**	**2.9000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.1543	9.1200e-003	0.0000	0.3822
Unmitigated	0.1543	9.1200e-003	0.0000	0.3822

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.76	0.1543	9.1200e-003	0.0000	0.3822
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.1543**	**9.1200e-003**	**0.0000**	**0.3822**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.76	0.1543	9.1200e-003	0.0000	0.3822
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.1543**	**9.1200e-003**	**0.0000**	**0.3822**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Boulder Oaks Public Access Plan 2019 Update

San Diego Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	6.20	Acre	6.20	270,072.00	0
City Park	8.80	Acre	8.80	383,328.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2019
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	533.5	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Boulder Oaks Public Access Plan 2019 Update - San Diego Air Basin, Winter

Project Characteristics - 2016 SDG&E CO2e EF, based on 2018 Electric Procurement Revenue Requirement Forecasts and GHG-Related Forecasts, November 2017.

Land Use - City Park includes the three staging areas (1.3 ac), the native trail (2.8 ac), the ADA trail (1.5 ac), the existing trails (3.3 ac), as well as the 400 sq-ft bathroom structure.
Other Asphalt Surfaces includes the Mussey Grade Road solid surface improvements (5.5 ac) and the mobility device/pesdestrian side of the ADA trail (0.7 ac).

Construction Phase - Gate and Shade material delivery only assumed to occur for one week. Grading phase only 17 days, per applicant. Demolition only 10 days per Appendix D for 225 sq-ft bathroom structure. Building Construction only 100 days per Appendix D for 400 sq-ft bathroom structure.

Off-road Equipment - Equipment provided by applicant: Cat backhoe 420 CT- emission state control number BT3P99, Case skid steer 416E- emission state control number KJ8E89, John Deere 210 LE front loader-emission control number XG3V68. Used CalEEMod default HP and LF.

Off-road Equipment -

Off-road Equipment - Gate and Shade delivery phase requires no off-road equipment. Only a phase to account for truck trips.

Off-road Equipment -

Grading - Grading - Grading acreage: native trail (2.76 ac), ADA trail (1.45 ac), Staging Area 1 (0.16 ac), Staging Area 2 (0.29 ac), Equestrian Staging Area (0.89 ac) =5.56 acres.
Imported material (D/G): Staging Area 1 (85 CY), Staging Area 2 (154 CY), Equestrian Staging Area (474 CY) = 713 CY. Assumed 4" depth of D/G according to County's Parking Design Manual.

Demolition - Demolition of the existing bathroom structure.

Trips and VMT - Gate delivery assumes 6 truck trips per day (vendor trips using HHDT). Shade material delivery requires just one truck trip (2 total haul trips) to deliver posts and cloth. Structure put together by hand.

Vehicle Trips - Chen Ryan Traffic Analysis found 42 ADT on weekdays, and 221 ADT on Saturdays.

Energy Use -

Water And Wastewater - Assuming no water for irrigation.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	300.00	100.00
tblConstructionPhase	NumDays	300.00	5.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	30.00	17.00
tblGrading	AcresOfGrading	0.00	5.56
tblGrading	MaterialImported	0.00	713.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0
tblProjectCharacteristics	CO2IntensityFactor	720.49	533.5
tblProjectCharacteristics	N2OIntensityFactor	0.006	0
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	107.00	6.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	8.00	30.00
tblTripsAndVMT	WorkerTripNumber	274.00	0.00
tblVehicleTrips	ST_TR	22.75	25.11
tblVehicleTrips	SU_TR	16.74	25.11
tblVehicleTrips	WD_TR	1.89	4.77
tblWater	OutdoorWaterUseRate	10,485,035.88	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	12.5471	105.1267	81.8840	0.1746	5.4314	5.0955	10.5269	1.3987	4.7435	6.1422	0.0000	17,628.1883	17,628.1883	3.1893	0.0000	17,707.9198
2019	4.5676	34.9719	32.3306	0.0881	4.1550	1.3995	5.5545	1.1168	1.3167	2.4335	0.0000	8,883.8582	8,883.8582	0.9873	0.0000	8,908.5396
Maximum	**12.5471**	**105.1267**	**81.8840**	**0.1746**	**5.4314**	**5.0955**	**10.5269**	**1.3987**	**4.7435**	**6.1422**	**0.0000**	**17,628.1883**	**17,628.1883**	**3.1893**	**0.0000**	**17,707.9198**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	12.5471	105.1267	81.8840	0.1746	5.4314	5.0955	10.5269	1.3987	4.7435	6.1422	0.0000	17,628.1883	17,628.1883	3.1893	0.0000	17,707.9198
2019	4.5676	34.9719	32.3306	0.0881	4.1550	1.3995	5.5545	1.1168	1.3167	2.4335	0.0000	8,883.8582	8,883.8582	0.9873	0.0000	8,908.5396
Maximum	**12.5471**	**105.1267**	**81.8840**	**0.1746**	**5.4314**	**5.0955**	**10.5269**	**1.3987**	**4.7435**	**6.1422**	**0.0000**	**17,628.1883**	**17,628.1883**	**3.1893**	**0.0000**	**17,707.9198**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1781	1.0000e-005	1.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.2800e-003	3.2800e-003	1.0000e-005		3.5100e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.4226	1.7766	4.7650	0.0140	1.1558	0.0163	1.1720	0.3090	0.0153	0.3243		1,414.4523	1,414.4523	0.0834		1,416.5376
Total	**0.6007**	**1.7766**	**4.7665**	**0.0140**	**1.1558**	**0.0163**	**1.1720**	**0.3090**	**0.0153**	**0.3243**		**1,414.4556**	**1,414.4556**	**0.0834**	**0.0000**	**1,416.5411**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1781	1.0000e-005	1.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.2800e-003	3.2800e-003	1.0000e-005		3.5100e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.4226	1.7766	4.7650	0.0140	1.1558	0.0163	1.1720	0.3090	0.0153	0.3243		1,414.4523	1,414.4523	0.0834		1,416.5376
Total	**0.6007**	**1.7766**	**4.7665**	**0.0140**	**1.1558**	**0.0163**	**1.1720**	**0.3090**	**0.0153**	**0.3243**		**1,414.4556**	**1,414.4556**	**0.0834**	**0.0000**	**1,416.5411**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/1/2018	12/14/2018	5	10	
2	Grading	Grading	12/1/2018	12/25/2018	5	17	
3	Building Construction	Building Construction	12/1/2018	4/19/2019	5	100	
4	Gate and Shade Delivery	Building Construction	12/1/2018	12/7/2018	5	5	
5	Paving	Paving	12/1/2018	12/28/2018	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 5.56

Acres of Paving: 6.2

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Gate and Shade Delivery	Cranes	0	7.00	231	0.29
Gate and Shade Delivery	Forklifts	0	8.00	89	0.20
Gate and Shade Delivery	Generator Sets	0	8.00	84	0.74
Gate and Shade Delivery	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Gate and Shade Delivery	Welders	0	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	1.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	30.00	0.00	89.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	274.00	107.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Gate and Shade Delivery	0	0.00	6.00	2.00	16.80	6.60	20.00	LD_Mix	HHDT	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0224	0.0000	0.0224	3.4000e-003	0.0000	3.4000e-003			0.0000			0.0000
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048		3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**	**0.0224**	**1.9386**	**1.9610**	**3.4000e-003**	**1.8048**	**1.8082**		**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	9.4000e-004	0.0322	7.0500e-003	8.0000e-005	1.7500e-003	1.3000e-004	1.8800e-003	4.8000e-004	1.2000e-004	6.0000e-004		8.6024	8.6024	8.0000e-004		8.6224
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1020	0.0766	0.7015	1.9500e-003	0.1916	1.3300e-003	0.1929	0.0508	1.2200e-003	0.0520		194.5502	194.5502	6.5000e-003		194.7127
Total	**0.1030**	**0.1087**	**0.7086**	**2.0300e-003**	**0.1934**	**1.4600e-003**	**0.1948**	**0.0513**	**1.3400e-003**	**0.0526**		**203.1526**	**203.1526**	**7.3000e-003**		**203.3351**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0224	0.0000	0.0224	3.4000e-003	0.0000	3.4000e-003			0.0000			0.0000
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048	0.0000	3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**	**0.0224**	**1.9386**	**1.9610**	**3.4000e-003**	**1.8048**	**1.8082**	**0.0000**	**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	9.4000e-004	0.0322	7.0500e-003	8.0000e-005	1.7500e-003	1.3000e-004	1.8800e-003	4.8000e-004	1.2000e-004	6.0000e-004		8.6024	8.6024	8.0000e-004		8.6224
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1020	0.0766	0.7015	1.9500e-003	0.1916	1.3300e-003	0.1929	0.0508	1.2200e-003	0.0520		194.5502	194.5502	6.5000e-003		194.7127
Total	**0.1030**	**0.1087**	**0.7086**	**2.0300e-003**	**0.1934**	**1.4600e-003**	**0.1948**	**0.0513**	**1.3400e-003**	**0.0526**		**203.1526**	**203.1526**	**7.3000e-003**		**203.3351**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3527	0.0000	0.3527	0.0383	0.0000	0.0383			0.0000			0.0000
Off-Road	0.7983	7.8892	7.0102	9.3200e-003		0.5589	0.5589		0.5142	0.5142		938.3279	938.3279	0.2921		945.6307
Total	**0.7983**	**7.8892**	**7.0102**	**9.3200e-003**	**0.3527**	**0.5589**	**0.9116**	**0.0383**	**0.5142**	**0.5525**		**938.3279**	**938.3279**	**0.2921**		**945.6307**

3.3 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0493	1.6830	0.3693	4.1400e-003	0.0915	6.7000e-003	0.0982	0.0251	6.4100e-003	0.0315		450.3603	450.3603	0.0419		451.4073
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2041	0.1531	1.4031	3.9100e-003	0.3832	2.6500e-003	0.3858	0.1016	2.4500e-003	0.1041		389.1004	389.1004	0.0130		389.4254
Total	**0.2534**	**1.8362**	**1.7723**	**8.0500e-003**	**0.4747**	**9.3500e-003**	**0.4840**	**0.1267**	**8.8600e-003**	**0.1356**		**839.4607**	**839.4607**	**0.0549**		**840.8328**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3527	0.0000	0.3527	0.0383	0.0000	0.0383			0.0000			0.0000
Off-Road	0.7983	7.8892	7.0102	9.3200e-003		0.5589	0.5589		0.5142	0.5142	0.0000	938.3279	938.3279	0.2921		945.6307
Total	**0.7983**	**7.8892**	**7.0102**	**9.3200e-003**	**0.3527**	**0.5589**	**0.9116**	**0.0383**	**0.5142**	**0.5525**	**0.0000**	**938.3279**	**938.3279**	**0.2921**		**945.6307**

3.3 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0493	1.6830	0.3693	4.1400e-003	0.0915	6.7000e-003	0.0982	0.0251	6.4100e-003	0.0315		450.3603	450.3603	0.0419		451.4073
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2041	0.1531	1.4031	3.9100e-003	0.3832	2.6500e-003	0.3858	0.1016	2.4500e-003	0.1041		389.1004	389.1004	0.0130		389.4254
Total	**0.2534**	**1.8362**	**1.7723**	**8.0500e-003**	**0.4747**	**9.3500e-003**	**0.4840**	**0.1267**	**8.8600e-003**	**0.1356**		**839.4607**	**839.4607**	**0.0549**		**840.8328**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**		**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

3.4 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5401	13.4209	3.9490	0.0268	0.6552	0.1022	0.7573	0.1886	0.0977	0.2864		2,867.1636	2,867.1636	0.2575		2,873.6009
Worker	1.8640	1.3987	12.8147	0.0357	3.4998	0.0242	3.5240	0.9281	0.0223	0.9505		3,553.7840	3,553.7840	0.1187		3,556.7521
Total	**2.4041**	**14.8196**	**16.7637**	**0.0625**	**4.1550**	**0.1264**	**4.2814**	**1.1168**	**0.1201**	**1.2368**		**6,420.9476**	**6,420.9476**	**0.3762**		**6,430.3530**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**	**0.0000**	**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

3.4 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5401	13.4209	3.9490	0.0268	0.6552	0.1022	0.7573	0.1886	0.0977	0.2864		2,867.1636	2,867.1636	0.2575		2,873.6009
Worker	1.8640	1.3987	12.8147	0.0357	3.4998	0.0242	3.5240	0.9281	0.0223	0.9505		3,553.7840	3,553.7840	0.1187		3,556.7521
Total	**2.4041**	**14.8196**	**16.7637**	**0.0625**	**4.1550**	**0.1264**	**4.2814**	**1.1168**	**0.1201**	**1.2368**		**6,420.9476**	**6,420.9476**	**0.3762**		**6,430.3530**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4827	12.6419	3.6298	0.0266	0.6552	0.0856	0.7408	0.1886	0.0819	0.2705		2,845.8307	2,845.8307	0.2486		2,852.0462
Worker	1.7237	1.2512	11.5370	0.0346	3.4998	0.0240	3.5238	0.9281	0.0221	0.9502		3,446.4474	3,446.4474	0.1073		3,449.1300
Total	**2.2064**	**13.8931**	**15.1668**	**0.0611**	**4.1550**	**0.1096**	**4.2646**	**1.1168**	**0.1040**	**1.2208**		**6,292.2781**	**6,292.2781**	**0.3559**		**6,301.1762**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4827	12.6419	3.6298	0.0266	0.6552	0.0856	0.7408	0.1886	0.0819	0.2705		2,845.8307	2,845.8307	0.2486		2,852.0462
Worker	1.7237	1.2512	11.5370	0.0346	3.4998	0.0240	3.5238	0.9281	0.0221	0.9502		3,446.4474	3,446.4474	0.1073		3,449.1300
Total	**2.2064**	**13.8931**	**15.1668**	**0.0611**	**4.1550**	**0.1096**	**4.2646**	**1.1168**	**0.1040**	**1.2208**		**6,292.2781**	**6,292.2781**	**0.3559**		**6,301.1762**

3.5 Gate and Shade Delivery - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Gate and Shade Delivery - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.7700e-003	0.1286	0.0282	3.2000e-004	6.9900e-003	5.1000e-004	7.5000e-003	1.9200e-003	4.9000e-004	2.4100e-003		34.4096	34.4096	3.2000e-003		34.4896
Vendor	0.0282	1.0345	0.2187	1.9400e-003	0.0347	3.0100e-003	0.0377	9.5100e-003	2.8800e-003	0.0124		210.5494	210.5494	0.0260		211.2001
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0319**	**1.1631**	**0.2469**	**2.2600e-003**	**0.0417**	**3.5200e-003**	**0.0452**	**0.0114**	**3.3700e-003**	**0.0148**		**244.9589**	**244.9589**	**0.0292**		**245.6896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Gate and Shade Delivery - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.7700e-003	0.1286	0.0282	3.2000e-004	6.9900e-003	5.1000e-004	7.5000e-003	1.9200e-003	4.9000e-004	2.4100e-003		34.4096	34.4096	3.2000e-003		34.4896
Vendor	0.0282	1.0345	0.2187	1.9400e-003	0.0347	3.0100e-003	0.0377	9.5100e-003	2.8800e-003	0.0124		210.5494	210.5494	0.0260		211.2001
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0319**	**1.1631**	**0.2469**	**2.2600e-003**	**0.0417**	**3.5200e-003**	**0.0452**	**0.0114**	**3.3700e-003**	**0.0148**		**244.9589**	**244.9589**	**0.0292**		**245.6896**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6437	17.5209	14.7964	0.0228		0.9561	0.9561		0.8797	0.8797		2,294.0887	2,294.0887	0.7142		2,311.9432
Paving	0.8122					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.4559**	**17.5209**	**14.7964**	**0.0228**		**0.9561**	**0.9561**		**0.8797**	**0.8797**		**2,294.0887**	**2,294.0887**	**0.7142**		**2,311.9432**

3.6 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1020	0.0766	0.7015	1.9500e-003	0.1916	1.3300e-003	0.1929	0.0508	1.2200e-003	0.0520		194.5502	194.5502	6.5000e-003		194.7127
Total	**0.1020**	**0.0766**	**0.7015**	**1.9500e-003**	**0.1916**	**1.3300e-003**	**0.1929**	**0.0508**	**1.2200e-003**	**0.0520**		**194.5502**	**194.5502**	**6.5000e-003**		**194.7127**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6437	17.5209	14.7964	0.0228		0.9561	0.9561		0.8797	0.8797	0.0000	2,294.0887	2,294.0887	0.7142		2,311.9432
Paving	0.8122					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.4559**	**17.5209**	**14.7964**	**0.0228**		**0.9561**	**0.9561**		**0.8797**	**0.8797**	**0.0000**	**2,294.0887**	**2,294.0887**	**0.7142**		**2,311.9432**

3.6 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1020	0.0766	0.7015	1.9500e-003	0.1916	1.3300e-003	0.1929	0.0508	1.2200e-003	0.0520		194.5502	194.5502	6.5000e-003		194.7127
Total	**0.1020**	**0.0766**	**0.7015**	**1.9500e-003**	**0.1916**	**1.3300e-003**	**0.1929**	**0.0508**	**1.2200e-003**	**0.0520**		**194.5502**	**194.5502**	**6.5000e-003**		**194.7127**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4226	1.7766	4.7650	0.0140	1.1558	0.0163	1.1720	0.3090	0.0153	0.3243		1,414.4523	1,414.4523	0.0834		1,416.5376
Unmitigated	0.4226	1.7766	4.7650	0.0140	1.1558	0.0163	1.1720	0.3090	0.0153	0.3243		1,414.4523	1,414.4523	0.0834		1,416.5376

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	41.98	220.97	220.97	229,645	229,645
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	41.98	220.97	220.97	229,645	229,645

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.581689	0.044135	0.186694	0.113515	0.018244	0.005600	0.015197	0.022573	0.001888	0.002088	0.006279	0.000742	0.001357
Other Asphalt Surfaces	0.581689	0.044135	0.186694	0.113515	0.018244	0.005600	0.015197	0.022573	0.001888	0.002088	0.006279	0.000742	0.001357

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1781	1.0000e-005	1.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.2800e-003	3.2800e-003	1.0000e-005		3.5100e-003
Unmitigated	0.1781	1.0000e-005	1.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.2800e-003	3.2800e-003	1.0000e-005		3.5100e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0540					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1240					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.5000e-004	1.0000e-005	1.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.2800e-003	3.2800e-003	1.0000e-005		3.5100e-003
Total	**0.1781**	**1.0000e-005**	**1.5500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.2800e-003**	**3.2800e-003**	**1.0000e-005**		**3.5100e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0540					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1240					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.5000e-004	1.0000e-005	1.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.2800e-003	3.2800e-003	1.0000e-005		3.5100e-003
Total	**0.1781**	**1.0000e-005**	**1.5500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.2800e-003**	**3.2800e-003**	**1.0000e-005**		**3.5100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Energy Calculations

Construction Energy Calcs

CO2 from diesel	299	MT
CO2 from gasoline	165	MT
Total	464	MT
CO2 from diesel	298,827	kg
CO2 from gasoline	164,769	kg
Total	463,595	kg
Gallons diesel	29,268	gal
Gallons gasoline	18,809	gal
Gallons Total	**48,077**	**gal**
diesel	3,790	million BTU
gasoline	2,143	million BTU
Energy total	**5,933**	**million BTU**
kg CO2 per gal diesel	10.21	CR 2018
kg CO2 per gal gasoline	8.76	CR 2018
BTU/gallon, gasoline	113,927	
BTU/gallon, Diesel	129,488	
kgs per MT	1000	
Million	1000000	

Operations Energy Calcs

for Boulder Oaks: no elec or gas or water. Just vehicles.

CO2 from diesel	14	MT	Assumption: 86% of fleet fuel is gas
CO2 from gasoline	86	MT	Remainder is mostly diesel with some NG
Total	99	MT	See EMFAC2017 run
CO2 from diesel	13,817	kg	
CO2 from gasoline	85,529	kg	
Total	99,346	kg	
Gallons diesel	1,353	gal	
Gallons gasoline	9,764	gal	
Gallons per Year	**11,117**	**gal**	
diesel	175	million BTU	
gasoline	1,264	million BTU	
Energy total	**1,440**	**million BTU**	

Appendix C
Biological Resources Report

BIOLOGICAL RESOURCES REPORT FOR THE BOULDER OAKS PRESERVE IMPROVEMENT PROJECT

PREPARED FOR:

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December 2018

ICF. 2018. Biological Resources Report for the Boulder Oaks Preserve Improvement Project. Prepared for the County of San Diego, Department of Parks and Recreation. San Diego, CA. December.

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Acronyms and Abbreviations

AC	asphaltic concrete
ADA	Americans with Disabilities Act
AMSL	above mean sea level
Anabats	Anabat II bat detectors
BMO	Biological Mitigation Ordinance
BRCA	biological resource core area
CCR	Code of Regulations
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society's
County	County of San Diego
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DPR	Department of Parks and Recreation
DPW	Department of Public Works
FESA	Federal Endangered Species Act
FGC	California Fish and Game Code
FR	Federal Register
GPS	global positioning system
HCP	Habitat Conservation Plan
HMP	Habitat Management Plan
LDS	Church of Jesus Christ of Latter-day Saints
MBTA	Migratory Bird Treaty Act
MSCP	Multiple Species Conservation Program

NCCP	Natural Community Conservation Planning
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
OHWM	Ordinary High-Water Mark
PAMA	Pre-approved Mitigation Area
Preserve	Boulder Oaks Preserve
Project	Boulder Oaks Preserve Improvement Project
Quino	Quino Checkerspot Butterfly
RPO	Resource Protection Ordinance
RV	Recreational Vehicle
RWQCB	Regional Water Quality Control Board
SAMP	Special Area Management Plan
SDG&E	San Diego Gas & Electric
SR-67	State Route 67
stations	avian point count stations
TOB	top of bank
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey

Chapter 1
Introduction

1.1 Purpose of the Report

The County of San Diego (County) Department of Parks and Recreation (DPR) is proposing the Boulder Oaks Preserve (Preserve) Improvement Project (Project). This Biological Resources Report documents the biological resources present and potentially present around the Project; identifies impacts on biological resources resulting from the Project; and recommends measures to avoid, minimize, and mitigate significant impacts consistent with federal, state, and local regulations, including the California Environmental Quality Act (CEQA) and the San Diego Multiple Species Conservation Program (MSCP; County 1997). This document will show conformance with the County's Biological Mitigation Ordinance (BMO), the implementing document for the MSCP County of San Diego subarea plan. Furthermore, the environmental conditions described herein have been used to demonstrate compliance with other federal, state, and local regulations, such as the federal Clean Water Act (CWA) and state Streambed Alteration Program.

The County of San Diego Department of Parks and Recreation (DPR) acquired 1,268 acres in 2003 (Boulder Oaks South), for inclusion in the MSCP preserve system. DPR acquired an additional 747.8 acres to the immediate north in 2012 (Boulder Oaks North), expanding the size of the Preserve to 2,014 acres. Intensive biological surveys occurred on Boulder Oaks South in 2007 (Jones & Stokes 2007a) and on Boulder Oaks North in 2013 (ICF 2013). The terms Boulder Oaks South and Boulder Oaks North are informal terms used within this report to help clarify when and where biological surveys occurred and are not regulatory distinctions or designations described by the County.

1.2 Project Location and Description

The project site is west of Mussey Grade Road, approximately 2 miles south of SR-67 within the unincorporated area of San Diego County (see Figure 1, Regional Map). The Preserve is in the central foothills of San Diego County where the topography consists of steep mountain uplands with ridgelines separated by numerous canyons, ravines, and drainages. The western edge of the northern portion approaches the ridgeline that extends from Mt. Woodson to Iron Mountain. The valley of the west branch of San Vicente Creek lies along the Preserve's eastern boundary. The central portion of the Preserve includes relatively flat grasslands and woodlands whereas the southern portion is characterized by an east–west trending valley surrounded by steep slopes. Elevations on the Preserve range from 2,400 feet above mean sea level along the ridge tops to approximately 1,300 feet at the northeastern corner along Mussey Grade Road (see Figure 2, Project Vicinity).

The approximately 2,014-acre Preserve currently contains 14.5 miles of existing trails, of which 6.7 miles would be retained; an access road; a pond; a ranger station; a ranger residence; a volunteer pad; a restroom facility; a barn; and associated ancillary structures, including water tanks used for fire suppression, a paved parking lot, a gazebo, a dock, fencing, a stone wall, and a decorative fountain. There is an inholding on the property that is approximately 61.26 acres and is currently

owned by the Church of Jesus Christ of Latter-day Saints. The ranger station serves as the headquarters for the DPR Ramona Preserves workgroup. One ranger and the ranger's family live in the residence. Two volunteers currently live at the volunteer pad in a recreational vehicle (RV). Two additional rangers and two park maintenance workers work at the ranger station and commute on and off site.

The proposed project includes improvements to the Boulder Oaks Preserve in preparation of opening the Preserve to the public. Existing trails within the Preserve consist of trails established as part of the former Salvation Army camp, as well as informal footpaths and portions of the historic Iron Mountain Truck Trail and Foster Truck Trail. In addition to the existing trails to be retained, the proposed project includes 7.2 miles of proposed trails, three staging areas (vehicle parking), a volunteer pad, and renovation of an existing restroom facility. The proposed project includes 5.7 miles of new native trails and 1.5 miles of American with Disabilities Act (ADA)–compliant trails. A total of 6.7 miles of existing trails would remain open, while 7.8 miles would be closed to the public, but open to County DPR staff and San Diego Gas & Electric (SDG&E) employees accessing SDG&E facilities or restored to natural habitat. The 5.7 miles of new trails would be primitive in nature and would be approximately 2 to 4 feet wide. The ADA-compliant trail would have two sides: one suitable for mobility devices and pedestrians and one suitable for bicycles and equestrian users. The two sides would be separated by a barrier made of wood posts supporting a wooden beam. The ADA-complaint trail would be 8 feet wide (4 feet per side) and would include 60-inch resting/passing areas staggered every 1,000 feet. These resting/passing areas would be approximately 48 inches by 60 inches and would contain a bench if site conditions allow. The ADA-accessible trail would be graded and constructed with stabilized decomposed granite (DG). The existing trails would be maintained at their current width, and the existing access road would be widened in some portions to a consistent 24 feet wide to accommodate emergency vehicles.

The three permanent staging areas would be graded and constructed with DG material, and would be utilized as vehicle parking areas. Staging Area 1 would be in the northern portion of the Boulder Oaks Preserve, approximately 0.40 miles south of the entrance to the park. Staging Area 1 would cover 0.16 acre and would provide parking for eight passenger vehicle spaces. Staging Area 2 would be in the central portion of the Boulder Oaks Preserve, adjacent to the existing ranger station. Staging Area 2 would cover 0.29 acre and would provide parking for 16 passenger vehicle spaces. Staging Area 3 would be the designated Equestrian Staging Area and would be north of Staging Area 2, covering 0.89 acre. Staging Area 3 would provide parking for eight pull-through equestrian vehicles. The three staging areas would provide a total of 24 passenger vehicles and eight equestrian trailers. The entrance to the project site from Mussey Grade Road would be improved from a dirt road to a solid surface (concrete or asphaltic concrete [AC]), and portions of the entrance road (inside the property gate) would be widened to 24 feet across for emergency vehicle access. In addition, portions of the internal road that are not solid surface may be improved to concrete or AC.

The existing restroom structure adjacent to the ranger station may be reconstructed to provide two bathroom stalls and an ADA-accessible restroom. The existing structure is approximately 15- by 15-feet and, if constructed, the new facility would be increased to approximately 20- by 20-feet.

The current septic system, which serves the restroom, ranger station, ranger residence, and volunteer pad, would have its current capacity assessed and potentially expanded to increase capacity for the remodeled restroom facility, if necessary. It is anticipated that the proposed septic

system would be increased by no more than 2,000 square feet, and would be no greater than 36 inches deep. The expansion of the septic leach field would be confined to urban/developed areas.

A 15 by 50 foot DG volunteer pad is proposed at two possible locations. A volunteer pad is a permanent staging area for a RV or similar vehicles. DPR volunteers stay at these pads in exchange for volunteer time at the Preserve. Option A would be north of the existing barn and approximately 150 feet north of the existing volunteer pad. Electric facilities at the ranger station would be extended approximately 300 feet to connect to the volunteer pad at Option A. Option B would be approximately 50 feet northeast of the ranger station. At Option A, the existing electrical lines would be extended overhead from the ranger station by approximately 50 feet to connect to the volunteer pad. At Option B, the existing electrical box at the barn would be upgraded to serve the volunteer pad.

Other improvements to the site include picnic tables and shade structures in the staging areas and previously disturbed areas, and interpretive features, such as signs, maps, or placards, along the ADA-accessible trail. The existing electric gate at the entrance to the Preserve at Mussey Grade Road would be replaced with a similarly sized gate to allow for continued off-hours access by camp staff and adjacent property owners with legal access. New manual internal gates would be installed at the trailhead of the existing Foster Truck Trail and other locations deemed necessary for access control within previously disturbed areas. A fence would be installed around the ADA-accessible trail to separate it from 57 acres of land currently used for grazing leases.

Construction is anticipated to commence in 2019 and would occur over approximately 3 years, based on funding. Approximately 5.5 acres of grading would occur along with 713 cubic yards of imported materials. The proposed project would be implemented in phases, based on funding, with maintenance of existing trails and proposed infrastructure improvements in the first phase, construction of a portion of the new trails in the second phase, and construction of additional new trails in the third phase. Construction equipment would include trail dozers, graders, backhoes, front loaders, case skid steers, and pickup trucks.

Operation of the proposed project would be expected to serve regional residents and visitors. The proposed project would be open to the public from sunrise to sunset. Dogs on leashes would be allowed. During operation, “No Parking” signs may be installed along the shoulder of Mussey Grade Road, if deemed necessary by the Department of Public Works (DPW) Traffic Division, to prevent potential overflow parking from ending up on Mussey Grade Road. The proposed project would result in up to two additional volunteers stationed at the project site for a total of one onsite ranger, two commuter rangers, two maintenance staff, and four volunteers. The two additional volunteers would live on site full time along with the existing volunteers and staff to help with maintenance and management of the property

1.3 Survey Methods

1.3.1 Literature and Records Search

A literature and records search was conducted to establish the existence or potential occurrence of sensitive biological resources (e.g., plant or animal species) or water resources within the Preserve or study area.

The following databases/resources were reviewed:

- CDFW California Natural Diversity Data Base (CNDDB) (CDFW 2018).
- California Native Plant Society's (CNPS's) Online Inventory of Rare and Endangered Plants, 8th Edition (CNPS 2018).
- San Diego Plant Atlas (San Diego Natural History Museum [SDNHM] 2018).
- USFWS Carlsbad Fish and Wildlife Office species occurrence data (Carlsbad Fish and Wildlife Office 2018).
- SanBIOS sensitive species sightings (SANDAG 2018).
- National Wetlands Inventory (NWI) database (USFWS 2018).
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil survey maps (USDA/NRCS 2011).

For the purposes of this report, species are considered to be sensitive or have special status if they meet at least one of the following criteria:

- Species listed or proposed for listing as threatened or endangered under the Federal Endangered Species Act (FESA) (Code of Federal Regulations [CFR], Title 50, Section 17.12 [listed plants]); 50 CFR 17.11 (listed animals); and various notices in the *Federal Register* (FR) (proposed species).
- Species that are candidates for possible future listing as threatened or endangered under the FESA.
- Species listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (CESA) (14 California Code of Regulations [CCR] 670.5).
- Plant species listed as rare under the California Native Plant Protection Act (NPPA; California Fish and Game Code [FGC] 1900 et seq.).
- Species that meet the definitions of "rare" or "endangered" under CEQA (CEQA Guidelines Sections 15380 and 15125).
- Animal species of special concern to the CDFW.
- Animals that are "fully protected" in California (FGC Sections 3511 [birds], 4700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish]).
- Species listed as having a California Rare Plant Rank (CRPR) of 1A (presumed extinct in California), 1B (rare, threatened, and endangered in California and elsewhere), or 2 (rare, threatened, or endangered in California, but more common elsewhere). CRPR List 1A, 1B, and 2

species are considered special-status plant species as defined in the NPPA, FGC Section 1901, the CESA FGC Sections 2050 through 2098, and CEQA Section 15380.

- Species considered CRPR 3 (plants for which more information is needed [a review list]) or CRPR 4 (plants of limited distribution [watch list]) (CNPS 2018). Many CRPR List 3 and List 4 species may not meet the definitions of special-status as defined in the NPPA, FGC Section 1901, or the CESA, FGC Sections 2050 through 2098, but are strongly recommended for consideration under CEQA (CNPS 2001).

1.3.2 Survey Methodology

Extensive biological inventory surveys have been conducted over the entire Preserve. A full biological inventory of the Boulder Oaks South was conducted in 2007 by Jones & Stokes (2007a). A full biological inventory was conducted for Boulder Oaks North in 2013 (ICF 2013). Vegetation mapping of the Preserve was conducted in 2013. A jurisdictional delineation of the study area was conducted in 2018 (ICF 2018; Appendix F). This section provides details on the methodologies used in these biological surveys.

During 2007, Jones & Stokes biologists conducted the following studies, in addition to general, qualitative evaluation of the entire Boulder Oaks South: (1) mapping of vegetation communities, (2) a floral inventory, including rare plant surveys, (3) a focused survey for Quino Checkerspot butterfly (Jones & Stokes 2007b; Appendix G), (4) a habitat evaluation to address arroyo toad, (5) pitfall trap arrays to sample amphibians and reptiles, (6) avian point counts, (7) a nocturnal bird survey, (8) acoustic sampling and roost surveys for bats, (9) small mammal trapping, and (10) a camera station survey for medium-to-large mammals.

During 2013, ICF International (ICF) biologists conducted baseline biological surveys from March 13 through August 28, 2013 at the Preserve that included the following: (1) vegetation surveys with habitat community, rare plant, and Cal-IPC invasive plant species mapping components; (2) butterfly surveys; (3) herpetofauna surveys, including pitfall arrays; (4) ornithological surveys, including diurnal point counts and nocturnal surveys; and (5) mammal surveys, including small mammal trapping, camera stations for medium to large mammals, and acoustical bat surveys.

The following sources are followed for taxonomy and nomenclature, including both scientific and standardized English names: Baldwin et al. (2012) and Rebman and Simpson (2014) for plants; Arnett (2000) for higher taxonomic categories of invertebrate animals; generally Opler and Wright (1999) or Hogue (1993) for invertebrate species; the Society for the Study of Amphibians and Reptiles (2018) for amphibians and reptiles; American Ornithological Society for birds (Chesser 2018); and Bradley et al. (2014) for mammals. The scientific binomial from the cited reference is included with the first mention of a species in the body of this report.

As the Preserve is large and the Project will be very narrow and constrained, a study area was established for the Project that consisted of a 10-foot survey buffer from the center of the Project alignment. This study area will be assessed for presence of and potential to support sensitive biological resources.

1.3.2.1 Vegetation Mapping and Floral Inventory

Vegetation mapping was originally conducted on Boulder Oaks South in 2007. Vegetation communities were mapped within the entirety of the Preserve and the 100-foot buffer in 2013. Vegetation communities were classified based on the dominant and characteristic plant species, in accordance with the Holland classification system (1986), as modified by Oberbauer et al. (2008). This vegetation mapping system allows conformance to mitigation ratios provided in the BMO.

All plants observed within the study area were identified to the species level (including subspecies or variety, as applicable) using *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al. 2012) and recorded in a species compendium. Plant common names followed the *Checklist of The Vascular Plants of San Diego County, Fifth Edition* (Rebman and Simpson 2014) if the common names were not provided in Baldwin et al. (2012).

1.3.2.2 Rare Plant Surveys

Rare plant surveys were conducted on Boulder Oaks South in 2007 and Boulder Oaks North in 2013. Rare plant survey priority areas included unique features within the Preserve that have a high potential to support rare plant species. These features include the periphery of the oak woodland canopy and unique habitat features such as rock outcrops, clay lenses, and grassland openings between denser chaparral/scrub habitats. ICF botanists traversed the study area via meandering transects in an effort to identify the locations of special-status species. All plant species observed were noted, and plants that could not be identified in the field were identified later using taxonomic keys, including Baldwin et al. (2012). A discussion of sensitive-status plant species with potential to occur is presented as Appendix C. Table 1 presents the survey dates from 2007. ICF biologists conducted mapping of rare plants in 2013 during vegetation mapping surveys.

Table 1. 2007 Vegetation Mapping and Floristic Inventory Surveys

Survey Personnel	Date	Survey Personnel	Date
Klutz, Korey	01/22/2007	Primrose, Brant	03/20/2007
Klutz, Korey	01/23/2007	Primrose, Brant	03/26/2007
Primrose, Brant	01/23/2007	Klutz, Korey	03/28/2007
Primrose, Brant	02/01/2007	Primrose, Brant	04/02/2007
Primrose, Brant	02/05/2007	Primrose, Brant	04/10/2007
Klutz, Korey	02/12/2007	Klutz, Korey	04/10/2007
Primrose, Brant	02/12/2007	Klutz, Korey	04/13/2007
Klutz, Korey	03/15/2007	Primrose, Brant	04/19/2007
Klutz, Korey	03/07/2007	Primrose, Brant	05/30/2007
Primrose, Brant	03/09/2007	Primrose, Brant	06/01/2007
Primrose, Brant	03/13/2007		

Groups of individual plants were mapped as single points with attribute data, including total individuals observed. Where California adder's tongue (*Ophioglossum californicum*) occurred in a large patch, a polygon was mapped and the number of individuals within the polygon was estimated and recorded into the global positioning system (GPS) unit. Similarly, a large polygon was mapped where Lakeside Ceanothus (*Ceanothus cyaneus)* was common in the southwestern chaparral-covered slopes; individual shrubs were not counted. In November 2016, the boundary of the population of Lakeside ceanothus was surveyed by ICF botanists Dale Ritenour and Lance Woolley to determine the exact limit of the northeastern boundary of this population.

1.3.2.3 Butterfly Surveys

Jones & Stokes biologists conducted a survey for the federally endangered Quino Checkerspot butterfly (*Euphydryas editha quino*; Quino) on Boulder Oaks South from March 13 through April 18, 2007. All biologists involved in the Quino survey had USFWS recovery permits or were listed as "Supervised Individuals" under permits of other permitted biologists. The surveys were conducted on a roughly weekly basis under acceptable weather conditions as defined in the USFWS protocol (USFWS 2002). Each survey visit involved slowly walking transects throughout the area of the Preserve with highest potential for Quino detection. These were areas considered to have the highest potential for Quino larval host plant populations and/or are on ridgelines, hilltops, or rock outcrops in clay lens openings. The survey visits were conducted at an average rate of 15 acres per hour. Surveyors stopped periodically to scan adjacent areas for moving butterflies. All butterfly species observed were identified and recorded in the wildlife table (Appendix D). Full details of the Quino survey are provided in the attached Quino Checkerspot Butterfly Survey Report (Appendix G)

ICF biologists conducted a habitat assessment for Quino on Boulder Oaks North in 2013. The majority of the Preserve was "excludable" closed-canopy scrub oak and southern mixed chaparral.

Non-native grasslands at Boulder Oaks North have been heavily grazed by cattle and lack host plant or nectar resources. Three surveys were conducted in 2013 during the flight season of Quino during suitable weather conditions in areas of highest potential for Quino. Host plants were rarely encountered within otherwise high-quality habitat.

ICF biologists conducted a habitat assessment for the Hermes copper butterfly (*Lycaena hermes*), a federal candidate species on the Preserve in 2013. Hermes copper butterflies use spiny redberry (*Rhamnus crocea*) as their larval host plant, and preferentially choose mature spiny redberry surrounded by nectaring resource California buckwheat (*Eriogonum fasciculatum*). During floristic surveys, biologists searched for host plants and potential habitat. No spiny redberry host plants were observed on Boulder Oaks North. Spiny redberry on Boulder Oaks south existed in dense areas that were not suitable habitat for Hermes copper butterfly. Because of lack of suitable habitat, no flight season surveys were conducted on the Preserve. All butterfly species detected during the surveys were identified, and are reported in Appendix D.

1.3.2.4 Herpetological Surveys

Extensive inventory surveys were conducted to determine the usage of the Preserve by special-status reptiles and amphibian species. Reptile trapping was conducted on Boulder Oaks South in 2007 and Boulder Oaks North in 2013.

A habitat assessment for arroyo toad (*Anaxyrus californicus*) was conducted at Boulder Oaks South on 2007 and on Boulder Oaks North in 2013. No potentially suitable breeding habitat was identified. This assessment was based on the lack of primary constituent elements of arroyo toad habitat such as sandy low gradient open wash habitat with slow-moving or pooling water (U.S. Fish and Wildlife Service 1999). Because the project site lacked suitable habitat, the species was assumed absent.

Jones & Stokes conducted surveys for sensitive herpetofauna (amphibians and reptiles) within Boulder Oaks South from February through July 2007. Terrestrial herpetological surveys were conducted using modified pitfall trap arrays as based on the design in "Herpetological Monitoring Using a Pitfall Trapping Design in Southern California" (Stokes et al. 2001). The 2007 array design consisted of one 20-foot arm of drift fence with pitfall trap at each end and one funnel trap placed in the middle. Two arrays were placed close to each other (within 50 feet), and the angle formed by the two arrays varied but approximated 90 degrees. Five sites were selected at which the pairs of arrays (10 arrays total) were constructed. The five sites were placed in representative habitats throughout Boulder Oaks South, including open coast live oak woodland, scrub oak chaparral, southern mixed chaparral, nonnative grassland, and near the large pond. In addition to arrays, 15 cover boards, flat plywood sheets approximately 3 by 3 feet, were placed in locations that were monitored during array monitoring. All areas immediately surrounding the arrays and between array sites were actively searched for herpetofauna during the array monitoring. Active searching included looking under shrubs and logs. All herpetofauna observed were recorded and are included in the wildlife tables in Appendix D. Array traps were sampled on four consecutive days once a month beginning in February 2007 and continuing through July 2007. The traps were opened on a Monday afternoon, sampled Tuesday through Friday, and closed Friday.

ICF conducted surveys for sensitive herpetofauna (amphibians and reptiles) within Boulder Oaks North from April through July 2013. Terrestrial herpetological surveys were conducted using pitfall trap arrays as based on the design in Stokes et al. (2001). The trap arrays used a three-arm drift

fence array with four pitfall traps, three box traps, and three funnel traps. A flat wooden board was placed on top of the box trap to provide shade and encourage entry into the trap. With the exception of the use of box traps, this study's array design was consistent with that recommended by Stokes et al., and recommendations for array materials and trap construction were followed. As the site temperatures were not expected to be excessive during the trapping period, biologists constructed funnel traps with no pitfall trap retreat underneath, as described in the above-referenced protocol.

Array locations were selected based on access, vegetation community, soils, topography, and avoidance of known special-status resources (including cultural resources). Three sites were selected to construct arrays. The first array was on the northern side of the Preserve within coast live oak woodland habitat with an understory of poison oak and nonnative grassland. The second array was installed within southern mixed chaparral. The third array was on the southern side of the Boulder Oaks North, within southern mixed chaparral.

All areas immediately surrounding the arrays were actively searched for herptiles during monitoring of each array. Additionally, active searches for herptiles were conducted during other wildlife surveys at the Preserve. Active searches included looking under rocks, shrubs, and logs and along the periphery of vegetated water features. All herptiles observed during active searches and other wildlife surveys were identified to species and recorded (Appendix D).

Herpetofauna pitfall array traps were sampled on four consecutive days once a month beginning in April 2013 and continuing through July 2013 (Table 2). Array traps were checked during morning hours to ensure that animals were released before daytime temperatures reached levels that could result in mortality. All animals were identified to the species level and immediately released at the point of capture. Biologists did not handle animals other than to photograph and release them from traps.

Table 2. Dates and Personnel for the Pitfall Sampling on the Preserve in 2013

Date	Name of Biologists
April 9 through 12, 2013	Douglas Allen, Cindy Dunn, Cheryl Rustin
May 14 through 18, 2013	Will Kohn, Cheryl Rustin
June 4 through 7, 2013	Cindy Dunn, Kylie Fischer, Will Kohn, Lindsay Willrick
July 16 through 19, 2013	Douglas Allen, Will Kohn

1.3.2.5 Avian Surveys

Extensive inventory surveys were conducted to determine the usage of the Preserve by special-status bird species. Surveys included diurnal avian point count surveys and nocturnal bird surveys. Surveys were conducted on Boulder Oaks South in 2007 and Boulder Oaks North in 2013.

Diurnal Point Counts

Avian point count sampling was conducted on Boulder Oaks South in 2007 and Boulder Oaks North in 2013. Point count methods followed recommendations provided in Ralph et al. (1995) for

extensive (i.e., station-independent) surveys. See that source for detailed discussion of the basis for, and further details on, the methods presented here. A summary of methods, including additions beyond the recommendations, is provided below. Stations were located at least 250 meters apart. Counts were conducted at each station for 10 minutes. All detected birds were counted.

Avian use of Boulder Oaks South was documented through the use of nine avian point count stations (stations) sampled once a month for four months beginning in March 2007 and concluding in August 2007.

Avian use of Boulder Oaks North was documented through the use of seven stations sampled once a month for four months beginning in March 2013 and concluding in June 2013 (Table 3).

Table 3. Dates and Personnel for the Point Counts on the Preserve in 2013

Date	Name of Biologist
March 13, 2013	K. Fischer, Erika Eidson
April 5, 2013	K. Fischer, Lindsay Willrick
May 3, 2013	K. Fischer, Dale Ritenour
June 7, 2013	K. Fischer, Marisa Flores

Point count methods followed recommendations provided in Ralph et al. (1995) for extensive (i.e., station-independent) surveys. See that source for detailed discussion of the basis for, and further details on, the methods presented here. A summary of methods, including additions beyond the recommendations, is provided below. Stations were located at least 250 meters apart. Counts were conducted at each station for 10 minutes. All detected birds were counted. Both seen and heard individuals were recorded as long as clearly identified.

Nocturnal Surveys

Monthly nocturnal bird surveys were conducted on Boulder Oaks South on four nights in 2007. Surveys were conducted with a combination of walking and slowly driving roads, looking and listening for birds. This work was conducted prior to the diurnal point counts, by the same observer, who is very experienced with both nighttime and daytime bird vocalizations. Each survey lasted between 1.5 and 2.5 hours, for a total time of just under eight hours

Monthly nocturnal bird surveys were conducted on Boulder Oaks North on four nights in 2013 (Table 4). Methods included walking trails throughout the Preserve, looking and listening for birds. Electronic playback of owl calls was intermittently used in an attempt to elicit responses from birds.

Table 4. Dates and Personnel for the Nocturnal Bird Surveys on the Preserve in 2013

Date	Name of Biologists
March 14, 2013	Douglas Allen, Dale Ritenour
April 11, 2013	Douglas Allen
May 2, 2013	Douglas Allen
June 6, 2013	Douglas Allen

1.3.2.6 Mammal Surveys

Extensive inventory surveys were conducted to determine the usage of the Preserve by special-status mammal species. Surveys were conducted on Boulder Oaks South in 2007 and Boulder Oaks North in 2013. Mammal species were documented through general surveys, small mammal trapping, camera stations, and bat sampling. The goal of the small mammal trapping was to document the small mammal species using different habitats on the Preserve. The camera stations documented the medium to large mammal species using the Preserve. Bat sampling was used to document the use of the Preserve by bat species.

Small Mammal Trapping

For the purposes of the proposed Project, small mammals include species in the following families: shrew, mole, squirrel, pocket gopher, pocket mouse, and rat and mouse. In 2013, the small mammal sample areas were selected using vegetation mapping and aerial photography. Sample areas were selected based on three criteria: (1) sampling of different vegetation communities, (2) geographic distribution across the Preserve, and (3) sampling of unique features (e.g., wash or ecotone).

On May 24, 2007, Jones & Stokes biologists Phillip Richards and Kurt Campbell assessed Boulder Oaks South for the physical conditions, vegetative community distribution, vegetative cover, and accessibility for planning the trapping program for small mammals. Except for the far southern end of the property, all portions of the property were visually inspected to determine representative small mammal sampling locations.

Small mammal trapping on Boulder Oaks South consisted of 12 traplines totaling 350 traps. Each trapline was set for two sequential nights for a total of 700 trap nights.

- Traplines 1 through 7 were set and baited July 11 and 12, 2007 and checked once during the morning of July 12 and 13, 2007. Traplines 1 through 7 ranged from 9 to 40 traps each.
- Traplines 8 through 12 were set and baited June 27 and 28, 2007 and checked once during the mornings of June 28 and 29, 2007. Traplines 8 through 12 ranged from 30 to 50 traps each.

Trapline locations were selected based on three criteria: 1) sampling of different vegetative communities, 2) geographic distribution across the Preserve, 3) and sampling of unique features (e.g., area around a pond). Sequentially numbered 9-inch and 12-inch Sherman live traps were set at

dusk, approximately 5 to 10 meters (16 to 33 feet) apart. Traps were placed near small mammal sign and placed where potential small rodent captures were judged to be most probable. Where rodent sign was not apparent, traps were placed near the base of shrubs. The location of each trap was recorded using a recreational grade GPS receiver (Garmin brand, WAAS enabled). Mixed birdseed was used as bait, and a few seeds were trailed out from the mouth of the trap, usually toward a game trail, burrow, or open area. All 9-inch Sherman live traps were modified by the addition of a binder clip to the lip of the trap body to prevent doors from closing on the tails of animals. All traps were checked and closed at dawn.

Small mammal trapping on Boulder Oaks North in 2013 consisted of four nights of trapping. A total of seven sample areas were set with traps (traps A through G). A total of 160 traps were used. This number was based on logistical factors, such as distance and terrain between sample areas and estimated time to process small mammals captured. In total, the preserve trapping program produced 640 trap nights (i.e., number of traps multiplied by the number of nights).

Traps were initially set and baited in the late afternoon on Monday, July 15, 2013. Traps were opened and baited before dusk and closed during the dawn trap check. Traps were systematically checked around dawn between 4:30 a.m. and 9:00 a.m. Table 5 summarizes the personnel, dates, and conditions for the trapping program. Table 6 summarizes the conditions associated with each sample area, including configuration (i.e., grid vs. transect), spacing, number of traps, trap sequence, trap night total, physical description, and associated vegetation communities.

Table 5. Personnel, Date, Time, and Conditions of the Small Mammal Trapping at Boulder Oaks North in 2013

Personnel	Night Number	Date Checked	Times Checked	Conditions
Phil Richards Cindy Dunn	1	July 16, 2013	5:05 to 7:45 a.m.	Partly cloudy; 57°–61°F; wind calm; no moon visible
Phil Richards Cindy Dunn	2	July 17, 2013	5:05 to 7:55 a.m.	Partly cloudy; 55°–57°F; wind calm; no moon visible
Phil Richards Cindy Dunn	3	July 18, 2013	4:45 to 7:45 a.m.	Clear; 57°–60°F; wind calm; no moon visible
Phil Richards Cindy Dunn	4	July 19, 2013	4:30 to 8:24 a.m.	Clear; 57°–67°F; wind calm; no moon visible

When animals were captured, each animal was transferred from the trap into a cloth bag. The animals were removed by their napes and identified to species. The sex and reproductive condition of each animal was recorded (i.e., testes scrotal, not scrotal; vagina perforate, not perforate). Any mites, ticks, or other parasites were noted. Digital photos were taken of some specimens. Once the data were recorded onto data sheets, each animal was released where captured. This whole process

took several minutes for each capture. The released animals were observed until they moved to the safety of a burrow or clump of vegetation. Species observed from this effort are listed in Appendix D. Complete results of this effort are in Jones & Stokes 2007a and ICF 2013.

Wildlife Cameras

Remote camera stations were used to help document the presence of medium and large mammals within the Preserve. These stations allow for the detection of species that are rarely encountered because of their nocturnal or crepuscular activity patterns.

Within Boulder Oaks South, camera tracking stations were set up at five locations that were judged to have high potential for documenting movement of large mammals (e.g., along game trails, and near water features; see Figure 6a). Motion-sensitive cameras recorded animals moving past the stations from September 14 through October 13 (30 days). Each station consisted of one infrared transmitter, one infrared receiver, and one 35-millimeter camera (Trailmaster TM 1500 Active Infrared Trail Monitor). Species observed are listed in Appendix D.

Within Boulder Oaks North, four camera tracking stations were set up at locations that represented various vegetation communities on the Preserve and that were judged to have a high potential for movement of medium and large mammals (e.g., along game trails, dry creek beds, and existing trails). Each camera station consisted of one Moultrie infrared digital game camera. The cameras were programmed to record a series of three images (spaced 10 seconds apart) every time the motion sensor was triggered. After the motion sensor was triggered, there was a 5-minute delay before the next series of photos could be taken. Each image included an information tag that recorded the date, time, temperature, camera ID, and moon phase. Once in place, the cameras were periodically checked and all recorded images were downloaded to a portable hard drive. Digital images were interpreted, and all animals were identified to the species level. Species observed are listed in Appendix D.

Bats

Thorough surveys were conducted at Boulder Oaks South and Boulder Oaks North for the presence and usage of the Preserve by sensitive bat species. Two types of bat surveys (passive and active) were conducted in this study, which consisted of a combination of techniques, including acoustic surveys, visual surveys, and roost surveys.

Passive Surveys

A passive acoustic survey was conducted at the large pond on Boulder Oaks South in 2007, to detect and identify foraging bats, including sensitive bat species. The survey was conducted between June 28 and July 22, 2007. The survey was conducted using an Anabat SD1 detector (Titley Electronics, New South Wales, Australia) programmed to record all ultrasonic signals between 6 p.m. and 6 a.m. each day. All of the recordings were then downloaded to a Dell Latitude D510 laptop computer using CFread, an Anabat ZCAIM interface program. Each recording was then converted to a sonogram for species identification analysis using Analook W, an Anabat conversion program. Sonograms of each bat call were then generated using the ANALOOKW (Windows version 3.3f) program. Species were then identified by comparison of the sonograms with those of known bats available in the literature (O'Farrell et al. 1999).

Passive Anabats were used to survey for bats in the Preserve during two week-long monitoring sessions in April and June 2013. During these monitoring sessions, one Anabat unit was placed in the northern sampling location to monitor bats for three consecutive nights and then the unit was moved to the southern sampling location for three consecutive nights.

Passive surveys were conducted on Boulder Oaks North in 2013 using Anabat II bat detectors (Titley Electronics, New South Wales, Australia). Anabat II bat detectors (Anabats) were used to detect and record bat echolocation signals (O'Farrell et al. 1999). Two monitoring sessions were conducted during the 2013 survey effort: once during spring migration (April) and once during late spring (June). During these monitoring sessions, a single Anabat unit was placed in the Preserve to monitor bats for three consecutive nights. Two locations were sampled: one near the pond near the ranger station and one in a coast live oak woodland in a drainage. The oak woodland site was surveyed from April 26 to 29, 2013 and June 3 to 6, 2013. The pond location was surveyed from April 29 to May 2, 2013 and June 6 to 9, 2013.

These calls were analyzed and identified to the species level by a biologist experienced with bat vocalization identification. Passive Anabats are designed to automatically turn on and off at set times (i.e., sunset and sunrise) and automatically record bat echolocation signals to a compact flash card. Bat echolocation calls are then downloaded from the compact flash card to a computer and analyzed in the laboratory using specialized software designed for the Anabat system called "Analook" (version 3.3q). All recorded bat echolocation calls were identified to species, and an index of relative bat activity was generated by taking the number of bat call files recorded divided by the number of Anabat nights (number of Anabats times number of recording nights) multiplied by a factor of 10 to reduce use of fractional numbers. Bat calls were analyzed and identified by Drew Stokes of the San Diego Natural History Museum. Bat species observed are recorded in Appendix D.

Active Surveys

Active foraging bat surveys were conducted in Boulder Oaks North using an Anabat bat detector, listening for audible bat echolocation calls in an attempt to document additional bat species foraging in the Preserve. Active surveys occurred during the passive survey monitoring sessions and were focused primarily along the northern riparian corridor and the pond in the southern area of the Preserve. Active bat surveys were also conducted concurrently with nocturnal avian surveys. The surveyor listened for audible bat echolocation calls and watched for bats in flight during the walking survey.

1.3.3 Jurisdictional Wetland Delineation

A jurisdictional delineation was initially completed in the study area by ICF biologists on March 19 and March 20, 2018. Due to project alignment modifications, an additional delineation was completed for the study area on October 10, 2018. For this effort, Arid West Ephemeral and Intermittent Streams Ordinary High Water Mark (OHWM) Datasheets were completed and are included in the Preliminary Jurisdictional Delineation report (Appendix F).

A survey area was established for the Project that consisted of a 10-foot survey buffer from the center of the Project alignment. Due to project site topography and access limitations, the jurisdictional delineation was conducted using two methodologies. Accessible resources were delineated by foot and jurisdictional limits were recorded using high-resolution aerial photographs (1 inch = 100 feet) and an Apple iPad using Collector Map with a sub-meter accuracy GPS unit.

Resources that were not accessible were delineated based on a desktop method using aerial photography, USGS topographic maps, National Hydrography Dataset, and National Wetland Inventory (NWI) data. Features that were delineated based on the desktop method were first accessed at the downstream end of the feature and mapped on foot. The downstream mapped conditions were then extrapolated upstream. Existing conditions were documented as field notes and site photographs (Appendix F).

1.4 Environmental Setting (Existing Conditions)

1.4.1 Physical Characteristics

The Preserve is located in the central foothills of San Diego County. The natural setting of the Preserve consists of steep mountain uplands with ridgelines separated by numerous canyons, ravines, and drainages. The western edge of Boulder Oaks North approaches the ridgeline that extends from Mt. Woodson to Iron Mountain. The top of Iron Mountain (2,696 feet) is roughly 0.9 mile west of the western edge of the Preserve. The valley of the west branch of San Vicente Creek lies along the Preserve's eastern boundary. The central portion of the Preserve includes relatively flat grasslands and woodlands. Boulder Oaks South is characterized by an east–west trending valley surrounded by steep slopes. The Preserve also includes several unnamed drainages. Four manmade impoundments exist on the Preserve. The northern, western, and southern southwestern portions are composed of steep, boulder-strewn mountains (Figure 2). Elevations on the Preserve range from 2,400 feet above mean sea level (AMSL) along the ridge tops to approximately 1,300 feet AMSL at the northeastern corner along Mussey Grade Road.

Several graded dirt roads traverse the Preserve. These include park roads and historic truck trails. Access roads also lead to an SDG&E steel lattice electrical transmission line that crosses the southern portion of the Preserve.

1.4.2 Soil

The Preserve is situated atop the Southern California batholith, which consists of Cretaceous granitic rocks. These rocks form the majority element of this massive feature that underlies roughly two-fifths of San Diego County. In the Preserve vicinity, this exposed granitic bedrock comprises the Woodson Mountain Granodiorite Formation, consisting principally of granodiorite with minor granite and quartz diorite (tonalite) (Strand 1962). The Natural Resources Conservation Service (NRCS) has mapped the soil series acid igneous rock land, Arlington coarse sandy loam, Cieneba very rocky coarse sandy loam, Cieneba rocky coarse sandy loam, Cieneba coarse sandy loam, Fallbrook sandy loam, Friant rocky fine sandy loam, Olivenhain cobbly loam, Visalia sandy loam, Vista rocky coarse sandy loam, and Vista coarse sandy loam as occurring within the survey area (USDA/NRCS 2018)(Figure 4). The majority of the hills within the site have been mapped as either Cieneba very rocky coarse sandy loam or Cieneba rocky coarse sandy loam (USDA/NRCS 2018).

The **Acid Igneous Rock Land** soil series is loam to loamy coarse sand in texture and very shallow over decomposed granite or basic igneous rock. It typically contains large boulders and rock outcrops of granite, granodiorite, tonalite, quartz diorite, gabbro, basalt, or gabbro diorite over 50 to

90 percent of total area (USDA 1973). This soil series is common on the western side of the southernmost area of the Preserve.

The **Arlington** soil series is characterized as a coarse sandy loam with slopes from 2 to 9 percent. These soils are typically described as well drained alluvial fans and terraces with slopes from nearly level to strongly sloping and are associated with growing grains, citrus, and other truck crops. Naturalized vegetation found on this soil series is mainly annual grasses and forbs. These soils are mapped primarily in the southwestern portion of the Preserve.

The **Cieneba** soil series is characterized as coarse sandy, rocky coarse sandy, and very rocky coarse sandy loams with slopes from 5 to 75 percent. They are typically described as excessively drained shallow soils that are weathered in place from granite outcrops found in the adjacent uplands. These soils are mapped throughout the Preserve, with the rocky coarse sandy and very rocky coarse sandy loam soils being the dominant of the three series. Coarse sandy loam is only found within the northwestern border of the Preserve.

The **Fallbrook** soil series is characterized as sandy to rocky sandy loams with slopes from 5 to 30 percent. These soils are typically moderately deep and well drained, and are weathered in place from granodiorite. This soil is mapped in small scattered patches throughout northern border and middle of the Preserve.

The **Friant** soil series is characterized as a rocky fine sandy loam with slopes from 9 to 70 percent. These soils are typically described as shallow, well drained soils that formed from weathered material consisting of fine grained metasedimentary rock. This soil is mapped in small scattered patches throughout southern and southeastern border of the Preserve.

The **Olivenhain** soil series is characterized by well drained, moderately deep to deep cobbly loams and is usually found on slopes ranging from 2 to 50 percent. It is found on dissected marine terraces at elevations ranging from 30 to 183 meters (100 to 600 feet). The surface layer is usually 25 centimeters (10 inches) thick and moderately acidic. The topsoil is brown and reddish-brown and cobbly loam in texture. The subsoil is reddish-brown, red, and pink in color, strongly acidic, very cobbly clay and clay loam and is about 81 centimeter (32 inches) thick. The substratum is pinkish-white in color and strongly acidic. Runoff is medium to rapid and the erosion hazard is moderate to high.

The **Visalia** soil series is characterized as sandy loam with slopes from 2 to 9 percent. These are moderately well-drained soils derived from granitic alluvium and are typically found in alluvial flood plains and fans. This soil is mapped in small scattered patches throughout western border of the Preserve.

The **Vista** soil series is characterized as coarse sandy and rocky coarse sandy loam with slopes of 5 to 15 percent. These are well drained, moderately deep to deep soils derived from granodirite or quartz diorites. This soil is mapped in small scattered patches throughout western and southern border of the Preserve.

1.4.3 Fire

The Preserve is dominated by chaparral vegetation, which is naturally maintained by infrequent fires. If the natural fire cycle is suppressed, the chaparral can become senescent, declining in both health and diversity. If the fire frequency is increased, vegetation could shift toward disturbed grassland habitats or opportunistic pioneering shrub communities. The fire cycles within the area are affected by actions within and adjacent to the Preserve. Surrounding development and brush management actions associated with urban development have altered the fire cycles throughout most of western San Diego County. The entire Preserve burned during the 2003 Cedar Fire. The western side of Boulder Oaks North burned in the Poway Fire of 1995. The majority of Boulder Oaks South burned in the Bowles Fire of 1984. The northernmost portion of the Preserve burned in the Klondike Fire of 1972 and the Pearson Peak #2 Fire of 1958.

1.4.4 Hydrology

The Preserve is in the San Vicente Hydrologic Area of the San Diego River Watershed. Designated beneficial uses for the San Diego River and its tributaries include municipal and domestic supply, agricultural supply, industrial service supply, industrial process supply, contact and non-contact water recreation, warm freshwater habitat, cold freshwater habitat, wildlife habitat, and rare, threatened, or endangered species.

Two unnamed drainages, shown as intermittent blue-line streams on the USGS 7.5-minute San Vicente Reservoir quadrangle map, cross the site from west to east. The more northerly drainage flows from the east face of Iron Mountain, crosses the Preserve for a short distance, is impounded just below the ranger station, and empties into the west branch of San Vicente Creek. The other extends from just below the saddle in the west ridgeline on the Preserve, west across the central portion of the reserve and then southwest, emptying into the West Branch of San Vicente Creek shortly above where the latter empties into San Vicente Reservoir. Two of the three manmade reservoirs on the site consist of dammed portions of the more southerly of the two drainages. The largest reservoir on the Preserve, located on Boulder Oaks South, has had a ponded surface area of approximately 1.5 acres.

Specific details of the small jurisdictional features present within the study area are detailed in the Preliminary Jurisdictional Delineation for Boulder Oaks Preserve Improvement Project (ICF 2018; Appendix F) and summarized in Section 1.4.14.

Other small drainages exist on site, including a north-central drainage, which flows from the eastern face of the unnamed 2,380-foot peak, which is immediately off site to the northwest, and the northern side of the on-site 2,184-foot peak. The central drainage fans out immediately west of the LDS campground.

San Vicente Reservoir, approximately one-third of a mile south of the south boundary of the Preserve, is a steep-sided, deep, man-made reservoir.

1.4.5 Existing Land Use

The Preserve is not currently open to the public. Cattle grazing occurs in leased pastures in northern portion of the Preserve. No grazing occurs in the grasslands in the southern portions.

The LDS campground is mostly surrounded by northern portions of the Preserve, and it uses the park road from Mussey Grade Road for access. LDS also owns two small parcels within Boulder Oaks North (labelled as "not a part" on Figure 3). Several private residences exist immediately east of the Preserve boundary.

The park road and truck trails on Boulder Oaks South are periodically managed for brush encroachment, in an effort to keep the roads open for wildland fire-fighting efforts.

1.4.6 Land Ownership in Vicinity

The Preserve is surrounded to the west, southwest, and southeast by preserved lands (Figure 3). The City of Poway's Iron Mountain Preserve exists on the northwest side of the Preserve. The CDFW San Vicente Highlands Open Space Preserve Exists on the southwest side of the Preserve. San Vicente Highlands Open Space Preserve connects to the County Sycamore Canyon/Goodan Ranch Preserve, only separated by Highway 67. San Vicente Reservoir and the San Vicente Reservoir Cornerstone Lands exist on the southeast side of the Preserve. The County's Dos Picos Regional Park is located approximately 0.5 mile to the north, separated by privately held ranch and undeveloped lands. Parcels to the east of Boulder Oaks are generally privately owned rural residential lands.

1.4.7 Existing Roads and Trails

The Preserve currently contains 6.7 miles of existing trails proposed to remain open, and 7.8 miles of existing trails proposed to be closed. Of the trails proposed to remain open, 6.3 miles of the 6.7 miles of "trails" are existing park roads and historical truck trails. This includes the 2.0 miles of ranch road used to access the ranger station (former Wildwood Ranch) and LDS campground from Mussey Grade Road, 0.2 mile of historical road which served a historical residence on the northwesternmost section of the Preserve, 0.7 mile of road to reach the summit to the west of the LDS campground, 0.7 mile of historical loop road accessing a stock pond/impoundment on the west side of Boulder Oaks South, and 1.8 miles of truck trails on Boulder Oaks South. The 1.8 miles of truck trails include the historical Iron Mountain Truck Trail and Foster's Truck Trail. These "trails" are roads used by DPR staff to access the Preserve, as well as for SDG&E to access powerlines that traverse Boulder Oaks South. The 0.4 mile of actual non-vehicular trail exists immediately north of the LDS Campground and was associated with the former Salvation Army campground.

Of the trails proposed for closure, these include 1) roads that must remain passible for SDG&E, DPR staff, and other emergency personnel (e.g., Calfire) but that will be closed to public use, and 2) roads and trails formerly associated with the Salvation Army campground and with Wildwood Ranch and other rural developments that previously existed

1.4.8 Regional Context

The Preserve is located within the Metro-lakeside-Jamul segment of the MSCP. The majority of Boulder Oaks South was designated as Pre-approved Mitigation Area (PAMA), while most of Boulder Oaks North is outside of PAMA.

1.4.9 Habitat Types/Vegetation Communities

The Preserve is 2,014 acres and supports 12 vegetation communities/land cover types (Table 1). Of these, 10 vegetation communities/land cover types were observed within the study area (Table 6). Vegetation communities were described and assigned numerical codes according to the *Terrestrial Natural Communities of California* (Holland 1986), as modified by Oberbauer et al. (2008). The habitat types/vegetation communities and land cover types observed within the study area were coast live oak woodland, coastal and valley freshwater marsh, disturbed habitat, Diegan coastal sage scrub, Engelmann oak woodland, open water, nonnative grassland, scrub oak chaparral, southern coast live oak riparian forest, southern arroyo willow riparian forest, southern mixed chaparral, and urban/developed (Appendix A: Figure 4a-f). Southern mixed chaparral was by far the most common vegetation community on the Preserve, comprising approximately 1,645 acres of the 2,014 acre Preserve.

Table 6. Vegetation Communities Occurring within the Study Area and Project Area

Vegetation Community (Holland Code)	Study Area (ac)	Preserve (ac)
Coast Live Oak Woodland (71160)	0.4	17.1
Coastal and Valley Freshwater Marsh (52410)	0.2	5.6
Diegan Coastal Sage Scrub (32500)	0	2.3
Disturbed Habitat (11000)	8.5	17.6
Engelmann Oak Woodland (71180)	2.4	68.6
Non-native Grassland (42200)	2.5	128.7
Open Water (64100)	0	3.6
Scrub Oak Chaparral (37900)	2.3	106.6
Southern Arroyo Willow Riparian Forest (61320)	0.1	2.6
Southern Coast Live Oak Riparian Forest (61310)	0.6	12.4
Southern Mixed Chaparral (37120)	24.2	1644.9
Urban/Developed (12000)	1.3	4.7
Total*	42.4	2,014.0

*= sum of values do not equal total because of rounding

1.4.9.1 Coast Live Oak Woodland (71160)

Coast live oak woodland is typically dominated by coast live oak (*Quercus agrifolia*) trees, which reach 9 to 24 meters (30 to 80 feet) in height. The shrub layer within this vegetation community is usually poorly developed while the herb layer is continuous and typically dominated by nonnative grasses. This community typically occurs on north-facing slopes and within shaded ravines in southern California (Holland 1986).

Coast Live Oak is the dominant plant species in areas mapped as coast live oak woodland on the Preserve. This vegetation type is most common in the north-central portion of the Preserve intermixed with nonnative grassland. There are scattered smaller patches of this community within ravines on the western and southern portions of the Preserve. Engelmann oak (*Quercus engelmannii*), western poison-oak (*Toxicodendron diversilobum*), toyon (*Heteromeles arbutifolia*), and scrub oak (*Quercus berberidifolia; Q. xacutidens)* are also present in this vegetative community within the Preserve.

The open coast live oak woodland located within the survey area has high ecological value. Oak woodlands are considered special-status vegetation communities by the County and state and provide nesting habitat and valuable cover for a wide range of wildlife species. The oak woodland within the Preserve provides suitable nesting habitat for several species of raptors and other birds. This vegetation community is considered a special-status community in San Diego County.

Gold-spotted oak borer (*Agrilus auroguttatus*) is an introduced invasive wood-boring insect that is causing high and widespread mortality of coast live oaks in San Diego County (Coleman et al. 2017). This species has been observed infesting trees on the Preserve. Areas currently mapped as coast live oak woodland may require the removal of infested trees to control the spread of this invasive species.

1.4.9.2 Coastal and Valley Freshwater Marsh (52410)

Freshwater marsh communities are found in areas permanently inundated or flooded by fresh water, lacking significant current from water movement. Prolonged saturation in these communities allows for the accumulation of deep, peaty soils. Freshwater marshes are usually located in the coastal valleys near river mouths and around the margins of lakes and springs. Freshwater marsh is dominated by perennial, emergent monocots, typically ranging from 1.2 to 1.5 meters (4 to 5 feet) tall. Typically, species of cattails (*Typha* spp.) and bulrush (*Schoenoplectus* spp.) dominate this community.

Dominant plants observed on site included California bulrush (*Schoenoplectus californicus*), red-root flatsedge (*Cyperus erythrorhizos*) and saltmarsh fleabane (*Pluchea odorata*). The freshwater marsh within the Preserve occurs in patches within and along the margins of the ponds found in the western portion and near the middle of the Preserve.

Freshwater marsh has high ecological value as it provides nesting and foraging habitat for several wildlife species, including waterfowl. This vegetation community is considered a special-status community in San Diego County.

1.4.9.3 Diegan Coastal Sage Scrub (32500)

Diegan coastal sage scrub is a scrub community consisting of low, soft-leaved woody subshrubs, with few over 1 meter high (Holland 1986). Most species are active in winter and early spring and are drought deciduous in late spring or early summer. This community is most often dominated by California sagebrush *(Artemisia californica)* and California buckwheat *(Eriogonum fasciculatum)*.

Diegan coastal sage scrub on the Preserve is dominated by California buckwheat, with California sagebrush, laurel sumac (*Malosma laurina*), deerweed *(Acmispon glaber* var*. glaber)*, white sage *(Salvia apiana),* and San Diego monkey flower (*Mimulus xaustralis*) also occurring. Diegan coastal sage scrub on the Preserve primarily exists in small openings in the chaparral. No Diegan coastal sage scrub is present within the study area.

1.4.9.4 Disturbed Habitat (11300)

Disturbed habitat supports either no vegetation or a cover of nonnative weedy species that are adapted to a regime of frequent human disturbance. Many of the characteristic species of this habitat are also indicator species of annual grasslands, although disturbed areas tend to be dominated more by forbs than grasses. Characteristic species may include tumblewood (*Salsola tragus*), tocalote (*Centaurea melitensis*), Italian thistle (*Carduus pycocephalus*), bristly ox-tongue (*Helminthotheca echioides*), and African crown daisy (*Glebonis coronaria*).

Disturbed habitat within the Preserve consists of dirt roads and multi-use trails. These areas consist of mostly bare ground and occur throughout the Preserve. Disturbed habitat is not considered a sensitive vegetation community.

1.4.9.5 Engelmann Oak Woodland (11300)

Engelmann oak woodland is evergreen woodland dominated by Engelmann oaks typically with an understory of annual grasses. The community is found on fine textured soils in areas with gentle slopes and in valley bottoms. It surrounds grassland meadows and often occupies the ecotone between the grassland and the surrounding shrublands. Engelmann oak is a CRPR List 4.2 and County Group D species and is the dominant plant species within the areas mapped as Engelmann oak woodland. Engelmann oak woodland occurs in the northeastern portion of the Preserve intermixed with the coast live oak woodland and nonnative grassland.

As with the other woodlands found within the survey area, the open Engelmann oak woodland has high ecological value. Oak woodlands are considered special-status vegetation communities by the County and state and provide nesting habitat and valuable cover for a wide range of wildlife species. The oak woodland within the survey area provides suitable nesting habitat for several species of raptors and other birds.

Engelmann oak can be attacked by gold-spotted oak borer but is not known to be killed (Coleman et al. 2017). As coast live oak woodlands are lost to pests and disease, including gold-spotted oak borer, Engelmann oak woodland will become even more important as habitat for tree-nesting species.

1.4.9.6 Non-native Grassland (42200)

Nonnative grassland is characterized by a dense to sparse cover of annual grasses reaching up to 1 meter (3 feet), which may include numerous native wildflowers, particularly in years of high rainfall. These annuals germinate with the onset of the rainy season and set seeds in the late spring or summer. This community is usually found on fine-textured soils that proceed from moist or waterlogged in the winter to very dry during the summer and fall (Holland 1986). Nonnative grasslands, in many circumstances, have replaced native grasslands as a result of disturbance (directly manmade [e.g., mechanical disturbance, grazing] or natural [e.g. altered fire cycles]).

Dominant species that characterize the nonnative grassland within the Preserve include wild oats (*Avena barbata*), soft chess (*Bromus hordeaceus*), foxtail chess (*Bromus rubens*), and spring vetch (*Vicia sativa*). Cover is generally dense throughout the grasslands on the Preserve except within limited areas where drainages are present or within pasture areas that have been highly grazed.

The nonnative grassland located on site has high conservation value. It is located within and adjacent to the open coast live oak woodland and the open Engelmann oak woodland, and it represents a large, contiguous vegetation community that is unique in the area. This community is also known to support special-status species, including Orcutt's brodiaea (*Brodiaea orcuttii*), and it is considered prime foraging habitat for several species of raptors.

1.4.9.7 Open Water (64100)

Open water is an open source of water not under cover of any vegetation. This habitat occurs at the central portion of the Preserve and consists of the ponds south of the ranger station/Wildwood Ranch buildings. No open water was present within the study area.

1.4.9.8 Scrub Oak Chaparral (37900)

Scrub oak chaparral consists of a dense, evergreen chaparral up to 20 feet tall dominated by interior scrub oak. The scrub oak chaparral in the Preserve consists of dense patches interspersed with open areas vegetated with herbaceous species. Dominating the understory and openings are nonnative grasses and herbs, including soft chess (*Bromus hordeaceus*), foxtail chess (*Bromus rubens*), and red-stemmed filaree (*Erodium cicutarium*). This vegetation community is considered a special-status community in San Diego County.

1.4.9.9 Southern Arroyo Willow Riparian Forest (61320)

Southern arroyo willow riparian forests are dominated by moderately tall broadleaved trees, including arroyo willow (*Salix lasiolepis*). They typically have closed canopies and an understory of shrubby willows.

Southern arroyo willow riparian forests on site are dominated by red willow (*Salix laevigata*), arroyo willow, and Goodding's black willow (*Salix gooddingii*). This vegetation community is considered a special-status community in San Diego County.

1.4.9.10 Southern Coast Live Oak Riparian Forest (61310)

Southern coast live oak riparian forest is a dense riparian forest dominated by coast live oak, with a closed canopy, and often with an open understory of herbs. Characteristic species include coast live oak, poison oak (*Toxicodendron diversilobium*), skunkbush (*Rhus armomatica*), blackberry (*Rubus ursinus*), and blue elderberry (*Sambucus nigra* ssp*. caerulea*).

Within the Preserve, this community is dominated by coast live oak, poison oak, and blue elderberry. This vegetation community is considered a special-status community in San Diego County.

1.4.9.11 Southern Mixed Chaparral (37120)

Southern mixed chaparral is, by a wide margin, the most widespread vegetation type on the Preserve. This community typically consists of broad-leaved sclerophyllous shrubs approximately 1.5 to 3 meters tall. This vegetation community may include patches of bare soil, and sometimes forms a mosaic with coastal sage scrub. The southern mixed chaparral on site was burned in the Cedar Fire in October 2003. The vegetation community has largely recovered since the fire and generally exists as dense impenetrable stands of tall shrubs. Dominant plants occurring within the Preserve include chamise (*Adenostoma fasciculatum*), Ramona-lilac (*Ceanothus tomentosus*), interior scrub oak, laurel sumac (*Malosma laurina),* spiny redberry (*Rhamnus crocea*), and mission manzanita (*Xylococcus bicolor*). Understory is generally sparse but dominated by native herbs on south-facing slopes, while on north-facing slopes the understory has somewhat greater cover due to the addition of a greater proportion of nonnative herbs, especially foxtail chess (*Bromus rubens*) and other European grasses.

Southern mixed chaparral has high ecological value as it can contain rare plant species and provides nesting and foraging habitat for several wildlife species, including southern California rufous-crowned sparrow (*Aimophila ruficeps*), Bell's sparrow (*Artemisiospiza bellii*), many neotropical migrant birds, sensitive lizard and snake species, pocket mice, and San Diego desert woodrat (*Neotoma lepida*). This vegetation community is considered a special-status community in San Diego County.

1.4.9.12 Urban/Developed Lands (12000)

Developed land typically consists of existing paved roads, buildings, ornamental plantings, and other infrastructure. The only areas mapped as developed are the paved roads and development around the ranger station.

1.4.10 Flora

Overall, 289 vascular plant species—218 native and 71 nonnative species—were observed within the Preserve during the field surveys. All vascular plant species observed are listed in Appendix B.

1.4.11 Fauna

All wildlife species observed or detected within the Preserve are listed in Appendix D.

1.4.11.1 Reptiles and Amphibians

Fifteen reptile species and five amphibian species have been observed on the Preserve during surveys in 2007 and 2013 (Appendix D). Nine lizard species, six snake, and five frog/toad species were detected, with six species having special status. Special-status species observed consist of coast [San Diego/Blainville's] horned lizard (*Phrynosoma blainvillii*), three-lined (coastal) rosy boa (*Lichanura trivirgata*), coastal western whiptail (*Aspidoscelis tigris stejnegeri*), Coronado skink (*Plestiodon skiltonianus interparietalis*), and red diamond rattlesnake (*Crotalus ruber*). These species' occurrences on the Preserve and potential in the study area are discussed in more detail in Section 1.4.13 and depicted on Figure 5.

1.4.11.2 Birds

A total of 111 bird species have been observed or detected within the Preserve. The Preserve's avifauna is a mixture of species that are associated with the chaparral, woodland, and grassland vegetation communities found on site. These species include mallard (*Anas platyrhynchos*), ruddy duck (*Oxyura jamaicensis*), California quail (*Callipepla californica*), Cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo jamaicensis*), barn owl (*Tyto alba*), Anna's hummingbird (*Calypte anna*), Costa's hummingbird (*Calypte costae*), acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Picoides nuttallii*), pacific-slope flycatcher (*Empidonax difficilis*), ash-throated flycatcher (*Myiarchus cinerascens*), Cassin's kingbird (*Tyrannus vociferans*), western kingbird (*Tyrannus verticalis*), violet-green swallow (*Tachycineta thalassina*), bushtit (*Psaltriparus minimus*), white-breasted nuthatch (*Sitta carolinensis*), Bewick's wren (*Thryomanes bewickii*), house wren (*Troglodytes aedon*), blue-gray gnatcatcher (*Polioptila caerulea*), wrentit (*Chamaea* fasciata), western bluebird (*Sialia mexicana*), phainopepla (*Phainopepla nitens*), orange-crowned warbler (*Vermivora celata*), spotted towhee (*Pipilo maculates*), Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), California towhee (*Melozone crissalis*), song sparrow (*Melospiza melodia*), black-headed grosbeak (*Pheucticus melanocephalus*), red-winged blackbird (*Agelaius phoeniceus*), house finch (*Haemorhous mexicanus*), and lesser goldfinch (*Carduelis psaltria*).

1.4.11.3 Mammals

In total, 38 mammal species were detected during general surveys, mammal trapping, camera station sampling, and bat sampling of the Preserve (Appendix D). Four sensitive mammals were observed within the study area (see Section 1.4.13).

1.4.12 Sensitive Plant Species

No federally listed endangered or threatened plant species were observed on the Preserve or within the study area. Three sensitive plant species were mapped within the study area (Appendix A; Figure 6), including California adder's tongue, Engelmann oak (*Quercus engelmannii*), and southern mountain misery (*Chamaebatia australis*).

The database search identified 58 sensitive plant species that occur within the USGS 7.5-minute San Vicente Reservoir quad map and surrounding vicinity. These species were evaluated for their potential to occur within the study area and are discussed in Appendix C. Three sensitive plant species were observed in the study area: southern mountain misery (*Chamaebatia australis*), California adder's tongue *(Ophioglossum californicum),* and Engelmann oak (*Quercus engelmannii*)

(Figure 6). Eight other sensitive plant species were determined to have a high potential to occur within the study area: San Miguel savory (*Clinopodium chandleri*), Ramona horkelia (*Horkelia truncata*), felt-leaved monardella (*Monardella hypoleuca* ssp*. lanata*), Gander's ragwort (*Packera ganderi*), golden-rayed pentachaeta (*Pentachaeta aurea* ssp. *aurea*), Cooper's rein orchid (*Piperia cooperi*), ashy spike-moss (*Selaginella cinerascens*), and rush chaparral-star (*Xanthisma junceum*).

1.4.12.1 Sensitive Plant Species Observed within the Study Area

Southern mountain misery (*Chamaebatia australis*) is listed as CRPR 4.2 and is a County List D species. This evergreen shrub is found in chaparral at elevations between 300–700 meters. Individuals were found primarily within the southern mixed chaparral along the western portion of the Preserve (Figure 6). At least 10 individuals are present in the study area.

California adder's tongue *(Ophioglossum californicum)* is listed as CRPR 4.2 and is a County List D species. It is associated with chaparral, grasslands, and vernal pools at elevations ranging from 60 to 525 meters. A large patch of California adder's tongue was mapped within the Preserve and is estimated to include tens of thousands of individuals. This population covers approximately 18.3 acres (Figure 6). This species did not occur within existing roads. This species is present in the study area, but no development is proposed in the vicinity of this species.

Engelmann oak (*Quercus engelmannii*) is listed as CRPR 4.2 and is a County List D species. It is commonly found in the foothills between 152 and 1,219 meters. Growing to 12 meters tall, this tree has flat, waxy, blue-green leaves and better tolerates drier conditions than coast live oak. Larger individuals are sometimes found growing in savannah grasslands, but the species may also occur as a shrubby element within the chaparral. Engelmann oaks are found scattered throughout the study area and represent a dominant feature around the ADA-accessible trail (Figure 6).

1.4.12.2 Sensitive Plant Species with High Potential to Occur within the Study Area

San Miguel savory (*Clinopodium chandleri*) is listed as a CRPR 1B.2, a County List A, and an MSCP Covered Species. It is a small herbaceous shrub associated with chaparral and oak woodlands that primarily occur on gabbroic or metavolcanic soils. San Miguel savory was observed within the understory of southern mixed chaparral on a north-facing slope in the Preserve (Figure 6). While no other un-mapped populations are known from the Preserve, the species is small and cryptic and has a high potential to be obscured in the understory of southern mixed chaparral within the study area.

Ramona horkelia (*Horkelia truncata*) is a CRPR 1B.3 and a County List A species typically associated with chamise chaparral. Ramona horkelia is a caudex-based perennial herb with white flowers, typically occurring with chamise-dominated chaparral (Reiser 2001). While this species was not observed within the study area, these plants were observed as widespread near the mountaintop on Boulder Oaks North (Figure 6) and have a high potential to be present in the study area.

Felt-leaved monardella (*Monardella hypoleuca* ssp*. lanata*) is CRPR 1B.2, a County List A, and an MSCP Covered Species typically found within the understory of mature chaparral. Felt-leaved monardella was observed on the Friant series soils along the western portion of the Preserve and along the mountain road on Boulder Oaks North (Figure 6). At least 10 individuals were observed

immediately adjacent to the study area. No felt-leaved monardella are known within the project footprint.

Gander's ragwort (*Packera ganderi*) is CRPR 4.2 and is a County List D species. Gander's ragwort is an annual herb with yellow flowers that typically grows in the understory of chaparral (Reiser 2001). Within the Preserve, two individuals were observed along the dirt trail on the mountain in the west-central area of the Preserve. This species was observed immediately adjacent to the study area and was determined to have a high potential to occur.

Golden-rayed pentachaeta (*Pentachaeta aurea* ssp*. aurea*) is listed as a CRPR 4.2 and a County List D species. Golden-rayed pentachaeta is an annual herb in the daisy family, with yellow ray flowers and orange disk flowers, that typically grows around grasslands and coastal sage scrub (Reiser 2001). Within the Preserve, one population of roughly 150 individuals was observed on the hillside to the west of the northernmost pond on Boulder Oaks North (Figure 6). While this species has only been observed on the Preserve in openings associated with bedrock outcrops, it has the potential to occur and be hidden in the understory of southern mixed chaparral.

Cooper's rein orchid (*Piperia cooperi*) is listed as a CRPR 4.2 and a County List D species. Cooper's rein orchid is a tuber-based perennial herb with greenish, semi-translucent flowers that typically grows in vernally moist areas of grasslands, chaparral, and montane woodland (Reiser 2001). Within the Preserve, three individuals were observed along the trail west of the LDS campground parking area. As this species was observed immediately adjacent to the study area, it was determined to have a high potential to occur within the study area.

Ashy spike-moss (*Selaginella cinerascens*) is listed as a CRPR 4.1 and a County List D species. Ashy spike-moss is a creeping simple herb typically found in undisturbed chaparral and Diegan coastal sage scrub (Reiser 2001). This species is found on exposed rock outcrops and open soils in the throughout the Preserve. This species was determined to have a high potential to occur within the study area.

Rush chaparral-star (*Xanthisma junceum*) is listed as a CRPR 4.3 and a County List D species. Rush chaparral-star is a perennial herb associated with low-growing chamise chaparral and Diegan sage scrub communities (CNPS 2018). It prefers exposed locales with rocky substrates (Reiser 2001). It is a cryptic species with unremarkable stems that has the potential to hide under the dense chaparral understory. This species has a high-potential to be present within the study area, particularly on soils on the westernmost side of the Preserve.

1.4.12.3 Sensitive Plant Species Observed on the Preserve That Are Not Highly Likely to Occur within Study Area

Orcutt's brodiaea (*Brodiaea orcuttii*) is listed as a CRPR 1B.1, a County List A, and an MSCP Covered Species. It is associated with moist grasslands and vernal pools. Orcutt's brodiaea is a corm-based lily/onion relative with lavender flowers, generally occurring in vernally moist grasslands and the margins of vernal pools (Reiser 2001). Over 200 individuals of Orcutt's brodiaea were observed on the Preserve within the nonnative grassland, Engelmann oak woodland and coast live oak woodland within the easternmost portion (Figure 6). The study area does not pass through moist grasslands or vernal pools and does not have a high potential to support this species.

Lakeside ceanothus (*Ceanothus cyaneus*) is a CRPR 1B.1, a County List A, and an MSCP narrow endemic species known from an extremely small range (southern Ramona to the foothills of Lakeside), entirely restricted to central San Diego County (Reiser 2001). Typically, Lakeside ceanothus occurs in dense, almost impenetrable chaparral with a mix of Chamise, other *Ceanothus* species, and other shrubs such as manzanita. Lakeside Ceanothus within the Preserve is found in the rocky chaparral in the western side of the southern portion of the Preserve (Figure 6). This species is a common component of the dense chaparral in the southwestern portion of the site; therefore, counting all individuals throughout the Preserve was not feasible. In November 2016, the boundary of the population of Lakeside ceanothus was surveyed by ICF botanists to determine the exact limits. Lakeside ceanothus appear to be strongly associated with south- and west-facing slopes on the acid igneous soils on the southwestern portion of the Preserve, and no lakeside ceanothus are known to the north of the delineated boundary. The southernmost multi-use trail was routed to avoid Lakeside ceanothus; therefore, this species does not have a high potential to occur within the study area.

Heart-leaf pitcher sage (*Lepechinia cardiophylla)* is a CRPR 1B.2, a County List A, and an MSCP narrow endemic species. Heart-leaf pitcher sage is a shrub with white- to lavender-tinged flowers, typically occurring in chaparral and cismontane woodland (Reiser 2001). One population of three individuals was observed on the Preserve well outside of the study area. As this species was observed to not be common on site, it was not determined to have a high potential to occur within the study area.

1.4.13 Sensitive Animal Species

No federally or state-listed threatened or endangered animal species were observed during field surveys of the Preserve or determined to have a high potential to occur within the study area.

1.4.13.1 Sensitive Animal Species Observed

Ten sensitive animal species have been observed within the study area, including coast horned lizard, red-diamond rattlesnake, barn owl, red-shouldered hawk, white-tailed kite, western bluebird, Dulzura pocket mouse, small-footed myotis, southern mule deer, and mountain lion.

Coast horned lizard (*Phrynosoma blainvillii*) is a California Species of Special Concern, a County Group II species, and an MSCP Covered Species. The range of the Coast (Blainville's/San Diego) horned lizard extends from the Sacramento Valley south to San Diego County, including the Coast, Transverse, and Peninsular Ranges below 4,000 feet. Blainville's horned lizards are found in a wide variety of vegetation communities, from grasslands and shrublands to woodlands, including open coniferous forests. Critical factors are the presence of loose soils with a high sand fraction; an abundance of native ants or other insects, especially harvester ants (*Pogonomyrmex* spp.); and the availability of both sunny basking spots and dense cover for refuge. The species apparently does not eat the introduced Argentine ant (*Linepithema humile*) (Jennings and Hayes 1994).

This species has disappeared from about 45% of its former range. A number of factors have led to this decline, including habitat fragmentation and degradation, loss of native prey to exotic species, and extensive collection for the curio trade (Jennings and Hayes 1994). The specialized diet of harvester ants has made horned lizards especially vulnerable to extirpation since the introduction of

Argentine ants. This species has been observed throughout the Preserve in scrub, chaparral, woodland, and grassland habitats. Coast horned lizard was recorded within the study area.

Red diamond rattlesnake (*Crotalus ruber*) is a California Species of Special Concern, a County Group II species, and an MSCP Covered Species. It is a heavy-bodied rattlesnake with a tan, pink, brick red, or reddish dorsal color with a tail that is marked with broad, evenly spaced, distinct black rings. Its range extends from near Morongo Valley (San Bernardino County) south along the coast and desert sides of the Peninsular Range to Loreto, Baja California, Mexico. It is found in a variety of habitats, though it is generally associated with habitats with thick brush with large rocks or boulders. Typical habitats include chamise and red-shank habitats as well as coastal sage scrub and desert slope scrub. Its elevation range extends from sea level to around 5,000 feet AMSL. Mating occurs in the early spring, and it bears live young between late July and September (Jennings and Hayes 1994). This species has been observed within the Preserve and study area, and the study area supports suitable habitat.

Red-shouldered hawk *(Buteo lineatus)* is a County Group I species. The red-shouldered hawk was once an uncommon breeder of lowland riparian woodlands but has been thriving in urban environments with large trees such as eucalyptus (Unitt 2004). On the west coast, this species is found in California and northern Baja California and is common throughout San Diego County. Red-shouldered hawk was observed throughout the Preserve. The study area supports suitable breeding and foraging habitat. No nesting habitat would be affected by the Project.

Barn owl (*Tyto alba*) is a County Group II species. The barn owl is the owl species that is most tolerant of urban development (Unitt 2004). It will nest in buildings, in nest boxes, at the base of the leaves in palm trees, and in cavities in native trees (Unitt 2004). Even though this species is tolerant of human development, dense housing communities do not provide suitable nesting habitat, and increased traffic has had a negative effect on the species (Unitt 2004). One barn owl was detected in a palm tree near the ranger's station at the Preserve. Suitable foraging and nesting habitat are present within the study area. No nesting habitat would be affected by the Project.

Western bluebird (*Sialia mexicana*) is a County Group II species and an MSCP Covered Species. The western bluebird is a stocky bluebird with a chestnut chest and is considered common in the foothills and mountains of San Diego County. This species can usually be found in montane coniferous and oak woodlands (Unitt 2004). It can also occur in areas with scattered trees, open forests, and scrubs; during the winter it can be found in the desert. Western bluebirds breed in western North America from southern British Columbia south to central Mexico, east to western Montana, and west to Texas, but they are absent from the Great Basin (Guinan et al. 2000). They can also winter outside their breeding range in central California and along the lower Colorado River (Guinan et al. 2000). Western bluebird numbers are declining due to loss of nesting cavities to logging, fire suppression, and competition with nonnative species such as European starling (*Sturnus vulgaris*) and house sparrow (*Passer domesticus*) (Unitt 2004). This species is still fairly common in San Diego County (Unitt 2004). Western bluebirds were observed on the Preserve during the 2013 surveys. Suitable foraging and nesting habitat are present within the study area. No nesting habitat would be affected by the Project.

White-tailed kite (*Elanus leucurus*) is a CDFW Fully Protected Species and a County Group I species. White-tailed kite is found in lower elevations in open grasslands, agricultural areas, wetlands, and oak woodlands. Its primary source of food is the California vole (*Microtus californicus*

sanctidiegi) (Unitt 2004). It typically forages in open, undisturbed habitats and nests in the top of dense oaks, willows, or other large trees (Unitt 2004). The white-tailed kite population is on the decline mostly because of habitat loss associated with urban sprawl; however, this species is still considered fairly widespread throughout the foothills of San Diego County (Unitt 2004). White-tailed kites have been observed foraging within the study area. The study area supports trees and large shrubs, which are suitable breeding habitat.

Dulzura pocket mouse (*Chaetodipus californicus femoralis*) is a California Species of Special Concern and a County Group II species. Dulzura pocket mouse is mainly active on the ground, but it also climbs shrubs and small trees when feeding (CDFG 2005). This species can become torpid by day at any time of the year, and it is inactive in cold, wet weather. It breeds in spring to early summer and occurs from sea level to approximately 2,408 meters (7,900 feet) AMSL (CDFG 2005). This species prefers dense chaparral and is less common in dry grassland and desert scrub. During the 2013 trapping program on the Preserve, 37 of the 89 animals captured were Dulzura pocket mice (ICF 2013). This species has been recorded in the study area.

Small-footed myotis (*Myotis ciliolabrum*) is a County Group II species. The small-footed myotis is found throughout most of western North America, from southwestern Canada south into Mexico (BCI 2018). There is little information on the habitat requirements of this species, but it has been documented under rock slabs, in crevices and mine tunnels, under loose tree bark, and in buildings (BCI 2018). This species hibernates in caves, typically in small groups. Reasons for decline are poorly understood, as there has been little research conducted on this species. Suitable roosting and foraging habitat for the small-footed myotis occurs on site, and the species was detected during 2013 surveys in low numbers at both sampling locations (ICF 2013).

Southern mule deer (*Odocoileus hemionus fuliginata*) is a County Group II species. Southern mule deer are common across the western U.S. in a variety of habitats from forest edges to mountains and foothills (Whitaker 1996). Southern mule deer prefer edge habitats, rarely travel or forage far from water, and are most active around dawn and dusk. Several southern mule deer were observed on the Preserve during 2013 surveys, and a few deer were photographed during camera sampling. Southern mule deer were visually observed throughout the Preserve and have been recorded within the study area (Figure 5).

Mountain lion (*Puma concolor*) is a County Group II and an MSCP Covered Species. Mountain lions are widespread but uncommon residents of nearly all habitats. They are most abundant in riparian areas and shrub habitats (Zeiner et al. 1990). This species is widespread in North and South America and occupies a broad variety of habitats from the northern limit of the Canadian forests to Patagonia in South America. Populations of this species require large areas to sustain themselves. Habitat fragmentation, loss of large areas of undeveloped land, road kills, indiscriminate shootings, animal control measures, and loss of natural prey base have led to the decline of this species in San Diego County. The nearby Highway 67 is a significant source of mortality for local populations of mountain lion. The Preserve and the surrounding open space provide habitat for mountain lion to use for foraging and cover. This species has been recorded in the study area (Figure 5).

1.4.13.2 Sensitive Animal Species with High Potential to Occur

Four sensitive reptiles, six sensitive birds, and seven sensitive mammal species were evaluated to have high potential to occur within the study area. These primarily represent locally common reptile and avian species with limited distributions.

Reptiles

Belding's orange-throated whiptail *(Aspidoscelis hyperythra beldingi)* is a California Species of Special Concern, a County Group II species, and an MSCP Covered Species. Orange-throated whiptail occurs in low-elevation coastal scrub, chamise–redshank chaparral, mixed chaparral, and valley–foothill hardwood habitats (Zeiner et al. 1988). Orange-throated whiptail occurs in Orange, Riverside, and San Diego Counties west of the crest of the Peninsular Ranges and in southwestern San Bernardino County near Colton. It extends up to 3,410 feet AMSL (Zeiner et al. 1988). Orange-throated whiptails forage on the ground and scratch through surface debris for food. Their diet consists of a variety of small arthropods, especially termites. Orange-throated whiptails likely lay eggs in loose, well-aerated soil under or near surface objects or at the base of dense shrubs (Zeiner et al. 1988). Suitable habitat for Belding's orange-throated whiptail occurs on the Preserve and in the study area.

Three-lined boa *(Lichanura trivirgata)* is a County Group II species. Three-lined boa was formerly classified as the coastal rosy boa (*Charina trivirgata roseofusca*) but was reclassified based on genetic analysis (SSAR 2018). It is a heavy-bodied constrictor with shiny scales and three poorly-defined irregular stripes of brown to rust to orange. It is found in arid scrublands, chaparral, rocky deserts, canyons, and other rocky areas. It is attracted to streams and riparian areas but does not require permanent water (Stebbins 2003), and it is primarily a nocturnal species. This species was observed on the Preserve. Suitable habitat for three-lined boa occurs in the study area.

Coastal western whiptail *(Aspidoscelis tigris stejnegeri)* is a California Species of Special Concern and a County Group II species. Coastal western whiptail is a medium-sized slender lizard that is found in arid and semiarid desert to open woodlands where the vegetation is sparse, which makes running easy (Stebbins 2003). Its range includes coastal southern California and western Baja California. The decline of coastal western whiptails is likely linked to loss of habitat to agriculture and urban development. This species was observed during general surveys of the Preserve in 2013. Suitable habitat for coastal western whiptail occurs in the study area.

Coronado skink (*Plestiodon skiltonianus interparietalis*) is a California Species of Special Concern and a County Group II species. The Coronado skink is a medium-sized secretive lizard that is typically found in the moister areas of coastal sage, chaparral, oak woodlands, pinyon-juniper, riparian woodlands, and pine forests (Jennings and Hayes 1994). Its prey includes small invertebrates found in leaf litter or dense vegetation at the edges of rocks and logs. The Coronado skink is found along the coastal plain and Peninsular Ranges west of the deserts from approximately San Gorgonio Pass in Riverside County south to San Quentin, Mexico (Jennings and Hayes 1994). This species was observed during surveys of the Preserve in 2013. Suitable habitat for Coronado skink occurs on the Preserve and in the study area.

Birds

Bell's sparrow (*Artemisiospiza belli*) is a CDFW Watch List and County Group I species. Bell's sparrow is a year-round resident in chaparral and sage scrub vegetation (Unitt 2004). It forages on the ground in open habitat with limited leaf litter, which typically includes south-facing slopes, areas recovering from burns, or vegetation on gabbro soils. This species' preferred low open habitat often occurs patchily. This species is sensitive to habitat fragmentation and has largely been displaced from coastal areas by urbanization (Unitt 2004). Bell's sparrow was observed during surveys of the Preserve. Suitable habitat occurs on the Preserve and in the study area.

California horned lark (*Eremophila alpestris actia*) is a CDFW Watch List and a County Group II species. California horned lark is a year-round resident of the coastal strand, grasslands, and sandy desert floors. California horned lark walks through open ground foraging for insects and seed. It primarily nests in areas where disturbance has created openings in vegetation (Unitt 2004). This species is primarily non-migratory in San Diego County, but it may gather into flocks in the winter. This species is known from the vicinity, and appropriate habitat for this species exists in the study area.

Cooper's hawk (*Accipiter cooperii*) is a CDFW Watch List and a County Group I species. Cooper's hawk is a resident of riparian deciduous habitats and oak woodlands, but in recent times it has become adapted to urban park environments (Unitt 2004). Cooper's hawks hunt passerine birds, their primary source of food, in broken woodlands and forest margins, and they are also known to take fish and mammals. The Cooper's hawk population declined because of hunting and loss of habitat; however, this species is making a comeback through its adaptation to the urban environment (Unitt 2004). This species is widespread throughout the County and was detected throughout the Preserve in 2007 and 2013. It has high potential to forage in the study area and to nest within trees in the study area.

Golden eagle (*Aquila chrysaetos*) is a State Fully Protected Species, a County Group I species, and an MSCP Covered Species. Golden eagles are treated as narrow endemic species at their nesting sites. Golden eagles nest on cliff ledges or trees on steep slopes and forage in grasslands, sage scrub, or broken chaparral (Unitt 2004). Development of the grasslands they forage over has taken a toll on the numbers of this species present in San Diego County. A territory averages 36 square miles, so removal of foraging habitat will have significant impacts on this species (Unitt 2004). A mountainous cliff site that has supported golden eagle nesting in the past is present on the City of Poway preserve lands to the west of Boulder Oaks North (Merkel and Associates 2008). The nest is over 4,500 feet from the study area. No project elements are proposed within 4,000 feet of the nest site. USGS telemetry data record that a golden eagle has used the Preserve for foraging (USGS 2017). No suitable nesting sites are known from the Preserve or study area. No suitable rock cliff faces are known from Boulder Oaks. Golden eagle will nest in oak trees, but these must be inaccessible trees in woodlands on steep slopes; this sort of woodland does not occur on the Preserve. There is suitable foraging habitat for golden eagle within the study area.

Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) is a County Group -I species and an MSCP Covered Species. The Southern California rufous-crowned sparrow is a resident species that is closely associated with coastal sage scrub, steep rocky hillsides, burned chaparral, and openings in mature chaparral (Unitt 2004). Preferring open habitat with approximately 50% shrub cover, this species seeks cover in shrubs, rocks, grass, and forb patches

(Dudek 2000; Unitt 2004). The Southern California subspecies is restricted to semiarid coastal sage scrub and sparse chaparral from Santa Barbara south to the northwestern corner of Baja California (Dudek 2000). Southern California rufous-crowned sparrows are declining due to loss of appropriate habitat and their sensitivity to habitat fragmentation (Unitt 2004). Southern California rufous-crowned sparrows were detected throughout chaparral within the Preserve. Suitable nesting and foraging habitat is present in the study area.

Turkey vulture (*Cathartes aura*) is a County Group I species. Turkey vultures are often seen foraging over woodlands and nearby open country (Unitt 2004). They prefer dry, open country and ranch lands, and they often occur along roadsides where carrion is common. They nest in crevices among granite boulders (Unitt 2004). The turkey vultures' range has been retracting from the coast because of human disturbance, loss of foraging habitat, and pesticide contamination (Unitt 2004). Turkey vultures were observed foraging over the Preserve (Figure 5), and suitable foraging habitat exists in the study area. No suitable nesting habitat for this species is present.

Mammals

San Diego desert woodrat (*Neotoma lepida intermedia*) is a California Species of Special Concern and a County Group II species. San Diego desert woodrat requires large amounts of water, which it obtains from fleshy plants such as yucca species and prickly pear cactus (*Opuntia* sp.). It usually makes a stick house under one of these food plants or may den among rocks (CDFG 2005). Materials used to build middens include cacti, sticks, bones, and a variety of debris. Middens provide insulation against excessive heat as well as protection from predators. This species breeds in late winter or spring, occurs from sea level to approximately 2,591 meters (8,500 feet) AMSL in deserts and coastal sage scrub, and prefers areas with rocky outcrops and plentiful succulents (CDFG 2005). During the 2013 surveys, the woodrat middens associated with this species were observed in boulder piles on south-facing slopes within openings in chaparral (Figure 4). Suitable habitat for this species occurs within the study area.

Long-eared myotis (*Myotis evotis*) is a County Group II species. Long-eared myotis is found in western North America from British Columbia south through California to Baja Mexico (BCI 2018). This species prefers coniferous forests in higher altitudes and will roost in caves, rock crevices, under tree bark, or in buildings (BCI 2018). Both suitable roosting and foraging habitat for the long-eared myotis occur on the Preserve. Long-eared myotis has been recorded on the Preserve, and foraging habitat is present within the study area. The Project will not affect roosting or maternity habitat.

Pallid bat (*Antrozous pallidus*) is a California Species of Special Concern, a County Group II species, and an MSCP Covered Species. Pallid bats are widely distributed in the southwestern U.S. and northern Mexico (BCI 2018). They are locally common across most of California except in the far northwest and in higher portions of the Sierra Nevada. Habitats used include a wide variety of grasslands, shrublands, woodlands, and forests, including mixed conifer forest (Zeiner et al. 1990). They appear to be most common in open, dry, rocky lowlands, and they roost in caves, mines, rock crevices, buildings, and trees. This is a colonial species that forages low over open ground, often picking up beetles and other species of prey off the ground (Zeiner et al. 1990). Flight is slow and maneuverable, and they are able to take a wide variety of prey, including large, hard-shelled insects (Zeiner et al. 1990). They have separate night and day roosts and hibernate in winter. The sexes

segregate in summer. Foraging habitat is present within the study area. The Project will not result in impacts on roosting or maternity habitat.

Pocketed free-tailed bat (*Nyctinomops femorosaccus*) is a California Species of Special Concern and a County Group II species. Pocketed free-tailed bats are rarely found in southwestern California. These bats live in arid desert areas and roost in crevices high on cliff faces in rugged canyons (BCI 2018). Nursery colonies are relatively small and usually include fewer than 100 individuals. This species primarily forages on large moths, especially over water. The regional status and species trends are unclear, but it is likely vulnerable to disturbance, especially at roosts, and perhaps also to threats to food supply from man-made toxins. The Preserve includes suitable roosting and foraging habitat. This species was were detected on the Preserve in 2007 and 2013. This species was observed in low numbers and likely uses the permanent water features on the Preserve. Suitable foraging habitat is present within the study area. The Project will not result in impacts on roosting or maternity habitat.

Western mastiff bat (*Eumops perotis*) is a California Species of Special Concern and a County Group II species. Western mastiff bats are the largest native bats in the U.S. This subspecies occurs from the western foothills of the Sierra Nevada and the coastal ranges (south of San Francisco Bay) southward into Mexico (BCI 2018). In Southern California, they are found throughout the coastal lowlands up to drier mid-elevation mountains, but they avoid the Mojave and Colorado deserts (Zeiner et al. 1990). Habitats include dry woodlands, shrublands, grasslands, and occasionally even developed areas. This big bat forages in flight, and most prey species are relatively small, low to the ground, and weak-flying. For roosting, western mastiff bats appear to favor rocky, rugged areas in lowlands where abundant suitable crevices are available for day roosts (BCI 2018). Roost sites may be in natural rock, tall buildings, large trees, or elsewhere. The reasons for this species' decline are poorly understood but probably are related to disturbance, habitat loss, and perhaps widespread use of pesticides. The western mastiff bat was detected during nocturnal surveys foraging over the open grasslands in the central portion of the Preserve. Western mastiff bats were detected on the Preserve in 2007 and 2013. Suitable foraging habitat is present within the study area. The Project will not result in impacts on roosting or maternity habitat.

Western red bat (*Lasiurus blossevillii*) is a California Species of Special Concern and a County Group II species. Western red bat is a solitary species that roots in tree foliage and is closely associated with cottonwoods (*Populus* spp.) in riparian areas. The species may be declining because of the loss of western riparian forests (BCI 2018). This is a migratory species that makes long migrations from the northern latitudes to warmer climes for winter. This species has been recorded using the Preserve. Suitable foraging habitat is present within the study area. The Project will not result in impacts on roosting or maternity habitat.

Yuma myotis (*Myotis yumanensis*) is a County Group II species. The Yuma myotis is found throughout much of the western U.S. and into Canada (BCI 2018). The species is always found near lakes, creeks, or ponds, where the species forages over the water. Typically, individuals skim low over the water and snatch up flying insects, but they can forage in other mesic areas. The species roosts by day usually in buildings or bridges but has been documented using mines or caves (BCI 2018). Yuma myotis is threatened by loss of riparian habitat and the decline in permanent water sources in the southwest. Yuma myotis was detected on the Preserve in 2007 and 2013. Suitable foraging habitat is present within the study area. The Project will not result in impacts on roosting or maternity habitat.

1.4.13.3 Highly Sensitive Animal Species Determined to Not Have a High Potential to Occur

Appendix E provides details on the potential for animal species to occur within the study area. This section provides additional details for highly sensitive species that might occur in the vicinity of the Preserve.

Quino checkerspot butterfly (*Euphydryas editha quino;* Quino) is a federally listed as endangered and is known from San Diego and Riverside Counties. Quino checkerspot butterfly was not observed on Boulder Oaks South in 2007 during protocol surveys of higher quality non-excludable habitat (Jones & Stokes 2007a; Appendix G). Quino was not observed on Boulder Oaks North during non-protocol surveys of the highest quality habitat during the 2013 Quino flight season (ICF International 2013). The Preserve contained isolated patches of potential Quino larval habitat; these patches contained Quino host plants dot-seed plantain (*Plantago erecta*) and/or purple owl's clover (*Castilleja exserta),* had other nectar plants, and had some open ground or rocks for basking. Most of these patches were observed on south-facing slopes on the hills in the west-central and southwestern areas of the Preserve. These patches are isolated from other potential habitat by large expanses of chamise-Ramona lilac chaparral. These patches are isolated from any extant dirt roads or trails. The study area does not include these areas, and no public access would occur near these isolated patches.

Although the Preserve does contain patches of suitable habitat for Quino and the Quino's primary host plant—dwarf plantain (*Plantago erecta*)—occurs on the Preserve, the Preserve is not expected to have high potential to support this species. This is because the Preserve is isolated from other suitable habitat, no recent sightings have occurred anywhere in the vicinity despite focused surveys, and no Quino populations are known from anywhere in the local region. The closest contemporary sighting of Quino is approximately 6 miles southwest of the Preserve, south of Sycamore Canyon and Goodan Ranch Preserve (CDFW 2018), at considerably lower elevation and in different habitat (open grasslands and Diegan coastal sage scrub), and that sighting area has not supported a continuing population of Quino (i.e., no further observations have been made there).

The study area is almost entirely either "excludable" closed-canyon chaparral, as described in USFWS 2014, or existing dirt roads and trails that do not support potential Quino host plants or nectar plants. Quino is not expected within the study area.

Hermes copper butterfly (*Lycaena hermes*), is a federal candidate species and a County Group 1 species. ICF biologists conducted a habitat assessment for the Hermes copper in 2013. Hermes copper use mature spiny redberry (*Rhamnus crocea*) surrounded by open areas with nectaring resource California buckwheat. Few spiny redberry plants were observed on the Preserve and only in dense, unsuitable chaparral. No suitable Hermes copper habitat was observed during habitat assessments. Therefore, the species was determined to have a low potential to occur and no flight season surveys were conducted.

Harbison's dun skipper (*Euphyes vestris harbisoni*) is a County Group 1 species. The species exclusively uses San Diego sedge (*Carex spissa)* as its larval host plant. San Diego sedge occurs in mesic drainages and is known from the central foothills. No San Diego sedge was observed within drainages on site during focused botanical surveys, though San Diego sedge is known from the

vicinity. Without the presence of the host plant, Harbison's dun skipper has a low potential to occur on the Preserve and no focused surveys were conducted.

Stephens' kangaroo rat (*Dipodomy stephensi*) is not expected in the study area because the Preserve is outside of this species' known range and the species has not been observed during trapping surveys. The southwestern-most known population of this species is approximately 5 miles to the northeast in Ramona Grasslands Preserve. Focused trapping surveys have been conducted for this species in the vicinity with negative results (CDFW 2018). This species was not observed or expected during small mammal trapping at Boulder Oaks South in 2007 (Jones & Stokes 2007a) or Boulder Oaks North in 2013 (ICF 2013).

There is no reasonable potential for southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), or coastal California gnatcatcher (*Polioptila californica californica*) to occur within the study area, beyond rare and brief migratory visits, due to lack of suitable habitat. It is likely that other subspecies of willow flycatcher pass through the Preserve in spring and fall, though they were not recorded during the current work. The southern willow riparian forest on the Preserve is marginally suitable, but much too isolated and limited in extent, to support nesting least Bell's vireos. No suitable nesting habitat exists on the Preserve for southwestern willow flycatcher. Diegan coastal sage scrub on the Preserve occurs in small isolated patches surrounded by unsuitable, dense chaparral, and it is not suitable for coastal California gnatcatcher.

1.4.14 Wetlands/Jurisdictional Waters

The following describes the delineated features and expected jurisdictional status within the study area. Detailed information—including maps of the features delineated within the study area, photographs, and wetland determination forms—are provided in the Preliminary Jurisdictional Delineation report in Appendix F.

1.4.14.1 Delineation Results

Eight features within the study area were identified, evaluated, and mapped for potential state and federal jurisdiction. A total of 0.033 acre (282 linear feet) of waters of the U.S. are in the study area and may be subject to the U.S. Army Corps of Engineers (USACE) and Regional Water Quality Control Board (RWQCB) regulatory jurisdiction pursuant to Sections 404 and 401 of the CWA. Additionally, 0.079 acre (282 linear feet) of streambed and riparian resources occur within the study area and would be subject to CDFW jurisdiction pursuant to Sections 1600–1616 of the FGC.

Each of the delineated features in the survey area is summarized in Table 7 and described below the table.

Table 7. Summary of Potentially Jurisdictional Aquatic Resources within the Study Area

			USACE/RWQCB	CDFW	
			Non-wetland	Streambed	Riparian
Feature Number	Linear Feet	OWHM/TOB Width[1]	Acres[2]	Acres[2]	Acres
2	121	3.3/5	0.013	0.023	0.011
6	24	5/12	0.007	0.008	--
7	42	5.25/10	0.005	0.009	--
15	23	1/1	0.001	0.001	--
16	22	10/14	0.005	0.007	0.007
17	27	2/2	0.001	0.001	--
18	23	2/4	0.001	0.002	--
19	--	--	--	--	0.010
Total	282	--	0.033	0.051	0.028
Grand Total			0.033		

[1] Based on average width in the study area.

[2] Total acreage may not add up to the total shown because of rounding.

Feature 1 is an ephemeral swale that was delineated based on the desktop method, using available aerial imagery and resources, such as the National Hydrography Dataset and NWI. Based on aerial interpretation, the feature appears to lack a defined bed and bank and OHWM indicators within the survey area; therefore, Feature 1 in the survey area was delineated as a swale (Figures 8a and 8b, Sheets 1 and 2).

Feature 2 is an ephemeral channel originating at a ridgeline that coincides with the western boundary of the Preserve. It has an average OHWM and top of bank (TOB) width of 3.3 feet and 5 feet, respectively. Feature 2 flows to the east, through the Preserve for approximately 2.75 miles, until its confluence with the western branch of the San Vicente Creek. Feature 2 begins as a moderately steep channel to the west and becomes relatively flat in the central portion of the Preserve. The channel has minimal in-channel vegetation and is defined by a clear bed and bank and destruction of terrestrial vegetation. Within the upstream survey area, Feature 2 (Figures 8a and 8b, Sheets 6 and 7) has a 2-foot-wide OHWM for the purposes of USACE jurisdiction and 4-foot-wide TOB for purposes of CDFW jurisdiction. As it flows downstream into the relatively flat valley, the OHWM and TOB widen to approximately 5 and 8 feet, respectively (Figures 8a and 8b, Sheet 5). Further downstream (Figures 8a and 8b, Sheet 4), Feature 2 is impounded by an earthen berm, creating a freshwater pond, including a freshwater marsh fringe wetland consisting of *Typha* spp. and *Schoenoplectus* spp. The pond has an earthen spillway that is approximately 2.5 feet wide. Finally, at its farthest downstream end, Feature 2 crosses the survey boundary via two 48-inch corrugated metal pipes (Figures 8a and 8b, Sheet 3).

Features 3, 4, and 5 are ephemeral swales originating in the foothills of the Preserve. These features cross existing trails, were evaluated in the field, and were determined to have no defined bed or bank or OHWM indicators in the survey boundary. Any flows originating in these features likely sheet flow into Feature 2.

Feature 6 is a flat, sandy ephemeral channel originating at a ridgeline that coincides with the western boundary of the Preserve (Figures 8a and 8b, Sheet 9). Immediately outside of the survey area, Feature 6 is impounded by an earthen berm, creating a freshwater pond with fringe emergent wetland, similar to the observed conditions of Feature 2. Flows exiting the freshwater pond appear to flow for approximately a 0.1 mile before its confluence with the upstream extent of Feature 7.

Feature 7 is an ephemeral channel originating on the eastern side of the Iron Mountain ridgeline. Approximately 2 miles of Feature 7 flow east to west through the Preserve. Once it exits the Preserve's boundary it flows approximately 0.75 mile before its confluence with western branch of the San Vicente Creek. The upstream (western) end of Feature 7 within the survey area (Figures 8a and 8b, Sheet 10) was delineated based on the desktop method and has an assumed OHWM width of 2.5 feet and TOB of 4 feet. At the downstream (eastern) end of the survey area, Feature 7 was mapped using the field delineation method. This feature has an 8-foot-wide OHWM and 16-foot-wide TOB (Figures 8a and 8b, Sheet 11), and it is defined by the existing wooden span bridge and wing walls. Observed OHWM indicators include sediment sorting, destruction of terrestrial vegetation, and a defined bed and bank. Finally, at its downstream end and immediately outside of the survey area, Feature 7 is impounded by an earthen berm creating a freshwater pond.

Feature 16 is a large intermittent stream channel that is tributary to the western branch of San Vicente Creek, originating to the west of the Preserve, flowing east. It is characterized by a 10-foot-wide OHWM and 14-foot-wide TOB with clear bed and bank, evidence of sediment sorting, destruction of terrestrial vegetation, and wracking. The channel bed is dominated by large cobbles and some in-channel vegetation. It also has some adjacent riparian vegetation consisting of large sycamores and willows (Figures 8a and 8b, Sheet 12).

Features 15, 17, and 18 are narrow, steep, ephemeral streams that are tributary to Feature 16. These features were mapped using both the desktop and field delineation methodologies and were delineated by a clear bed and bank, lack of vegetation, and break in slope (Figures 8a and 8b, Sheet 12).

Feature 19 is a large intermittent stream channel that is tributary to the western branch of San Vicente Creek, originating to the west of the Preserve, flowing east. The channel is clearly defined by a bed and bank, evidence of sediment sorting, destruction of terrestrial vegetation, and wracking. Within the survey boundary, Feature 19 flows through an existing 36-inch corrugated metal pipe.

1.4.15 Habitat Connectivity and Wildlife Corridors

Wildlife movement corridors are areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features such as canyon drainages, ridgelines, or areas with vegetative cover provide corridors for wildlife movement. Wildlife movement 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 the exchange of genetic traits between populations.

Another important consideration is the setting of a project site with respect to regional connectivity with other undeveloped lands. Large blocks of contiguous habitat are important to support resident populations of plants and wildlife as well as to provide suitable conditions for wildlife movement and dispersal.

The Preserve is in a relatively undeveloped area in San Diego County and abuts other large preserves such as San Vicente Highlands and Iron Mountain. The east–west trending valley and ridgelines on site may provide local movement for a wide range of wildlife, including mule deer, coyote, bobcat, and mountain lion. The Preserve is surrounded by undeveloped and preserved land, and it would be considered to be within a core area or regional linkage of importance.

1.5 Applicable Regulations

1.5.1 Federal Environmental Regulations

1.5.1.1 Federal Endangered Species Act

FESA was enacted in 1973 to provide protection to threatened and endangered species and their associated ecosystems. "Take" of a listed species is prohibited except when authorization has been granted through a permit under Section 4(d), 7, or 10(a) of the act. "Take" is defined as to harass, harm, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of these activities without a permit.

1.5.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) was enacted in 1918. Its purpose is to prohibit the killing or transport of covered native migratory birds—or any part, nest, or egg of any such bird—unless allowed by another regulation adopted in accordance with the MBTA. There is a list of species that are protected by this act and includes almost all native non-game species.

1.5.1.3 Bald and Golden Eagle Protection Act

When first enacted in 1940, the Bald and Golden Eagle Protection Act prohibited the take, transport, or sale of bald eagles, their eggs, or any part of the eagle. The act was amended in 1962 to extend prohibitions to the golden eagle. "Take" is defined by the act as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb."

1.5.1.4 Clean Water Act

In 1948, Congress first passed the Federal Water Pollution Control Act. This act was amended in 1972 and became known as the Clean Water Act. The CWA regulates the discharge of pollutants into the waters of the U.S. Under Section 404, permits need to be obtained from the USACE for discharge of dredge or fill material into waters of the U.S. Under Section 401 of the act, water quality certification from the RWQCB needs to be obtained if there are to be any impacts on waters of the U.S.

1.5.2 State Environmental Regulations

1.5.2.1 California Environmental Quality Act

CEQA requires that biological resources be considered when assessing the environmental impacts resulting from proposed actions. CEQA does not specifically define what constitutes an "adverse effect" on a biological resource. Instead, lead agencies are charged with determining what specifically should be considered an impact.

1.5.2.2 California Fish and Game Code

The FGC regulates the taking or possession of birds, mammals, fish, amphibians, and reptiles. It also provides additional protections for endangered species and regulations over lakes and streams and associated fish and wildlife habitat. Provisions regarding the protections for nesting birds are described in FGC Section 3503 and make it unlawful to take, possess, or needlessly destroy the nest or eggs of most wild birds.

1.5.2.3 California Endangered Species Act

CESA prohibits the "take" of any species that the California Fish and Game Commission determines to be a threatened or endangered species and is administered by the CDFW. CESA is found in FGC Sections 2050–2116. Incidental take of these listed species can be approved by the CDFW. "Take" is defined as to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.

1.5.2.4 Lake and Streambed Alteration Program

The Lake and Streambed Alteration Program is administered by the CDFW and is found in Section 1600 et seq. of the FGC. CDFW regulates streams and waterways and associated fish and wildlife habitat. The CDFW is to be notified if a project will affect lake or streambed resources.

1.5.2.5 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act is the California equivalent of the CWA. It provides for statewide coordination of water quality regulations through the establishment of the California State Water Resources Control Board and nine separate RWQCBs that oversee water quality on a day-to-day basis at the regional/local level.

1.5.2.6 Natural Community Conservation Planning Act of 1991

The Natural Community Conservation Planning (NCCP) Act is designed to conserve natural communities at the ecosystem scale while accommodating compatible land use. The CDFW is the principal state agency implementing the NCCP Program. NCCP plans developed in accordance with this act provide for comprehensive management and conservation of multiple wildlife species and identify and provide for the regional or area-wide protection and perpetuation of natural wildlife diversity while allowing compatible and appropriate development and growth. The Project is within the boundaries of the San Diego MSCP, which is an adopted NCCP Plan, and the County of San Diego maintains an Implementing Agreement with CDFW.

1.5.2.7 Native Plant Protection Act

The NPPA was enacted in 1977 and allows the California Fish and Game Commission to designate plants as "rare" or "endangered." There are 64 species of plants designated and protected as "rare" under the NPPA. Species designated as "endangered" are regulated under provisions of CESA. The NPPA prohibits take of endangered or rare native plants, but it includes some exceptions for agricultural and nursery operations, emergencies, and—after properly notifying CDFW—certain vegetation removal. It is primarily codified in FGC Section 1900 et seq.

Chapter 2
Project Effects

2.1 Impact Definitions

Biological resource impacts can be considered direct, indirect, or cumulative. They are also either permanent or temporary in nature.

Direct: Occur when biological resources are altered, disturbed, or destroyed during project implementation. Examples include clearance of vegetation, encroachment into wetland buffers, diversion of surface water flows, and the loss of individual species and/or their habitats.

Indirect: Occur when project-related activities affect biological resources in a manner that is not direct. Examples include elevated noise and dust levels, increased human activity, decreased water quality, and the introduction of invasive wildlife (domestic cats and dogs) and plants.

Cumulative: Occur when biological resources are either directly or indirectly affected to a minor extent as a result of a specific project, but the project-related impacts are part of a larger pattern of similar minor impacts. The overall result of these multiple minor impacts from separate projects is considered a cumulative impact on biological resources.

Temporary: Temporary impacts can be direct or indirect and are considered reversible. Examples include the removal of vegetation from areas that will be revegetated, elevated noise levels, and increased levels of dust.

Permanent: Permanent impacts can be direct or indirect and are not considered reversible. Examples include removing vegetation from areas that will have permanent structures placed on them or landscaping an area with nonnative plant species.

2.2 Project Impacts

The Project would result in direct impacts through conversion of existing habitat to trails and parking areas. Indirect impacts associated with the Project may include the human or pet intrusions into natural areas.

All potential project-related impacts (direct, indirect, and cumulative) were evaluated as a part of this assessment.

Implementation of the Project would primarily have two classes of impacts: 1) permanent direct impacts on vegetation communities and the sensitive plants living in them, and the resulting loss of habitat for sensitive animals and 2) indirect effects on certain sensitive animal species from increased public presence. Construction of the trail system would rely on hand tools and would not have significant direct or indirect effects beyond the loss of habitat. The trail construction would have to be conducted in compliance with state and federal criminal prohibitions against taking of

nesting birds and would not be expected to result in any direct or indirect mortality of general or sensitive wildlife species.

2.2.1 Habitats

Complete development of the Project would result in direct and permanent impacts on up to 7.65 acres, including 0.08 acre of coast live oak woodland, 0.19 acre of disturbed habitat, 0.65 acre of Engelmann oak woodland, 2.79 acres of nonnative grassland, 0.27 acre of scrub oak chaparral, 3.42 acres of southern mixed chaparral, and 0.25 acre of urban/developed land (Table 8) (Appendix A; Figure 9a-f). No impacts would occur on coastal and valley freshwater marsh, Diegan coastal sage scrub, or open water. Urban/developed and disturbed habitat are not considered sensitive vegetation communities. Project siting within any areas mapped as southern arroyo willow riparian forest and southern coast live oak riparian forest would be restricted to nonnative grassland openings within these vegetation communities and would not result in impacts on trees habitat.

Roadside stabilization may occur for the park road. Improvements along of the shoulder of the park road could result in up to 1.0 acre of additional impacts on nonnative grasslands. While the park road passes through areas mapped as southern coast live oak riparian forest, coast live oak woodland, and Engelmann oak woodland, any development of the road shoulder would occur on vegetation typified by disturbance-related nonnative grasses and would not result in impacts on vegetation typical of forest or woodland communities. The 1.0 acre of impacts is included in Table 8.

Table 8 summarizes the maximum project impacts on habitat types/vegetation communities from development the Project, including multi-use trails, the ADA-compliant trail, and staging areas. The dimensions of the septic leach field improvements have not been determined but would be contained entirely within areas mapped as urban/developed, which is not considered a sensitive vegetation community.

Table 8. Maximum Project Impacts on Habitat/Vegetation Communities

Habitat/Vegetation Community (Holland Code)	Impacts (acres)
Coast Live Oak Woodland (71160)	0.08
Disturbed Habitat (11000)	0.19
Engelmann Oak Woodland (71180)	0.65
Non-native Grassland (42200)	2.79
Scrub Oak Chaparral (37900)	0.27
Southern Mixed Chaparral (37120)	3.42
Urban/Developed (12000)	0.25
Total	7.65

2.2.2 Sensitive Plants

Complete implementation of the Project would result in impacts on Engelmann oaks in up to 0.65 acre of Engelmann oak woodland. This would primarily be from creation of an ADA-accessible trail within areas mapped as Engelmann oak woodland. The Engelmann oak woodland affected by trail development is an area of oak savanna whose understory has been heavily grazed by cattle. The ADA-accessible trail was sited to benefit from the presence of an oak overstory and would not remove mature oaks trees. Development of the trail would preclude recruitment of new oaks within up to 0.65 acre of habitat. New oak recruitment within Engelmann oak woodlands has been constricted because of cattle grazing within the Engelmann oak woodland. Fencing is proposed along the ADA-accessible trail to exclude cattle from the ADA-accessible trail; exclusion of cattle from these areas of Engelmann oak woodland will likely allow new recruitment of Engelmann oak seedlings.

California adder's tongue is known from the study area. No impacts are proposed in areas containing California adder's tongue, and no impacts on this species are expected from the proposed trail system. No impacts would occur on this species.

Southern mountain misery is a CRPR 4.2 species and a County List D species. Six southern mountain misery individuals are known to be within the study area, and the Project could have an impact on them. Additional individuals may be present along the proposed multi-use trail on the western side of Boulder Oaks South.

Eight other sensitive plant species were determined to have a high potential to occur within the study area and could be affected by the Project: San Miguel savory, Ramona horkelia, felt-leaved monardella, Gander's ragwort, golden-rayed pentachaeta, Cooper's rein orchid, ashy spike-moss, and rush chaparral-star.

2.2.3 Sensitive Wildlife

Special-status reptiles—coast horned lizard and red-diamond rattlesnake individuals—were observed within the study area, and four other sensitive reptiles have potential to occur in the study area: Belding's orange-throated whiptail, three-lined boa, coastal western whiptail, and Coronado skink. The Project would have impacts on up to 7.21 acres of native or naturalized habitat that could support these species. The Project would not convert native or naturalized habitat to development. Implementation of the Project would create openings that could be used by these species, but also would increase potential for negative interactions with human trail users.

Special-status tree-nesting raptors known from the study area include barn owl, red-shouldered hawk, and white-tailed kite. Tree-nesting Cooper's hawks have high potential to occur within the study area. These tree-nesting raptors have potential to nest in the mature vegetation in the study area, including trees such as Engelmann oak, coast live oak, and western sycamore. Project-related impacts would occur in 0.08 acre of coast live oak woodland and 0.65 acre of Engelmann oak woodland. Existing trees would not be removed, so no nesting habitat would be affected by the Project. The Project would convert up to 7.21 acres of native or naturalized habitat to disturbed habitat. These 7.21 acres of impacts would be spread out over the 2,014-acre Preserve and are not expected to alter the extent of foraging habitat for these species. Red-shouldered hawk, Cooper's

hawk, and white-tailed kite would forage in the vicinity of human activities, and low-levels of daytime usage of the Preserve would not significantly affect the foraging of these species. Public access would only be allowed during daylight hours; therefore, public access would not result in impacts on the nocturnal use of the Preserve by barn owl.

Turkey vultures are known from the Preserve and have the potential to forage within the study area. No potential nesting habitat is present in the study area. The Project would convert up to 7.21 acres of native or naturalized habitat to disturbed habitat. These 7.21 acres of impacts would be spread out over the 2,014-acre Preserve and are not expected to alter the extent of foraging habitat for this species.

Golden eagle is known to forage within the Preserve and has a high potential to forage within the study area. Golden eagles in San Diego County avoid interactions with people, including recreational users, and will increasingly avoid areas as the human usage of an area increases. Boulder Oaks North is one of the closest large grasslands/pastures to the Iron Mountain nest, and golden eagle foraging on the Preserve grasslands has been documented by telemetry data from USGS (2017). The northern end of the grassland area on Boulder Oaks North (closest to the nesting area) currently supports outdoor human activity associated with the LDS campground. Addition of public access to the Preserve would add to the human use of the Boulder Oaks North grasslands, and would introduce human use to the Boulder Oaks South grassland area, which would normally be unused by people. No impacts would occur on nesting habitat or within 4,000 feet of a known nest.

Western bluebird is a tree-nesting songbird species known to occur in the study area. Project-related impacts would occur in 0.08 acre of coast live oak woodland and 0.65 acre of Engelmann oak woodland. Existing trees would not be removed, so no nesting habitat would be affected by the Project. Implementation of the Project could remove up to 2.79 acres of nonnative grassland and 0.73 acre of woodlands that could serve as foraging habitat for this species.

California horned lark is a ground-dwelling songbird with high potential to occur in the study area. Implementation of the Project could remove up to 2.79 acres of nonnative grassland that could serve as nesting and foraging habitat for this species.

Bell's sparrow, Southern California rufous-crowned sparrow, and San Diego desert woodrat are known to occur on the Preserve and have a high potential to occur in the study area. These species are associated with open chaparral and coastal sage scrub. Development of the Project would convert up to 3.69 acres of chaparral to trails, which would reduce potential nesting and foraging habitat for these species.

Southern mule deer and mountain lion are known to occur on the Preserve and have a high potential to occur in the study area. The Project would convert up to 7.21 acres of native or naturalized habitat to disturbed habitat. These 7.21 acres of impacts would be spread out over the 2,014-acre Preserve and are not expected to alter the extent of foraging habitat for these species. Large blocks of unaltered habitat, with significant amount of topographical shelter, would be present throughout the Preserve. These large mammals would readily use man-made trails. Wildlife cameras in 2007 and 2013 detected frequent usage of trails and roads by deer during day and night. Mountain lions used roads and trails for movement at night. Public access would only be allowed during daylight hours; therefore, public access would not result in impacts on the primarily nocturnal use of the

Preserve by mountain lions. No features would be constructed that would constrain nocturnal movement of mountain lions.

Dulzura pocket mouse is known to occur on the Preserve and has a high potential to occur in the study area. The Project would convert up to 7.21 acres of native or naturalized habitat that could be used by Dulzura pocket mouse.

Small-footed myotis is known from the study area, while the following six bat species have been recorded on the Preserve and have high potential to occur within the study area: long-eared myotis, pallid bat, pocketed free-tailed bat, western mastiff bat, western red bat, and Yuma myotis. Implementation of the Project would not have impacts on roosting habitat or maternal colony sites. The Project would convert up to 7.21 acres of native or naturalized habitat to disturbed habitat. These 7.21 acres of impacts would be spread out over the 2,014-acre Preserve and are not expected to alter the extent or quality of the Preserve as nocturnal foraging sites for these species.

Long-eared myotis, pallid bat, and pocketed free-tailed bat are associated with oak woodlands. No oaks would be removed by the Project, and the introduction of trails near or within oak woodlands is not expected to alter the quality of forage for these species.

2.2.4 Wetlands and Jurisdictional Waters

Eight features within the study area were identified and mapped for potential state and federal jurisdiction. A total of 0.033 acre (282 linear feet) of waters of the U.S. may be subject to USACE and RWQCB regulatory jurisdiction pursuant to Sections 404 and 401 of the CWA. Additionally, 0.079 acre (282 linear feet) of streambed and riparian resources occur within the survey area and would be subject to CDFW jurisdiction pursuant to Sections 1600–1616 of the FGC. The Project would not have impacts on jurisdictional features, as detailed below.

Features 1, 3, 4, and 5 were delineated as a non-jurisdictional swales. The project alignment crosses these swales but would not develop or alter the existing substrate. No jurisdictional features were delineated at these locations, and no impacts on jurisdictional features would occur at these locations.

Feature 2 was determined to be an ephemeral channel jurisdictional to USACE, RWQCB, and CDFW, with an average OHWM and TOB width of 3.3 feet and 5 feet. In the study area, the channel is a non-wetland channel that would be crossed five times at grade (Figures 8a and 8b Sheets 4-7). The five at-grade crossings would not grade, develop, or alter the substrate of Feature 2, and they would not introduce or use mechanized earth-moving equipment. Any incidental fallback from walking, riding, or bicycling across the channel would not constitute a discharge of fill material an impact on jurisdictional non-wetland waters. At its farthest downstream end, Feature 2 crosses the study boundary via two 48-inch corrugated metal culverts under an existing park road (Figures 8a and 8b Sheet 3). At the downstream end, the Project would not modify the existing culverts and the Project would not affect channels or streams at this location. No impacts would occur on Feature 2.

Feature 6 is a flat, sandy ephemeral channel originating at a ridgeline that coincides with the western boundary of the Preserve (Figures 8a and 8b, Sheet 9). The Project would cross Feature 6 at grade immediately upstream of a stock pond/impoundment. The at-grade crossings would not

grade, develop, or alter the substrate of Feature 6, and they would not introduce or use mechanized earth-moving equipment. No impacts would occur on Feature 6.

Feature 7 is an ephemeral channel originating on the eastern side of the Iron Mountain ridgeline. The upstream (western) end of Feature 7 within the study area (Figures 8a and 8b, Sheet 10) was determined to be an ephemeral channel jurisdictional to USACE, RWQCB, and CDFW. The Project would cross Feature 7 at grade. The at-grade crossing would not grade, develop, or alter the substrate of Feature 7, and it would not introduce or use mechanized earth-moving equipment. At the downstream (eastern) end of the survey area, Feature 7 flows under an existing vehicular bridge before being impounded near the ranger station. Feature 7 at the downstream end passes under the bridge, and the Project would not alter the bridge or do any alteration or development within jurisdictional features. No impacts would occur on Feature 7.

Feature 16 was a large intermittent stream channel characterized by a 10-foot-wide OHWM and 14-foot-wide TOB (Figures 8a and 8b, Sheet 12). The channel bed was dominated by large cobbles and some in-channel vegetation. It also has some adjacent riparian vegetation consisting of large sycamores and willows. While riparian vegetation was present in Feature 16, no riparian vegetation was mapped within the study area at Feature 16. No CDFW jurisdictional riparian habitat was present at Feature 16. Feature 16 would be crossed at-grade. The at-grade crossing would not grade, develop, or alter the substrate of Feature 16, and would not introduce or use mechanized earth-moving equipment. No impacts would occur on Feature 12.

Features 15, 17, and 18 were narrow, steep, ephemeral streams that are tributary to Feature 16. (Figures 8a and 8b, Sheet 12). Each of these features would be crossed once at grade. The at-grade crossings would not grade, develop, or alter the substrate of Feature 2, and they would not introduce or use mechanized earth-moving equipment. No impacts would occur on Features 15, 17, or 18.

Feature 19 is a large intermittent stream channel that is tributary to the western branch of San Vicente Creek, originating to the west of the Preserve, flowing east. The channel is clearly defined by a bed and bank. Within the study boundary, Feature 19 flows through an existing 36-inch corrugated metal culvert under an existing earthen bridge. The Project would not modify the existing culverts and would not affect channels or streams at this location. CDFW jurisdictional riparian habitat was mapped at this location. The Project would pass under the jurisdictional tree canopy on an existing road grade and would not result in impacts on CDFW jurisdictional habitat at this location. No impacts would occur on Feature 19 or on CDFW jurisdictional habitat.

2.2.5 Core Wildlife Area/Wildlife Corridors

The development of the Project would not have an impact on wildlife corridors. The maximum of 7.21 acres of conversion of native and naturalized habitat to trails and parking areas would not constrain wildlife movement in the Preserve. Trails would be expected to be used by medium and large mammals for ease of movement through the Preserve. No features would be constructed that would impinge any particular movement areas, including ridgelines or canyons. Hard structure development in the Preserve is clustered in existing developed areas.

The Project would have impacts on up to 7.21 acres of native and naturalized habitat within a core wildlife area. These impacts would be spread over the 2,014-acre Preserve. While these impacts may

affect certain sensitive species, as detailed in Section 2.2.3 and 2.2.4, the development of the improvement plan and daytime usage of the Preserve would not result in significant impacts on the functioning of the Preserve as a core wildlife area.

Chapter 3
Special-Status Species

3.1 Guidelines for the Determination of Significance

CEQA defines that a project would have a potentially significant effect on biological resources if:

> the project would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service (County 2010b).

Specifically, the County of San Diego details that any of the following conditions would be considered significant (County 2010b):

> 3.A. The project would impact one or more individuals of a species listed as federally or state endangered or threatened.
>
> 3.B. The project would impact an on-site population of a County List A or B plant species, or a County Group I animal species, or a species listed as a state Species of Special Concern.
>
> 3.C. The project would impact the local long-term survival of a County List C or D plant species or a County Group II animal species.
>
> 3.D. The project may impact arroyo toad aestivation, foraging, or breeding habitat.
>
> 3.E. The project would impact golden eagle habitat.
>
> 3.F. The project would result in a loss of functional foraging habitat for raptors.
>
> 3.G. The project would impact the viability of a core wildlife area, defined as a large block of habitat that supports a viable population of a sensitive wildlife species or an area that supports multiple wildlife species.
>
> 3.H. The project would cause indirect impacts to levels that would likely harm sensitive species over the long term.
>
> 3.I. The project would impact occupied burrowing owl habitat.
>
> 3.J. The project would impact occupied coastal cactus wren habitat.
>
> 3.K. The project would impact occupied Hermes copper habitat.
>
> 3.L. The project would impact nesting success of sensitive animals (as listed in the Guidelines for Determining Significance) through grading, clearing, fire fuel modification, and/or noise generating activities such as construction.

Each of these significance criteria is discussed in Section 3.2 below with respect to the proposed Project.

3.2 Analysis of Project Effects

Each of the significance criteria listed in Section 3.1 is discussed below with respect to the Project's anticipated effects. Those criteria for which impacts are not anticipated are discussed briefly at the end of the section.

- **3.B.** On-site populations of a County List A or B plant species, a County Group I animal species, or a species listed as a California Species of Special Concern exist within the study area.
    - The Project would remove up to 7.21 acres of potential habitat for coast horned lizard, red-diamond rattlesnake, Belding's orange-throated whiptail, coastal western whiptail, Coronado skink, and Dulzura pocket mouse. No direct impacts on these species are expected. Loss of potential habitat could be considered a potentially significant impact.
    - The Project would remove up to 3.69 acres of chaparral which is potential habitat for Bell's sparrow, Southern California rufous-crowned sparrow, and San Diego desert woodrat. No direct impacts on these species are expected. Loss of potential habitat could be considered a potentially significant impact.
    - The Project would remove up to 3.69 acres of potential chaparral habitat for County List A plants San Miguel savory, Ramona horkelia, and felt-leaved monardella. These species are not known from the study area, but they have potential to be present and to be affected. Loss of potential habitat could be considered a potentially significant impact. .
- **3.C.** The Project has potential to impact the following County List C or D species, or a County Group II animal species known from the study area.
    - The Project would remove up to 7.21 acres of potential natural habitat for County List D plant species, including gander's ragwort, golden-rayed pentachaeta, Cooper's rein orchid, ashy spike-moss, and rush chaparral star. Loss of potential habitat could be considered a potentially significant impact.
- **3.L.** Implementation of the Project has the potential to have an impact on the nesting success of sensitive animals, if brush clearing is conducted during the breeding season. Impacts on the nesting success of sensitive animals would be a potentially significant impact, and a violation of state and federal laws (i.e., MBTA and FGC).

The Project would not result in significant impacts under the following guidelines for the following reasons:

- **3.A**. No species listed as federally or state endangered or threatened were observed or determined to have a high potential to occur within the study area, and no impacts are expected.
- **3.C.** The Project would not result in impacts on the local-long term survival of the following County List C or D species, or a County Group II animal species known from the study area.
    - The Project would remove up to 3.52 acres of foraging habitat for western bluebird, a County Group II species. This species is not considered endangered, threatened, or rare under CEQA and impacts to this species would only be considered sensitive under County Guidelines if the project impacted the local long-term survival. The primary issues for this species are loss of nesting cavities to development and competition for nesting cavities from nonnative species such as European starling. No nesting habitat for this species would be removed. The loss of These 3.52 acres of the 128.7 acres of grasslands represent a small

portion of the grasslands on site and large amounts of foraging habitat remain. The removal of this amount of habitat would not have a significant impact on the foraging habitat for this species and the project would not have an effect on the distribution of non-native cavity-nesting species. The Project would not have an impact on the local long-term survival of this species.

- The Project would remove up to 2.79 acres of potential grassland habitat for California horned lark, a County Group II species, which would be a small amount of the total 128.7 acres of grassland.). No direct impacts are expected on this species, and development of 2.79 acres of suitable habitat would not have a substantial adverse effect on its local long-term survival.
- California adder's tongue, a County List D species, is known from the study area. No new project features would occur in areas supporting California adder's tongue, and this species would not be impacted by the Project.
- The Project would remove up to 7.21 acres of potential habitat for three-lined boa, southern mule deer, and mountain lion. No direct impacts on this species are expected. Conversion of 7.21 acres of habitat to trails and parking areas is not expected to impact the local long-term survival of these species.
- Complete build-out of the Project would affect up to 0.65 acre of habitat mapped as Engelmann oak woodland; however, no healthy trees will be removed as a result of project implementation. The placement of trails within 0.65 acre of Engelmann oak woodland would not impact trees to a level which would affect the local long-term survival of this species (i.e. would not make this species endangered, threatened, or rare). Impacts to this community would be mitigated following the ratios in the BMO described in **MM-BIO-2**.

- **3.D.** No suitable arroyo toad breeding or aestivation habitat occurs on site. Arroyo toad is not known from the area and is not expected within the study area. No impacts would occur on arroyo toad.
- **3.E.** The Project would not have a substantial adverse effect on the long-term survival of golden eagle individuals.
  - No Project elements are proposed within 4,000 feet of a golden eagle nest.
  - The Project would convert up to 2.79 acres of native or naturalized habitat to disturbed habitat. This is less than 0.01 percent of the 2,014-acre Preserve and less than 3 percent of the 128.7 acres of grassland. The conversion of this amount of habitat would not be expected to result in a loss of functions of the Preserve as foraging habitat for golden eagle.
  - Parking for this Project has been proposed with a maximum of 24 cars and 8 horse trailers, in an effort restrict usage of the Preserve. The proposed trail system includes a total of 13.9 miles of trails, with a majority being outside of the grasslands. The Project would keep Preserve usage at a low level consistent with the surrounding rural area and avoid significant impacts on golden eagle foraging.
- **3.F.** The Project would convert up to 7.21 acres of native or naturalized habitat to disturbed habitat. These 7.21 acres of impacts would be spread out over the 2,014-acre Preserve and would not be expected to result in a loss of functions of the Preserve as foraging habitat for turkey vulture, barn owl, red-shouldered hawk, Cooper's hawk, or white-tailed kite.

- **3.G.** While the Preserve is considered a core wildlife area, the limited impacts associated with the Project would not affect the viability of the site to function as a core wildlife area. Therefore, the Project would not have significant impacts on the viability of a core wildlife area. Hiking, biking, and equestrian use are resource-dependent activities. Access will be constrained to daylight hours, and public access will be kept at low levels by the parking limitations.
- **3.H.** The Project would not cause indirect impacts to levels likely to harm sensitive species over the long term. Public access to the Preserve will be kept to low levels and would only occur during daylight hours. The Project does not propose nighttime lighting. In addition, noise levels associated with project construction or operation (i.e., trail usage) are not anticipated to result in levels above ambient that would adversely affect special-status wildlife species.
- **3.I.** The Project would not have impacts on occupied burrowing owl habitat. Burrowing owl have not been observed at Boulder Oaks Preserve and were assessed to not have a high potential to occur.
- **3.J.** The Project would not have impacts on cactus wren habitat. No cactus wren habitat occurs within the Preserve, and no coastal cactus wren or suitable cactus wren habitat was observed within the study area.
- **3.K.** The Project would not have impacts on Hermes copper butterfly (*Lycaena hermes*) habitat. Suitable habitat for Hermes copper butterfly was not observed within the Preserve or study area.

3.3 Cumulative Impact Analysis

The study area is entirely within the MSCP. The Project is entirely within the MSCP. The *County of San Diego Guidelines for Determining Significance* (2010) states that projects entirely within and consistent with the MSCP do not result in cumulatively significant impacts. The cumulative impacts for projects within the MSCP were addressed and mitigated in the Environmental Impact Report for the MSCP. The Project is consistent with the MSCP and the BMO. Therefore, any project impacts are not cumulatively considerable.

3.4 Mitigation Measures and Design Consideration

Under CEQA, mitigation is required for project effects on biological resources that are identified as being significant. An appropriate level of mitigation is determined primarily through two considerations, as follows:

- The nature and relative magnitude of the Project's impacts on the resource
- The resource's degree of sensitivity

The County proposes the following mitigation measures to reduce potentially significant impacts to a less-than-significant level.

  - **MM-BIO-1.** To mitigate for impacts on up to 0.08 acre of coast live oak woodland, which is a sensitive biological resource identified in the Biological Mitigation Ordinance, mitigation

shall occur at a 2:1 ratio for other Tier I habitat located within a biological resource core area.

- **MM-BIO-2.** To mitigate for impacts on up to 0.65 acre of Engelmann oak woodland, which is a sensitive biological resource identified in to the Biological Mitigation Ordinance, mitigation shall occur at a 2:1 ratio for other Tier I habitat located within a biological resource core area.
- **MM-BIO-3.** In order to mitigate for impacts on up to 2.79 acres of nonnative grassland, which is a sensitive biological resource identified in to the Biological Mitigation Ordinance, mitigation shall occur at a 0.5:1 ratio for other Tier III or higher habitat located within a biological resource core area.
- **MM-BIO-4.** To mitigate for impacts on up to 0.27 acre of scrub oak chaparral, which is a sensitive biological resource pursuant to the Biological Mitigation Ordinance, mitigation shall occur at a 1:1 ratio for other Tier III or higher habitat located within a biological resource core area.
- **MM-BIO-5.** To mitigate for impacts on up to 3.42 acres of southern mixed chaparral, which is a sensitive biological resource pursuant to the Biological Mitigation Ordinance, mitigation shall occur at a 1:1 ratio for other Tier III or higher habitat located within a biological resource core area.
- **MM-BIO-6: Clearing Restrictions.** State and federal laws prohibit killing birds or affecting their eggs or nesting success. To ensure Project compliance with state and federal laws and prevent the potentially significant impacts on sensitive nesting birds and raptors from improperly implemented construction, clearing restrictions will be implemented. The County will avoid vegetation removal or ground-disturbing activities during the bird breeding season, defined as January 15 to September 1, which includes the tree-nesting raptor breeding season of January 15 to July 15, and the general avian breeding season of February 1 to September 1. If removal cannot be avoided during this time period, a qualified avian biologist will conduct a nesting bird survey no more than 72 hours prior to ground-disturbing activities or vegetation removal. This is necessary to definitively ascertain whether raptors or other migratory birds are actively nesting in the Project area. If the survey results are positive, the location of active raptor or migratory bird nests will be mapped by a qualified avian biologist. All construction activities close to active nests will be delayed or otherwise modified as necessary to prevent nest failure (e.g., nest abandonment). Buffers may be adjusted based on the observations by the biological monitoring on the response of the nesting birds to human activity and will be conducted in coordination with the resource agencies (USFWS and CDFW).

3.5 Conclusions

The proposed measures detailed above would reduce the Project's impacts on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS, to a less-than-significant level.

Biological mitigation measure MM-BIO-1 would ensure that errant impacts would not occur, that impacts would remain at or below levels identified in this analysis, and that no other potentially significant impacts would occur.

- **3.B.** Potential direct impacts on On-site populations of a County List A or B plant species, a County Group I animal species, or a species listed as a California Species of Special Concern exist within the study area.
    - Impacts to up to 7.21 acres of potential habitat for coast horned lizard, red-diamond rattlesnake, Belding's orange-throated whiptail, three-lined boa, coastal western whiptail, Coronado skink, and Dulzura pocket mouse would be adequately mitigated with habitat-based described in MM-BIO-1, MM-BIO-1, MM-BIO-2, MM-BIO-3, and MM-BIO-5.
    - Impacts to up to 3.69 acres of chaparral habitat for Bell's sparrow, Southern California rufous-crowned sparrow, and San Diego desert woodrat would be adequately mitigated with habitat-based mitigation described in MM-BIO-4 and MM-BIO-5.
    - Impacts to up to 3.69 acres of potential chaparral habitat for San Miguel savory, Ramona horkelia, and felt-leaved monardella would be adequately mitigated with habitat-based mitigation described in MM-BIO-4 and MM-BIO-5
- **3.C.** Potential direct impacts on On-site populations of a County List A or B plant species, a County Group I animal species, or a species listed as a California Species of Special Concern exist within the study area.
    - Impacts to up to 7.21 acres of natural habitat for gander's ragwort, golden-rayed pentachaeta, Cooper's rein orchid, ashy spike-moss, and rush chaparral star will be adequately mitigated with habitat-based described in MM-BIO-1, MM-BIO-2, MM-BIO-3, MM-BIO-4, and MM-BIO-5.
- **3.L.** Potential direct impacts on sensitive bird species would be avoided through clearing restrictions described in MM-BIO-6. This mitigation measure would ensure that no significant impacts on these species would occur.

Chapter 4
Riparian Habitat or Sensitive Natural Communities

4.1 Guidelines for the Determination of Significance

CEQA states that a project would have a potentially significant effect on biological resources if:

> the project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. (County 2010b.)

Specifically, the County details that any of the following conditions would be considered significant (County 2010b):

> 4.A. Project-related grading, clearing, construction or other activities would temporarily or permanently remove sensitive native or naturalized habitat on or off the project site.
>
> 4.B. Any of the following will occur to or within jurisdictional wetlands and/or riparian habitats as defined by USACE, CDFW and the County of San Diego: removal of vegetation; grading; obstruction or diversion of water flow; adverse change in velocity, siltation, volume of flow, or runoff rate; placement of fill; placement of structures; construction of a road crossing; placement of culverts or other underground piping; any disturbance of the substratum; and/or any activity that may cause an adverse change in native species composition, diversity and abundance.
>
> 4.C. The project would draw down the groundwater table to the detriment of groundwater-dependent habitat, typically a drop of 3 feet or more from historical low groundwater levels.
>
> 4.D. The project would cause indirect impacts to levels that would likely harm sensitive habitats over the long term.
>
> 4.E. The project does not include a wetland buffer adequate to protect the functions and values of existing wetlands.

Each of these significance criteria is discussed in Section 4.2 below with respect to the proposed Project.

4.2 Analysis of Project Effects

Each of the significance criteria listed in Section 4.1 is discussed below with respect to the Project's anticipated effects. Those criteria for which impacts are not anticipated are discussed briefly at the end of the section.

- **4.A.** The Project would remove sensitive native or naturalized habitat.
    - The Project would have direct and permanent impacts on up to 0.08 acre of coast live oak woodland within a biological resource core area (BRCA). Coast live oak woodland is listed as a Tier I vegetation community in Attachment K of the BMO.
    - The Project would have direct and permanent impacts on up to 0.65 acre of Engelmann oak woodland, a Tier I vegetation community, within a BRCA.

- The Project would have direct and permanent impacts on up to 2.79 acres of nonnative grassland, a Tier III vegetation community, within a BRCA.
- The Project would have direct and permanent impacts on up to 0.27 acre of scrub oak chaparral, a Tier III vegetation community, within a BRCA.
- The Project would have direct and permanent impacts on up to 3.42 acres of southern mixed chaparral, a Tier III vegetation community, within a BRCA.

The proposed Project would not result in significant impacts under the following guidelines for the following reasons:

- **4.B.** Impacts on USACE/RWQCB, CDFW jurisdictional habitat and drainages have been avoided. Road crossings of jurisdictional features occur over existing bridges or culverts. Multi-use trail crossings of jurisdictional features would occur at grade and would not constitute a discharge of fill material into jurisdictional waters.
- **4.C.** The Project is supplied by water from the Ramona Water District and would not normally use any groundwater, except potentially using groundwater in the event of a wildfire. Emergency use of groundwater would not permanently draw down groundwater to the detriment of groundwater-dependent habitat.
- **4.D.** The proposed Project would not significantly increase long-term indirect impacts on the site. Development of the Preserve has been kept to low levels, and proposed public usage would be constrained. No activities would occur that would be likely to harm sensitive habitats over the long term.
- **4.E.** The Project was designed to avoid waters or riparian habitats. The Project would not have an impact on the functions and values of existing wetlands on the Preserve.

4.3 Cumulative Impact Analysis

The study area is entirely within the MSCP. The Project is entirely within the MSCP. The *County of San Diego Guidelines for Determining Significance* (2010) states that projects entirely within and consistent with the MSCP do not result in cumulatively significant impacts. The cumulative impacts for projects within the MSCP were addressed and mitigated in the Environmental Impact Report for the MSCP. The Project is consistent with the MSCP and the BMO. Therefore, any project impacts are not cumulatively considerable.

4.4 Mitigation Measures and Design Consideration

Under CEQA, mitigation is required for significant project effects on biological resources. As defined by CEQA Section 15370, mitigation includes measure to avoid, minimize, or rectify impacts. An appropriate level of mitigation is determined primarily through two considerations, as follows:

- The nature and relative magnitude of the Project's impacts on the resource
- The resource's degree of sensitivity

The County proposes the following mitigation measures to reduce potentially significant impacts to a less-than-significant level.

- **4.A.** Potentially significant direct and permanent impacts on sensitive vegetation communities would be mitigated to a less-than-significant level through implementing the following habitat-based mitigation.
    - **MM-BIO-1.** To mitigate for impacts on up to 0.08 acre of coast live oak woodland, which is a sensitive biological resource identified in the Biological Mitigation Ordinance, mitigation shall occur at a 2:1 ratio for other Tier I habitat located within a biological resource core area.
    - **MM-BIO-2.** To mitigate for impacts on up to 0.65 acre of Engelmann oak woodland, which is a sensitive biological resource identified in to the Biological Mitigation Ordinance, mitigation shall occur at a 2:1 ratio for other Tier I habitat located within a biological resource core area.
    - **MM-BIO-3.** In order to mitigate for impacts on up to 2.79 acres of nonnative grassland, which is a sensitive biological resource identified in to the Biological Mitigation Ordinance, mitigation shall occur at a 0.5:1 ratio for other Tier III or higher habitat located within a biological resource core area.
    - **MM-BIO-4.** To mitigate for impacts on up to 0.27 acre of scrub oak chaparral, which is a sensitive biological resource pursuant to the Biological Mitigation Ordinance, mitigation shall occur at a 1:1 ratio for other Tier III or higher habitat located within a biological resource core area.
    - **MM-BIO-5.** To mitigate for impacts on up to 3.42 acres of southern mixed chaparral, which is a sensitive biological resource pursuant to the Biological Mitigation Ordinance, mitigation shall occur at a 1:1 ratio for other Tier III or higher habitat located within a biological resource core area.

4.5 Conclusions

Potentially significant direct and permanent impacts on sensitive vegetation communities would be mitigated to a less-than-significant level through implementation of mitigation measures **MM-BIO-1, MM-BIO-2, MM-BIO-3, MM-BIO-4,** and **MM-BIO-5.**

Chapter 5
Federal Wetlands and Waterways

5.1 Guidelines for the Determination of Significance

CEQA defines that a project would have a potentially significant effect on biological resources if:

> the project would have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption or other means. (County 2010b.)

Specifically, the County details that any of the following conditions would be considered significant (County 2010b):

> 5.A. Any of the following will occur to or within jurisdictional wetlands as defined by USACE: removal of vegetation; grading; obstruction or diversion of water flow; adverse change in velocity, siltation, volume of flow, or runoff rate; placement of fill; placement of structures; construction of a road crossing; placement of culverts or other underground piping; any disturbance of the substratum; and/or any activity that may cause an adverse change in native species composition, diversity and abundance.
>
> 5.B. The project would draw down the groundwater table to the detriment of groundwater-dependent federal wetlands, typically a drop of 3 feet or more from historical low groundwater levels.
>
> 5.C. The project does not include a wetland buffer adequate to protect the functions and values of existing wetlands.

These significance criteria, for which impacts are not anticipated, are discussed briefly in Section 5.2 below.

5.2 Analysis of Project Effects

The proposed Project would not result in significant impacts under the following guidelines for the following reasons:

- **5.A.** No federal wetlands were mapped within the study area, and no impacts on federal wetlands would occur. The Project would also avoid impacts on CDFW jurisdictional habitat.
- **5.B.** This Project would not use groundwater.
- **5.C.** The Project would not affect the functions and values of existing wetlands.

5.3 Cumulative Impact Analysis

The proposed Project would not result in impacts on federal wetlands and therefore would not contribute to the cumulative loss of federal wetlands.

5.4 Mitigation Measures and Design Consideration

The proposed Project would not result in impacts on federal wetlands; no mitigation measures are required.

5.5 Conclusions

No federal wetlands were mapped within the study area, and no impacts on federal wetlands would occur. No significant impacts would occur.

Chapter 6
Wildlife Movement and Nursery Sites

6.1 Guidelines for the Determination of Significance

CEQA defines that a project would have a potentially significant effect on biological resources if:

> the project would interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (County 2010b.)

Specifically, the County details that any of the following conditions would be considered significant (County 2010b):

> 6.A. The project would prevent wildlife access to foraging habitat, breeding habitat, water sources, or other areas necessary for their reproduction.
>
> 6.B. The project would substantially interfere with connectivity between blocks of habitat, or would potentially block or substantially interfere with a local or regional wildlife corridor or linkage.
>
> 6.C. The project would create artificial wildlife corridors that do not follow natural movement patterns.
>
> 6.D. The project would increase noise and/or nighttime lighting in a wildlife corridor or linkage to levels proven to affect the behavior of the animals identified in a site-specific analysis of wildlife movement.
>
> 6.E. The project does not maintain an adequate width for an existing wildlife corridor or linkage and/or would further constrain an already narrow corridor through activities such as (but not limited to) reduction of corridor width, removal of available vegetative cover, placement of incompatible uses adjacent to it, and placement of barriers in the movement path.
>
> 6.F. The project does not maintain adequate visual continuity (i.e., long lines-of-site) within wildlife corridors or linkage.

These significance criteria, for which impacts are not anticipated, are discussed briefly in Section 6.2 below.

6.2 Analysis of Project Effects

The Project would not result in significant impacts under the following guidelines for the following reasons:

- **6.A.** The Project would not prevent wildlife access to foraging habitat, breeding habitat, or water sources. The Project would have very limited development of the site; trails and other access features would not prevent wildlife movement on site.

- **6.B.** The Project would not interfere with connectivity or wildlife corridors. Trails and parking areas would not stop the movement of wildlife within or across the Preserve. No Project features would block or interfere
- **6.C.** The Project would not create artificial wildlife corridors. The trails may be used by medium to large sized mammals but would not modify or constrain any corridors such as ridgelines or drainages on the Preserve.
- **6.D.** The Project does not propose any new nighttime lighting and does not propose nighttime usage of the Preserve. The construction of the Project would not create a significant increase in noise. Public access to the Preserve would be limited and would not significantly increase noise within the Preserve.
- **6.E.** The Project would not impede movement in wildlife corridors. Public access is only proposed during daylight hours and would not affect the nighttime movement of medium to large mammals. Implementation of the Project would not constrain movement of reptiles, small mammals, or birds. Project features such as trails and parking areas would not sever, alter, or impede the use of corridors by wildlife
- **6.F.** The Project would not constrain the visual continuity of wildlife corridors or linkages. Development is clustered around the currently developed and used ranger station. Trails do not interrupt visual continuity.

6.3 Cumulative Impact Analysis

The study area is entirely within the MSCP. The Project is entirely within the MSCP. The *County of San Diego Guidelines for Determining Significance* (2010) states that projects entirely within and consistent with the MSCP do not result in cumulatively significant impacts. The cumulative impacts for projects within the MSCP were addressed and mitigated in the Environmental Impact Report for the MSCP. The Project is consistent with the MSCP and the BMO. Therefore, any project impacts are not cumulatively considerable..

6.4 Mitigation Measures and Design Consideration

The Project would not result in significant impacts on wildlife corridors and linkages; therefore, mitigation is not proposed.

6.5 Conclusions

The Project would not result in significant impacts on wildlife corridors and linkages.

Chapter 7
Local Policies, Ordinances, and Adopted Plans

7.1 Guidelines for the Determination of Significance

CEQA defines that a project would have a potentially significant effect on biological resources if:

> the project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation Plan. (County 2010b.)

Specifically, the County details that any of the following conditions would be considered significant (County 2010b):

> 7.A. For lands outside of the MSCP, the project would impact coastal sage scrub vegetation in excess of the County's 5 percent habitat loss threshold as defined by the Southern California Coastal Sage Scrub Natural Community Conservation Planning (NCCP) Guidelines.
>
> 7.B. The project would preclude or prevent the preparation of the subregional NCCP. For example, the project proposes development within areas that have been identified by the County or resource agencies as critical to future habitat preserves.
>
> 7.C. The project will impact any amount of sensitive habitat lands as outlined in the Resource Protection Ordinance (RPO).
>
> 7.D. The project would not minimize and/or mitigate coastal sage scrub habitat loss in accordance with Section 4.3 of the NCCP Guidelines.
>
> 7.E. The project does not conform to the goals and requirements as outlined in any applicable Habitat Conservation Plan (HCP), Habitat Management Plan (HMP), Special Area Management Plan (SAMP), Watershed Plan, or similar regional planning effort.
>
> 7.F. For lands within the MSCP, the project would not minimize impacts to BRCAs, as defined in the BMO.
>
> 7.G. The project would preclude connectivity between areas of high habitat values, as defined by the Southern California Coastal Sage Scrub NCCP Guidelines.
>
> 7.H. The project does not maintain existing movement corridors and/or habitat linkages as defined by the BMO.
>
> 7.I. The project does not avoid impacts to MSCP narrow endemic species and would impact core populations of narrow endemics.
>
> 7.J. The project would reduce the likelihood of survival and recovery of listed species in the wild.
>
> 7.K. The project would result in the killing of migratory birds or destruction of active migratory bird nests and/or eggs (Migratory Bird Treaty Act).
>
> 7.L. The project would result in the take of eagles, eagle eggs or any part of an eagle (Bald and Golden Eagle Protection Act).

Each of these significance criteria is discussed in Section 7.2 below with respect to the proposed Project. Those criteria for which impacts are not anticipated are discussed briefly at the end of the section.

7.2 Analysis of Project Effects

Each of the significance criteria listed in Section 7.1 is discussed below with respect to the Project's anticipated effects. Those criteria for which impacts are not anticipated are discussed briefly at the end of the section.

- **7.K.** Construction-related impacts could result in the killing of migratory birds or destruction of active migratory bird nests and/or eggs protected under the MBTA and FGC.
    - The construction of the Project would have potential to destroy birds or bird nests protected under the federal MBTA and FGC if grading or vegetation clearing is conducted during the breeding season for these taxa, defined as January 15–July 15 for tree nesting raptors, and February 15–September 1 for other birds. Impacts on birds or their nesting success would violate the MBTA and FGC and would be considered significant.

The proposed Project would not result in significant impacts under the following guidelines for the following reasons:

- **7.A&D.** The Project would have no impacts on coastal sage scrub.
- **7.B.** The Project is consistent with the San Diego MSCP County Subarea Plan, and it would not prelude the preparation of another subregional NCCP.
- **7.C.** The RPO does not apply to this Project as it is not a listed project type in RPO Section 86.603 (a). The project would not impact RPO wetlands and impacts to Sensitive Habitat Lands would be mitigated consistent with the BMO.
- **7.E.** This Project is consistent with the San Diego MSCP County Subarea Plan. The Preserve will be managed by a Resource Management Plan that will be prepared by the County. The RMP will be consistent with the MSCP and will promote the implementation of the MSCP preserve system.
- **7.G.** The Project does not preclude connectivity. Additional trails would be expected to be used by nocturnal mammals and reptiles for movement.
- **7.H.** The Project would not result in impacts on existing movement corridors or habitat linkages. The Project is consistent with the BMO.
- **7.I.** Narrow endemic species are present on the Preserve. The Project was sited to avoid all impacts on narrow endemic species.
- **7.J.** The Project would not reduce the likelihood of recovery of listed species. No listed species are known to occur on the Preserve, and no listed species were determined to have a potential to be affected by the Project.
- **7.F.** This site is within the MSCP. This Project has been designed to minimize impacts on BRCA and PAMA. Multi-use trails have been designed to be as narrow as possible while allowing for the resource-dependent use of public access.

- **7.L.** The Project would not result in take of golden eagles. The Project is situated within eagle foraging habitat, but the small impacts associated with implementation of the Project and Preserve access would not have a significantly impact on eagle foraging and would not result in take. No Project elements are proposed within 4,000 feet of a golden eagle nest.

7.3 Cumulative Impact Analysis

The Project is consistent with the MSCP and would not conflict with any local policies or ordinances or any HCP, NCCP, or other approved local, regional, or state HCP. Therefore, the Project would not add to cumulative impacts related to local policies or plans.

7.4 Mitigation Measures and Design Consideration

- **7.K.** Potential violation of the MBTA or FGC would be avoided through clearing restrictions, as detailed in **MM-BIO-6**.

7.5 Conclusions

The Project would avoid significant impacts on local policies, ordinances, and local plans. Implementation of mitigation measure **MM-BIO-6** would ensure that impacts on protected birds by project construction would be avoided and that no significant impact would occur. Mitigation measures **MM-BIO-1, MM-BIO-2, MM-BIO-3, MM-BIO-4,** and **MM-BIO-5** ensure that any impacts on BRCA would be mitigated to a less-than-significant level.

Chapter 8
Summary of Project Impacts and Mitigation

The Project would result in direct and permanent impacts on 7.21 acres of sensitive natural or naturalized vegetation communities. Habitat-based mitigation for permanent direct impacts on sensitive habitats will be satisfied through purchase of mitigation credits or habitat restoration within Boulder Oaks Preserve. Mitigation would be done according to the mitigation ratios in Attachment M of the BMO (Table 9). Mitigation for habitat impacts are described in mitigation measures **MM-BIO-1, MM-BIO-2, MM-BIO-3, MM-BIO-4,** and **MM-BIO-5.** These mitigation measures ensure that any significant impacts from impacts on sensitive habitat would be reduced to a less-than-significant level.

Table 9. Summary of Vegetation Communities and Impacts

Vegetation Community (Holland Code)	Preserve (ac)	Study Area (ac)	Impacts (ac)	Mitigation Ratio
Coast Live Oak Woodland (71160)	17.1	0.4	0.08	2:1
Coastal and Valley Freshwater Marsh (52410)	5.6	0.2	0	None
Diegan Coastal Sage Scrub (32500)	2.3	0	0	None
Disturbed Habitat (11000)	17.6	8.5	0.19	N/A
Engelmann Oak Woodland (71180)	68.6	2.4	0.65	2:1
Non-native Grassland (42200)	128.7	2.5	2.79	0.5:1
Open Water (64100)	3.6	0	0	None
Scrub Oak Chaparral (37900)	106.6	2.3	0.27	1:1
Southern Arroyo Willow Riparian Forest (61320)	2.6	0.1	0	None
Southern Coast Live Oak Riparian Forest (61310)	12.4	0.6	0	None
Southern Mixed Chaparral (37120)	1,644.9	24.2	3.42	1:1
Urban/Developed (12000)	4.7	1.3	0.25	N/A
Total*	2,014.0	42.4	7.65	

*= sum of values do not equal total because of rounding

It was determined that implementation of the Project would not have a significant effect on sensitive animals occurring or potentially occurring within the Project footprint, including coast horned lizard, red-diamond rattlesnake, Belding's orange-throated whiptail, three-lined boa, coastal western whiptail, Coronado skink, turkey vulture, golden eagle, red-shouldered hawk, Cooper's hawk, white-tailed kite, California horned lark, Bell's sparrow, Southern California rufous-crowned sparrow, western bluebird, San Diego desert woodrat, Dulzura pocket mouse, long-eared bat, pallid

bat, pocketed-free tailed bat, western mastiff bat, western red bat, Yuma myotis, southern mule deer, and mountain lion.

Impacts on Engelmann oak viability within Engelmann oak woodland would be mitigated through habitat-based mitigation described in Table 9. No mature healthy Engelmann oaks would be removed by Project implementation.

The proposed Project has been designed to reduce impacts on sensitive vegetation within BRCA and avoid impacts on wetland waters or jurisdictional features.

Potentially significant impacts on birds protected under the MBTA and FGC would be adequately mitigated by restricting vegetation clearing or grading during the breeding season for migratory birds (approximately January 15 through September 1 annually), as described in **MM-BIO-6**.

Chapter 9
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Chapter 10
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Appendix A
Figures

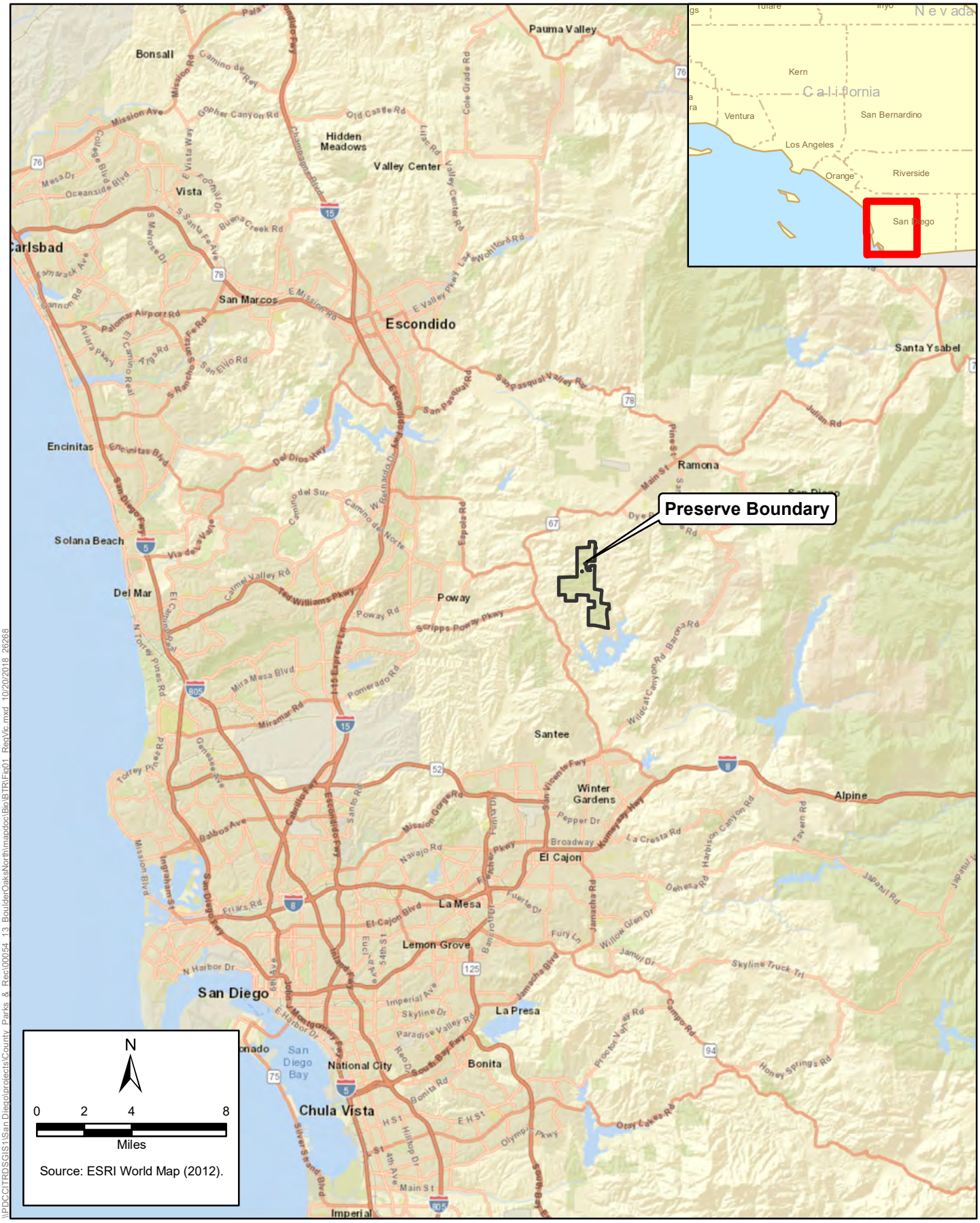

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Figure 1
Regional Vicinity
Biological Resources Report - Boulder Oaks Preserve

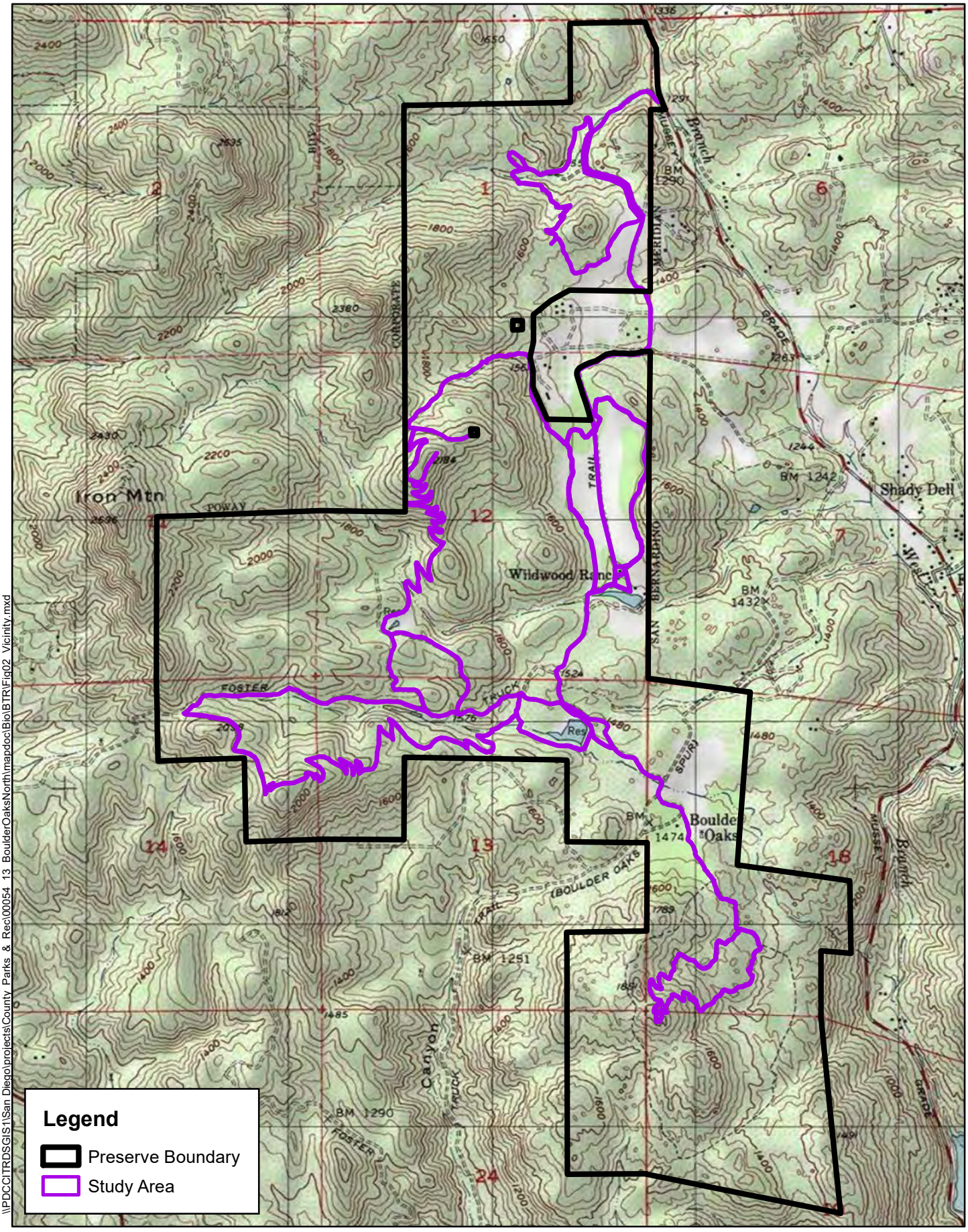

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Figure 2
Project Vicinity
Biological Resources Report - Boulder Oaks Preserve

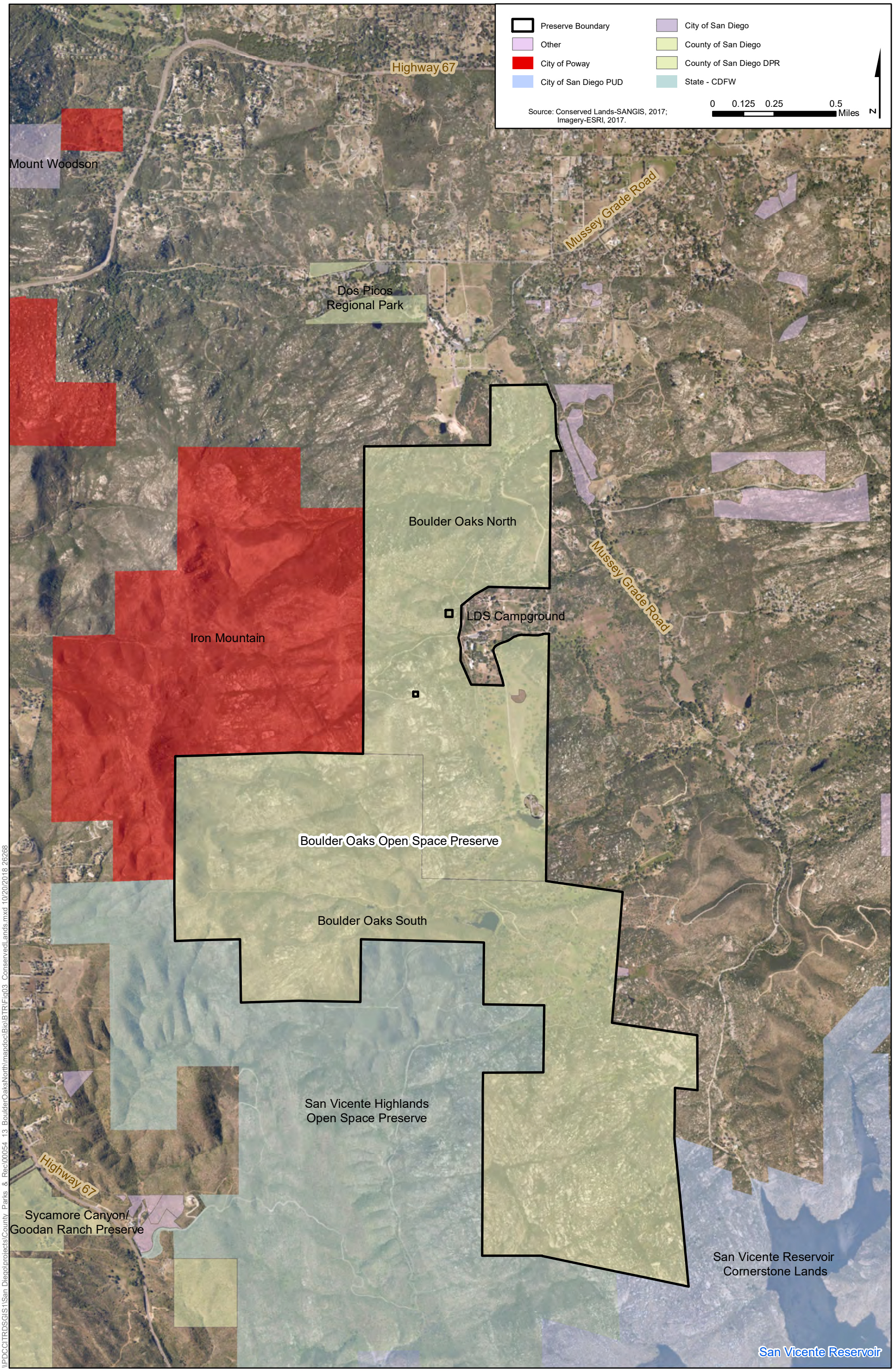

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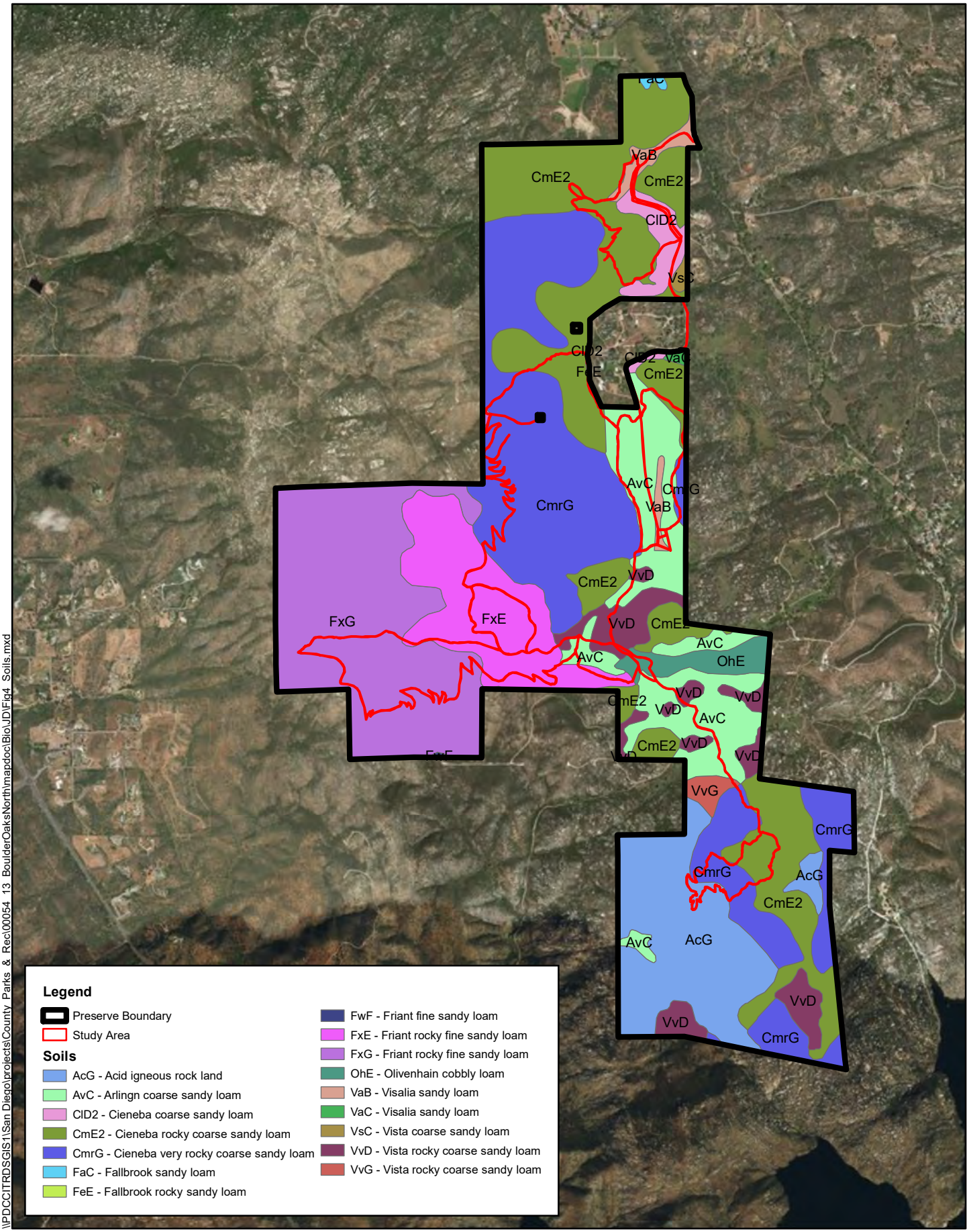
Figure 3
Regional Context - Adjacent Preserve Lands
Biological Resources Reprt - Boulder Oaks Preserve



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COUNTY OF SAN DIEGO PARKS AND RECREATION

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Miles

Figure 4
Soils
Biological Resource Report Boulder Oaks Preserve

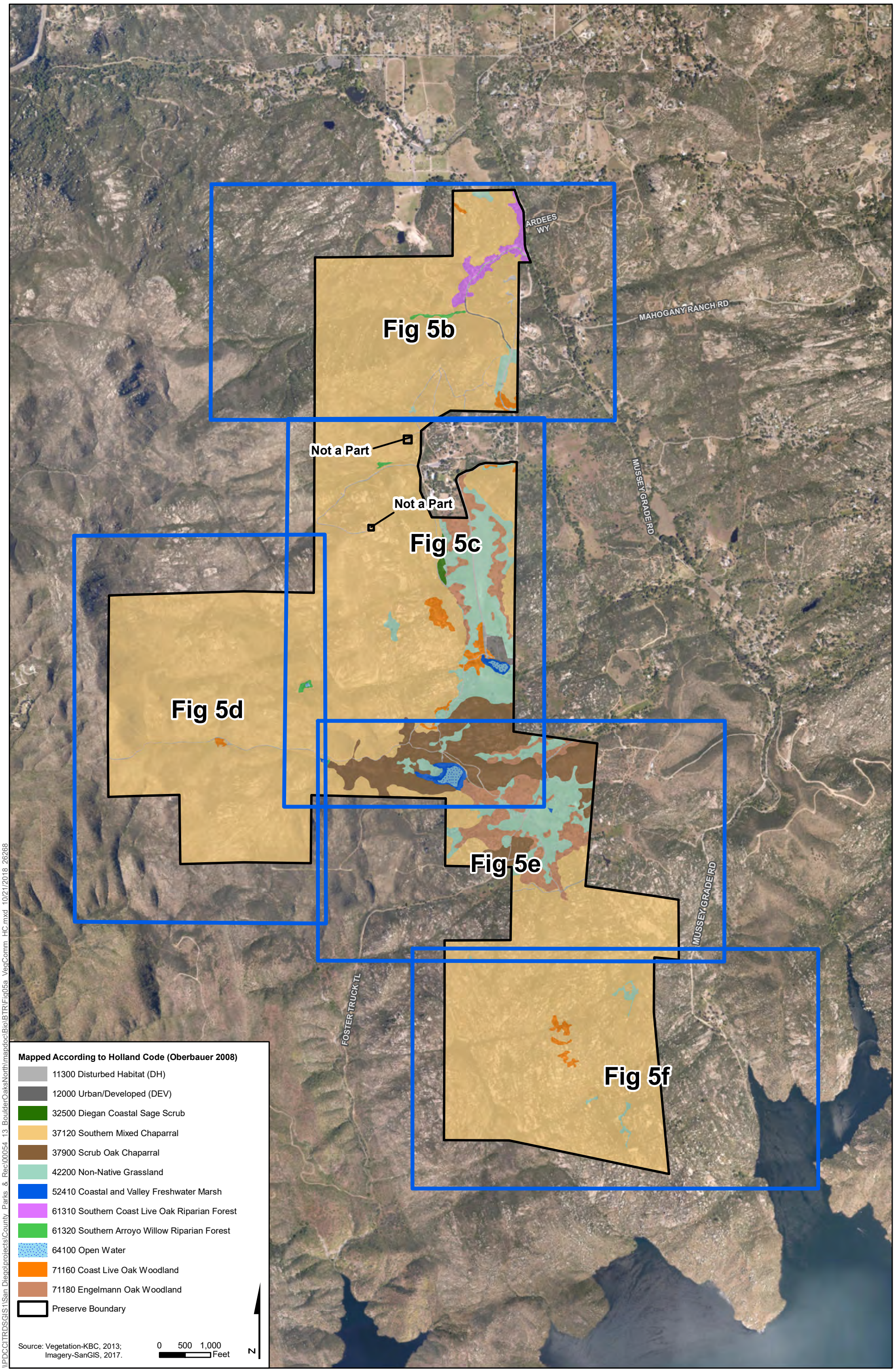

Figure 5a
Vegetation Communities/Habitats (Holland Code)
Biological Resources Report - Boulder Oaks Preserve

Mapped According to the Holland Oberbauer 2008

- 11300 Disturbed Habitat (DH)
- 12000 Urban/Developed (DEV)
- 37120 Southern Mixed Chaparral
- 42200 Non-Native Grassland
- 61310 Southern Coast Live Oak Riparian Forest
- 61320 Southern Arroyo Willow Riparian Forest
- 71160 Coast Live Oak Woodland

Preserve Boundary

100' Buffer of Preserve Boundary

Source: Vegetation-KBC, 2013; Imagery-SanGIS, 2017.

0 500 1,000 Feet

N

42200
71160
61310
11300
61310
11300
37120
61320
12000
11300
37120
42200
11300
11300
11300
42200
71160
42200

MUSSEY GRADE RD

MAHOGANY RANCH RD

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Figure 5b
Vegetation Communities/Habitats (Holland Code)
Biological Resources Report - Boulder Oaks Preserve

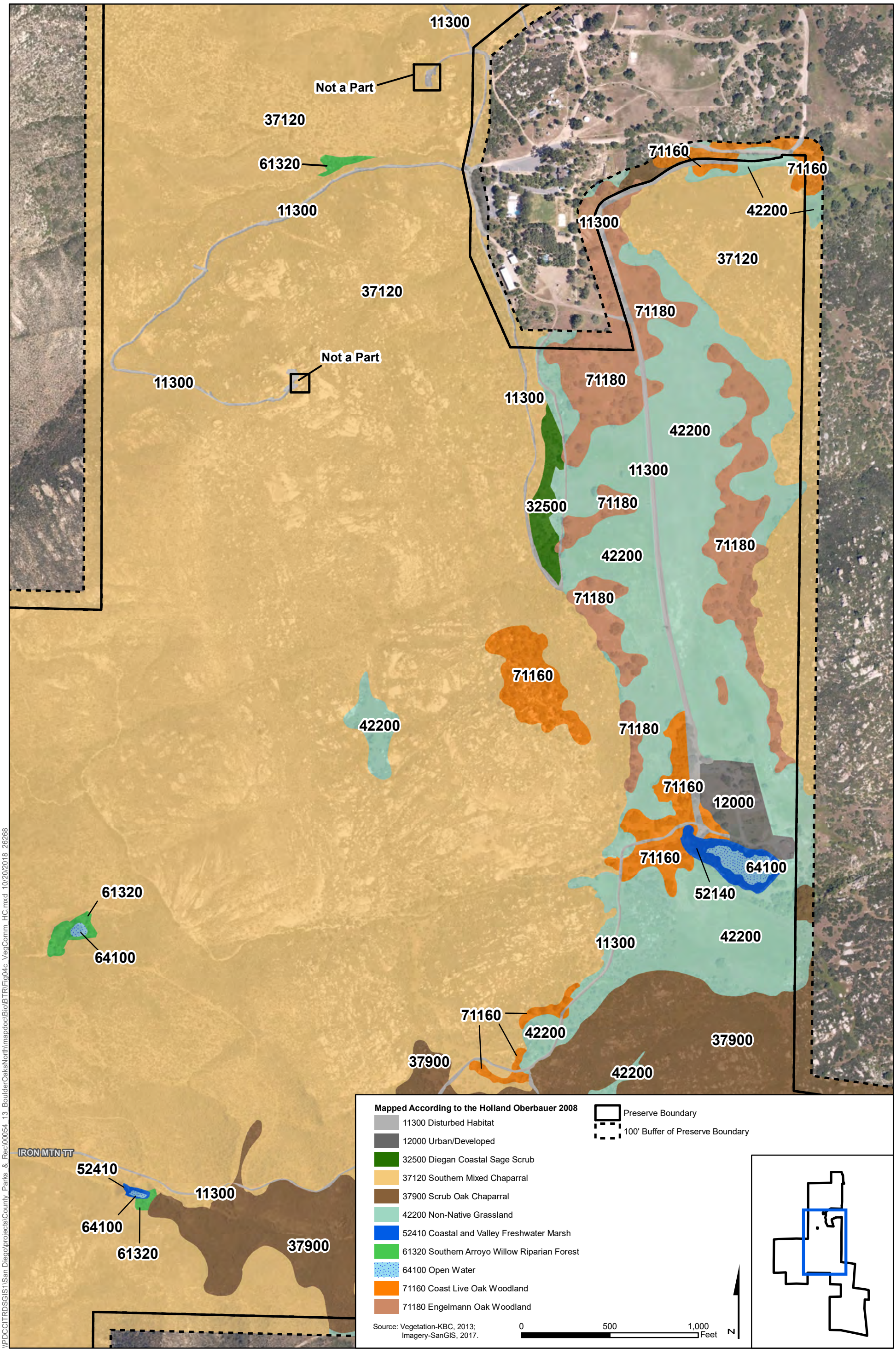

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Figure 5c
Vegetation Communities/Habitats (Holland Code)
Biological Resources Report - Boulder Oaks Preserve

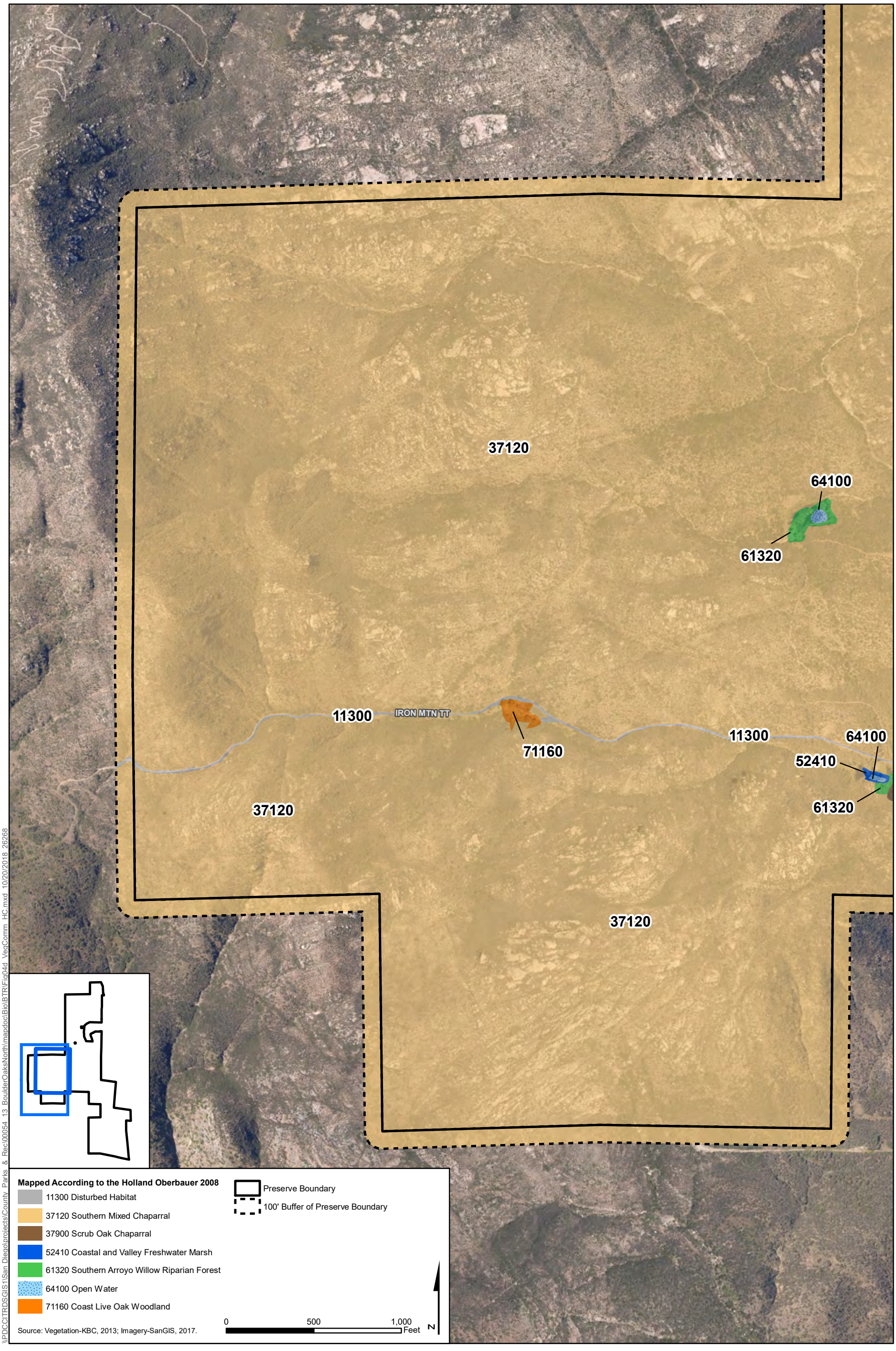

Figure 5d
Vegetation Communities/Habitats (Holland Code)
Biological Resources Report - Boulder Oaks Preserve

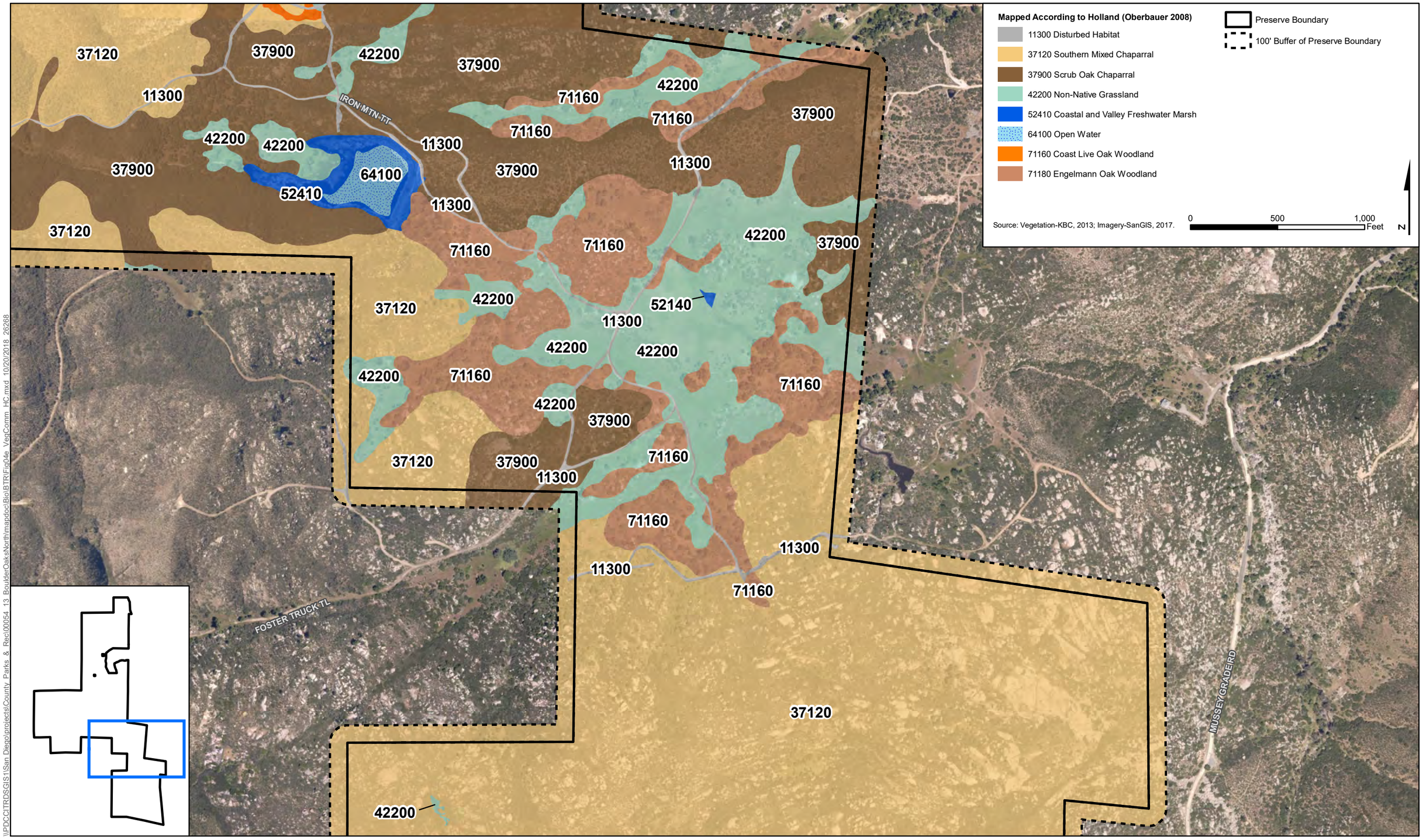

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Figure 5e
Vegetation Communities/Habitats (Holland Code)
Biological Resources Report - Boulder Oaks Preserve

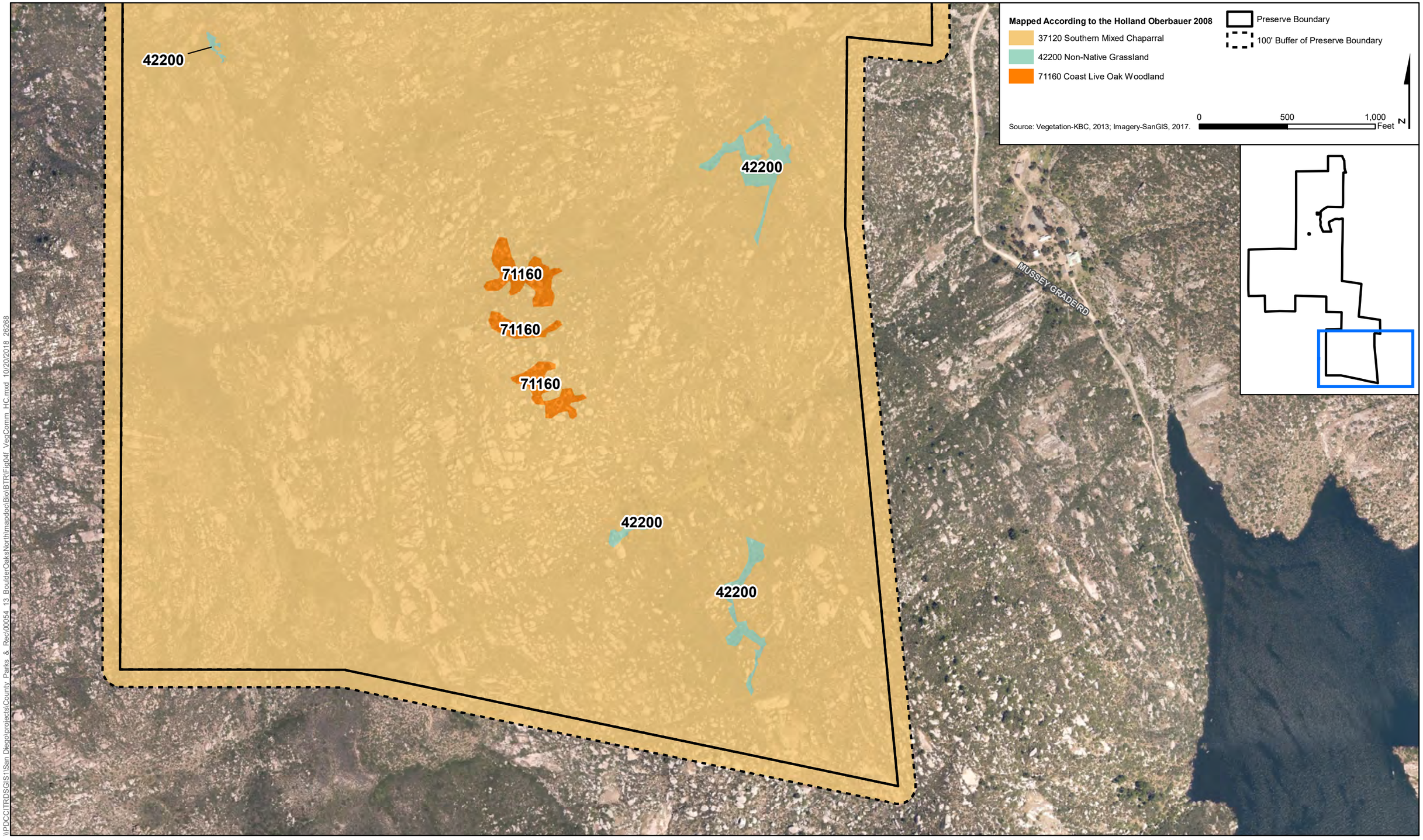

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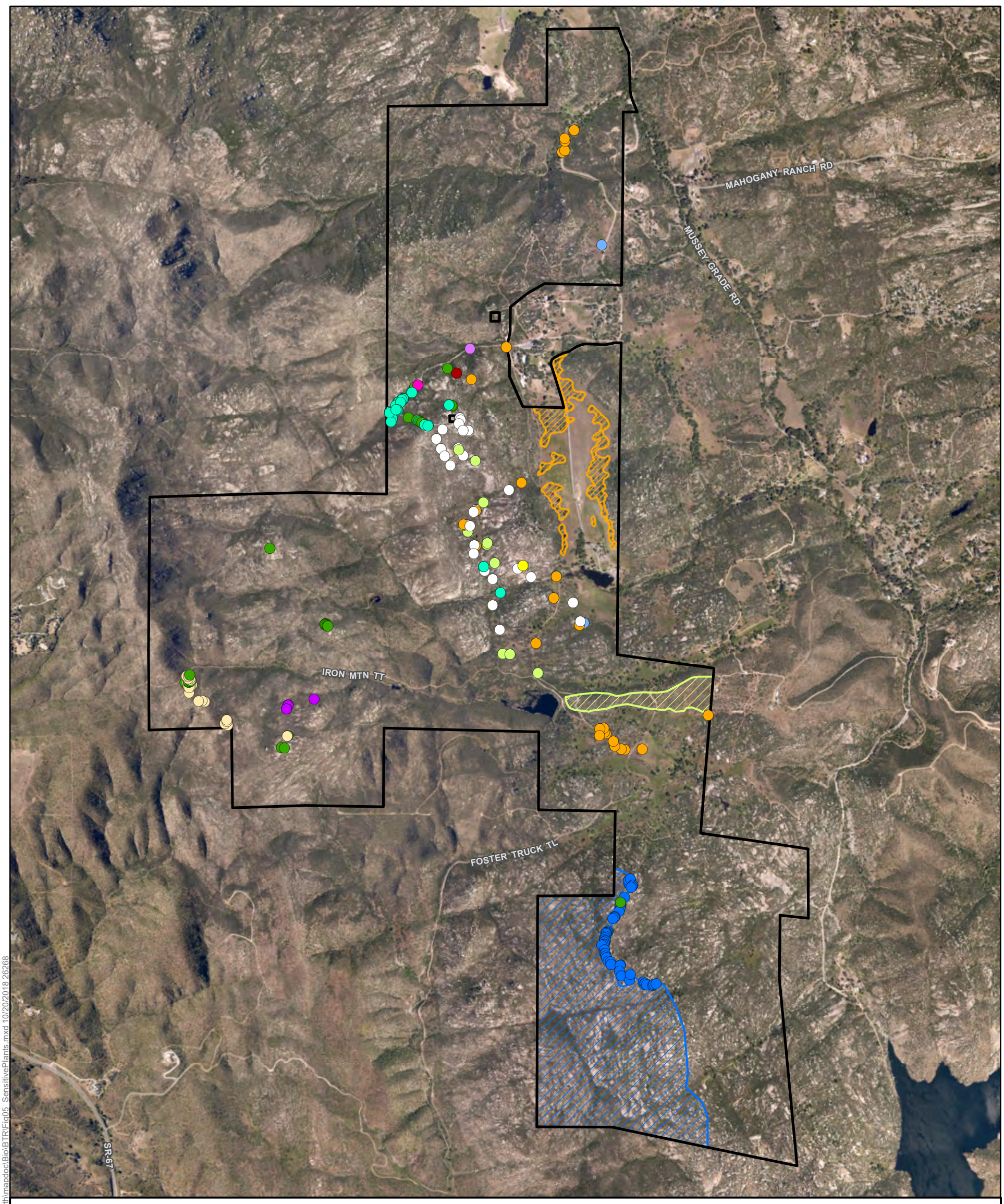
Figure 5f
Vegetation Communities (Holland Code)
Biological Resources Report - Boulder Oaks Preserve



Special-Status Plants

- Ashy spike-moss (*Selaginella cinerascens*)
- California adder's tongue (*Ophioglossum californicum*)
- Cooper's rein orchid (*Piperia cooperi*)
- Engelmann oak (*Quercus engelmannii*)
- Felt-leaf monardella (*Monardella hypoleuca ssp. lanata*)
- Gander's Ragwort (*Packera ganderi*)
- Golden-rayed pentacheata (*Pentacheata aurea ssp. aurea*)
- Heart-leaf pitcher sage (*Lepechinia cardiophylla*)
- Lakeside ceanothus (*Ceanothus cyaneus*)
- Orcutt's brodiaea (*Brodiaea orcuttii*)
- Ramona horkelia (*Horkelia truncata*)
- San Miguel savory (*Clinopodium chandleri*)
- Southern mountain misery (*Chamaebatia foliolosa*)

- California adder's tongue
- Lakeside ceanothus
- Engelmann oak
- Preserve Boundary

Source: Imagery-SanGIS, 2017.

0 850 1,700 Feet
1 " = 1,700 '

N

\\PDCCITRDSGIS1\San Diego\projects\County Parks & Rec\00054 13 BoulderOaksNorth\mapdoc\Bio\BTR\Fig05 SensitivePlants.mxd 10/20/2018 26268

COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 6
Sensitive Plants
Biological Resources Report - Boulder Oaks Preserve

Nests

- Red-tailed hawk *(Buteo jamaicensis)*

Invertebrates

- Monarch Butterfly (*Danaus plexippus*)

Reptiles

- Coast Horned Lizard (*Phrynosoma blainvillii*)
- Coastal Patch-Nosed Snake (*Salvadora hexalepis*)
- Coronado Skink (*Plestiodon skiltonianus interparietalis*)
- Coastal Western Whiptail (*Aspidoscelis tigris stejnegeri*)
- Red Diamond Rattlesnake (*Crotalus ruber*)
- Three-lined Boa (*Lichanura trivirgata*)

Birds

- Great Blue Heron (*Ardea herodias*)
- Bank Swallow (*Riparia riparia*)
- Gadwall (*Anas strepera*)
- Loggerhead Shrike (*Lanius ludovicianus*)
- Yellow-Breasted Chat (*Icteria virens*)
- Turkey Vulture (*Cathartes aura*)
- White-Tailed Kite (*Elanus leucurus*)
- Cooper's Hawk (*Accipiter cooperi*)
- Red-Shouldered Hawk (*Buteo lineatus*)
- Barn Owl (*Tyto alba*)
- Western Bluebird (*Sialia mexicana*)
- Southern California Rufous-Crowned Sparrow (*Aimophila ruficeps canescens*)

Mammals

- Small-Footed Myotis (*Myotis ciliolabrum*)
- Yuma Myotis (*Myotis yumanensis*)
- Pocketed Free-Tailed Bat (*Nyctinomops femorosaccus*)
- Western Mastiff Bat (*Eumops peratis*)
- San Diego Desert Woodrat (*Neotoma lepida intermedia*)
- Dulzura Pocket Mouse (*Chaetodipus californicus femoralis*)
- Southern Mule Deer (*Odocoileus hemionus fuliginata*)
- Mountain Lion (*Puma concolor*)

Observed Use Areas (5 or more locations)

- Red-Shouldered Hawk
- Western Bluebird
- White-Tailed Kite
- Preserve Boundary

Source: Imagery-SanGIS, 2017.

0 850 1,700 Feet

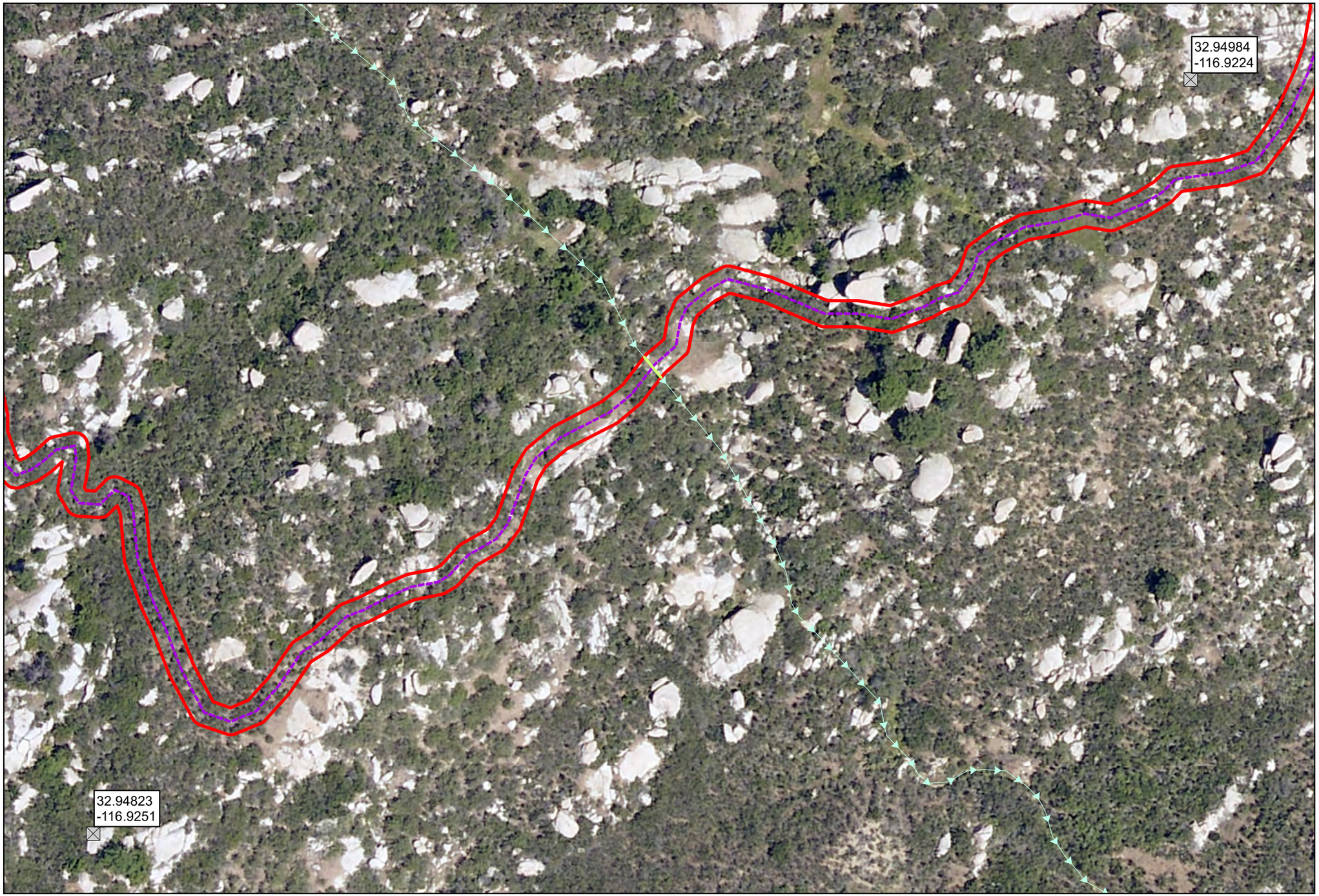
1 " = 1,700 '

N

\\PDCCITRDSGIS1\San Diego\projects\County_Parks_&_Rec\00054_13_BoulderOaksNorth\mapdoc\Bio\BTR\Fig07_SensitiveWildlife.mxd 10/21/2018 26268

COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 7
Sensitive Wildlife
Biological Resources Report - Boulder Oaks Preserve



Legend

- Swale
- Drainage Path
- Proposed Trail
- Study Area
- Preserve Boundary

Waters of the U.S.

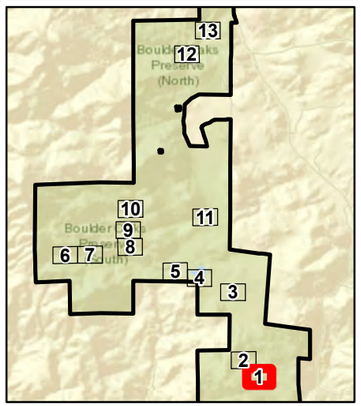
- Non-Wetland Water

N

0 50 100 Feet

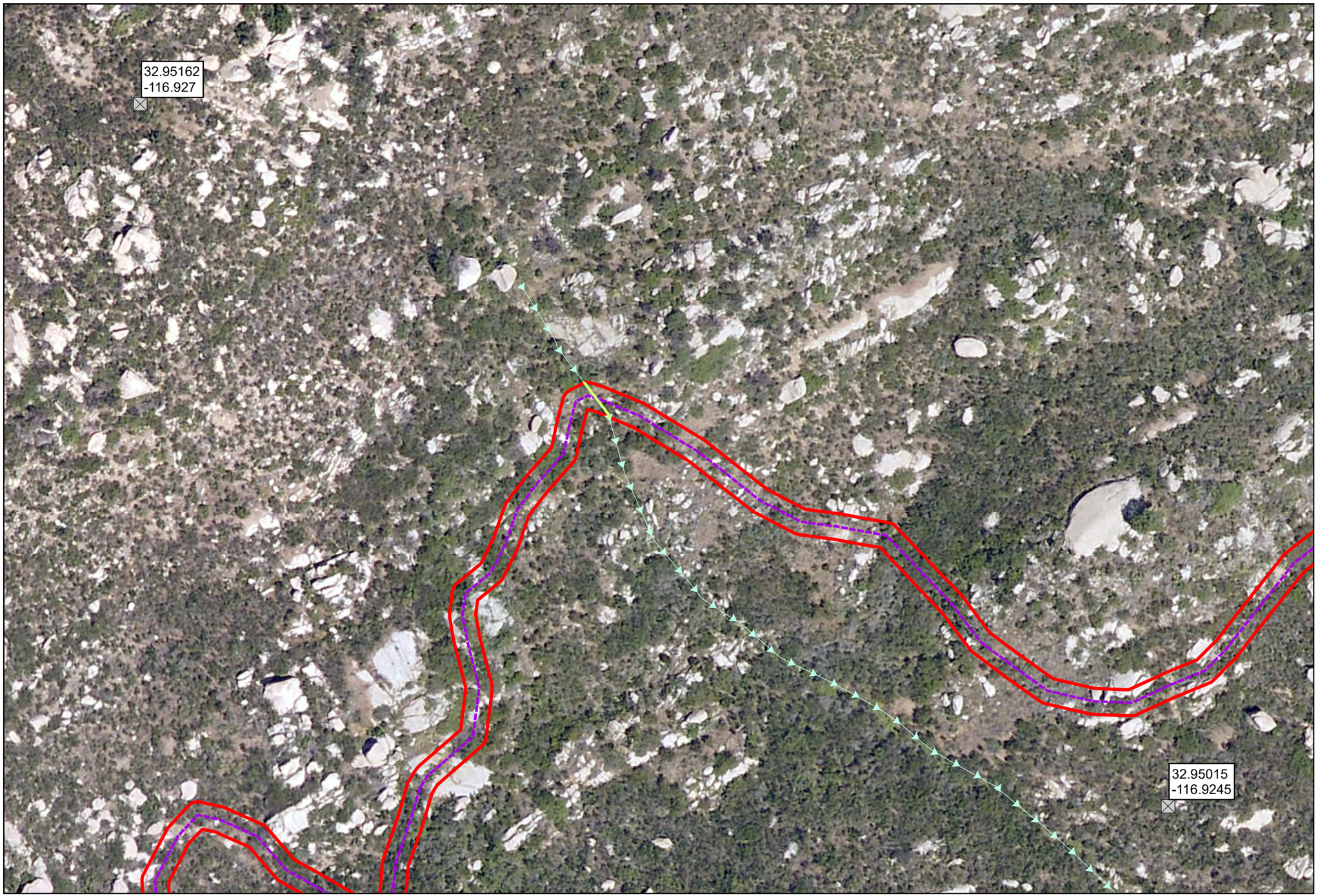
1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8a - Sheet 1
Potential USACE Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve



Legend

- Swale
- Drainage Path
- Proposed Trail
- Study Area
- Preserve Boundary

Waters of the U.S.

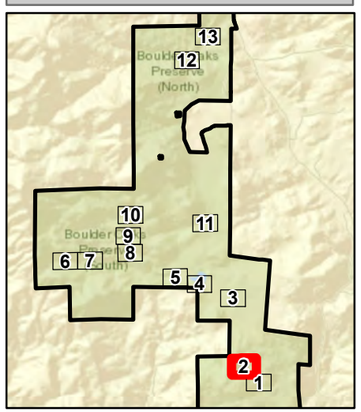
- Non-Wetland Water

N

0 50 100 Feet

1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8a - Sheet 2
Potential USACE Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve

Legend

- Photo Points
- Culverted Crossing
- Drainage Path
- Existing Trail
- Study Area
- Preserve Boundary

Waters of the U.S.

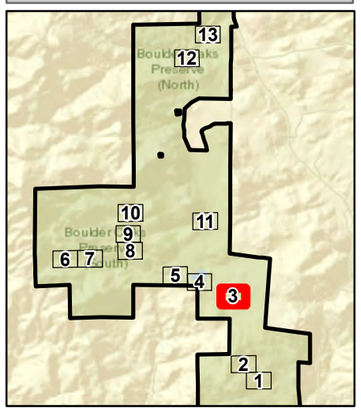
- Non-Wetland Water

N

0 50 100 Feet

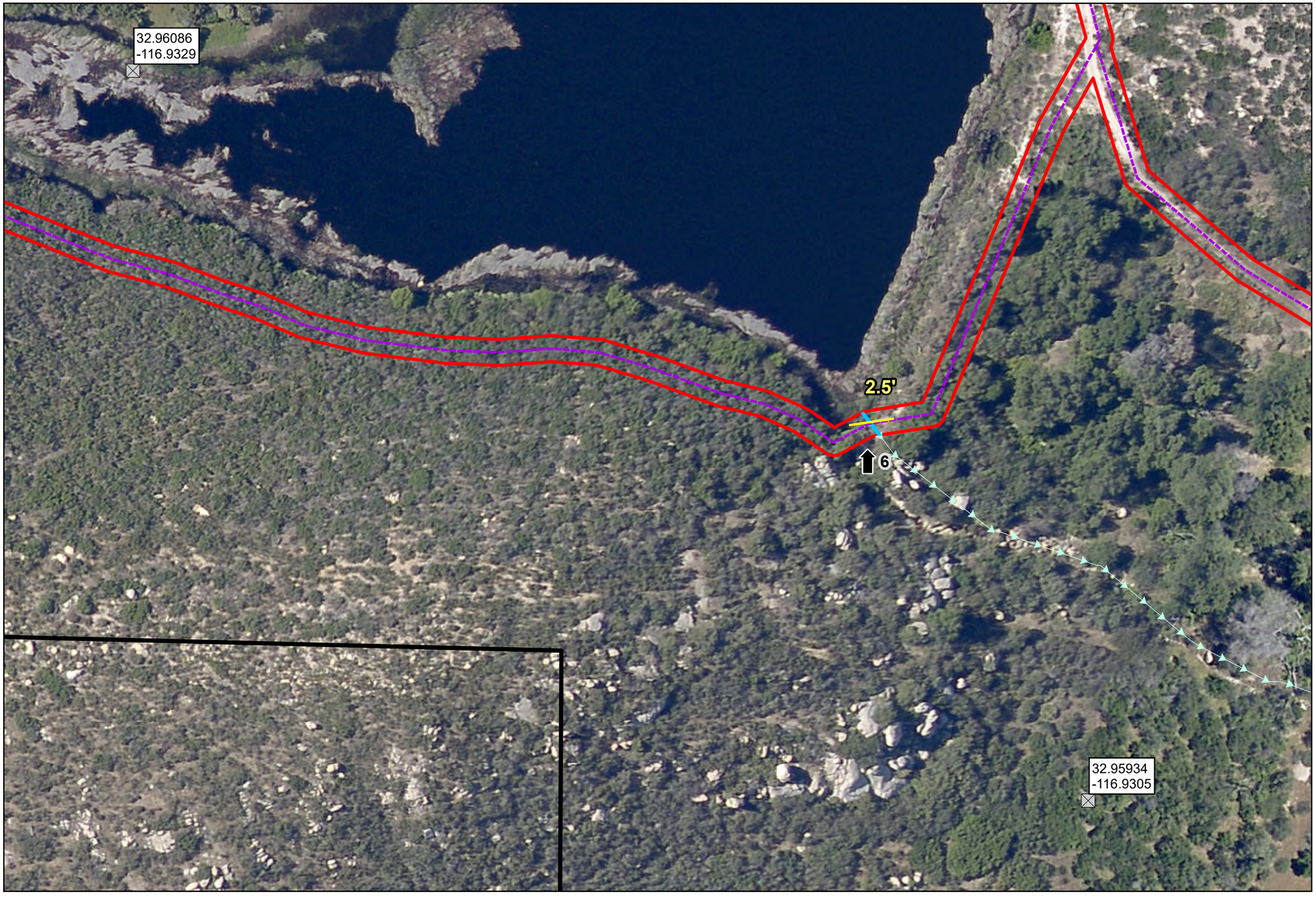
1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8a - Sheet 3
Potential USACE Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve



Legend

- Photo Points
- OHWM Width
- Drainage Path
- Proposed Trail
- Study Area
- Preserve Boundary

Waters of the U.S.

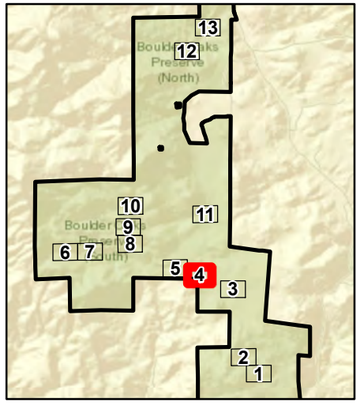
- Non-Wetland Water

N

0 50 100 Feet

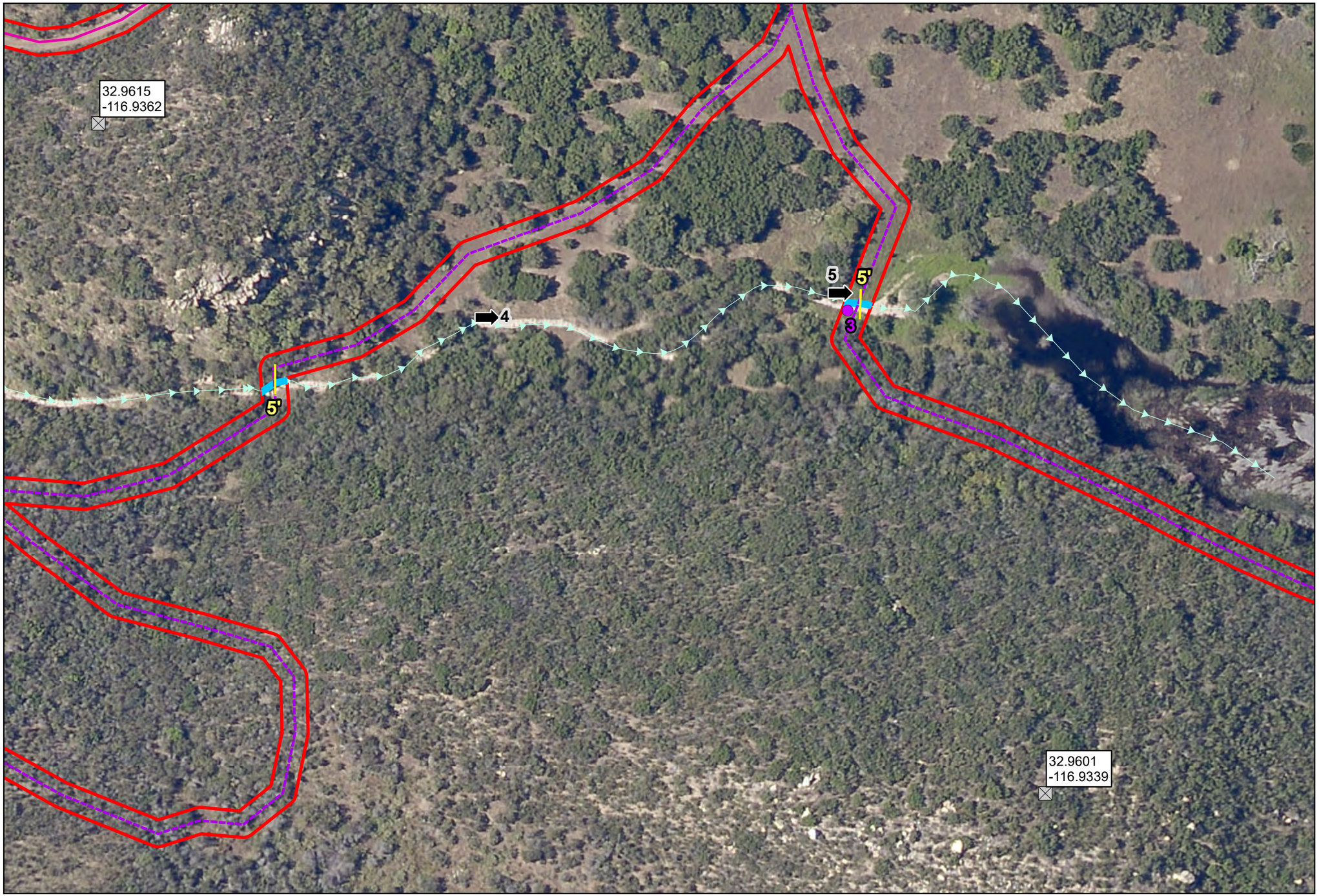
1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8a - Sheet 4
Potential USACE Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve



Legend

- Photo Points
- Sample Points
- OHWM Width
- Drainage Path
- Existing Trail
- Proposed Trail
- Study Area
- Preserve Boundary

Waters of the U.S.

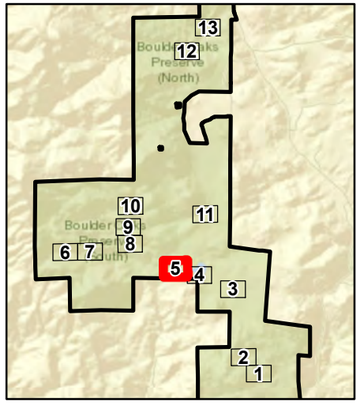
- Non-Wetland Water

N

0 50 100 Feet

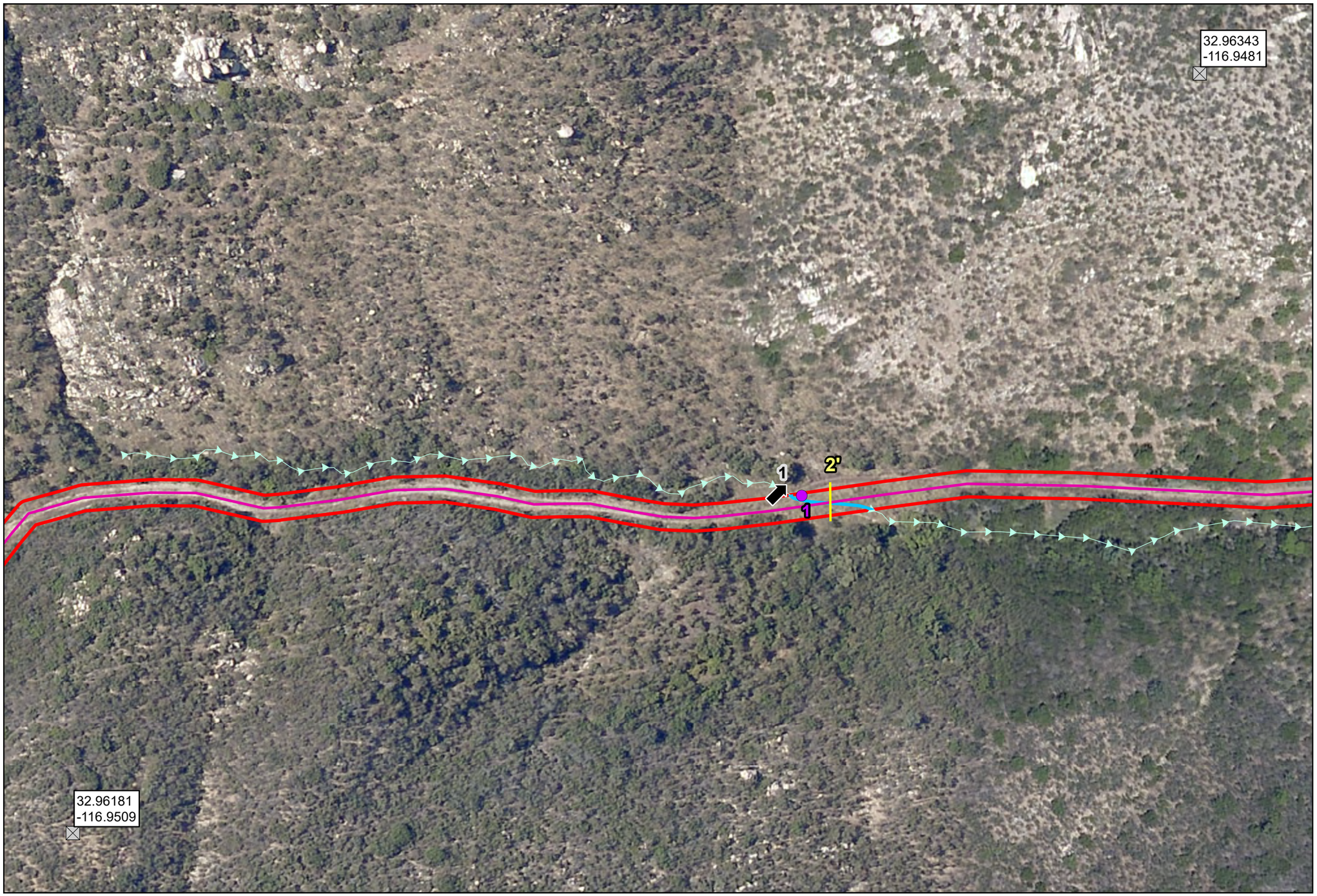
1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8a - Sheet 5
Potential USACE Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve



Legend

- Photo Points
- Sample Points
- OHWM Width
- Drainage Path
- Existing Trail
- Study Area
- Preserve Boundary

Waters of the U.S.

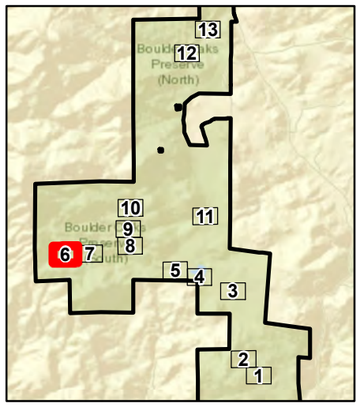
- Non-Wetland Water

N

0 50 100 Feet

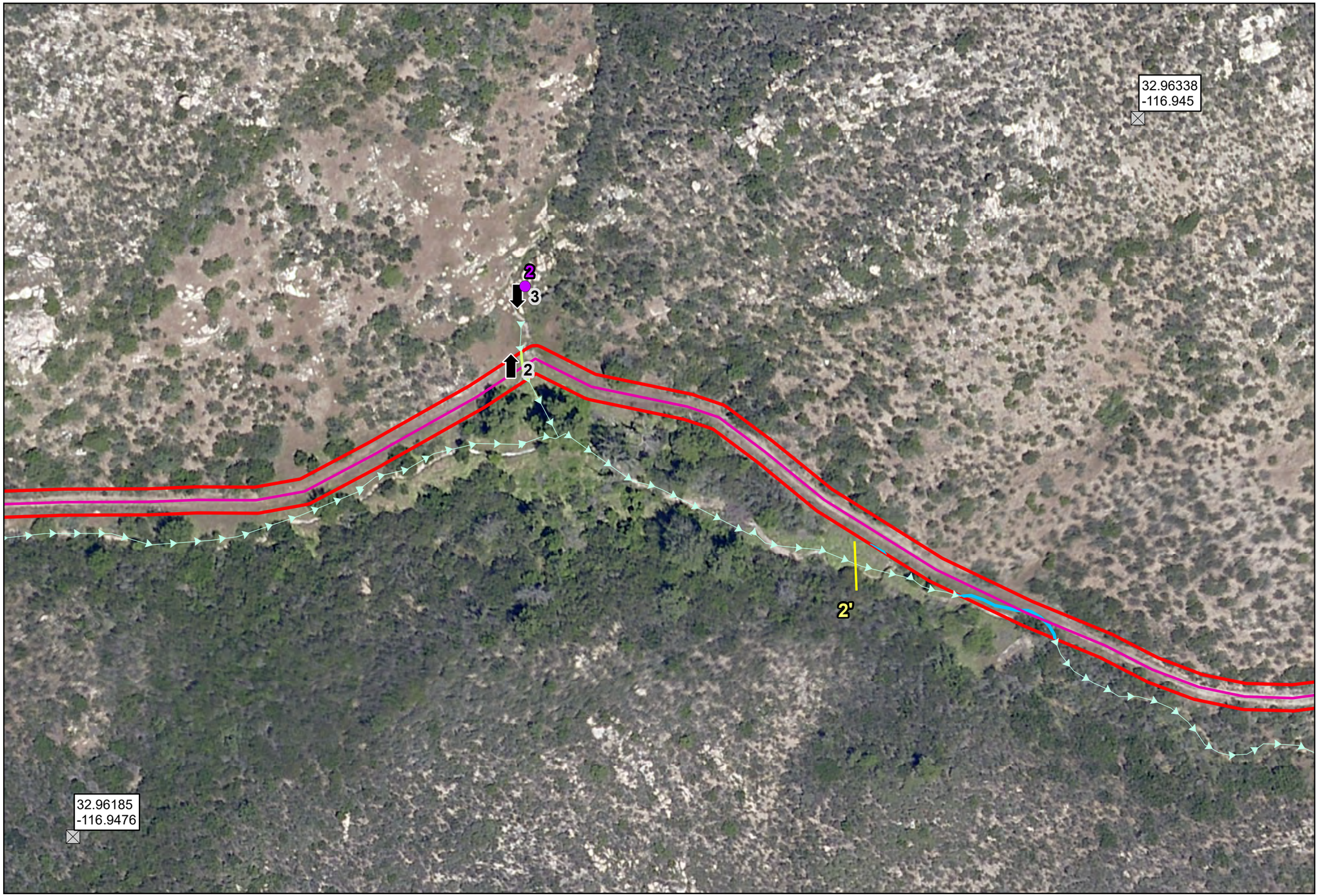
1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8a - Sheet 6
Potential USACE Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve



Legend

- Photo Points
- Sample Points
- OHWM Width
- Swale
- Drainage Path
- Existing Trail
- Study Area
- Preserve Boundary

Waters of the U.S.

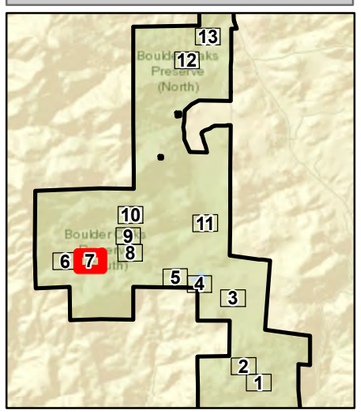
- Non-Wetland Water

N

0 50 100 Feet

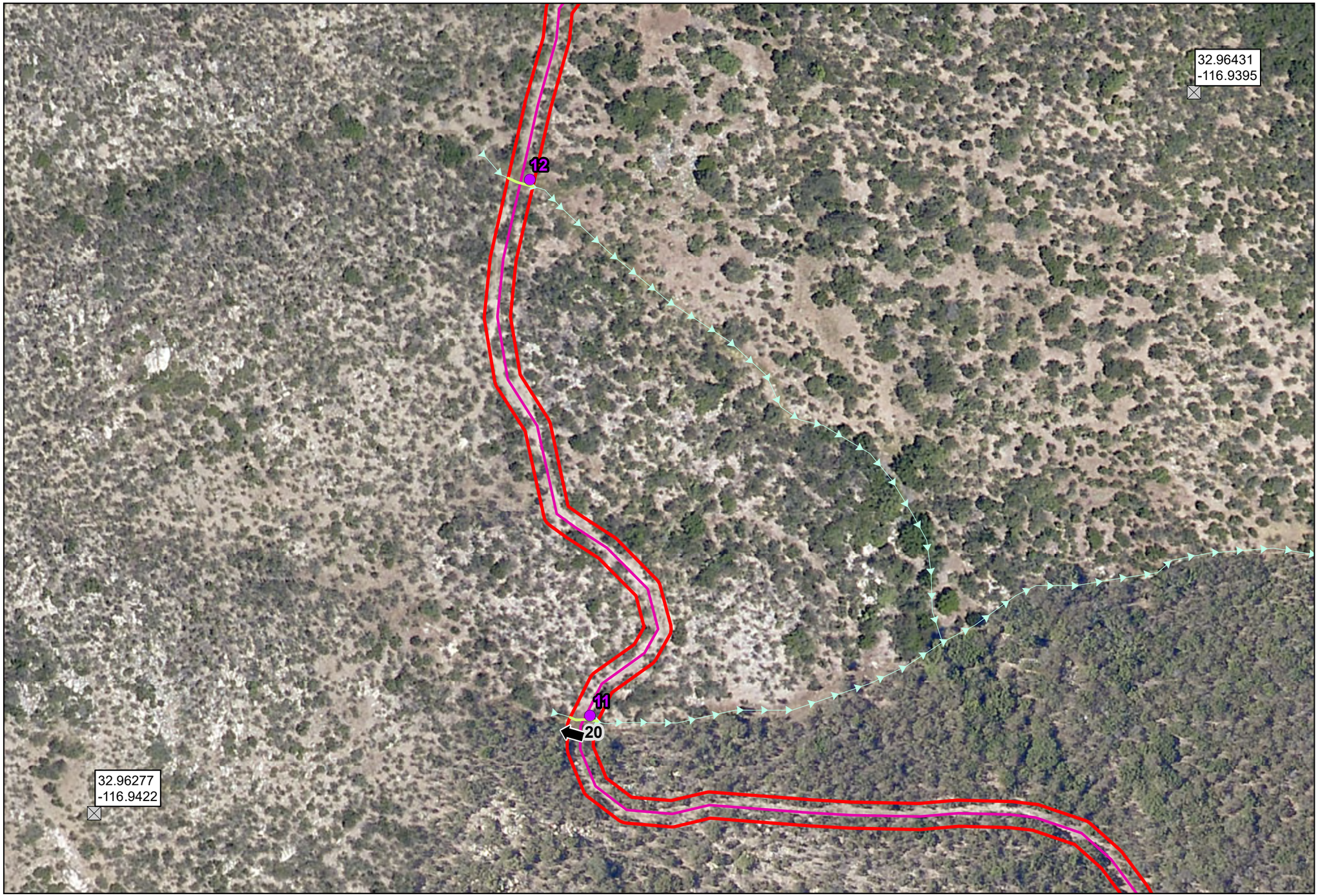
1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8a - Sheet 7
Potential USACE Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve



Legend

- Photo Points
- Sample Points
- Swale
- Drainage Path
- Existing Trail
- Study Area
- Preserve Boundary

Waters of the U.S.

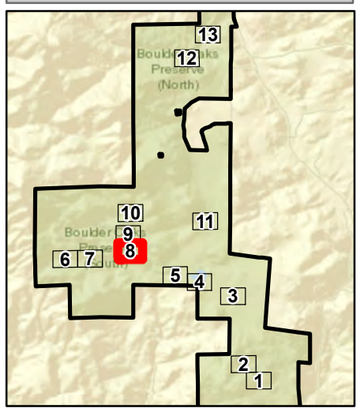
- Non-Wetland Water

N

0 50 100 Feet

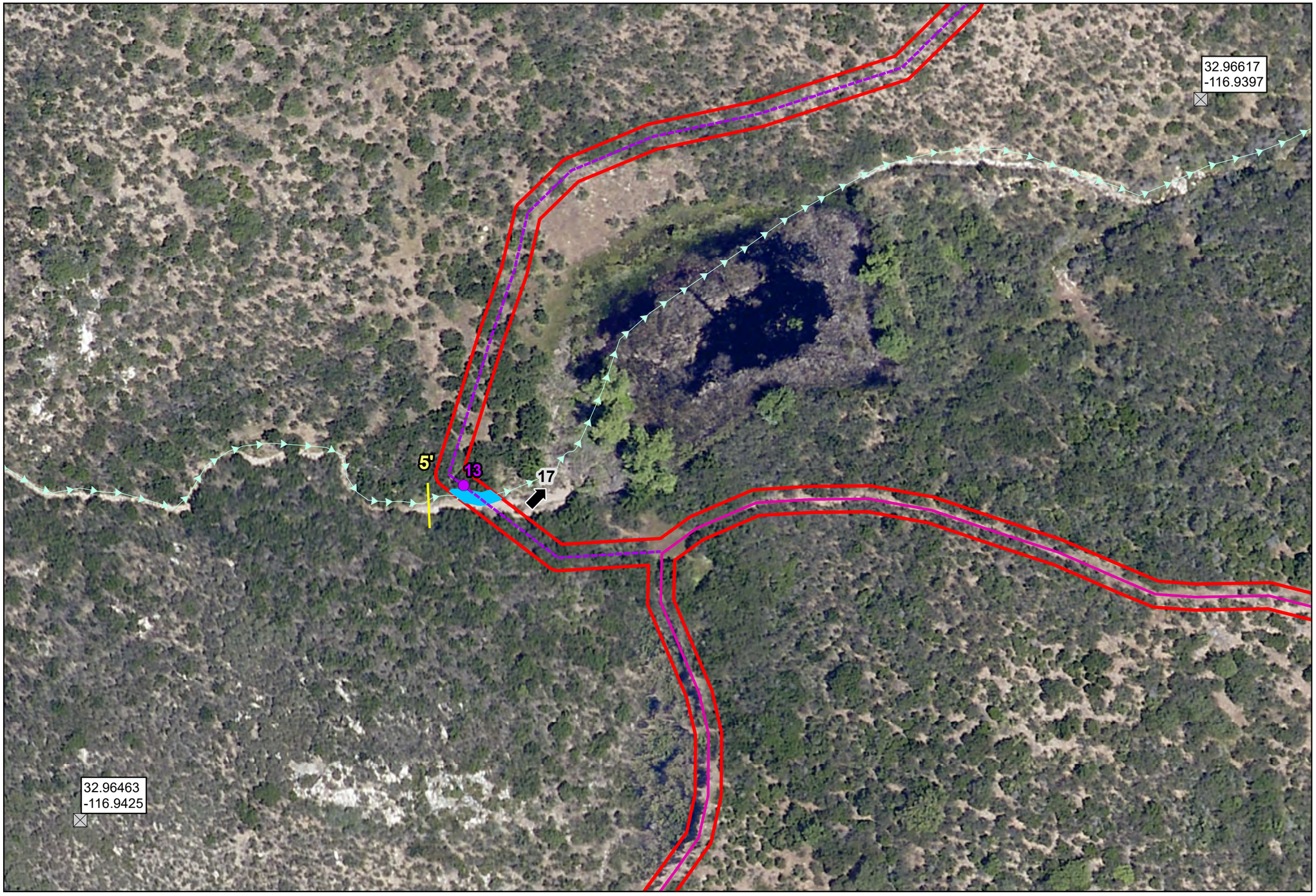
1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8a - Sheet 8
Potential USACE Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve



Legend

- Photo Points
- Sample Points
- OHWM Width
- Drainage Path
- Existing Trail
- Proposed Trail
- Study Area
- Preserve Boundary

Waters of the U.S.

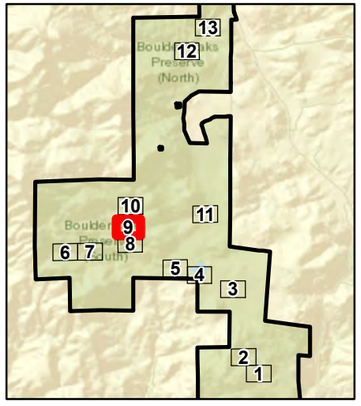
- Non-Wetland Water

N

0 50 100 Feet

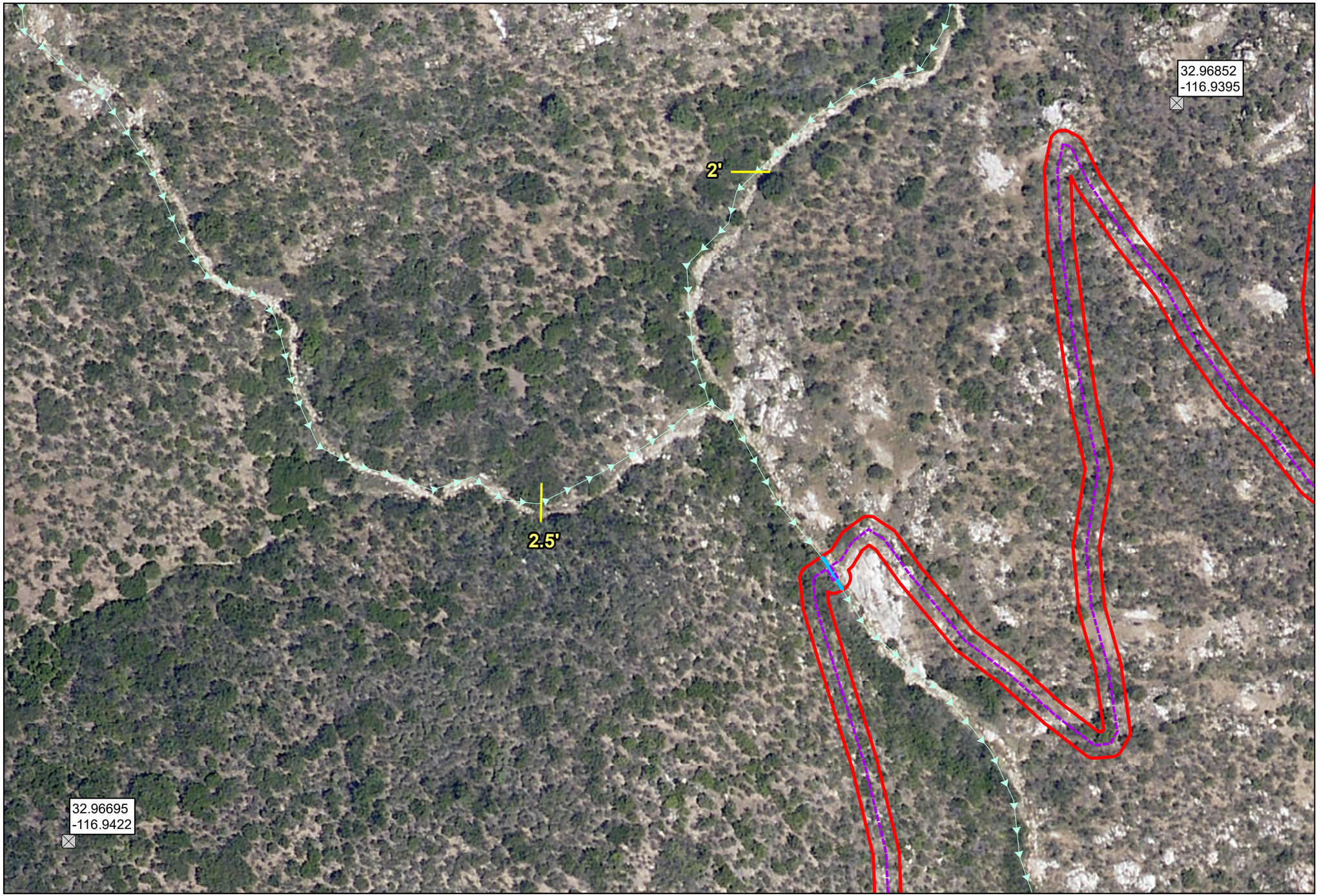
1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8a - Sheet 9
Potential USACE Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve



Legend

- OHWM Width
- Drainage Path
- Proposed Trail
- Study Area
- Preserve Boundary

Waters of the U.S.

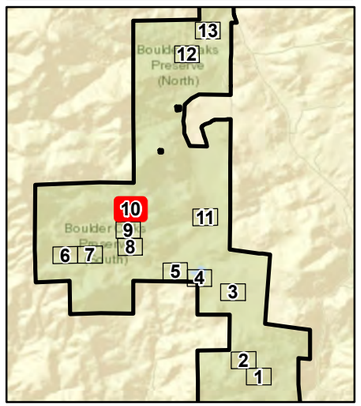
- Non-Wetland Water

N

0 50 100 Feet

1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8a - Sheet 10
Potential USACE Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve

Legend

- Photo Points
- Sample Points
- OHWM Width
- Drainage Path
- Existing Trail
- Proposed Trail
- Proposed ADA Trail
- Study Area
- Preserve Boundary

Waters of the U.S.

- Non-Wetland Water

N

0 50 100 Feet

1 inch = 75 feet

Source: Imagery-SanGIS, 2017.

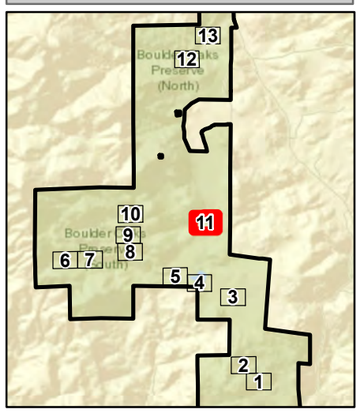
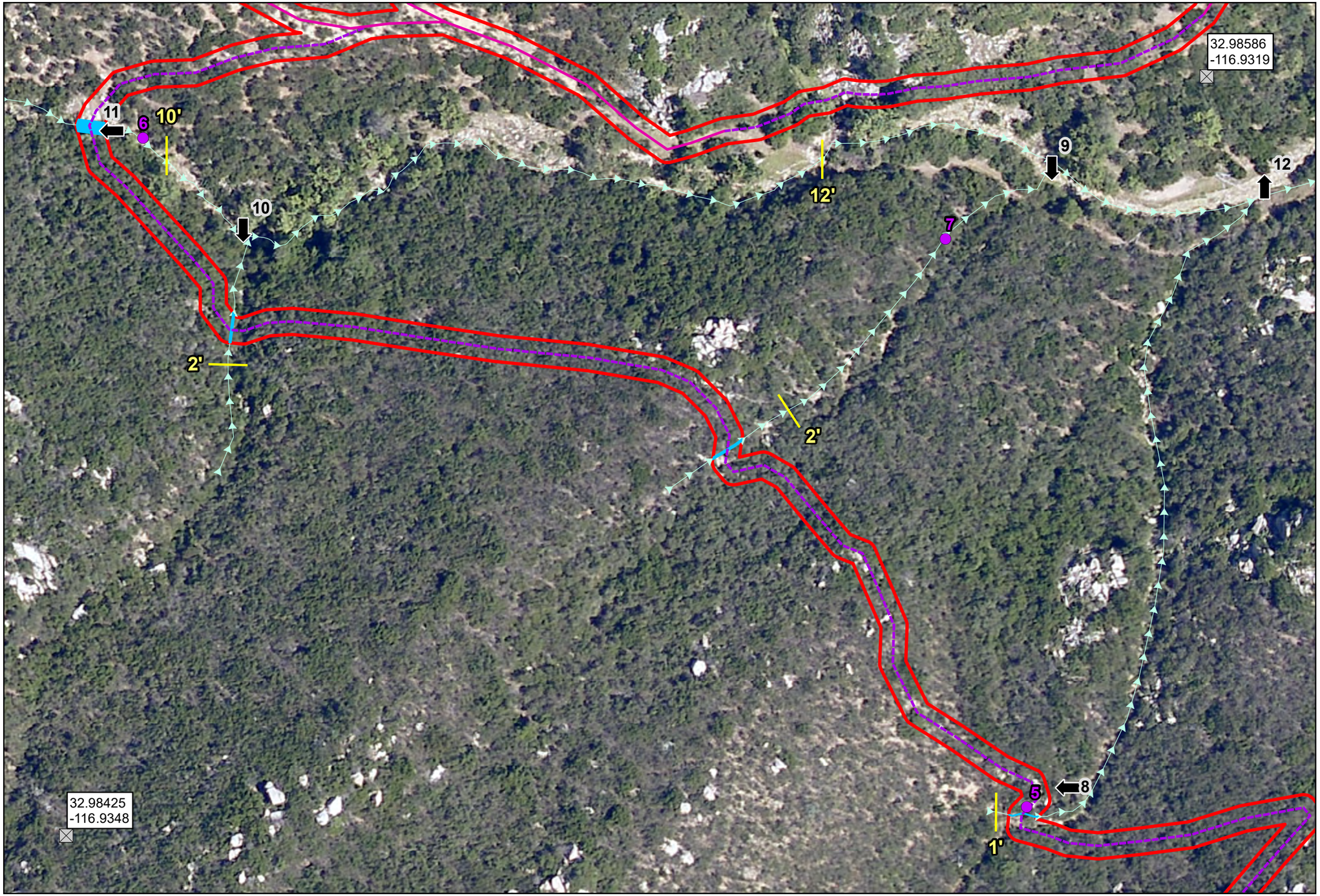


Figure 8a - Sheet 11
Potential USACE Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve



Legend

- Photo Points
- Sample Points
- OHWM Width
- Drainage Path
- Existing Trail
- Proposed Trail
- Study Area
- Preserve Boundary

Waters of the U.S.

- Non-Wetland Water

N

0 50 100 Feet

1 inch = 75 feet

Source: Imagery-SanGIS, 2017.

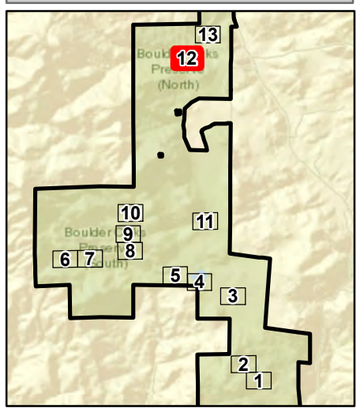
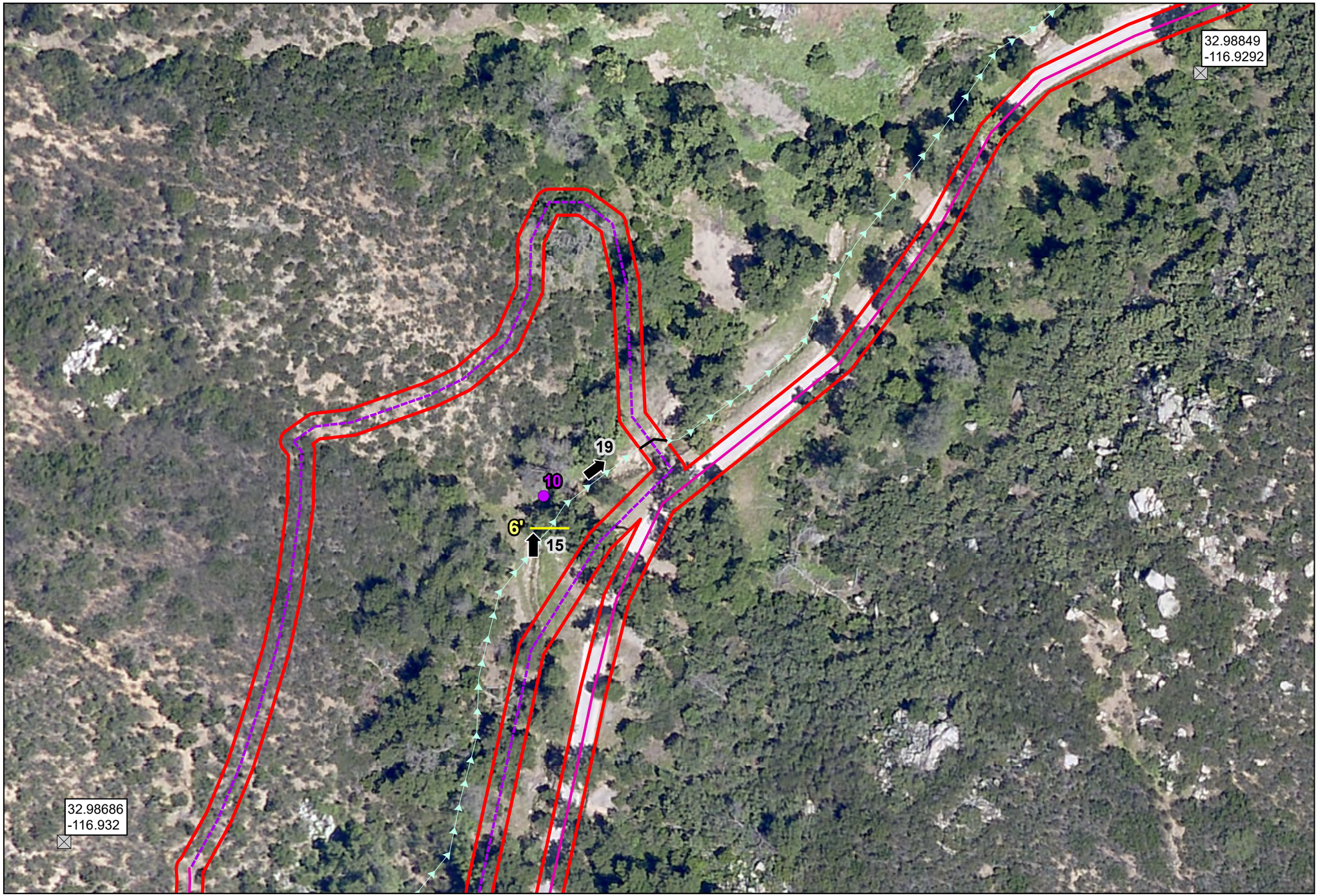


Figure 8a - Sheet 12
Potential USACE Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve



Legend

- Photo Points
- Sample Points
- OHWM Width
- Culverted Crossing
- Drainage Path
- Existing Trail
- Proposed Trail
- Study Area
- Preserve Boundary

Waters of the U.S.

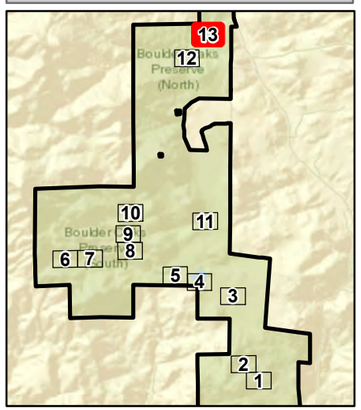
- Non-Wetland Water

N

0 50 100 Feet

1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8a - Sheet 13
Potential USACE Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve

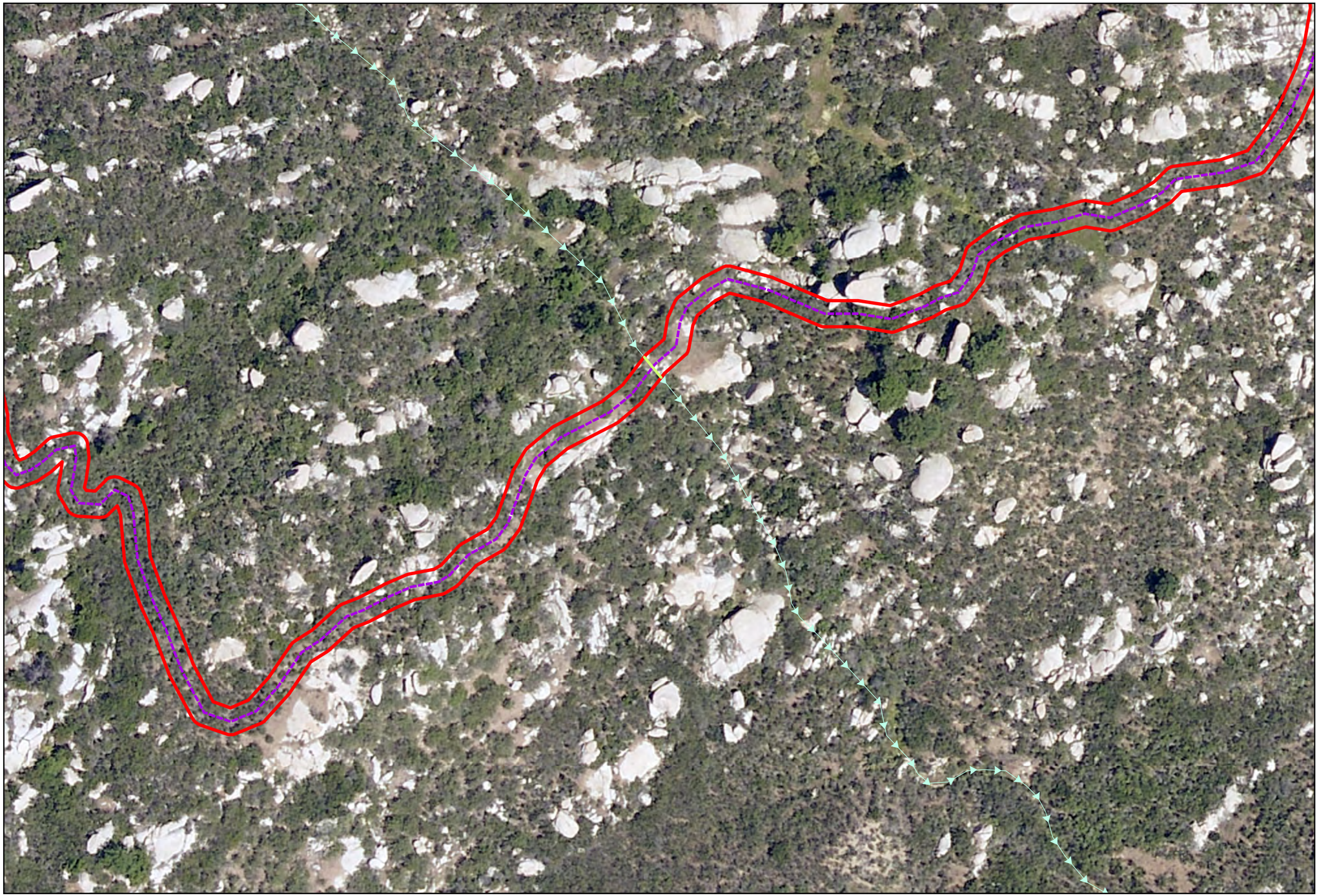
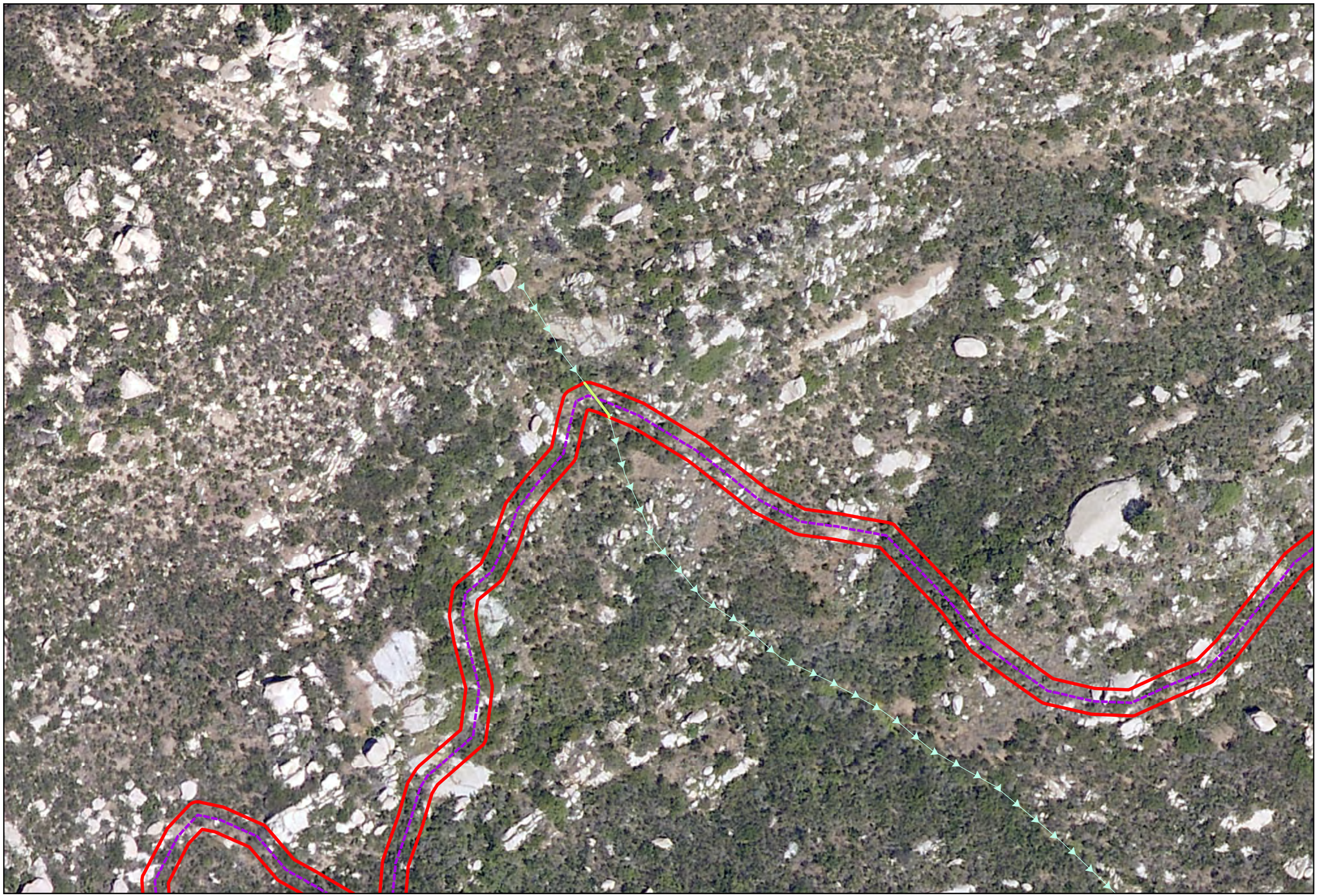


Figure 8b - Sheet 1
Potential CDFW Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve



Legend

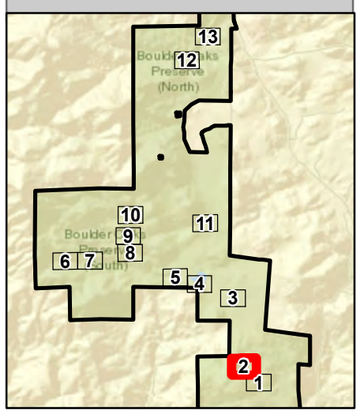
- TOB Width
- Swale
- Culverted Crossing
- Drainage Path
- Proposed Trail
- Study Area
- Preserve Boundary

N

0 50 100 Feet

1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8b - Sheet 2
Potential CDFW Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve

Legend

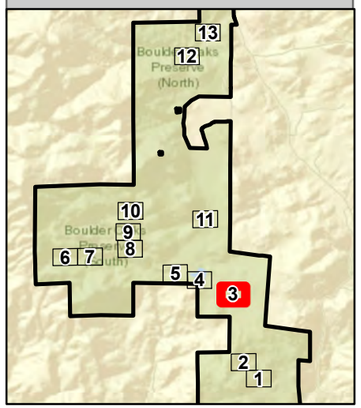
- TOB Width
- Swale
- Culverted Crossing
- Drainage Path
- Existing Trail
- Study Area
- Preserve Boundary

N

0 50 100 Feet

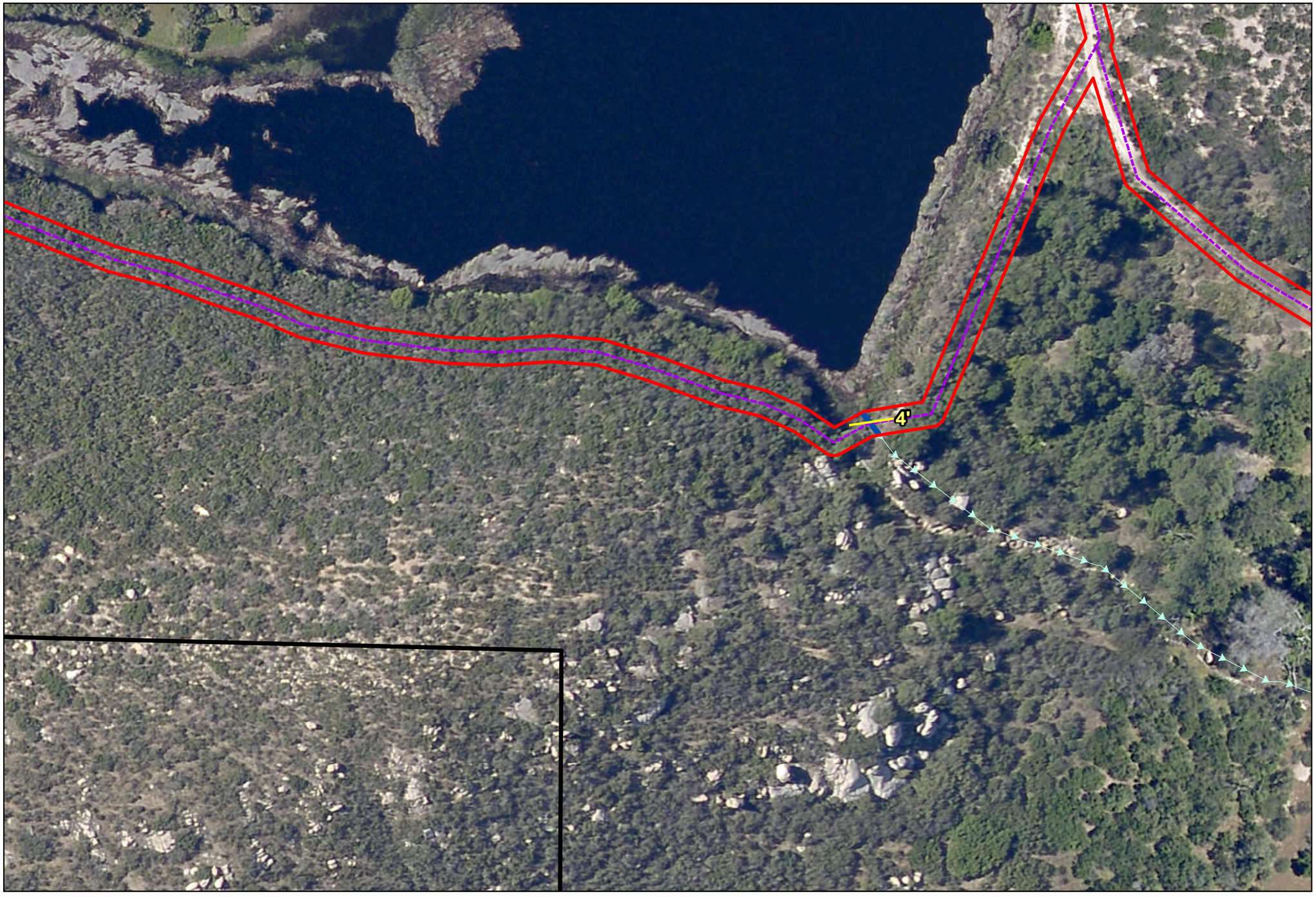
1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8b - Sheet 3
Potential CDFW Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve



Legend

- TOB Width
- Swale
- Culverted Crossing
- Drainage Path
- Proposed Trail
- Study Area
- Preserve Boundary

CDFW Waters

- Streambed

N

0 50 100 Feet

1 inch = 75 feet

Source: Imagery-SanGIS, 2017.

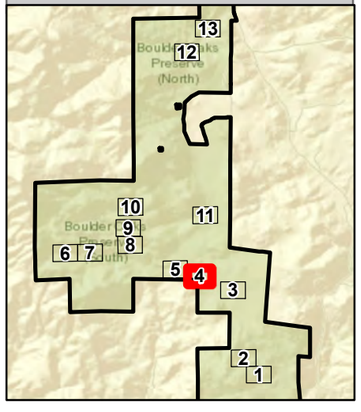


Figure 8b - Sheet 4
Potential CDFW Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve

Legend

- TOB Width
- Swale
- Culverted Crossing
- Drainage Path
- Existing Trail
- Proposed Trail
- Study Area
- Preserve Boundary

CDFW Waters

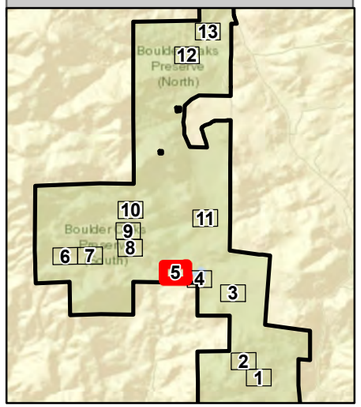
- Streambed

N

0 50 100 Feet

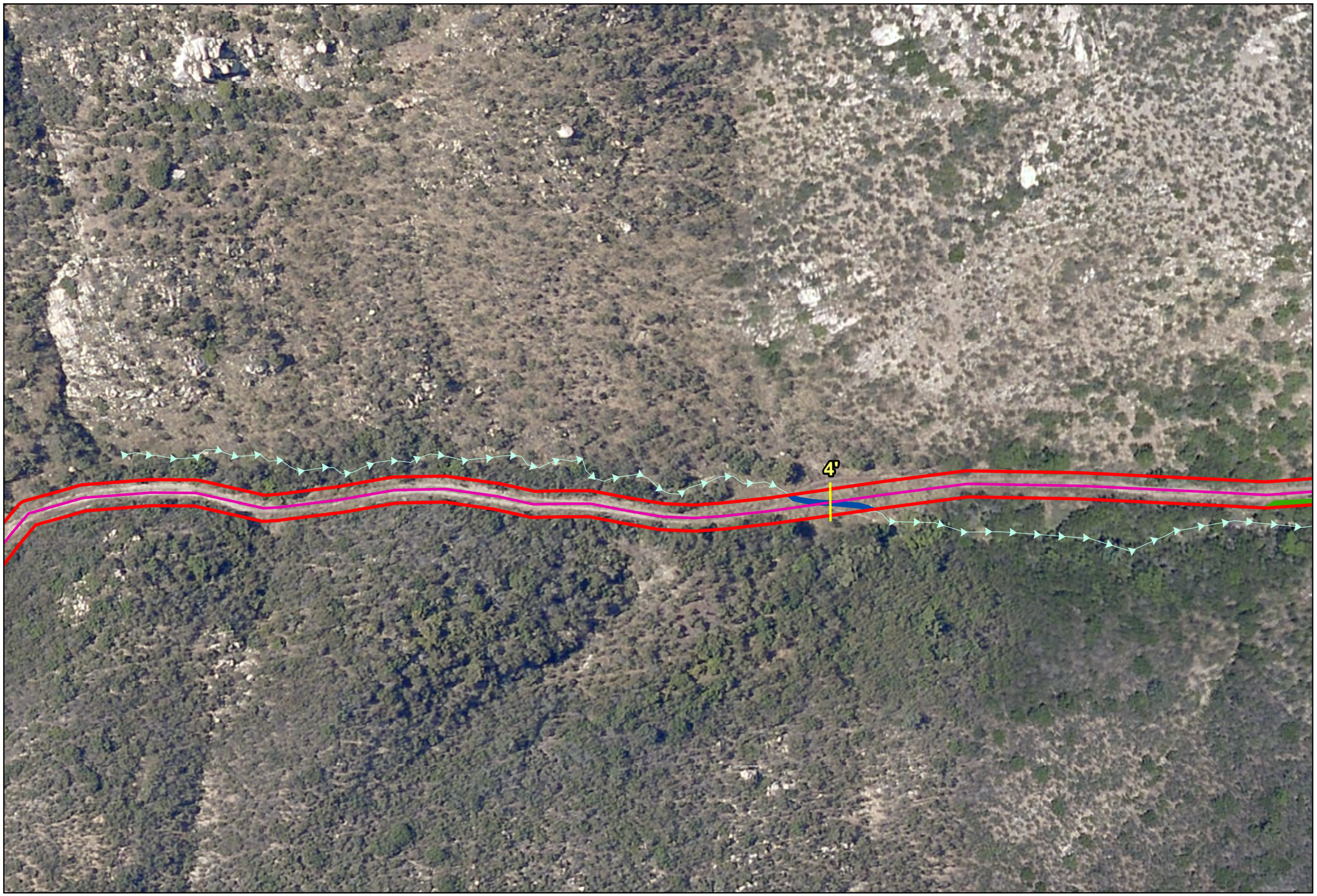
1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8b - Sheet 5
Potential CDFW Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve



Legend

- TOB Width
- Swale
- Culverted Crossing
- Drainage Path
- Existing Trail
- Study Area
- Preserve Boundary

CDFW Waters

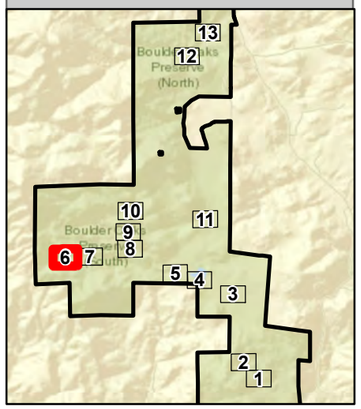
- Streambed
- Riparian

N

0 50 100 Feet

1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8b - Sheet 6
Potential CDFW Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve

Legend

- TOB Width
- Swale
- Culverted Crossing
- Drainage Path
- Existing Trail
- Study Area
- Preserve Boundary

CDFW Waters

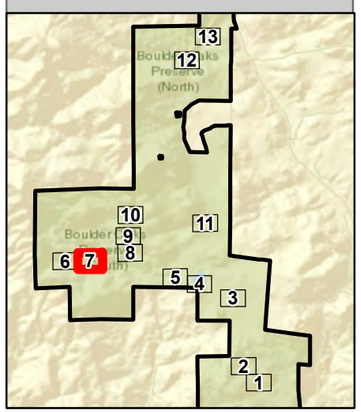
- Streambed
- Riparian

N

0 50 100 Feet

1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8b - Sheet 7
Potential CDFW Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve

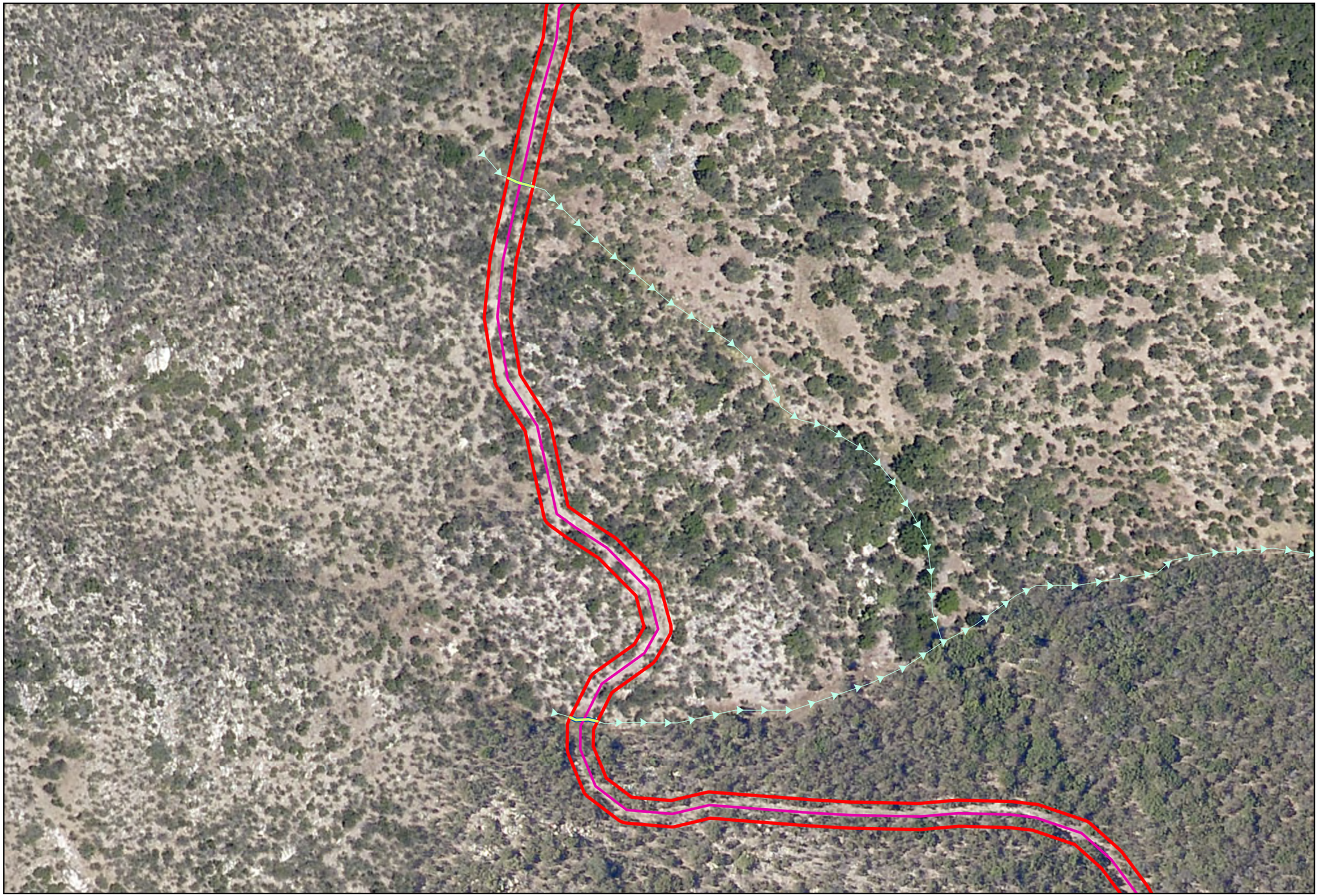
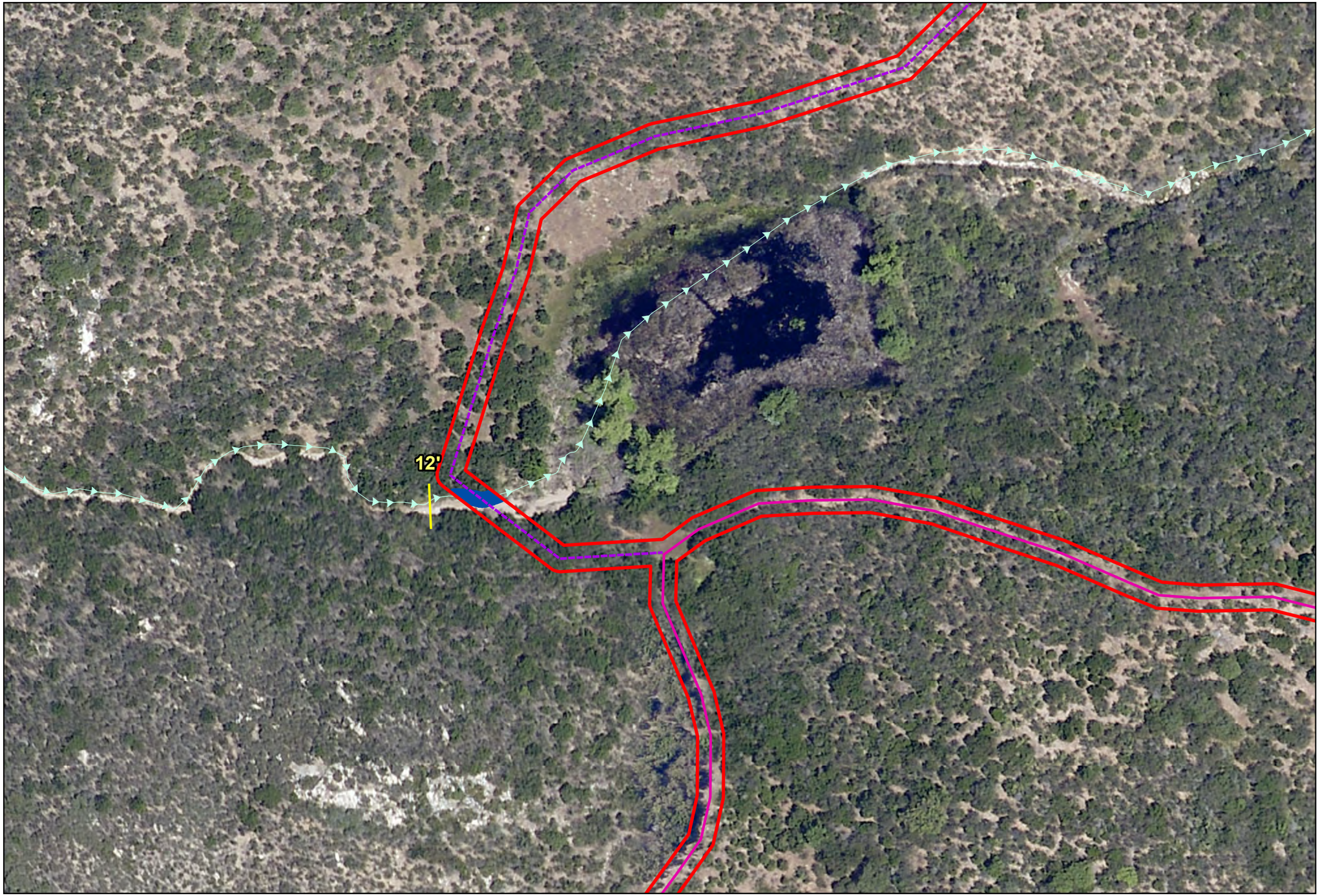


Figure 8b - Sheet 8
Potential CDFW Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve



Legend

- TOB Width
- Swale
- Culverted Crossing
- Drainage Path
- Existing Trail
- Proposed Trail
- Study Area
- Preserve Boundary

CDFW Waters

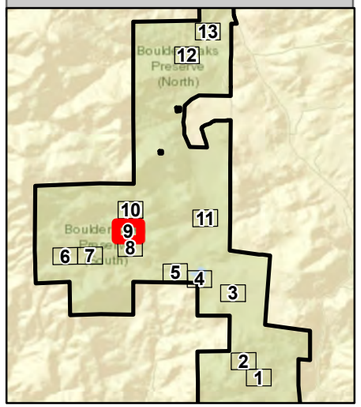
- Streambed

N

0 50 100 Feet

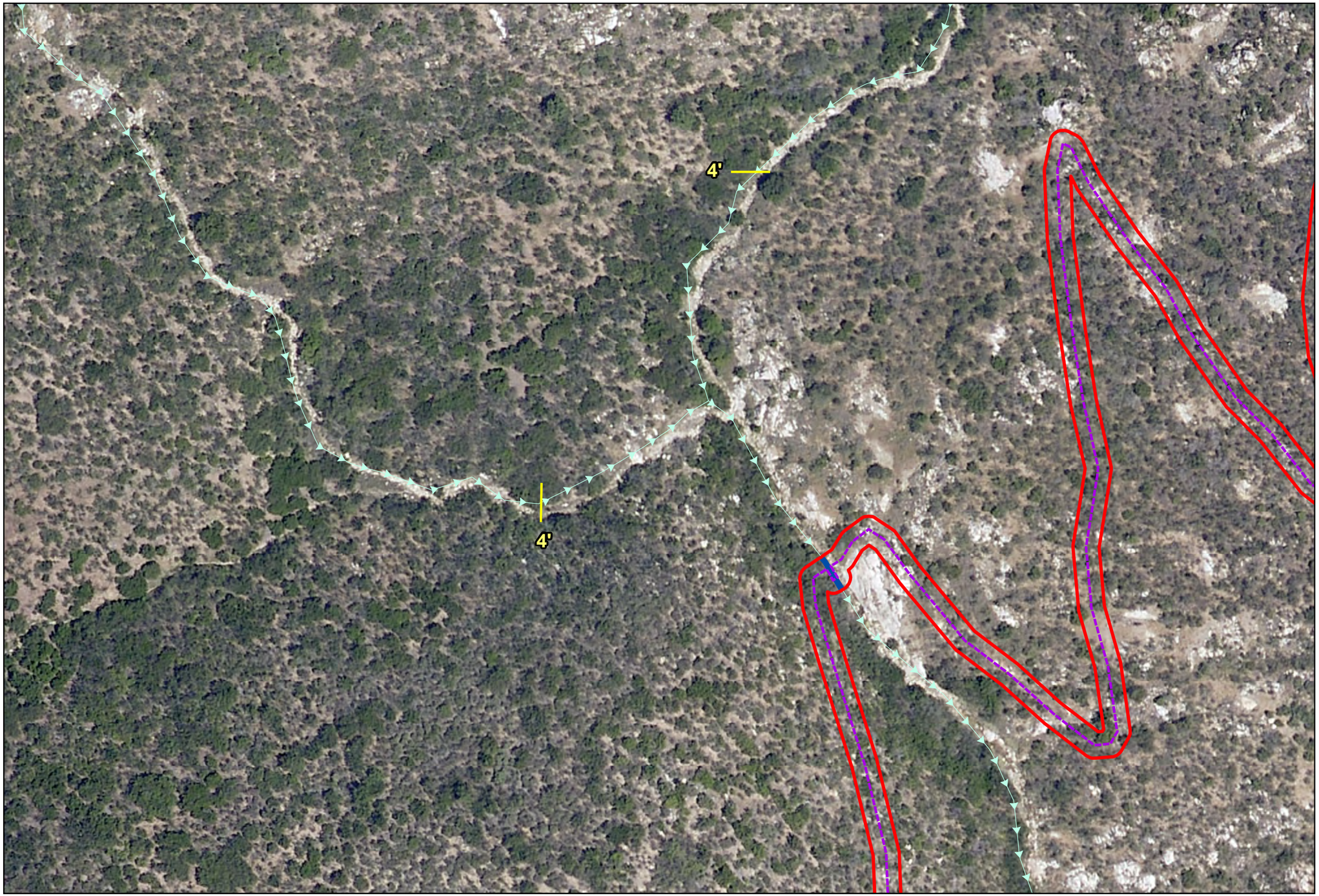
1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8b - Sheet 9
Potential CDFW Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve



Legend

- TOB Width
- Swale
- Culverted Crossing
- Drainage Path
- Proposed Trail
- Study Area
- Preserve Boundary

CDFW Waters

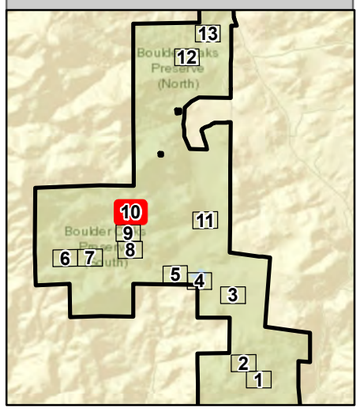
- Streambed

N

0 50 100 Feet

1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8b - Sheet 10
Potential CDFW Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve

Legend

- TOB Width
- Swale
- Culverted Crossing
- Drainage Path
- Existing Trail
- Proposed Trail
- Proposed ADA Trail
- Bridge
- Study Area
- Preserve Boundary

CDFW Waters

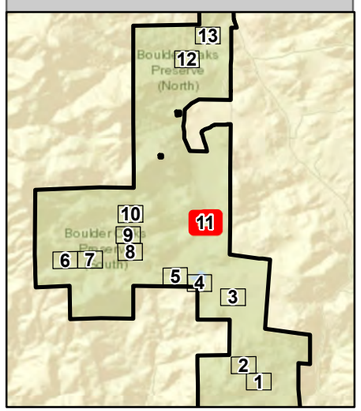
- Streambed

N

0 50 100 Feet

1 inch = 75 feet

Source: Imagery-SanGIS, 2017.



COUNTY OF SAN DIEGO PARKS AND RECREATION

Figure 8b - Sheet 11
Potential CDFW Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve

Legend

- TOB Width
- Swale
- Culverted Crossing
- Drainage Path
- Existing Trail
- Proposed Trail
- Study Area
- Preserve Boundary

CDFW Waters

- Streambed
- Riparian

N

0 50 100 Feet

1 inch = 75 feet

Source: Imagery-SanGIS, 2017.

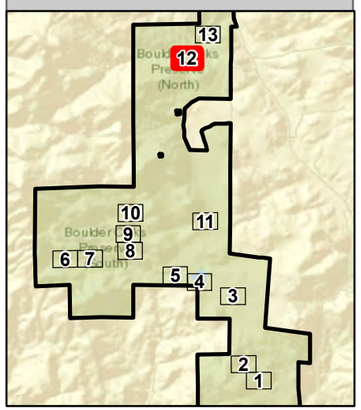
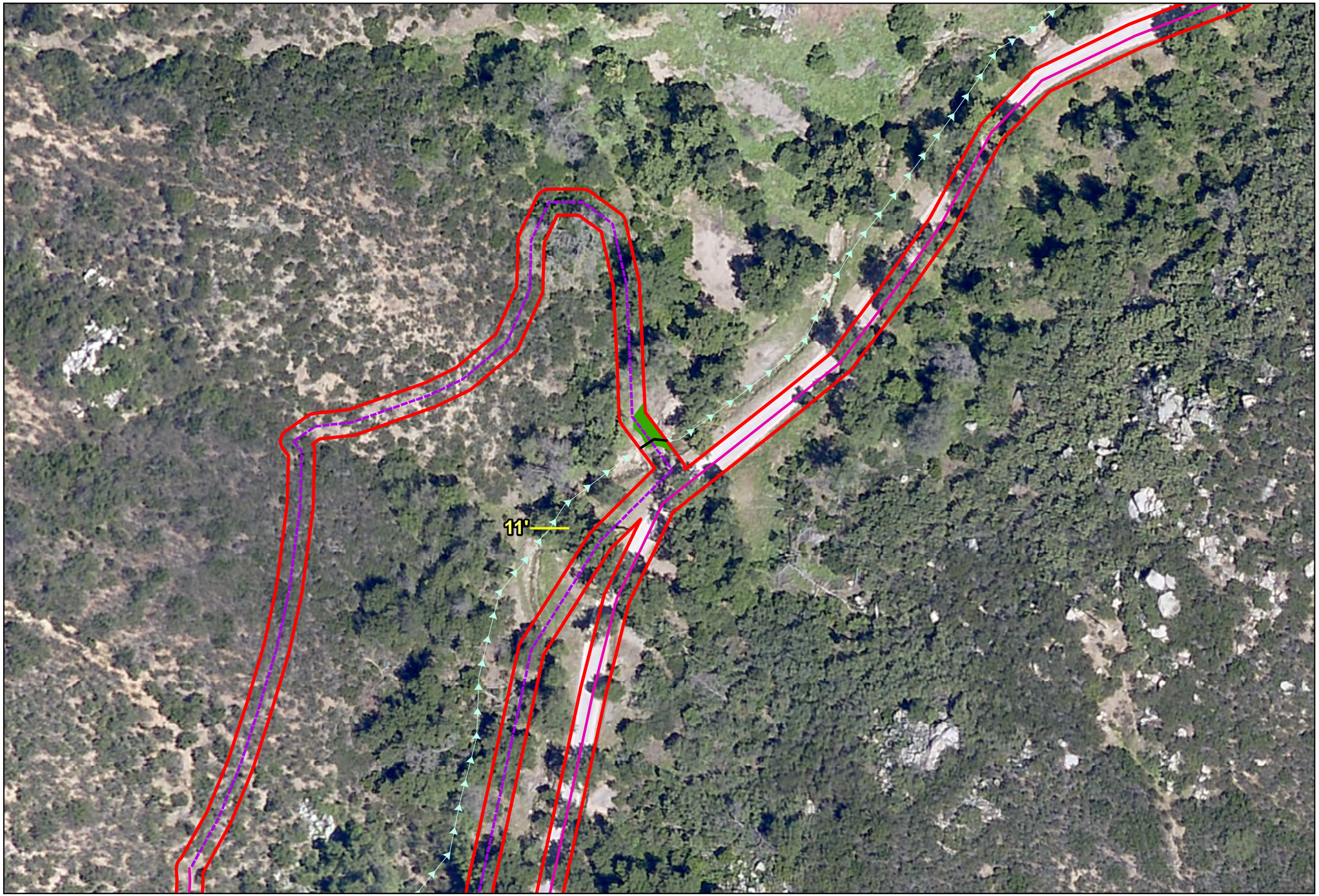


Figure 8b - Sheet 12
Potential CDFW Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve



Legend

- TOB Width
- Swale
- Culverted Crossing
- Drainage Path
- Existing Trail
- Proposed Trail
- Study Area
- Preserve Boundary

CDFW Waters

- Riparian

N

0 50 100 Feet

1 inch = 75 feet

Source: Imagery-SanGIS, 2017.

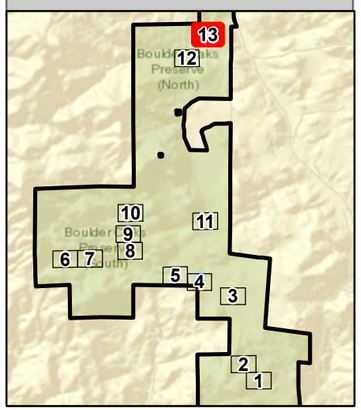


Figure 8b - Sheet 13
Potential CDFW Jurisdictional Waters
Biological Resources Report - Boulder Oaks Preserve

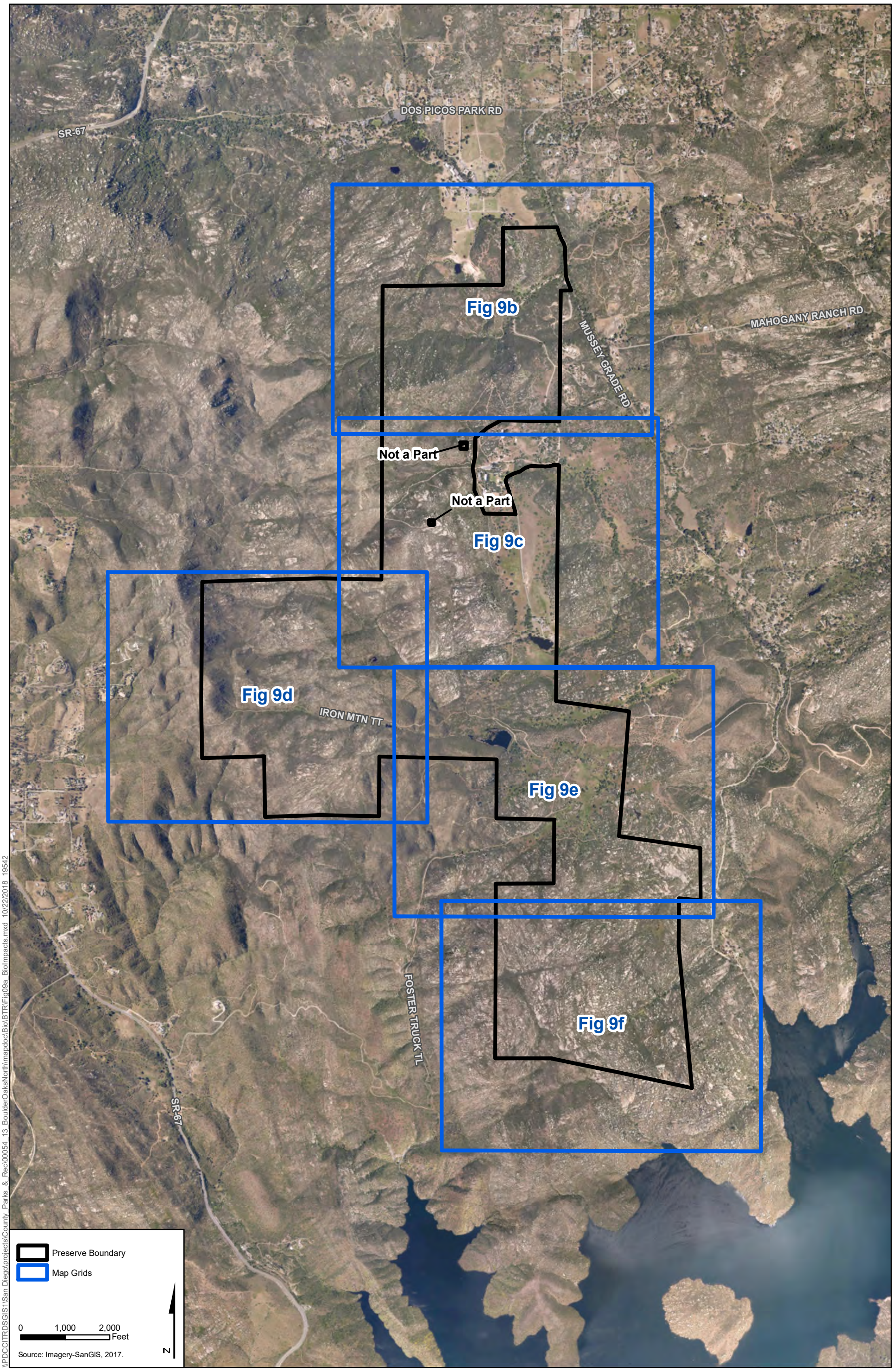


Figure 9a
Biological Resource Map with Project Impacts
Biological Resources Report - Boulder Oaks Preserve

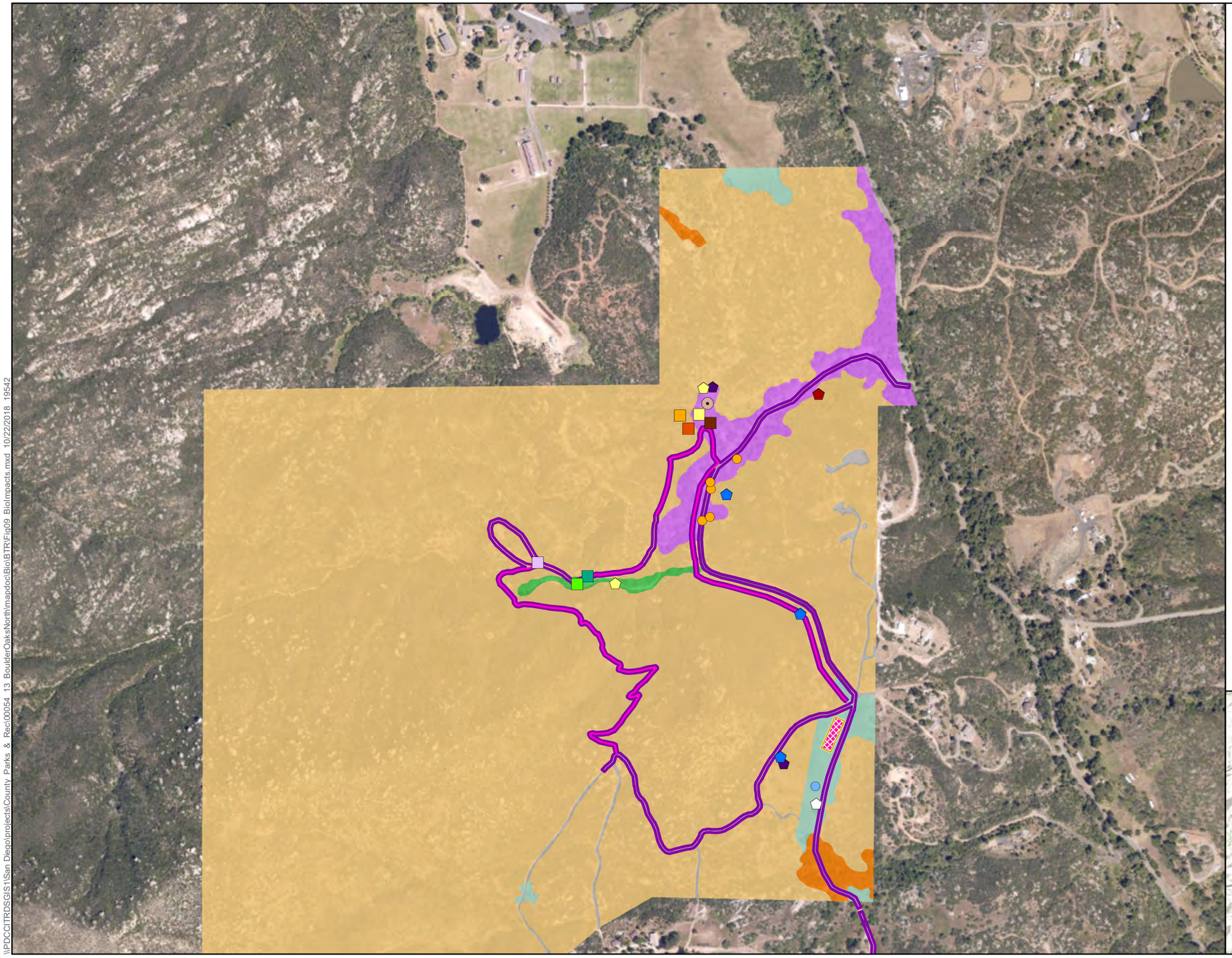


Figure 9b
Biological Resource Map with Project Impacts
Biological Resources Report - Boulder Oaks Preserve

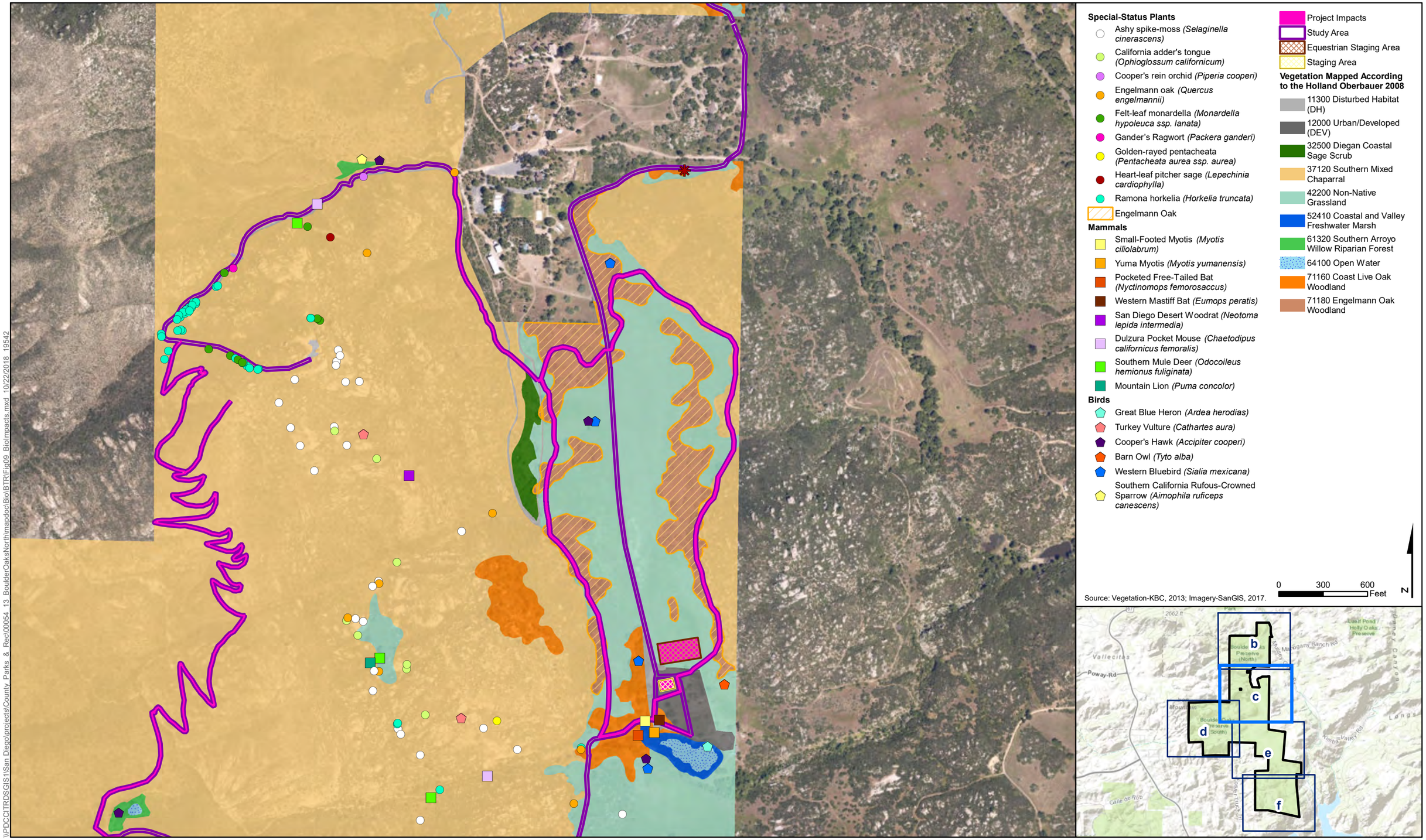


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Figure 9c
Biological Resource Map with Project Impacts
Biological Resources Report - Boulder Oaks Preserve

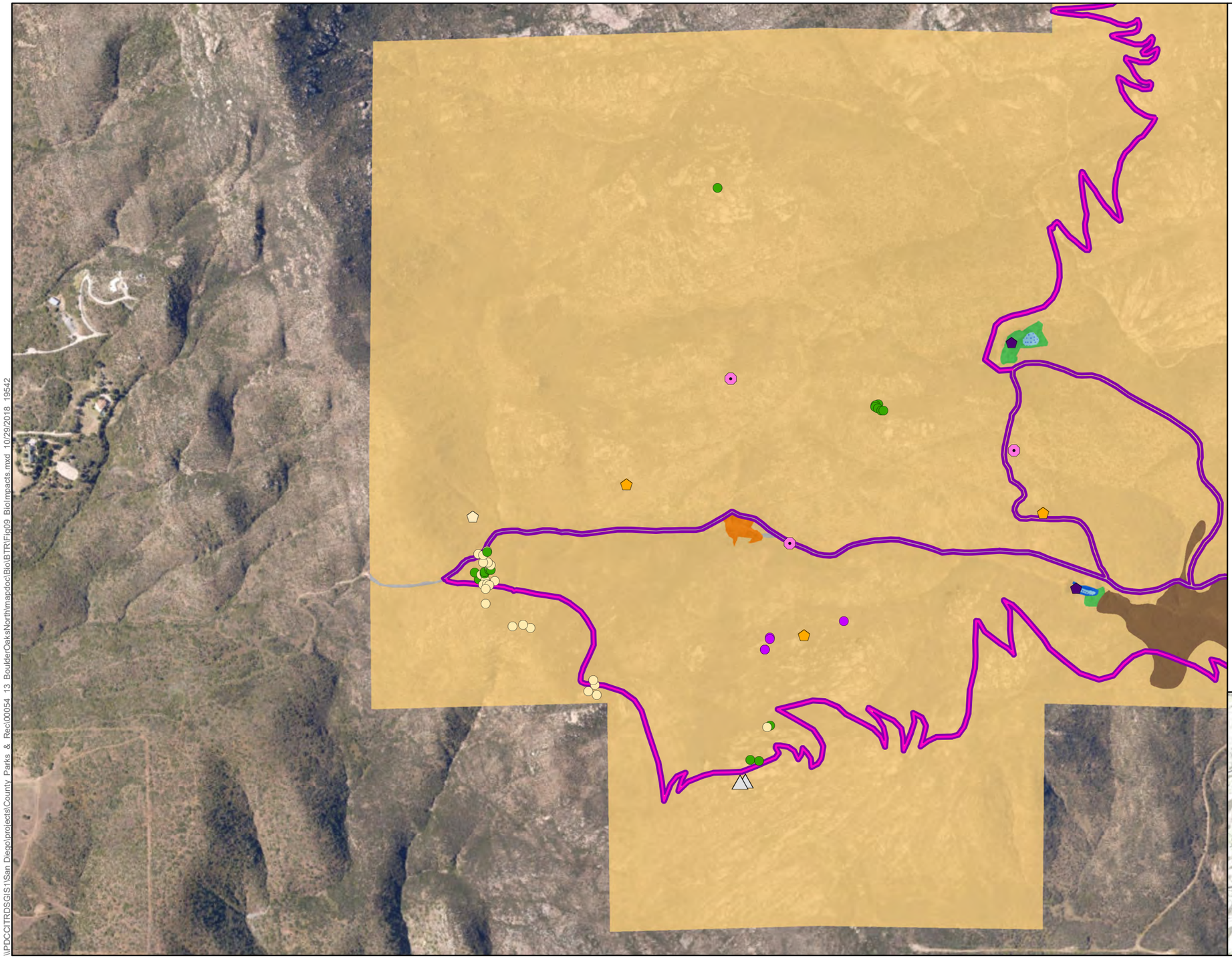

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Figure 9d
Biological Resource Map with Project Impacts
Biological Resources Report - Boulder Oaks Preserve

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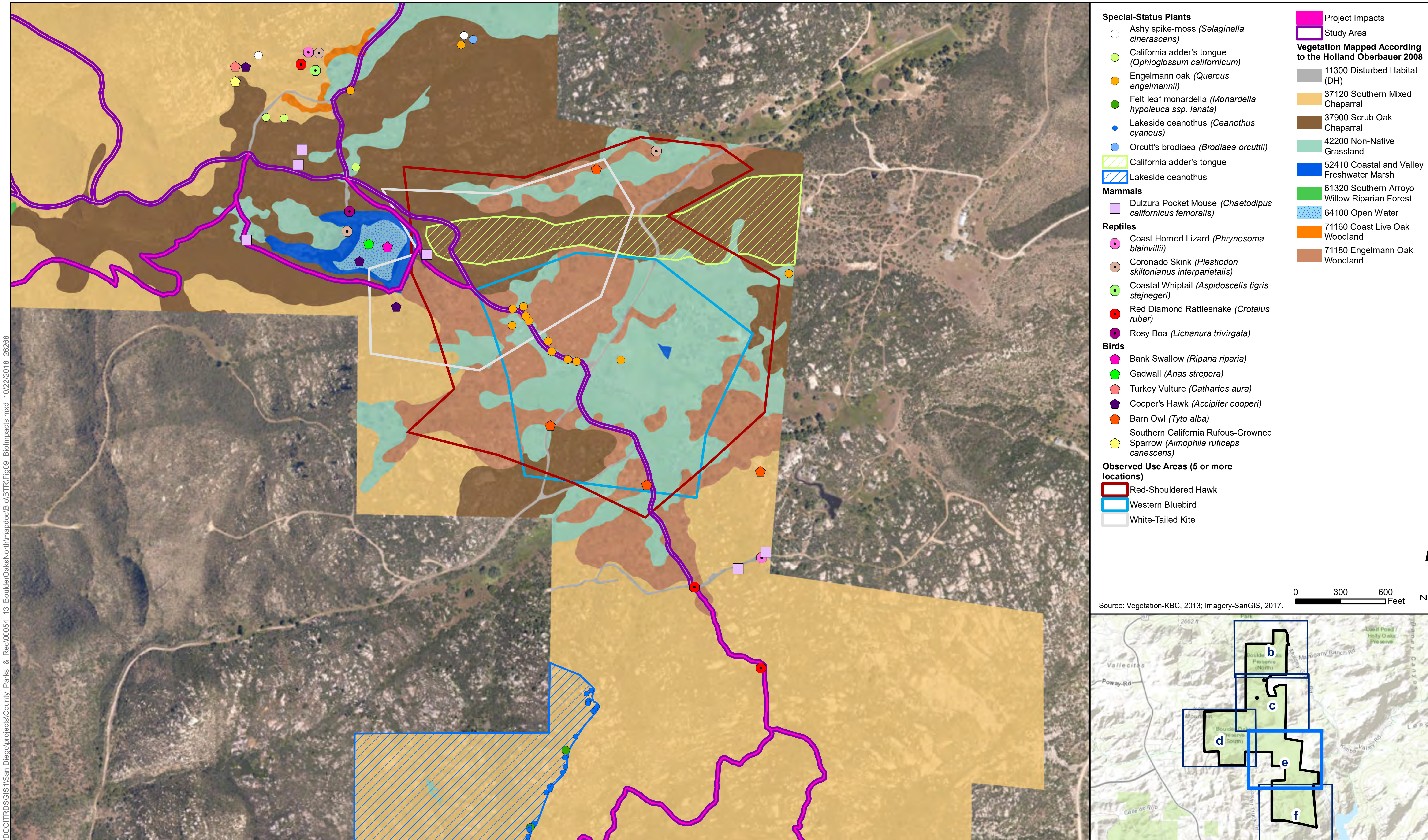

Figure 9e
Biological Resource Map with Project Impacts
Biological Resources Report - Boulder Oaks Preserve

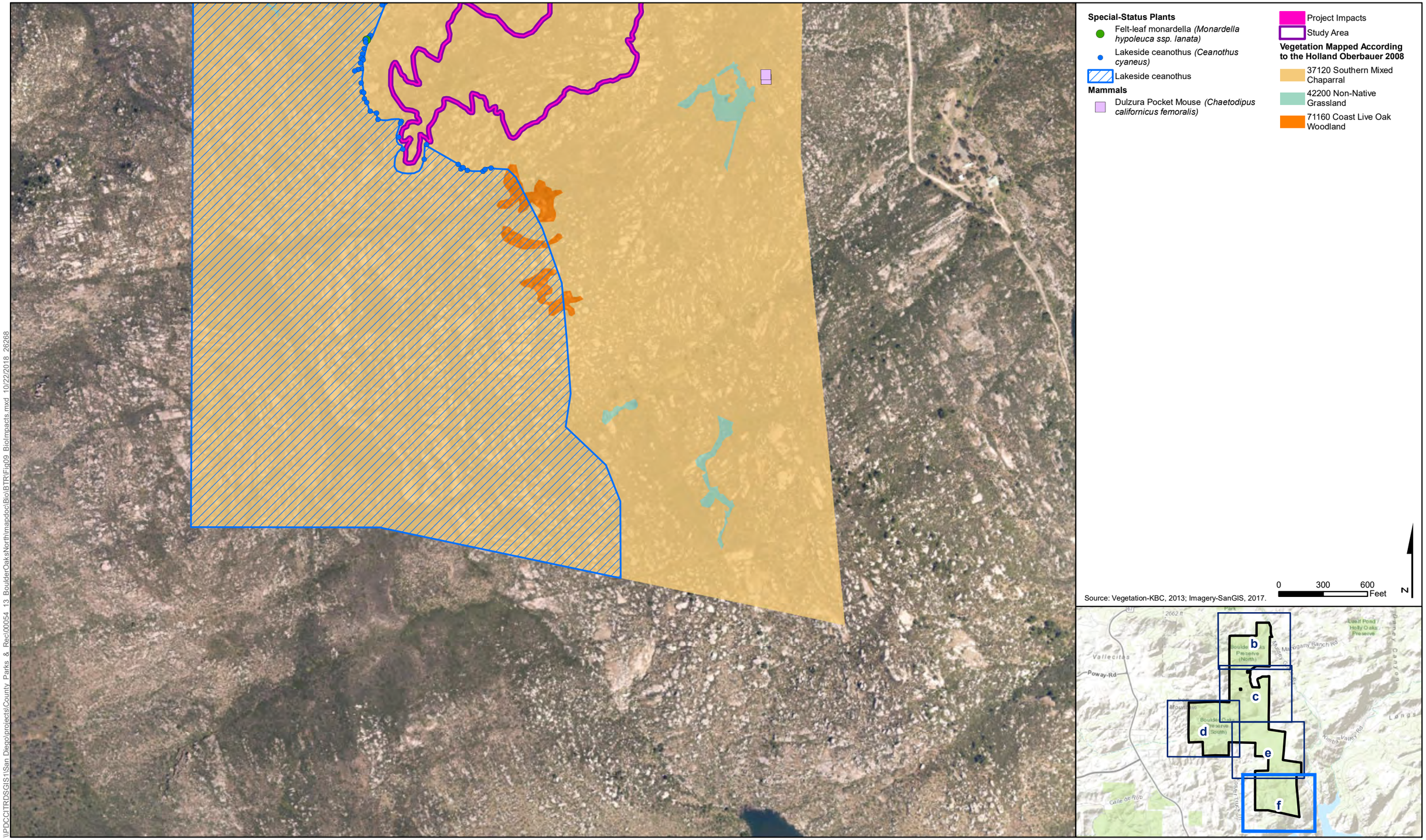

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Figure 9f
Biological Resource Map with Project Impacts
Biological Resources Report - Boulder Oaks Preserve

Appendix B
Observed Species List - Flora

Appendix B Plant Species Detected

Scientific Name	Common Name	Special Status
LYCOPHYTES		
Selaginellaceae - Spike-moss family		
Selaginella bigelovii	Bushy spike-moss	
Selaginella cinerascens	Ashy spike-moss	CRPR 4.1
FERNS		
Dryopteridaceae - Wood Fern family		
Dryopteris arguta	Coastal woodfern	
Ophioglossaceae - Adder's-tongue family		
Ophioglossum californicum	California adder's-tongue	CRPR 4.2
Polypodiaceae - Polypody family		
Polypodium californicum	California polypody	
Pteridaceae - Brake family		
Aspidotis californica	California lace fern	
Cheilanthes clevelandii	Cleveland's lip fern	
Cheilanthes covillei	Coville's lip fern	
Cheilanthes newberryi	Newberry's lip fern	
Pellaea andromedifolia	Coffee fern	
Pellaea mucronata var. californica	California bird's foot cliff brake	
Pellaea mucronata var. mucronata	Bird's foot cliff brake	
Pentagramma triangularis ssp. triangularis	Goldback fern	
EUDICOTS		
Adoxaceae - Muskroot family		
Sambucus nigra ssp. caerulea	Blue elderberry	
Amaranthaceae - Amaranth family		
Amaranthus blitoides	Procumbent pigweed	
Amaranthus californicus	Californian amaranth	
Anacardiaceae - Sumac Or Cashew family		
Malosma laurina	Laurel sumac	
Rhus aromatica	Skunk bush	
Rhus ovata	Sugar bush	
Toxicodendron diversilobum	Western poison oak	
Apiaceae - Carrot family		
Apiastrum angustifolium	Mock parsley	
Daucus pusillus	American wild carrot	
* *Foeniculum vulgare*	Fennel	

	Scientific Name	Common Name	Special Status
	Sanicula arguta	Sharptooth blacksnakeroot	
	Sanicula bipinnatifida	Purple sanicle, shoe buttons	
	Sanicula tuberosa	Turkey pea	
	Tauschia arguta	Southern umbrellawort	
	Apocynaceae - Dogbane family		
	Asclepias californica	California milkweed	
	Asclepias fascicularis	Narrow-leaf milkweed	
*	*Nerium oleander*	Common oleander	
*	*Vinca major*	Greater periwinkle	
	Asteraceae - Sunflower family		
	Acourtia microcephala	Sacapellote	
	Ambrosia acanthicarpa	Annual bur-sage	
	Ambrosia psilostachya	Western ragweed	
*	*Anthemis cotula*	Mayweed	
	Artemisia californica	California sagebrush	
	Baccharis salicifolia	Mule fat	
	Baccharis sarothroides	Broom baccharis	
*	*Carduus pycnocephalus ssp. pycnocephalus*	Italian thistle	
*	*Centaurea melitensis*	Tocalote	
*	*Centaurea solstitialis*	Yellow star-thistle	
	Chaenactis artemisiifolia	White pincushion	
	Cirsium occidentale var. californicum	California thistle	
*	*Cirsium vulgare*	Bull thistle	
	Corethrogyne filaginifolia	Common sand aster	
*	*Cotula coronopifolia*	Brass-buttons	
	Deinandra fasciculata	Clustered tarweed	
*	*Erigeron bonariensis*	Flax-leaved horseweed	
	Erigeron canadensis	Horseweed	
	Erigeron foliosus	Leafy fleabane	
	Erigeron foliosus var. confinis	Leafy fleabane	
	Erigeron foliosus var. foliosus	Leafy fleabane	
	Eriophyllum confertiflorum var. confertiflorum	Golden-yarrow	
*	*Glebionis coronaria*	Garland or crown daisy	
	Gutierrezia sarothrae	Matchweed	
	Hazardia squarrosa	Saw-toothed goldenbush	
	Hazardia squarrosa var. grindelioides	Sawtooth bristleweed	
*	*Hedypnois cretica*	Crete weed	
	Helianthus annuus	Common sunflower	

	Scientific Name	Common Name	Special Status
	Helianthus gracilentus	Slender sunflower	
	Heterotheca grandiflora	Telegraph weed	
*	*Hypochaeris glabra*	Smooth cat's-ear	
	Isocoma menziesii	Coastal goldenbush	
	Isocoma menziesii var. menziesii	Menzies' goldenbush	
*	*Lactuca serriola*	Prickly lettuce	
	Lasthenia gracilis	Common goldfields	
*	*Logfia gallica*	Daggerleaf cottonrose	
	Madia exigua	Small tarweed	
	Osmadenia tenella	Osmadenia	
	Packera ganderi	Gander's ragwort	SR, CRPR 1B.2
	Pentachaeta aurea ssp. aurea	Golden-rayed pentachaeta	CRPR 4.2
	Pluchea odorata var. odorata	Saltmarsh-fleabane	
	Porophyllum gracile	Odora, slender poreleaf	
	Pseudognaphalium beneolens	Fragrant everlansting	
	Pseudognaphalium biolettii	Two-color rabbit-tobacco	
	Pseudognaphalium californicum	Ladies' tobacco	
	Pseudognaphalium canescens	Wright's cudweed	
*	*Pseudognaphalium luteoalbum*	Jersey cudweed	
	Pseudognaphalium stramineum	Cottonbatting plant	
	Psilocarphus tenellus	Slender woolly-marbles	
*	*Senecio vulgaris*	Common groundsel	
	Solidago velutina ssp. californica	California goldenrod	
*	*Sonchus arvensis*	Perennial sow thistle	
*	*Sonchus asper ssp. asper*	Prickly sow thistle	
*	*Sonchus oleraceus*	Common sow thistle	
	Stephanomeria virgata ssp. pleurocarpa	Wand wire-lettuce	
	Uropappus lindleyi	Silver puffs	
	Boraginaceae - Borage family		
	Amsinckia menziesii	Common fiddleneck	
	Cryptantha intermedia	Clearwater cryptantha	
	Cryptantha muricata var. jonesii	Jones' cryptantha	
	Eriodictyon crassifolium	Thickleaf yerba santa	
	Eriodictyon crassifolium var. crassifolium	Thick-leaved yerba santa	
	Eucrypta chrysanthemifolia var. chrysanthemifoli	Spotted hideseed	
	Heliotropium curassavicum var. oculatum	Seaside heliotrope, alkali heliotrope	
	Nemophila menziesii var. integrifolia	Baby blue eyes	
	Phacelia cicutaria var. hispida	Caterpillar phacelia	

Scientific Name	Common Name	Special Status
Phacelia distans	Wild-heliotrope	
Phacelia parryi	Parry's phacelia	
Brassicaceae - Mustard family		
Cardamine californica	Milk maids, tooth wort	
Caulanthus heterophyllus	San Diego wild cabbage	
* *Hirschfeldia incana*	Shortpod mustard	
* *Raphanus sativus*	Radish	
* *Sisymbrium altissimum*	Tumble mustard	
* *Sisymbrium irio*	London rocket	
* *Sisymbrium officinale*	Hedge mustard	
Cactaceae - Cactus family		
Opuntia ×occidentalis	Western prickly-pear	
Opuntia littoralis	Coastal prickly-pear	
Caprifoliaceae - Honeysuckle family		
Lonicera subspicata	Southern honeysuckle	
Lonicera subspicata var. denudata	Johnston's honeysuckle	
Caryophyllaceae - Pink family		
* *Silene gallica*	Small-flower catchfly, windmill pink	
* *Spergularia bocconi*	Boccone's sand-spurrey	
* *Stellaria media*	Common chickweed	
* *Stellaria neglecta*	Greater chickweed	
Chenopodiaceae - Goosefoot family		
* *Dysphania ambrosioides*	Mexican tea	
Cistaceae - Rock-rose family		
Helianthemum scoparium	Peak rush-rose	
Convolvulaceae - Morning-glory family		
Calystegia macrostegia ssp. arida	San Diego morning-glory	
Cuscuta californica	Chaparral dodder	
Crassulaceae - Stonecrop family		
Crassula aquatica	Water pygmyweed	
Crassula connata	Pygmy-weed	
Dudleya edulis	Fingertips	
Dudleya pulverulenta	Chalk dudleya	
Cucurbitaceae - Gourd family		
Marah macrocarpa	Chilicothe	
Ericaceae - Heath family		
Arctostaphylos glandulosa ssp. glandulosa	Eastwood's manzanita	
Arctostaphylos glauca	Bigberry manzanita	

Scientific Name	Common Name	Special Status
Xylococcus bicolor	Mission manzanita	
Euphorbiaceae - Spurge family		
Acalypha californica	California copperleaf	
Croton setigerus	Turkey-mullein	
Fabaceae - Legume family		
Acmispon americanus var. americanus	Spanish-clover	
Acmispon argophyllus var. argophyllus	Silver bird's-foot trefoil	
Acmispon glaber var. brevialatus	Western bird's-foot trefoil	
Acmispon glaber var. glaber	Deerweed	
Acmispon strigosus	Strigose bird's-foot trefoil	
Lathyrus vestitus	Pacific pea	
Lathyrus vestitus var. alefeldii	San Diego sweet pea	
Lupinus bicolor	Miniature lupine	
* *Medicago polymorpha*	California burclover	
* *Melilotus indicus*	Sourclover	
* *Parkinsonia aculeata*	Mexican palo verde	
* *Robinia pseudoacacia*	Black locust	
Trifolium depauperatum var. amplectens	Pale sack clover	
Trifolium willdenovii	Tomcat clover	
* *Vicia benghalensis*	Purple vetch	
* *Vicia sativa ssp. sativa*	Spring vetch	
Fagaceae - Oak family		
Quercus ×acutidens	Scrub oak	
Quercus agrifolia var. agrifolia	Coast live oak	
Quercus berberidifolia	Scrub oak	
Quercus engelmannii	Engelmann oak	CRPR 4.2
Gentianaceae - Gentian family		
Zeltnera venusta	Canchalagua	
Geraniaceae - Geranium family		
* *Erodium botrys*	Longbeak stork's bill	
* *Erodium cicutarium*	Redstem filaree	
Geranium carolinianum	Carolina geranium	
Grossulariaceae - Gooseberry family		
Ribes indecorum	White-flowering currant	
Lamiaceae - Mint family		
Clinopodium chandleri	San Miguel savory	CRPR 1B.2
Lepechinia cardiophylla	Heart-leaved pitcher sage	CRPR 1B.2
* *Marrubium vulgare*	Horehound	

Scientific Name	Common Name	Special Status
Monardella hypoleuca ssp. lanata	Felt-leaved monardella	CRPR 1B.2
Salvia apiana	White sage	
Salvia clevelandii	Fragrant sage	
Salvia columbariae	Chia	
Salvia mellifera	Black sage	
Scutellaria tuberosa	Danny's skullcap	
Stachys ajugoides var. rigida	Rigid hedgenettle	
Lythraceae - Loosestrife family		
* *Lythrum hyssopifolia*	Grass poly	
Malvaceae - Mallow family		
Malacothamnus densiflorus	Yellowstem bush-mallow	
Malacothamnus fasciculatus	Chaparral mallow	
Sidalcea sparsifolia	Checkerbloom	
Montiaceae - Miner's Lettuce family		
Calandrinia ciliata	Red maids	
Claytonia perfoliata ssp. perfoliata	Miner's lettuce	
Myrsinaceae - Myrsine family		
* *Lysimachia arvensis*	Scarlet pimpernel	
Myrtaceae - Myrtle family		
* *Eucalyptus camaldulensis*	River red gum	
Oleaceae - Olive family		
* *Olea europaea*	Olive	
Onagraceae - Evening Primrose family		
Camissoniopsis bistorta	California sun cup	
Camissoniopsis micrantha	Miniature suncup	
Clarkia purpurea ssp. purpurea	Winecup clarkia	
Eulobus californicus	California suncup	
Orobanchaceae - Broom-rape family		
Castilleja exserta	Purple owl's-clover	
Castilleja exserta ssp. exserta	Exserted indian paintbrush	
Cordylanthus rigidus ssp. setigerus	Stiffbranch bird's-beak	
Pedicularis densiflora	Warrior's plume	
Oxalidaceae - Oxalis family		
Oxalis albicans ssp. californica	California woodsorrel	
Paeoniaceae - Peony family		
Paeonia californica	California peony	
Papaveraceae - Poppy family		
Dendromecon rigida	Bush poppy	

Scientific Name	Common Name	Special Status
Ehrendorferia chrysantha	Golden eardrops	
Eschscholzia caespitosa	Tufted poppy	
Eschscholzia californica	California poppy	
Romneya trichocalyx	Hairy matilija poppy	
Phrymaceae - Lopseed family		
Diplacus xaustralis	San Diego monkeyflower	
Erythranthe guttatus	Seep monkeyflower	
Mimethanthe pilosa	Downy monkeyflower	
Plantaginaceae - Plantain family		
Antirrhinum nuttallianum ssp. nuttallianum	Nuttall's snapdragon	
Keckiella cordifolia	Heartleaf keckiella	
Nuttallanthus texanus	Blue toadflax	
Penstemon centranthifolius	Scarlet bugler	
Penstemon spectabilis var. spectabilis	Showy penstemon	
Plantago elongata	Prairie plantain	
Plantago erecta	Dotseed plantain	
Plantago ovata	Desert plantain	
Platanaceae - Plane Tree, Sycamore family		
Platanus racemosa	Western sycamore	
Polemoniaceae - Phlox family		
Navarretia hamata ssp. hamata	Hooked pincushionplant	
Polygonaceae - Buckwheat family		
Chorizanthe fimbriata var. fimbriata	Fringed spineflower	
Chorizanthe procumbens	Prostrate spineflower	
Eriogonum fasciculatum var. foliolosum	Inland California buckwheat	
Persicaria amphibia	Water smartweed	
Persicaria lapathifolia	Willow weed	
Pterostegia drymarioides	Woodland pterostegia	
Rumex californicus	Toothed willow dock	
* *Rumex conglomeratus*	Clustered dock	
* *Rumex crispus*	Curly dock	
Rumex salicifolius	Willow dock	
Ranunculaceae - Buttercup family		
Clematis pauciflora	Southern California clematis	
Delphinium cardinale	Scarlet larkspur	
Delphinium parryi ssp. parryi	Parry's larkspur	
Thalictrum fendleri var. fendleri	Fendler's meadow-rue	
Resedaceae - Mignonette family		

Scientific Name	Common Name	Special Status
* *Reseda luteola*	Dyer's rocket	
Rhamnaceae - Buckthorn family		
Ceanothus crassifolius	Hoaryleaf ceanothus	
Ceanothus cyaneus	Lakeside ceanothus	CRPR 1B.2
Ceanothus leucodermis	Chaparral whitethorn	
Ceanothus oliganthus var. oliganthus	Hairy ceanothus	
Ceanothus tomentosus	Woolyleaf ceanothus	
Rhamnus crocea	Spiny redberry	
Rhamnus ilicifolia	Hollyleaf redberry	
Rosaceae - Rose family		
Adenostoma fasciculatum var. fasciculatum	Chamise	
Cercocarpus betuloides var. betuloides	Birch-leaf mountain-mahogany	
Cercocarpus minutiflorus	San Diego mountain mahogany	
Chamaebatia australis	Southern mountain misery	CRPR 4.2
Heteromeles arbutifolia	Toyon	
Horkelia truncata	Ramona horkelia	CRPR 1B.3
Prunus ilicifolia	Hollyleaf cherry	
Prunus ilicifolia ssp. ilicifolia	Islay, holly-leafed cherry	
Rubiaceae - Madder family		
Galium angustifolium ssp. angustifolium	Narrowleaf bedstraw	
Galium aparine	Goose grass	
Galium nuttallii	San Diego bedstraw	
Salicaceae - Willow family		
Salix laevigata	Red willow	
Salix lasiolepis	Arroyo willow	
Scrophulariaceae - Figwort family		
Scrophularia californica	California figwort	
Solanaceae - Nightshade family		
* *Nicotiana glauca*	Tree tobacco	
Solanum parishii	Parish's nightshade	
Styracaceae - Storax family		
Styrax redivivus	Drug snowbell	
Tamaricaceae - Tamarisk family		
* *Tamarix ramosissima*	Saltcedar	
Verbenaceae - Vervain family		
Verbena lasiostachys var. lasiostachys	Western vervain	
Violaceae - Violet family		
Viola pedunculata	Johnny-jump-up	

Scientific Name	Common Name	Special Status
MONOCOTS		
Agavaceae - Century Plant family		
Chlorogalum parviflorum	Smallflower soap plant	
Hesperoyucca whipplei	Chaparral yucca	
Yucca schidigera	Mojave yucca	
Alliaceae - Onion or Garlic family		
Allium haematochiton	Redskin onion	
Amaryllidaceae - Amaryllis family		
Narcissus sp.	Daffodil	
Arecaceae - Palm family		
* *Phoenix canariensis*	Canary Island palm	
* *Washingtonia robusta*	Mexican fan palm	
Cyperaceae - Sedge family		
Cyperus erythrorhizos	Redroot flatsedge	
Schoenoplectus californicus	Southern bulrush	
Iridaceae - Iris family		
Sisyrinchium bellum	Western blue-eyed-grass	
Juncaceae - Rush family		
Juncus mexicanus	Mexican rush	
Liliaceae - Lily family		
Calochortus splendens	Splendid mariposa lily	
Calochortus weedii var. weedii	Weed's mariposa lily	
Melanthiaceae - False-Hellebore family		
Toxicoscordion fremontii	Fremont's deathcamas	
Orchidaceae - Orchid family		
Piperia cooperi	Chaparral rein orchid	CRPR 4.2
Poaceae - Grass family		
* *Aira caryophyllea*	Silver hair grass	
* *Avena barbata*	Slender wild oat	
* *Briza maxima*	Rattlesnake grass, large quaking grass	
* *Briza minor*	Annual quaking grass, small quaking grass	
* *Bromus diandrus*	Ripgut grass	
* *Bromus hordeaceus*	Soft chess	
* *Bromus rubens*	Red brome	
Calamagrostis koelerioides	Dense-pine reed grass	
* *Cortaderia selloana*	Pampas grass	
* *Cynodon dactylon*	Bermuda grass	

	Scientific Name	Common Name	Special Status
	Distichlis spicata	Salt grass	
*	*Ehrharta calycina*	Perennial veldt grass	
	Elymus triticoides	Beardless wild rye	
*	*Festuca myuros*	Rattail sixweeks grass	
*	*Festuca perennis*	Perennial ryegrass	
*	*Gastridium phleoides*	Nit grass	
*	*Hordeum marinum ssp. gussoneanum*	Mediterranean barley	
*	*Hordeum murinum ssp. glaucum*	Smooth barley	
*	*Lamarckia aurea*	Goldentop grass	
	Melica imperfecta	Little California melica	
	Muhlenbergia rigens	Deer grass	
*	*Pennisetum setaceum*	Crimson fountain grass	
*	*Phalaris aquatica*	Harding grass	
*	*Polypogon monspeliensis*	Annual beard grass	
*	*Schismus barbatus*	Common mediterranean grass	
	Stipa cernua	Nodding needle grass	
	Stipa coronata	Crested needle grass	
*	*Stipa miliacea var. miliacea*	Smilo grass	
	Stipa pulchra	Purple needle grass	
	Themidaceae - Brodiaea family		
	Brodiaea orcuttii	Orcutt's brodiaea	CRPR 1B.1
	Dichelostemma capitatum ssp. capitatum	Blue dicks	
	Muilla maritima	Common muilla	
	Typhaceae - Cattail family		
	Typha latifolia	Broad-leaved cattail	

Scientific Name	Common Name	Special Status

Legend

*= Non-native or invasive species

Special Status:

Federal:
FE = Endangered
FT = Threatened

State:
SE = Endangered
ST =Threatened

CRPR – California Rare Plant Rank
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 - Review list
4. Plants of limited distribution - Watch list

Threat Ranks
.1 - Seriously endangered in California
.2 – Fairly endangered in California

Appendix C
Potential to Occur -Sensitive Species Table – Flora

Appendix C. Sensitive Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area?	Potential to Occur	Rationale
San Diego thornmint (*Acanthomintha ilicifolia*)	FT/CE CRPR List 1B.1 SD County List A MSCP NE	Grassy openings in chaparral and coastal sage scrub, valley and foothill grassland, vernal pools. Prefers friable or broken clay soils. 10-960m. Blooming period: April-June	No	Low	This species is not known from the Preserve. Limited suitable habitat within the study area.
California adolphia (*Adolphia californica*)	CRPR 2B.1 SD County List B	Chaparral, coastal scrub, valley and foothill grassland. 45-740m Blooming period: Dec-May	No	Low	This species is typically found in the coastal plain. Study area is above the typical elevation range of the species.
Singlewhorl burrobush (*Ambrosia monogyra*)	CRPR 2B.2	Chaparral and Sonoran desert scrub in sandy soil 10-500m Blooming period: Aug-Nov	No	Not Expected	In coastal San Diego County, this species typically occurs in lowland drainages.
San Diego ambrosia (*Ambrosia pumila*)	FE CRPR 1B.1 SD County List A MSCP NE	Chaparral, coastal sage scrub, valley and foothill grassland, vernal pools, often in disturbed areas. Can occur in creek beds, seasonally dry drainages, and floodplains. 20-415m Blooming period: Apr-Oct	No	Low	Study area is at the edge of the range of this species and habitat onsite is of marginal quality.
Del Mar Manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*)	FE CRPR 1B.1 SD County List A	Low growing chaparral with eroding sandstone as substrate. 0-365m Blooming period: Dec-Jun	No	Not Expected	Primarily a species of the coastal fog-belt. The study area is above the expected elevation range the species.
San Diego sagewort (*Artemisia palmeri*)	CRPR 4.2 SD County List D	Chaparral, coastal scrub, riparian habitats in sandy soil 15-915m Blooming period: Feb-Sept	No	Low	Not observed during rare plant surveys for the Preserve. Limited riparian habitat present in the study area.
Dean's milkvetch (*Astragalus deanei*)	CRPR 1B.1 SD County List A	Open shrubby slopes. Associated with coastal sage scrub, chaparral, and sandy washes. 75-695m Blooming period: Feb-May	No	Low	Not observed during rare plant surveys of the Preserve. Known from central foothills but not the vicinity of the Preserve.
San Diego milk-vetch (*Astragalus oocarpus*)	CRPR 1B.2 SD County List A	Openings in chaparral and oak woodland. 600-1500m (1968-4921ft). Blooming period: May-Aug	No	Low	Known from Ramona Grasslands Preserve but primarily occurs further inland at higher altitude locations. No observed during rare plant surveys.
Coulter's saltbush (*Atriplex coulteri*)	CRPR 1B.2 SD County List A	Coastal habitats and valley foothill grassland in alkaline or clay soils 3-460m Blooming period: Mar-Oct	No	Low	Appropriate soils not present within the study area.
Parish brittlescale (*Atriplex parishii*)	CRPR 1B.1 SD County List A	Chenopod scrub, playas, vernal pools. 25-1900m Blooming period: Jun-Oct	No	Not expected	Required habitat is not present in the study area.

Appendix C. Sensitive Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area?	Potential to Occur	Rationale
Encinitas baccharis (*Baccharis vanessae*)	FT/CE CRPR 1B.1 SD County List A	Generally coastally influenced chaparral and, cismontane woodland. 60-720m Blooming period: Aug-Nov	No	Moderate	Habitat requirements are present in the study area and are of good quality. This species has been observed on the flank of Mt. Woodson. Not observed during rare plant surveys.
San Diego goldenstar *(Bloomeria clevelandii)*	CRPR 1B.1 SD County List A MSCP	Openings in chaparral or coastal scrub; grasslands and vernal pools in clay soils. 50-465m Blooming period: Apr-May	No	Low	This species is not known from the Preserve. Limited suitable habitat within the study area.
Thread-leaved brodiaea (*Brodiaea filifolia*)	FT/CE CRPR 1B.1 SD County List A MSCP NE	Openings in cismontane woodlands, chaparral, and coastal scrub, playas, grasslands, and vernal pools, often in clay soils 25-1120m Blooming period: Mar-Jun	No	Low	This species is not known from the Preserve. Limited suitable habitat within the study area.
Orcutt's brodiaea (*Brodiaea orcuttii*)	CRPR 1B.1 SD County List A MSCP	Moist grasslands, near streams and the periphery of vernal pools. 0-1600m (0-5249ft). Blooming period: May-July	No	Low	This species is present on the Preserve. The study area does not pass through moist grasslands or vernal pools, where these species would be expected.
Round-leaved filaree (*California macrophylla*)	CRPR 1B.1 SD County List B	Cismontane woodland, valley and foothill grassland in clay soils. 15-1200m Blooming period: Mar-May	No	Low	This species is not known from the Preserve. Limited suitable habitat within the study area.
Lakeside ceanothus (*Ceanothus cyaneus*)	CRPR 1B.2 SD County List A MSCP NE	Closed-cone coniferous forest, dense chaparral. 235-755m Blooming period: Apr-Jun	No	Not Expected	This species is widely distributed in the western side of the southern portion of the Preserve. Surveys were done to ensure that this species was avoided and not within the study area.
Wart-stemmed ceanothus (*Ceanothus verrucosus*)	CRPR 2B.2 SD County List B	Chaparral. 1-380m Blooming period: Dec-May	No	Not Expected	Coastal fog-belt species: Study area is outside of the species elevation range.
Southern tarplant (*Centromadia parryi* ssp *australis*)	CRPR 1B.1 SD County List A	Marshes and swamps, valley and foothill grassland(mesic), vernal pools 0-425m Blooming period: May-Nov	No	Low	This species is not known from the Preserve. Limited suitable habitat within the study area.
Smooth tarplant (*Centromadia pungens* ssp. *laevis*)	CRPR 1B.1 SD County List A	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland 0-640m Blooming period: Apr-Sept	No	Low	This species is not known from the Preserve. Limited suitable habitat within the study area.
Southern mountain misery (*Chamabaetia australis*)	CRPR 4.2 SD County List D	Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley & foothill grassland, in gabbroic or meta-volcanic substrate, 120-1,005 m. Blooming period: Nov-May	Yes	Present	Present in southern mixed chaparral on the western portion of the Preserve. At least 10 individuals within the study area.

Appendix C. Sensitive Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area?	Potential to Occur	Rationale
Peninsular spineflower (*Chorizanthe leptotheca*)	CRPR 4.2 SD County List D	Chaparral, coastal scrub, and montane coniferous forests in alluvial fans and granitic soil. 300-1900m (984-6234ft). Blooming period: May-Aug	No	Low	This species is not known from the Preserve. Limited suitable habitat within the study area.
Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*)	CRPR 1B.2 SD County List A	Clay lenses, largely devoid of shrubs. Occasionally seen on the periphery of vernal pool habitat and the periphery of montane meadows near vernal seeps. Below 1400m (4593ft). Blooming period: Apr-Jul	No	Low	This species is not known from the Preserve. Limited suitable habitat within the study area.
Delicate clarkia (*Clarkia delicata*)	CRPR 1B.2 SD County List A	Oak woodlands and chaparral often in gabbro soils. 235-1000m (770-3280ft). Blooming period: Apr-Jun	No	Moderate	CNDDB records from oak woodland along Mussey Creek. Suitable habitat present with the Preserve. Not observed during rare plant surveys.
San Miguel savory (*Clinopodium chandleri*)	CRPR 1B.2 SD County List A MSCP	Chaparral, cismontane woodland, coastal scrub, riparian woodland, and grasslands in rocky, gabbro, or metavolcanic soils 120-1075m Blooming period: Mar-Jul	No	High	Species is known from the Preserve. Potential for this small shrub to be present within the study area.
Summer holly (*Comarostaphylis diversifolia* var. *diversifolia*)	CRPR 1B.2 SD County List A	Southern mixed chaparral, usually on mesic north-facing slopes. Almost the entire population occurs west of Interstate 15. 100-550m (328-1804ft). Blooming period: Apr-Jun	No	Low	This species is not known from the Preserve. Not expected outside of the coastal fog belt.
Variegated dudleya (*Dudleya variegata*)	CRPR 1B.2 SD County List A MSCP NE	Openings in chaparral, cismontane woodland, and coastal sage scrub, isolated rocky substrates in open grasslands, and vernal pools 3-580m Blooming period: Apr-Jun	No	Low	This species is not known from the Preserve. Limited suitable habitat within the study area.
Palmer's goldenbush (*Ericameria palmeri* var. *palmeri*)	CRPR 1B.1 SD County List B MSCP NE	Coastal drainages, in mesic chaparral sites, or rarely in coastal sage scrub. Below 600m (1969ft). Blooming period: Jul-Nov	No	Low	Not observed on the Preserve. Limited potential habitat present in study area.
Vanishing wild buckwheat (*Eriogonum evanidum*)	CRPR 1B.1	Chaparral, cismontane woodland, lower montane coniferous forests, and pinyon/juniper woodland in sandy or gravelly soils. 1100-2225m Blooming period: Jul-Oct	No	Low	Montane species.
San Diego button-celery (*Eryngium aristulatum var. parishii*)	FE/CE CRPR 1B.1 SD County List A	Vernal Pools, coastal sage scrub, valley and foothill grassland in mesic soils. 20-620m Blooming period: Apr-Jun	No	Not Expected	Required vernal pools are not present in the study area.

Appendix C. Sensitive Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area?	Potential to Occur	Rationale
San Diego barrel cactus (*Ferocactus viridescens*)	CRPR 2B.1 SD County List B MSCP	Chaparral, coastal scrub, grasslands and vernal pools in sandy to rocky areas. 10–150m (33-492ft). Blooming period: May-Jun	No	Low	Coastal species. Above and outside of the normal range of this species.
Mission canyon bluecup (*Githopsis diffusa ssp. filicaulis*)	CRPR 3.1 SD County List C	Isolated, open areas in chaparral in mesic and disturbed areas 450-700m Blooming period: Apr-Jun	No	Low	Required soils are not present in the study area.
Palmer's grappling hook (*Harpagonella palmeri*)	CRPR 4.2 SD County List D	Chaparral, coastal scrub, grasslands in clay soils 197-8924m (60 to 2720ft). Blooming period: Mar-May	No	Low	Appropriate clay soil lenses not likely within the study area.
Tecate cypress (*Hesperocyparis forbesii*)	CRPR 1B.1 SD County List A	Coniferous forests and chaparral in clay, gabbro, or meta-volcanic soils 80-1500m	No	Not Expected	Outside of the known range of this species.
Graceful tarplant (*Holocarpha virgata ssp. elongata*)	CRPR 4.3 SD County List D	Chaparral, coastal sage and grasslands	No	Moderate	Found in high frequency on Ramona Grasslands Preserve. No observed during rare plant surveys, but suitable habitat present in the study area.
Ramona horkelia (*Horkelia truncata*)	CRPR 1B.3 SD County List A	Open chamise chaparral between 400-1300m (1312-4265ft). Blooming period: May-Jun	No	High	This species is present on the Preserve. While not observed within the study area, there is high potential on the mountain top on Boulder Oaks North.
Decumbent goldenbush (*Isocoma menziesii* var. *decumbens*)	CRPR 1B.2 SD County List A	Chaparral, coastal scrub often in sandy disturbed areas 10-135m Blooming period: Apr-Nov	No	Not Expected	Coastal species: Species occurs outside the elevation range of the study area.
San Diego marsh-elder (*Iva hayesiana*)	CRPR 2B.2 SD County List B	Marshes and swamps, playas, creeks or intermittent streambeds 10-500m Blooming period: Apr-Oct	No	Low	Required habitat is not present in the study area.
Heart-leaf pitcher sage (*Lepechinia cardiophylla*)	CRPR 1B.2 SD County List A MSCP NE	Closed-cone coniferous forest, chaparral, cismontane woodland 520-1370m Blooming period: Apr-Jul	No	Low	Present in low numbers on the Preserve. Low potential to be present within the study area.
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)	CRPR 4.3 SD County List A	Openings in chaparral and sage scrub, generally well away from the coast in Southern California in the foothill elevations. Below 885m. Blooming period: Jan-Jul	No	Moderate	Habitat requirements are present in the study area and are of good quality.
Felt-leaf monardella (*Monardella hypoleuca* var. *lanata*)	CRPR 1B.2 SD County List A MSCP	Chamise chaparral understory. 300-1000m (984-3280 ft). Blooming period: Jun-Aug	No	High	This species was observed on the Preserve.

Appendix C. Sensitive Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area?	Potential to Occur	Rationale
Willowy monardella (*Monardella viminea*)	FE/CE CRPR 1B.1 SD County List A MSCP NE	Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland, alluvial ephemeral washes, usually at sandy locales in seasonally dry washes 50-225m Blooming period: Jun-Aug	No	Low	Drainages within the site are isolated from nearest populations at Sycamore Canyon/Goodan Ranch Preserve. Drainages onsite are marginally suitable.
Little mousetail (*Myosurus minimus ssp. apus*)	CRPR 3.1 SD County List C	Vernal pools 20-640m Blooming period: Mar-Jun	No	Not Expected	Required vernal pool habitat is not present in the study area.
Spreading navarretia (*Navarretia fossalis*)	FT CRPR 1B.1 SD County Group A MSCP	Chenopod scrub, marshes and swamps, vernal pools 30-655m Blooming period: Apr-Jun	No	Not Expected	Required vernal pool habitat is not present in the study area.
Dehesa beargrass (*Nolina interrata*)	CE CRPR 1B.1 SD County List A MSCP NE	Open southern mixed chaparral and chamise chaparral in gabbro, meta-volcanic, or serpentine soils. 200-700m (656-2296ft). Blooming period: Jun-Jul	No	Not Expected	Required soils are not present in the study area. Outside of the species known geographic range.
California adder's-tongue (*Ophioglossum californicum*)	CRPR 4.2 SD County List D	Chaparral, valley & foothill grassland, vernal pool margins, 60-300 m.	**Yes**	Present	This species is known from the study area but would not be impacted by the Project.
Gander's ragwort (*Packera ganderi*)	CR CRPR 1B.2 SD County List A	Openings in chaparral on metavolcanic, mafic or gabbro soils. 400-1200m Blooming period: Apr-Jun	No	High	This species was observed immediately adjacent to the study area.
Golden-rayed pentacheata (Pentacheata aurea ssp. *aurea)*	CRPR 4.2 SD County List D	Chaparral, cismontane woodland, coastal scrub, coniferous forest, riparian woodland, grasslands 80-1850m Blooming period: Mar-Jul	No	High	This species was observed immediately adjacent to the study area.
Cooper's rein orchid (*Piperia cooperi*)	CRPR 4.2 SD County List D	Chaparral, cismontane woodland, grasslands 15-1585m Blooming period: Mar-Jun	No	High	This species was observed immediately adjacent to the study area.
San Diego mesa mint (*Pogogyne abramsii*)	FE/CE CRPR 1B.1 SD County List A MSCP	Clay pan vernal pools in central San Diego County 90-200m Blooming period: Mar-Jul	No	Not Expected	Required habitat is not present in the study area.
Nuttall's scrub oak (*Quercus dumosa*)	CRPR 1B.1 SD County List A	Coastal chaparral with a generally open canopy cover 15-400m Blooming period: Feb-Aug	No	Low	This species typically occurs within the coastal plain. Generally not expected east of Interstate-15.

Appendix C. Sensitive Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area?	Potential to Occur	Rationale
Engelmann oak (*Quercus engelmannii*)	CRPR 4.2 SD County List D	Oak woodland, southern mixed chaparral, and savannah grasslands of the interior valleys and slopes. Below 1300m (4265ft). Blooming period: Mar-Jun	**Yes**	Present	This species is known from the study area.
Moreno currant (*Ribes canthariforme*)	CRPR 1B.3 SD County List A	Chamise chaparral and riparian scrub. 500-1200m (1640-3937ft). Blooming period: Feb-Apr	No	Low	Species has not been observed on the Preserve.
Ashy spike-moss (*Selaginella cinerascens*)	CRPR 4.1 SD County List D	Chaparral and coastal scrub 20-640m	No	High	This species was observed immediately adjacent to the study area.
Rayless ragwort (*Senecio aphanactis*)	CRPR 2B.2 SD County List B	Coastal sage scrub, chaparral, cismontane woodland, alkaline flats 15-800m Blooming period: Jan-Apr	No	Low	Very scarce throughout range. Not observed on the Preserve.
Hammitt's clay-cress (*Sibaropsis hammittii*)	CRPR 1B.2 SD County List A	Chaparral, valley and foothill grassland in clay soils 720-1065m Blooming period: Mar-Apr	No	Not Expected	Required soils are not present in the study area. This species has a restricted distribution.
Blue streamwort (*Stemodia durantifolia*)	CRPR 2B.1 SD County List B	Sonoran desert scrub, riparian woodland, often in mesic sandy soils 180-300m Blooming period: Jan-Dec	No	Low	Not known from the Preserve. Limited potential habitat present in the study area.
Parry's tetracoccus (*Tetracoccus dioicus*)	CRPR 1B.2 SD County List A MSCP	Chamise chaparral and coastal scrub. Below 1000m (3280ft). Blooming period: Apr-May	No	Moderate	Habitat requirements are present in the study area and are of good quality. This species is uncommon in the vicinity.
Rush chaparral-star (*Xanthisma junceum*)	CRPR 4.3 SD County List D	Slender perennial in chamise chaparral and Diegan sage scrub communities. Blooming period: July - January	No	High	Suitable habitat present on the Preserve. Found in chaparral on Ramona Grasslands Preserve.

Appendix C. Sensitive Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area?	Potential to Occur	Rationale
Legend: **Status:** **Federal** FE - Listed as endangered under the federal Endangered Species Act. FT - Listed as threatened under the federal Endangered Species Act. FC – Candidate for listing under the federal Endangered Species Act. **State** SE - Listed as endangered under the California Endangered Species Act. ST – Listed as threatened under California Endangered Species Act. SR – Listed as rare under California Endangered Species Act. **CA Rare Plant Rank (CRPR) – Formerly known as CNPS List** 1B. Rare, Threatened, or Endangered in California and elsewhere 2B. Rare, Threatened, or Endangered in California, more common elsewhere 3. Plants for which we more information is needed - Review list 4. Plants of limited distribution - Watch list *Threat Ranks* .1 - Seriously endangered in California .2 – Fairly endangered in California .3 – Not very endangered in California **San Diego County List** *Plants* A – Rare, threatened or endangered in California and elsewhere B – Rare, threatened or endangered in California but more common elsewhere C – Maybe quite rare, but more information is needed to determine their status D – Limited distribution and are uncommon but not presently rare or endangered MSCP – Covered Species under the San Diego Multiple Species Conservation Plan (MSCP) MSCP NE – Listed as a Narrow Endemic species in the San Diego MSCP **References:** Special Status listing information from CDFW 2018. Nomenclature and plant descriptions from: CNPS Online Inventory, Calflora.org, Baldwin 2012, Lightner 2011, Reiser 2001, Roberts 1989. Range information from CNDDB 2018, CNPS 2018, and SDNHM Plant Atlas Project 2018.					

Appendix D
Observed Species List – Fauna

Appendix D Wildlife Species Detected

Scientific Name	Common Name	Special Status
INVERTEBRATES		
Arachnids		
Paruroctonus silvestrii	Stripe-tailed Scorpion	
Pseudouroctonus angelenus	Los Angeles Scorpion	
Branchiopods		
**Armadillidium vulgare*	Common Pillbug	
**Porcellio laevis*	Dooryard Sowbug	
**Procambarus clarkii*	Red Swamp Crayfish	
Centipedes		
Scolopendra polymorpha	Multicolored Centipede	
Insects		
Enallagma civile	Familiar Bluet	
Libellula saturata	Flame Skimmer	
Pachydiplax longipennis	Blue Dasher	
Sympetrum corruptum	Variegated Meadowhawk	
Tramea lacerata	Black Saddlebags	
Tramea onusta	Red Saddlebags	
Trimerotropis pallidipennis	Pallid-winged Grasshopper	
Scudderia mexicana	Mexican Bush Katydid	
Gryllus pennsylvanicus	Fall Field Cricket	
Stenopelmatus fuscus	Dark Jerusalem Cricket	
Reticulitermes hesperus	Western Subterranean Termite	
Incisitermes minor	Western Drywood Termite	
Oncopeltus fasciatus	Large Milkweed Bug	
Rasahus thoracicus	Western Corsair	
Brachynemurus / Myrmeleon sp.	Ant Lion	
Calosoma semilaeve	Black Calosoma	
Phloeodes pustulosus	Common Ironclad Beetle	
Phloeodes diabolicus	Diabolical Ironclad Beetle	
Eleodes armatus	Armored Darkling Beetle	
Eleodes osculans	Woolly Darkling Beetle	
**Apis mellifera*	Honey Bee	
**Linepithema humile*	Argentine Ant	

Scientific Name	Common Name	Special Status
Dasymutilla coccinea	Red Velvet-Ant	
Pepsis / Hemipepsis sp.	Tarantula Hawk Wasp	
Moths, Skippers and Butterflies		
Papilio zelicaon	Anise Swallowtail	
Papilio rutulus	Western Tiger Swallowtail	
Papilio eurymedon	Pale Swallowtail	
Pontia protodice	Checkered White	
**Pieris rapae*	Cabbage White	
Anthocharis sara	Pacific Orangetip	
Colias eurytheme	Orange Sulphur	
Zerene eurydice	California Dogface	
Phoebis philea	Orange-barred Sulphur	
Phoebis sp.	Sulphur	
Callophrys affinis	Western Green Hairstreak	
Callophrys agustinus	Brown Elfin	
Glaucopsyche lygdamus	Silvery Blue	
Icaricia acmon	Acmon Blue	
Apodemia virgulti	Behr's Metalmark	
Vanessa atalanta	Red Admiral	
Vanessa cardui	Painted Lady	
Vanessa annabella	West Coast Lady	
Coenonympha tullia	Common Ringlet	
Danaus plexippus	Monarch	
Erynnis funeralis	Funereal Duskywing	
Erynnis sp.	Duskywing	
VERTEBRATES		
Amphibians		
Anaxyrus boreas	Western Toad	
Pseudacris cadaverina	California Chorus Frog	
Pseudacris regilla	Pacific Chorus Frog	
Spea hammondii	Western Spadefoot	CSC
**Lithobates catesbeianus*	Bullfrog	
Reptiles		
Elgaria multicarinata	Southern Alligator Lizard	

Scientific Name	Common Name	Special Status
Phrynosoma blainvillii	Coast Horned Lizard	CSC
Sceloporus occidentalis	Western Fence Lizard	
Sceloporus orcutti	Granite Spiny Lizard	
Uta stansburiana	Side-blotched Lizard	
Plestiodon gilberti	Gilbert's Skink	
Plestiodon skiltonianus interparietalis	Coronado Skink	CSC
Aspidoscelis hyperythra beldingi	Belding's Orangethroat Whiptail	CSC
Aspidoscelis tigris multiscutatus	Coastal Western Whiptail	
Xantusia henshawi	Granite Night Lizard	
Charina trivirgata roseofusca	Coastal Rosy Boa	
Masticophis lateralis	Striped Racer	
Pituophis catenifer	Gopher Snake	
Salvadora hexalepis virgultea	Coast Patch-nosed Snake	CSC
Crotalus helleri	Southern Pacific Rattlesnake	
Crotalus ruber	Red Diamond Rattlesnake	CSC
Birds		
Anas strepera	Gadwall	
Anas americana	American Wigeon	
Anas platyrhynchos	Mallard	
Anas crecca	Green-winged Teal	
Aythya collaris	Ring-necked Duck	
Aythya affinis	Lesser Scaup	
Lophodytes cucullatus	Hooded Merganser	
Oxyura jamaicensis	Ruddy Duck	
Callipepla californica	California Quail	
Podilymbus podiceps	Pied-billed Grebe	
Ardea herodias	Great Blue Heron	
Nycticorax nycticorax	Black-crowned Night-Heron	
Cathartes aura	Turkey Vulture	
Pandion haliaetus	Osprey	
Elanus leucurus	White-tailed Kite	CFP
Accipiter cooperii	Cooper's Hawk	
Buteo lineatus	Red-shouldered Hawk	
Buteo jamaicensis	Red-tailed Hawk	

Scientific Name	Common Name	Special Status
Falco sparverius	American Kestrel	
Porzana carolina	Sora	
Gallinula chloropus	Common Moorhen	
Fulica americana	American Coot	
Charadrius vociferus	Killdeer	
Tringa melanoleuca	Greater Yellowlegs	
Gallinago delicata	Wilson’s Snipe	
**Columba livia*	Rock Pigeon	
Zenaida macroura	Mourning Dove	
Geococcyx californianus	Greater Roadrunner	
Tyto alba	Barn Owl	
Megascops kennicottii	Western Screech-Owl	
Bubo virginianus	Great Horned Owl	
Phalaenoptilus nuttallii	Common Poorwill	
Chaetura vauxi	Vaux's Swift	CSC
Aeronautes saxatalis	White-throated Swift	
Archilochus alexandri	Black-chinned Hummingbird	
Calypte anna	Anna's Hummingbird	
Calypte costae	Costa's Hummingbird	
Melanerpes formicivorus	Acorn Woodpecker	
Sphyrapicus ruber	Red-breasted Sapsucker	
Picoides nuttallii	Nuttall's Woodpecker	
Colaptes auratus	Northern Flicker	
Contopus sordidulus	Western Wood-Pewee	
Empidonax difficilis	Pacific-slope Flycatcher	
Sayornis nigricans	Black Phoebe	
Sayornis saya	Say's Phoebe	
Myiarchus cinerascens	Ash-throated Flycatcher	
Tyrannus vociferans	Cassin's Kingbird	
Tyrannus verticalis	Western Kingbird	
Lanius ludovicianus	Loggerhead Shrike	CSC
Vireo gilvus	Warbling Vireo	
Aphelocoma californica	Western Scrub-Jay	

Scientific Name	Common Name	Special Status
Corvus brachyrhynchos	American Crow	
Corvus corax	Common Raven	
Tachycineta bicolor	Tree Swallow	
Tachycineta thalassina	Violet-green Swallow	
Stelgidopteryx serripennis	Northern Rough-winged Swallow	
Riparia riparia	Bank Swallow	ST
Petrochelidon pyrrhonota	Cliff Swallow	
Hirundo rustica	Barn Swallow	
Baeolophus inornatus	Oak Titmouse	
Psaltriparus minimus	Bushtit	
Sitta carolinensis	White-breasted Nuthatch	
Salpinctes obsoletus	Rock Wren	
Catherpes mexicanus	Canyon Wren	
Thryomanes bewickii	Bewick's Wren	
Troglodytes aedon	House Wren	
Cistothorus palustris	Marsh Wren	
Polioptila caerulea	Blue-gray Gnatcatcher	
Regulus calendula	Ruby-crowned Kinglet	
Chamaea fasciata	Wrentit	
Sialia mexicana	Western Bluebird	
Catharus ustulatus	Swainson's Thrush	
Catharus guttatus	Hermit Thrush	
Turdus migratorius	American Robin	
Mimus polyglottos	Northern Mockingbird	
Toxostoma redivivum	California Thrasher	
**Sturnus vulgaris*	European Starling	
Phainopepla nitens	Phainopepla	
Vermivora celata	Orange-crowned Warbler	
Dendroica petechia	Yellow Warbler	CSC
Dendroica coronata	Yellow-rumped Warbler	
Dendroica townsendi	Townsend's Warbler	
Geothlypis trichas	Common Yellowthroat	
Wilsonia pusilla	Wilson's Warbler	

Scientific Name	Common Name	Special Status
Icteria virens	Yellow-breasted Chat	CSC
Pipilo maculatus	Spotted Towhee	
Aimophila ruficeps canescens	Southern California Rufous-crowned Sparrow	
Melozone crissalis	California Towhee	
Spizella passerina	Chipping Sparrow	
Spizella atrogularis	Black-chinned Sparrow	
Chondestes grammacus	Lark Sparrow	
Artemisiospiza belli	Bell's Sparrow	
Passerella iliaca	Fox Sparrow	
Melospiza melodia	Song Sparrow	
Zonotrichia leucophrys	White-crowned Sparrow	
Zonotrichia atricapilla	Golden-crowned Sparrow	
Junco hyemalis	Dark-eyed Junco	
Piranga ludoviciana	Western Tanager	
Pheucticus melanocephalus	Black-headed Grosbeak	
Passerina caerulea	Blue Grosbeak	
Passerina amoena	Lazuli Bunting	
Agelaius phoeniceus	Red-winged Blackbird	
Sturnella neglecta	Western Meadowlark	
**Molothrus ater*	Brown-headed Cowbird	
Icterus cucullatus	Hooded Oriole	
Icterus bullockii	Bullock’s Oriole	
Icterus parisorum	Scott’s Oriole	
Haemorhous mexicanus	House Finch	
Carduelis psaltria	Lesser Goldfinch	
Carduelis lawrencei	Lawrence's Goldfinch	
**Passer domesticus*	House Sparrow	
Mammals		
Myotis ciliolabrum	Small-footed Myotis	
Myotis evotis	Long-eared Myotis	
Myotis yumanensis	Yuma Myotis	
Lasiurus blossevillii	Western Red Bat	CSC
Lasiurus cinereus	Hoary Bat	
Parastrellus hesperus	Canyon Bat	

Scientific Name	Common Name	Special Status
Eptesicus fuscus	Big Brown Bat	
Antrozous pallidus	Pallid Bat	CSC
Tadarida brasiliensis	Brazilian Free-tailed Bat	
Nyctinomops femorosaccus	Pocketed Free-tailed Bat	CSC
Eumops perotis	Western Mastiff Bat	CSC
Sylvilagus audubonii	Desert Cottontail	
Sylvilagus bachmani	Brush Rabbit	
Otospermophilus beecheyi	California Ground Squirrel	
Thomomys bottae	Botta's Pocket Gopher	
Chaetodipus californicus	California Pocket Mouse	
Chaetodipus californicus femoralis	Dulzura Pocket Mouse	CSC
Dipodomys simulans	Dulzura Kangaroo Rat	
Reithrodontomys megalotis	Western Harvest Mouse	
Peromyscus californicus	California Mouse	
Peromyscus maniculatus	Deer Mouse	
Neotoma macrotis	Big-eared Woodrat	
Neotoma lepida intermedia	San Diego Desert Woodrat	CSC
Microtus californicus	California Vole	
**Canis familiaris*	Domestic Dog	
Canis latrans	Coyote	
Urocyon cinereoargenteus	Common Gray Fox	
Procyon lotor	Northern Raccoon	
Mustela frenata	Long-tailed Weasel	
Spilogale gracilis	Western Spotted Skunk	
Mephitis mephitis	Striped Skunk	
Puma concolor	Mountain Lion	
Lynx rufus	Bobcat	
**Equus caballus*	Domestic Horse	
Odocoileus hemionus	Southern Mule Deer	
**Bos taurus*	Domestic Cattle	

Scientific Name	Common Name	Special Status

Legend

*= Non-native or invasive species

Special Status:

Federal:
FE = Endangered
FT = Threatened

State:
SE = Endangered
ST =Threatened
CSC = California Species of Special Concern
CFP = California Fully Protected Species

Appendix E
Potential to Occur -Sensitive Species Table – Fauna

Attachment F

Sensitive Wildlife Species with Potential to Occur

Appendix E. Sensitive Animal Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
INVERTEBRATES					
Harbison's Dun Skipper (*Euphyes vestris harbisoni*)	SDC Group I	Host plant is San Diego sedge (Carex spissa). Adult butterfly generally nectars in vicinity of drainges which San Diego sedge occurs in/	No	Not expected	Host plant San Diego sedge (*Carex spissa*) was not observed on the Preserve in 2007 or 2013 during focused plant surveys. No suitable host plants present in the Preserve or study area.
Hermes Copper Butterfly (*Lycaena hermes*)	FC SDC Group I	Mature spiny redberry host plant (*Rhamnus crocea*) surrounded by California buckwheat nectaring resources.	No	Not expected	Host plant spiny redberry (*Rhamnus crocea*) was only present in isolated spots in dense chaparral, which is not appropriate habitat for this species. No suitable habitat present in the Preserve or study area.
Quino Checkerspot Butterfly (*Euphydryas editha quino*)	FE SDC Group I	Inhabits openings on clay soils within or in the vicinity of shrublands, grasslands, meadows, vernal pools, and lake margins. Closely tied to its larval host plant, dwarf plantain *(Plantago erecta)* or owl's clover (*Castilleja exserta* ssp. *exserta).*	No	Low	Small patches of suitable habitat on site are isolated by large expanses of dense chaparral. No records of Quino checkerspot butterflies occurring near the Preserve. No observations during focused surveys in 2007 (ICF 2007) or 2013 (ICF 2013).
Riverside Fairy Shrimp (*Streptocephalus woottoni*)	FE SDC Group I MSCP NE	Vernal pools. It occurs from Los Angeles County to Baja California. In San Diego County, all populations are within 15 kilometers of the coast.	No	Not expected	No suitable habitat observed on the study area.
San Diego Fairy Shrimp (*Branchinecta sandiegoensis*)	FE SDC Group I MSCP NE	Vernal pools. All known localities are below 701m (2,300 ft) and are within 64km (40 miles) of the Pacific Ocean.	No	Not expected	No suitable habitat observed on the study area.
AMPHIBIANS					
Arroyo Toad (*Anaxyrus californicus*)	FE SSC SDC Group I MSCP NE	Exposed shallow pools with a sand or gravel base are used for breeding. Breeding pools must occur in the vicinity (ca. 10-100 m) of a braided sandy channel with shorelines or central bars made of stable, sandy terraces.	No	Not expected	While this species is present in the vicinity near San Vicente Reservoir, no suitable breeding habitat occurs on the Preserve or in the study area.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Western Spadefoot (*Spea hammondii*)	SSC SDC Group II	Temporary rainpools with water temperatures between 9ºC and < 30ºC that last at least 3 weeks.	No	Not expected	Has not been observed on the Preserve during surveys in 2007 or 2013. No suitable habitat observed on the study area.
REPTILES					
Belding's Orange-throated Whiptail (*Aspidoscelis hyperythra beldingi*)	SSC SDC Group II MSCP	The habitat characteristics are poorly understood, however historically it was found in floodplains or terraces along streams. Closely tied to coastal sage scrub plants and some chaparral plants.	No	**High**	Known from the vicinity (CNDDB 2018) and suitable habitat occurs on the Preserve and in the study area.
Coast (Blainville's/San Diego) Horned Lizard (*Phrynosoma blainvillii*)	SSC SDC Group II MSCP	Grasslands, brushlands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging.	Yes	**Present**	Coast horned lizards observed on the Preserve and recorded with in the study area. Suitable habitat is present in the study area.
Coast Patch-nosed Snake (*Salvadora hexalepis virgultea*)	SSC SDC Group II	Inhabits semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains.	No	Medium	Suitable habitat occurs on the Preserve and in the study area. Not observed during general or trapping surveys in 2007 or 2013.
Coastal Western Whiptail (*Aspidoscelis tigris stejnegeri*)	SDC Group II	Found in open brushland in semiarid habitats.	No	**High**	Observed during general surveys of the Preserve in 2013. Suitable habitat occurs on the Preserve and in the study area.
Coronado Skink (*Plestiodon skiltonianus interparietalis*)	SSC SDC Group II	Forest, open woodland and grassy areas. Usually found under leaf litter, logs or rocks.	No	**High**	Observed during surveys of the Preserve in 2013. Suitable habitat is present in the study area.
Red Diamond Rattlesnake (*Crotalus ruber*)	SSC SDC Group II	Occurs from sea level to 914m (3000ft) in chaparral, woodland, and arid desert habitats with rocky areas and dense vegetation.	Yes	**Present**	Suitable habitat occurs on the Preserve. Observed within the study area.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
San Diego Banded Gecko (*Coleonyx variegatus abbottii*)	SDC Group I	Found in open areas, often near rocks, and may seek shelter under them, or in crevices.	No	Moderate	Suitable habitat occurs on the Preserve and in the study area. Not observed during surveys in 2007 or 2013.
San Diego Ringneck Snake (*Diadophis punctatus similis*)	SDC Group II	Prefers moist habitats, including wet meadows, rocky hillsides, gardens, farmland, grassland, chaparral, mixed coniferous forests and woodlands.	No	Medium	Suitable habitat occurs on the Preserve and in the study area. Not observed during surveys in 2007 or 2013.
Silvery Legless Lizard (*Anniella pulchra pulchra*)	SSC SDC Group II	Occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Leaf litter under trees and bushes in sunny areas often indicate suitable habitat.	No	Medium	Suitable habitat occurs on the Preserve and in the study area. Not observed during general or trapping surveys in 2007 or 2013.
Southwestern Pond Turtle *(Emys marmorata pallida*)	SSC SDC Group I MSCP NE	Requires slack- or slow-water aquatic habitat as well as aerial and aquatic basking sites. Also requires an upland oviposition site on an unshaded slope with clay soils, in the vicinity of the aquatic site.	No	Low	Suitable freshwater pond habitat occurs on the Preserve. Not observed during surveys of the Preserve in 2007 or 2013. No suitable habitat occurs within the study area.
Three-lined (Coastal Rosy) Boa (*Lichanura trivirgata*)	SDC Group II	Inhabits rocky areas in coastal sage scrub, chaparral, and desert environments.	No	**High**	Observed within the Preserve. Suitable habitat occurs on the Preserve and in the study area.
Two-striped Garter Snake (*Thamnophis hammondii*)	SSC SDC Group I	Inhabits perennial and intermittent streams with rocky beds and bordered by willow thickets or other dense vegetation.	No	Low	Suitable pond habitat occurs on the Preserve. Not observed during surveys in 2007 or 2013. No suitable habitat occurs within the study area.
BIRDS					
Least Bittern (*Ixobrychus exilis*)	SSC SDC Group II	Dense freshwater marshes with tules and cattails.	No	Low	Uncommon species. Not observed during surveys of the Preserve in 2007 or 2013. No suitable habitat occurs within the study area.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Green Heron (*Butorides virescens*)	SDC Group II	Common in wetland thickets throughout much of North America. Generally a solitarily nester but are known to sometimes nest socially in loose colonies. Usually forages for fish by wading at water's edge or in very shallow water.	No	Moderate	Common in appropriate habitat. Not observed during surveys of the Preserve in 2007 or 2013. Suitable habitat occurs in the vicinity of the study area, but no suitable habitat occurs in the study area.
Great Blue Heron (*Areda herodias*)	SDC Group II	Forages in wetlands and occasionally grasslands. Communal nester on trees near water.	No	Nesting - None **Foraging - moderate**	Observed foraging in ponds in the Preserve. Study area contains marginally suitable upland habitat for foraging.
White-faced Ibis (*Plegadis chihi*)	SDC Group I MSCP	Forages in marshes, swamps, ponds and rivers, mostly in freshwater habitats. Nests in emergent vegetation or low trees and shrubs over shallow water; sometimes on ground on small islands.	No	Nesting - None **F**oraging - low	Low potential to forage in uplands near ponds on the Preserve.
Turkey Vulture (*Cathartes aura*)	SDC Group I	Forage over woodland and nearby open country. Nest in crevices among granite boulders.	No	**High**	Observed foraging on the Preserve in 2013. Suitable foraging habitat present in the study area. No suitable nesting habitat present.
White-tailed Kite (*Elanus leucurus*)	FP (nesting) SDC Group I	Open grasslands, agricultural areas, wetlands, and oak woodlands. Their primary source of food is the California vole. It typically forages in open undisturbed habitats and nests in the top of a dense oak, willow or other large tree.	Yes	**Present**	White-tailed kite observed within the Preserve and study area. Suitable foraging and nesting habitat present in the study area.
Northern Harrier (*Circus cyaneus*)	SSC (nesting) SDC Group I MSCP	Grasslands and marshes. Nests are on the ground and typically concealed within a marsh or other dense vegetation.	No	Breeding - Low Foraging– Medium	Suitable foraging and nesting habitat present in the Preserve. Not observed during surveys of the Preserve in 2007 or 2013.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Sharp-shinned Hawk (*Accipiter striatus*)	SDC Group I	Found in San Diego County during the winter in a variety of habitats.	No	Breeding - None Migration/ Wintering – Medium	This species has been documented in the vicinity and may move through the Preserve in migration. This species is not known to breed in San Diego County.
Cooper's Hawk (*Accipiter cooperii*)	SDC Group I MSCP	Oak groves and mature stands of riparian woodland. This species has adapted well to development and is abundant in urban canyons with eucalyptus trees.	Yes	**High**	Observed on the Preserve during avian and general surveys. Suitable foraging and nesting habitat present in the study area. No nesting habitat would be impacted
Red-shouldered Hawk (*Buteo lineatus*)	SDC Group I	Lowland riparian woodland. This species has adapted well to development and is abundant in areas with eucalyptus trees.	Yes	Present	Recorded within with the study area. Suitable foraging and nesting habitat present in the study area. No nesting habitat would be impacted
Ferruginous Hawk (*Buteo regalis*)	SDC Group I	Forages in open grasslands.	No	Nesting - None Foraging - Medium	May utilize the grasslands for foraging during the winter.
Golden Eagle (*Aquila chrysaetos*)	FPS SDC Group I MSCP	Nest on cliff ledges or trees on steep slopes. Forage in grasslands, sage scrub or broken chaparral.	No	Nesting - None **Foraging - High**	No suitable nesting habitat occurs on the Preserve. Suitable foraging habitat occurs on the Preserve and in the study area. Reported to forage on the Preserve (USGS 2017).
Merlin (*Falco columbarius*)	SDC Group II	Will forage over a variety of habitats; however, species does not breed in California.	No	Breeding - None Migration/ Wintering – Medium	This species has been documented in the vicinity and may move through the Preserve in migration.
Peregrine Falcon (*Falco peregrinus*)	SE SDC Group I MSCP (S)	Will forage over a variety of habitats however only breed near water, typically with the nest placed on a cliff ledge.	No	Breeding - None Migration/ Wintering - Medium	This species has been documented in the vicinity and may move through the Preserve in migration. No suitable nesting habitat present in the study area
Prairie Falcon (*Falco mexicanus*)	SDC Group I	Nest on cliffs or bluffs and forage in open desert or grasslands. In San Diego County, nest at least 23 miles from the coast (Unitt 2004).	No	Nesting - None Foraging - Medium	No suitable nesting habitat occurs on the preserve. The Preserve and study area supports suitable foraging habitat.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Barn Owl (*Tyto alba*)	SDC Group II	Nest in buildings, nest boxes, at the base of the leaves in palm trees, and in cavities in native trees.	Yes	**Present**	One adult barn owl observed in palm tree at the ranger station in 2013. Suitable foraging and nesting habitat present in the study area. No nesting habitat would be impacted
Western Burrowing Owl (*Athene cunicularia hypugaea*)	SSC SDC Group I MSCP	Prairies, grasslands, lowland scrub, agricultural lands, coastal dunes, desert floors, and some artificial, open areas. They require large open expanses of sparsely vegetated areas on gently rolling or level terrain with an abundance of active small mammal burrows. They use rodent or other burrows for roosting and nesting cover and also known to use pipes, culverts, and nest boxes where burrows are scarce.	No	Low	Conspicuous species whose potential habitat is clustered around currently utilized portions of the Preserve (i.e. Ranger Station). Not observed during avian point count surveys in 2007 or 2013. The nearest known burrowing owls to the Preserve are at Ramona Grasslands. (Unitt 2004).
Long-eared Owl (*Asio otus*)	SSC SDC Group I	Rare residents of oak woodlands and broad riparian forests. Ideal nesting habitat has a closed canopy and open lands adjacent for foraging.	No	Moderate	Known to historically occur in the vicinity (Unitt 2004); however, during surveys of the woodlands on the Preserve, this species was not detected.
Southwestern Willow Flycatcher (*Empidonax trailii extimus*)	FE SE SDC Group I MSCP NE	Breeds in riparian woodlands along rivers, streams, or other wetlands. They usually nest within close proximity of water or very saturated soil.	No	Not expected	No suitable breeding habitat occurs on the Preserve.
Loggerhead Shrike (*Lanius ludovicianus*)	SSC SDC Group I	Found near grassland, open sage scrub and chaparral, and desert scrub. They nest in dense vegetation adjacent to their open foraging habitats.	No	Breeding - Medium Foraging - Moderate	One observed on the Preserve in 2007 and none observed in 2013. Suitable foraging and nesting habitat present in the Preserve and study area.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Least Bell's Vireo (*Vireo bellii pusillus*)	FE SE SDC Group I MSCP NE	Riparian thickets either near water or in dry portions of river bottoms; nests along margins of bushes and forages low to the ground; may also be found using mesquite and arrow weed in desert canyons.	No	Low	No suitable breeding habitat occurs on the Preserve.
California Horned Lark (*Eremophila alpestris actia*)	SDC Group II	Grasslands, recently disturbed habitat where seeds and insects are easy to find.	No	High	Appropriate foraging and nesting habitat occurs on the Preserve. Known from the vicinity (Unitt 2004). Suitable habitat present in the study area. Not observed during avian point count surveys in 2007 or 2013.
San Diego Cactus Wren (*Campylorhynchus brunneicapillus sandiegensis*)	SSC SDC Group I MSCP NE	Cactus thickets.	No	Not expected	No cactus thickets occur on the Preserve.
Coastal California Gnatcatcher (*Polioptila californica californica*)	FT SSC SDC Group I MSCP	Prefer open scrubby habitats such as coastal sage scrub and some forms of chaparral.	No	Low	Very little appropriate habitat occurs within the Preserve, and that habitat is isolated by large expanses of dense chaparral. No suitable habitat impacted by project
Western Bluebird (*Sialia mexicana*)	SDC Group II MSCP	Foothills and mountains in meadows near groves of oaks and pines. This species is a cavity nester.	Yes	**Present**	Observed in grassland in the middle of the Preserve. Suitable nesting and foraging habitat in the study area. No nesting habitat would be impacted by the Project.
Yellow Warbler (*Dendroica petechia brewsteri*)	SSC SDC Group II	Mature riparian woodlands.	No	Low	Little riparian occurs on the Preserve. No suitable nesting habitat occurs within the study area.
Yellow-breasted Chat (*Ictera virens*)	SSC SDC Group I	Dense riparian woodland.	No	Moderate	Migrant observed on chaparral in Preserve during surveys in 2013. Little riparian occurs on the Preserve. No suitable nesting habitat occurs within the study area.
Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)	SDC Group I MSCP	Fairly common, widespread and generally fairly conspicuous resident of rocky grassland and patchy shrub habitats, often including areas with disturbance from fire, trash, soil compaction and non-native vegetation.	No	**High**	Observed during general surveys of the present in 2013. Suitable habitat present in the study area.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Bell's Sparrow (*Artemisiospiza belli*)	SDC Group I	Year-round resident of chaparral and sage scrubs. Forages on litter-free openings on the ground, and is largely restricted to south-facing slopes, post-burn areas, and gabbro soils.	No	**High**	Observed during surveys of the Preserve. Suitable habitat occurs on the Preserve and in the study area.
Grasshopper Sparrow (*Ammodramus savannarum*)	SSC SDC Group I	Structurally diverse grassland usually with native grasses.	No	Moderate	Much of the grassland on the Preserve is too heavily grazed to support this species. Not observed during surveys of the Preserve.
Tricolored Blackbird (*Agelaius tricolor*)	FC- SSC (nesting colony) SDC Group I MSCP	Breeds near fresh water, preferably in emergent wetland with large, dense stands of cattails or tules, but also in thickets of willow, blackberry, wild rose, tall herbs. Feeds in grassland and cropland habitats.	No	Low	The large southern pond is marginal nesting habitat; rushes and cattails ring the pond but do not provide a large enough expanse cover to be prime habitat for this communally nesting species. Rare in San Diego County, but one population occasionally occurs in Ramona Grassland on water district ponds (Unitt 2004).
MAMMALS					
Mexican Long-tongued Bat (*Choeronycteris mexicana*)	SSC SDC Group II	Likes desert canyons, arid mountain ranges. Roosts by day in caves, mines or buildings. Records indicate only a summer resident in San Diego County (CDFG 2005). Feeds on nectar and pollen from agaves and cactus blossoms.	No	Low	The Preserve lacks abundant required food sources to support this species.
Small-footed Myotis (*Myotis ciliolabrum*)	SDC Group II	Not much information available, but has been spotted under rock slabs and in crevices, mine tunnels, under loose tree bark, and in buildings.	Yes	**Present**	Vocalizations recorded on Anabat detectors at the northern and southern (oaks and riparian) locations during 2013 surveys. Recorded foraging within the study area. Study area supports suitable foraging habitat but Project would not impact roosting or watering locations.
Long-eared Myotis (*Myotis evotis*)	SDC Group II	Brush, woodland and forest habitats from sea level to 9000 ft. Lives in coniferous forests in mountain areas, roosts in small colonies in caves, buildings and under tree bark.	No	**High**	Low number of vocalizations recorded at the large pond on Boulder Oaks South in July 2007. Study area supports suitable foraging habitat but Project would not impact roosting or watering locations

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Yuma Myotis (*Myotis yumanensis*)	SDC Group II	Always found near lakes, creeks or ponds. Roosts by day under building sidings or shingles. Nursery colonies choose caves, mines, buildings or under bridges.	No	**High**	Vocalizations recorded on Anabat detectors at the northern and southern (oaks and riparian) locations during 2013 surveys. Study area supports suitable foraging habitat but Project would not impact roosting or watering locations.
Western Red Bat (*Lasiurus blossevillii*)	SSC SDC Group II	Usually among dense foliage, in forests and wooded areas, making long migrations from the northern latitudes to warmer climes for winter, sometimes hibernates in tree hollows or woodpecker holes.	No	High	Detected in low numbers on the Preserve. Study area supports suitable foraging habitat but Project would not impact roosting or watering locations.
Western Yellow Bat (*Lasiurus xanthinus*)	SSC	Rare visitor to San Diego County. Found in wooded areas and desert scrub. Roosts in foliage, particularly in palm trees.	No	Low	The Preserve lack dense riparian areas and no thatched palm trees.
Pallid Bat (*Antrozous pallidus*)	SSC SDC Group II	Throughout So. Cal. from coast to mixed conifer forest; grasslands, shrublands, woodlands, & forest; most common in open, dry habitats w/ rocky areas for roosting; yearlong resident in most of range. Roosts in rock crevices, caves, mine shafts, under bridges, in buildings and tree hollows.	No	High	A low number of vocalizations recorded at the large pond on Boulder Oaks South in July 2007. Study area supports suitable foraging habitat but would not impact roosting or watering locations.
Pocketed Free-tailed Bat (*Nyctinomops femorosaccus*)	SSC SDC Group II	Lives in deserts and sage scrub, roosts in rocky crevices.	No	**High**	Vocalizations recorded on Anabat detectors at the northern and southern (oaks and riparian) locations during 2013 surveys. Study area supports suitable foraging habitat but Project would not impact roosting or watering locations.
Big Free-tailed Bat (*Nyctinomops macrotis*)	SSC SDC Group II	Inhabits arid, rocky areas; roosts in crevices in cliffs. Has been recorded in urban locations in San Diego County (CDFG 2005. Species is rare in California (CDFG 2005).	No	Roosting habitat-Low Foraging habitat-**Moderate**	Marginal suitable habitat occurs on the Preserve. Appropriate foraging habitat present.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Western Mastiff Bat (*Eumops perotis californicus*)	SSC SDC Group II	Primarily a cliff-dwelling species for breeding. Found foraging in a variety of habitats, from dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, montane meadows, and agricultural areas.	Yes	**High**	Vocalizations recorded on Anabat detectors at the northern and southern (oaks and riparian) locations during 2013 surveys. Study area supports suitable foraging habitat but Project would not impact roosting or watering locations.
San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*)	SSC SDC Group II	Mostly found on the coastal side of our local mountains in open habitats, usually avoiding dense stands of chaparral or woodlands.	No	Low	Marginal suitable habitat occurs on the Preserve. Preserve is isolated from other large grassland areas. Distinctive diurnal species not observed during surveys in 2007 or 2013.
Dulzura Pocket Mouse (*Chaetodipus californicus femoralis*)	SSC SDC Group II	Coastal and montane regions in grassland, sage scrub, and chaparral slopes.	Yes	**Present**	Observed on the Preserve and in the study area.
Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*)	SSC SDC Group II	Coastal sage scrub, sage scrub/grassland ecotones, and chaparral communities.	No	Moderate	Suitable habitat occurs on site, but this species was not caught during trapping surveys.
Stephens' Kangaroo Rat (*Dipodomys stephensi*)	FE ST SDC Group I	Occurs in flat or gently rolling, often degraded, annual grassland.	No	Low	Marginally suitable habitat occurs on site, but this site is isolated from other grassland areas and soils are not typical for this species. This species was not caught during small-mammal trapping surveys in 2007 or 2013. Not previously observed on the Preserve in surveys for other projects (CNDDB 2018).
Ramona Grasshopper Mouse (*Onychomys torridus ramona*)	SSC SDC Group II	Grasslands and sparse coastal sage scrub habitats.	No	Low	Some suitable habitat exists; however, it is disturbed. The survey area is located within the range of the species. Not observed during trapping surveys.
San Diego Desert Woodrat (*Neotoma lepida intermedia*)	SSC SDC Group II	Variety of shrub and desert habitats primarily associated with rock outcroppings, boulders, cacti, or areas of dense undergrowth.	Yes	**High**	Species observed on the Preserve. Suitable habitat occurs within the study area.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Ringtail (*Bassariscus astutus*)	SDC Group II	Usually not found more than 1 km (0.6 mi) from permanent water. Suitable habitat consists of a mixture of forest and shrubland in close association with rocky areas or riparian habitats. Forages on ground, among rocks, in trees; usually near water.	No	Moderate	Some suitable habitat occurs within the Preserve and in the study area. Not observed on camera traps in 2007 or 2013.
American badger (*Taxidea taxus*)	SSC SDC Group II MSCP	Inhabit a diversity of habitats with principal requirements of sufficient food, friable soils, and relatively open, uncultivated ground. Grasslands, savannas, and mountain meadows near timberline are preferred.	No	Low	Marginal suitable habitat occurs on the Preserve and in the study area. Isolated from other grasslands. No tracks or burrows were observed during the surveys.
Mountain Lion (*Puma (=Felis) concolor*)	SDC Group II MSCP	Rocky areas, cliffs, and ledges that provide cover within open woodlands and chaparral, as well as riparian areas.	Yes	**Present**	Tracks and sign of Mt. lion observed on the Preserve. One individual was photographed by remote camera. Suitable habitat present in the study area.
Southern Mule Deer (*Odocoileus hemionus fuliginata*)	SDC Group II MSCP	Oak woodlands, open scrub and young chaparral, low-elevation pine forests, riparian areas, and along the margins of meadows and grasslands.	Yes	**Present**	Observed on the Preserve and within the study area.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale

LEGEND:

STATUS:

Federal

FE - listed as endangered under the federal Endangered Species Act.

FT - listed as threatened under the federal Endangered Species Act.

FC- candidate species under the federal Endangered Species Act.

California

SE - listed as endangered under the California Endangered Species Act.

FP – fully protected species in California.

SSC - species of special concern in California.

San Diego County Group (SDC Group)

I = includes animal species that have a very high level of sensitivity, either because they are listed as threatened or endangered or because they have very specific natural history requirements that must be met.

II = includes animal species that are becoming less common, but are not yet so rare that extirpation or extinction is imminent without immediate action. These species tend to be prolific within their suitable habitat types.

San Diego Multiple Species Conservation Program (MSCP)

MSCP - Covered Species

MSCP NE – Narrow endemic species in the MSCP

References

Special Status information from CDFW 2018. Nomenclature and invertebrate descriptions from Hogan 2005, and USFWS 1997. Nomenclature and vertebrate descriptions from AOU 1998 and supplements, CDFG 2005, Collins and Taggart 2013, Stephenson and Calcarone 1999, Baker *et al.* 2003, and Unitt 2004.

Appendix F
Jurisdictional Delineation Report

BOULDER OAKS PRESERVE IMPROVEMENT PLAN, SAN DIEGO COUNTY, CALIFORNIA

JURISDICTIONAL DELINEATION REPORT

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October 2018

ICF. 2018. *Jurisdictional Delineation Report for Boulder Oaks Preserve Improvement Plan*. October. (ICF 054.13.) San Diego County, CA. Prepared for County of San Diego, Department of Parks and Recreation.

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Acronyms and Abbreviations

ADA	American with Disabilities Act
CDFW	California Department of Fish and Wildlife
CWA	Clean Water Act
DPR	Department of Parks and Recreation
FAC	facultative
FACW	facultative wetland
HUC	hydrologic unit code
NI	no indicator
NO	no occurrence
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
OBL	obligate
OHWM	Ordinary High Water Mark
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
Preserve	Boulder Oaks Preserve
Proposed Project	Boulder Oaks Preserve Public Access Plan
RWQCB	Regional Water Quality Control Board
SSURGO	Soil Survey Geographic
SWRCB	State Water Resources Control Board
TOB	top-of-bank
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey

Chapter 1
Introduction

ICF has conducted a routine-level delineation of jurisdictional waters and wetlands for the County of San Diego Department of Parks and Recreation (DPR) Boulder Oaks Preserve (Preserve) Improvement Plan (Proposed Project). The purpose of this delineation was to identify and delineate potential federal and state jurisdictional waters pursuant to Sections 401 and 404 of the Clean Water Act (CWA) as well as Section 13260 of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) and Section 1602 of the California Fish and Game Code within the Proposed Project survey area.

Section 404 of the CWA covers waters of the United States as well as federal wetlands and is regulated by the U.S. Army Corps of Engineers (USACE). Under Section 401 of the CWA, the Regional Water Quality Control Board (RWQCB) regulates at the state level all activities that are regulated at the federal level by the USACE. The RWQCB or State Water Resources Control Board (SWRCB) may also regulate activities affecting non-federal waters and wetlands (e.g., isolated features) under the Porter-Cologne Act. Section 1602 of the California Fish and Game Code is regulated by the California Department of Fish and Wildlife (CDFW) and covers aquatic features, which include lakes or streambeds with a defined bed and bank plus any adjacent riparian vegetation.

The information and results presented herein document the investigation, best professional judgment, and conclusions of ICF. It is correct and complete to the best of its author's knowledge. However, all jurisdictional delineations should be considered preliminary until reviewed and approved/determined by the applicable regulatory agencies.

1.1 Project Description

The Proposed Project is a proposed improvement plan for a non-motorized multi-use trail system in the Boulder Oaks Preserve. The project includes 7.2 miles of proposed trails, three staging areas, a restroom facility, and a volunteer pad. The proposed trails will include 5.7 miles of new native trails and 1.5 miles of American with Disabilities Act (ADA)–compliant trails. This would be in addition to 6.7 miles of existing trails, and 7.8 miles of trails to be closed. The new trails would be primitive in nature, and would be approximately 2 to 4 feet wide. The ADA-compliant trail would have two sides: one suitable for mobility devices and pedestrians, and one suitable for bicycles and equestrian users, which would be separated by a barrier. The ADA-complaint trail would be 8 feet wide (4 feet per side) and would include 60-inch resting/passing areas staggered every 1,000 feet. These resting/passing areas would be approximately 48 inches by 60 inches and would contain a bench if site conditions allow. The ADA-accessible trail would be graded and constructed with stabilized decomposed granite. The existing trails and road would be maintained at the current width. Of the 7.8 miles of trails that would be closed, some would be closed to the public but open to County DPR staff and San Diego Gas & Electric employees for access to electric facilities, and the remaining would be closed and restored.

1.2 Project Location

The Preserve is located in central San Diego County, California, approximately 5 miles southwest of the center of the community of Ramona, and approximately 2 miles south of State Route 67 along Mussey Grade Road (Figure 1, Regional Vicinity Map; all figures are included in Appendix A, Figures). Specifically, the Preserve is directly west of Mussey Grade Road and approximately 1 mile east of the peak of Iron Mountain. Access to the Preserve is provided by a public driveway connecting to Mussey Grade Road at the northern end of the project site. The Proposed Project survey area occurs within the U.S. Geological Survey (USGS) San Vicente Reservoir 7.5-minute topographical quadrangle maps (amended 2015; Figure 2, Project Vicinity) (USGS 2015). The approximate center coordinates for the Proposed Project in decimal degree format (NAD 83) are 32.9685°N and -116.9360°W.

Chapter 2
Methodology

2.1 Project Research

Prior to the field visit, a 100-foot-scale (1 inch = 100 feet) aerial photograph of the site was obtained to evaluate topographic changes, and visible drainage patterns associated with the survey area. In addition, the National Wetlands Inventory (NWI) (USFWS 2017) was reviewed to identify mapped wetlands that occur within the survey area. Maps depicting the project area in relation to the National Hydrography Dataset drainages and watersheds are provided in Figure 3.

2.2 Field Investigation

A jurisdictional delineation was initially completed in the survey area by ICF biologists on March 19 and March 20, 2018. Due to project alignment modifications, an additional delineation was completed for the survey area on October 10, 2018. For this effort, Arid West Ephemeral and Intermittent Streams Ordinary High Water Mark (OHWM) Datasheets were completed and are provided in Appendix C.

A survey area was established for the Proposed Project that consisted of a 10-foot survey buffer from the center of the Proposed Project alignment. Due to project site topography and access limitations, the jurisdictional delineation was conducted using two methodologies. Accessible resources were delineated by foot and jurisdictional limits were recorded using high-resolution aerial photographs (1 inch = 100 feet) and an Apple iPad using Collector Map with a sub-meter accuracy global positioning system unit. Resources that were not accessible were delineated based on a desktop method utilizing aerial photography, USGS topographic maps, National Hydrography Dataset, and NWI data. Features that were delineated based on the desktop method were first accessed at the downstream end of the feature and mapped on foot. The downstream mapped conditions were then extrapolated upstream. Existing conditions were documented as field notes and site photographs (Appendix B, Site Photographs).

2.2.1 USACE Jurisdiction

The jurisdictional delineation was conducted in accordance with methods established in the *Wetland Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b). Non-wetland waters were delineated based on the presence of OHWM indicators. Arid West Ephemeral and Intermittent Stream OHWM Datasheet Forms are included as Appendix C, OHWM Data Forms. The following three criteria must be fulfilled in order to classify an area as a wetland water: (1) a predominance of hydrophytic vegetation, (2) the presence of hydric soils, and (3) the presence of wetland hydrology. Details of the application of these techniques are provided below.

- **Hydrophytic Vegetation:** The hydrophytic vegetation criterion is satisfied at a location if greater than 50 percent of all the dominant species present within the vegetation unit have a wetland indicator status of obligate (OBL), facultative wetland (FACW), or facultative (FAC) (Environmental Laboratory 1987). An OBL indicator status refers to plants that almost always occur in wetlands under natural conditions. An FACW indicator status refers to plants that usually occur in wetlands but are occasionally found elsewhere. A FAC indicator status refers to plants that are equally likely to occur in wetlands or elsewhere. A No Indicator (NI) status designates that insufficient information was available to determine an indicator status. A No Occurrence (NO) status indicates that the species does not occur in the region; when a plant with an NO status is found within a region, it usually indicates that the plant is ornamental. The wetland indicator status used for this report follows the *National Wetland Plant List* (Lichvar et al. 2016).
- **Hydric Soils:** The definition of a hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (USDA/NRCS 1994). This determination is made based on various field indicators detailed in the *Arid West Supplement* and the *Field Indicators of Hydric Soils in the United States (Version 8.0)* (USDA/NRCS 2016).
- **Wetland Hydrology:** Wetland hydrology is determined using indicators of inundation or saturation (flooding, ponding, or tidally influenced) detailed in the *Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Arid West Supplement* (USACE 2008a).

2.2.2 RWQCB/SWRCB Jurisdiction

Evaluation of state jurisdiction followed guidance from Section 401 of the CWA and typically follows the same jurisdictional areas as the USACE. In addition, the survey area was reviewed for resources potentially regulated under the Porter-Cologne Act (i.e., isolated features). Isolated vernal pools, isolated wetlands, or other aquatic features not normally subject to federal regulation did not occur within the survey area; no further evaluation pursuant to the Porter-Cologne Act was necessary.

2.2.3 CDFW Jurisdiction

CDFW jurisdiction typically includes surface water features with a defined bed and bank. Evaluation of potentially jurisdictional areas followed the guidance of standard practices by CDFW personnel. Briefly, CDFW jurisdiction was delineated by measuring outer width and length boundaries of potentially jurisdictional areas (lakes or streambeds), consisting of the greater of either the top-of-bank (TOB) measurement or the extent of associated riparian or wetland vegetation.

Chapter 3
Environmental Setting

The following section describes the topography and land use, hydrology, and soils associated with the survey area.

3.1 Topography and Land Use

The survey area is in the central foothills of San Diego County. It traverses through steep mountain uplands with ridgelines separated by numerous canyons, ravines, and drainages. The western edge of the survey area approaches the ridgeline that extends from Mt. Woodson to Iron Mountain. The top of Iron Mountain (2,696 feet) is roughly 0.15 mile northwest of the western edge of the survey area. The valley of the west branch of San Vicente Creek lies along the survey area's eastern boundary. The southeast portion of the survey area includes relatively flat grasslands and woodlands. The northern and southwestern portions are composed of steep, boulder-strewn mountains. Elevations in the survey area range from approximately 2,160 feet above mean sea level on the peak at the center west of the area to approximately 1,300 feet above mean sea level at the northeastern corner along Mussey Grade Road.

The survey area is within the Boulder Oaks Preserve. which primarily consists of vacant, undeveloped land with a scattering of historical building foundations.

3.2 Hydrology

3.2.1 Precipitation

Based on the Ramona Airport weather station 5 miles northeast of the survey area, total estimated precipitation from March through September 2018 was approximately 1.76 inches (Table 1).

Table 1. Rainfall Data Summary for the Project Survey Area (in inches)

	Mar	Apr	May	Jun	Jul	Aug	Sep
Total	1.52	0.06	0.18	0.00	Trace	0.00	0.00

Source: National Weather Service 2018. Weather station located approximately 5 miles northeast from the center of the survey area.

3.3 Watershed

The survey area is located within the USGS San Diego River hydrologic unit code (HUC: 18070304) (Figure 4, Watershed Map). The survey area is also within the San Diego hydrologic unit and San Vicente hydrologic area 907.20.

General information on this major watershed is provided below.

3.3.1 San Diego Hydrologic Unit

The San Diego River Watershed encompasses 434 square miles and includes four distinct hydrological areas. Rainfall within the watershed primarily flows east to west through the San Diego River for a distance of approximately 52 miles. The river originates in the Cuyamaca Mountains and eventually discharges to the Pacific Ocean near the community of Ocean Beach. The dominant land uses include undeveloped, open space, residential, and transportation. Almost half of the land remains undeveloped, with the other half of the land area used for open space and parkland, residential areas, roadways, and transportation, and a small portion used for commercial, agricultural, industrial, and military uses. U.S. Census data from 2010 estimates that 520,000 people live within the San Diego River Watershed (Project Clean Water 2017).

3.4 Soils

3.4.1 Soil Series

The Natural Resources Conservation Service (NRCS) has mapped the soil series acid igneous rock land, Arlington coarse sandy loam, Cieneba very rocky coarse sandy loam, Cieneba rocky coarse sandy loam, Cieneba coarse sandy loam, Fallbrook sandy loam, Friant rocky fine sandy loam, Olivenhain cobbly loam, Visalia sandy loam, Vista rocky coarse sandy loam, and Vista coarse sandy loam as occurring within the survey area based on the Soil Survey Geographic (SSURGO) database (USDA/NRCS 1973) (Figure 5, Soils Map). No soils within the survey area are identified as hydric soils for San Diego County (USDA/NRCS 2011).

A description of this soil series included within the SSURGO mapping units is provided below based on the official soil descriptions provided by USDA (USDA/NRCS 2012).

Acid Igneous Rock Land

No soil series description is provided by USDA/NRCS (2006) for this soil series.

Acid igneous rock land is typically on mountains at elevations of 650 to 4,000 feet. This soils series has very high runoff and is in areas with mean annual precipitation of 8 to 15 inches.

Arlington

Arlington soils are on alluvial fans and terraces at elevations of 400 to 2,000 feet. This soil series is well-drained with slow to medium runoff and slow permeability. This soil series has a moderate extent and is located in areas with mean annual precipitation of 10 to 15 inches.

Cieneba

Cieneba soils are on hills and mountains at elevations of 500 to 4,000 feet. This soil series is somewhat excessively drained with low to high runoff and moderately rapid permeability. This soil series is extensive and is located in areas with mean annual precipitation of 12 to 35 inches. These soils are located on the majority of the hills as well as in the grasslands in the central-eastern side of the survey area.

Fallbrook

Fallbrook soils are on round hills at elevations of 200 to 3,000 feet. This soil series is well-drained with medium to very rapid runoff and moderately slow permeability. This soil series is extensive and is located in areas with mean annual precipitation of 12 to 18 inches.

Friant

Friant soils are on hilly and mountainous landscapes at elevations of 500 to 3,500 feet. This soil series is well-drained with medium to very rapid runoff and moderately rapid permeability. This soil series has a moderate extent and is located in areas with mean annual precipitation of 12 to 25 inches

Olivenhain

Olivenhain soils are on dissected marine terraces at elevations of 100 to 600 feet. This soil series is well-drained with slow to medium runoff and very slow permeability. This soil series has a moderate extent and is located in areas with mean annual precipitation of 12 to 16 inches

Visalia

Visalia soils are on alluvial fans at elevations of 0 to 1,500 feet. This soil series is well-drained with very slow runoff and high permeability. This soil series has a moderate extent and is located in areas with mean annual precipitation of 9 to 30 inches

Vista

Vista soils are on hills and mountainous uplands at elevations of 400 to 3,900 feet. This soil series is well-drained with slow to rapid runoff and moderately rapid permeability. This soil series is extensive and is located in areas with mean annual precipitation of 10 to 22 inches.

Chapter 4
Jurisdictional Delineation Results

The following describes the delineated features and expected jurisdictional status within the survey area. Detailed information, including maps of the feature delineated within the survey area, photographs, and wetland determination forms are provided in the following appendices:

- Appendix A, Figures
- Appendix B, Site Photographs, March 2018
- Appendix C, Arid West OHWM Data Forms

4.1 Delineation Results

Eight features within the survey area were identified, evaluated, and mapped for potential state and federal jurisdiction pursuant to the regulations described above. Each of the delineated features in the survey area is summarized in Table 2 and described below the table.

Table 2. Summary of Potentially Jurisdictional Aquatic Resources within Boulder Oaks

			USACE/RWQCB	CDFW	
			Non-wetland	Streambed	Riparian
Site/Feature	Linear Feet	OWHM/TOB Width[1]	Acres[2]	Acres[2]	Acres
Feature 2	121	3.3/5	0.013	0.023	0.011
Feature 6	24	5/12	0.007	0.008	--
Feature 7	42	5.25/10	0.005	0.009	--
Feature 15	23	1/1	0.001	0.001	--
Feature 16	22	10/14	0.005	0.007	0.007
Feature 17	27	2/2	0.001	0.001	--
Feature 18	23	2/4	0.001	0.002	--
Feature 19	--	--	--	--	0.010
Total	282	--	**0.033**	**0.051**	**0.028**
Grand Total			**0.033**		

[1] Based on average width in the survey area.

[2] Total acreage may not add up to the total shown; total is reflective of rounding geographic information systems raw data in each category.

Feature 1 is an ephemeral swale that was delineated based on the desktop method, using available aerial imagery and resources, such as the National Hydrography Dataset and NWI. Based on aerial interpretation, the feature appears to lack a defined bed and bank and OHWM indicators within the survey area; therefore, Feature 1 in the survey area was delineated as a swale (Figures 5a and 5b, Sheets 1 and 2).

Feature 2 is an ephemeral channel originating at a ridgeline that coincides with the western boundary of the Preserve. It has an average OHWM and TOB width of 3.3 feet and 5 feet, respectively. Feature 2 flows to the east, through the Preserve for approximately 2.75 miles, until its confluence with the western branch of the San Vicente Creek. Feature 2 begins as a moderately steep channel to the west and becomes relatively flat in the central portion of the Preserve. The channel has minimal in-channel vegetation and is defined by a clear bed and bank and destruction of terrestrial vegetation. Within the upstream survey area, Feature 2 (Figures 5a and 5b, Sheets 6 and 7) has a 2-foot-wide OHWM for the purposes of USACE jurisdiction and 4-foot-wide TOB for purposes of CDFW jurisdiction. As it flows downstream into the relatively flat valley, the OHWM and TOB widen to approximately 5 and 8 feet, respectively (Figures 5a and 5b, Sheet 5). Further downstream (Figures 5a and 5b, Sheet 4), Feature 2 is impounded by an earthen berm, creating a freshwater pond, including a freshwater marsh fringe wetland consisting of *Typha* spp. and *Schoenoplectus* spp. The pond has an earthen spillway that is approximately 2.5 feet wide. Finally, at its farthest downstream end, Feature 2 crosses the survey boundary via two 48-inch corrugated metal pipes (Figure 5a and 5b, Sheet 3).

Features 3, 4, and 5 are ephemeral swales originating in the foothills of the Preserve. These features cross existing trails, were evaluated in the field, and were determined to have no defined bed or bank or OHWM indicators in the survey boundary. Any flows originating in these features likely sheet flow into Feature 2.

Feature 6 is a flat, sandy ephemeral channel originating at a ridgeline that coincides with the western boundary of the Preserve (Figures 5a and 5b, Sheet 9). Immediately outside of the survey area, Feature 6 is impounded by an earthen berm, creating a freshwater pond with fringe emergent wetland, similar to the observed conditions of Feature 2. Flows exiting the freshwater pond appear to flow for approximately a 0.1 mile before its confluence with the upstream extent of Feature 7.

Feature 7 is an ephemeral channel originating on the eastern side of the Iron Mountain ridgeline. Approximately 2 miles of Feature 7 flows east to west through the Preserve. Once it exits the Preserve's boundary it flows approximately 0.75 mile before its confluence with western branch of the San Vicente Creek. The upstream (western) end of Feature 7 within the survey area (Figures 5a and 5b, Sheet 10) was delineated based on the desktop method and has an assumed OHWM width of 2.5 feet and TOB of 4 feet. At the downstream (eastern) end of the survey area, Feature 7 was mapped using the field delineation method. This feature has an 8-foot-wide OHWM and 16-foot-wide TOB (Figures 5a and 5b, Sheet 11), and it is defined by the existing wooden span bridge and wing walls. Observed OHWM indicators include sediment sorting, destruction of terrestrial vegetation, and a defined bed and bank. Finally, at its downstream end and immediately outside of the survey area, Feature 7 is impounded by an earthen berm creating a freshwater pond.

Feature 16 is a large intermittent stream channel that is tributary to the western branch of San Vicente Creek, originating to the west of the Preserve, flowing east. It is characterized by a 10-foot-wide OHWM and 14-foot-wide TOB with clear bed and bank, evidence of sediment sorting, destruction of terrestrial vegetation, and wracking. The channel bed is dominated by large cobbles and some in-channel vegetation. It also has some adjacent riparian vegetation consisting of large sycamores and willows (Figures 5a and 5b, Sheet 12).

Features 15, 17, and 18 are narrow, steep, ephemeral streams that are tributary to Feature 16. These features were mapped using both the desktop and field delineation methodologies and were

delineated by a clear bed and bank, lack of vegetation, and break in slope (Figures 5a and 5b, Sheet 12).

Feature 19 is a large intermittent stream channel that is tributary to the western branch of San Vicente Creek, originating to the west of the Preserve, flowing east. The channel is clearly defined by a bed and bank, evidence of sediment sorting, destruction of terrestrial vegetation, and wracking. Within the survey boundary, Feature 19 flows through an existing 36-inch corrugated metal pipe.

4.2 Conclusion

Eight features within the survey area were identified and mapped for potential state and federal jurisdiction. A total of 0.033 acre (282 linear feet) of waters of the U.S. may be subject to USACE and RWQCB regulatory jurisdiction pursuant to Sections 404 and 401 of the CWA. Additionally, 0.079 acre (282 linear feet) of streambed and riparian resources occur within the survey area and would be subject to CDFW jurisdiction pursuant to Sections 1600–1616 of the California Fish and Game Code.

Chapter 5
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Appendix A
Figures

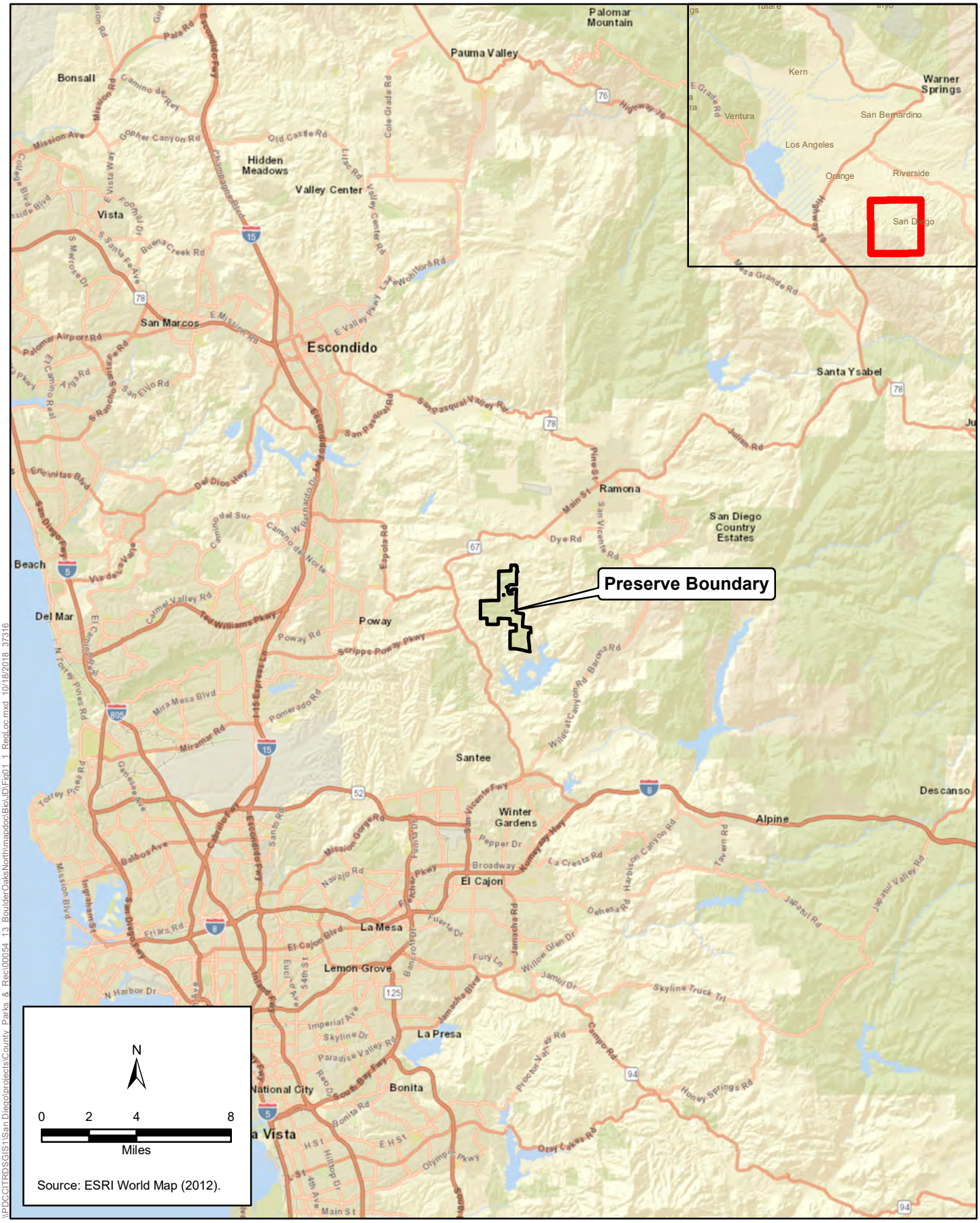

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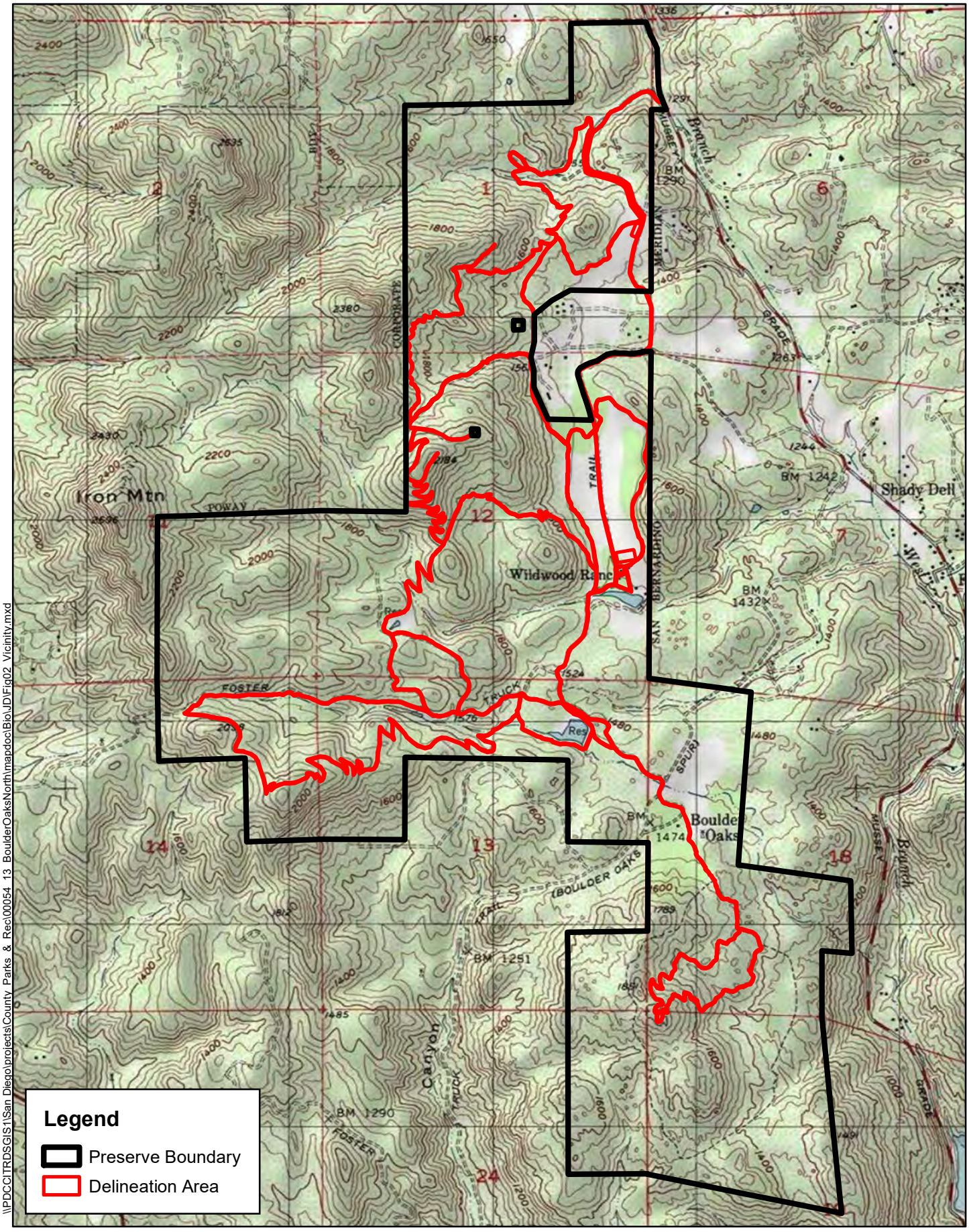
Figure 1
Regional Location
Boulder Oaks Preserve Public Access Plan



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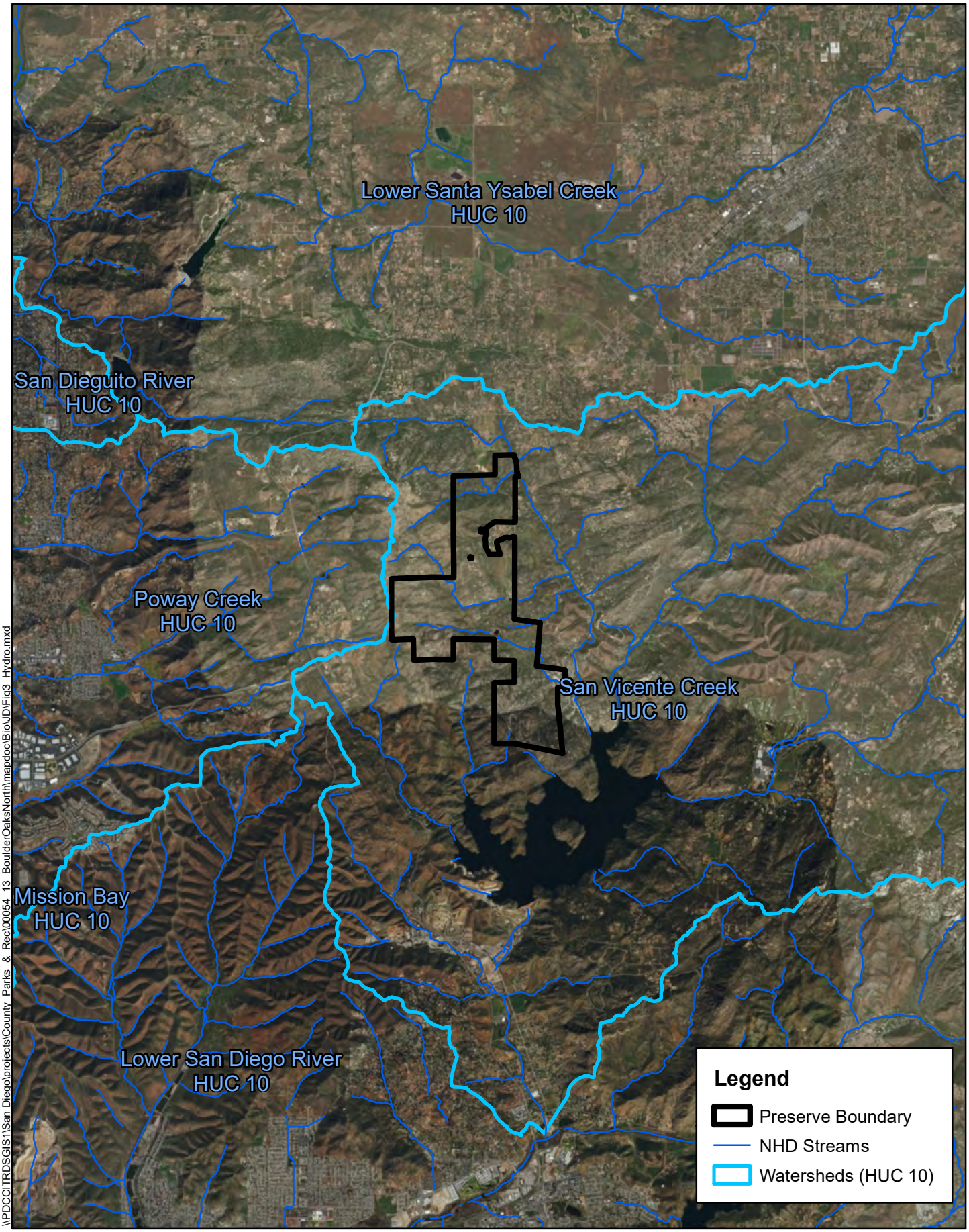
N

0 1,000 2,000 4,000

1:25,000 Feet

Figure 2
Preserve Vicinity Map
Boulder Oaks Preserve Public Access Plan



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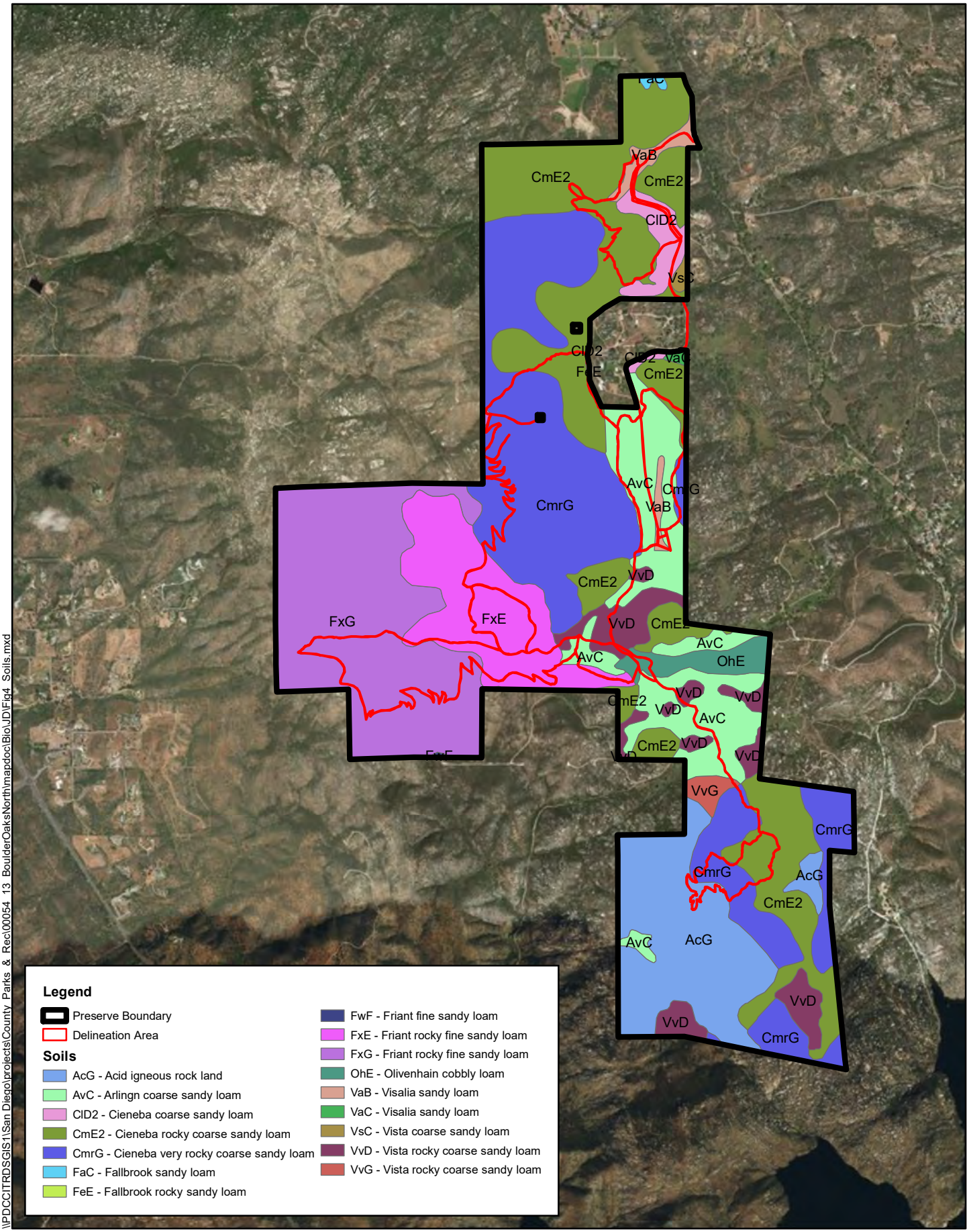
N

0 0.5 1 2

Miles

1:100,000

Figure 3
Watersheds
Boulder Oaks Preserve Public Access Plan



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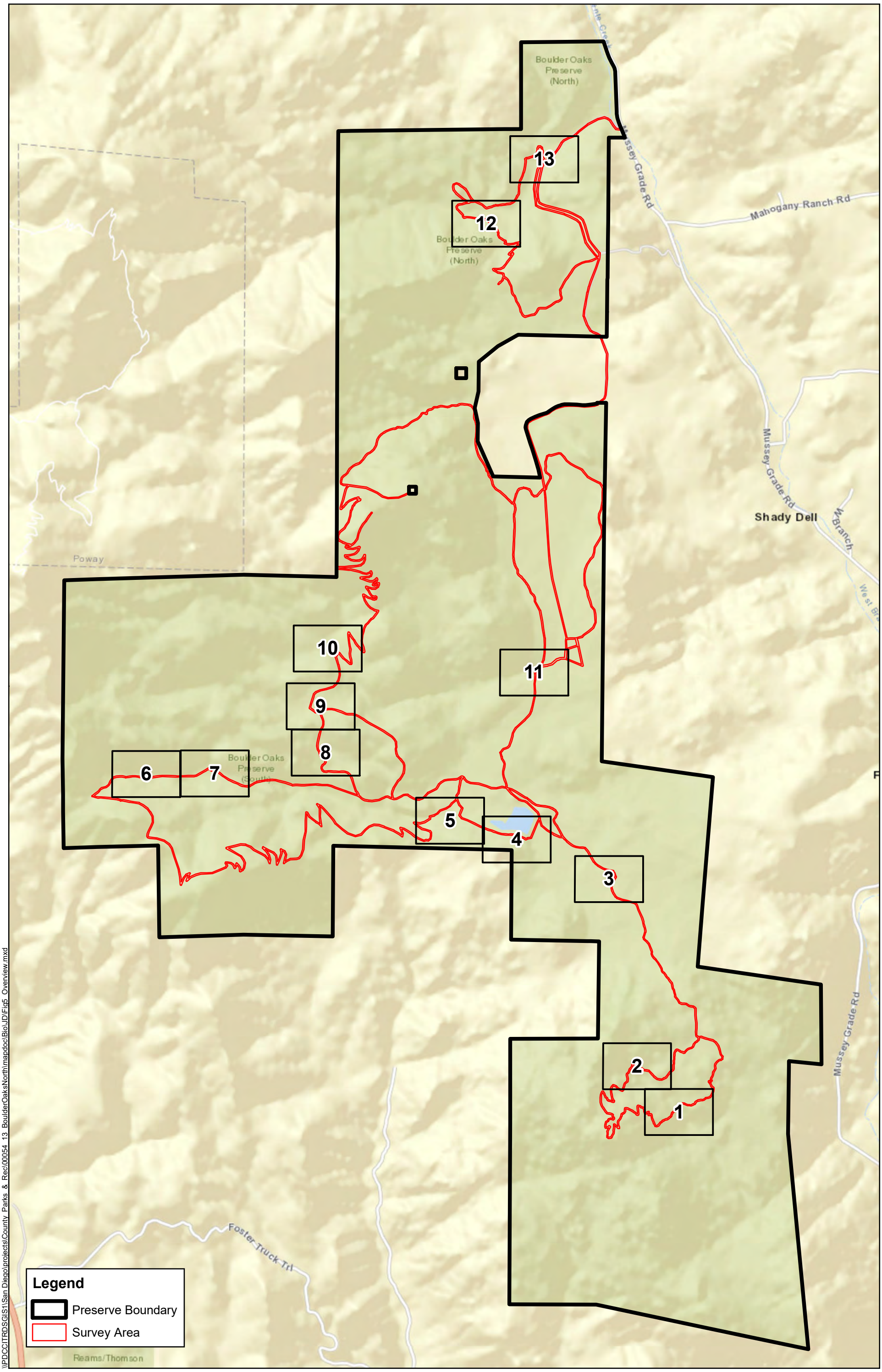
N

0 0.5 1

1:30,000

Miles

Figure 4
Soils
Boulder Oaks Preserve Public Access Plan



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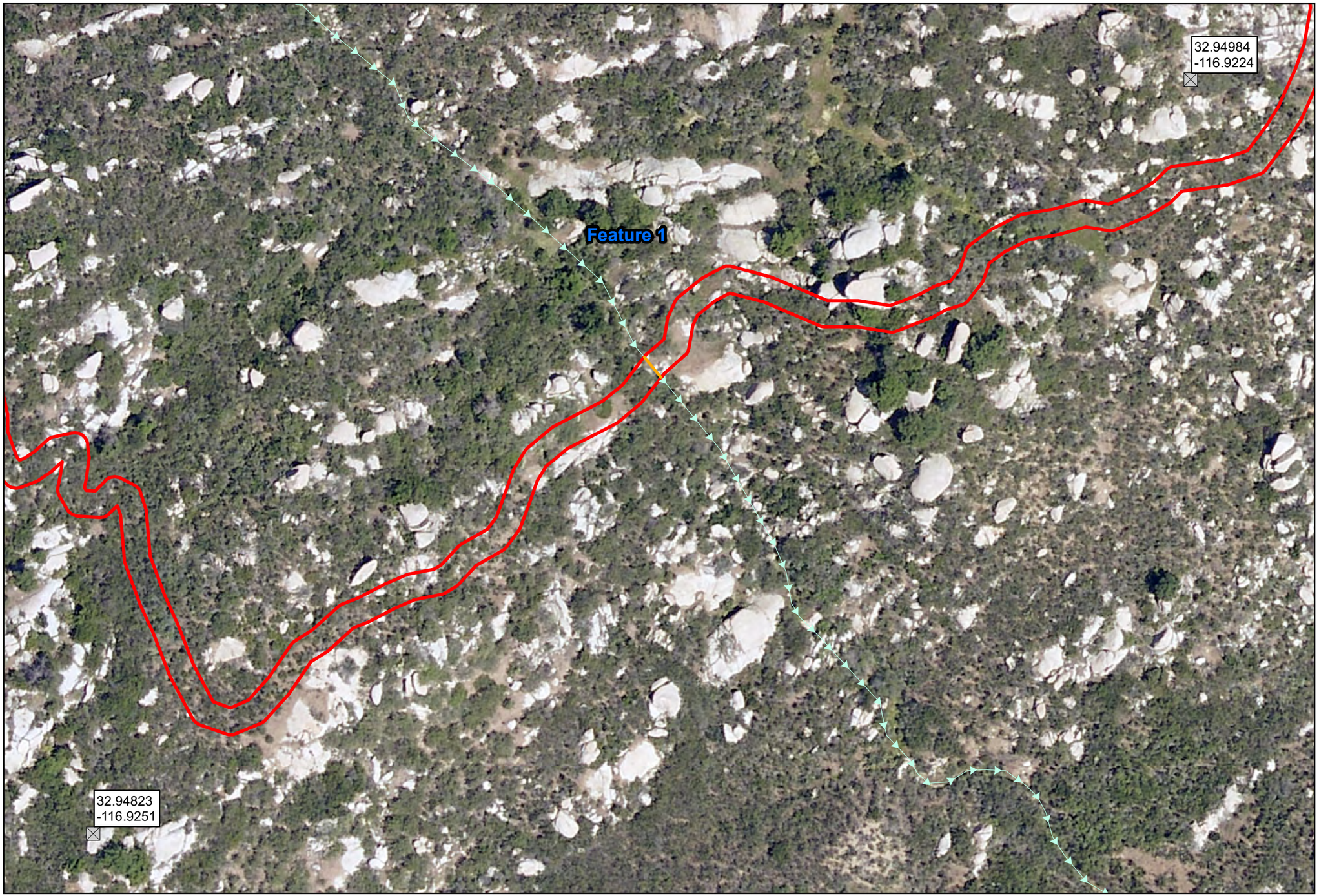
N

0 100 200 300 400 500 Feet

1 inch equals 1,300 feet

Figure 5 - Overview
Potential Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

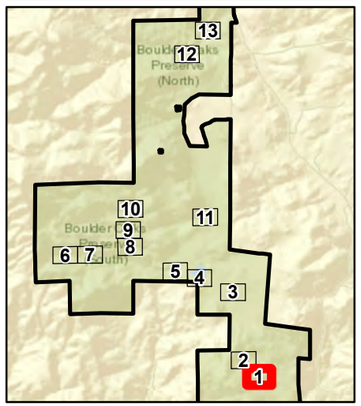


Legend

- Preserve Boundary
- Delineation Area
- Photo Points
- Sample Points
- Swale
- Culverted Crossing
- OHWM Width
- Drainage Path

Waters of the U.S.

- Non-Wetland Water



COUNTY OF SAN DIEGO PARKS AND RECREATION

N

0 100 200 300 400 500 Feet

1 inch = 75 feet

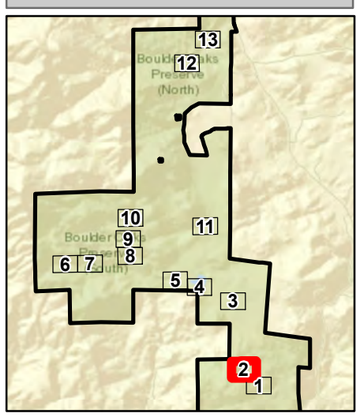
Figure 5a - Sheet 1
Potential USACE Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

Legend

- Preserve Boundary
- Delineation Area
- Photo Points
- Sample Points
- Swale
- Culverted Crossing
- OHWM Width
- Drainage Path

Waters of the U.S.

- Non-Wetland Water



COUNTY OF SAN DIEGO PARKS AND RECREATION

N

0 100 200 300 400 500 Feet

1 inch = 75 feet

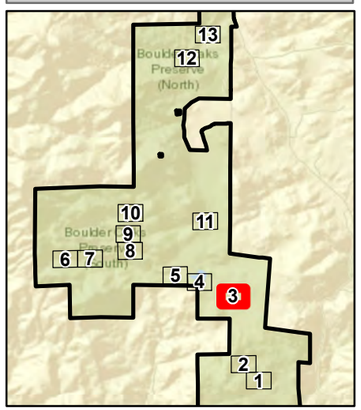
Figure 5a - Sheet 2
Potential USACE Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

Legend

- Preserve Boundary
- Delineation Area
- Photo Points
- Sample Points
- Swale
- Culverted Crossing
- OHWM Width
- Drainage Path

Waters of the U.S.

- Non-Wetland Water



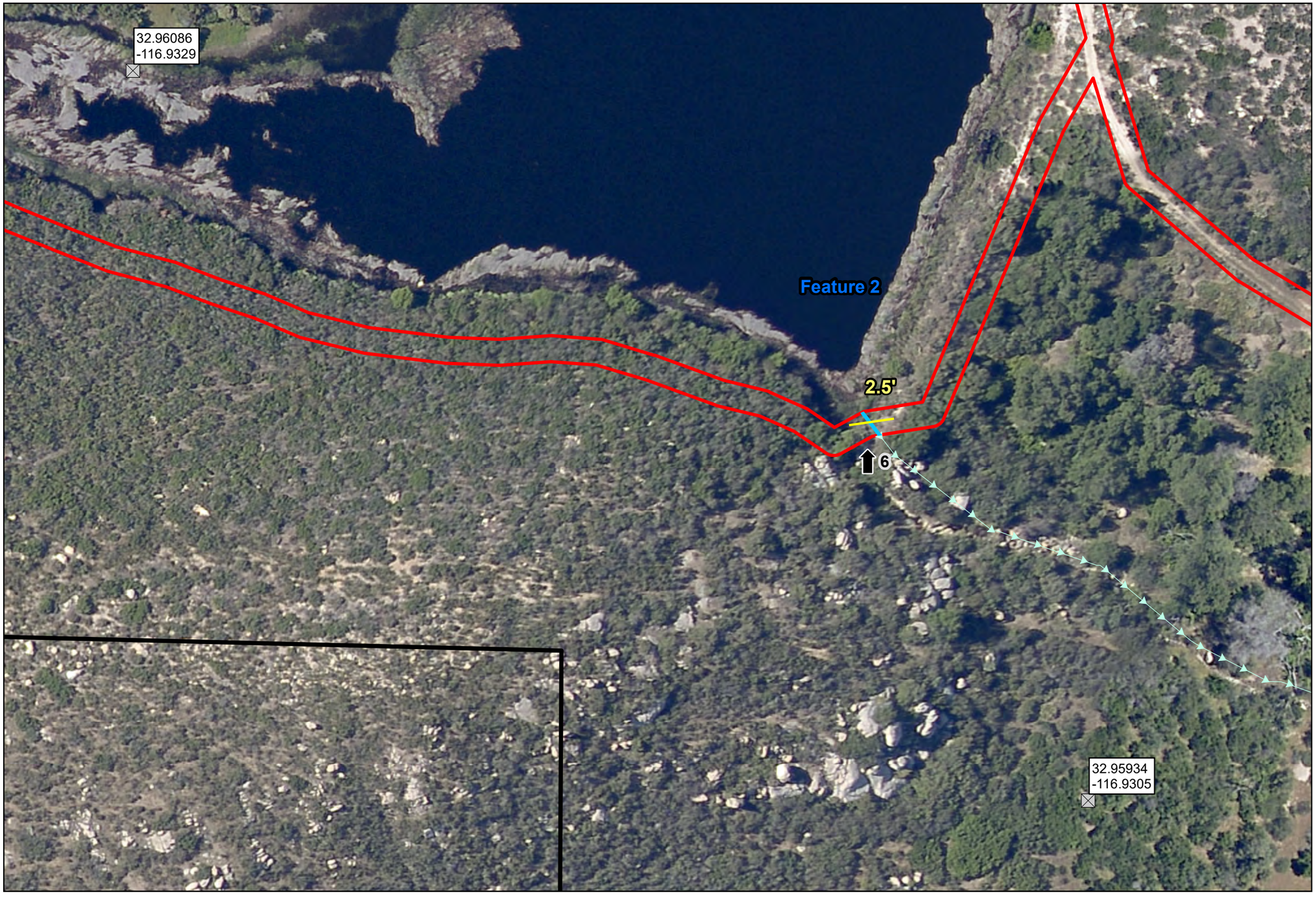
COUNTY OF SAN DIEGO PARKS AND RECREATION

N

0 100 200 300 400 500 Feet

1 inch = 75 feet

Figure 5a - Sheet 3
Potential USACE Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

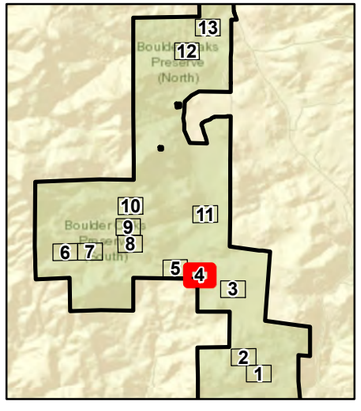


Legend

- Preserve Boundary
- Delineation Area
- Photo Points
- Sample Points
- Swale
- Culverted Crossing
- OHWM Width
- Drainage Path

Waters of the U.S.

- Non-Wetland Water

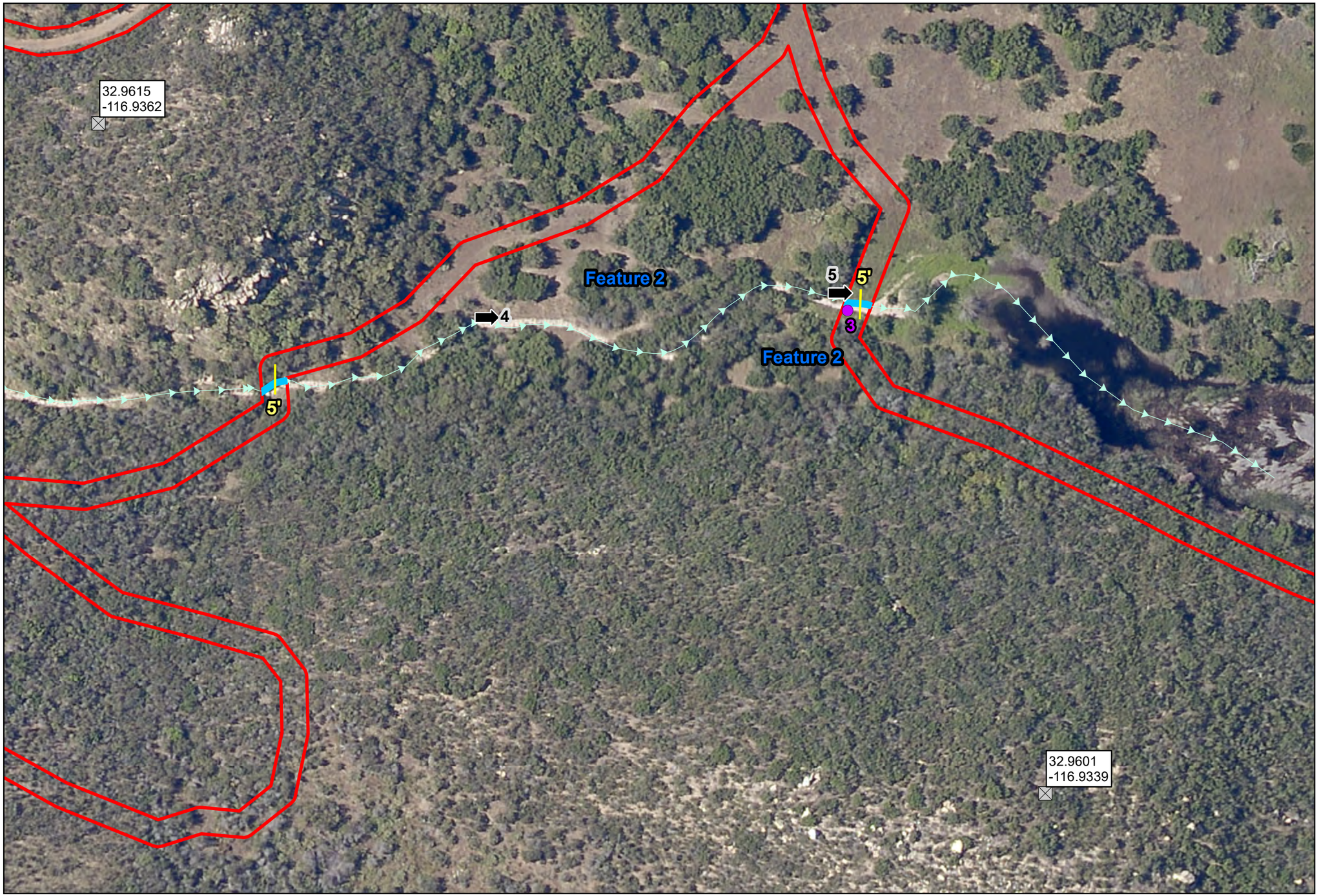


N

0 100 200 300 400 500 Feet

1 inch = 75 feet

Figure 5a - Sheet 4
Potential USACE Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

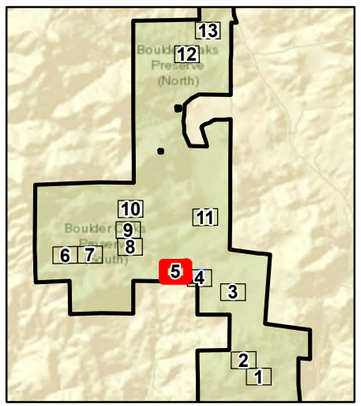


Legend

- Preserve Boundary
- Delineation Area
- Photo Points
- Sample Points
- Swale
- Culverted Crossing
- OHWM Width
- Drainage Path

Waters of the U.S.

- Non-Wetland Water



COUNTY OF SAN DIEGO PARKS AND RECREATION

N

0 100 200 300 400 500 Feet

1 inch = 75 feet

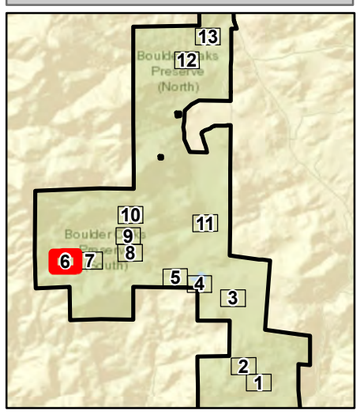
Figure 5a - Sheet 5
Potential USACE Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

Legend

- Preserve Boundary
- Delineation Area
- Photo Points
- Sample Points
- Swale
- Culverted Crossing
- OHWM Width
- Drainage Path

Waters of the U.S.

- Non-Wetland Water

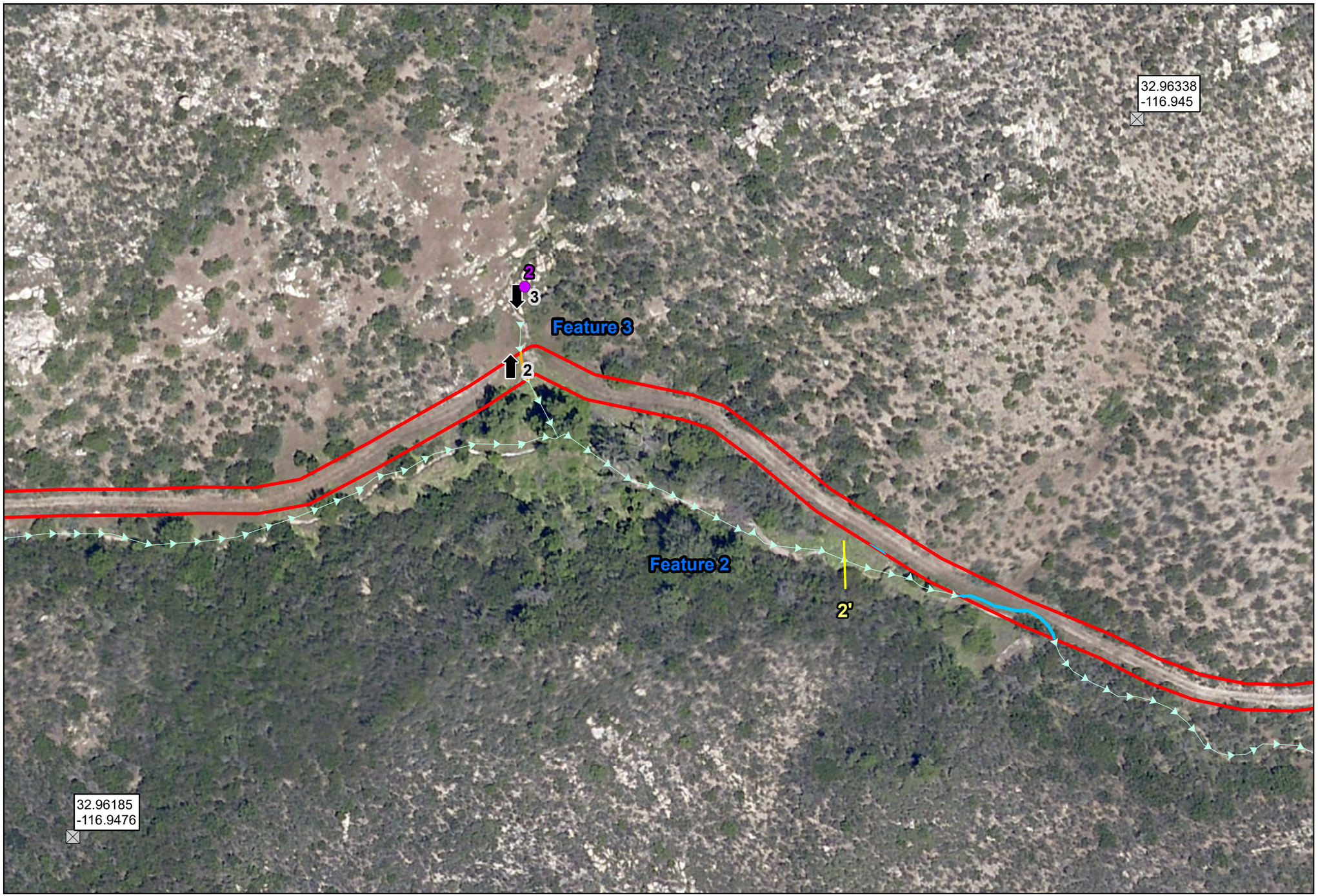


N

0 100 200 300 400 500 Feet

1 inch = 75 feet

Figure 5a - Sheet 6
Potential USACE Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

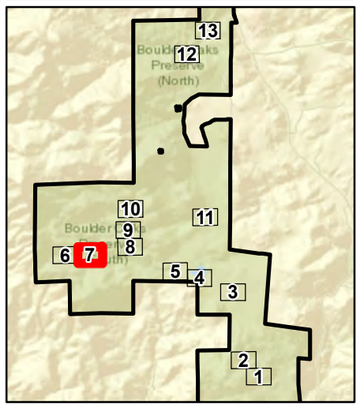


Legend

- Preserve Boundary
- Delineation Area
- Photo Points
- Sample Points
- Swale
- Culverted Crossing
- OHWM Width
- Drainage Path

Waters of the U.S.

- Non-Wetland Water



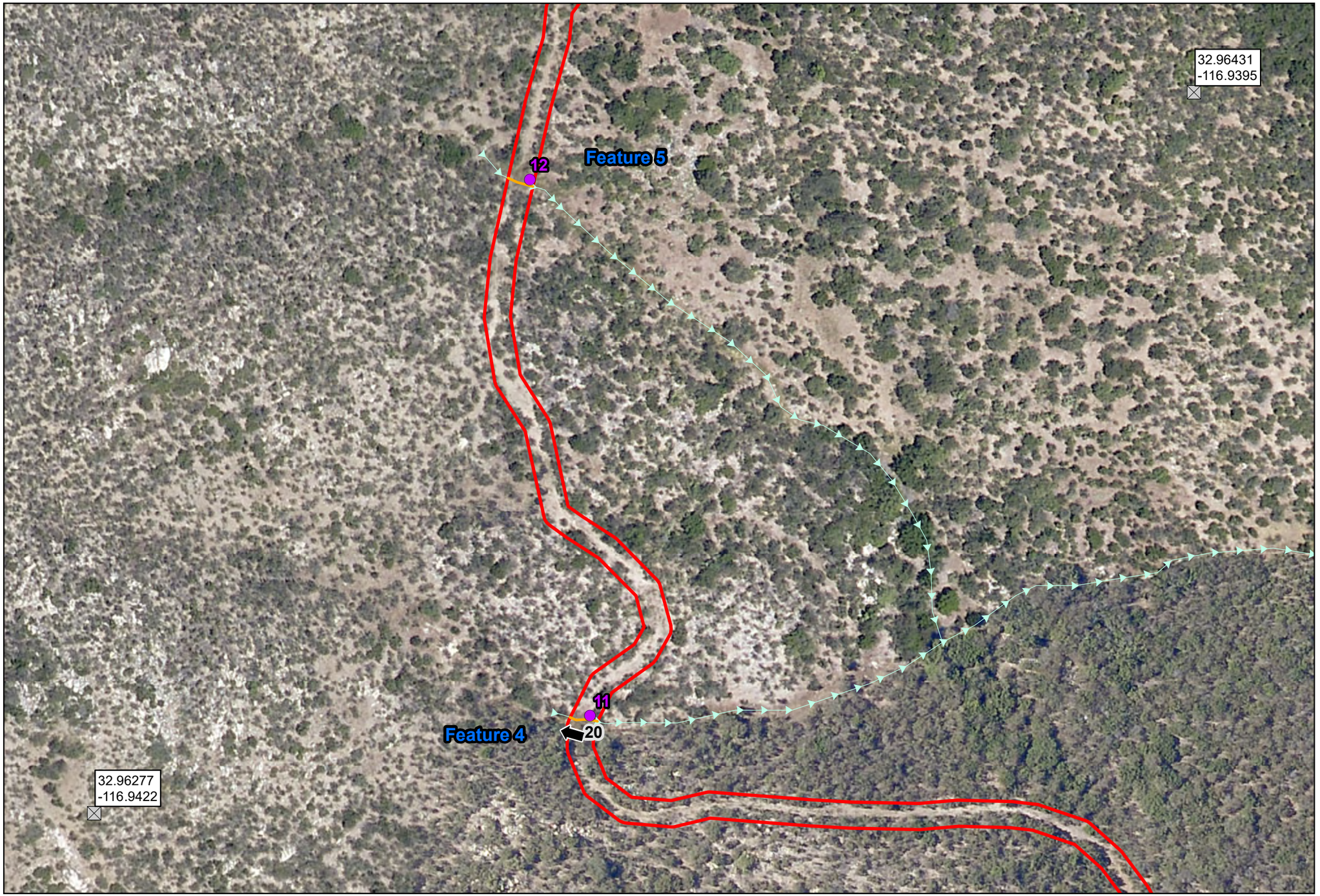
COUNTY OF SAN DIEGO PARKS AND RECREATION

N

0 100 200 300 400 500 Feet

1 inch = 75 feet

Figure 5a - Sheet 7
Potential USACE Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

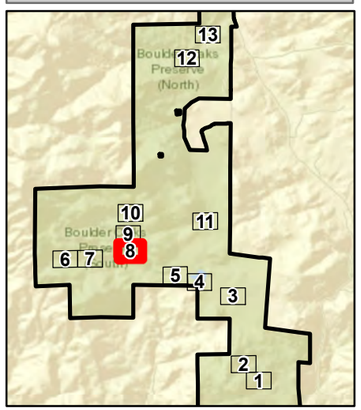


Legend

- Preserve Boundary
- Delineation Area
- Photo Points
- Sample Points
- Swale
- Culverted Crossing
- OHWM Width
- Drainage Path

Waters of the U.S.

- Non-Wetland Water



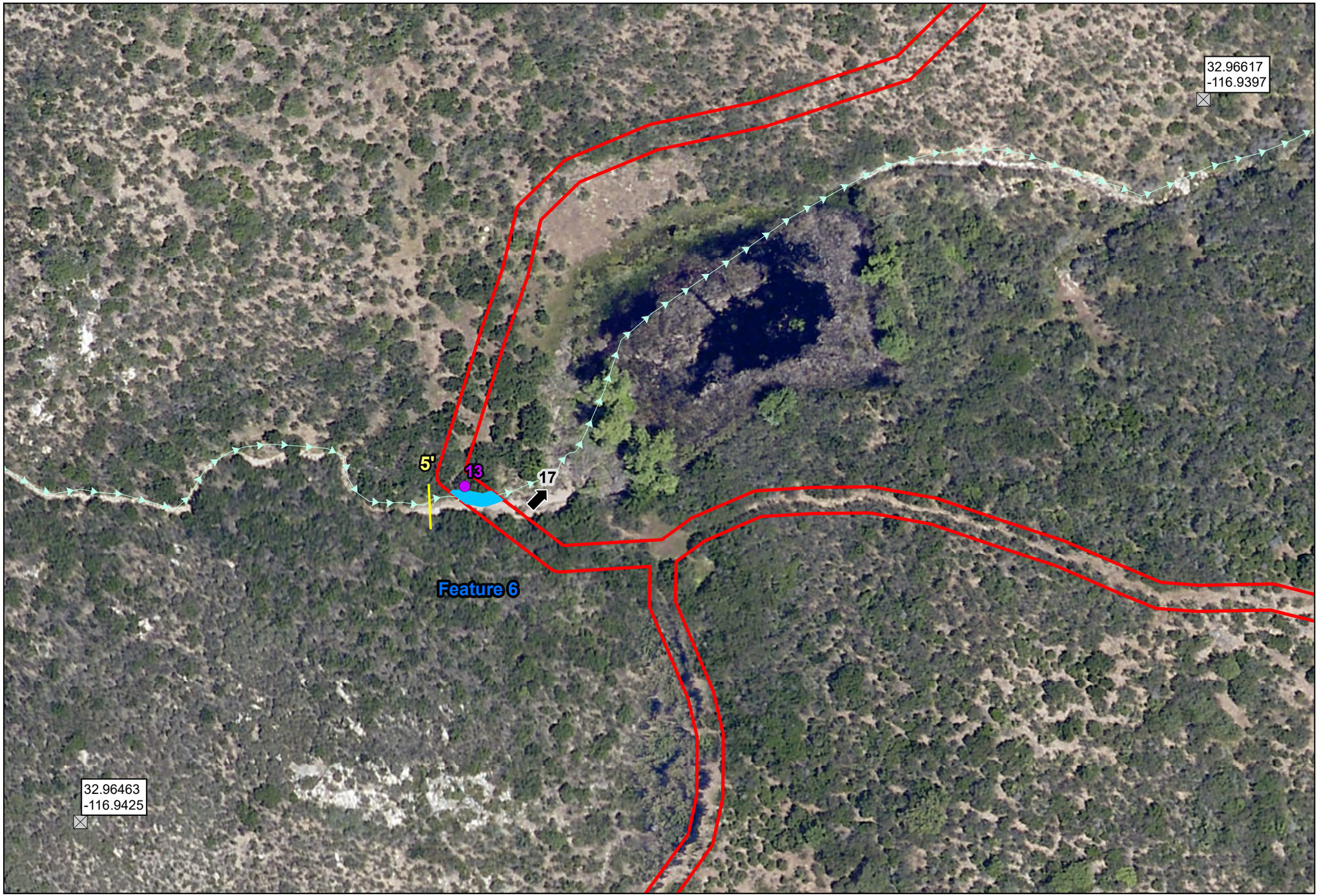
COUNTY OF SAN DIEGO PARKS AND RECREATION

N

0 100 200 300 400 500 Feet

1 inch = 75 feet

Figure 5a - Sheet 8
Potential USACE Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

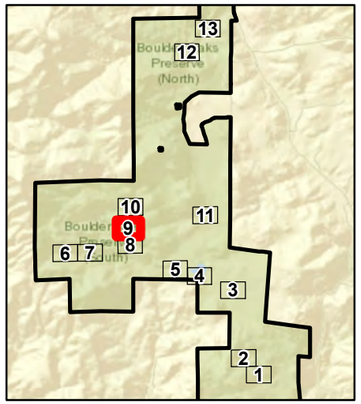


Legend

- Preserve Boundary
- Delineation Area
- Photo Points
- Sample Points
- Swale
- Culverted Crossing
- OHWM Width
- Drainage Path

Waters of the U.S.

- Non-Wetland Water



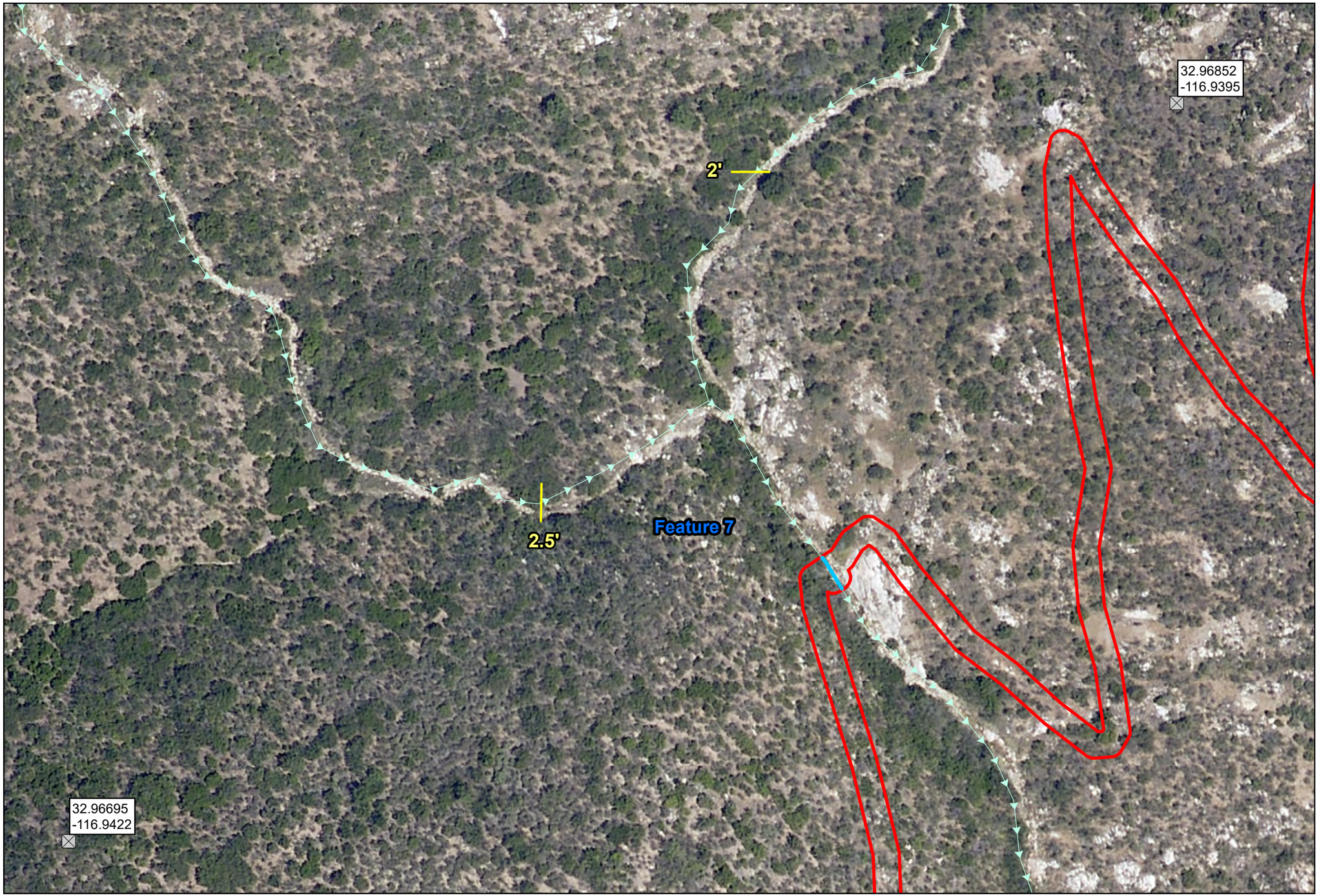
COUNTY OF SAN DIEGO PARKS AND RECREATION

N

0 100 200 300 400 500 Feet

1 inch = 75 feet

Figure 5a - Sheet 9
Potential USACE Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

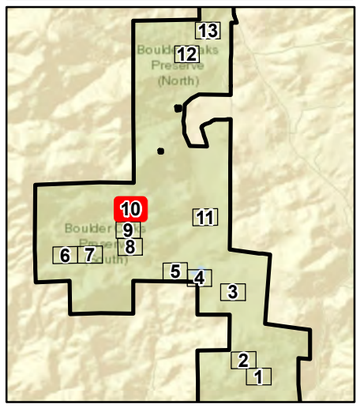


Legend

- Preserve Boundary
- Delineation Area
- Photo Points
- Sample Points
- Swale
- Culverted Crossing
- OHWM Width
- Drainage Path

Waters of the U.S.

- Non-Wetland Water



N

0 100 200 300 400 500 Feet

1 inch = 75 feet

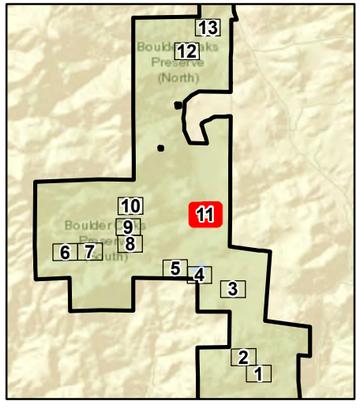
Figure 5a - Sheet 10
Potential USACE Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

Legend

- Preserve Boundary
- Delineation Area
- Photo Points
- Sample Points
- Swale
- Culverted Crossing
- OHWM Width
- Drainage Path

Waters of the U.S.

- Non-Wetland Water



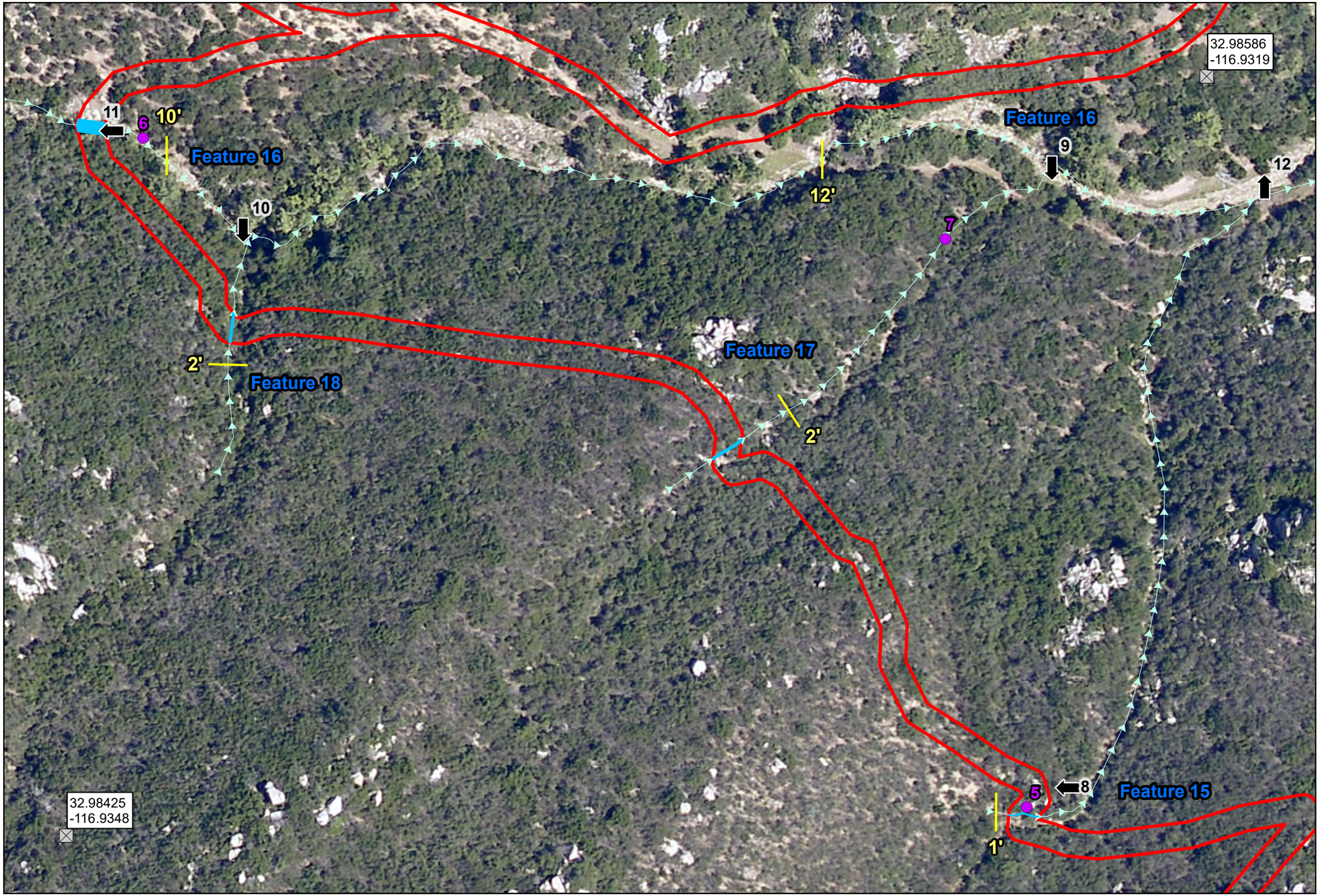
COUNTY OF SAN DIEGO PARKS AND RECREATION

N

0 100 200 300 400 500 Feet

1 inch = 75 feet

Figure 5a - Sheet 11
Potential USACE Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

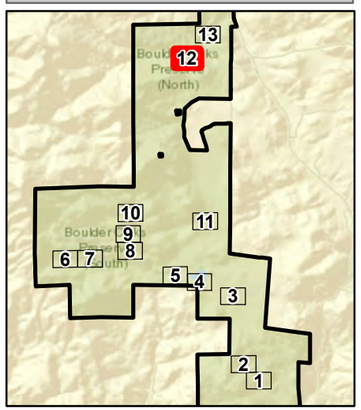


Legend

- Preserve Boundary
- Delineation Area
- Photo Points
- Sample Points
- Swale
- Culverted Crossing
- OHWM Width
- Drainage Path

Waters of the U.S.

- Non-Wetland Water



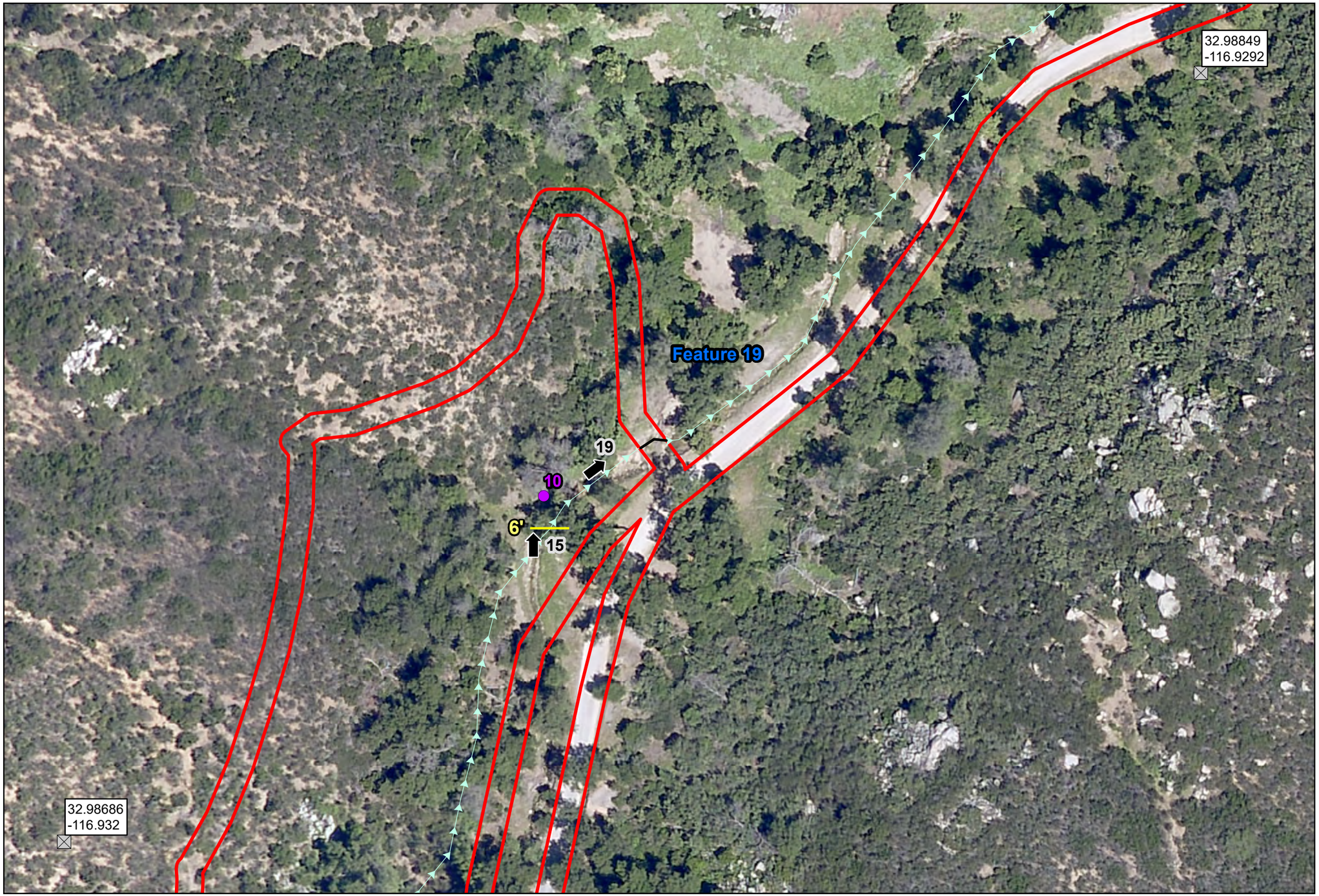
COUNTY OF SAN DIEGO PARKS AND RECREATION

N

0 100 200 300 400 500 Feet

1 inch = 75 feet

Figure 5a - Sheet 12
Potential USACE Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

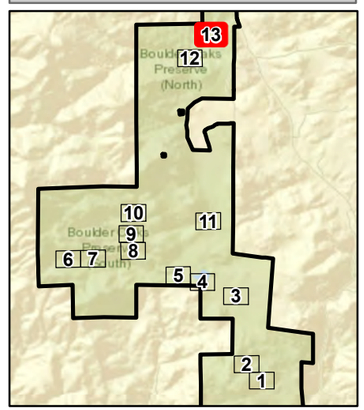


Legend

- Preserve Boundary
- Delineation Area
- Photo Points
- Sample Points
- Swale
- Culverted Crossing
- OHWM Width
- Drainage Path

Waters of the U.S.

- Non-Wetland Water



COUNTY OF SAN DIEGO PARKS AND RECREATION

N

0 100 200 300 400 500 Feet

1 inch = 75 feet

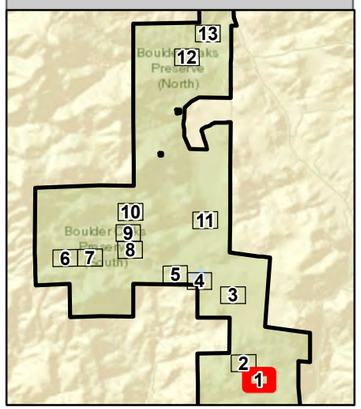
Figure 5a - Sheet 13
Potential USACE Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

Legend

- Preserve Boundary
- Survey Area
- Photo Points
- Swale
- Culverted Crossing
- Footbridge
- TOB Width
- Drainage Path

CDFW Waters

- Streambed
- Riparian



N

0 100 200 300 400 500 Feet

1 inch = 75 feet

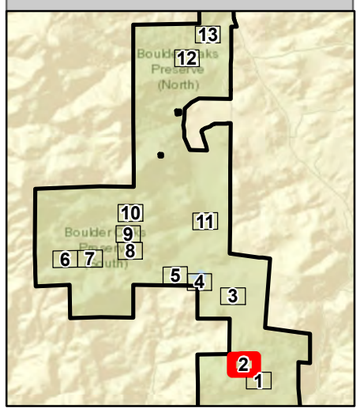
Figure 5a - Sheet 1
Potential CDFW Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

Legend

- Preserve Boundary
- Survey Area
- Photo Points
- Swale
- Culverted Crossing
- Footbridge
- TOB Width
- Drainage Path

CDFW Waters

- Streambed
- Riparian



COUNTY OF SAN DIEGO PARKS AND RECREATION

N

0 100 200 300 400 500 Feet

1 inch = 75 feet

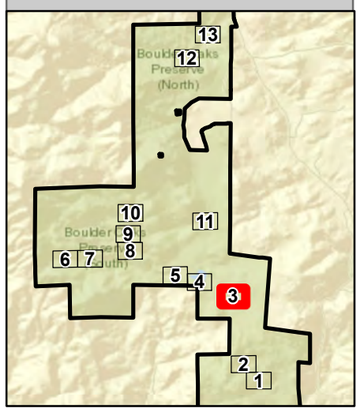
Figure 5a - Sheet 2
Potential CDFW Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

Legend

- Preserve Boundary
- Survey Area
- Photo Points
- Swale
- Culverted Crossing
- Footbridge
- TOB Width
- Drainage Path

CDFW Waters

- Streambed
- Riparian



COUNTY OF SAN DIEGO PARKS AND RECREATION

N

0 100 200 300 400 500 Feet

1 inch = 75 feet

Figure 5a - Sheet 3
Potential CDFW Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

Feature 2

4'

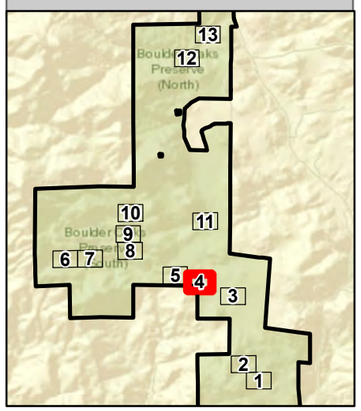
6

Legend

- Preserve Boundary
- Survey Area
- Photo Points
- Swale
- Culverted Crossing
- Footbridge
- TOB Width
- Drainage Path

CDFW Waters

- Streambed
- Riparian



COUNTY OF SAN DIEGO PARKS AND RECREATION

N

0 100 200 300 400 500 Feet

1 inch = 75 feet

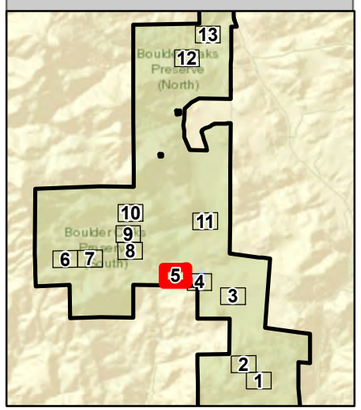
Figure 5a - Sheet 4
Potential CDFW Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

Legend

- Preserve Boundary
- Survey Area
- Photo Points
- Swale
- Culverted Crossing
- Footbridge
- TOB Width
- Drainage Path

CDFW Waters

- Streambed
- Riparian



N

0 100 200 300 400 500 Feet

1 inch = 75 feet

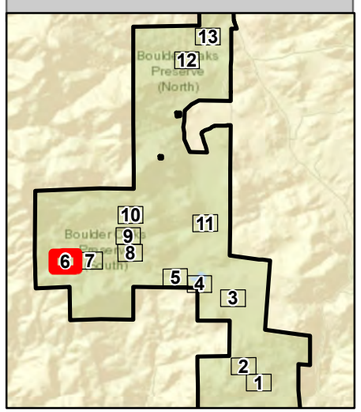
Figure 5a - Sheet 5
Potential CDFW Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

Legend

- Preserve Boundary
- Survey Area
- Photo Points
- Swale
- Culverted Crossing
- Footbridge
- TOB Width
- Drainage Path

CDFW Waters

- Streambed
- Riparian

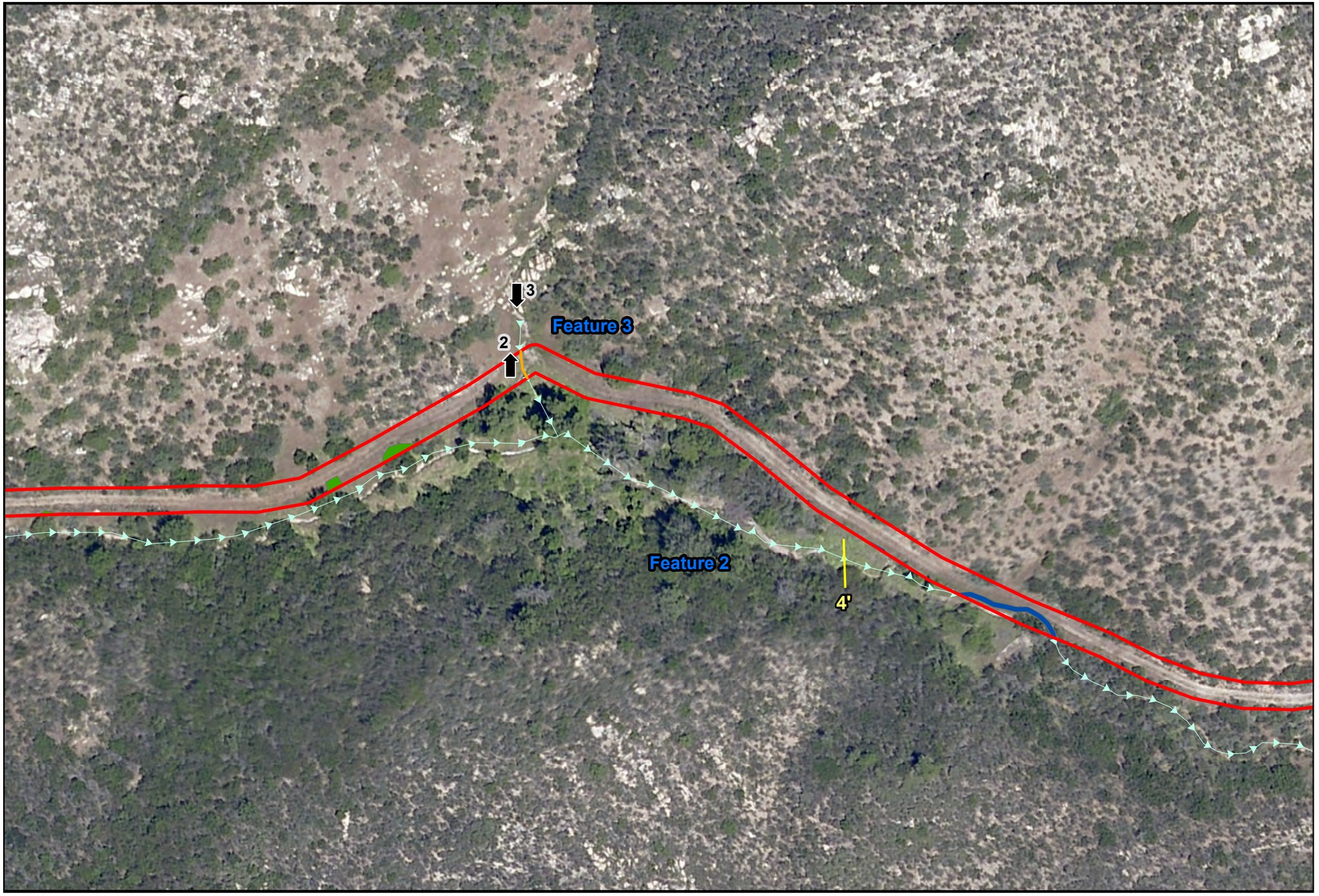


N

0 100 200 300 400 500 Feet

1 inch = 75 feet

Figure 5a - Sheet 6
Potential CDFW Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

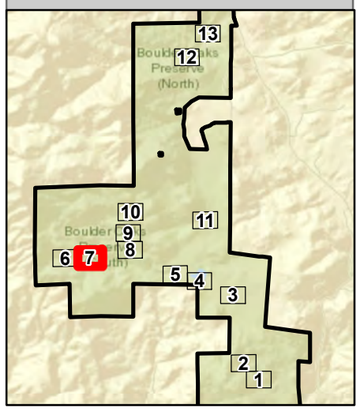


Legend

- Preserve Boundary
- Survey Area
- Photo Points
- Swale
- Culverted Crossing
- Footbridge
- TOB Width
- Drainage Path

CDFW Waters

- Streambed
- Riparian



N

0 100 200 300 400 500 Feet

1 inch = 75 feet

Figure 5a - Sheet 7
Potential CDFW Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

Feature 5

Feature 4

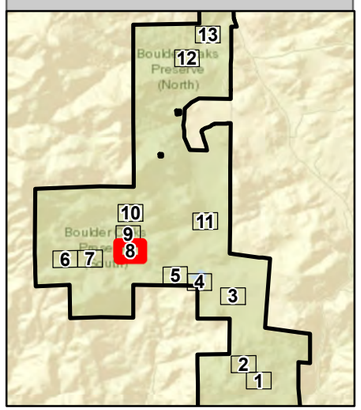
20

Legend

- Preserve Boundary
- Survey Area
- Photo Points
- Swale
- Culverted Crossing
- Footbridge
- TOB Width
- Drainage Path

CDFW Waters

- Streambed
- Riparian



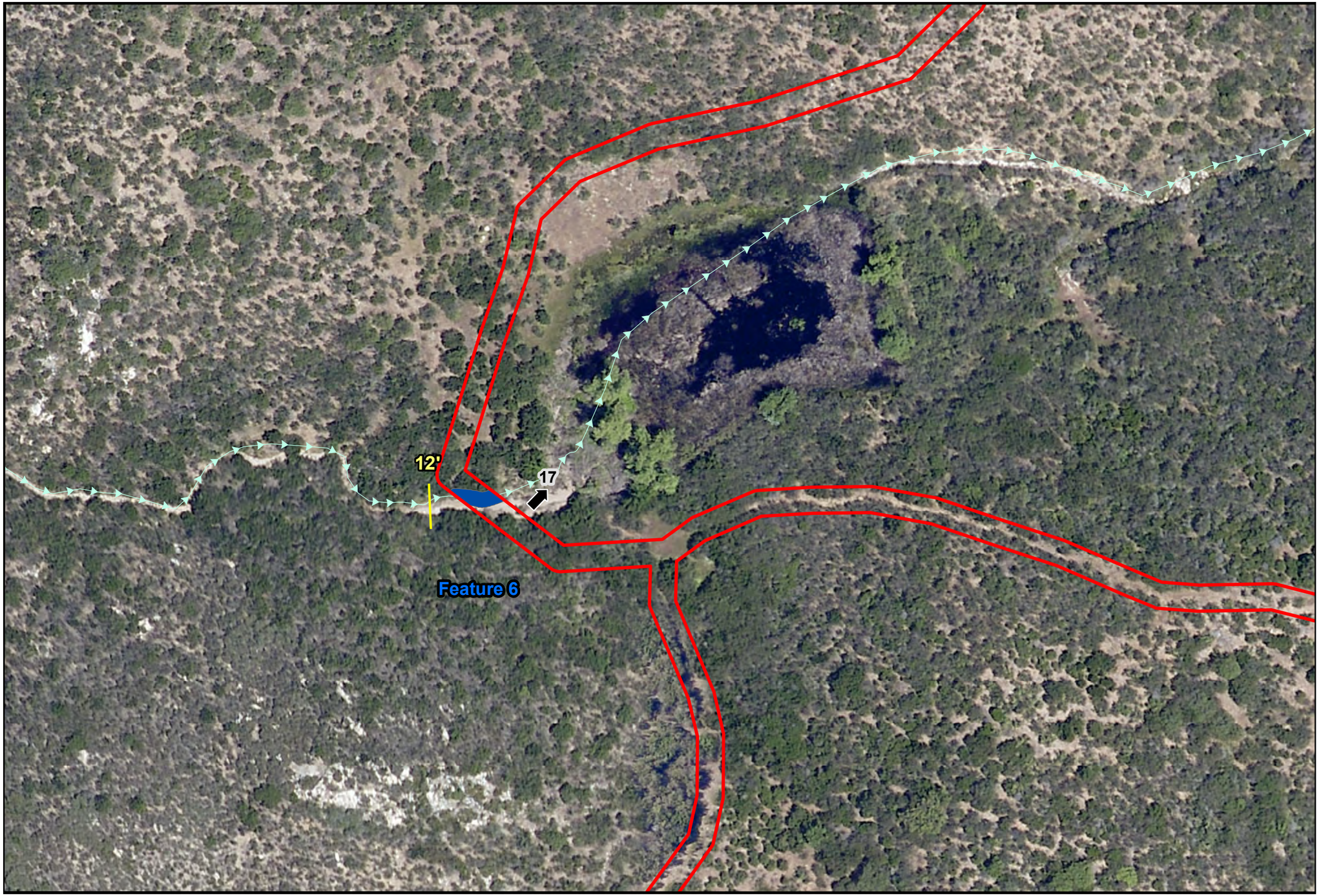
COUNTY OF SAN DIEGO PARKS AND RECREATION

N

0 100 200 300 400 500 Feet

1 inch = 75 feet

Figure 5a - Sheet 8
Potential CDFW Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

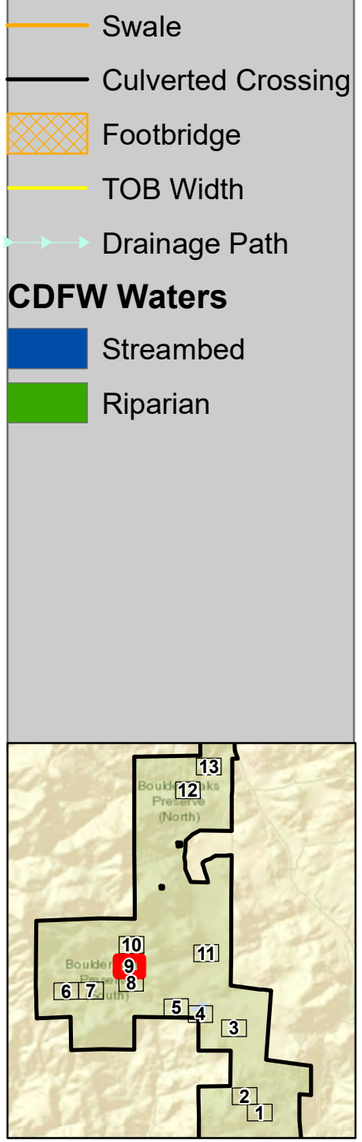


Legend

- Preserve Boundary
- Survey Area
- Photo Points
- Swale
- Culverted Crossing
- Footbridge
- TOB Width
- Drainage Path

CDFW Waters

- Streambed
- Riparian



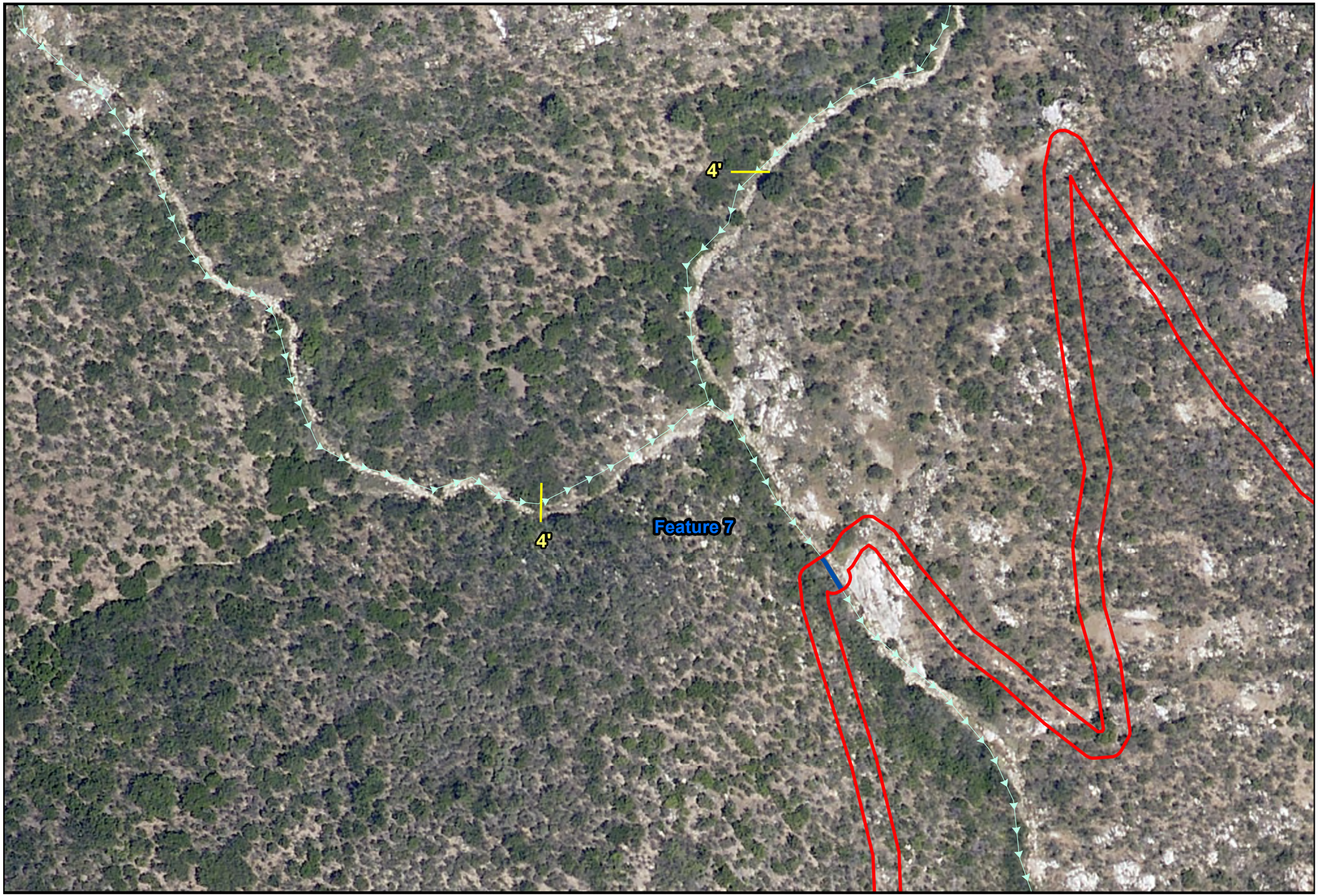
COUNTY OF SAN DIEGO PARKS AND RECREATION

N

0 100 200 300 400 500 Feet

1 inch = 75 feet

Figure 5a - Sheet 9
Potential CDFW Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

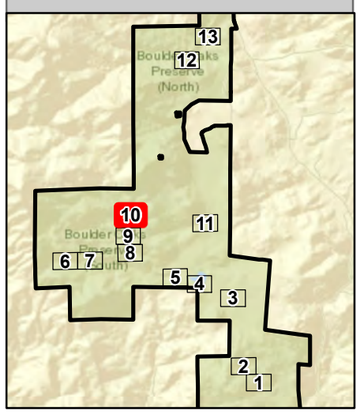


Legend

- Preserve Boundary
- Survey Area
- Photo Points
- Swale
- Culverted Crossing
- Footbridge
- TOB Width
- Drainage Path

CDFW Waters

- Streambed
- Riparian



COUNTY OF SAN DIEGO PARKS AND RECREATION

N

0 100 200 300 400 500 Feet

1 inch = 75 feet

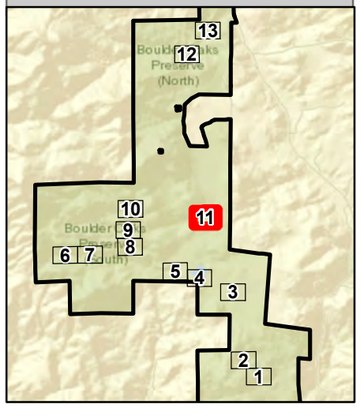
Figure 5a - Sheet 10
Potential CDFW Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

Legend

- Preserve Boundary
- Survey Area
- Photo Points
- Swale
- Culverted Crossing
- Footbridge
- TOB Width
- Drainage Path

CDFW Waters

- Streambed
- Riparian



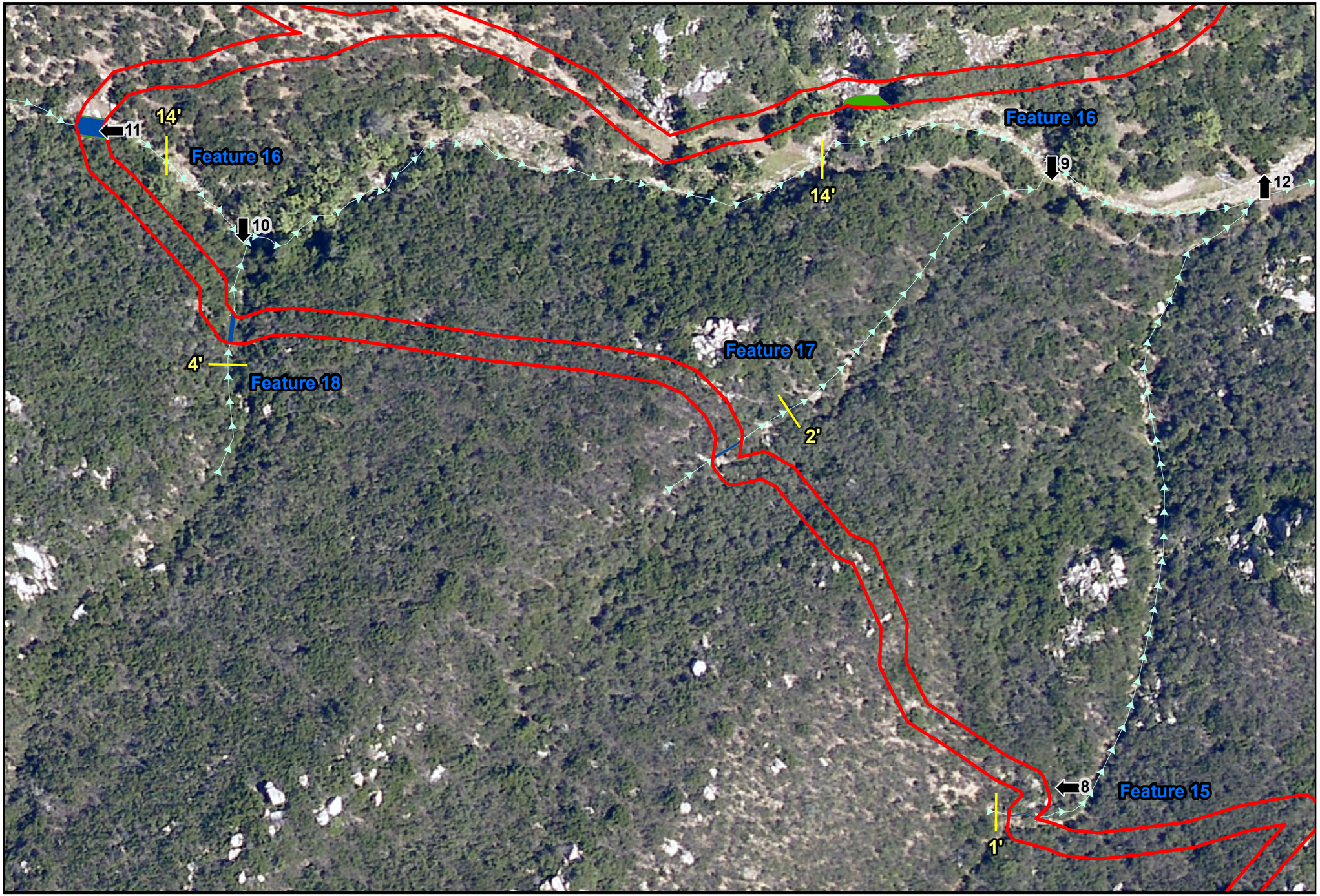
COUNTY OF SAN DIEGO PARKS AND RECREATION

N

0 100 200 300 400 500 Feet

1 inch = 75 feet

Figure 5a - Sheet 11
Potential CDFW Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

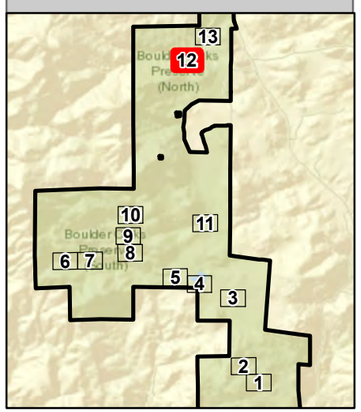


Legend

- Preserve Boundary
- Survey Area
- Photo Points
- Swale
- Culverted Crossing
- Footbridge
- TOB Width
- Drainage Path

CDFW Waters

- Streambed
- Riparian



N

0 100 200 300 400 500 Feet

1 inch = 75 feet

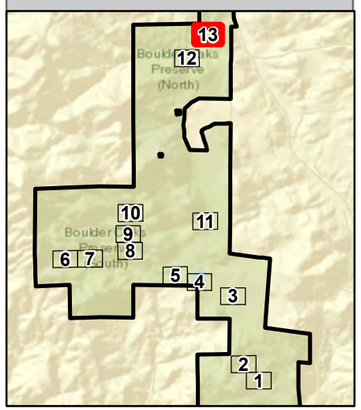
Figure 5a - Sheet 12
Potential CDFW Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

Legend

- Preserve Boundary
- Survey Area
- Photo Points
- Swale
- Culverted Crossing
- Footbridge
- TOB Width
- Drainage Path

CDFW Waters

- Streambed
- Riparian



N

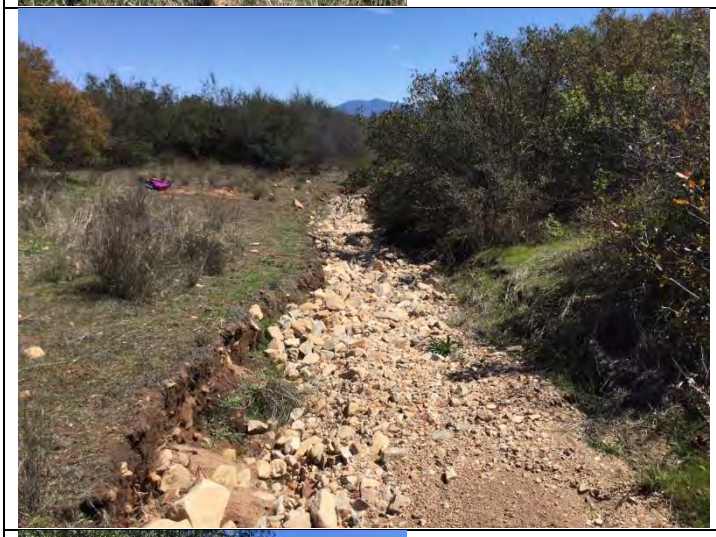
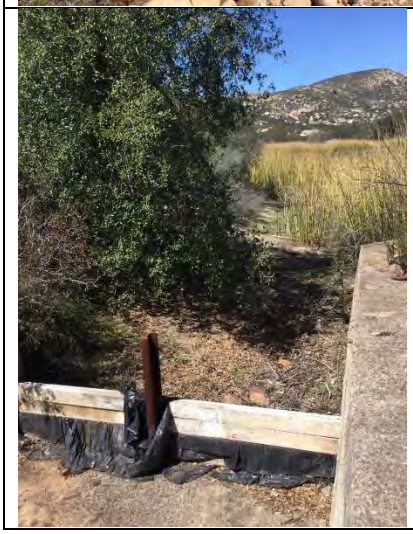
0 100 200 300 400 500 Feet

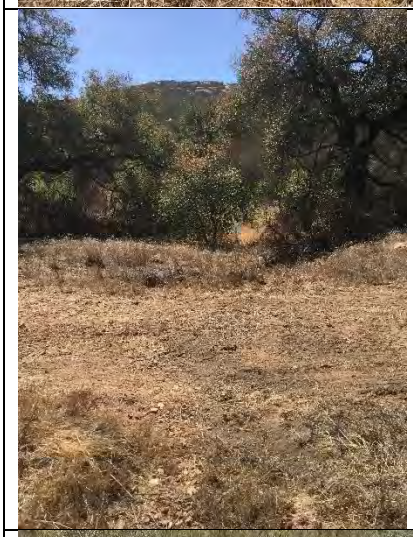
1 inch = 75 feet

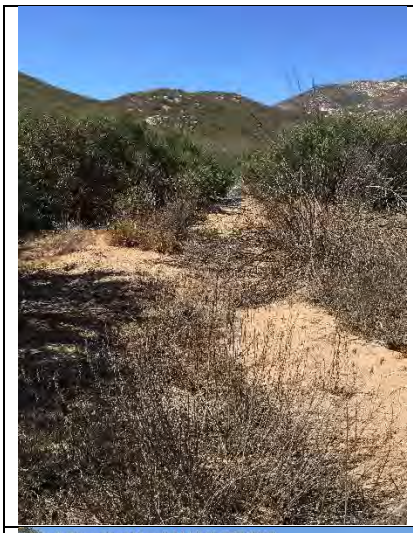
Figure 5a - Sheet 13
Potential CDFW Jurisdictional Waters
Boulder Oaks Preserve Public Access Plan

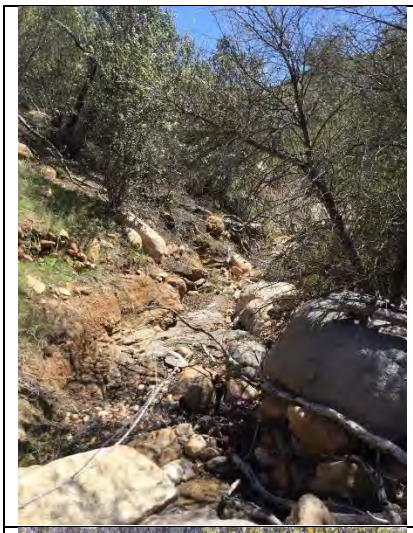
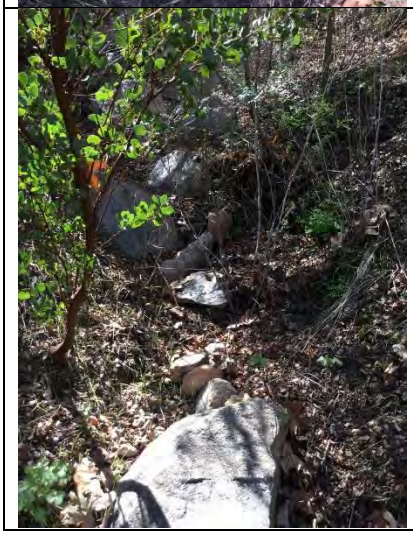
Appendix B

Site Photographs, March 2018

Appendix B - Representative Site Photographs	
	Feature ID: 2 Photo ID: 001 Direction: North East Date: 3/19/18 Description: Ephemeral channel that passes over existing, unimproved, road. Channel flows west to east and is defined by clear bed and bank. Photo taken near headwaters of this feature.
	Feature ID: 2 Photo ID: 005 Direction: East Date: 3/19/18 Description: Channel delineated by clearly defined bed and bank, destruction of terrestrial vegetation, and sediment sorting. Channel broadens as it flows to the east and is impounded by an earthen berm.
	Feature ID: 2 Photo ID: 006 Date: 3/19/18 Direction: North Description: Narrow outlet point of Feature 2, freshwater marsh area.

	Feature ID: 2 Photo ID: 016 Direction: East Date: 10/10/18 Description: Existing corrugated metal pipe culverts.
	Feature ID: 3 Photo ID: 002 Direction: South Date: 10/10/18 Description: Ephemeral swale that passes over existing, unimproved, road. Feature lacks defined bed or bank and there was no evidence of OWHM. Photo taken immediately upstream of existing trail.
	Feature ID: 4 Photo ID: 20 Direction: West Date: 10/10/2018 Description: Ephemeral swale that passes over existing trail. Feature lacks defined bed or bank, and there was no evidence of OWHM.

	Feature ID: 6 Photo ID: 17 Direction: West Date: 10/10/2018 Description: Wide sandy, flat, ephemeral channel. Channel broadens as it flows to the east and is impounded by an earthen berm.
	Feature ID: 7 Photo ID: 18 Direction: East Date: 5/9/18 Description: Downstream of bridge crossing. Broad sandy channel.
	Feature ID: 15 Photo ID: 008 Direction: West Date: 3/19/18 Description: Steep ephemeral channel. Narrow OHWM and TOB. Clearly defined bed and bank and break in slope.

		Feature ID: 16 Photo ID: 011 Direction: West Date: 3/20/18 Description: Large intermittent channel characterized by a 10-foot-wide OHWM and 14-foot-wide TOB with clear bed and bank, evidence of sediment sorting, destruction of terrestrial vegetation, and wracking. The channel bed is dominated by large cobbles and some in channel vegetation.
		Feature ID: 17 Photo ID: 009 Direction: South Date: 3/20/18 Description: Steep, narrow ephemeral channel with narrow OHWM and TOB. Clearly defined bed and bank and break in slope. Representative photo located downstream of the survey area and immediately upstream of feature confluence with Feature 16.
		Feature ID: 18 Photo ID: 010 Direction: South Date: 3/20/18 Description: Steep, narrow ephemeral channel with narrow OHWM and TOB. Clearly defined bed and bank and break in slope. Representative photo located downstream of survey area and immediately upstream of feature confluence with Feature 16.

		Feature ID: 19 Photo ID: 019 Direction: Northeast Date: 10/10/18 Description: Broad intermittent channel, running along the north side of the main access road. Channel dominated by large cobbles and flows through a single 36-inch corrugated metal pipe in the survey area.

Appendix C

Arid West OHWM Data Forms

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Boulder Oaks Preserve
Project Number:
Stream: unnamed trib to San Vicente
Investigator(s): M. Guerrero, R. Layden

Date: 3/19/18 **Time:** 10am
Town: Ramona **State:** CA
Photo begin file#: **Photo end file#:**

Y ■ / N □ Do normal circumstances exist on the site?

Y □ / N ■ Is the site significantly disturbed?

Location Details:
Boulder Oaks Feature 1, SP 1

Projection: **Datum:**
Coordinates: 32.9625, -116.949

Potential anthropogenic influences on the channel system:

Boulder Oaks preserve is relatively undeveloped. There are some existing dirt, unimproved trails (~8-12 feet wide) located throughout the project site.

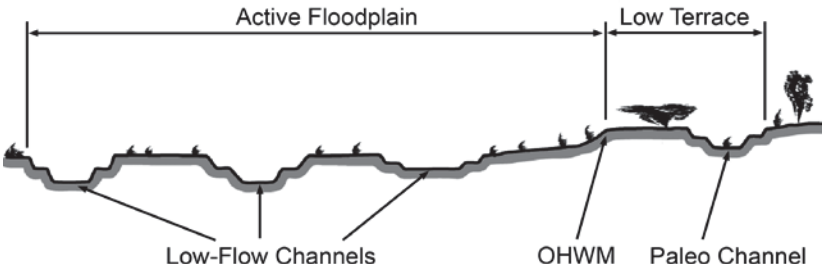
Brief site description:

Project site has steep western boundary that coincides with Iron Mountain ridgeline. Tho the east the project site flattens out into a valley. ALl streams on the project site originate to the west on the steep mountain range and flow to the east.

Checklist of resources (if available):

- ■ Aerial photography
  Dates:
- ■ Topographic maps
- □ Geologic maps
- ■ Vegetation maps
- ■ Soils maps
- □ Rainfall/precipitation maps
- □ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- □ Other studies
- □ Stream gage data
  Gage number:
  Period of record:
- □ History of recent effective discharges
- □ Results of flood frequency analysis
- □ Most recent shift-adjusted rating
- □ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

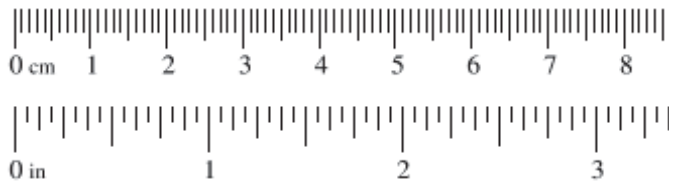


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - □ Mapping on aerial photograph
   - ■ Digitized on computer
   - ■ GPS
   - □ Other:

Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: **Cross section ID:** SP 1 **Date:** 3/19/18 **Time:** 10am

Cross section drawing:

OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☒ Change in vegetation cover
- ☒ Break in bank slope
- ☒ Other: clear bed and bank
- ☐ Other: _____

Comments:

sample point occurs in road/existing trail. Vegetated with grasses. Ephemeral channel. The channel is relatively flat due to its presence in a road.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: **Cross section ID:** SP 1 **Date:** 3/19/18 **Time:** 10am

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: silty

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Boulder Oaks Preserve Public Access Plan | **Date:** CA | **Time:** 11 AM
Project Number: | **Town:** Ramona | **State:** CA
Stream: Unnamed trib to San Vicente Creek | **Photo begin file#:** | **Photo end file#:**
Investigator(s): M. Guerrero, C. Courtney, D. Kelsey

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

Location Details:
Boulder Oaks Preserve, Feature 3, SP 2

Projection: **Datum:**
Coordinates: 32.9629, -116.9465

Potential anthropogenic influences on the channel system:

Boulder Oaks Preserve is relatively undeveloped. There are some existing dirt, unimproved, trails (~8-12 feet wide) located throughout the preserve. Some ephemeral channel are bisected by the trails. Some channels are also imponded by eastern berms, creating freshwater ponds.

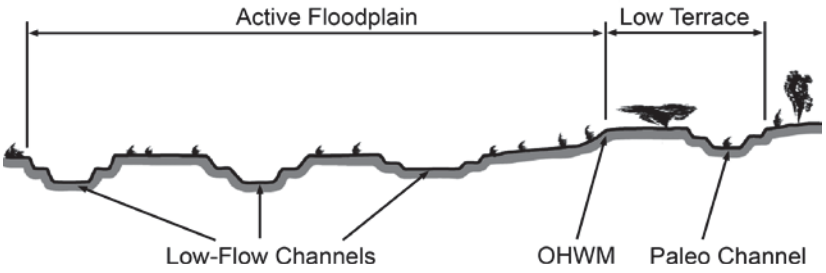
Brief site description:

The project site is characterized as having a steep western boundary that coincides with the Iron Mountain ridgeline. To the east the project site flattens out into a valley. All streams on the project site originate to the west in the steep mountain range and flow to the east and are ultimately tributary to San Vicente Creek.

Checklist of resources (if available):

- ■ Aerial photography
  Dates:
- ■ Topographic maps
- ☐ Geologic maps
- ■ Vegetation maps
- ■ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

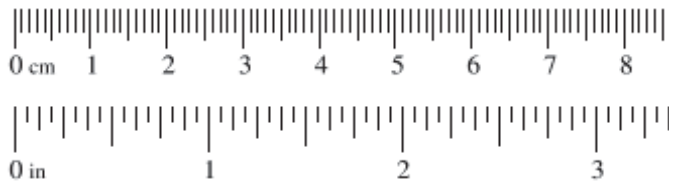


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☐ GPS
   - ☐ Other:

Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: **Cross section ID:** SP 2 **Date:** 10/10/18 **Time:** 11 AM

Cross section drawing:

OHWM

GPS point: _____

Indicators:

- ☒ Change in average sediment texture
- ☒ Change in vegetation species
- ☒ Change in vegetation cover
- ☐ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

- Top of bank and ordinary high water mark are equal
- Average width 3.5 feet for USACE and CDFW

Note that this OHWM is located above the existing road and that OHWM and TOB features disappear when the feature crosses the existing road/trail.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: **Cross section ID:** SP 2 **Date:** 10/10/18 **Time:** 11 AM

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Boulder Oaks Preserve Public Access Plan **Date:** CA **Time:** 12:50 PM
Project Number: **Town:** Ramona **State:** CA
Stream: Unnamed trib to San Vicente Creek **Photo begin file#:** **Photo end file#:**
Investigator(s): M. Guerrero, C. Courtney, D. Kelsey

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

Location Details:
Boulder Oaks Preserve Sample Point 3

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

Boulder Oaks Preserve is relatively undeveloped. There are some existing dirt, unimproved, trails (~8-12 feet wide) located throughout the preserve. Some ephemeral channel are bisected by the trails. Some channels are also imponded by eastern berms, creating freshwater ponds.

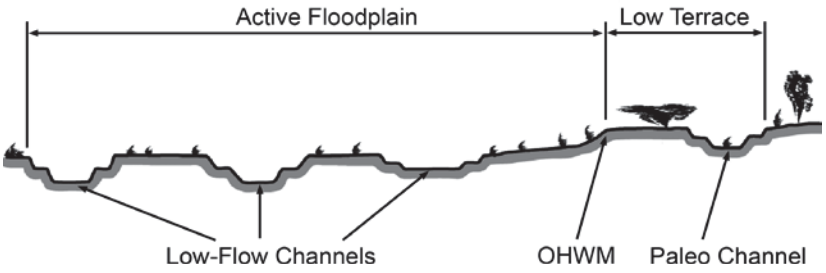
Brief site description:

The project site is characterized as having a steep western boundary that coincides with the Iron Mountain ridgeline. To the east the project site flattens out into a valley. All streams on the project site originate to the west in the steep mountain range and flow to the east and are ultimately tributary to San Vicente Creek.

Checklist of resources (if available):

- ■ Aerial photography
  Dates:
- ■ Topographic maps
- ☐ Geologic maps
- ■ Vegetation maps
- ■ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

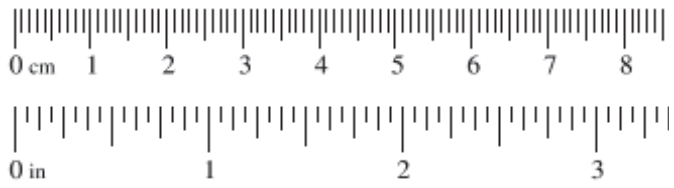


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☐ GPS
   - ☐ Other:

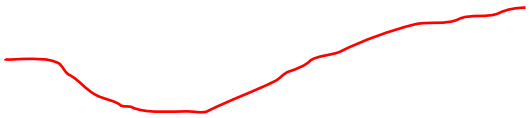
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: **Cross section ID:** SP 3 **Date:** 10/10/18 **Time:** 12:50 PM

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: **Cross section ID:** SP 3 **Date:** 10/10/18 **Time:** 12:50 PM

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Boulder Oaks Preserve
Project Number:
Stream: unnamed trib to San Vicente
Investigator(s): M. Guerrero, F. Bendell

Date: 3/19/18
Town: Ramona
Photo begin file#:

Time:
State: CA
Photo end file#:

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

Location Details:
Feature 7, SP 4 - upstream of bridge

Projection: **Datum:**
Coordinates: 32.9668 -116.9308

Potential anthropogenic influences on the channel system:

Boulder Oaks preserve is relatively undeveloped. There are some existing dirt, unimproved trails (~8-12 feet wide) located throughout the project site.

Brief site description:

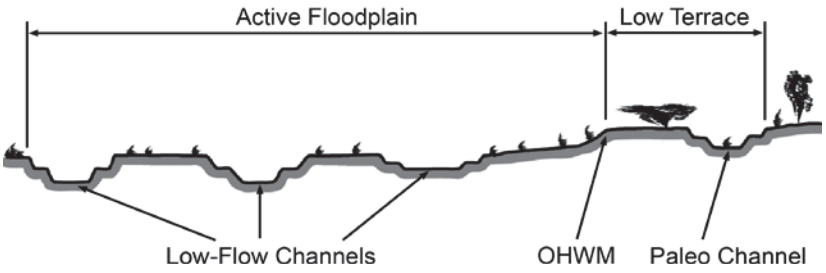
Project site has steep western boundary that coincides with Iron Mountain ridgeline. To the east the project site flattens out into a valley. ALl streams on the project site originate to the west on the steep mountain range and flow to the east.

Checklist of resources (if available):

- ■ Aerial photography
  Dates:
- ■ Topographic maps
- ☐ Geologic maps
- ■ Vegetation maps
- ■ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

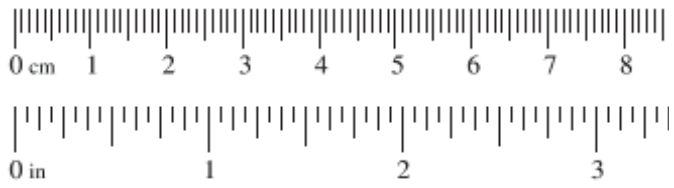


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ■ Digitized on computer
   - ■ GPS
   - ☐ Other:

Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: **Cross section ID:** SP 4 **Date:** 3/19/18 **Time:**

Cross section drawing:

OHWM

GPS point: _____

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Sample point located in a broad sandy channel - immediately upstream of the bridge crossing.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: silty

Total veg cover: 0 % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: **Cross section ID:** SP 4 **Date:** 3/19/18 **Time:**

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: silty

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Boulder Oaks Preserve
Project Number:
Stream: unnamed trib to San Vicente
Investigator(s): M. Guerrero, F. Bendel

Date: 3/19/18
Town: Ramona
Photo begin file#:

Time:
State: CA
Photo end file#:

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

Location Details:
Feature 15, SP 5

Projection: **Datum:**
Coordinates: 32.9842 -116.9323

Potential anthropogenic influences on the channel system:

Boulder Oaks preserve is relatively undeveloped. There are some existing dirt, unimproved trails (~8-12 feet wide) located throughout the project site.

Brief site description:

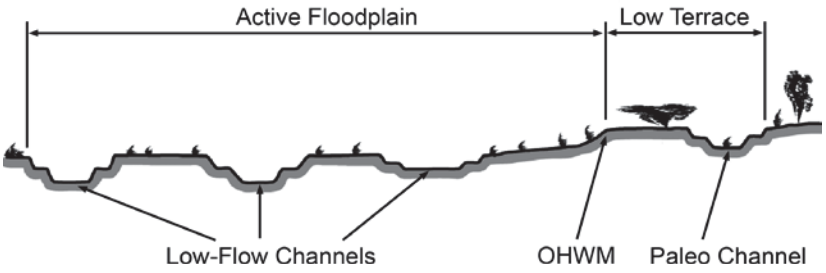
Project site has steep western boundary that coincides with Iron Mountain ridgeline. To the east the project site flattens out into a valley. ALl streams on the project site originate to the west on the steep mountain range and flow to the east.

Checklist of resources (if available):

- ■ Aerial photography
  Dates:
- ■ Topographic maps
- ☐ Geologic maps
- ■ Vegetation maps
- ■ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

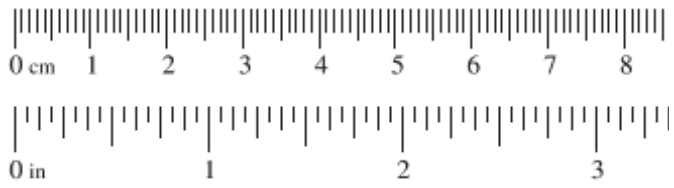


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ■ Digitized on computer
   - ■ GPS
   - ☐ Other:

Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: **Cross section ID:** SP 5 **Date:** 3/19/18 **Time:**

Cross section drawing:

OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☒ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Sample point located in existing trail. Channel lacks vegetation.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: silty

Total veg cover: 0 % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: **Cross section ID:** SP 5 **Date:** 3/19/18 **Time:**

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: silty

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Boulder Oaks Preserve
Project Number:
Stream: unnamed trib to San Vicente
Investigator(s): M. Guerrero, R. Layden

Date: 3/20/18
Town: Ramona
Photo begin file#:

Time:
State: CA
Photo end file#:

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

Location Details:
Feature 16, SP 6

Projection: **Datum:**
Coordinates: 32.9857, -116.9346

Potential anthropogenic influences on the channel system:

Boulder Oaks preserve is relatively undeveloped. There are some existing dirt, unimproved trails (~8-12 feet wide) located throughout the project site.

Brief site description:

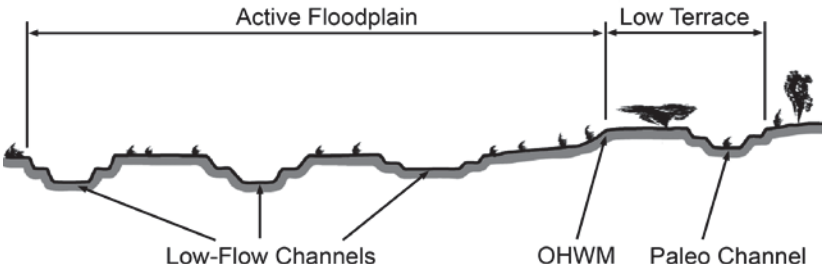
Project site has steep western boundary that coincides with Iron Mountain ridgeline. To the east the project site flattens out into a valley. ALl streams on the project site originate to the west on the steep mountain range and flow to the east.

Checklist of resources (if available):

- ■ Aerial photography
  Dates:
- ■ Topographic maps
- ☐ Geologic maps
- ■ Vegetation maps
- ■ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

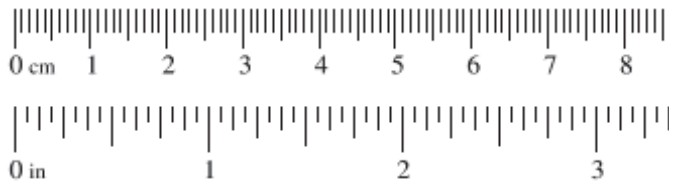


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ■ Digitized on computer
   - ■ GPS
   - ☐ Other:

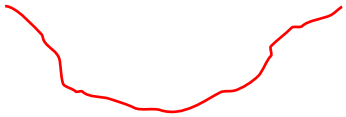
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: **Cross section ID:** SP 6 **Date:** 3/20/18 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

sample point taken downstream of the survey boundary.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: silty

Total veg cover: 0 % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: **Cross section ID:** SP 6 **Date:** 3/20/18 **Time:**

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: silty

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Boulder Oaks Preserve
Project Number:
Stream: unnamed trib to San Vicente
Investigator(s): M. Guerrero, R. Layden

Date: 3/20/18
Town: Ramona
Photo begin file#:

Time:
State: CA
Photo end file#:

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

Location Details:
Feature 17, SP 7

Projection: **Datum:**
Coordinates: 32.9855, -116.9325

Potential anthropogenic influences on the channel system:

Boulder Oaks preserve is relatively undeveloped. There are some existing dirt, unimproved trails (~8-12 feet wide) located throughout the project site.

Brief site description:

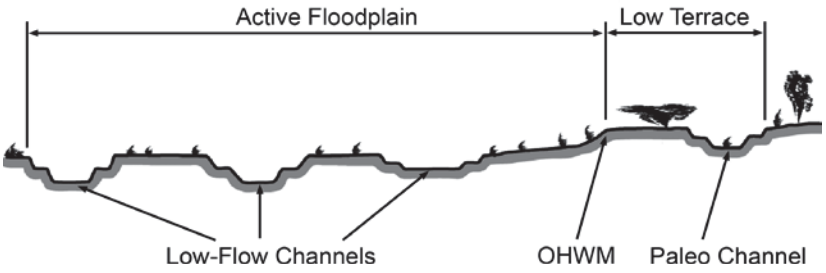
Project site has steep western boundary that coincides with Iron Mountain ridgeline. To the east the project site flattens out into a valley. ALl streams on the project site originate to the west on the steep mountain range and flow to the east.

Checklist of resources (if available):

- ■ Aerial photography
  Dates:
- ■ Topographic maps
- ☐ Geologic maps
- ■ Vegetation maps
- ■ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

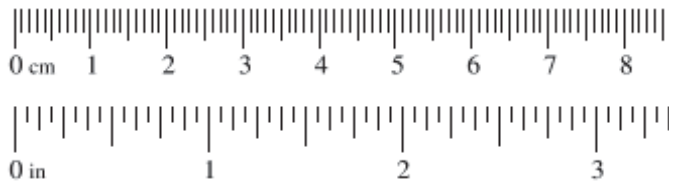


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ■ Digitized on computer
   - ■ GPS
   - ☐ Other:

Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: **Cross section ID:** SP 7 **Date:** 3/20/18 **Time:**

Cross section drawing:

OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☒ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

sample point taken downstream of the survey boundary and immediately prior to the streams confluence with Feature 16.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: silty

Total veg cover: 0 % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: **Cross section ID:** SP 7 **Date:** 3/20/18 **Time:**

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: silty

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Boulder Oaks Preserve Public Access Plan | **Date:** CA | **Time:** 1:54 PM
Project Number: | **Town:** Ramona | **State:** CA
Stream: Unnamed trib to San Vicente Creek | **Photo begin file#:** | **Photo end file#:**
Investigator(s): M. Guerrero, C. Courtney, D. Kelsey

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

Location Details:
Boulder Oaks Preserve , Feature 19, SP10

Projection: **Datum:**
Coordinates: 32.9875, -116.9307

Potential anthropogenic influences on the channel system:

Boulder Oaks Preserve is relatively undeveloped. There are some existing dirt, unimproved, trails (~8-12 feet wide) located throughout the preserve. Some ephemeral channel are bisected by the trails. Some channels are also imponded by eastern berms, creating freshwater ponds.

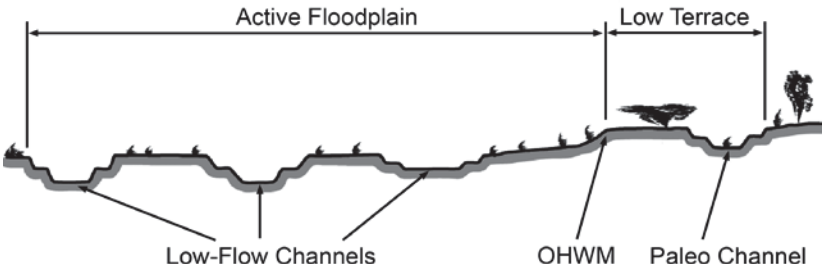
Brief site description:

The project site is characterized as having a steep western boundary that coincides with the Iron Mountain ridgeline. To the east the project site flattens out into a valley. All streams on the project site originate to the west in the steep mountain range and flow to the east and are ultimately tributary to San Vicente Creek.

Checklist of resources (if available):

- ■ Aerial photography
  Dates:
- ■ Topographic maps
- ☐ Geologic maps
- ■ Vegetation maps
- ■ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

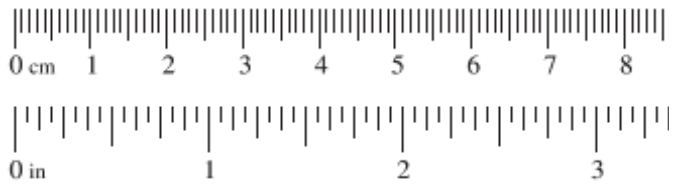


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☐ GPS
   - ☐ Other:

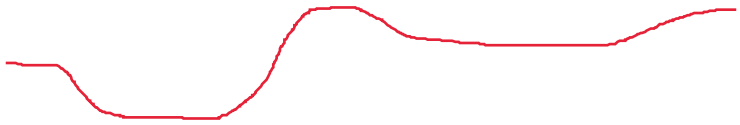
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: **Cross section ID:** SP10 **Date:** 10/10/18 **Time:** 1:54 PM

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Downstream:
-USACE width= 10 feet
-CDFW width= 30 feet

UpStream:
-USACE width= 15 feet
-CDFW width= 18 feet

Floodplain unit:

- [ ] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____
Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%
Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: **Cross section ID:** SP10 **Date:** 10/10/18 **Time:** 1:54 PM

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Boulder Oaks Preserve Public Access Plan
Project Number:
Stream: Unnamed trib to San Vicente Creek
Investigator(s): M. Guerrero, C. Courtney, D. Kelsey

Date: CA
Town: Ramona
Photo begin file#:

Time: 11:51 AM
State: CA
Photo end file#:

Y ☒ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details:
Boulder Oaks Preserve, Feature 4, SP 11

Projection: **Datum:**
Coordinates: 32.9629, -116.9410

Potential anthropogenic influences on the channel system:

Boulder Oaks Preserve is relatively undeveloped. There are some existing dirt, unimproved, trails (~8-12 feet wide) located throughout the preserve. Some ephemeral channels are bisected by the trails. Some channels are also impounded by eastern berms, creating freshwater ponds.

Brief site description:

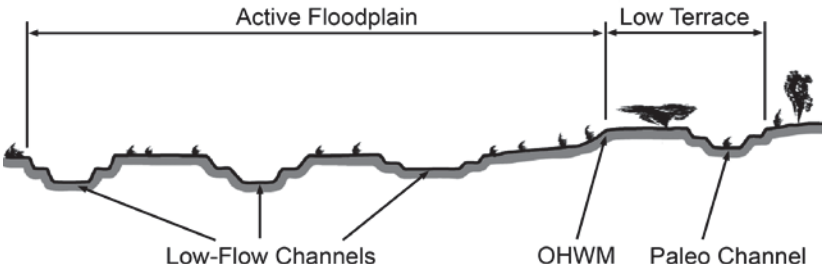
The project site is characterized as having a steep western boundary that coincides with the Iron Mountain ridgeline. To the east the project site flattens out into a valley. All streams on the project site originate to the west in the steep mountain range and flow to the east and are ultimately tributary to San Vicente Creek.

Checklist of resources (if available):

- ☒ Aerial photography
  Dates:
- ☒ Topographic maps
- ☐ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

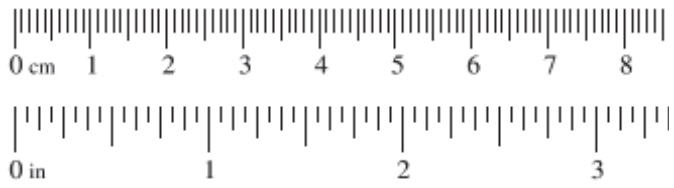


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☐ GPS
   - ☐ Other:

Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: **Cross section ID:** SP11 **Date:** 10/10/18 **Time:** 11:51 AM

Cross section drawing:

OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☐ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

- Swale
- No OHWM indicators or TOB
- This datasheet is representative of SP 12 for Feature 5.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: **Cross section ID:** SP11 **Date:** 10/10/18 **Time:** 11:51 AM

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Boulder Oaks Preserve
Project Number:
Stream: unnamed trib to San Vicente
Investigator(s): M. Guerrero, C. Casey

Date: 10/10/18
Town: Ramona
Photo begin file#:

Time:
State:
Photo end file#:

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

Location Details:
Feature 6, SP13

Projection: **Datum:**
Coordinates: 32.9653, -116.9415

Potential anthropogenic influences on the channel system:

Boulder Oaks preserve is relatively undeveloped. There are some existing dirt, unimproved trails (~8-12 feet wide) located throughout the project site.

Brief site description:

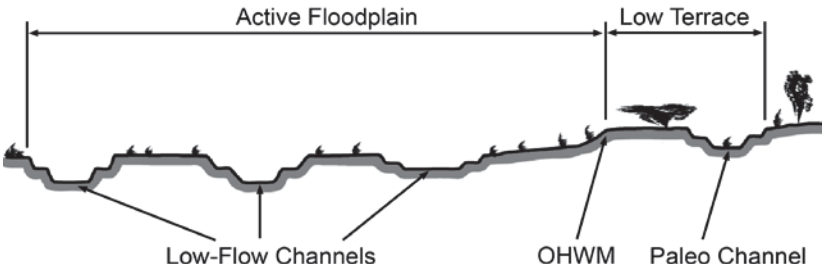
Project site has steep western boundary that coincides with Iron Mountain ridgeline. Tho the east the project site flattens out into a valley. ALl streams on the project site originate to the west on the steep mountain range and flow to the east.

Checklist of resources (if available):

- ■ Aerial photography
  Dates:
- ■ Topographic maps
- ☐ Geologic maps
- ■ Vegetation maps
- ■ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

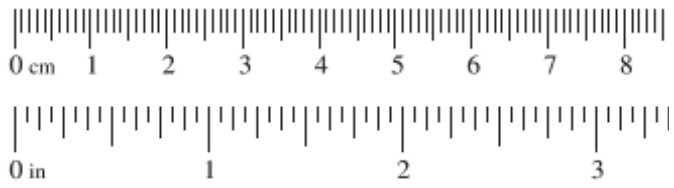


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ■ Digitized on computer
   - ■ GPS
   - ☐ Other:

Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: **Cross section ID:** SP 13 **Date:** 10/10/18 **Time:**

Cross section drawing:

OHWM

GPS point: _____

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Sample point located in a broad sandy channel.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: silty

Total veg cover: 0 % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: **Cross section ID:** SP 13 **Date:** 10/10/18 **Time:**

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: silty

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Appendix G
Quino Checkerspot Butterfly Survey Report

Quino Checkerspot Butterfly Survey Report for Boulder Oaks Preserve California

Prepared for:

County of San Diego
Department of Parks and Recreation
9150 Chesapeake Drive, Suite 200
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Prepared by:

Jones & Stokes
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858/578-8964

August 2007

Jones & Stokes. 2007. Quino Checkerspot Butterfly Survey Report for Boulder Oaks Preserve, California. August. (J&S 00002.07) San Diego, CA.

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Tables and Figures

Summary

Protocol surveys were conducted for the 1,215-acre Boulder Oaks Preserve (Preserve) in southern San Diego County, California. The Preserve was acquired by the County of San Diego (County) for inclusion into the Multiple Species Conservation Program (MSCP) preserve system in 2003. Surrounding land uses include Iron Mountain Preserve to the northwest, the San Vicente Highlands Open Space Preserve to the south, and sparse residential development to the east and northeast.

The Preserve supports open coast live oak woodland, open Engelmann oak woodland, southern mixed chaparral, scrub oak chaparral, nonnative grassland, southern willow scrub, and disturbed land. It also includes several graded dirt roads, a steel lattice electrical transmission line that crosses the southern portion of the Preserve, an old home site, and wells. The entire Preserve burned in the 2003 Cedar Fire.

A total of six weekly surveys were conducted over the course of the 2007 flight season (March 13 - April 18, 2007). Quino checkerspot butterflies were not detected during the six focused surveys. Potential host plants observed on site include dot-seed plantain (*Plantago erecta*), woolly plantain (*Plantago ovata*), and purple owl's-clover (*Castilleja exserta* ssp. *exserta*). A total of fourteen butterfly species, including Behr's metalmark, Sara's orangetip, painted lady, pale swallowtail and perplexing hairstreak, were observed during the surveys.

Introduction

Jones & Stokes conducted protocol surveys to determine presence/absence of the Quino checkerspot butterfly (*Euphydryas editha quino*) (Quino) for the Boulder Oaks Preserve, located approximately three (3) miles south of the unincorporated township of Ramona, between State Route 67 (SR-67) and Mussey Grade Road, and bisected by Foster Truck Trail, in southern San Diego County (Figures 1 and 2). A total of six weekly surveys were conducted between March 13 and April 18, 2007 largely in accordance with the most recent U.S. Fish and Wildlife Service Protocol (USFWS 2002).

A habitat assessment conducted on the property on March 8, 2007, determined that non-excluded areas, as defined by the U.S. Fish and Wildlife Service (USFWS 2002), occur on the property. Excluded areas, not recommended for Quino surveys, are defined as:

- Orchards, developed areas or in-fill parcels largely dominated by non-native vegetation;
- Active/in-use agricultural fields without natural or remnant inclusions of native vegetation; or
- Closed-canopy forest or riparian area, dense chaparral and small openings completely enclosed within a closed-canopy or dense chaparral area.

The excluded areas on site consist of dense southern mixed chaparral, as well as open water and associated fresh water marsh, for a total of 22.4 acres (Figure 3). This report documents the results of the 2007 focused surveys conducted in non-excluded areas, which comprise approximately 1,192.6acres.

Physical Characteristics

The Boulder Oaks Preserve is located south of Ramona, between SR-67 and Mussey Grade Road in southern San Diego County, California. The 1,215-acre Preserve consists of a patchwork of diverse vegetation communities on varying-grade slopes with scattered large granitic boulders. Vegetation communities present within the survey area consist of open coast live oak woodland, open Engelmann oak woodland, southern mixed chaparral, scrub oak chaparral, nonnative grassland, southern willow scrub, and disturbed land. The entire Preserve burned in the 2003 Cedar Fire. The Preserve site also includes several

graded dirt roads, a steel lattice electrical transmission line that crosses the southern portion of the Preserve, an old home site, and wells.

Surrounding land uses include Iron Mountain Preserve to the northwest, the San Vicente Highlands Open Space Preserve to the south, and sparse residential development to the east and northeast. A Salvation Army Camp is located immediately north of the property and San Vicente Reservoir occurs to the south. In 2003, the Preserve area was acquired by the County of San Diego (County) for inclusion into the Multiple Species Conservation Program (MSCP) preserve system.

The Preserve site is between 1,400 and 2,400 feet in elevation. In general, the Preserve is characterized by an east–west trending valley, with steep slopes in the northwestern, southwestern, and southern portions of the Preserve. Six soil types from five soil series, as defined by the U.S. Department of Agriculture, are mapped within the survey area (Bowman 1973). This includes Arlington Course Sandy Loam (2 to 9 percent slopes), Cieneba Rocky Course Sandy Loam (9 to 30 percent slopes, eroded), Friant Rocky Fine Sandy Loam (9 to 30 percent slopes), Friant Rocky Fine Sandy Loam (30 to 70 percent slopes), Olivenhain Cobbly Loam (9 to 30 percent slopes) and Vista Rocky Coarse Sandy Loam (5 to 15 percent slopes).

Methods

A. Borcher (Permit No. TE092162-0), B. Primrose (Permit No. TE-134370-0), K. Klutz (TE-036065-0), and D. Teel (supervised individual) of Jones & Stokes conducted surveys for adult Quino between March 13 and April 18, 2007. These surveys were conducted on a roughly weekly basis under acceptable weather conditions as defined in the U.S. Fish and Wildlife Service protocol (Table 1) (USFWS 2002). Approximately 18.3 acres of southern mixed chaparral and 4.1 acres of open water were excluded from the survey area (Figure 3). Each survey involved slowly walking transects throughout non-excluded portions of the property with highest potential for Quino detection. Areas considered to have the highest potential for Quino consisted of areas with host plant populations and/or areas on ridgelines or hilltops. This approach was used to collect the best information possible given budget constraints. The surveys were conducted at an average rate of 15 acres per hour. Surveyors stopped periodically to scan adjacent areas for moving butterflies. All butterfly species observed were identified and recorded (Table 2). Copies of daily field notes are provided as an attachment to this report (Attachment 1).

Table 1. Survey Dates and Conditions

Date	Survey Number	Start-End Time	Temperature (Start/Stop, °F)	Wind Speed (mph)	% Cloud Cover	Name of Surveyor
3/13/07	1	1030-1730	75°F	0	0	A. Borcher, B. Primrose
3/20/07	2a	1000-1200	62/57°F	0-2	5-30	A. Borcher
3/26/07	2b	0900-1600	55/65°F	0-2	0-15	A. Borcher, B. Primrose
4/2/07	3	0845-1515	65/75°F	0-3	0	A. Borcher, B. Primrose, D. Teel
4/10/07	4	0930-1730	63/65°F	0-2	0	K. Klutz, B. Primrose
4/13/07	5	11:00-1630	75/85°F	0-6	0	K. Klutz
4/19/07	6	0815-1600	60/72°F	1-6	0	A. Borcher, B. Primrose

Table 2. Butterflies Observed at the Boulder Oaks Site

Scientific Name	Common Name
Anthocaris sara	Sara's orangetip
Apodemia mormo virgulti	Behr's metalmark
Callophrys affinis perplexa	Perplexing hairstreak
Callophrys augustinus	Brown Elfin
Erynnis funeralis	Funereal duskywing
Glaucopsyche lygdamus nittanyensis	Silvery Blue
Icaricia acmon	Acmon Blue
Papillo eurymedon	Pale swallowtail
Pontia protodice	Common white
Vanessa cardui	Painted lady
Vanessa annabella	West Coast Lady
Dannaus plexippus	Monarch
Papilio zelicaon	Anise Swallowtail
Colias eurytheme	Orange sulfur

Reference Sites

Jones & Stokes biologist's visited two reference sites throughout the 2007 flight season in order to monitor Quino activity: Proctor Valley and Hollenbeck Canyon. Both references sites were surveyed in 2006 by Jones & Stokes biologist's for the USFWS post-fire Quino monitoring project. All reference monitoring information gathered at these sites in 2007 and presented in this report was provided to USFWS throughout the season to assist in determining the adult flight season.

The Proctor Valley reference site is located along Proctor Valley Road. The Hollenbeck Canyon reference site is located approximately 2.5 miles east of SR-94 between Jamul and Dulzura. Both sites are located in southern San Diego County, California. Both reference sites were burned during the Otay Fire in October 2003 and now support coastal sage scrub traversed by a network of dirt roads and trails.

The reference sites were visited from March 7 through April 18, 2007. The surveys were conducted under acceptable weather conditions as defined in the U.S. Fish and Wildlife Service protocol (USFWS 2002), with the exception of one visit on April 9, 2007 (Table 3). Each visit involved slowly walking transects throughout the site. The surveys were conducted at an average rate of 15 acres per hour. Surveyors stopped periodically to scan adjacent areas for moving butterflies. Adult and/or immature Quino were identified and recorded.

Table 3. Reference Site Dates, Conditions and Observations

Date	Start-End Time	Temperature (Start/Stop, °F)	Wind Speed (mph)	% Cloud Cover	Site	Name of Surveyor	Quino Observations
3/7/07	1045-1415	78°F	0-2	50	Hollenbeck Canyon	A. Borcher, B. Primrose, K. Klutz	20 larvae
3/16/07	1200-1330	72/75°F	0-3	0	Proctor Valley	A. Borcher, P. Richards	1 adult
3/16/07	1330-1700	72°F	1-3	0	Hollenbeck Canyon	A. Borcher, P. Richards, B. Primrose, K. Mozumder, A. Sartain, K. Klutz	1 larvae
3/23/07	1115-1315	63/64°F	0-3	0-15	Hollenbeck Canyon	A. Borcher, A. Sartain	5 adults
3/23/07	1330-1400	69°F	1-3	0	Proctor Valley	A. Borcher, A. Sartain	None
4/5/07	1045-1145	70°F	0-1	0	Hollenbeck Canyon	A. Borcher, B. Primrose, D. Teel	3 adults
4/9/07	1000-1130	57°F	5-8	50-75	Hollenbeck Canyon	A. Borcher, B. Primrose, P. Richards	None, bad weather
4/18/07	1100-1215	62/60°F	2-4	0	Hollenbeck Canyon	A. Borcher, K. Mozumder	None

Twenty Quino larvae were observed on March 7, 2007 at the Hollenbeck Canyon site. In addition, one Quino larva was observed at this site on March 16, 2007. The first flying adult reported to USFWS was observed by Jones & Stokes biologists at the Proctor Valley site on March 16, 2007. Subsequently, adult Quino were observed flying at the Hollenbeck Canyon site on March 23, 2007 and April 5, 2007. By April 18, 2007, Quino were no longer observed at the site.

Results

Fourteen butterfly species were observed during the eight protocol surveys including Behr's metalmark, Sara's orangetip, painted lady, pale swallowtail and perplexing hairstreak (Table 2). No adult or immature Quino were detected. Potential host plants observed on site include Plantain (*Plantago erecta*), woolly plantain (*Plantago ovata*), and Purple owl's-clover (*Castilleja exserta ssp. exserta*). Potential nectar sources present and in bloom during the surveys include popcorn flower (*Cryptantha* spp.), deerweed (*Lotus scoparius*), fiddleneck (*Amsinkia menziesii*), and campo pea *(Lathyrus splendens)*.

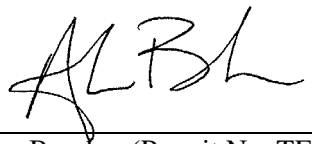
The majority of the site consists of open southern mixed chaparral. Given the low density of most of the habitat on site, as well as the presence of Quino primary and secondary host plants, the site has potential for supporting Quino checkerspot butterflies. Although no Quino were observed during the surveys at the Boulder Oaks Preserve site, the reference site visits confirmed Quino were actively flying during the majority of the survey dates.

In summary, Quino was not observed during the 2007 protocol surveys, but the site has potential to support Quino based on the presence of host plants, open vegetation communities and available nectar sources. Although winter/spring 2006-07 was one of the driest on record in San Diego County and Quino observations around the County and throughout its range were limited based on reports documented on the US Fish and Wildlife Service's Quino website (USFWS 2007), conditions on site appeared suitable based on the presence of flowering host plants and nectar sources.

Certification

We certify that all relevant data have been accurately incorporated into the above document.

Korey Klutz (Permit No. TE036065-0)
Biologist
field surveys



Andrew Borcher (Permit No. TE092162-0)
Biologist
co-author and field surveys

Brant Primrose (Permit No. TE134370-0)
Biologist
field surveys

Autumn Sartain (Supervised Individual)
Biologist
co-author and field surveys

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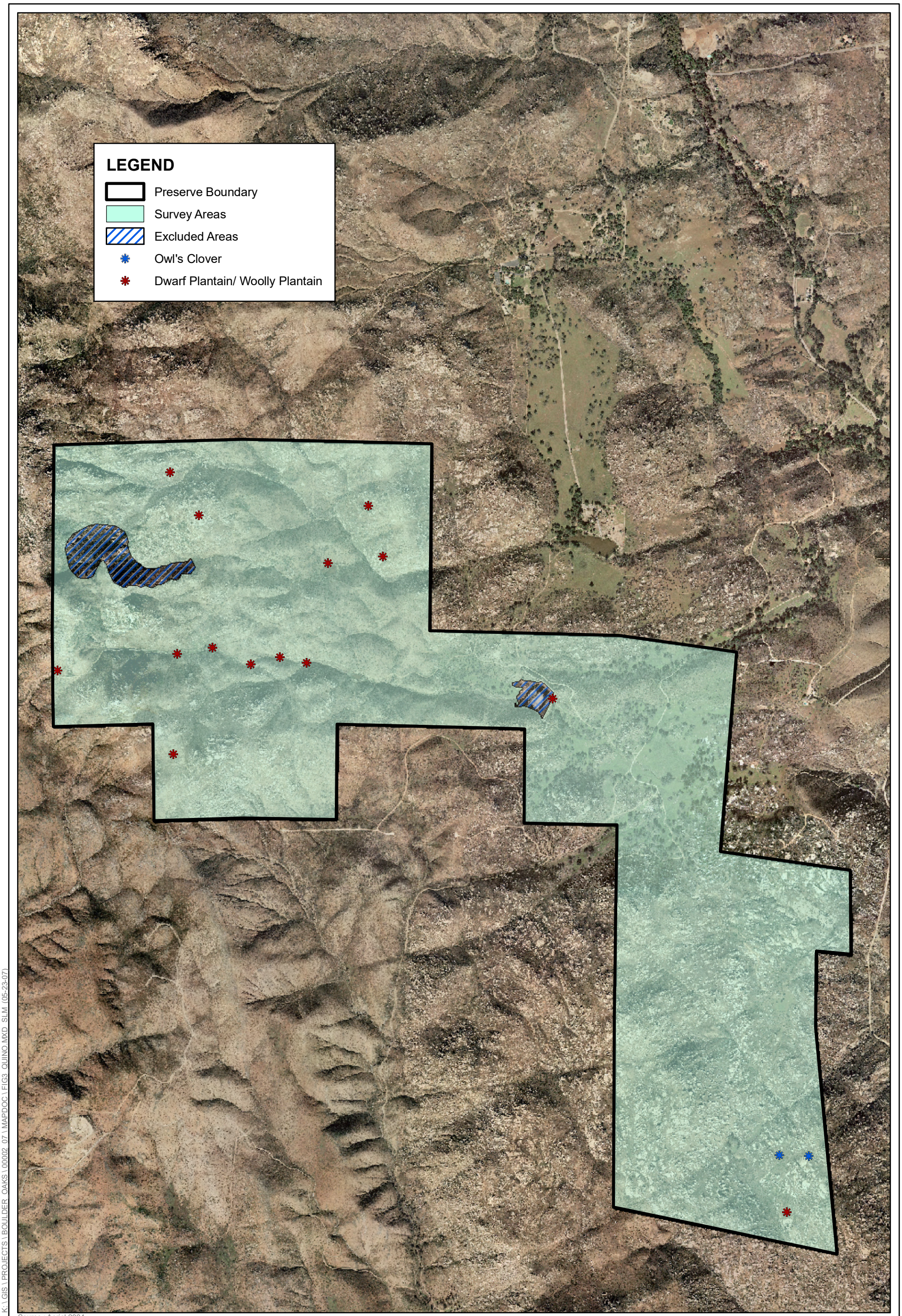

Source : Aerial 2004

K:\ GIS \ PROJECTS \ BOULDER OAKS \ 00002 07 \ MAPDOC \ FIG3 QUINO.MXD SLM (05-23-07)

Jones & Stokes

0 680 1,360
Feet

Quino Habitat Assessment
Figure 3

Appendix D
Multiple Species Conservation Program
Conformance Statement

MULTIPLE SPECIES CONSERVATION PROGRAM
CONFORMANCE STATEMENT

Boulder Oaks Preserve Improvement Project

June 2019

I. Introduction

The Boulder Oaks Preserve (Preserve) is located in central San Diego County, California, approximately 5 miles southwest of the center of the unincorporated community of Ramona, and approximately 2 miles south of State Route 67 (SR-67) along Mussey Grade Road. Specifically, the Preserve is directly west of Mussey Grade Road and approximately 1 mile east of the peak of Iron Mountain (Figure 1).

The Preserve currently contains 14.5 miles of existing trails, an access road, two ponds, a ranger station, a ranger residence, a restroom facility, a barn, and associated ancillary structures, including water tanks used for fire suppression, a paved parking lot, a gazebo, a dock, fencing, a stone wall, and a decorative fountain. There is an inholding on the property that is approximately 61.26 acres and is currently owned by the Church of Jesus Christ of Latter-day Saints (LDS). The ranger station serves as the headquarters for the Ramona Grasslands Workgroup of the County of San Diego (County) Department of Parks and Recreation (DPR), which serves County parks and preserves in the area. One ranger and the ranger's family live in the ranger residence. Two volunteers live at the volunteer pad in a recreational vehicle. Four ranger personnel work at the ranger station and commute on and off site.

The proposed Project consists of improvements to the Preserve in anticipation of opening the Preserve to the public. The Project includes 7.2 miles of proposed trails, three staging areas, a volunteer pad, and renovation or replacement of an existing restroom facility. The Project proposes to provide 5.7 miles of new native multi-use trails and 1.5 miles of Americans with Disabilities Act (ADA) compliant trails. This would be in addition to 6.7 miles of existing trails proposed to remain open, and 7.8 miles of existing trails proposed to be closed. The new trails would be primitive in nature and would be approximately 2 to 4 feet wide. The ADA-compliant trail would have two sides—one suitable for mobility devices and pedestrians, and one suitable for bicycles and equestrian users. The two sides would be separated by a barrier. The ADA-complaint trail would be 8 feet wide (4 feet per side) and would include 60-inch resting/passing areas staggered every 1,000 feet. These resting/passing areas would be approximately 48 inches by 60 inches and would contain a bench if site conditions allow. The ADA-complaint trail would be graded and constructed with stabilized decomposed granite. The existing trails would be maintained at their current widths, and the existing access road would be widened in some portions to a consistent width of 24 feet. Of the 7.8 miles of trails that would be closed, a portion would be closed to the public but open to County DPR staff and San Diego Gas & Electric (SDG&E) employees for access to electric facilities, and a portion would be closed and restored.

The three staging areas would be graded and constructed with decomposed granite material, and they would be used as permanent vehicle parking areas:

- **Staging Area 1** would be in the northern portion of the Boulder Oaks Preserve, approximately 0.40 mile south of the entrance to the park. It would be 0.16 acre and would provide eight passenger vehicle spaces.
- **Staging Area 2** would be in the central portion of the Boulder Oaks Preserve, adjacent to the existing ranger station. It would be 0.29 acre and would provide 16 passenger vehicle spaces.
- **Staging Area 3** would be the designated Equestrian Staging Area. It would be 0.89 acre and would be north of Staging Area 2. This staging area would provide for eight pull-through equestrian spots.

The entrance to the Project site from Mussey Grade Road would be improved to a solid surface (concrete or asphaltic concrete) where the entrance meets Mussey Grade Road, and portions of the park road (inside the property gate) would be widened to 24 feet across for emergency vehicle access where feasible. In addition, portions of the internal road that are not solid surface may be improved to asphaltic concrete.

The existing restroom structure adjacent to the ranger station would be reconstructed or replaced to provide an ADA-compliant restroom. The existing restroom facility is approximately 15 feet by 15 feet and would be enlarged to approximately 20 feet by 20 feet to accommodate an ADA compliant stall. The existing septic system, which serves the existing restroom, ranger station, ranger residence, and existing volunteer pad, would be assessed and may be expanded to increase capacity for the restroom facility and new volunteer pad, if necessary. Expansion of the septic system would consist of adding approximately 150 linear feet of leach line to the existing leach field. This would result in a temporary impact of approximately 2,000 square feet. Any expansion of the septic leach field would be confined to disturbed/developed areas.

A 15-foot by 50-foot decomposed granite volunteer pad is proposed at two possible locations. Option A would be located north of the existing barn and approximately 150 feet north of the existing volunteer pad. Electrical facilities at the ranger station would be extended approximately 300 feet to connect to the volunteer pad at Option A. Option B would be located approximately 50 feet northeast of the ranger station. Existing electrical lines would be extended from the ranger station by approximately 50 feet to connect to the volunteer pad. The existing electrical box at the barn would be upgraded to serve the second volunteer pad.

Other improvements to the site would include 1) picnic tables and shade structures in the staging areas and previously disturbed areas, and 2) interpretive features, such as signs, maps, or placards, along the trails. New gates would be installed at the entrance to the Preserve at Mussey Grade Road. In addition, internal gates would be installed at the trailhead of the existing Foster Truck Trail and other locations deemed necessary for access control within previously disturbed areas. A fence would be installed around the ADA-accessible trail to separate it from 57 acres of land currently used for grazing.

The Project proposes grading of not more than 3,000 cubic yards of soil per day and/or not more than 5 acres of area per day. The Project would require approximately 5.56 acres of grading for the new trails and staging areas. Would occur over an approximately 17-day period. However,

grading operations associated with the construction of the Project would be subject to the County of San Diego Grading Ordinance, which requires the implementation of dust control measures. The Project includes the following off-site improvements: installation of “No Parking” signs along the shoulder of Mussey Grade Road, if deemed necessary by the Department of Public Works (DPW) Traffic Division. The Project would be implemented in phases, with maintenance of existing trails and proposed infrastructure improvements in the first phase, construction of new trails occurring in the second phase, and construction of additional new trails occurring in the third phase. Construction of new trails will be split up into the second and third phases based on availability of funding for the Project. Construction is anticipated to commence in 2019 and would occur over approximately 3 years, based on funding. Multi-use trails would be constructed with hand tools or small mechanized equipment. Construction equipment for the other aspects would include dozers, graders, backhoes, front loader, case skid steers, and pickup trucks.

Operation of the proposed Project would be expected to serve residents and visitors. The Project area is anticipated to have approximately 42 guests on an average weekday and 221 guests on an average weekend day. The proposed Project would be open to the public from sunrise to sunset. The Project would result in up to two additional volunteers stationed at the Project site, for a total of 3 rangers and 7 volunteers. The two additional volunteers would live on site full-time, along with the existing volunteers and ranger, to help with maintenance and management of the property.

Implementation of the Project would primarily have two classes of impacts relevant to the Multiple Species Conservation Program: 1) permanent direct impacts on vegetation communities and the sensitive plants living in them, and the resulting loss of habitat for sensitive animals and 2) indirect effects on certain sensitive animal species from increased public presence.

However, construction of the trail system would rely on hand tools and small mechanized equipment designed for trail building and would not have significant direct or indirect effects beyond the loss of habitat. The trail construction would be conducted in compliance with state and federal prohibitions against taking of nesting birds and would not be expected to result in any direct or indirect mortality of general or sensitive wildlife species.

Habitat Impacts

Complete development of the Project would result in direct and permanent impacts on up to 7.65 acres of land, including 0.08 acre of coast live oak woodland, 0.19 acre of disturbed habitat, 0.65 acre of Engelmann oak woodland, 2.79 acres of nonnative grassland, 0.27 acre of scrub oak chaparral, 3.42 acres of southern mixed chaparral, and 2.5 acres of urban/developed or disturbed habitat. No impacts would occur on coastal and valley freshwater marsh, Diegan coastal sage scrub, or open water. Urban/developed and disturbed habitat are not considered sensitive vegetation communities; therefore, removing the .25 acres of impact to these areas, the Project would result in direct impacts to up to 7.4 acres of sensitive vegetation communities. Project siting within any areas mapped as southern arroyo willow riparian forest and southern coast live oak riparian forest would be restricted to nonnative grassland openings within these vegetation communities and would not result in impacts to trees.

Improvements to the interior road could result in up to 1.0 acre of additional impacts on nonnative grasslands. While the park road passes through areas mapped as southern coast live oak riparian forest, coast live oak woodland, and Engelmann oak woodland, any development of the road shoulder would occur on vegetation typified by disturbance-related nonnative grasses and would not result in impacts on vegetation typical of forest or woodland communities.

Table 1 below summarizes the maximum impacts on habitat types/vegetation communities from development the Project, including multi-use trails, the ADA-compliant trail, and staging areas. With the exception of the new proposed trails and staging areas, the proposed infrastructure improvements have been sited in previously disturbed areas mapped as urban/developed, which is not considered a sensitive vegetation community.

Sensitive Plant Impacts

Implementation of the Project would result in impacts on Engelmann oaks in up to 0.65 acre of Engelmann oak woodland. This would primarily be from creation of an ADA-accessible trail within areas mapped as Engelmann oak woodland. The Engelmann oak woodland affected by trail development is an area of oak savanna whose understory has been heavily grazed by cattle. The ADA-accessible trail was sited to benefit from the presence of an oak overstory and would not remove mature oaks trees. Development of the trail would preclude recruitment of new oaks within up to 0.65 acre of habitat. New oak recruitment within Engelmann oak woodlands has been constricted because of cattle grazing within the existing Engelmann oak woodland. Fencing is proposed along the ADA-accessible trail to exclude cattle from the ADA-accessible trail; exclusion of cattle from these areas of Engelmann oak woodland will likely allow new recruitment of Engelmann oak seedlings.

Lakeside ceanothus (*Ceanothus cyaneus*) was observed within the Preserve is found in the rocky chaparral in the western side of the southern portion of the Preserve. This species is a common component of the dense chaparral in the southwestern portion of the site. In November 2016, the boundary of the population of Lakeside ceanothus was surveyed by ICF botanists to determine the exact limits. Lakeside ceanothus appear to be strongly associated with south- and west-facing slopes on the acid igneous soils on the southwestern portion of the Preserve, and no lakeside ceanothus are known to the north of the delineated boundary. The southernmost multi-use trail was routed to avoid Lakeside ceanothus.

Additional sensitive species that have known to occur in the Project area are Southern mountain misery, San Miguel savory, Ramona horkelia, felt-leaved monardella, Gander's ragwort, golden-rayed pentachaeta, Cooper's rein orchid, ashy spike-moss, and rush chaparral-star. No impacts to these species are anticipated. A qualified biological monitor will be onsite during all clearing activities to determine if any sensitive plant species are within the project boundary. California adder's tongue is known to occur in Project area, but no impacts are proposed in areas containing California adder's tongue.

Sensitive Wildlife Impacts

Special-status reptiles—coast horned lizard and red-diamond rattlesnake individuals—were observed within the study area, and four other sensitive reptiles have potential to occur in the

study area: Belding's orange-throated whiptail, three-lined boa, coastal western whiptail, and Coronado skink. The Project would have impacts on up to 7.21 acres of native or naturalized habitat that could support these species. The Project would not convert native or naturalized habitat to development, minimizing the impacts to wildlife species. Implementation of the Project would create openings that could be used by these species, but also would increase potential for negative interactions with human trail users.

Table 1 Maximum Project Impacts on Habitat/Vegetation Communities

Vegetation Community (Holland Code)	Preserve (ac)	Study Area (ac)	Impacts (ac)	Mitigation Ratio
Coast Live Oak Woodland (71160)	17.1	0.4	0.08	1.5:1
Coastal and Valley Freshwater Marsh (52410)	5.6	0.2	0	None
Diegan Coastal Sage Scrub (32500)	2.3	0	0	None
Disturbed Habitat (11000)	17.6	8.5	0.19	N/A
Engelmann Oak Woodland (71180)	68.6	2.4	0.65	1.5:1
Non-native Grassland (42200)	128.7	2.5	2.79	0.5:1
Open Water (64100)	3.6	0	0	None
Scrub Oak Chaparral (37900)	106.6	2.3	0.27	1:1
Southern Arroyo Willow Riparian Forest (61320)	2.6	0.1	0	None
Southern Coast Live Oak Riparian Forest (61310)	12.4	0.6	0	None
Southern Mixed Chaparral (37120)	1,644.9	24.2	3.42	1:1
Urban/Developed (12000)	4.7	1.3	0.25	N/A
Total*	2,014.0	42.4	7.65	

*= sum of values does not equal total because of rounding

Special-status tree-nesting raptors known within the study area include barn owl, red-shouldered hawk, and white-tailed kite. Tree-nesting Cooper's hawks have high potential to occur within the study area. These tree-nesting raptors have potential to nest in the mature vegetation in the study area, including trees such as Engelmann oak, coast live oak, and western sycamore. Project-related impacts would occur in 0.08 acre of coast live oak woodland and 0.65 acre of Engelmann oak woodland. Existing trees would not be removed, so no nesting habitat would be affected by the Project. The Project is not expected to alter the extent of foraging habitat for these species. Red-shouldered hawk, Cooper's hawk, and white-tailed kite would forage in the vicinity of human activities, and low-levels of daytime usage of the Preserve would not significantly affect the foraging of these species. Public access would only be allowed during daylight hours; therefore, public access would not result in impacts on the nocturnal use of the Preserve by barn owl.

Turkey vultures are known to occur within the Preserve and have the potential to forage within the study area. No potential nesting habitat is present in the study area. The Project would convert up to 7.21 acres of native or naturalized habitat to disturbed habitat. These 7.21 acres of impacts would be spread out over the 2,014-acre Preserve and are not expected to alter the extent of foraging habitat for this species.

Golden eagle is known to forage within the Preserve and has a high potential to forage within the study area. However, no impacts would occur on nesting habitat or within 4,000 feet of a known nest. As mentioned above for turkey vultures, the Project would result in a loss of potential foraging habitat within the Preserve, however these losses would be considered minimal and not expected to alter the extent of foraging habitat for golden eagles in the Preserve.

Western bluebird is a tree-nesting songbird species known to occur in the study area. Project-related impacts would occur in 0.08 acre of coast live oak woodland and 0.65 acre of Engelmann oak woodland. Existing trees would not be removed; therefore, no nesting habitat would be affected by the Project. Implementation of the Project could remove up to 2.79 acres of nonnative grassland and 0.73 acre of woodlands that could serve as foraging habitat for this species; however, because the impacts are dispersed across the Preserve, impacts to this species would be minimized.

California horned lark is a ground-dwelling songbird with high potential to occur in the study area. Implementation of the Project could remove up to 2.79 acres of nonnative grassland that could serve as nesting and foraging habitat for this species. Bell's sparrow, Southern California rufous-crowned sparrow, and San Diego desert woodrat are known to occur on the Preserve and have a high potential to occur in the study area. These species are associated with open chaparral and coastal sage scrub. Development of the Project would convert up to 3.69 acres of chaparral to trails, which would reduce potential nesting and foraging habitat for these species.

Southern mule deer and mountain lion are known to occur on the Preserve and have a high potential to occur in the study area. The Project would convert up to 7.21 acres of native or naturalized habitat to disturbed habitat. These 7.21 acres of impacts would be spread out over the 2,014-acre Preserve and are not expected to alter the extent of foraging habitat for these species. Large blocks of unaltered habitat, with significant amount of topographical shelter, would be present throughout the Preserve after implementation of the Project. These large mammals would readily use man-made trails. Wildlife cameras in 2007 and 2013 detected frequent usage of trails and roads by deer during day and night. Mountain lions used roads and trails for movement at night. Public access would only be allowed during daylight hours; therefore, public access would not result in impacts on the primarily nocturnal use of the Preserve by mountain lions. No features would be constructed that would constrain nocturnal movement of mountain lions.

Dulzura pocket mouse is known to occur on the Preserve and has a high potential to occur in the study area. The Project would convert up to 7.21 acres of native or naturalized habitat that could be used by Dulzura pocket mouse.

Small-footed myotis is known from the study area, while the following six bat species have been recorded on the Preserve and have high potential to occur within the study area: long-eared myotis, pallid bat, pocketed free-tailed bat, western mastiff bat, western red bat, and Yuma myotis. Implementation of the Project would not have impacts on roosting habitat or maternal colony sites. The Project would convert up to 7.21 acres of native or naturalized habitat to disturbed habitat. These 7.21 acres of impacts would be spread out over the 2,014-acre Preserve and are not expected to alter the extent or quality of the Preserve as nocturnal foraging sites for these species.

Long-eared myotis, pallid bat, and pocketed free-tailed bat are associated with oak woodlands. No oaks would be removed by the Project, and the introduction of trails near or within oak woodlands is not expected to alter the quality of forage for these species.

Jurisdictional Wetlands and Waterways

The proposed Project will not result in impacts to jurisdictional wetlands or waterways. Eight features within the study area were identified and mapped for potential state and federal jurisdiction. A total of 0.033 acre (282 linear feet) of Waters of the U.S. may be subject to United States Army Corps of Engineers (USACE) and Regional Water Quality Control Board (RWQCB) regulatory jurisdiction pursuant to Sections 404 and 401 of the Clean Water Act. Additionally, 0.079 acre (282 linear feet) of streambed and riparian resources occur within the survey area and would be subject to CDFW jurisdiction pursuant to Sections 1600–1616 of the FGC.

Core Wildlife/Wildlife Corridors

The development of the Project would not have an impact on wildlife corridors. The maximum of 7.21 acres of conversion of native and naturalized habitat to trails and parking areas would not constrain wildlife movement in the Preserve. Trails would be expected to be used by medium and large mammals for ease of movement through the Preserve. No features would be constructed that would impinge any movement areas, including ridgelines or canyons. Hard structure development in the Preserve is clustered in existing developed areas. The Project would have impacts on up to 7.21 acres of native and naturalized habitat within a core wildlife area. These impacts would be spread over the 2,014-acre Preserve. While these impacts may affect certain sensitive species, improvements to and daytime usage of the Preserve would not result in significant impacts on the functioning of the Preserve as a core wildlife area.

Mitigation Measures

In order to reduce potentially significant impacts to biological resources to a less-than-significant level, the County of San Diego proposes the following Mitigation Measures as part of the Project:

MM-BIO-1. To mitigate for impacts on up to 0.08 acre of coast live oak woodland, which is a sensitive biological resource identified in the Biological Mitigation Ordinance, mitigation shall occur at a 2:1 ratio for other Tier I habitat located within a biological resource core area (BRCA).

MM-BIO-2. To mitigate for impacts on up to 0.65 acre of Engelmann oak woodland, which is a sensitive biological resource identified in the Biological Mitigation Ordinance mitigation shall occur at a 2:1 ratio for other Tier I habitat located within a BRCA.

MM-BIO-3. To mitigate for impacts on up to 2.79 acres of non-native grassland, which is a sensitive biological resource identified in the Biological Mitigation Ordinance, mitigation shall occur at a 0.5:1 ratio for other Tier III or higher habitat located within a BRCA.

MM-BIO-4. To mitigate for impacts on up to 0.27 acre of scrub oak chaparral, which is a sensitive biological resource identified in the Biological Mitigation Ordinance mitigation shall occur at a 1:1 ratio for other Tier III or higher habitat located within a BRCA.

MM-BIO-5. To mitigate for impacts on up to 3.42 acres of southern mixed chaparral, which is a sensitive biological resource identified in the Biological Mitigation Ordinance, mitigation shall occur at a 1:1 ratio for other Tier III or higher habitat located within a BRCA.

MM-BIO-6: State and Federal laws prohibit killing birds or impacting their eggs or nesting success. To ensure project compliance with State and Federal laws and prevent the potentially significant impacts on sensitive nesting birds and raptors from improperly implemented construction, clearing restrictions shall be implemented. A qualified biological monitor will be onsite during all clearing activities. The County shall avoid vegetation removal or ground-disturbing activities during the bird breeding season, defined as January 15 to September 1, which includes the tree-nesting raptor breeding season of January 15 to July 15, and the general avian breeding season of February 1 to September 1. If removal cannot be avoided during this time period, a nesting bird survey would be conducted no more than 72 hours prior to ground-disturbing activities or vegetation removal by a qualified avian biologist through the area to be cleared. This is necessary to definitively ascertain whether raptors or other migratory birds are actively nesting in the project area. If the survey results are positive, the location of active raptor or migratory bird nests shall be mapped by a qualified avian biologist. All construction activities close to active nests shall be delayed or otherwise modified as necessary to prevent nest failure (e.g., nest abandonment). Buffers may be adjusted based on the observations by the biological monitoring on the response of the nesting birds to human activity and shall be conducted in coordination with the resource agencies (U.S. Fish and Wildlife Service and CDFW).

The findings contained within this document are based on County records, staff field visits and the Biological Resources Report for the Boulder Oaks Improvement Project, dated December 2018 prepared by ICF International.

II. Biological Resource Core Area Determination

The impact area and the mitigation site shall be evaluated to determine if either or both sites qualify as a Biological Resource Core Area (BRCA) pursuant to the BMO, Section 86.506(a)(1).

A. Report the factual determination as to whether the proposed Impact Area qualifies as a BRCA. The Impact Area shall refer only to that area within which project-related disturbance is proposed, including any on and/or off-site impacts.

   The Project area qualifies as a BRCA because it is wholly located within Pre-Approved Mitigation Area (PAMA) and includes BRCAs.

B. Report the factual determination as to whether the Mitigation Site qualifies as a BRCA.

All mitigation for Project impacts will occur within the Preserve. The Preserve is designated as Pre-approved Mitigation Area on the Wildlife Agencies' preapproved mitigation map for the County's South County Subarea Plan. According to Section 86.506 of the San Diego Biological Mitigation Ordinance (2010), if land is shown as Pre-approved mitigation on a preapproved mitigation map approved by the Wildlife Agencies, such as in the Multiple Species Conservation Program (MSCP) Subarea Plan, it is considered to be a BRCA.

III. Biological Mitigation Ordinance Findings

The Project is a public project, determined to be essential by the County. Therefore, the Project can be found to be exempt from the Biological Mitigation Ordinance, Section 86.503(a)(8) as determined by the following findings:

a) The Project has been found to conform to the County's General Plan, the MSCP Plan and Subarea Plan

General Plan conformance: The proposed Project is consistent with the County of San Diego General Plan as shown in the following findings:

The proposed Project is located within the Ramona Community Plan Area. In addition, a portion of the proposed Project is located within the Old Coach Road – Mt. Woodson, Mussey Grade and San Vicente Reservoir Resource Conservation Areas (RCA) which include the conservation of very steep slopes, rocky ridges, sensitive plant species, riparian woodland and oak woodlands. Oak woodlands and dense chaparral are scattered through this Preserve and along Mussey Grade Road, and the rare Lakeside ceanothus can be found in the southern portion of the Preserve. The Resource Conservation Area designation is used to identify lands requiring special attention in order to conserve resources or utilize the land in a manner best satisfying public and private objectives.

The Project is consistent with the Ramona Community Plan goal (Goal COS 2.1) and policy (Policy COS 2.1.13) of encouraging development of park lands which will protect outstanding scenic areas, cultural, natural and historical resources. In addition, the proposed Project is allowing for public recreational opportunities within preserves that are compatible with protecting the natural resources, which is consistent with the Conservation and Open Space Element of the General Plan (Goal COS-23 and Policy COS-23.1).

b) All feasible mitigation measures have been incorporated into the Project, and there are no feasible, less environmentally damaging locations, alignments or non-structural alternatives that would meet Project objectives.

The proposed Project is the improvement to Boulder Oaks Preserve in anticipation of opening the Preserve to the public. Improvements will consist of rehabilitation of

approximately 6.7 miles of existing trails; development of approximately 5.7 miles of new native multi-use trails and 1.5 miles of Americans with Disabilities Act (ADA) compliant trails; closure of approximately 7.8 miles of existing trails; three staging areas; driveway and internal road improvements; ADA parking and restroom facilities; and a new volunteer pad with associated utilities. The improvements to infrastructure within the Preserve have been sited in or directly adjacent to existing infrastructure and disturbed areas. New multi-use trails have been sited to avoid jurisdictional resources, sensitive plant species, cultural resources and will be a maximum of 4-feet wide, except for the ADA compliant portion of the trail around the pasture. The ADA compliant trail and associated multi-use trail will be located on the edges of the existing pasture that has been disturbed due to cattle grazing.

Existing trails will be retained where appropriate and rehabilitated. Impacts to sensitive species and habitats have been avoided to the maximum extent practicable. As documented in the CEQA environmental document for the Project, no significant impacts will occur as a result of the Project. Impacts will be mitigated in accordance with mitigation measures MM-BIO-1 through MM-BIO-6.

c) Where the Project encroaches into a wetland or floodplain, mitigation measures are required that result in a net gain in wetland and/or riparian habitat.

The Project does not encroach into a wetland or floodplain. Impacts to jurisdictional resources have been avoided. No impacts to wetlands or floodplains will occur as a result of project implementation.

d) Where the Project encroaches into steep slopes, native vegetation will be used to revegetate and landscape cut and fill areas.

The Project will result in minor encroachments into steep slopes. Minor bench cuts may be necessary during development of new trails. The trails will be no more than 4-feet wide. If revegetation is required, native species will be used to stabilize any slopes.

e) No mature riparian woodland is destroyed or reduced in size due to otherwise allowed encroachments.

The Project will avoid impacts to healthy mature riparian woodland.

f) All Critical Populations of Sensitive Plant Species within the MSCP Subarea (Attachment C of Document No. 0769999 on file with the Clerk of the Board); Rare, Narrow Endemic Animal Species within the MSCP Subarea, (Attachment D of Document No. 0769999 on file with the Clerk of the Board); Narrow, Endemic Plant Species Within the MSCP Subarea, (Attachment E of Document No. 0769999 on file with the Clerk of the Board); and San Diego County Sensitive Plant Species, as defined herein will be avoided as required by, and consistent with, the terms of the Subarea Plan.

No rare, narrow endemic animal species were observed in the Preserve. Golden eagles are known to nest on Iron Mountain; however, that nesting site is over a mile away from the closest point of the Preserve.

Felt-leaved monardella (*Monardella hypoleuca* ssp. *lanata*) was observed on the Friant series soils along the western portion of the Preserve and along the mountain road on Boulder Oaks North. At least 10 individuals were observed immediately adjacent to the study area. However, no felt-leaved monardella are known within the Project footprint.

Orcutt's brodiaea (*Brodiaea orcuttii*) was observed on the Preserve within the nonnative grassland, Engelmann oak woodland and coast live oak woodland within the easternmost portion. The study area does not pass through moist grasslands or vernal pools and does not have a high potential to support this species.

Lakeside ceanothus (*Ceanothus cyaneus*) was observed within the Preserve is found in the rocky chaparral in the western side of the southern portion of the Preserve. This species is a common component of the dense chaparral in the southwestern portion of the site. In November 2016, the boundary of the population of Lakeside ceanothus was surveyed by ICF botanists to determine the exact limits. Lakeside ceanothus appear to be strongly associated with south- and west-facing slopes on the acid igneous soils on the southwestern portion of the Preserve, and no lakeside ceanothus are known to the north of the delineated boundary. The southernmost multi-use trail was routed to avoid Lakeside ceanothus.

Heart-leaf pitcher sage (*Lepechinia cardiophylla)* was observed within the Preserve. A single population of three individuals was observed well outside of the study area.

IV. Subarea Plan Findings

Conformance with the objectives of the County Subarea Plan is demonstrated by the following findings:

1. The Project will not conflict with the no-net-loss-of-wetlands standard in satisfying State and Federal wetland goals and policies.

   The Project has been designed to avoid impacts to wetlands.

2. The Project includes measures to maximize the habitat structural diversity of conserved habitat areas including conservation of unique habitats and habitat features.

   Structurally diverse habitats are present on site. The Project has incorporated design measures to conserve the habitats on site. These measures include the use of existing trail, paths, and disturbed areas to the maximum extent practicable, the prohibition of the use of motorized vehicles on trails, the use of natural vegetation, topography, limited fencing, and signage to direct trails users to designated trails and away from sensitive habitat areas, the requirement that dogs must be leashed at all times, and trails will be no greater than 4 feet wide (except ADA-compliant trail).

3. The Project provides for conservation of spatially representative examples of extensive patches of Coastal sage scrub and other habitat types that were ranked as having high and very high biological values by the MSCP habitat evaluation model.

   The proposed Project will occur within the Boulder Oaks Preserve (Preserve). The Preserve is located within the Pre-approved Mitigation Area of the County's MSCP Subarea Plan. Approximately one-third of the Preserve is identified as High or Very High on the Habitat Evaluation Map. Impacts within these areas will be in areas that have already experienced some level of disturbance. In addition, the Project has been designed to minimize impacts. New trails will largely be located outside of the *High* and *Very High* areas mapped on the Habitat Evaluation Map. Trails will be a maximum of 4-feet wide to minimize impacts to habitat. The exception to the 4-foot width is the ADA-complaint trail, which would be 8 feet wide (4 feet per side) and would include 60-inch resting/passing areas staggered every 1,000 feet. The two sides would be separated by a barrier. The infrastructure (i.e. staging areas, restroom, internal road, etc) will be in previously disturbed areas to minimize impacts to habitat. There are approximately 14.5 miles of existing trails in the Preserve of which 7.8 miles will be closed, some of which will be restored to native habitat. Parking will be limited to a total of 32 parking spots in order to maintain a low level of use in the Preserve. Limiting use will reduce the potential for indirect impacts to and fragmentation of habitats. Therefore, the Project provides for conservation of spatially representative examples of extensive patches of Coastal sage scrub and other habitat types that were ranked as having high and very high biological values by the MSCP habitat evaluation model.

4. The Project provides for the creation of significant blocks of habitat to reduce edge effects and maximize the ratio of surface area to the perimeter of conserved habitats.

   The Preserve, along with lands owned by the Cities of Poway and San Diego and the State of California form a large block of habitat that stretch south around San Vicente Reservoir, west to SR-67 and north to the unincorporated community of Ramona. The Project has been designed to minimize direct and indirect impacts through concentrating Preserve infrastructure to areas that have been previously disturbed, minimizing trail width and limiting the number of users in the Preserve.

5. The Project provides for the development of the least sensitive habitat areas.

   The Project has been designed to minimize direct and indirect impacts through concentrating Preserve infrastructure to areas that have been previously disturbed, minimizing trail width and limiting the number of users in the Preserve. New trails will largely be located in chaparral habitat (Tier III). Trails have been sited to avoid impacts to Lakeside Ceanothus and other sensitive plant and animal species.

6. The Project provides for the conservation of key regional populations of covered species, and representations of sensitive habitats and their geographic sub-associations in biologically functioning units.

The proposed Project has been designed to minimize or avoid impacts to habitat and species within the Preserve. The Project will result in 7.4 acres of habitat across the 2,014-acre preserve. Impacts to sensitive species and jurisdictional resources have been avoided. All feasible mitigation measures have been incorporated into the Project. Mitigation for impacts to habitat will be consistent with the mitigation requirements of the Biological Mitigation Ordinance (BMO).

7. Conserves large interconnecting blocks of habitat that contribute to the preservation of wide-ranging species such as Mule deer, Golden eagle, and predators as appropriate. Special emphasis will be placed on conserving adequate foraging habitat near Golden eagle nest sites.

   Boulder Oaks Preserve is approximately 2,014 acres in size. As discussed above, the Preserve, along with lands owned by the Cities of Poway and San Diego and the State of California form a large block of habitat that stretch south around San Vicente Reservoir, west to SR-67 and north to the unincorporated community of Ramona. Large blocks of unaltered habitat, with significant amount of topographical shelter, is present throughout the Preserve. Mule deer and cougars are known to frequent the Preserve. These large mammals would readily use man-made trails. Wildlife cameras in 2007 and 2013 detected frequent usage of trails and roads by deer during day and night. Mountain lions used roads and trails for movement at night. Public access would only be allowed during daylight hours; therefore, public access would not result in impacts on the primarily nocturnal use of the Preserve by mountain lions. No features would be constructed that would constrain nocturnal movement of mountain lions. Golden eagle is known to forage within the Preserve. However, no impacts would occur on nesting habitat or within 4,000 feet of a known nest.

8. All projects within the San Diego County Subarea Plan shall conserve identified critical populations and narrow endemics to the levels specified in the Subarea Plan. These levels are generally no impact to the critical populations and no more than 20 percent loss of narrow endemics and specified rare and endangered plants.

   No rare, narrow endemic animal species were observed in the Preserve. Golden eagles are known to nest on Iron Mountain; however, that nesting site is over a mile away from the closest point of the Preserve. The Project has been designed to avoid impacts to narrow endemic and critical populations of sensitive plant species.

9. No project shall be approved which will jeopardize the possible or probable assembly of a preserve system within the Subarea Plan.

   The proposed Project will not affect the assembly of the County's MSCP Preserve. Acquisition of the Boulder Oaks Preserve was intended to contribute to the assembly of the Preserve.

10. All projects that propose to count on-site preservation toward their mitigation responsibility must include provisions to reduce edge effects.

The Project has been designed to minimize edge effects through minimizing trail widths, installing signage, fencing and gates where necessary to keep users on trail. In addition, new infrastructure (i.e. staging areas, volunteer pads, restroom, etc) have been sited within areas existing disturbed areas. Furthermore, DPR will conduct biological monitoring and will apply adaptive management techniques to ensure that the conservation goals of the Preserve are being met. Finally, the following measures will be implemented to minimize the potential for edge effects:

- The use of motorized vehicles on trails will be prohibited, except for wheelchairs, maintenance and emergency vehicles.
- Natural vegetation, topography, limited fencing, and signage will be used to direct trails users to designated trails and away from sensitive habitat areas.
- Dogs must be leased as all times and on designated trails only.

Additional measures will be implemented as necessary.

11. Every effort has been made to avoid impacts to BRCAs, to sensitive resources, and to specific sensitive species as defined in the BMO.

The proposed Project will impact 7.21 acres of native or naturalized habitat, including 0.73 acre of Tier 1 habitat (Engelman Oak Woodland, Coast Live Oak Woodland), 3.69 acre of Tier 2 habitat (Southern Mixed Chaparral, Scrub Oak Chaparral) and 2.79 acre of Tier IV habitat (Non-native Grassland). Mitigation will occur consistent with the ratios in the BMO and will consist of onsite preservation, restoration or acquisition of offsite mitigation credit within a BRCA. The Project has been designed to avoid impacts to jurisdictional resources and sensitive plant species. Infrastructure has been sited in previously disturbed areas. 6.7 miles of existing trail will be retained and rehabilitated. 7.8 miles of existing trails will be closed, some of which will be restored to habitat. Approximately 7.2 miles of new trails are proposed, including 5.7 miles of new multi-use trails and 1.5 mile of ADA-accessible trail. With the exception of the ADA-accessible trail, new trails will be a maximum of four feet wide to minimize impacts to habitat. Development of Project components that are located within areas shown as *High* or *Very High* on the Habitat Evaluation Model have been sited in previously disturbed areas.

To reduce potential indirect impacts to sensitive biological habitats and species including nesting birds the following design measures have been incorporated into the Project: utilizing existing trails, paths, and disturbed areas to the maximum extent practicable, prohibition of motorized vehicles on trails, the use of natural vegetation, topography, limited fencing, and signage to direct trails users to designated trails and away from sensitive habitat areas, the requirement that dogs must be leased as all times. In addition, tail grading and construction will be prohibited during the bird breeding season, defined as January 15 to September 1, which includes the tree-nesting raptor breeding season of January 15 to July 15, and the general avian breeding season of February 1 to September 1 unless it is determined that nesting birds are not present.

No feasible less environmentally damaging alternative could be employed that would allow implementation of this essential public project. Water quality Best Management Practices (BMPs) including gravel bags, fiber rolls and silt fencing, will be implemented throughout the Project site during and after construction.

Lorrie Bradley, Department of Parks and Recreation

June 07, 2019

Appendix E
Cultural Resources Report

Final
Cultural Resources Impact Assessment for the Boulder Oaks Preserve Improvement Project, San Diego County, California

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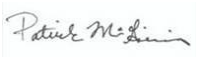

Patrick McGinnis M.A., RPA
Principal Investigator

March 2019

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National Archaeological Data Base Information

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Client:	County of San Diego, Department of Parks and Recreation, 5500 Overland Avenue, Suite 410, San Diego, California 92123
Report Date:	October 2018
Report Title:	Draft Cultural Resources Impact Assessment for the Boulder Oaks Preserve Improvement Project, San Diego County, California
Type of Study:	Project Impact Assessment
New Sites:	N/A
Updated Sites:	None
USGS Quadrangle:	San Vicente Reservoir 7.5’
Acreage:	2,020 acres (approximately)
ICF Jones & Stokes Project Number:	00054.13
Keywords:	Prehistoric habitation sites, bedrock milling features, lithics, milling features; historic residential sites, refuse scatters, road; Trail System

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LIST OF ABBREVIATIONS/ACRONYMS

ADA	American with Disabilities Act
BP	before present
ca.	circa
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
County	County of San Diego's
CRHR	California Register of Historical Resources
DPR	County of San Diego Department of Parks and Recreation
GPR	ground penetrating radar
MLD	Most Likely Descendent
NAHC	Native American Heritage Commission
NRHP	National Register of Historic Places
PAP	public access plan
PRC	Public Resources Code
Project	Boulder Oaks Preserve Improvement Project
RMP	Resource Management Plan
RPO	Resource Protection Ordinance
SCIC	South Coastal Information Center
SR-67	State Route 67
USGS	U.S. Geological Survey

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EXECUTIVE SUMMARY

The purpose of this report is to analyze the potential effects on cultural resources associated with the proposed Boulder Oaks Preserve Improvement Project (Project). This analysis is intended to support the County of San Diego's (County) review process under the California Environmental Quality Act (CEQA) and other applicable local and state regulations. Specifically, this report summarizes the cultural resources at, or potentially occurring on, the Boulder Oaks Preserve; analyzes impacts on cultural resources associated with implementation of the Project; and recommends measures to avoid, minimize, or mitigate significant impacts on sensitive resources. The analysis presented herein follows applicable state and local rules and regulations including CEQA, and the County of San Diego's Local Register of Historical Resources.

The Project is a public access plan (PAP) for a non-motorized multi-use trail system in the 2,020-acre Boulder Oaks Preserve. The Project includes 7.2 miles of proposed trails, a restroom facility, and a volunteer pad. The proposed trails would include 5.7 miles of new native trails and 1.5 miles of American with Disabilities Act (ADA)-compliant trails. This would be in addition to 6.7 miles of existing trails. The Project also proposes to close 7.8 miles of existing trails. The new trails would be primitive in nature, and would be approximately 2 to 4 feet wide. The ADA-compliant trail would have two sides—one suitable for mobility devices and pedestrians, and one suitable for bicycles and equestrian users—separated by a barrier. The ADA-complaint trail would be 8 feet wide (4 feet per side) and would include 60-inch resting/passing areas staggered every 1,000 feet. The mobility device/pedestrian side would be graded and paved with asphalt, and the bike/equestrian side would be graded and compacted with natural material. The existing trails and road would be maintained at the current width.

Three staging areas are proposed for construction of the Project. Staging Area 1 would cover 0.29 acre and would have 16 passenger vehicle spaces, Staging Area 2 would cover 0.89 acre and would have 8 pull-through equestrian spots, and Staging Area 3 would cover 0.16 acre and would have 8 passenger vehicle spaces.

The proposed restroom would be constructed adjacent to the existing ranger station. The septic system that currently serves the ranger station may be upgraded to increase capacity for the restroom facility. A new volunteer pad would be constructed adjacent to the existing volunteer pad, south of the ranger station.

Activities related to the Preserve PAP have the potential to impact cultural resources throughout the Preserve, and a range of potential impacts might arise from implementation of the Project. These include broad impacts that involve any ground-disturbing activity, such as the use of mechanized equipment for trail creation and maintenance, and installation and maintenance of signage, fencing, and gates. Thus, implementation of the Preserve PAP has the potential to adversely affect cultural resources. As such, potential impacts of the Preserve PAP must be considered, and appropriate mitigation measures developed. Where feasible, the preferred mitigation is avoidance.

Implementation of the multi-use trail system and related infrastructure improvements has the potential to impact specific cultural resources during construction, use, and maintenance of the facilities, although most of these facilities have been designed to avoid resources. However, 19 resources have been identified that could be affected by these activities. Mitigation measures have been developed for implementation of each of the components of the Project. These include general, long-term mitigation measures that apply to the Preserve as a whole and correspond with management directives in the Preserve Resource management Plan (RMP), as well as specific mitigation measures related to development and construction of the trails and Preserve infrastructure improvements.

1.0 INTRODUCTION

The purpose of this report is to analyze the potential effects on cultural resources associated with the proposed Boulder Oaks Preserve Improvement Project (Project). This analysis is intended to support the County of San Diego's (County's) review process under the California Environmental Quality Act (CEQA) and other applicable local and state regulations. Specifically, this report summarizes the cultural resources at, or potentially occurring on, the Boulder Oaks Preserve; analyzes impacts on cultural resources associated with implementation of the Project; and recommends measures to avoid, minimize, or mitigate significant impacts on sensitive resources. The analysis presented herein follows applicable state and local rules and regulations including CEQA, and the County of San Diego's Local Register of Historical Resources.

The Preserve is located in central San Diego County, California, approximately 5 miles southwest of the center of the community of Ramona, and approximately 2 miles south of State Route 67 (SR-67) along Mussey Grade Road (Figure 1). Specifically, the Preserve is directly west of Mussey Grade Road and approximately 1 mile east of the peak of Iron Mountain. Access to the Preserve is provided by a public driveway connecting to Mussey Grade Road at the northern end of the Project. The Preserve occurs within the U.S. Geological Survey (USGS) San Vicente Reservoir 7.5 minute topographical quadrangle maps (amended 2015; Figure 2). The approximate center coordinates for the Preserve in decimal degree format (NAD 83) are 32.9685°N and -116.9360°W. The southern portion of the Preserve is situated in the meadows and hills just northwest of the San Vicente Reservoir, extending east from Iron Mountain and north of Fosters Canyon, and is bisected by Foster Truck Trail. The Preserve also includes steep hills and several flat open areas, ranging in elevation from 1,270 to 2, 400 feet above mean sea level.

1.1 Project Description

The Project is a public access plan (PAP) for a non-motorized multi-use trail system in the Boulder Oaks Preserve. The Preserve covers a total of 2,020-acres. The original Preserve included 1,268 acres acquired by the County in 2003 and now includes an additional 752 acres to the north acquired in 2012. The Project includes 7.2 miles of proposed trails, a restroom facility, and a volunteer pad. The proposed trails would include 5.7 miles of new native trails and 1.5 miles of American with Disabilities Act (ADA)-compliant trails. This would be in addition to 6.7 miles of existing trails (Figure 2). The Project also proposes to close 7.8 miles of existing trails. The new trails would be primitive in nature, and would be approximately 2 to 4 feet wide. The ADA-compliant trail would have two sides—one suitable for mobility devices and pedestrians, and one suitable for bicycles and equestrian users—separated by a barrier. The ADA-complaint trail would be 8 feet wide (4 feet per side) and would include 60-inch resting/passing areas staggered every 1,000 feet. The mobility device/pedestrian side would be graded and paved with asphalt, and the bike/equestrian side would be graded and compacted with natural material. The existing trails and road would be maintained at the current width with the exception of portions that may need to be improved to 24 feet wide to accommodate emergency vehicles.

Three staging areas are proposed for the construction of the Project. Staging Area 1 would cover 0.29 acre and would have 16 passenger vehicle spaces, Staging Area 2 would cover 0.89 acre and would have 8 pull-through equestrian spots, and Staging Area 3 would cover 0.16 acre and would have 8 passenger vehicle spaces.

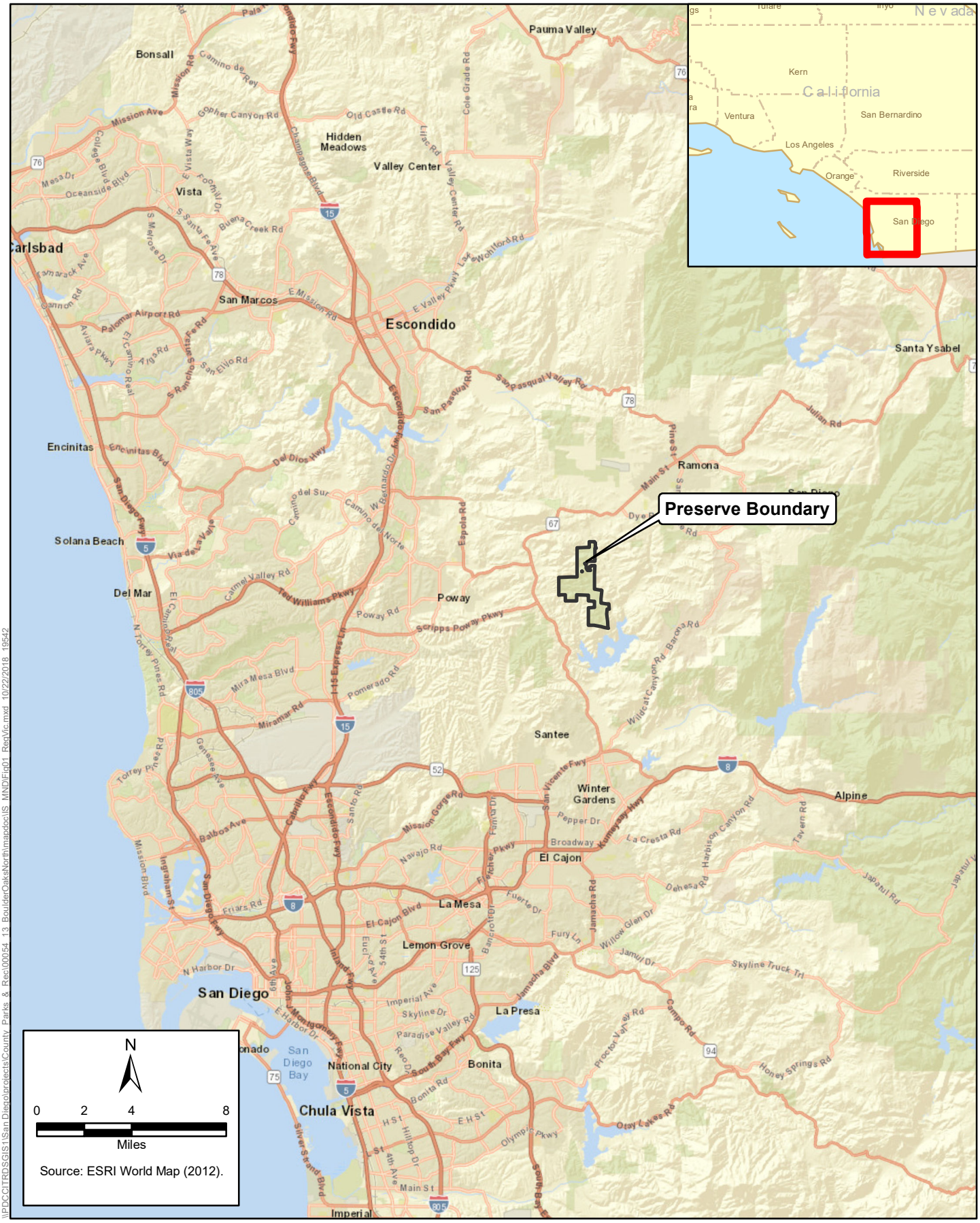
The proposed restroom would be constructed adjacent to the existing ranger station. The project will be served by a septic system for waste management. The current septic system would be assessed and expanded to increase capacity for the remodeled restroom facility. It is anticipated the proposed septic system would be increased up to 150 feet, and would be no greater than 36 inches deep. Any expansion of the septic leach field would be confined to the southeast of the existing restroom facility within the previously disturbed, urban/developed areas.

A new volunteer pad would be constructed adjacent to the existing volunteer pad, south of the ranger station. Earthwork would consist of cut and fill, and the Project includes installation of "No Parking" signs off site along the shoulder of Mussey Grade Road, if deemed necessary by the Department of Public Works (DPW) Traffic Division.

The project would be implemented in phases, with maintenance of existing trails and proposed infrastructure improvements in the first phase, construction of new trails in the second phase, and construction of additional new trails in the third phase. Construction of new trails would be split up into the second and third phases based on availability of funding for the project. Construction is anticipated to commence in 2019 and would occur over approximately 3 years, based on funding. Construction equipment would include trail dozers, graders, backhoes, front loaders, case skid steers, and pickup trucks.

The following critical project design elements (CPDE) have been incorporated into the proposed project:

- CPDE-1: Prior to the construction of any new trail segments or the proposed bridge, all of which were located to avoid cultural resources, the locations of new construction shall be field checked by a qualified archaeologist to ensure that they do indeed avoid known cultural resources. If avoidance is infeasible, the resource should be evaluated for significance by a qualified archaeologist, per County guidelines. All trail signs, markers, fencing, and gates in the Preserve should be placed in areas that avoid known cultural resources. If this recommendation cannot be met, MM-1 shall be followed during installation.
- CPDE-2: Permanent split rail fencing with signage (e.g., signs that read "Please Stay on Trail") shall be placed along the trail route in the northwest portion of the Preserve in the vicinity of CA-SDI-15114, a sensitive cultural resource identified by Native American representations. The fencing should be placed along that portion of the trail from which the site can be accessed in order to protect the resource from unauthorized visitation.



\\PDCCITRDSGIS1\San Diego\projects\County Parks & Rec\00054 13 BoulderOaksNorth\mapdoc\IS MNDFig01 RecVic.mxd 10/22/2018 19542

Figure 1
Regional Map
Boulder Oaks Preserve Improvement Project - MND

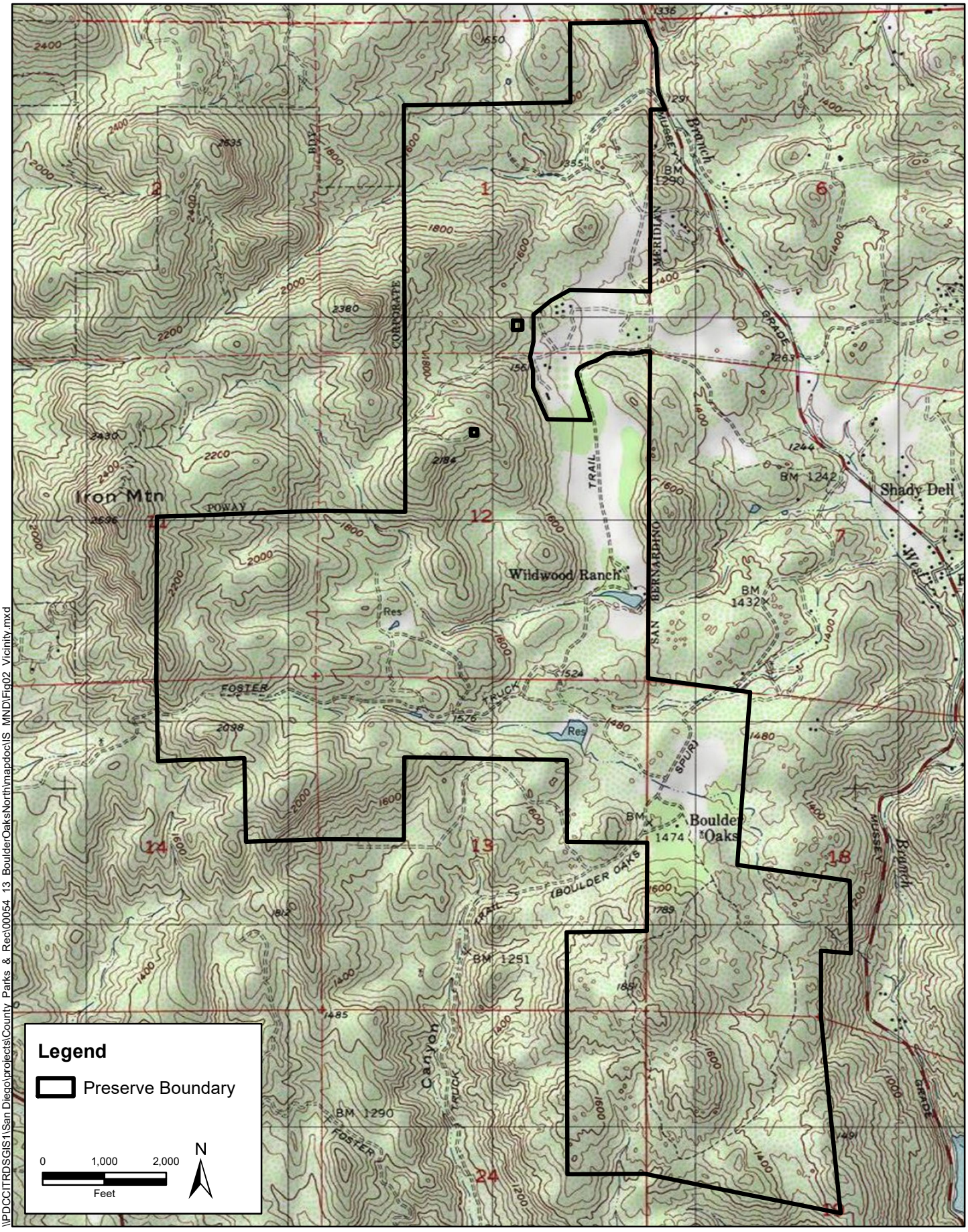


Figure 2
Project Vicinity
Boulder Oaks Preserve Improvement Project - MND

1.1.1 Existing Conditions

1.1.2 Environmental Setting

Natural Setting

The Preserve is in the central foothills of San Diego County. It traverses through steep mountain uplands with ridgelines separated by numerous canyons, ravines, and drainages. The western edge of the Preserve approaches the ridgeline that extends from Mt. Woodson to Iron Mountain. The top of Iron Mountain (2,696 feet) is roughly 0.15 mile northwest of the western edge of the Preserve. The valley of the west branch of San Vicente Creek lies along the Preserve's eastern boundary. The southeast portion of the Preserve includes relatively flat grasslands and woodlands. The northern and southwestern portions are composed of steep, boulder-strewn mountains. Elevations in the survey area range from approximately 2,160 feet above mean sea level on the peak at the center west of the area to approximately 1,300 feet above mean sea level at the northeastern corner along Mussey Grade Road. The Preserve consists of vacant, undeveloped land with a scattering of historical building foundations.

The bedrock in the Preserve is made up almost exclusively of Cretaceous granitic rocks, principally of the Woodson Mountain Granodiorite Formation (Tan 2002). Soils in the Preserve were formed by the physical and chemical weathering of the underlying bedrock, resulting in a variety of sandy loams. Two general soil associations are principally represented: the Fallbrook-Bonsall association and the Cieneba-Fallbrook association.

Natural vegetation within the Preserve consists of 10 different communities: coast live oak woodland, coastal and valley freshwater marsh, Diegan coastal sage scrub, Engelmann oak woodland, open water, non-native grassland, scrub oak chaparral, southern coast live oak riparian forest, southern arroyo willow riparian forest, and southern mixed chaparral (the dominant community with 1,645 of the 2,014 acres). Dominant species of these areas include plants such as chamise (*Adenostoma fasciculatum*), mission manzanita (*Xylococcus bicolor*), Ramona lilac (*Ceanothus tomentosus*), scrub oak (*Quercus xacutidens*), and white sage (*Salvia apiana*). On slopes at slightly lower elevations than chaparral variants, the dominant plant species of the Diegan coastal sage scrub community are coastal sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), black sage (*Salvia mellifera*), and laurel sumac (*Malosma laurina*). Dominant species of the southern coast live oak riparian forest include coast live oak (*Quercus agrifolia*), western sycamore (*Plantanus racemosa*), and arroyo willow (*Salix lasiolepis*) (Oberbauer et al. 2008, Baldwin et al. 2012).

Prehistorically, animal life in and within the vicinity of the Preserve likely included large to medium mammals, such as grizzly bear (*Ursus horribilis*) and black bear (*Ursus americanus*), mountain lion (*Felis concolor*), bobcat (*Lynx rufus*), mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), badger (*Taxidea taxus*), ringtail (*Bassariscus asutus*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). Numerous species of smaller mammals were also present, including jack rabbit (*Lepus calijomicus*), brush rabbit (*Sylvilagus bachmanz*), cottontail rabbit (*Sylvilagus audubonil*), ground squirrel

(*Spermophilus beecheyi*), pocket gopher (*Thomomys bollae*), and several species of mice and rats (Burt and Grossenheider 1976). Other animals included numerous predatory bird species, such as red-tailed hawks (*Buteo jamaicensis*) and golden eagles (*Aquila chrysaetos*), as well as lizards, snakes, and pond turtles (*Clemmys marmorata*) (Peterson 1961, Stebbins 1966). During the current survey, several red-tailed hawks, ground squirrels, and other bird species were observed.

1.1.3 Cultural Setting

Prehistoric Period

The following outlines and briefly describes the known prehistoric cultural traditions. The approximately 10,000 years of documented prehistory of the San Diego region is often divided into three periods: Early Period (San Dieguito tradition/complex), Archaic Period (Milling Stone Horizon, Encinitas tradition, La Jolla and Pauma complexes), and Late Prehistoric Period (Cuyamaca and San Luis Rey complexes).

Early Period Complexes

The Early Period encompasses the earliest documented human habitation in the region. The "San Dieguito complex" is the earliest reliably dated occupation of the area. The assemblage of artifacts associated with the San Dieguito complex has been studied and elaborated upon extensively (Rogers 1939, 1945, 1966; Warren and True 1961; Warren 1967; Moriarty 1969, 1987). The complex correlates with Wallace's (1955) "Early Man Horizon," and Warren subsequently defined a broader San Dieguito tradition (1968). The earliest component of the Harris Site (CA-SDI-149/316/4935B) is located along the San Dieguito River northwest of the Preserve and is characteristic of the San Dieguito complex (Warren 1966, 1967; Warren and True 1961). Artifacts from the lower levels of the site include leaf-shaped knives, ovoid bifaces, flake tools, choppers, core and pebble hammerstones; and several types of scrapers, crescents, and short-bladed shouldered points (Warren and True 1961, Warren 1966). Little evidence for the San Dieguito Complex/Early Man Horizon has been discovered north of San Diego County.

Some researchers interpret the San Dieguito complex as having a primarily, but not exclusively, hunting subsistence orientation (Warren 1967, 1968, 1987; Warren et al. 1998). Others see a more diversified San Dieguito subsistence system as possibly ancestral to, or as a developmental stage for, the subsequent, predominantly gathering oriented complex denoted as the "La Jolla/Pauma complex" (cf. Bull 1983; Ezell 1987; Gallegos 1985, 1987, 1991; Koerper et al. 1991).

Archaic Period Complexes

In the southern coastal region of California, the Archaic Period dates from circa (ca.) 8600 years before present (BP) to ca. 1300 BP (Warren et al. 1998). During the Archaic Period, the La Jolla/Pauma complexes have been identified from the content of archaeological site assemblages dating to this period. These assemblages occur at a range of coastal and inland sites, and appear to indicate that a relatively stable and sedentary hunting and gathering complex, possibly associated with one people, was present in the coastal and immediately inland areas of San Diego County for more than 7,000 years. La Jolla/Pauma complex sites are considered to be part of Warren's (1968)

"Encinitas tradition" and Wallace's (1955) "Milling Stone Horizon." The inland or "Pauma complex" aspect of this culture lacks shellfish remains, but is otherwise similar to the La Jolla complex and may, therefore, simply represent a non-coastal expression of the La Jolla complex (True 1958, 1980; True and Beemer 1982). The content of these site assemblages is characterized by manos and metates, shell middens, terrestrial and marine mammal remains, burials, rock features, cobble-based tools at coastal sites, and increased hunting equipment and quarry-based tools at inland sites. Artifact assemblages can also include bone tools, doughnut stones, discoidals, stone balls, plummets, biface points/knives, Elko-eared dart points, and beads made of stone, bone, and shell. Beginning approximately 5500 BP, and continuing during the latter half of the Archaic Period, evidence of hunting and the gathering and processing of acorns gradually increases through time. The evidence in the archaeological record consists of artifacts such as dart points and the mortar and pestle, which are essentially absent during the early Archaic Period. The initial and subsequent increasing use of these technologies during the middle and late Archaic constitutes a major transition in how the prehistoric populations interacted with their environment in the southern coastal region. The period of this shift, from ca. 4000 to 1300 BP, has been designated as the Final Archaic Period (Warren et al. 1998).

Late Prehistoric Period Complexes

In the San Diego area, the Late Prehistoric Period has been described as a time characterized by an increased number of sites, and "many technological innovations, and new patterns in material culture and belief systems" (McDonald and Eighmey 1998:III-1). This description, in fact, aptly describes the period for the entire San Diego County area. Changes in tool and ornament types, burial practices, and site location choices, from those documented for the earlier periods, are well documented in the archaeological record and are described below.

As with the earlier periods, archaeologists have defined distinctive complexes for the Late Prehistoric Period prehistoric cultures of the area. Two complexes have been defined for the protohistoric occupants of the area. One, designated as "San Luis Rey," is identified in the southern Orange, western Riverside, and northern San Diego Counties area; the other, "Cuyamaca," is identified in southern San Diego County (Meighan 1954; True 1966, 1970; True et al. 1974). The San Luis Rey complex is believed to be the progenitor of the Shoshonean-speaking peoples (Luiseño/Juaneño culture) living in the area at the time of historic contact in northern San Diego County (referred to as San Luis Rey of Shoshonean origin) (cf. Koerper 1979). Those of southern San Diego County (Cuyamaca, Yuman) are believed to be the ancestors of the Hokan-speaking Diegueño or Kumeyaay (Ipai/Tipai) occupying southern San Diego County at contact. The demarcation line between the San Luis Rey complex and the Cuyamaca complex is believed to be near the historic separation of the tribal territories of the Luiseño/Juaneño and Diegueño. It is highly unlikely, however, that the boundary remained static over time. During Late Prehistoric times, the Property would have been within the area commonly associated with the archaeologically defined Cuyamaca complex.

The San Luis Rey complex has been separated into two time periods, designated as San Luis Rey I and San Luis Rey II (Meighan 1954). San Luis Rey I sites date from ca. A.D. 500 to A.D. 1200

and San Luis Rey II, from ca. A.D. 1200 to historic contact, about A.D. 1769. Archaeologically, San Luis Rey II site assemblages are similar to those of San Luis Rey I sites, but with the distinctive addition of ceramics.

Hearths documented for southern San Diego County sites are often clay-lined, yet this type of hearth is not found in the northern county sites. The Luiseño/Juaneño of southern Orange and northern San Diego Counties appear to have primarily practiced cremation (Kroeber 1925), but may also have occasionally buried the dead by inhumation. The use of special burial urns for cremations, however, was apparently not commonly practiced.

Historic Period

By common convention, prehistory ended and historic cultural activities began within what is now San Diego County between the late 1500s and mid-1770s. These cultural activities provide a record of Spanish, Mexican, and American rule, occupation, and land use. An abbreviated history of this area is presented to provide a background on the presence, chronological significance, and historical relationship of cultural resources within the Preserve.

From the late 1800s until they developed the Preserve, the lands parcels within the Preserve were used for ranching and recreation with associated structures, trails and roads that continue to be used within the Preserve. A more comprehensive history of prior land uses of the Preserve and vicinity can be found in the RMP for the Preserve.

Spanish Period

The historic period in California began with the early explorations of Juan Cabrillo in 1542. Cabrillo came ashore on what is now Point Loma to claim the land for Spain and gave it the name San Miguel. Sixty years passed before another European, Sebastían Vizcaíno, entered the bay on November 10, 1602, and gave it the name San Diego (Pourade 1960:49, 66). Although both expeditions encountered native inhabitants, there appears to have been little or no interaction. None of the coastal sites occupied during this protohistoric period have yielded European trade items or evidence of depopulation due to epidemic diseases, nor does Kumeyaay oral tradition offer a native perspective on these encounters.

The Spanish period extended from 1769 to 1821. It encompassed early exploration and subsequent establishment of the Presidio of San Diego and Mission San Diego (1769), Mission San Juan Capistrano (1776), and Mission San Luis Rey (1798). Located on Presidio Hill, San Diego's original Spanish settlement consisted of a presidio (fort) and a chapel that also served as *Alta California's* first mission. In 1769 an expedition headed by Gaspar de Portolá traveled north from the Presidio de San Diego to extend the Spanish Empire from Baja California into *Alta California* by seeking out locations for a chain of presidios and missions in the area. From its original outpost on what is now Presidio Hill, Mission San Diego de Alcalá was moved to roughly its current site in Mission Valley in 1774. In November 1774, the mission was attacked by Tipay warriors from south of the San Diego River who razed the mission and killed Father Luis Jayme and two others. The mission was rebuilt in 1775, and while one of the least successful missions in

the chain of California missions, it firmly established Spain's presence in the region. During this period, Spanish colonists introduced horses, cattle, sheep, pigs, corn, wheat, olives, and other agricultural goods and implements, as well as new architecture and methods of building construction (Engelhardt 1920:60–64; Sandos 2004:42–43, 56–68).

The Santa Maria Valley to the north of the Property had up to the later part of the eighteenth century been the location of the Indian village of *Pámu* (paa moo). In 1778, possibly feeling a threat to their livelihood, the inhabitants of *Pámu* rebelled. Spanish soldiers punished the Native Americans severely; Jose Francisco Ortega, comandante of the San Diego Presidio, sent a contingent of soldiers to destroy the rancheria, enabling the Spanish to regain control of the valley. In 1821, the Santa Ysabel mission outpost (*assistencia*) was established a few miles north of the Santa Maria Valley. After 1821, California came under Mexican rule, but Spanish culture and influence endured. The missions continued to operate as they had in the past, and laws governing the distribution of land were also retained for a period of time. Mission records from 1832 listed approximately 1,400 Native Americans living in the valley, with 4,500 head of cattle, 13,000 sheep, 200 horses, and 80 mules at the *assistencia* (Carrico 1992:17, 2008:40, Engelhardt 1920:169-170, LeMenager 1989:17–18, Maggiano 1990).

Mexican Period

The Mexican period in San Diego County lasted from Mexico's independence from Spain in 1821 until 1848, when the Mexican-American War concluded. During this period most Spanish laws and practices continued until shortly before secularization of Mission San Luis Rey, Mission San Juan Capistrano, and Mission San Diego de Alcalá. Most of the missions had gone into decline by the early 1820s. Indeed, by 1822, 17 of the missions had no resident priest. During the 1820s and 1830s, *Alta California's* economic activity consisted of agriculture and livestock-raising for subsistence and localized markets, and hide and tallow production for the international market (Pourade 1961:182–183, Rawls and Bean 2003:72–72).

After years of political instability and several failed efforts to secularize the missions, in 1834 Governor José Figueroa issued a proclamation defining the terms of the secularization process that would be instituted over the following 2 years. Provisions for assuring that Indians would receive mission land, however, proved of little or no practical benefit to the region's Native Americans. Limits on the slaughter of mission cattle were often ignored by priests who sought immediate profit on the hide market. Mission lands were distributed mainly to officials and retired soldiers. Approximately 500 private rancho land grants were made under Mexican rule. Governors Juan Batista Alvarado, Manuel Micheltorena, and Pío Pico made most of these grants after secularization. Even before then, rancho operations began herding cattle deeper and deeper into the California interior, which may have led to the 1826 clash between San Diego Presidio forces and Native Americans at Santa Ysabel (Carrico 2008:40, Rawls and Bean 2003:58–63).

After secularization, many Native Americans were forced to work on Mexican ranchos, although those living farther from the ranchos maintained their traditional life styles longer. During this period, Native American populations in California came under increasing pressure as new ranches were established under the land grant system. New grants were made from inland territories still

occupied by Native Americans, forcing them to acculturate or move away. Oftentimes, the native groups would relocate away from the intruders and farther into the back country. In several instances, however, former mission neophytes organized pueblos and attempted to live within Mexican law and society. The most successful of these was the Pueblo of San Pasqual, founded by Kumeyaay who were no longer able to live at the Mission San Diego de Alcalá. With former Presidio soldiers becoming civilian residents, the Pueblo of San Diego was established, transportation routes were expanded, and cattle ranching continued to predominate over other agricultural activities, with trade in hides and tallow trade increasing during the early part of this period. San Diego-area ranchos continued to be the target of periodic attacks from Native Americans resisting assimilation into Mexican-era *Californio* society (Carrico 2008:40–41).

Two ranchos were granted in the vicinity of the Property. Located within 3 miles to the north of the Property, the 17,708-acre Rancho Santa María was granted to Mexican Soldier Narcisco Botello in 1833. After Narcisco failed to ranch the land, it passed to José Joaquín Ortega, a member of a powerful family whose great grandfather had arrived in California with Portolá in 1769. The English merchant ship captain Edward Stokes assumed control over the land after marrying Doña Refugio Ortega, José Joaquín's daughter. Known as Don Eduardo, Stokes managed Rancho Santa María until his death in the early 1850s, upon which his sons Adolfo, Eduardo, and Alfredo inherited the rancho. Located within 2 miles to the east of the Preserve, the 13,316-acre Cañada de San Vicente Rancho (also known as the Cañada de San Vicente y Mesa del Padre Barona) was granted by Governor Pío Pico in 1845 to Don Juan Bautista López. Eventually becoming part of the Barona Indian Reservation, the southern part of the rancho was named for Father Josef Barona, a San Diego Mission priest who served local Native Americans during the early 1880s (Beck 2004; Moyer and Pourade 1981:47, 65).

American Period

The American period began in 1848 with the signing of the Treaty of Guadalupe Hidalgo, which ended the Mexican-American War and brought vast new territory under control of the United States. The treaty protected *Californios*' property in principle. In practice, however, the legal process for vetting land claims that was set in motion by the Land Commission established in 1851, combined with the mounting debts of many rancho owners, allowed American and other newcomers to take possession of nearly all of the rancho lands originally granted during the Mexican period (Rawls and Bean 2003:142–147).

During these decades, many of the areas traditionally used for hunting and gathering by local native groups were fenced for ranches and farms. Reservations were established beginning in 1875 to offset this encroachment. This arrangement, however, forced many natives to adopt a more sedentary lifestyle based on Euro-American economics as an alternative to moving to reservations. As in other parts of the state, local tribes were forced to contend with new laws and policies created by a U.S. government located far away from the local area. Many tribal members endeavored to maintain their associations with the Hispanic community, while attempting to cope with an ever-increasing new population of Americans. During the period from 1850 to 1880,

deprivations and tribulations multiplied as adaptation to the new ways of the American settlers proved difficult for the local native population (Carrico 2008).

The Stokes heirs to Rancho Santa María, Adolfo, Eduardo, and Alfredo, fared better than many *Californio* rancho grantees and their descendants. Stokes family members constructed three homes on Rancho Santa María, one of which continued to stand into the 1960s. The town of Nuevo took shape on Rancho Santa María after gold was discovered in Julian during the 1870s. Mule-drawn wagons regularly stopped at Nuevo on route between Julian and ore processing facilities in National City. In 1872, Frenchman Bernard Echeverry acquired a tract at the west end of the rancho to establish a sheep ranch in exchange for tending to Stokes-owned herds. In 1884 Milton Santee bought 6,000 acres of Rancho Santa María land for subdivision and sale. By 1886 the Santa Maria & Land Water Company had acquired Nuevo, which was eventually renamed Ramona. Descendants of the Stokes family would continue to reside in Ramona into the latter twentieth century (Moyer and Pourade 1981:49–50).

In 1850, Don Juan Bautista López deeded Rancho Cañada de San Vicente Rancho (Rancho San Vicente) to Don Domingo Yorba. The deed stipulated that López and his wife would receive $2,000 and obligated Yorba to provide them with housing, food, and clothes for the duration of their lives. Raising horses and cattle on the property, Yorba filed a claim for the rancho with the U.S. Land Commission in 1852. Charles V. Howard acquired the rancho in 1886 for $8,000 and during the following year sold it for $20,000, after which the land was subdivided. Despite such subdivision, cattle ranches were operated on the Rancho San Vicente into the latter twentieth century. In 1933 the federal government would purchase the land for the Barona Indian Reservation when development of the El Capitan Dam and San Vicente Reservoir required relocation of Native Americans living there (Moyer and Pourade 1981:65–66).

The completion of a transcontinental railroad connection to San Diego in the 1880s inaugurated a land boom that caused the City of San Diego's population to soar to over 35,000 in a few short years. It was during the boom that Howard purchased the Rancho San Vicente for speculative purposes. Felt throughout the region, the boom led to the creation of many newly formed towns and communities. Thousands of people came to the county to take advantage of the possibilities of the region. By the end of the 1880s, however, the "boom" had become a "bust" as banks failed, land prices plummeted, and speculation could not be sustained by true and beneficial economic growth. Thousands of people abandoned their significantly devalued properties to the tax assessors and left the region. However, many remained to form the foundations of several small pioneering communities across the county. These families practiced dry farming, planted orchards, raised livestock, built schools and post offices, and created a life for themselves in the valleys and mesas of San Diego County (Griffin and Weeks 2004:78, Quastler and Pryde 2004:182–183).

Travel Corridors

The discovery of gold in 1869 in Coleman Creek near Julian brought newcomers to the backcountry hoping to prospect their way to wealth, raising the value of effective transportation between the area and the San Diego metropolis. Chester Gunn established the first pony express

and mail route running from San Diego to Julian in 1871. Gunn's route ran east of the Property through San Vicente Valley (LeMenager 1990:77).

One set of prospectors left a lasting imprint on the area by providing more convenient access. Lemuel Atkinson, along with his brother, Henry, traveled to the area from Sacramento to work at the Golden Chariot Mine. While competing backcountry stagecoach lines had been battling for supremacy, the Atkinson brothers developed a shorter, maintained route up today's Foster Canyon grade in 1873. This route was aligned south and east of the Preserve. The brothers built a two-story tollhouse and stage stop at the top of the grade with Lemuel acting as Treasurer of the endeavor (Gallegos and Associates 2003; LeMenager 1989:67, 1990:62).

The County bought the road the following year, and appointed Henry Atkinson as Roadmaster for the roads in the district. The route was altered to the west along its northern section in 1875, splitting to the west and then running north through the Section 12 portion of the Property to reconnect with the Atkinsons' tollhouse, later called Shady Dell. A trail connecting the old and new routes is also visible on the 1903 Cuyamaca quadrangle; however, that connector is not indicated on later topographic maps. Lemuel Atkinson later became the local postmaster operating out of the tollhouse and, in 1882, obtained the patent to a 160-acre homestead east of the Property (Bowen and Ransom 1975:16–17, Gallegos and Associates 2003, Jordan et al. 2007a:19–20, LeMenager 1989:65).

By 1883, the Atkinson Toll Road was a disgrace, as reported in the *San Diego Union* newspaper on April 25 of that year. The road was plagued by flooding, with washed out sections, rutting, and exposed boulders. Born in Sacramento, Joseph Foster was appointed overseer of roads and in an effort to solve the problems covered the road with straw. By 1880, Foster had purchased a ranch and apiary originally homesteaded by Robert Rea, which served as the stage stop at the foot of the Atkinson Grade at the north end of Moreno Valley south of the Property. This spot came to be known as Foster, and is now separated from the Preserve by the San Vicente Reservoir (Gallegos and Associates 2003, LeMenager 1989:68–69).

Though the toll road was officially a County road, Foster's oversight of the roads in the area led the old Atkinson Toll Road from San Diego to Julian to be known later as the Foster Truck Trail. The original road running east and south of the Preserve is today marked on topographic maps as the "Foster Truck Trail (Boulder Oaks Spur).". In 1883, in response to the problems with the road, a new alignment up Mussey Grade east of the Property was routed along a lower elevation, taking advantage of that valley's 4 to 5% grade, in contrast to the 15 to 17% grade travelers battled up the Atkinson Toll Road. The contract to develop the route was awarded 3 years later. Earlier, Joseph Foster partnered with his friend Frank Frary to open a stage line that ran from San Diego to Julian, ferrying people and goods to and from the mines. In 1889, the San Diego, Cuyamaca & Eastern railroad was completed to Foster, but failed to raise enough capital to expand to Julian. This allowed Foster and Frary's stage line—originally running from San Diego to the Julian mines—to continue to provide service to Julian. The line ran from the railroad terminus at Foster up Mussey Grade, employing four-horse Concord stages. In addition to the

yields of the mines, hay, grain, wool, oak, and wood was carried along Mussey Grade (Gallegos and Associates 2003; LeMenager 1989:69–70, 101–103, 105).

Several settlers had taken up residence in the vicinity of the Preserve by the 1890s. A. W. Mussey resided to the east of Foster's Station, and the Keith family settled in 1890 at Vernal Vale Farm adjacent to the existing Preserve. Other early settlers such as Augustus Barnett settled in the San Vicente Valley and helped to establish the newly subdivided settlement of Nuevo whose town hall he helped build in 1893. A hand drawn sketch map and notes from 1950 indicate that a Mrs. Mathews lived midway along the west side of the old Atkinson Toll Road easterly route as early as 1887 (Gallegos and Associates 2003, Jordan et al. 2007b:21, LeMenager 1990:102–103).

Into the early twentieth century, residents were still waiting for improvements to the area roads. Anticipated extensions of the railroad from Foster to Ramona never materialized, and renewed emphasis was placed on road improvements. Postmaster Thomas Jerman headed a petition proposing road improvements to encourage automobile travel to the backcountry. Mussey Grade Road became the main thoroughfare for automobile travel, and served as part of the Automobile Club of Southern California's Lakeside to Ramona day trip route. By 1914, Foster's coaches gave way to automobiles, serving residents, weekend visitors, day-trippers, and tourists taking advantage of recreation like the Ramona Tent Village. In 1926 Mussey Grade Road was concreted. Sometime between 1928 and 1939, the east-west trending Foster Truck Trail, formerly known as a "fire trail," met up with the western spur of the Atkinson Toll Road near the southern boundary of the Property (Gallegos and Associates 2003; Jordan et al. 2007b:21, 26, 31; LeMenager 1989:71).

1.1.4 Records Search Results

ICF requested the staff of the South Coastal Information Center (SCIC) at San Diego State University to conduct a cultural resources records search at their repository as part of research conducted for the Preserve in 2007 and 2013. The purpose of the searches was to identify any previously recorded cultural resources inside or within 0.25 mile of the Preserve and to assess the potential for certain resource types within its boundaries. Also included in the search were those cultural resources studies that have been conducted inside or within 0.25 mile of the Preserve. Details on the records search results can be found in the cultural resources studies for those projects.

Previous Studies

Thirty-five cultural resources studies are on record at the SCIC as having occurred inside or within 0.25 mile of the Preserve, including three that were completed by ICF for the County of San Diego Department of Parks and Recreation (DPR) after acquisition of the Preserve parcels. All portions of the Preserve have been surveyed and inventoried for cultural resources, with some areas being covered by more than one survey.

Previously Recorded Sites in the Study Area

The SCIC cultural resources records search and subsequent cultural resources surveys identified a total of 95 cultural resources that have been recorded within 0.25 mile of the Preserve, of which 13 are within 20 feet and 6 are within 50 feet of the proposed trails. The 19 resources include 8 historic age resources consisting primarily of built resources, and the 11 prehistoric resources consist primarily of bedrock milling sites and isolated artifacts (Table 1).

Table 1. Cultural Resources Located Within 50 Feet or Less of Proposed Trails

Primary No. P-	Site Trinomial	Site Description	Significance for NRHP/CRHR
*37-012821	CA-SDI-12821	Historic – Residence site, associated structures, and an olive grove	Low – individual Low – district contributor
*37-017080	CA-SDI-15113	Prehistoric – Bedrock milling site	Low – limited subsurface potential
*37-017081	CA-SDI-15114	Prehistoric – Bedrock milling site	High – has subsurface potential; previously recommended eligible
*37-019215		Historic – A historic road, Mussey Grade Road (1880s)	Moderate, California Point of Historical Interest
*37-024202		Historic – A historic structure, building foundation, and trash scatter (ca.1938)	Low – recommended not eligible
37-019210	CA-SDI-15888	Prehistoric – Bedrock milling feature	Moderate – may have subsurface potential
37-028313		Prehistoric – Isolate flake	None
*37-028317		Historic – Reservoir/pond and dam	Low – individual Low – district contributor
*37-028320		Historic – Reservoir/pond and dam	Low – individual Low – district contributor
37-033049	CA-SDI-20818	Prehistoric – Habitation site, bedrock milling features, ground stone, flaked stone, ceramics, faunal remains	High – may have subsurface potential
37-033052		Prehistoric – Isolate two brownware sherds	None
*37-033053		Prehistoric – Isolate mano	None
*37-028319	CA-SDI-18337	Prehistoric – Bedrock milling feature and sparse lithics	High – may have subsurface potential
37-0268632	CA-SDI-18410	Prehistoric – Single bedrock milling feature	Moderate – may have subsurface potential
*37-033054	CA-SDI-20820	Prehistoric – Bedrock milling with flaked stone and ground stone artifacts	Moderate – may have subsurface potential
*37-033057		Prehistoric – Isolate mano fragment	None
*37-033058		Barbecue pit and picnic area features	Low – individual Low – district contributor
*37-033063		Historic – Gate feature	Low – individual Low – district contributor
37-033067		Historic – Reservoir system, check dams, basin, spillway channel etc.	Low – individual Low – district contributor

*Within 20 feet of a proposed trail.

1.2 Applicable Regulations

The Project falls under County and state legislative jurisdiction. The lead reviewing agency is the County of San Diego. California state law regarding cultural resources is primarily embodied in

CEQA Section 15064.5, as amended. CEQA establishes principles for cultural resource preservation and criteria for the identification of important resources. Local implementation of CEQA is accomplished by County ordinances including Section 396.7 of the San Diego County Administrative Code establishing the San Diego County Local Register of Historical Resources, and through the County of San Diego RPO, a compilation of ordinances nos. 7968, 7739, and 7631. The current evaluation study is intended to comply with and fulfill the requirements under CEQA and County of San Diego for the protection of Historical Resources eligible for the Local Register or for protection under the County's RPO.

1.2.1 California Environmental Quality Act

CEQA requires public agencies to evaluate the implications of their project(s) on the environment and includes significant historic resources as part of the environment.

According to CEQA, a project that causes a *substantial adverse change* in the significance of a *historical resource* or a *unique archaeological resource* has a significant effect on the environment (CEQA Guidelines 15064.5, Public Resources Code [PRC] Section 21083.2). CEQA defines a *substantial adverse change* as:

- Physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired; or
- Demolition or material alteration of the physical characteristics that convey the resource's historical significance and justify its designation as a *historical resource*

Public agencies must treat any cultural resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant (Title 14 California Code of Regulations [CCR], Section 15064.5). A historic resource is considered significant if it meets the definition of *historical resource* or *unique archaeological resource*. Criteria for evaluation are discussed in Section 2.

1.2.2 San Diego County Local Register of Historical Resources

Section 396.7 of the San Diego County Administrative Code establishes the San Diego County Local Register of Historical Resources. In Section II the stated purpose of "the Local Register is an authoritative listing and guide to be used by local agencies, private groups, and citizens in identifying historical resources within the County. In addition, the listing shall also be used as a management tool for planning, and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change."

The term *historical resource* is used in the Local Register for all types of individual prehistoric or historic resources and the term historic district applies to a collectively related group of historical resources within a contiguous geographic area. Criteria for evaluation are discussed in Section 2.

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2.0 GUIDELINES FOR DETERMINING SIGNIFICANCE

2.1 CEQA Guidelines

CEQA requires public agencies to evaluate the implications of their project(s) on the environment and includes significant historic resources as part of the environment.

The term *historical resource* includes, but is not limited to any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California Public Resources Code (PRC 5020.1(j)). Historical resources may be designated as such through three different processes:

1. Official designation or recognition by a local government pursuant to local ordinance or resolution (PRC 5020.1(k))
2. A local survey conducted pursuant to PRC 5024.1(g)
3. The Preserve is listed in or eligible for listing in the National Register of Historic Places (NRHP) (PRC 5024.1(d)(1))

The process for identifying historical resources is typically accomplished by applying the criteria for listing in the California Register of Historical Resources (CRHR) (14 CCR 4852), which states that a historical resource must be significant at the local, state, or national level under one or more of the following four criteria:

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

To be considered a historical resource for the purpose of CEQA, the resource must also have *integrity*, which is the authenticity of a resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance.

Resources, therefore, must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling and association. It must also be judged with reference to the particular criteria under which a resource is eligible for listing in the CRHR (14 CCR4852(c)).

A *unique archaeological resource* is defined in PRC 21083.2 as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and for which there is a demonstrable public interest
- Has a special and particular quality such as being the oldest of its type or the best available example of its type
- Is directly associated with a scientifically recognized important prehistoric or historic event or person

In most situations, resources that meet the definition of a unique archaeological resource also meet the definition of historical resource. As a result, it is current professional practice to evaluate cultural resources for significance based on their eligibility for listing in the CRHR. For the purposes of this CEQA cultural resources study, a resource is considered significant if it meets the CRHR eligibility (significance and integrity) criteria. Individual resource assessments of eligibility are provided in this report.

2.2 County Guidelines

Section V, subsection (b), of Section 396.7 of the San Diego County Administrative Code specifies the following criteria for evaluating the significance of historical resources. A historical resource must be significant at the local level under one or more of the following four criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of San Diego County's history and culture heritage;
2. Is associated with the lives of persons important to the history of San Diego County or its communities;
3. Embodies the distinctive characteristics of a type, period, San Diego County region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded or may be likely to yield, information important in prehistory or history.

Resource integrity is addressed in Section V, subsection (c). *Integrity* is the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance.

3.0 ANALYSIS OF PROJECT EFFECTS

3.1 Methods

3.1.1 Field Methods

The current study did not involve original fieldwork for the trails, but rather is based on the results of previous inventories conducted for the entire Preserve (Jordan et al. 2007a, 2007b; Crawford 2013) and subsequent survey in 2018 for the ADA trail (McGinnis 2018). The reports also included the results of records searches that were undertaken for the Preserve and a 0.25-mile buffer around the Preserve.

3.1.2 Laboratory and Cataloging Procedures and Curation

Not applicable to the current study.

3.1.3 Native American Participation

Native American participation and contact was conducted during the previous inventories for the Preserve, and the results are summarized below. A letter was sent to the Native American Heritage Commission (NAHC) on February 23, 2007, for the southern 1,268 acres of the Preserve. Mr. Dave Singleton of the NAHC spoke with Project Director Dr. Stacey C. Jordan via telephone on March 5, 2007, to confirm the location of the property, and a response letter from the NAHC dated March 2, 2007, was received via fax on March 15, 2007. A search of the NAHC Sacred Lands File failed to indicate the presence of resources in the immediate area of the Project. On March 19, 2007, letters were sent to the local Native American contacts provided by the NAHC requesting further consultation. On March 21, 2007, an email response from Clint Linton of the Santa Ysabel Band of Diegueño Indians was received. Mr. Linton requested in his response that a Native American Monitor be present during each survey. Mr. Linton also provided an analysis of Kumeyaay interpretation of Yoni features.

ICF archaeologist Robin Hoffman, MA, sent a letter to the NAHC on February 6, 2013, for the then recently acquired north parcel (752-acres) requesting a review of the Sacred Lands File. A response letter from Dave Singleton of the NAHC, dated February 12, 2013, was received via fax the same day. The search of the Sacred Lands files by the NAHC did not indicate the presence of Native American sacred lands within the immediate vicinity of the Preserve but did include a list of 20 local Native American contacts who may have additional information. However, the NAHC response letter stated that the negative results of the search were for the "immediate project areas of the "Community of Templeton." As a result, on February 19, 2013, ICF requested confirmation from NAHC that the Sacred Lands File results pertained to the current study. Singleton replied the same day with a revised results letter referring to the north parcel; this letter included the same Native American contacts and also indicated that the Sacred Lands File has no record of any Native American sacred lands within the immediate vicinity of the north parcel.

On February 22, 2013, ICF sent letters to each of the 20 Native American contacts provided by the NAHC. The letters described the Project, cultural resources survey, and NAHC and SCIC records search results. Also, the letters invited contacts to share, if so desired, information that they may have about any Native American cultural resources in the vicinity of, or in, the north parcel. No responses have been received to date.

During the field survey in for the ADA trail in 2018, Ms. Carmen Lucas of the Kwaaymii Band of Laguna Indians was present. The purpose of Ms. Lucas' presence during the survey was to solicit input from Native American representatives on the proposed trail system and identify any Native American resources of concern. Ms. Lucas asked that the trails avoid cultural resources whenever possible and that monitoring by Native Americans be conducted when trails were constructed.

3.2 Results

The following discussion presents the resources identified during cultural resources inventories for the Preserve.

3.2.1 Preserve Multi-use Trail System

The multi-use trail system has the potential to impact specific, identifiable resources. Those resources are discussed here, according to trail type (existing trails, new trails, and the ADA trail). It should be noted that some cultural resources may be in proximity to more than one trail. Detailed descriptions and site records for the resources can be found in Jordan et al. (2007a,b) and Crawford (2013). A total of 19 cultural resources are within 50 feet of the proposed trails, including existing trails, new trails, and the ADA trail.

Existing Trails

Existing trails will be utilized in portions of the Preserve. Approximately 6.7 miles of existing trails would continue to remain active for future use. Eleven cultural resources are either intersected by existing trails or within 20 feet of an existing trail. One is a prehistoric site, which is a minor bedrock milling site consisting of outcrops of rock with milling features and scattered lithics. Seven are historic age resources consisting of a road, two reservoirs, and associated features; a residence complex, standing structure remains and associated refuse; a metal gate; and built features associated with a picnic area. The three remaining resources are prehistoric isolated mano fragments and a complete mano. Existing trails and roads would be maintained to their current widths and depths. As currently proposed, the trail segments should not impact cultural resources. Any adjustments to the proposed route would need to take these resources into consideration.

New Trails

New native trails would be created on 5.7 miles of the Preserve. The new trails would be primitive in nature, and would be approximately 2 to 4 feet wide. Proposed new trails have been routed to avoid prehistoric resources with potential subsurface deposits located within 20 feet of the trail. Three cultural resources have been identified within 20 feet of the new trails; however,

none of these contain subsurface deposits. One of the resources is an isolated prehistoric mano (also near an existing trail), the other two are a historic period reservoir and a historic period metal gate. As currently proposed, the trail segments should not impact cultural resources. Any adjustments to the proposed route would need to take these resources into consideration.

ADA Trail

A 1.5-mile ADA trail would be constructed in the northern portion of the Preserve. The ADA-compliant trail would be 8 feet wide (4 feet per side) and would include 60-inch resting/passing areas staggered every 1,000 feet. Both sides of the trail would be graded and paved with decomposing granite (DG) including stabilized DG on the ADA trail.

Six cultural resources are located within 20 feet of the proposed ADA trail. These six resources include three prehistoric bedrock milling sites, historic age standing structure remains and associated refuse, a historic age built features associated with a picnic area, and an isolated prehistoric mano. The historic age resources are highly unlikely to have subsurface deposits associated with them and are easily avoided. The ADA trail was designed to skirt the prehistoric bedrock milling sites, specifically CA-SDI-15114, which was previously tested and evaluated, and recommended as eligible for the CRHR for its research potential. Subsurface survey was undertaken to identify if subsurface deposits are present in the current alignment near CA-SDI-15114. Although a few additional surface artifacts were identified, no subsurface deposits were evident where the trail abuts the prehistoric resources.

3.2.2 Infrastructure Improvements

Infrastructure improvements consist of a staging area, restroom facility, picnic areas/shade structures, and new volunteer pad. Three staging areas are proposed for the construction of the Project. Staging Area 1 would cover 0.29 acre and would have 16 passenger vehicle spaces, Staging Area 2 would cover 0.89 acre and would have 8 pull-through equestrian spots, and Staging Area 3 would cover 0.16 acre and would have 8 passenger vehicle spaces. New picnic areas would be sited within staging areas or previously disturbed areas.

The existing restroom structure adjacent to the ranger station would be reconstructed to provide two bathroom stalls and an ADA-accessible restroom. The existing structure is approximately 15 by 15 feet and would increase to 20 by 20 feet. The current septic system would be assessed and expanded to increase capacity for the remodeled restroom facility. It is anticipated the proposed septic system would be increased up to 150 linear feet, and would be no greater than 36 inches deep. Any expansion of the septic leach field would be confined to the southeast of the existing restroom facility within the previously disturbed, urban/developed areas.

The proposed volunteer pad would be constructed adjacent to the existing volunteer pad, south of the ranger station. Proposed infrastructure improvements would all occur near easily avoidable historic age built resources. The locations of the volunteer pad and associated temporary construction staging areas were chosen to avoid known cultural resources and previously undisturbed soils. Figure 3 depicts cultural resources and project components and can be found in the attached Confidential Appendix A.

Table 2. Cultural Resources Within a 50-Foot Buffer of Proposed Trails and Project Components

Primary No. P-	Site Trinomial	Project Component Type	Site Description	Significance for NRHP/CRHR	Impacts and Recommended Mitigation
*37-012821	CA-SDI-12821	Existing trail	Historic – Residence site, associated structures, and an olive grove	Low – individual Low – district contributor	Avoid
*37-017080	CA-SDI-15113	ADA trail	Prehistoric – Bedrock milling site	Low-limited subsurface potential	Avoid and monitor
*37-017081	CA-SDI-15114	ADA trail	Prehistoric – Bedrock milling site	High-has subsurface potential. Previously recommended eligible	Avoid and monitor
*37-019215		Existing trail	Historic – A historic road, Mussey Grade Road (1880s)	Low	Avoid ground disturbance outside existing roadway
*37-033057		New trail/ Existing trail	Prehistoric – Isolate granitic mano	None	None
*37-024202		ADA trail/ Existing trail	Historic – A historic structure, building foundation, and trash scatter (ca.1938)	Low – recommended not eligible	Avoid ground disturbance and monitor
37-019210	CA-SDI-15888	Existing trail	Prehistoric – Bedrock milling feature	Moderate – may have subsurface potential	Avoid and monitor
37-028313		Existing trail	Prehistoric – Isolate flake	None	None
*37-028317		Existing trail	Historic – Reservoir/ pond and dam	Low – individual Low – district contributor	Avoid
*37-028320		New trail/ Existing trail	Historic – Reservoir/ pond and dam	Low – individual Low – district contributor	Avoid
37-033049	CA-SDI-20818	Existing trail	Prehistoric – Habitation site, bedrock milling features, ground stone, flaked stone, ceramics, faunal remains	High – may have subsurface potential	Avoid ground disturbance and monitor
37-033052		Existing trail	Prehistoric – Isolate two brownware sherds	None	None
*37-033053		ADA trail/ Existing trail/ Staging Area 2	Prehistoric – Isolate mano	None	None
*37-028319	CA-SDI-18337	Existing trail	Prehistoric – Bedrock milling feature and sparse lithics	High – may have subsurface potential	Avoid ground disturbance and monitor
37-028632	CA-SDI-18410	New trail	Prehistoric – Single bedrock milling feature	Moderate – may have subsurface potential	Avoid and monitor

Primary No. P-	Site Trinomial	Project Component Type	Site Description	Significance for NRHP/CRHR	Impacts and Recommended Mitigation
*37-033054	CA-SDI-20820	ADA trail	Prehistoric – Bedrock milling with flaked stone and ground stone artifacts	Moderate – may have subsurface potential	Avoid and monitor
*37-033058		ADA trail/ Existing trail	Barbecue pit and picnic area features	Low – individual Low – district contributor	Avoid
*37-033063		New trail/ Existing trail	Historic – Gate feature	Low – individual Low – district contributor	Avoid
37-033067		New trail/ Existing trail	Historic – Reservoir system, check dams, basin, spillway channel etc.	Low – individual Low – district contributor	Avoid

*Within 20 feet of a proposed trail.

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4.0 INTERPRETATION OF RESOURCE IMPORTANCE AND IMPACT IDENTIFICATION

4.1 Resource Importance

Of the numerous cultural resources in the Preserve, 19 have been identified that might be impacted by specific features of the Preserve PAP, including the trail system and infrastructure improvements.

4.2 Impact Identification

4.2.1 Preserve Multi-use Trail System

Improvements to existing trails will be minimal and will be limited to future road maintenance—which will confine activities to the existing trails and will not involve ground-disturbing activity—and erosion control. Impacts related to continued use of the existing roads/trails would not differ in kind from the impacts resources along the trails have already experienced. For this reason, it is not anticipated that the resources located in areas of existing trails would suffer direct impacts from trail use or maintenance.

It is possible, however, that resources in the vicinity of the existing trails might be impacted by visitor-caused damage, such as looting or vandalism. Ms. Carmen Lucas of the Kwaaymii Band of Laguna Indians identified this as a concern for the resources in the vicinity of the trails. Most of the prehistoric resources in the vicinity of the trails are isolated resources or small milling stations with few associated artifacts. They were identified as sensitive resources that, because of the Preserve's inviting geographical location, might draw unwanted visitor attention. Also, any of the resources located along the existing trails may contain artifacts that could be collected by visitors. For these reasons, avoidance and protective fencing will be adopted as critical project design elements for both of these situations and implemented.

Unlike existing trail reuse, new trail construction does have the potential to directly affect cultural resources along the route of the trail. Importantly, however, all new trail segments within the boundaries of the Preserve, including temporary construction staging areas, as well as the ADA trail, were located to avoid cultural resources. As such, it is not anticipated that construction of new trail segments will impact cultural resources. An exception to this is a 1,000-foot-long section of the northwest portion of the ADA trail adjacent to three cultural resources. The route of the trail has been adjusted to avoid these resources entirely. However, the potential exists that the sites may extend outside their currently understood boundaries. An archaeological monitor and Native American monitor is recommended to be present during construction in sensitive areas near cultural resources (Mitigation measure MM-1).

In addition, it is possible that ground-disturbing activity, even in areas with no known cultural resources, could impact previously unrecorded cultural resources and human remains. For this reason, provisions for the unanticipated discovery of unrecorded cultural resources and human remains are included below (Mitigation Measures MM-1 and MM-2).

4.2.2 Preserve Infrastructure Improvements

Lastly, infrastructure improvements, which would involve ground-disturbing activity, such as trenching of an existing water line and grading for parking, also have the potential to damage or destroy cultural resources. Infrastructure improvements would occur primarily in disturbed portions of the Preserve. However, an isolated mano has been recorded immediately adjacent to Staging Area #2.

5.0 MANAGEMENT CONSIDERATIONS—MITIGATION MEASURES AND DESIGN CONSIDERATIONS

5.1 Mitigatable Impacts

There are no unavoidable impacts that cannot be reduced through mitigation. To reduce impacts to less-than-significant levels, the following mitigation measures shall be implemented.

MM-1: Monitoring. All ground-disturbing activity related to implementation of the Project, including installation of trail signage, potential construction, trenching, and grading associated with trail installation, shall be monitored by a qualified archaeologist and, where the resource involved is a prehistoric archaeological site, by a Native American representative. If cultural resources are discovered during monitoring, all work within 50 feet of the discovery shall stop until a qualified archaeologist can evaluate the find and make appropriate recommendations for treatment.

MM-2: Protection of Human Remains. Any ground-disturbing activities on the Preserve must be considered as having the potential to encounter Native American human remains. Human remains require special handling and must be treated with appropriate dignity. Specific actions must take place pursuant to State CEQA Guidelines Section 15064.5e; PRC Section 5097.98; and Section 87.429 of the County of San Diego Grading, Clearing and Watercourses Ordinance.

Should Native American human remains be identified during ground-disturbing activities related to the Project, whether during construction, maintenance, or any other activity, state and county mandated procedures shall be followed for the treatment and disposition of those remains, as follows:

In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, DPR shall ensure that the following procedures are followed:

1. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
    a. A County (DPR) official is contacted.
    b. The County Coroner is contacted to determine that no investigation of the cause of death is required.
    c. If the Coroner determines the remains are Native American, then:
        i, The coroner shall contact the NAHC within 24 hours.
        ii. The NAHC shall identify the person or persons it believes to be most likely descended from the deceased Native American.
        iii. The Most Likely Descendent (MLD) may make recommendations to the landowner (DPR), or the person responsible for the excavation work, for the

treatment of human remains and any associated grave goods as provided in PRC Section 5097.98.

2. Under the following conditions, the landowner or its authorized representative shall rebury the Native American human remains and associated grave goods on the Preserve in a location not subject to further disturbance:
    a. The NAHC is unable to identify a MLD or the MLD fails to make a recommendation within 24 hours after being notified by the NAHC.
    b. The MLD fails to make a recommendation.
    c. The landowner or his authorized representative rejects the recommendation of the MLD, and mediation by the NAHC fails to provide measures acceptable to the landowner.
3. Any time human remains are encountered or suspected and soil conditions are appropriate for the technique, ground penetrating radar (GPR) shall be used as part of the survey methodology. In addition, the use of canine forensics will be considered when searching for human remains. The decision to use GPR or canine forensics will be made on a case-by-case basis through consultation among the County Archaeologist, the project archaeologist, and the Native American monitor.
4. Because human remains require special consideration and handling, they must be defined in a broad sense. For the purposes of this document, human remains are defined as:
    a. Cremations, including the soil surrounding the deposit.
    b. Interments, including the soils surrounding the deposit.
    c. Associated grave goods.

In consultation among the County archaeologist, project archaeologist, and Native American monitor, additional measures (e.g., wet-screening of soils adjacent to the deposit or on site) may be required to determine the extent of the burial.

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8.0 LIST OF CRITICAL PROJECT DESIGN ELEMENTS, MITIGATION MEASURES AND DESIGN CONSIDERATIONS

Critical Project Design Elements (CPDE)	Design Consideration
CPDE-1: Avoidance. Prior to the construction of any new trail segments or the proposed bridge, all of which were located to avoid cultural resources, the locations of new construction shall be field checked by a qualified archaeologist to ensure that they do indeed avoid known cultural resources. If avoidance is infeasible, the resource should be evaluated for significance by a qualified archaeologist, per County guidelines. All trail signs, markers, fencing, and gates in the Preserve should be placed in areas that avoid known cultural resources. If this recommendation cannot be met, MM-1 shall be followed during installation.	Avoidance; Use of passive vegetation restoration
CPDE-2: Protective Fencing. Permanent split rail fencing with signage (e.g., signs that read "Please Stay on Trail") shall be placed along the trail route in the northwest portion of the Preserve in the vicinity of CA-SDI-15114, a sensitive cultural resource identified by Native American representations. The fencing should be placed along that portion of the trail from which the site can be accessed in order to protect the resource from unauthorized visitation.	Avoidance
Mitigation Measures	**Design Consideration**
MM-1: Monitoring. All ground-disturbing activity related to implementation of the Project, including installation of trail signage, potential building removal, trenching, and grading associated with trail maintenance, shall be monitored by a qualified archaeologist and, where the resource involved is a prehistoric archaeological site, by a Native American representative. If cultural resources are discovered during monitoring, all work within 50 feet of the discovery shall stop until a qualified archaeologist can evaluate the find and make appropriate recommendations for treatment.	Avoidance; Test and evaluation if avoidance is infeasible
MM-2: Protection of Human Remains. Any ground-disturbing activities on the Preserve must be considered as having the potential to encounter Native American human remains. Human remains require special handling and must be treated with appropriate dignity. Specific actions must take place pursuant to State CEQA Guidelines Section15064.5e; PRC Section 5097.98; and Section 87.429 of the County of San Diego Grading, Clearing and Watercourses Ordinance. Should Native American human remains be identified during ground-disturbing activities related to the Project, whether during construction, maintenance, or any other activity, state and county mandated procedures shall be followed for the treatment and disposition of those remains, as follows:	Avoidance

Critical Project Design Elements (CPDE)	Design Consideration
In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, DPR shall ensure that the following procedures are followed: 1. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until: a. A County (DPR) official is contacted. b. The County Coroner is contacted to determine that no investigation of the cause of death is required. c. If the Coroner determines the remains are Native American, then: i, The coroner shall contact the NAHC within 24 hours. ii. The NAHC shall identify the person or persons it believes to be most likely descended from the deceased Native American. iii. The Most Likely Descendent (MLD) may make recommendations to the landowner (DPR), or the person responsible for the excavation work, for the treatment of human remains and any associated grave goods as provided in PRC Section 5097.98. 2. Under the following conditions, the landowner or its authorized representative shall rebury the Native American human remains and associated grave goods on the Preserve in a location not subject to further disturbance: a. The NAHC is unable to identify a MLD or the MLD fails to make a recommendation within 24 hours after being notified by the NAHC. b. The MLD fails to make a recommendation. c. The landowner or his authorized representative rejects the recommendation of the MLD, and mediation by the NAHC fails to provide measures acceptable to the landowner. 3. Any time human remains are encountered or suspected and soil conditions are appropriate for the technique, ground penetrating radar (GPR) shall be used as part of the survey methodology. In addition, the use of canine forensics will be considered when searching for human remains. The decision to use GPR or canine forensics will be made on a case-by-case basis through consultation among the County Archaeologist, the project archaeologist, and the Native American monitor.	

Critical Project Design Elements (CPDE)	Design Consideration
4. Because human remains require special consideration and handling, they must be defined in a broad sense. For the purposes of this document, human remains are defined as: a. Cremations, including the soil surrounding the deposit. b. Interments, including the soils surrounding the deposit. c. Associated grave goods. In consultation among the County archaeologist, project archaeologist, and Native American monitor, additional measures (e.g., wet-screening of soils adjacent to the deposit or on site) may be required to determine the extent of the burial.	

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CONFIDENTIAL – APPENDIX A
Resource Location Maps
Not for Public Review
Attached under separate cover

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