Appendix B
Biological Technical Report

ROCKS
BIOLOGICAL CONSULTING



MERIDIAN STORM DRAIN PROJECT

BIOLOGICAL TECHNICAL REPORT

Riverside County, California

June 9, 2023

Prepared for:
Kimley-Horn and Associates, Inc.
401 B Street #600
San Diego, CA 92101
(858) 234-2400

Prepared by:
Rocks Biological Consulting
4312 Rialto Street
San Diego, CA 92107
(619) 701-6798

Table of Contents

TABLES

FIGURES

APPENDICES

1 Introduction

The March Joint Powers Authority (JPA) proposes to construct a storm drain pipeline, the Meridian Storm Drain (project), in Riverside County, California. The project is located in Riverside County within the U.S. Geological Survey (USGS) 7.5-minute series quadrangle map Riverside East (USGS 2022a), west of Interstate 215 (I-215) and the abutting railroad tracks, south of Van Buren Boulevard, north of the southern terminus of Avenue A, and east of Riverside National Cemetery (Figure 1).

The project site is relatively flat and supports primarily disturbed habitats and developed lands. Surrounding land uses include ornamental vegetation, roads, industrial and residential development, a cemetery, and disturbed land. In addition, approximately 0.01 acre (91 linear feet) of potential non-wetland, ephemeral U.S. Army Corps of Engineers (Corps)/Regional Water Quality Control Board (RWQCB) waters of the U.S./State and California Department of Fish and Wildlife (CDFW) channel occurs within the project site; temporary impacts resulting from the proposed project are anticipated on this potential jurisdictional feature.

This Biological Technical Report (BTR) includes a description of the existing biological resources within and adjacent to the proposed project footprint; details the methods used to assess existing conditions and potential impacts on sensitive habitats and species; and presents potential avoidance, minimization, and mitigation measures to reduce potential project impacts.

1.1 PROJECT DESCRIPTION

1.1.1 PROJECT LOCATION

The proposed alignment of the project is located within the unincorporated area of Riverside County on the west side of the I-215 and Van Buren Boulevard interchange (Figure 1). The northernmost point of the alignment begins at an existing culvert located approximately 25 feet south of Van Buren Boulevard between I-215 and Avenue A. The alignment extends south for approximately 2,350 feet then turns east and connects to an existing double culvert that leads to a drainage system under the Riverside County Transportation Commission (RCTC) owned railroad tracks.

The project encroaches on a right-of-way owned by the federal government, specifically the Veterans Administration (VA) which manages the Riverside National Cemetery. The project is within an easement granted by the VA which is working in cooperation with the March JPA on these improvements.

1.1.2 PURPOSE AND NEED

March Air Force Base (AFB) was initially established as a military training field in February of 1918. March AFB was chosen for realignment in 1993, which resulted in a reduction of forces and re-designation of the base as an Air Reserve Base (ARB). The change in use required less acreage by the ARB and the March JPA was formed by the Cities of Moreno Valley, Perris, Riverside, and the County of Riverside to jointly oversee the management of the remaining land.

With regards to the project, the March JPA is planning to make a significant planned infrastructure improvements to better serve the Meridian Specific Plan project. The proposed project is the construction of a storm drain pipeline connecting a culvert near the Meridian Specific Plan project's southern boundary to an existing drainage system to the south, along the eastern side of Riverside National Cemetery (Figure 1).

1.1.3 PROJECT COMPONENTS

The project would construct an underground 6-foot by 4-foot Reinforced Concrete Box (RCB) from an existing 6-foot by 3-foot RCB at Van Buren Boulevard, extending approximately 2,350 linear feet south and connecting to existing dual 48-inch Reinforced Concrete Pipe (RCP)'s at the RCTC railroad right-of-way. The project would also include the removal and replacement of an existing asphalt maintenance access road and the removal and replacement of an existing retaining wall. Approximately 2.02 acres would be disturbed by the proposed project, including the construction staging area. The depth of the pipeline would be a minimum of 6 inches and a maximum depth of 9 feet below the existing surface.

The limits of construction along the proposed storm drain alignment would be within an approximately 36-foot-wide area along the 2,350-foot alignment In addition to construction of the RCP, construction activities along the alignment would include trenching, staging of material, replacement of a retaining wall, and replacement of the access road. The 36-foot-wide area is within an existing 65-foot-wide sanitary sewer and storm sewer easement.

Staging Area

An approximately 0.11-acre construction staging area would be located on the south side of Van Buren Boulevard between the sewer line and storm drain alignments. This area is where construction equipment and materials would be temporarily stored during the construction process, which is estimated to take six months. Once construction activities are complete, this area would be restored to existing conditions and would remain undeveloped. With the staging area, the total project footprint is approximately 2.02 acres. (Figure 2).

1.1.4 MERIDIAN TRUNK SEWER PROJECT

The majority of the proposed project impact area overlaps with the recent Meridian Trunk Sewer (MTS) project impact area (1.51 acres of 2.02 acres; Figure 2). The MTS project was constructed in 2019 – 2020 to increase the capacity of the existing trunk sewer and accommodate new development north of the line. RBC conducted the general biological surveys, aquatic resources delineation, and special-status species surveys for the MTS project. Where appropriate, information from those surveys is discussed within this report; note that all areas of the proposed project site were examined to confirm that site conditions had not significantly changed since preparation of the *Biological Report for the Meridian Trunk Sewer Project* report (RBC 2019).

1.2 REGULATORY FRAMEWORK

Several regulations have been established by federal, state, and local agencies to protect and conserve biological resources. The descriptions below provide a brief overview of agency

regulations that may be applicable to the project. The final determination as to what types of permits are required is made by the regulating agencies.

1.2.1 FEDERAL REGULATIONS

Federal Endangered Species Act

The federal Endangered Species Act of 1973 (ESA; 16 U.S.C. § 1531 et seq.), as amended, provides for listing of endangered and threatened species of plants and animals and designation of critical habitat for listed species. The ESA regulates the "take" of any endangered fish or wildlife species, per Section 9. As development is proposed, the responsible agency or individual landowner is required to consult with the United States Fish and Wildlife Service (USFWS) to assess potential impacts on listed species (including plants) or their critical habitat, pursuant to Sections 7 and 10 of the ESA. USFWS is required to make a determination as to the extent of impact a project would have on a particular species. If it is determined that potential impacts on a species would likely occur, measures to avoid or reduce such impacts must be identified. USFWS may issue an incidental take statement, following consultation and the issuance of a Biological Opinion. This allows for take of the species that is incidental to another authorized activity, provided that the action will not adversely affect the existence of the species. Section 10 of the ESA provides for issuance of incidental take permits to non-federal parties with the development of a habitat conservation plan (HCP); Section 7 provides for permitting of federal projects.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA; 16 U.S.C. § 703 et seq.) is a federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The number of bird species covered by the MBTA is extensive and listed at 50 Code of Federal Regulations (CFR) 10.13. The USFWS enforces the MBTA, which prohibits "by any means or in any manner, to pursue, hunt, take, capture, [or] kill" any migratory bird, or attempt such actions, except as permitted by regulation.

Clean Water Act

Pursuant to Section 404 of the Clean Water Act (CWA; 33 U.S. Code § 1251 et seq.), the Corps is authorized to regulate any activity that would result in the discharge of dredged or fill material into waters of the U.S. (including wetlands), which include those waters listed in 33 CFR 328.3 (51 Federal Register [FR] 41217, November 13, 1983; 53 FR 20764, June 6, 1988) and further defined by the 2001 *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC; 531 U.S. 159) decision and the 2006 *Rapanos v. United States* (547 U.S. 715) decision. The Corps, with oversight from the U.S. Environmental Protection Agency (USEPA), has the principal authority to issue CWA Section 404 permits. The Corps would require a Standard Individual Permit (SIP) for more than minimal impacts on waters of the U.S. as determined by the Corps. Projects with minimal individual and cumulative adverse effects on the environment may meet the conditions of an existing Nationwide Permit (NWP).

A Water Quality Certification or waiver pursuant to Section 401 of the CWA (33 U.S. Code § 1341) is required for all Section 404 permitted actions. The RWQCB, a division of the State Water

Resources Control Board (SWRCB), provides oversight of the Section 401 certification process in California. The RWQCB must certify "that there is a reasonable assurance that the activity will be conducted in a manner which will not violate water quality standards" (40 CFR 121.2(a)(3)). Water Quality Certifications must be based on the finding that a proposed discharge will comply with applicable water quality standards.

The National Pollutant Discharge Elimination System (NPDES) is the permitting program for discharge of pollutants into surface waters of the U.S. under Section 402 of the CWA (33 U.S. Code § 1342).

1.2.2 STATE REGULATIONS

California Environmental Quality Act

The California Environmental Quality Act (CEQA; California Public Resources Code § 21000 et seq.) was established in 1970 as California's counterpart to the National Environmental Policy Act (NEPA). CEQA requires state and local agencies to identify significant environmental impacts of their actions and to avoid or mitigate those impacts, where feasible.

CEQA applies to certain activities of state and local public agencies. A public agency must comply with CEQA when it undertakes an activity defined by CEQA as a "project." A project is an activity undertaken by a public agency or a private activity, which must receive some discretionary approval (meaning that the agency has the authority to deny the requested permit or approval) from a government agency that may cause either a direct physical change in the environment or a reasonably foreseeable indirect change in the environment.

California Endangered Species Act and Natural Community Conservation Planning Act

The California Endangered Species Act of 1984 (CESA; California Fish and Game Code [CFGC] § 2050 et seq.), in combination with the California Native Plant Protection Act of 1977 (CFGC § 1900 et seq.), regulates the listing and take of plant and animal species designated as endangered, threatened, or rare within the state. California also lists species of special concern based on limited distribution; declining populations; diminishing habitat; or unusual scientific, recreational, or educational value. The CDFW is responsible for assessing development projects for their potential to impact listed species and their habitats. State-listed special-status species are addressed through the issuance of a 2081 permit (Memorandum of Understanding).

In 1991, the California Natural Community Conservation Planning (NCCP) Act (CFGC § 2800 et seq.) was approved and the NCCP Coastal Sage Scrub program was initiated in Southern California. The NCCP program was established "to provide for regional protection and perpetuation of natural wildlife diversity while allowing compatible land use and appropriate development and growth." The NCCP Act encourages preparation of plans that address habitat conservation and management on an ecosystem basis rather than one species or habitat at a time.

California Fish and Game Code Sections 1600-1602

Pursuant to Division 2, Chapter 6, Section 1602 of the CFGC, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream or lake

that supports fish or wildlife. A Notification of Lake or Streambed Alteration must be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake" (CFGC § 1602). CDFW has jurisdiction over riparian habitats associated with watercourses and wetland habitats supported by a river, lake, or stream. Jurisdictional waters are delineated by the outer edge of riparian vegetation (i.e., drip line) or at the top of the bank of streams or lakes, whichever is wider. CDFW jurisdiction does not include tidal areas or isolated resources (e.g., riparian or wetland areas not supported by a river, lake, or stream). CDFW reviews the proposed actions and, if necessary, submits (to the applicant) a proposal that includes measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the applicant is the Lake or Streambed Alteration Agreement.

California Fish and Game Code Sections 3503, 3511, 3513, 3801, 4700, 5050, and 5515

CDFW protects and manages fish, wildlife, and native plant resources within California. The California Fish and Game Commission and/or CDFW are responsible for issuing permits for the take or possession of protected species. The following sections of the CFGC address protected species: Section 3511 (birds), Section 4700 (mammals), Section 5050 (reptiles and amphibians), and Section 5515 (fish). In addition, the protection of birds of prey is provided for in Sections 3503, 3513, and 3800 of the CFGC.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code § 13000 et seq.) provides for statewide coordination of water quality regulations. The SWRCB was established as the statewide authority and nine separate RWQCBs were developed to oversee water quality on a day-to-day basis. The RWQCBs have primary responsibility for protecting water quality in California. As discussed above, the RWQCBs regulate discharges to surface waters under the CWA. In addition, the RWQCBs are responsible for administering the Porter-Cologne Water Quality Control Act.

Pursuant to the Porter-Cologne Water Quality Control Act, the state is given authority to regulate waters of the state, which are defined as any surface water or groundwater, including saline waters. As such, any person proposing to discharge waste into a water body that could affect its water quality must first file a Report of Waste Discharge if a Section 404 permit is not required for the activity. "Waste" is partially defined as any waste substance associated with human habitation, including fill material discharged into water bodies.

1.2.3 REGIONAL AND LOCAL PLANS

Western Riverside Multiple Species Habitat Conservation Plan

The project occurs within an area covered by the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP; Dudek & Associates, Inc. 2003). Projects are covered under the MSHCP if the lead agency is signatory to the MSHCP. However, the March JPA is the lead agency for the project and is not a signatory to the MSHCP. As such, the project is not subject to MSHCP regulations, nor does it receive take authority granted under the MSHCP.

Riverside County Ordinance Nos. 499 and 559 – Tree Removal

Chapter 12.08 of the Riverside County Code of Ordinances provides regulations regarding roadside tree removal and trimming activities (County of Riverside 2004). In accordance with Unincorporated Riverside County Ordinance No. 499 (as amended through 499.11), a person or entity must obtain a permit from the County Transportation Director prior to removing trees or trimming any tree planted in the right of way of a County highway. If such removals are proposed, the County Transportation Director may impose conditions such as requirements for use of a qualified tree surgeon or trimmer; bond, insurance, or security to protect from damage; and relocation and/or replacement of one or more other trees.

Chapter 12.24 of the Riverside County Code of Ordinances also includes regulations related to tree removal (County of Riverside 2000). According to the Unincorporated Riverside County Ordinance No. 559 (as amended through 559.7), the removal of living native trees on parcels or property greater than 0.5 acre in size, located in the unincorporated Riverside County, and above 5,000 feet in elevation requires a permit. The project site elevation is below 5,000 feet and is not located within or propose any new County highways; as such, this ordinance is not applicable.

Riverside County Oak Tree Management Guidelines

Riverside County Oak Tree Management Guidelines address oak woodlands in areas where zoning and/or general plan density restrictions will allow the effective use of clustering (County of Riverside 1999). A biological study is required for properties that support oak trees on a lot size of 2.5 acres or greater. Protected oaks include any individual tree larger than 2 inches in diameter at breast height (DBH) or the sum of the DBH of multiple trunks. Protected species include *Quercus agrifolia*, *Q. chrysolepis*, *Q. engelmannii*, *Q. kelloggii*, *Q. morehus*, and *Q. wislezenii* (County of Riverside 1999).

Stephens' Kangaroo Rat Habitat Conservation Plan

The Stephens' Kangaroo Rat (*Dipodomys stephensi*) Habitat Conservation Plan (SKRHCP) was completed in 1996 by the Riverside County Habitat Conservation Agency, the CDFW, and the USFWS. The SKRHCP was created as a region-wide plan for species permitting and conservation so that individual projects could receive ESA take authority for the species through the County, rather than individually. The SKRHCP established seven "core reserves," totaling more than 41,000 acres, within a planning area of 533,000 acres. The Riverside County Habitat Conservation Agency is responsible for "completing" the reserves through the addition of land in fee simple or through the acquisition of easements. The SKRHCP also calls for the addition of 2,500 acres of occupied Stephens' kangaroo rat habitat into the reserves, for a total of 15,000 acres of occupied Stephens' kangaroo rat habitat within core reserves (Chamberlin 1998).

The project site is not located within a SKRHCP core reserve. March JPA is not a signatory the SKRHCP, however, the JPA can participate in the plan for project mitigation.

2 Methods

Rocks Biological Consulting (RBC) biologists conducted a general biological survey, vegetation mapping, an aquatic resources assessment, and special-status species habitat assessments within the 13.75-acre survey area (i.e., project site plus buffer), which included the approximately 2,350-foot project alignment with construction limit offsets and a 50-foot by 100-foot staging area (collectively referred to as the project site) and a 100-foot survey buffer. However, only the project site information is included in report impact calculations and tables, while the buffer is discussed in text and illustrated within the figures for informational purposes and edge effects analysis.

Note that survey buffer areas are included in this analysis in order to assess the potential for special-status species or resources in areas immediately adjacent the project site that could be impacted by the project analyzed herein. Such information should not be considered comprehensive for all biological resources or aquatic resources that may occur in buffer areas, and buffer mapping is intended only for the project analysis outlined herein; such information is not intended for impact analysis of any future projects within or adjacent to project buffer areas.

2.1 DATABASE SEARCH

Prior to conducting field surveys, existing information regarding biological resources present or potentially present within the survey area was obtained through a review of pertinent literature and databases, including, but not limited to:

- CDFW California Natural Diversity Database (CNDDB; CDFW 2022a)
- California Native Plant Society (CNPS) Electronic Inventory (CNPS 2022a)
- Database of threatened/endangered USFWS species (USFWS 2022a)
- USFWS Information for Planning and Consultation (IPaC) Database (USFWS 2022b)
- National Wetlands Inventory (NWI) Database (USFWS 2022c)
- Natural Resources Conservation Service (NRCS) Soils Survey Database (NRCS 2022)
- USGS National Hydrography Dataset (NHD) Database (USGS 2022b)

RBC queried CDFW's CNDDB (CDFW 2022a) and the database of threatened/endangered USFWS species (USFWS 2022a) for a three-mile radius around the project site. A CNPS Electronic Inventory (CNPS 2022a) search was conducted for the nine USGS 7.5' quadrangles surrounding the project site for an elevation range of 1,525 to 1,537 feet above mean sea level (amsl). In addition, the USFWS IPaC Database was utilized to identify federally listed species that have potential to occur based on their known or expected ranges (USFWS 2022b).

The potential for special-status species to occur within the survey area was refined by considering the habitat affinities of each species, field habitat assessments, vegetation mapping, and knowledge of local biological resources. The potential for occurrence tables created for the project (see section 3) includes all federally and state-listed species, candidate species, and other state-designated special-status species that have been reported within three miles of the project site

(CNDDB and IPaC/USFWS databases), as well as California Rare Plant Rank (CRPR) listed species that occur within a nine-quadrangle search (CNPS 2022a).

2.2 VEGETATION MAPPING AND GENERAL BIOLOGICAL SURVEYS

RBC biologists conducted vegetation mapping in the field to provide a baseline of the biological resources that occur or have the potential to occur within the survey area on June 3, 2022. RBC conducted vegetation mapping by walking throughout the project site and mapping vegetation communities on aerial photographs at a 1:2400 scale (1 inch = 200 feet). Vegetation was identified in buffer areas via binoculars from the project site during the general biological survey.

The extent of each habitat type (delineated as a habitat polygon on the vegetation maps) was calculated using the ArcGIS Geographic Information System (GIS). Habitats were classified based on the dominant and characteristic plant species utilizing vegetation community classifications outlined in Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Oberbauer et al. 2008) and consistent with MSHCP vegetation mapping classification.

RBC biologists conducted a general biological survey for plants and wildlife concurrently with vegetation mapping on June 3, 2022. Photos taken during the general biological survey are provided in Appendix A. Plant species encountered during the field survey were identified and recorded in field notebooks. Plant species that could not be identified were brought to the laboratory for identification using the dichotomous keys in the *Jepson Manual* (Baldwin et al. 2012) and following the taxonomic treatment of the Jepson Manual with input from the *Western Riverside County Annotated Checklist* (Roberts 2004). A compiled list of the vascular plant species observed in the survey area is presented in Appendix B.

Wildlife species were documented during the field survey by sight, calls, tracks, scat, or other signs, and were recorded in field notebooks. Binoculars (8X42 magnification) were used to aid in the identification of wildlife. In addition to species observed during the surveys, expected wildlife use of the project site was assessed based on known habitat preferences of local species and knowledge of their biogeographic distribution in the region. A compiled list of wildlife species observed in the study area is presented in Appendix C; scientific and common names of wildlife follow Laudenslayer et al. (1991).

The location of observed biological resources designated as special-status by the USFWS, CDFW, and/or CNPS, were recorded in field notebooks, on aerial maps, and/or through the use of handheld Global Positioning System (GPS) devices. The project site and buffer were also surveyed for habitat with the potential to support special-status plant and wildlife species.

2.3 AQUATIC RESOURCES ASSESSMENT

Prior to the on-site delineation, field maps were created using GIS and incorporating topographic maps and a color aerial photograph at a 1:100 scale. USFWS NWI and USGS NHD data was overlaid on a USGS topographic map of the area to further determine the locations of potential areas of jurisdiction. Google Earth, NetrOnline Historic Aerials, and the University of California-Santa Barbara database were also utilized to assess historic presence or absence of flow.

The on-site jurisdictional delineation was conducted on June 27 and July 17, 2018 in preparation of the *Meridian Trunk Sewer Project Jurisdictional Delineation Report* (Appendix D). The identified potentially jurisdictional aquatic resources were examined on June 3, 2022, during the general biological survey, to identify any changes to the features. All currently proposed project impacts are within the 2018 formal jurisdictional delineation survey area (Figure 5) and conditions on site have not significantly changed since 2018; therefore, the results of this delineation survey remain valid for assessing potential project impacts.

Areas with depressions, drainage patterns, and/or wetland vegetation within the formal jurisdictional delineation survey area were evaluated for potential jurisdictional status, with focus on the presence of defined channels and/or wetland vegetation, soils, and hydrology. The formal jurisdictional delineation survey area, shown on Figure 5, included the proposed MTS project area and a 50-foot buffer from the proposed sewer alignment.

During the 2018 field examination of potential jurisdictional wetlands, RBC followed methods set forth in Part IV, Section D, Subsection 2 of the Corps 1987 *Wetland Delineation Manual* (Wetland Manual; Environmental Laboratory 1987) and the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0* (Arid West Supplement; Corps 2008a). Areas that met the three parameters per the Arid West Supplement (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology, following methods set forth in the Wetland Manual and Arid West Supplement) were considered potentially jurisdictional wetlands. Wetland plant indicator status was determined using the National Wetland Plant List (NWPL; Corps 2016) and hydric soils indicators on Field Indicators of Hydric Soils in the United States, Version 8.1 (NRCS 2017). Soil chromas were identified in the field according to Munsell's Soil Color Charts (Kollmorgen Instruments Corporation 2000).

Lateral limits of potential non-wetland waters of the U.S./State for the Corps and RWQCB were identified using field indicators of an ordinary high water mark (OHWM) as described in A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States (Corps 2008b). For each feature exhibiting potential presence of an OHMW, RBC prepared to complete a 2010 Arid West Ephemeral and Intermittent Streams OHWM Datasheet (OHWM Datasheet; Corps 2010).

CDFW potential jurisdictional boundaries were determined based on the presence of riparian habitat and/or streambed. Streambeds considered within CDFW jurisdiction were delineated based on the definition of streambed as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports riparian vegetation" (Title 14, Section 1.72). Riparian habitat refers to vegetation and habitat associated with a stream. The CDFW jurisdictional habitat includes all riparian shrub or tree canopy that may extend beyond the banks of a stream.

While in the field, potentially jurisdictional features were recorded using a hand-held GPS unit with a level of accuracy ranging from four to 12 feet. RBC staff refined the data using aerial photographs and topo maps with two-foot contours to ensure accuracy. Off-site portions of drainages were visited to confirm the presence of the indicators above, if appropriate, and general

flow path. Plants were identified according to the *Jepson Manual* (Baldwin et al. 2012). Vegetation community classifications follow Holland (1986) as revised by Oberbauer et al. (2008) and nomenclature follows Jepson eFlora (2018). All figures generated for this jurisdictional delineation report follow the Corps' Updated Map and Drawing Standards for the South Pacific Division Regulatory Program (Corps 2016).

3 Results

This section discusses the results of the literature review, vegetation mapping, general biological survey, and constraints-level aquatic resources assessment. Special-status biological resources are also discussed in this section and are defined as follows: 1) Species that have been given special recognition by federal, state, or local conservation agencies and organizations due to limited, declining, or threatened/endangered population sizes; 2) Species and their associated habitat types recognized by local and regional resource agencies as sensitive; 3) Habitat areas or vegetation communities that are unique, are of relatively limited distribution, or are of particular value to wildlife; 4) Wildlife corridors and habitat linkages; and/or 5) Biological resources that may or may not be considered sensitive, but are regulated under local, state, and/or federal laws.

3.1 PHYSICAL SETTING

The survey area is a relatively flat area that is primarily dominated by disturbed habitat and developed land. Several small areas of riparian habitats also occur within the survey area. Surrounding land uses include roads, industrial and residential development, a cemetery, and disturbed land. Vegetation mapping was performed based on conditions observed during the field visit on June 3, 2022.

On-site elevations range from approximately 1,525 to 1,537 feet amsl. Soils mapped on site are sandy loam (Figure 3).

3.2 VEGETATION COMMUNITIES AND LAND USES

Vegetation within the survey area is predominantly comprised of disturbed habitat and developed land cover (i.e., roads and railroad tracks), as shown on Figure 4 and identified in Table 1. Several small areas of upland vegetation occur within the survey area, including ornamental and Riversidean sage scrub. No large stands of riparian vegetation communities are present within the survey area, although small stands of freshwater marsh and mulefat (*Baccharis salicifolia*) scrub are present. Vegetation communities are based on Holland (1986) as revised by Oberbauer et al. (2008) and were crosswalked with *The Manual of California Vegetation, Second Edition* (MCV2; Sawyer et al. 2009). Table 1 provides a summary of vegetation acreages for the project site as well as the equivalent vegetation community in the MCV2 classification system.

Table 1. Summary of Vegetation Within the Meridian Storm Drain Project Site

Vegetation	MCV2 Classification System[1]	Global/ State Rank	Project Site (acres)
UPLAND VEGETATION COMMUNITIES			
Ornamental	Developed/Disturbed	No Rank	0.02
Riversidean Sage Scrub	*Artemisia californica* Alliance	G5/S5	0.01
		Subtotal	*0.02*[2]
RIPARIAN VEGETATION COMMUNITIES			
Freshwater Marsh	*Typha (augustifolia*, *domingensis, latifolia*) Alliance	G5S5	0.0
Mulefat Scrub	*Baccharis salicifolia* Alliance	G4S4	0.01
		Subtotal	*0.01*[2]
LAND COVERS			
Developed	Developed/Disturbed	No Rank	1.15
Disturbed Habitat	Developed/Disturbed	No Rank	0.85
		Subtotal	*2.00*[2]
		Total	**2.02**[2]

[1] Vegetation communities crosswalked to The Manual of California Vegetation, Second Edition (Sawyer et al. 2009)

[2] Acreages summed using raw numbers provided during GIS analysis (available upon request) and thus the sum of the total rounded numbers may not directly add up in this table.

3.2.1 UPLAND VEGETATION COMMUNITIES

Ornamental (Developed/Disturbed)

Ornamental is typically classified as an area containing planted ornamental, non-native plant species. Ornamental vegetation within the survey area includes planted pine trees (*Pinus* sp.) and Mexican fan palms (*Washingtonia robusta*) associated with Riverside National Cemetery (Figure 4).

Ornamental land is not recognized by CDFW (2021); therefore, it is not considered special-status under CEQA.

Riversidean Sage Scrub (Artemisia californica Alliance)

Riversidean sage scrub is a form of coastal sage scrub found in Riverside County. Riversidean sage scrub within the survey area is found in a previously disturbed area that has since been revegetated. It is dominated by California sagebrush (*Artemisia californica*) and encelia (*Encelia* sp.). Riversidean sage scrub is found in the southwestern corner of the survey area (Figure 4).

Artemisia californica alliance is ranked as G5/S5, meaning it is "demonstrably secure because of its worldwide/statewide abundance" (CNPS 2022b). Due to its CNPS ranking, CDFW does not consider Riversidean sage scrub habitat as a sensitive natural community under CEQA (CDFW 2021).

3.2.2 RIPARIAN VEGETATION COMMUNITIES

Freshwater Marsh (Typha [augustifolia, domingensis, latifolia] Alliance)

Freshwater marsh occurs in one small area in the southwestern corner of the survey area; the freshwater marsh is immediately surrounded by revegetated Riversidean sage scrub (Figure 4). Freshwater marsh is characterized by perennial, emergent vegetation growing in areas that are permanently flooded by fresh water. Within the survey area, it is dominated by cattail (*Typha* sp.) with some Goodings's black willow (*Salix gooddingii*) and Western cottonwood (*Populus fremontii* ssp. *fremontii*) associated with the surrounded revegetation.

Typha (*augustifolia*, *domingensis, latifolia*) alliance is ranked as G5/S5, meaning it is "demonstrably secure because of its worldwide/statewide abundance" (CNPS 2022b). Due to its CNPS ranking, CDFW does not consider freshwater marsh habitat as a sensitive natural community under CEQA (CDFW 2021); however, it is protected as an aquatic resource under federal and state aquatic regulations. As such, aquatic permitting would be required for project impacts in these areas (see Section 3.4, below).

Mule Fat Scrub (Baccharis salicifolia Alliance)

The mulefat (*Baccharis salicifolia*) scrub occurs in two small areas along the eastern side of the survey area; the mulefat scrub is immediately surrounded by disturbed habitat (Figure 4). Mulefat is an evergreen shrub with willow-like leaves. Mulefat scrub occurs in both seasonally or intermittently flooded habitat, and stands are variable depending on the amount of inundation and scouring. Stands usually form open shrublands or thickets in riparian corridors and along lake margins.

Baccharis salicifolia alliance is ranked as G4/S4, meaning it is "uncommon but not rare; some cause for long-term concern due to declines or other factors" (CNPS 2022b). Due to its CNPS ranking, CDFW does not consider mulefat scrub habitat as a sensitive natural community under CEQA (CDFW 2021); however, it is an aquatic resource under federal and state aquatic regulations and permitting would be required for project impacts in these areas (see Section 3.4, below).

3.2.3 LAND COVERS

Developed (Developed/Disturbed)

Developed areas support limited native vegetation and are comprised of human-made structures. Developed areas within the survey area include Van Buren Boulevard running east-west, A Avenue running north-south, railroad tracks running north-south, and a portion of Riverside National Cemetery to the west (Figure 4).

Developed land is not recognized by CDFW (2021); therefore, it is not considered special-status under CEQA.

Disturbed (Developed/Disturbed)

Disturbed areas are typically classified as land on which the native vegetation has been significantly altered by agriculture, construction, or other land-clearing activities, and the species composition and site conditions are not characteristic of the disturbed phase of a plant association (e.g., disturbed chaparral). Disturbed habitat is typically found in vacant lots, along roadsides, within

construction staging areas and abandoned fields. The habitat is typically dominated by non-native annual species and perennial broadleaf species but may also include barren areas devoid of vegetation due to ground disturbance. Disturbed areas within the survey area include land along A Avenue and the railroad tracks, including the potentially jurisdictional feature east of the railroad tracks (Figures 4 and 5). The on-site disturbed land is vegetated with non-native grasses and ruderal species with occasional bare ground.

Disturbed land is not recognized by CDFW (2021); therefore, it is not considered special-status under CEQA.

3.3 PLANTS AND WILDLIFE

The survey area supports a low diversity of vegetation communities and plant species. A total of 58 plant species (45 percent native, 55 percent non-native) were observed during the 2022 general biological survey (Appendix B). A total of 13 bird species, three mammal species, two reptile species, and three invertebrate species were observed or presumed present based on track and/or scat (Appendix C). Twilight/nighttime surveys were not conducted, therefore crepuscular and nocturnal animals are likely under-represented in the project species list; however, habitat assessments were performed for all special-status species to ensure that any potentially-present rare species are adequately addressed herein.

For the purposes of this report, species are considered to have special-status if they meet one or more of the following criteria:

- Listed or considered for listing or proposed for listing under the ESA or CESA (CDFW 2022a; USFWS 2022a)
- CDFW Species of Special Concern (CDFW 2022a)
- CDFW Fully Protected Species (CDFW 2022a)
- CDFW Watch List Species (CDFW 2022a)
- Listed as having a California Rare Plant Rank (CRPR; formerly CNPS List, CNPS 2022a)

3.3.1 SPECIAL-STATUS PLANT SPECIES

As mentioned above and clarified in this section, special-status plant species include those that are: 1) Listed or proposed for listing by federal or state agencies as threatened or endangered; 2) CRPR List 1 through 4 species (CNPS 2022a); or 3) Considered rare, endangered, or threatened by the CDFW (CDFW 2022a) or other local conservation organizations or specialists.

In the state of California, CNPS is a statewide resource conservation organization that has developed an inventory of California's sensitive plant species. The CRPR system is recognized by the CDFW and essentially serves as an early warning list of potential candidate species for threatened or endangered status. The CRPR system is categorized as outlined in Table 2.

Table 2. California Rare Plant Rank (CRPR) Definition

California Rare Plant Rank (CRPR)	1A	presumed extirpated in California and rare or extinct elsewhere
	1B	rare, threatened, or endangered in California and elsewhere
	2A	presumed extirpated in California but more common elsewhere
	2B	rare, threatened, or endangered in California but more common elsewhere
	3	plants for which more information needed
	4	plants of limited distribution
CRPR Threat Ranks	0.1	Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
	0.2	Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
	0.3	Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Paniculate tarplant, CRPR 4.2, was identified within the survey area during 2018 surveys. No other rare plant species were observed during general biological surveys in 2022. Special-status plants and their potential to occur within the survey area are assessed in Table 3. Please note that species with low potential to occur or not expected to occur are not addressed further in this report; because these species have low or no potential for occurrence, no impacts are anticipated on these species. In addition, CRPR list 3 and 4 species that do not occur on site are not included in Table 3 due to their relatively low threat level.

Some trees within Riverside County are protected under local tree protection ordinances. Small areas of ornamental vegetation occur within the survey area (Figure 4); however, no oak trees or other species protected by local ordinances and/or policies occur on site.

Table 3. Special Status Plant Species Potential to Occur

Species	Status	Habitat Description	Potential to Occur
Bristly sedge (*Carex comosa*)	CRPR 2B.1	Perennial rhizomatous herb. Blooms May-Sep. Coastal prairie, marsh/swamp lake margins, valley/foothill grasslands. Elev. 0-2,050 ft.	Low. Suitable habitat is not present on site.
California satintail (*Imperata brevifolia*)	CRPR 2B.1	Perennial rhizomatous herb. Blooms Sep-May. Chaparral, coastal scrub, Mojavean desert scrub, alkali meadows and seeps, and riparian scrub. Elev. 0-3,986 ft.	Low. Scrub habitat present on site is limited and disturbed.
California screw moss (*Tortula*	CRPR 1B.1	Moss. Chenopod scrub and valley and foothill grassland. Elev. 35-	Low. Suitable habitat is not present on site.

Species	Status	Habitat Description	Potential to Occur
californica)		4,790 ft.	
Chaparral ragwort (*Senecio aphanactis*)	CRPR 2B.2	Annual herb. Blooms Jan-Apr. Chaparral, cismontane woodland, and coastal scrub. Elev. 50-2,625 ft.	Low. Scrub habitat present on site is limited and disturbed.
Chaparral sand-verbena (*Abronia villosa* var. *aurita*)	CRPR 1B.1	Annual herb. Blooms Jan-Sep. Sandy chaparral, coastal scrub and desert dunes. Elev. 245-5,250 ft.	Low. Scrub habitat present on site is limited and disturbed.
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)	CRPR 1B.1	Annual herb. Blooms Feb-Jun. Coastal salt marshes and swamps, playas, vernal pools. Elev. 5-4,005 ft.	Low. Suitable habitat is not present on site.
Deep Canyon snapdragon (*Pseudorontium cyathiferum*)	CRPR 2B.3	Annual herb. Blooms Feb-Apr. Sonoran desert scrub. Elev. 0-2,625 ft.	Low. Suitable habitat is not present on site.
Horn's milk-vetch (*Astragalus hornii* var. *hornii*)	CRPR 1B.1	Annual herb. Blooms May-Oct. Lake margins, meadows and seeps, playas. Elev. 196-2,788 ft.	Low. Suitable habitat is not present on site.
Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*)	CRPR 1B.1	Annual herb. Blooms Apr-Jul. Chaparral, coastal scrub, meadows and seeps, valley/foothill grassland, and vernal pools. Elev. 98-5,020 ft.	Low. Scrub habitat present on site is limited and disturbed.
Los Angeles sunflower (*Helianthus nuttallii* ssp. *parishii*)	CRPR 1A	Perennial rhizomatous herb. Blooms Aug-Oct. Coastal salt and freshwater marshes and swamps. Elev. 33-5,495 ft.	Very low. Marsh habitat present on site is limited and disturbed. Species believed to be extirpated.
Many-stemmed dudleya (*Dudleya multicaulis*)	CRPR 1B.2	Perennial herb. Blooms Apr-Jul. Chaparral, coastal scrub, and valley/foothill grasslands. Elev. 50-2,590 ft.	Low. Scrub habitat present on site is limited and disturbed.
Mesa horkelia (*Horkelia cuneata* var. *puberula*)	CRPR 1B.1	Perennial herb. Blooms Feb-Sep. Maritime chaparral, cismontane woodland, and coastal scrub. Elev. 230-2,657 ft.	Low. Scrub habitat present on site is limited and disturbed.
Munz's onion (*Allium munzii*)	FE, ST, CRPR 1B.1	Perennial bulbiferous herb. Blooms Mar-May. Chaparral, cismontane woodland, coastal scrub, pinyon and juniper woodland, and valley/foothill grassland. Elev. 975-3,510 ft.	Low. Scrub habitat present on site is limited and disturbed.

Species	Status	Habitat Description	Potential to Occur
Nevin's barberry (*Berberis nevinii*)	FE, SE, CRPR 1B.1	Perennial evergreen shrub. Blooms Feb-Jun. Chaparral, cismontane woodland, coastal scrub, and riparian scrub. Elev. 230-2,705 ft.	None. Scrub habitat present on site is limited and disturbed. This perennial species would have been observed if present.
Paniculate tarplant (*Deinandra paniculata*)	CRPR 4.2	Annual herb. Blooms (Mar)Apr-Nov. Coastal scrub, valley and foothill grassland, and vernal pools. Elevation 80-3,085 ft.	Assumed present. Species observed during 2018 surveys for the MTS project.
Parish's brittlescale (*Atriplex parishii*)	CRPR 1B.1	Annual herb. Blooms Jun-Oct. Chenopod scrub, playas, and vernal pools within alkaline habitat. Elev. 82-6,233 ft.	Low. Suitable habitat is not present on site.
Parish's desert-thorn (*Lycium parishii*)	CRPR 2B.3	Perennial shrub. Blooms Mar-Apr. Coastal scrub and Sonoran desert scrub. Elev. 445-3,280 ft.	None. Scrub habitat present on site is limited and disturbed. This perennial species would have been observed if present.
Parry's spineflower (*Chorizanthe parryi* var. *parryi*)	CRPR 1B.1	Annual herb. Blooms Apr-Jun. Chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland. Elev. 900-4,000 ft.	Low. Scrub habitat present on site is limited and disturbed.
Prairie wedge grass (*Sphenopholis obtusata*)	CRPR 2B.2	Perennial herb. Blooms Apr-Jul. Cismontane woodland, meadows and seeps. Elev. 984-6,561 ft.	Low. Suitable habitat is not present on site.
Salt spring checkerbloom (*Sidalcea neomexicana*)	CRPR 2B.2	Perennial herb. Blooms Mar-Jun. Chaparral, coastal scrub, lower montane coniferous forests, Mojavean desert scrub, and playas. Elev. 50-5,020 ft.	Low. Scrub habitat present on site is limited and disturbed.
San Bernardino aster (*Symphyotrichum defoliatum*)	CRPR 1B.2	Perennial rhizomatous herb. Blooms Jul-Nov. Cismontane woodlands, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and vernally mesic valley/foothill grasslands. Elev. 7-6,690 ft.	Low. Scrub and marsh habitat present on site is limited and disturbed.
San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*)	CRPR 1B.1	Annual herb. Blooms Apr-Aug. Playas, mesic valley/foothill grasslands, and vernal pools within alkaline habitat. Elev. 456-1,640 ft.	Low. Suitable habitat is not present on site.

Species	Status	Habitat Description	Potential to Occur
Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*)	FE, SE, CRPR 1B.1	Perennial herb. Blooms Apr-Sep. Chaparral and coastal scrub. Elev. 298-2,000 ft.	Low. Scrub habitat present on site is limited and disturbed.
Slender-horned spineflower (*Dodecahema leptoceras*)	FE, SE, CRPR 1B.1	Annual herb. Blooms Apr-Jun. Chaparral, cismontane woodland, and coastal scrub. Elev. 655-2,490 ft.	Low. Scrub habitat present on site is limited and disturbed.
Smooth tarplant (*Centromadia pungens* ssp. *laevis*)	CRPR 1B.1	Annual herb. Blooms Apr-Sep. Chenopod scrub, meadows and seeps, playa, riparian woodland, valley and foothill grassland. Elev. 0-2,100 ft.	Low. General biological surveys were timed with species phenology for proper identification. *Centromadia pungens* was observed on site and keyed out to common spikeweed (*Centromadia pungens* ssp. *pungens*).
Spreading navarretia (*Navarretia fossalis*)	FT, CRPR 1B.1	Annual herb. Blooms Apr-Jun. Chenopod scrub, shallow freshwater marshes and swamps, playas, and vernal pools. Elev. 98-2,150 ft.	Very low. Marsh habitat present on site is limited and disturbed.
Thread-leaved brodiaea (*Brodiaea fillifolia*)	FT, SE, CRPR 1B.1	Perennial bulbiferous herb. Blooms Mar-Jun. Chaparral, cismontane woodlands, coastal scrub, playas, valley/foothill grasslands, vernal pools. Elev. 82-3,675 ft.	Low. Scrub habitat present on site is limited and disturbed.
White rabbit-tobacco (*Pseudognaphalium leucocephalum*)	CRPR 2B.2	Perennial herb. Blooms Aug-Nov. Chaparral, cismontane woodland, coastal scrub, and riparian woodland. Elev. 0-6,890 ft.	Low. Scrub habitat present on site is limited and disturbed.
White-bracted spineflower (*Chorizanthe xanti* var. *leucotheca*)	CRPR 1B.2	Annual herb. Blooms Apr-Jun. Coastal scrub, Mojavean desert scrub, pinyon and juniper woodland. Elev. 985-3,935 ft.	Low. Scrub habitat present on site is limited and disturbed.

FE: Federally Endangered
FT: Federally Threatened
SE: State Endangered
ST: State Threatened
CRPR: California Rare Plant Rank

Threatened and Endangered Plant Species

No federal or state listed threatened or endangered plants were observed during the general field survey. No federally or state-listed species are expected to occur due to the disturbed nature of the site and lack of suitable soils, such as clays and alkaline soils, that often support listed plant species with potential to occur in the project vicinity.

Other Special-Status Plant Species

Paniculate Tarplant (Deinandra paniculata)

Paniculate tarplant was observed during 2018 surveys for the MTS project within the 2022 survey buffer (i.e., Meridian Storm Drain Project buffer). While not observed in 2022, conditions on site have not significantly changed since 2018; therefore, paniculate tarplant is assumed present. It is an annual herb in the sunflower family (Asteraceae) and has small yellow flowers that bloom from March to November. Paniculate tarplant is native to California and Baja California. In the United States, it occurs from San Diego County to Santa Barbara County at elevations less than 3,000 feet amsl. It is commonly found in coastal scrub, valley and foothill grassland, and vernal pool habitats (CNPS 2022a). Paniculate tarplant is a CRPR rank 4.2 species and state rank S4. Its CRPR 4.2 listing means that it is a plant of limited distribution that is moderately threatened in California (20-80% of occurrences threatened); its state rank S4 means that it is "apparently secure within California."

3.3.2 SPECIAL-STATUS WILDLIFE SPECIES AND CRITICAL HABITATS

Although not documented on site during the 2022 general biological surveys, four listed species, Riverside fairy shrimp (*Streptocephalus woottoni*), least Bell's vireo (*Vireo bellii pusillus*), San Bernardino kangaroo rat (*Dipodomys merriami parvus*), and Stephens' kangaroo rat, have been documented within three miles of the project site, along with numerous other non-listed special-status wildlife species (Figures 6 and 7). An analysis of the potential for sensitive wildlife to occur on the project site is provided in Table 4. Please note that, with the exception of burrowing owl (*Athene cunicularia*), wildlife species with low potential to occur or not expected to occur are not addressed further in this report; because these species have low or no potential for occurrence, no impacts are anticipated on these species.

Table 4. Special-Status Wildlife Species Potential to Occur

Species	Status	Habitat Description	Potential to Occur
INVERTEBRATES			
Riverside fairy shrimp (*Streptocephalus woottoni*)	FE	Vernal pools or other seasonal pools with a depth greater than 30 cm.	None. Vernal pool habitat not present.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	Natural vernal pools or other seasonal pools.	None. Vernal pool habitat not present.

Species	Status	Habitat Description	Potential to Occur
AMPHIBIANS			
Western spadefoot (*Spea hammondii*)	SSC	Temporary ponds, vernal pools, and backwaters of flowing creeks, as well as adjacent upland habitats such as grasslands and coastal sage scrub for burrowing.	Low. Suitable ephemeral ponds and flowing creeks not present. Upland habitats are limited and disturbed.
REPTILES			
Coast horned lizard (*Phrynosoma blainvillii*)	SSC	A variety of habitats including sage scrub, chaparral, and coniferous and broadleaf woodlands. Found on sandy or friable soils with open scrub. Requires open areas, bushes, and fine loose soil.	Low. Suitable sage scrub is limited. Other suitable habitats not present; this species is more common near the coast.
Coastal whiptail (*Aspidoscelis tigris stejnegeri*)	SSC	A variety of rocky, sandy, dry habitats including sage scrub, chaparral, woodlands on friable loose soil.	Low. Suitable habitat is limited and soils are compacted from previous disturbance.
Orange-throated whiptail (*Aspidoscelis hyperythra*)	WL	A variety of habitats including sage scrub, chaparral, and coniferous and broadleaf woodlands. Found on sandy or friable soils with open scrub.	Low. Suitable habitat is limited and soils are compacted from previous disturbance.
Red-diamond rattlesnake (*Crotalus ruber*)	SSC	Chaparral, sage scrub, along creek banks, and in rock outcrops or piles of debris. Often associated with dense vegetation in rocky areas.	Low. Suitable chaparral, sage scrub, or creek bank habitats are limited or not present.
BIRDS			
Burrowing owl (*Athene cunicularia*)	SSC (at burrowing sites & some wintering sites)	Found in grasslands and open scrub from the coast to foothills. Strongly associated with California ground squirrel (Otospermophilus beecheyi) and other fossorial mammal burrows.	Low. Suitable foraging and nesting habitat present throughout site. Not documented during 2018 protocol surveys for the MTS project (Appendix F).
California horned lark (*Eremophila alpestris actia*)	WL	Found from coastal deserts and grasslands to alpine dwarf-shrub habitat above treeline. Also seen in coniferous or chaparral habitats.	Assumed present. Species was observed in the immediate vicinity of the project during previous surveys (RBC 2019).

Species	Status	Habitat Description	Potential to Occur
Coastal California gnatcatcher (*Polioptila californica californica*)	FT, SSC	Found in sage scrub and adjacent chaparral habitats often containing buckwheat or sagebrush.	Low. Sage scrub habitat within the survey area has been revegetated and is not mature enough to support this species.
Cooper's hawk (*Accipiter cooperii*)	WL (when nesting)	Usually found in oak woodlands but occasionally in willow or eucalyptus woodlands.	Assumed present. No potential for nesting on site. Species was observed in the immediate vicinity of the project during previous surveys (RBC 2019). Suitable ornamental habitat is present in the project buffer.
Least Bell's vireo (*Vireo bellii pusillus*)	FE (when nesting); SE (when nesting)	Riparian woodland with understory of dense young willows or mulefat and willow canopy. Nests often placed along internal or external edges of riparian thickets.	Low. Suitable riparian habitat not present.
Loggerhead shrike (*Lanius ludovicianus*)	SSC (when nesting)	Found within grassland, chaparral, desert, and desert edge scrub, particularly near dense vegetation used for nesting.	Low. Suitable foraging habitat is present, but dense nesting habitat is not present.
Northern harrier (*Circus hudsonius*)	SSC (when nesting)	Found in meadows, grasslands, open rangelands, desert sinks, and fresh and saltwater emergent wetlands. Nests on the ground, usually near marsh edge, but may also nest in grasslands, grain fields, or sagebrush flats several miles from water.	Low. Suitable foraging and nesting habitat are limited.
Sharp-shinned hawk (*Accipiter striatus*)	WL (when nesting)	Found in ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats.	Low. Suitable nesting habitats not present.
Southwestern willow flycatcher (*Empidonax traillii extimus*)	FE, SE	Dense riparian woodlands comprised of willows and cottonwoods.	Low. Suitable riparian habitat not present.
Tricolored blackbird (*Agelaius tricolor*)	ST (nesting colony)	Found nesting in wetlands with cattails, bulrushes, and willows. Forages in cultivated fields, feedlots associated with dairy farms, and wetlands.	Low. Freshwater marsh habitat within the survey area is small and isolated.

Species	Status	Habitat Description	Potential to Occur
Yellow warbler (*Setophaga petechia*)	SSC	Found within riparian woodlands, including disturbed habitats, and are associated with streamside cottonwood, willow, alder, and ash trees.	Low. Suitable riparian habitat not present.
MAMMALS			
Los Angeles pocket mouse (*Perognathus longimembris brevinasus*)	SSC	Found in low elevation grassland, alluvial sage scrub, and coastal sage scrub.	Low. Suitable alluvial sage scrub and native grassland habitat not present and coastal sage scrub on site is isolated and disturbed.
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	SSC	Found in shrublands that vary from sparse desert shrubland to dense coastal sage scrub.	Assumed present. Species was documented within the survey area during 2018 protocol surveys for Stephens' kangaroo rat (RBC 2019).
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	SSC	Found in pinyon-juniper woodlands, desert scrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oasis habitats. Roosts in rock crevices in cliffs and must drop from the roost to gain flight speed.	Low. Suitable rocky outcrops and foraging habitat not present.
San Bernardino kangaroo rat (*Dipodomys merriami parvus*)	FE, SSC	Primarily found in alluvial scrub and floodplain habitats containing sandy loam substrate and open vegetative cover.	Low. Suitable habitats not present.
Southern grasshopper mouse (*Onychomys torridus ramona*)	SSC	Occurs primarily in desert scrub habitats. Habitats with low open and semi-open scrubs habitats including coastal sage scrub, mixed chaparral, low sagebrush, riparian scrub. Annual grassland with scattered shrubs, are less frequently inhabited by this species.	Low. Suitable desert scrub habitats not present.
Stephens' kangaroo rat (*Dipodomys stephensi*)	FT; ST	Habitats include annual grassland and coastal sage scrub with sparse shrub cover. Commonly in association with *Eriogonum fasciculatum*, *Artemisia californica*, and *Erodium cicutarium*, in areas with loose, friable, well-drained soil, and flat or gently rolling terrain.	Assumed present. Species was documented within survey area during 2018 protocol surveys (RBC 2019).

Species	Status	Habitat Description	Potential to Occur
Western yellow bat (*Lasiurus xanthinus*)	SSC	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees.	Low. Suitable roosting and foraging habitat not present.

FE: Federally Endangered
FT: Federally Threatened
SE: State Endangered
ST: State Threatened
SSC: CDFW Species of Special Concern
WL: CDFW Watch List Species

Threatened and Endangered Wildlife Species

Stephens' Kangaroo Rat

Stephens' kangaroo rat is federally and state-listed as threatened; its federal status was down-listed from endangered to threatened effective on March 21, 2022 (USFWS 2022d). There are three distinct regions with Stephens' kangaroo rat populations: western Riverside County, western San Diego County, and central San Diego County. Stephens' kangaroo rat historically occurred in southwestern San Bernardino County but is believed to be extirpated from that area (USFWS 1997).

Habitat for Stephens' kangaroo rat includes open grasslands, fallow agricultural fields, and sparse coastal sage scrub in areas with penetrable soils and flat to steep sloping topography (USFWS 1997). Stephens' kangaroo rat is found at elevations of 180 to 4,100 feet amsl, with most populations located at elevations below 2,000 feet amsl (USFWS 1997). Habitat for Stephens' kangaroo rat varies in composition and density from place to place and season to season. Filaree (*Erodium* spp.) frequently dominates the best Stephens' kangaroo rat habitat areas, especially during and shortly after the rainy season (RECON 1989). Areas with dense grass cover are typically not suitable for Stephens' kangaroo rat (USFWS 1997). A nocturnal species, Stephens' kangaroo rat consumes a diet primarily of seeds. The decline of this species is attributed in large part to habitat loss and fragmentation due to urban development and agriculture. Other factors contributing to the loss of the species include off-road vehicles, rodent control, and predation by feral and domestic cats (USFWS 1997).

Stephens' kangaroo rat was documented on site during protocol surveys for the MTS project in September 2018 (Appendix E) and has been previously reported within one mile of the project site (Figures 6 and 7). During 2018 protocol surveys, a total of 27 Stephens' kangaroo rats were captured, most of them on and along the dirt road south of the current project site. Within the Meridian Storm Drain survey area, which differs slightly from the MTS project alignment, five Stephens' kangaroo rats were captured in 2018 between Avenue A and the railroad tracks. Suitable habitat for Stephen's kangaroo rat remains present within undeveloped portions of the project site, including Riversidean sage scrub and disturbed habitat (0.86 acre). Developed land within the project site, which consists of the asphalt Avenue A and active railroad tracks, is not suitable for Stephen's kangaroo rat due to lack of penetrable soils. In addition, the on-site ornamental vegetation and mulefat scrub habitats do not provide suitable habitat for Stephen's kangaroo rat. Protocol surveys were not conducted in 2022; however, Stephens' kangaroo rat is

assumed present within the survey area given that the species was observed during 2018 surveys and conditions have not changed significantly.

Other Special-Status Wildlife Species

Cooper's Hawk

Cooper's hawk (*Accipiter cooperii*) is a CDFW Watch List species when nesting. Cooper's hawk breeds throughout the United States and into Canada and Mexico. In California, Cooper's hawk nests in live oak, riparian, and other forest habitats from sea level to 9,000 feet amsl. The Cooper's hawk is tolerant of human disturbance and habitat fragmentation and nests in suburban and urban settings (Murphy et al. 1988). Cooper's hawk hunt in open woodland and habitat edges, catching avian prey in the air, on the ground, and in vegetation. The Cooper's hawk hunts a variety of small birds and may also hunt small mammals, reptiles, and amphibians. Their nest is typically a platform of sticks and twigs lined with bark (Call 1978) and eggs are laid in February through June with the clutch size of 4 to 5 eggs (Brown and Amadon 1968).

Habitat loss, especially in riparian areas, is attributed to declining populations of Cooper's hawk in Southern California. Other threats include direct or indirect human disturbance at nest sites, and eggshell thinning from pesticide use, although this threat is largely abated through the change in pesticide chemicals used after the 1970's (Terres 1980).

An individual Cooper's hawk was observed foraging approximately 350 feet west of the project alignment during 2018 general biological surveys. Although suitable nesting habitat occurs within the survey area, no nesting Cooper's hawks or nesting behaviors were observed during project surveys. While not observed in 2022, Cooper's hawk is well known from the project vicinity and is assumed present within the survey area. Despite assumed presence within the survey area (i.e., the project site and surrounding buffer), there is no potential for nesting on the project site; therefore, impacts on this species are not anticipated.

Burrowing Owl

Burrowing owl is a CDFW Species of Special Concern at nesting sites and is federally protected by the MBTA. The western subspecies of burrowing owl (*A. c. hypugaea*) breeds from southern Canada to the western half of the United States and into Baja California and central Mexico. In California, suitable habitat for burrowing owl is generally characterized by short, sparse vegetation with few shrubs, level to gentle topography, and well-drained soils, such as naturally occurring grassland, shrub steppe, and desert habitats (Haug et al. 1993). Burrowing owl may also occur in agricultural areas, ruderal grassy fields, vacant lots, and pastures containing suitable vegetation structure and useable burrows with foraging habitat in proximity (Gervais et al. 2008). Burrowing owl usually use burrows dug by California ground squirrel (*Otospermophilus beecheyi*) and round-tailed ground squirrel (*Citellus tereticaudus*) and dens or holes dug by other fossorial species including badger (*Taxidea taxus*), coyote (*Canis latrans*), and fox (e.g., San Joaquin kit fox [*Vulpes macrotis mutica*]) (Ronan 2002). Burrowing owl also frequently use natural rock cavities, debris piles, culverts, and pipes for nesting and roosting (Rosenberg et al. 2004) and have been documented using artificial burrows for nesting and cover (Smith and Belthoff 2001).

Burrowing owls have declined throughout much of their range because of habitat loss due to urbanization, agricultural conversion, and destruction of ground squirrel colonies (Remsen 1978). The incidental poisoning of burrowing owls and the destruction of their burrows during eradication programs aimed at rodent colonies have also caused their decline (Collins 1979; Remsen 1978). Although burrowing owl are relatively tolerant of lower levels of human activity, human-related impacts, such as shooting and introduction of non-native predators, have negative population impacts. Burrowing owl often nest and perch near roads where they are vulnerable to roadside shooting, fatal car strikes, and general harassment (Remsen 1978).

Burrowing owl has been documented within less than three miles of the project site (Figure 6). However, burrowing owls were not documented during the 2022 general biological survey and habitat on site was determined to have low potential to support this species. The project site was included in 2018 protocol burrowing owl surveys for the MTS project (Appendix F) and surveys were negative. The MTS project included an 8,200-linear-foot alignment whereas the current Meridian Strom Drain alignment is only 2,350 linear feet. The longer alignment resulted in a larger 2018 survey area that included habitat of higher suitability for burrowing owl, including several large, undeveloped fields at the southern end of 2018 survey area. The MTS project required protocol surveys due to the presence of suitable nesting and foraging habitat within the survey area.

The developed road, ornamental trees, freshwater marsh, mule fat scrub, and Riversidean sage scrub do not constitute suitable vegetation communities or land uses for burrowing owl. The disturbed habitat within the survey area exists as thin linear strips between I-215 and the Riverside National Cemetery and lacks connectivity to suitable habitat capable of supporting burrowing owl foraging. Few suitably-sized California ground squirrel and other fossorial mammal burrows occur within the site. As such, burrowing owl has low potential to occur on the project site.

Northwestern San Diego Pocket Mouse

The northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*) is a CDFW Species of Special Concern that is found in coastal sage scrub, sage scrub/grassland ecotones, and chaparral communities and is associated with rocky and gravelly substrates. In San Diego County, the San Diego pocket mouse is associated with shrub cover greater than 50 percent (Bolger 1997). The northwestern San Diego pocket mouse is one of six subspecies of San Diego pocket mouse (Williams et al. 1993) and is primarily a granivore (seed-eater). Beyond specialization on seeds, little is known of the foraging behavior of the San Diego pocket mouse. However, other pocket mice (*Chaetodipus*, *Perognathus* spp.) tend to forage under shrub and tree canopies, or around rock crevices. San Diego pocket mice are nocturnal and spend their days in burrows.

The San Diego pocket mouse is threatened by development, habitat fragmentation, and degradation. A study by Bolger et al. (1997) suggests that isolated habitat patches must be at least 62 to 198 acres to sustain native rodent populations.

Northwestern San Diego pocket mouse was documented on site during focused Stephens' kangaroo rat surveys in September 2018 (Figure 4; Appendix E). Focused fossorial mammal surveys were not conducted in 2022; however, conditions on site have not significantly changed since 2018 and northwestern San Diego pocket mouse is assumed present within the survey area.

California Horned Lark

California horned lark (*Eremophila alpestris actia*) is a CDFW Watch List species, which is found from coastal deserts and grasslands to alpine dwarf-shrub habitat above treeline, and in coniferous or chaparral habitats. It is a common to abundant resident in a variety of open habitats, usually found in habitats where trees and large shrubs are absent. Within southern California, California horned larks nest on the ground in open fields, grasslands, and rangelands. Horned larks forage in areas with low-growing vegetation and feed primarily on grains and other seeds, shifting to more insects in the spring and fall (Beason 2020). California horned lark breeds from March through July, with a peak in activity in May. Pairs do not maintain territories outside of the breeding season and instead form large gregarious, somewhat nomadic flocks.

Threats to California horned lark include habitat destruction and fragmentation. Habitats preferred by California horned lark are easily converted to other landscapes and human uses such as farmland and development. Pesticides have also been shown to poison and kill horned larks (Beason 2020). As a ground nester, California horned lark is vulnerable to mowing in a variety of habitats and pesticide use in agricultural fields.

During 2018 general biological surveys, a small flock of California horned larks was observed foraging in disturbed habitat approximately 150 feet west of the project site. No nests or nesting behaviors were observed during the biological surveys. While not observed in 2022, horned lark is well known from the project vicinity and is assumed present within the survey area.

Critical Habitat

The ESA defines critical habitat as a specific geographic area, or areas, that contains features essential for the survival and recovery of endangered and threatened species. USFWS designates critical habitat for endangered and threatened species and may include sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter. Critical habitat may also include areas that are not currently occupied by the species, but that will be needed for its recovery. Special management of critical habitat, including measures for water quality and quantity, host animals and plants, food availability, pollinators, sunlight, and specific soil types is required to ensure the long-term survival and recovery of the identified species.

No USFWS-designated critical habitat or proposed critical habitat occurs within three miles of the project site (USFWS 2022a).

3.3.3 WILDLIFE CORRIDORS

A wildlife corridor can be defined as a physical feature that links wildlife habitat, often consisting of native vegetation that joins two or more larger areas of similar wildlife habitat. Corridors enable migration, colonization, and genetic diversity through interbreeding and are therefore critical for the movement of animals and the continuation of viable populations. Corridors can consist of large, linear stretches of connected habitat (such as riparian vegetation) or as a sequence of stepping-stones across the landscape (discontinuous areas of habitat such as wetlands and ornamental vegetation), or corridors can be larger habitat areas with known or likely importance to local fauna.

Regional corridors are defined as those linking two or more large patches of habitat, and local corridors are defined as those allowing resident animals to access critical resources (food, cover, and water) in a smaller area that might otherwise be isolated by urban development. A viable wildlife migration corridor consists of more than an unobstructed path between habitat areas. Appropriate vegetation communities must be present to provide food and cover for both transient species and resident populations of less mobile animals. There must also be a sufficient lack of stressors and threats within and adjacent to the corridor for species to use it successfully.

Based on a review of the CDFW Biogeographic Information and Observation System data, no wildlife movement corridors are mapped within the survey area. The land within and around the survey area are designated as Rank 1, "Limited Connectivity Opportunity", which is the lowest rank within the Terrestrial Connectivity, Areas of Conservation Emphasis (ACE) dataset (CDFW 2022b). Due to the disturbed nature of the site and the close proximity to I-215 and other surrounding development, the project site does not serve as a significant wildlife corridor. In addition, the proposed project site is not identified as an existing or proposed linkage or constrained linkage in the MSHCP (Dudek & Associates, Inc. 2003).

3.4 PRELIMINARY JURISDICTIONAL AREAS

One potentially jurisdictional ephemeral channel was identified on and adjacent the project site (Figure 5). A description of this feature is provided below.

A potential non-wetland, ephemeral Corps/RWQCB waters of the U.S./State and CDFW streambed runs parallel and immediately outside the project site to the east. It is approximately four feet wide, originates from a culvert along Van Buren Boulevard, and flows northwest to southeast into a culvert that runs under I-215. The feature appeared to be a constructed drainage between the railroad and road to channelize flows downstream. RBC staff observed an OHWM in most sections of the channel based on the presence of a break in slope, change in sediment texture, and change in vegetation species and cover (Appendix D, OHWM Data Point 2). Some sections of the channel contain less defined flow; however, vegetation wracking was consistent throughout the feature. A Wetland Sample Point, taken adjacent to several mule fat individuals, met the hydrophytic vegetation and wetland hydrology parameters per the Arid West Supplement; however, the sample point did not show evidence of hydric soils (Appendix D, Wetland Sample Point 4). The channel was predominately unvegetated.

Table 5, below, summarizes the feature's jurisdiction and total size within the project site.

Table 5. Jurisdictional Resources Within Project Site: Corps, RWQCB and CDFW

Feature Name[1]	Feature Type/Jurisdiction	Location (lat/long)	Acreage (Project Site)	Linear Feet (Project Site)
Feature 2	Corps/RWQCB: Non-wetland waters of U.S./State CDFW: Streambed	33.8874948622, -117.271350718	0.01	91
		Total	**0.01**	**91**

[1] Feature name assigned in 2018 Meridian Trunk Sewer Project Jurisdictional Delineation Report (Appendix D). Please note that Features 1 and 3 from the 2018 Meridian Trunk Sewer Project Jurisdictional Delineation Report are outside the current survey area and project site.

4 Impact Analysis

Direct impacts are caused by the project and occur at the same time and place as the project. Any alteration, disturbance, or destruction of biological resources that would result from project-related activities is considered a direct impact. Direct impacts would include direct losses to native habitats, potential jurisdictional waters, wetlands, and special-status species; and diverting natural surface water flows. Direct impacts could include injury, death, and/or harassment of listed and/or special-status species. Direct impacts could also include the destruction of habitats necessary for species breeding, feeding, or sheltering. Direct impacts on plants can include crushing of adult plants, bulbs, or seeds.

Indirect impacts can result from project-related activities where biological resources are affected in a manner that is not direct. Indirect impacts may occur later in time or at a place that is farther removed in distance from the project than direct impacts, but indirect impacts are still reasonably foreseeable and attributable to project-related activities. Examples include habitat fragmentation; elevated noise, dust, and lighting levels; changes in hydrology, runoff, and sedimentation; decreased water quality; soil compaction; increased human activity; and the introduction of invasive wildlife (domestic cats and dogs) and plants.

Cumulative impacts refer to incremental individual environmental effects of two or more projects when considered together. Such impacts taken individually may be minor but are collectively significant in light of regional impacts.

March JPA's 2015 Local CEQA Guidelines Form J thresholds of significance have been used to determine whether project implementation would result in a significant direct, indirect, and/or cumulative impact. These thresholds are based on Appendix G of the state CEQA Guidelines (California Code of Regulations [CCR] Title 14, Division 6, Chapter 3, Sections 15000–15387). A significant biological resources impact would occur 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 CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS;
- Have a substantial adverse effect on federal protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marshes, vernal pools, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- 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;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy, or ordinance;

- Conflict with the provisions of an adopted Habitat Conservation Plan; Natural Community Conservation Plan; or other approved local, regional, or state habitat conservation plan.

4.1 VEGETATION IMPACTS

The proposed project could result in temporary impacts on disturbed habitat and developed land and small temporary impacts on mule fat scrub, ornamental vegetation, and Riversidean sage scrub (Figure 4; Table 6). Disturbed habitat, developed land, and ornamental vegetation are non-native habitats that are not considered sensitive vegetation communities; therefore, impacts on these vegetation communities would not be significant.

Minor temporary impacts may occur on mule fat scrub within the central portion of the project site (0.001 acre) and Riversidean sage scrub within the southern portion of the project site (0.004 acre). While not considered sensitive natural communities under CEQA, the project will avoid direct impacts on these native vegetation communities through the implementation of mitigation measure 1 (MM-1); construction limits will not extend into these native communities and flagging and/or fencing will be installed to clearly mark the project boundaries. With implementation of MM-1 outlined in Section 5.1, impacts on these native vegetation communities would be avoided and therefore mitigated to a less than significant level.

Table 6. Vegetation Communities/Land Use Project Impacts

Vegetation	Project Impacts (acres)
Developed	1.15
Disturbed	0.85
Freshwater Marsh	0
Mule Fat Scrub	0.01
Ornamental	0.02
Riversidean Sage Scrub	0.01
Total	**2.02[2]**

[1] Acreages summed using raw numbers provided during GIS analysis (available upon request) and thus the sum of the total rounded numbers may not directly add up in this table.

4.2 SPECIAL-STATUS PLANTS AND WILDLIFE IMPACTS

4.2.1 SPECIAL-STATUS PLANT SPECIES

Threatened and Endangered Plant Species

No federally or state-listed as endangered or threatened plant species have been detected on the project site, and none have moderate to high potential to occur within the survey area based on the lack of suitable habitat on site. As such, no impacts on federally or state-listed endangered or threatened plant species are anticipated with project implementation.

CRPR Plant Species

One CRPR 4.2 species, paniculate tarplant, was observed within the project buffer during 2018 surveys. No additional CRPR plant species occur or have a moderate or high potential to occur on site based on the lack of suitable habitat.

Paniculate tarplant is a CRPR rank 4.2 species and state sank S4. Its CRPR 4.2 listing means that it is a plant of limited distribution that is moderately threatened in California (20-80% of occurrences threatened); however, its state rank S4 means that it is "apparently secure within California."

Paniculate tarplant was documented outside of the project impact area and is not likely to be directly impacted by project implementation. However, potential trampling or equipment impacts could occur during construction if access and project boundaries are not strictly controlled. Proposed mitigation (MM-2) strictly limits construction activities to within the predetermined impact area through the demarcation of boundaries with flagging and/or fencing. With implementation of MM-2, site monitoring and adjacency impact mitigation, areas with known rare plant occurrences will be avoided and remain outside the clearly demarcated construction limits (as shown on Figure 8); therefore, potential direct impacts on rare plants would be less than significant.

4.2.2 SPECIAL-STATUS WILDLIFE SPECIES

Threatened and Endangered Wildlife Species

Stephens' Kangaroo Rat

As described previously, Stephens' kangaroo rat was documented on the project site during protocol surveys in September 2018 and is assumed present in the project area (Figure 4; Appendix E). Therefore, impacts on Stephens' kangaroo rat are potentially significant and require mitigation (MM-3). The project site will impact 0.86 acre of potentially suitable Stephens' kangaroo rat habitat, which would be mitigated through the purchase of SKRHCP credits or through consultation with USFWS (MM-3A). Further, project ground-disturbing activities have the potential to result in direct take of this species, if present. MM-3B would reduce the risk of mortality and injury by excluding Stephens' kangaroo rat from the project site, thereby reducing the potential for this species to encounter construction equipment. In addition, MM-2 would require the use of best management practices that would reduce the risk of wildlife entrapment. Impacts on Stephens' kangaroo rat are potentially significant; however, with implementation of the take avoidance and minimization measures described in Sections 5.2 and 5.3, impacts would be less than significant.

Species of Special Concern and Watch List Wildlife Species

Three non-listed special-status wildlife species have moderate-to-high potential to occur on the project site. Burrowing owl has low potential to occur on site but is discussed herein based on potential for future habitation given the presence of fossorial mammals.

Burrowing Owl

The project site has low potential to support burrowing owl. Burrowing owls and/or their sign have not been observed at the project site during either the 2022 general biological survey or the 2018 MTS project focused burrowing owl surveys. While on-site habitat has low suitability for burrowing

owl, the presence of fossorial mammal burrows and the location of the project site within species' range warrants the need for focused surveys and pre-construction (i.e., take avoidance) surveys. If the site becomes occupied by breeding burrowing owl, direct impacts in the form of habitat destruction, and potentially death, injury, or harassment of nesting birds, their eggs, and their young could occur. Injury or mortality occurs most frequently during the vegetation clearing stage of construction and involves eggs, nestlings, and recently fledged young that cannot safely avoid equipment. Mitigation measure 4 (MM-4) outlines take avoidance measures for the project, including focused surveys, pre-construction surveys, and disturbance buffers should an active nest burrow be found on site. Such protocols have been developed by CDFW and are widely acknowledged to be successful in identifying active burrowing owl nests. Avoiding such nests, if present, until burrows are no longer occupied would prevent direct take of burrowing owl. If avoidance of burrowing owls is determined to be unattainable, MM-4C requires the implementation of a CDFW approved Burrowing Owl Relocation Plan prior to ground disturbing activities. Therefore, implementation of MM-4, outlined in Section 5.3.2, would reduce impacts on burrowing owl to a less than significant level .

Other Non-Listed Special-status Wildlife Species

California horned lark and northwestern San Diego pocket mouse have been historically documented on site and are assumed to currently occur on the project site. The project would occur along a narrow construction corridor (approximately 36.3 feet wide) and would be revegetated after construction is complete. Additionally, adult avian species would likely flush during initial project activities, and with implementation of nesting bird protections (MM-5), potential impacts on nests would be avoided. Thus, direct avian impacts would be avoided.

However, potential direct mortality of northwestern San Diego pocket mouse, if present, could occur during construction activities. Impacts on this species is potentially significant and mitigation, as outlined in Sections 5.1 and 5.3, is required to reduce impacts on the species to a level below significant. The proposed mitigation measures would reduce the risk of mortality and injury by excluding northwestern San Diego pocket mouse from the project site, thereby reducing the potential for this species to encounter construction equipment. The mitigation measure would also require the use of best management practices that would reduce the risk of wildlife entrapment.

Additionally, the project occurs within the MSHCP plan area. The MSHCP is a regional effort to preserve sensitive habitats and species, and all development in the region that permitted through the County of Riverside must comply with the MSHCP. The goal of such regional biological planning efforts is to preserve sufficient native habitats such that special status species are also conserved. Though the JPA is an independent agency and therefore not covered under the MSHCP, project mitigation will be pursued in a manner consistent with the MSHCP, further off-setting potential minor impacts on special-status species that could occur with project implementation.

4.3 NESTING BIRD IMPACTS

The project site has potential to support avian nests, including those of ground-nesting species, which would be protected under the MBTA and/or CFGC §3503, which provides that it is unlawful

to “take, possess, or needlessly destroy” avian nests or eggs. These nests would also be protected under the MBTA if active. Thus, potential impacts could occur if construction, such as ground disturbing activities or vegetation clearing is undertaken during the breeding season. To avoid potential impacts on nesting birds, removal of habitat should occur outside of the breeding season (generally February 15 to August 31). If vegetation/habitat removal cannot occur outside of the breeding season, a qualified biologist should survey the area prior to construction initiation. If active nests are found, active construction in that area plus an appropriate buffer (determined by the qualified biologist in consultation with CDFW) should be avoided until nestlings have fledged and the nest becomes inactive. Please refer to Section 5.4 for full nest protection requirements. With the implementation of the pre-construction nesting bird surveys and avoidance measures outlined in Section 5.4, take of avian nests would be avoided and potential impacts would be less than significant.

4.4 WILDLIFE CORRIDOR IMPACTS

A suitable wildlife corridor must have a sufficient lack of stressors and threats within and adjacent to the corridor for species to use it successfully. Due to the disturbed nature of the project alignment and the proximity to I-215, the project site likely does not serve as a regional or local wildlife corridor. The proposed project site is not identified as an existing or proposed linkage or constrained linkage in the MSHCP (Dudek & Associates, Inc. 2003). As such, no significant impacts on potential wildlife corridors would occur with implementation of the proposed project.

4.5 JURISDICTIONAL AREA IMPACTS

The proposed project would temporarily impact a portion of the on-site potential non-wetland, ephemeral Corps/RWQCB waters of the U.S./State and CDFW streambed (Feature 2) through the placement of a storm drain. The feature is approximately 0.21 acre (2,274 linear feet) in total; however, only approximately 0.01 acre (91 linear feet) would be temporarily impacted (Table 7; Figure 8). All project areas would be restored back to pre-construction elevations and contours after project implementation; however, temporary impacts are potentially significant and require consultation and permitting through the Corps, RWQCB, and CDFW (MM-6).

Table 7. Proposed Impacts on Corps, RWQCB and CDFW Jurisdictional Resources

Feature Name[1]	Location (lat/long)	Cowardin Code	Impacted Acreage	Impacted Linear Feet
Feature 2	33.8874948622, -117.271350718	R6	0.01	91
		Total	**0.01**	**91**

[1] Feature name assigned in 2018 Meridian Trunk Sewer Project Jurisdictional Delineation Report (Appendix D). Please note that Features 1 and 3 from the 2018 Meridian Trunk Sewer Project Jurisdictional Delineation Report are outside the current survey area and project site.

4.6 LOCAL POLICIES & ORDINANCES IMPACTS

4.6.1 RIVERSIDE COUNTY ORDINANCE NOS. 499 & 559 – TREE REMOVAL AND RIVERSIDE COUNTY OAK TREE MANAGEMENT POLICY

No native oaks occur within the project site; therefore, no impacts on oaks that are protected under the Riverside County Oak Tree Management Guidelines would occur with project implementation.

Pursuant to Unincorporated Riverside County Ordinance No. 499 (as amended though 499.11), "No person, firm, corporation, public district, public agency or political subdivision shall remove or severely trim any tree planted in the right of way of any County highway without first obtaining a permit from the County Transportation Director to do so". A Avenue runs north to south through the center of the project alignment. Trees are present along the street; ornamental trees are planted throughout the cemetery to the west of A Avenue and several palo verde trees (*Parkinsonia* sp.) and Gooding's black willows (*Salix gooddingii*) occur in an ephemeral drainage to the east of A Avenue. Though trees occur near the street, there are no street tree plantings associated with A Avenue and therefore Ordinance No. 499.11 does not apply. As such, no impacts on trees protected under Ordinance No. 499.11 are expected to occur with project implementation.

Chapter 12.24 of the Riverside County Code of Ordinances also includes regulations related to tree removal (County of Riverside 2000). According to the Unincorporated Riverside County Ordinance No. 559 (as amended through 559.7), the removal of living native trees on parcels or property greater than 0.5 acre in size, located in the unincorporated Riverside County, and above 5,000 feet amsl requires a permit. The project site elevation is below 5,000 feet amsl; as such, this ordinance is not applicable and no impacts on trees protected under Riverside County Ordinance No. 559 would occur with project implementation.

4.6.2 HABITAT CONSERVATION PLAN; NATURAL COMMUNITY CONSERVATION PLAN; OR OTHER APPROVED LOCAL, REGIONAL, OR STATE HABITAT CONSERVATION PLAN IMPACTS

The project is physically located within the Western Riverside MSHCP area (Dudek 2003). However, March JPA is not a Permittee in the MSHCP, and therefore, projects under their authority are not subject to the MSHCP nor are they granted any take authorization unless they choose to apply for take under the Participating Special Entity process. Nevertheless, the Western Riverside County Regional Conservation Authority (RCA) *MSHCP Information Map* (RCA 2022) was reviewed for requirements that could result in a potential conflict between the proposed project and the MSHCP. The project site is not located within a Criteria Cell. The project site is within an area where burrowing owl surveys are required, but not in an area where surveys for narrow endemic criteria area plants, small mammals, and/or amphibians are required (RCA 2022). For plant and wildlife species that are covered under the MSHCP, impacts are fully mitigated for covered activities within Riverside County by payment of the MSHCP fee and through consistency with MSHCP Section 6 policies and requirements. Though the March JPA is not a Permittee in the MSHCP and as such is not subject to MSHCP, regulations, project mitigation outlined herein is consistent with general MSHCP requirements. The project does not conflict with the MSHCP and the goals and objectives set therein.

The project is also located within SKRHCP area (County of Riverside 1996). March JPA is not a signatory this SKRHCP, however, the JPA can participate in the plan for project mitigation. Mitigation for potentially significant impacts on Stephens' kangaroo rat are addressed in Section 5, and these mitigation measures are consistent with the goals and objectives of the SKRHCP.

Because there would be no conflicts with the SKRHCP nor the Western Riverside MSHCP, there would be no project impacts related to these plans and no mitigation specific to either of these plans is required.

4.7 CUMULATIVE IMPACTS

The project would result in impacts to potentially jurisdictional features as well as special-status wildlife species. Jurisdictional impacts are temporary and special-status wildlife impacts will be fully mitigated in accordance with previous larger planning efforts and in consultation with state and federal wildlife agencies. Project impacts were considered in connection with the larger March Air Base re-use, and this area is included in the regional MSHCP plan. The MSHCP is a regional effort to offset significant cumulative biological impacts, and all development in the region that is permitted through the County of Riverside must comply with the MSHCP. Because of this regional biological planning, cumulative biological impacts are avoided for development in the western Riverside region when developments are pursued in compliance with the plan. Though the JPA is not signatory to the MSHCP, project mitigation will be pursued in a manner consistent with the MSHCP and all special-status species impacts will be permitted in accordance with state and federal regulations. As such, cumulative impacts are considered less than significant.

5 Mitigation

The following discussion provides project-specific mitigation/avoidance measures for potential impacts on biological resources.

5.1 NATIVE VEGETATION COMMUNITIES IMPACT AVOIDANCE

To avoid impacts on native vegetation communities occurring at the boundaries of the project site, the following avoidance measure shall be implemented.

MM-1: March JPA shall ensure that the project avoids direct impacts on native vegetation communities adjacent to the project site, namely, mule fat scrub along the eastern project boundary and Riversidean sage scrub along the southwestern project boundary. The construction limits shall be clearly demarcated and installed in such a way that avoids native vegetation communities. A qualified biologist shall be present during the installation of flagging or temporary visibility construction fence along boundaries of the entire project site and guide the placement of flagging/fencing along the segments adjacent to native vegetation communities.

5.2 SITE MONITORING AND ADJACENCY IMPACT AVOIDANCE

To prevent inadvertent disturbance to areas outside the limits of the proposed project activities, including areas that contain paniculate tarplant, the following monitoring requirements and BMPs shall be implemented. A biologist shall be contracted to perform monitoring to ensure implementation of the following requirements and BMPs. Monitoring reports and a post-construction monitoring report will be prepared to document compliance with these requirements.

MM-2: March JPA shall ensure that the following monitoring requirements and BMPs be implemented:

1) A biologist shall be contracted to perform daily monitoring during initial vegetation removal and throughout ground-disturbing activities that result in the breaking of the ground surface. After initial vegetation removal and ground disturbance that results in breaking of the ground surface, a biologist shall be contracted to perform regular random checks (not less than twice per month but could be increased depending on the presence of special-status species) to ensure that all mitigation and BMPs are implemented. In addition, monitoring reports and a post-construction monitoring report shall be prepared by biologists to document compliance with these mitigation measures and BMPs.

2) To prevent inadvertent disturbance to areas outside the limits of work, including areas that contain paniculate tarplant, the construction limits shall be clearly demarcated (e.g., installation of flagging or temporary visibility construction fence) prior to ground disturbance activities and all construction activities, including equipment staging and maintenance shall be conducted within the marked disturbance limits.

3) A biologist shall flush special-status species (i.e., avian or other mobile species) from suitable habitat areas to the maximum extent practicable immediately prior to initial vegetation removal activities.

4) Construction vehicles shall not exceed 15 miles per hour on unpaved roads adjacent to the project site or the right-of-way accessing the site.

5) Construction activities will occur during daytime hours.

6) If trash and debris need to be stored overnight during maintenance activities, fully covered trash receptacles that are animal-proof and weather-proof will be used by the maintenance contractor to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Alternatively, standard trash receptacles may be used during the day, but must be removed each night.

7) Cut vegetation shall be hauled out of any waterways and stored, if necessary, where it cannot be washed by rainfall or runoff into waterways. When maintenance activities are completed, any excess materials or debris shall be removed from the project site.

8) Temporary structures and storage of construction materials will not be located in jurisdictional waters, including wetlands or riparian areas.

9) Staging/storage areas for construction equipment and materials will not be located in jurisdictional waters, including wetland or riparian areas.

10) The operator will not permit pets on or adjacent to construction sites.

11) As per the Landscaping Guidelines of the Resource Management Element of the March Joint Powers Authority (JPA) General Plan (1999), drought-tolerant vegetation and native vegetation will be used to the extent feasible, consistent with March JPA Landscape Water Efficiency Ordinance #JPA 16-03, with the purpose of preserving existing mature trees and native vegetation. A qualified botanist shall review landscape plans to recommend appropriate provisions to minimize the spread of invasive plant species, as defined by the California Invasive Plant Council (www.cal-ipc.org) and California Native Plant Society (www.cnps.org), within the project site. Provisions may include a) installation of container plants and/or hydro-seeding areas adjacent to existing, undisturbed native vegetation areas with native plant species that are common within temporary impact areas; and b) review and screening of proposed plants to identify and avoid potential invasive species and weed removal during the initial planting of landscaped areas.

12) At the end of each workday during construction, March JPA, or its contractors, will cover all excavated, steep-sided holes or trenches more than eight inches deep and that have sidewalls steeper than 1:1 (45 degree) slope with plywood or similar materials, or provide a minimum of one escape ramp per 100 feet of trenching (with slopes no greater than 3:1) constructed of earth fill or wooden planks. The project biologist will thoroughly inspect holes and trenches for trapped animals at the start and end of each workday.

13) March JPA, and/or its contractors, will screen, cover, or elevate at least one (1) foot above ground, all construction pipe, culverts, or similar structures with a diameter of three (3) inches or greater that are stored on site overnight. These pipes, culverts, and similar structures will be inspected by the project biologist for wildlife before such material is moved, buried, or capped.

5.3 SPECIAL-STATUS SPECIES MITIGATION

Potential impacts on special-status species could occur with implementation of the proposed project.

5.3.1 STEPHENS' KANGAROO RAT AND NORTHWESTERN SAN DIEGO POCKET MOUSE

Stephens' kangaroo rat and northwestern San Diego pocket mouse have been documented within the project survey area previously and are assumed present. Mitigation is required for 0.86 acre of Stephens' kangaroo rat habitat impacts and to avoid direct take of Stephens' kangaroo rat and northwestern San Diego pocket mouse.

MM-3A: March JPA shall either:

1) Initiate consultation with the USFWS for potential impacts on Stephens' kangaroo rat and ensure that all mitigation measures and conditions resulting from that consultation are implemented;

OR

2) Purchase 0.86 acre of credit through the SKRHCP implemented by the Riverside County Habitat Conservation Agency in order to receive third party take authority for potential impacts on Stephens' kangaroo rat habitat.

MM-3B: March JPA will ensure that the following measures are implemented in order to avoid and minimize the potential for direct impacts on Stephens' kangaroo rat and northwestern San Diego pocket mouse:

1) The perimeter of construction will be delineated with exclosure fencing. The installation and removal of fencing will avoid direct impacts to existing fossorial mammal burrows. Exclosure fencing will have the following specifications:
    a. Chain link fence with an erect height of 3 feet.
    b. The bottom 2 feet of the erect portion of the fencing needs to be covered in a material that cannot be climbed or chewed through by Stephens' kangaroo rat or northwestern San Diego pocket mouse; metal flash or similar material is recommended.
    c. The bottom 2 feet of fencing must be buried two feet underground.
    d. The fence must be installed under the supervision of a qualified biologist with small fossorial mammal experience to oversee installation. This biologist will inspect the fence before leaving the job site in the evening and repair any openings in the fencing. The fence removal will also require the supervision of a qualified biologist.

2) A Worker Environmental Awareness Program (WEAP) will be developed and implemented prior to the start of excavation. The WEAP will be presented by the qualified biologist(s) and will cover the sensitive resources found on site, flagging/fencing of exclusion areas, permit requirements, trash and debris collection and deposal, spill avoidance and clean-up, and other environmental issues.

3) Spoils, trash, and any excavation-generated debris will be removed to an approved off-site disposal facility. Trash and food items will be contained in closed containers and removed daily to reduce the attraction of opportunistic predators to the site, such as common ravens, coyotes, and feral cats and dogs that may prey on listed species.

4) Construction activities will be limited to daylight hours to the maximum extent feasible. If nighttime work is necessary, lighting will be shielded away from surrounding natural areas. Fixtures will be shielded to downcast below the horizontal plane of the fixture height and mounted as low as possible.

5.3.2 BURROWING OWL

As noted above, burrowing owl and sign were not detected during the 2022 general biological survey, and 2018 protocol burrowing owl surveys conducted for the MTS project (with nearly the same alignment) were negative. Focused burrowing owl surveys and subsequent pre-construction surveys must be conducted prior to project construction to ensure that burrowing owl have not colonized the site. To avoid impacts on burrowing owl, the following mitigation measure is recommended:

MM-4A – To determine burrowing owl presence/absence from the project site, focused breeding season surveys shall be conducted in accordance with the guidelines established in the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). Four focused surveys shall be conducted by qualified biologists during the breeding season (February 1 – August 31); one survey will be conducted between February 1 – April 15 and three visits, at least three weeks apart between April 15 and July 15. For the purposes of this mitigation measure, 'qualified biologist' is a biologist who meets the requirements set forth in the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). Surveys shall be conducted between morning civil twilight and 1000 during favorable conditions. Surveys shall not be conducted during rain, dense fog, when high winds were greater than 20 miles per hour, or when cloud cover was greater than 75% for a prolonged period. The burrowing owl survey area will include the project site plus a 500-foot (150-meter) buffer. Qualified biologists shall conduct surveys by walking transects spaced 20 meters apart throughout suitable burrowing owl habitat within the survey area. At the beginning of each transect, and approximately every 100 meters, biologists shall use binoculars to scan the survey area for burrowing owl, active and potential burrows, and/or sign of burrowing owl. Any inaccessible areas of the 500-foot buffer will be surveyed with binoculars to greatest extent possible. All observed burrows shall be examined for sign, including feathers, pellets, excrement

(e.g., scat and whitewash), and prey remains. Following surveys, a report documenting the results shall be prepared in accordance with CDFW guidelines (CDFW 2012).

MM-4B – No less than 14 days prior to the onset of construction activities, a qualified biologist shall survey the construction limits of the project area and a 500-foot buffer for the presence of burrowing owls and occupied nest burrows. A second survey shall be conducted within 24 hours prior to the onset of construction activities. The surveys shall be conducted in accordance with the most current CDFW survey methods. If burrowing owls are not observed during the clearance survey, no additional conditions may be required to avoid impacts to burrowing owl. Following pre-construction surveys, the project applicant shall submit a report to CDFW summarizing the results of the pre-construction surveys that documents compliance with this mitigation measure. The report shall be submitted within 60 days of survey completion.

If burrowing owl is documented on site, occupied burrowing owl burrows shall not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist approved by CDFW verifies through non-invasive methods that either the birds have not begun egg laying and incubation, or that juveniles from the occupied burrows are foraging independently and capable of independent survival. Disturbance buffers shall be implemented by a qualified biologist in accordance with the recommendations included in the Staff Report on Burrowing Owl Mitigation (CDFW 2012). A biologist shall be contracted to perform monitoring during all construction activities approximately every other day. The definitive frequency and duration of monitoring shall be dependent on whether it is the breeding versus non-breeding season and the efficacy of the exclusion buffers, as determined by a qualified biologist and in coordination with CDFW.

If burrowing owl is observed during the non-breeding season (September 1 through January 31) or confirmed to not be nesting, a non-disturbance buffer between the project activities and the occupied burrow shall be installed by a qualified biologist in accordance with the recommendations included in the Staff Report on Burrowing Owl Mitigation (CDFW 2012).

MM-4C – If avoidance is not possible, either directly or indirectly, a Burrowing Owl Relocation and Mitigation Plan (Plan) shall be prepared and submitted for approval by CDFW prior to ground disturbing activities. Once approved, the Plan would be implemented to relocate non-breeding burrowing owls from the project site. The Plan shall detail methods for relocation of burrowing owls from the project site, provide guidance for the monitoring and management of the replacement burrow sites and associated reporting requirements, and ensure that a minimum of two suitable, unoccupied burrows are available off site for every burrowing owl or pair of burrowing owls to be relocated.

5.4 NESTING BIRD MITIGATION

The project site has the potential to support nesting birds, including ground-nesting special-status species (i.e., California horned lark). To avoid impacts on nesting birds the following mitigation measure is required:

MM-5: To ensure compliance with CFGC sections 3503, 3503.5, and 3513 and to avoid potential impacts to nesting birds, vegetation clearing and ground disturbing activities shall be conducted outside of the bird nesting season (generally February 15 to August 31). If avoidance of the nesting season is not feasible, then a qualified biologist will conduct a nesting bird survey within three (3) days prior to any disturbance of the site, including but not limited to vegetation clearing, disking, demolition activities, and grading.

If active nests are identified, the biologist shall establish suitable buffers around the nests depending on the level of activity within the buffer and the species observed, and the buffer areas shall be avoided until the nests are no longer occupied, and the juvenile birds can survive independently from the nests. A letter report or mitigation plan in conformance with applicable state and federal law (i.e., appropriate follow-up surveys, monitoring schedules, construction and noise barriers/buffers, etc.) shall be prepared and include proposed measures to ensure that take of birds or eggs or disturbance of breeding activities is avoided. The report or mitigation plan shall be submitted to the CDFW and/or the USFWS as applicable for review and approval and implemented to the satisfaction of those agencies. The project biologist shall verify and approve that all measures identified in the report or mitigation plan are in place prior to and/or during construction. During construction activities, the qualified biologist shall continue biological monitoring at a frequency recommended by the qualified biologist using their best professional judgement. If nesting birds are detected, avoidance and minimization measures may be adjusted, and construction activities stopped or redirected by the qualified biologist using their best professional judgement to avoid take of nesting birds.

5.5 AQUATIC RESOURCES MITIGATION

The proposed project would temporarily impact approximately 0.01 acre (91 linear feet) of potential non-wetland, ephemeral Corps/RWQCB waters of the U.S./State and CDFW streambed (Feature 2) through the placement of a storm drain. All project areas would be restored back to pre-construction elevations and contours after project implementation; however, temporary impacts are considered significant and require consultation and permitting.

Final mitigation ratios will be determined in consultation with the CDFW, Corps, and/or RWQCB based on agency evaluation of current resource functions and values. It is anticipated that a minimum 1:1 ratio is required, though ratios will likely be higher. If mitigation is not achieved on site, it must be performed in an agency-approved location that will be conserved and managed in perpetuity.

MM-6: March JPA shall require proof that any required Section 404, 401, and 1600 permits and/or clearances have been obtained prior to any disturbance of the jurisdictional feature on site. All mitigation measures and conditions contained within the permits shall be implemented by the applicant as identified in the permits. The following on site, off site, in lieu fee mitigation, or a combination of the aforementioned options shall be completed for mitigation for impacts to waters of the U.S. and jurisdictional streambeds to replace any disturbed jurisdictional features, including sensitive riparian vegetation communities, at a minimum of 1:1 ratio for temporary impacts and 3:1 ratio for permanent impacts. Avoided jurisdictional waters shall be fenced or

flagged for avoidance. Best Management Practices (BMPs) shall be implemented to avoid indirect impacts to jurisdictional waters, including the following:

1) Vehicles and equipment will not be operated in ponded or flowing water except as described in the permits.
2) Water containing mud, silt, or other pollutants from grading or other activities will not be allowed to enter jurisdictional waters or be placed in locations that may be subjected to high storm flows.
3) Spoil sites will not be located within 30 feet from the boundaries of jurisdictional waters or in locations that may be subject to high storm flows, where spoils might be washed back into drainages.
4) Raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil, or other petroleum products, or any other substances that could be hazardous to vegetation or wildlife resources, resulting from project-related activities, will be prevented from contaminating the soil and/or entering avoided jurisdictional waters.
5) No equipment maintenance will occur within 100 feet of jurisdictional waters and no petroleum products or other pollutants from the equipment will be allowed to enter these areas or enter any off-site state-jurisdictional waters under any flow.

6 References

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, and T. J. Rosatti (Eds). (2012). The Jepson Manual: Vascular Plants of California (2nd ed.). University of California Press, Berkeley, California.

Beason, R. C. (2020). Horned Lark (*Eremophila alpestris*) version 1.0. In S. M. Billerman (Ed.), Birds of the World. Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.horlar.01.

Belthoff, J. R., and B. W. Smith. (2003). Patterns of Artificial Burrow Occupancy and Reuse by Burrowing Owls in Idaho. Wildlife Society Bulletin, pp.138-144.

Bolger, D. T., A. C. Alberts, R. M. Sauvajot, P. Potenza, C. McCalvin, D. Tran, S. Mazzoni, and M. E. Soulé. (1997). Responses of Rodents to Habitat Fragmentation in Coastal Southern California. Ecological Applications 7:552-563.

Brown, L., and D. Amadon. (1968). Eagles, Hawks and Falcons of the World. 2 Vols. Country Life Books, London.

California Department of Fish and Wildlife (CDFW). (2021). California Natural Community List. Retrieved June 2022, from https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153398&inline.

___. (2022a). California Department of Fish and Wildlife California Natural Diversity Database – Electronic Format.

___. (2022b). Biogeographic Information and Observation System. Retrieved December 5, 2022, from https://apps.wildlife.ca.gov/bios/.

California Native Plant Society, Rare Plant Program (CNPS). (2022a). Inventory of Rare and Endangered Plants of California. Website http://www.rareplants.cnps.org [accessed June 2022].

___. (2022b). A Manual of California Vegetation, Online Edition. California Native Plant Society, Sacramento, CA. Retrieved June 2022, form http://www.cnps.org/cnps/vegetation.

Call, M. W. (1978). Nesting Habitats and Surveying Techniques for Common Western Raptors. Technical Note TN-316. U.S. Department of the Interior - Bureau of Land Management, Denver Service Center.

Collins, C. T. (1979). The Ecology and Conservation of Burrowing Owls. In Proceedings of the National Audubon Society Symposium of Owls of the West, Their Ecology and Conservation. National Audubon Society Western Education Center. Tiburon, CA. October.

County of Riverside – Board of Supervisors. (1996). Habitat Conservation Plan for the Stephens' Kangaroo Rat in Western Riverside County, California: Volume I. Dated March 1996. 396 pp.

___. (1999). Riverside County Oak Tree Management Guidelines. Retrieved from https://planning.rctlma.org/Portals/14/devproc/guidelines/oak_trees/oak_trees.html.

___. (2000). Ordinance No. 559 (amended though 559.7) An Ordinance of the County of Riverside Amending Ordinance No. 559 Regulating the Removal of Trees. Retrieved from http://www.rivcocob.org/ords/500/559.7.pdf.

___. (2004). Ordinance No. 499 (as amended though 499.11) An Ordinance of the County of Riverside Amending Ordinance No. 499 Relating to Encroachments in County Highways. Retrieved from http://www.rivcocob.org/ords/400/499.11.pdf.

Dudek. (2003). Western Riverside County Multiple Species Habitat Conservation Plan. Retrieved from https://rctlma.org/Portals/0/mshcp/volume1/index.html.

Environmental Laboratory. (1987). Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

Gervais, J. A., D. K. Rosenberg, and L. A. Comrack. (2008). Burrowing Owl (*Athene cunicularia*). In W. D. Shuford, and T. Gardali (Eds.), California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies and Distinct Populations of Birds of Immediate Conservation Concern in

California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento, California, USA.

Google Earth Pro V 7.3.4.8642. (2022). Riverside County, California. 33°53'14.84"N, 117°16'16.78"W. Retrieved June 2022.

Haug, E. A., B. A. Millsap, and M. S. Martell. (1993). Burrowing Owl (*Speotyto cunicularia*). In A. Poole and F. Gill (Eds.), The Birds of North America, The Academy of Natural Sciences, Philadelphia, Pennsylvania, and The American Ornithologists' Union, Washington, D.C., USA.

Holland R. F. (1986). Preliminary Descriptions of the Terrestrial Natural Communities of California. Nongame-Heritage Program, State of California, Department of Fish and Game, Sacramento, 156 pp.

Kollmorgen Instruments Corporation. (1994). Munsell Soil Color Charts, Revised edition. Baltimore, MD.

Laudenslayer Jr., W. F., W. E. Grenfell, Jr., and D. Zeiner. (1991). A Check-list of the Amphibians, Reptiles, Birds, and Mammals of California. The Resources Agency: 77(3): 109-141.

Murphy, R. K., M. W. Gratson, and R. N. Rosenfield. (1988). Activity and Habitat Use by a Breeding Male Cooper's Hawk in a Suburban Area. J. Raptor Research 22: 97-100.

Natural Resources Conservation Service (NRCS). (No date). Soil Data Access (SDA) Hydric Soils List Retrieved June 25, 2018, from https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1316620.html.

___. (2017). Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils, Version 8.1.

___. (2022). Official Soil Series Descriptions (Online). San Diego County, California, San Diego Area. U.S. Department of Agriculture. Version 11, Sep 16, 2019. Retrieved June 2022, from https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

Oberbauer, T., M. Kelly, and J. Buegge. (2008). Draft Vegetation Communities of San Diego County. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California", Robert F. Holland, Ph.D., October 1986.

RECON, Environmental, Inc. (RECON). (1989). Interim Habitat Conservation Plan for the Stephens' Kangaroo Rat. Prepared for County of Riverside Planning Department. RECON Number R-1955. August.

Remsen, J. V. (1978). Bird Species of Special Concern in California: An Annotated List of Declining or Vulnerable Bird Species. California Department of Fish and Game, Nongame Wildlife Branch, Report #78-01.

Roberts Jr., F. M. (2004). The Vascular Plants of Western Riverside County, California: An Annotated Checklist. FM Roberts Publ.

Rocks Biological Consulting (RBC). (2019). Meridian Trunk Sewer Project Biological Technical Report. January 22, 2019.

Ronan, N. A. (2002). Habitat Selection, Reproductive Success, and Site Fidelity of Burrowing Owls in a Grassland Ecosystem. Thesis, Oregon State University, Corvallis, Oregon, USA.

Rosenberg, D. K., J. A. Gervais, H. Ober, and D. F. DeSante. (1998). An Adaptive Management Plan for the Burrowing Owl Population at Naval Air Station Lemoore, California, USA. Publication 95, Institute for Bird Populations, P.O. Box 1346, Pt. Reyes Station, CA 94956.

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. (2009). A Manual of California Vegetation (2nd ed.). California Native Plant Society, Sacramento, CA.

Terres, J. K. (1980.) The Audubon Society Encyclopedia of North American Birds. Alfred A. Knopf, New York, New York.

U.S. Army Corps of Engineers (Corps). (2008a). Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). J.S. Wakely, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

___. (2008b). A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, A Delineation Manual. R.W. Lichvar, and S.M. McColley. ERDC/CRREL TR-08-12. Hanover, NH: U.S. Army Engineer Research and Development Center.

___. (2010). Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. K.E. Curtis and R.W. Lichvar. EDRC/CRREL TN-10-1. Hanover, NH: U.S. Army Engineer Research and Development Center.

___. (2016). Updated Map and Drawing Standards for the South Pacific Division Regulatory Program. February 10.

U.S. Geological Survey (USGS). (2022a). USGS U.S. Topo 7.5 – minute map for RIVERSIDE EAST, CA. Retrieved June 2022.

___. (2022b). The National Map, Advanced Viewer. U.S. Department of Interior. Retrieved from https://viewer.nationalmap.gov/advanced-viewer.

U.S. Fish and Wildlife Service (USFWS). 1997 Draft Recovery Plan for the Stephens' Kangaroo Rat (*Dipodomys stephensi*). Region 1 U.S. Fish and Wildlife Service, Portland.

___. (2022a). Threatened and Endangered Species Database.

___. (2022b). IPaC: Information for Planning and Consultation, Powered by ECOS – the Environmental Conservation Online System. Retrieved June 2022, from https://ecos.fws.gov/ipac/.

___. (2022c). National Wetlands Inventory. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Retrieved from http://www.fws.gov/wetlands.

___. (2022d). Endangered and Threatened Wildlife and Plants; Reclassification of Stephens' Kangaroo Rate from Endangered to Threatened with a Section 4(d) Rule. February 17, 2022. Final Rule. Federal Register 87: 8967–8981.

Western Riverside County Regional Conservation Authority (RCA). (2022). WRC Information Tool Map. Retrieved June 2022, from https://wrcrca.maps.arcgis.com/apps/webappviewer/index.html?id=a73e69d2a64d41c29ebd3acd67467abd.

Williams, D. F., H. H. Genoways, and J. K. Braun. (1993). Taxonomy. In H. H. Genoways and J. H. Brown (Eds.), Biology of the Heteromyidae, Special Publication No. 10 of the American Society of Mammalogists, pp. 38-196.

FIGURE 1

Project Location

MERIDIAN STORM DRAIN

ROCKS BIOLOGICAL CONSULTING

0 1,000 2,000 FEET

N

Date: 7/12/2022
Aerial Photo: USDA NAIP 2020
Regional Map: National Geographic, Esri 2012

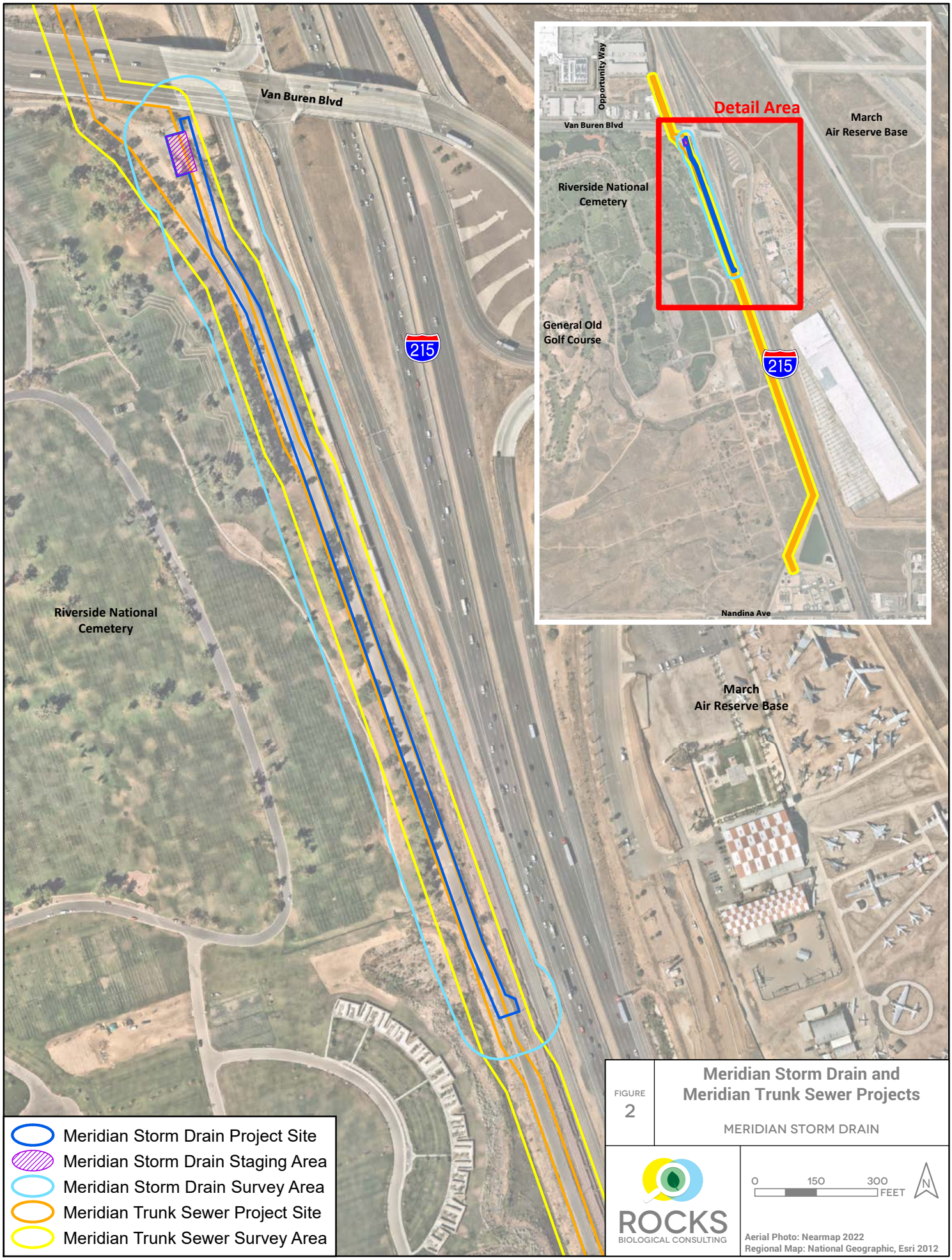


FIGURE 2

Meridian Storm Drain and Meridian Trunk Sewer Projects

MERIDIAN STORM DRAIN

ROCKS BIOLOGICAL CONSULTING

0 150 300 FEET

N

Aerial Photo: Nearmap 2022
Regional Map: National Geographic, Esri 2012

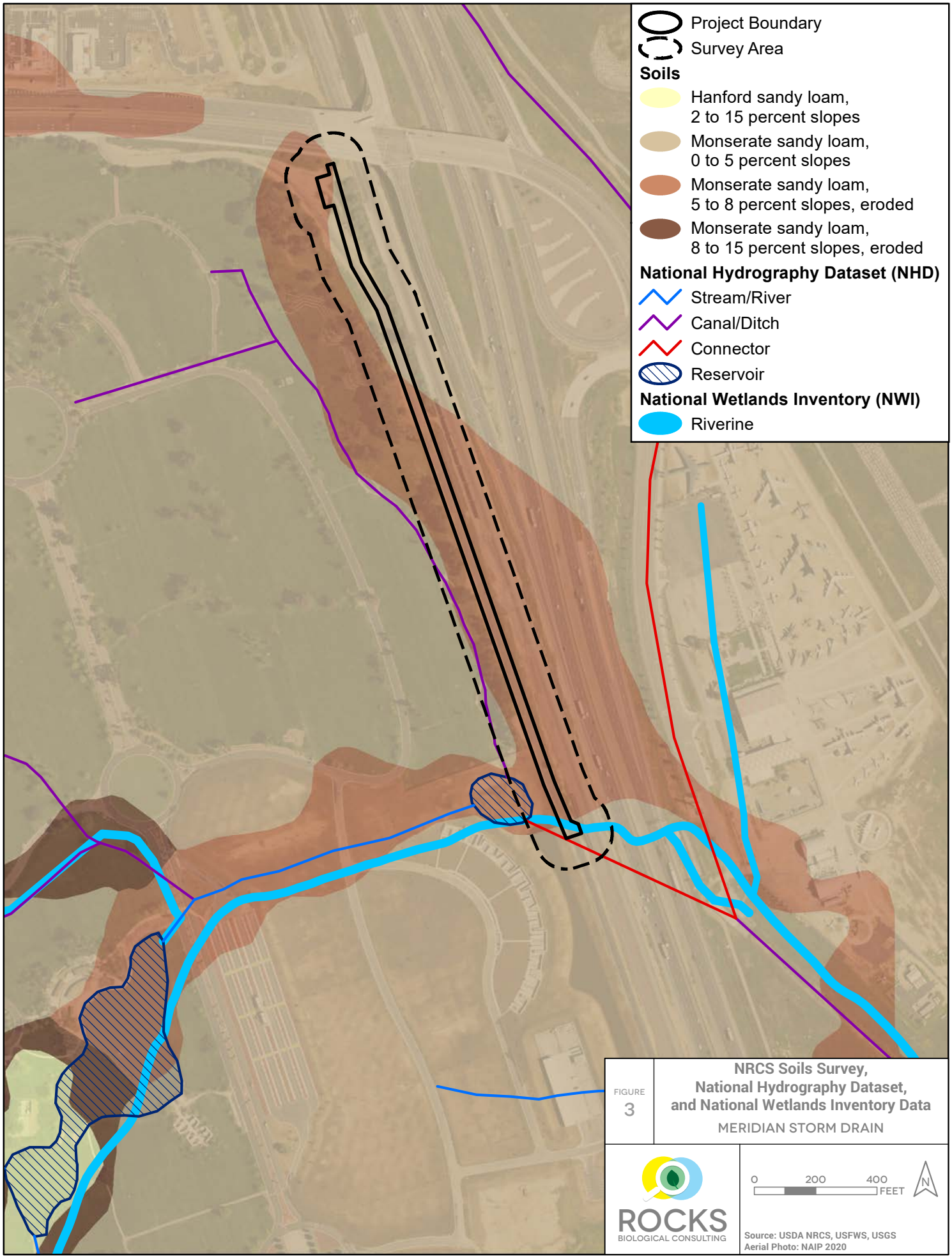


FIGURE 3

NRCS Soils Survey, National Hydrography Dataset, and National Wetlands Inventory Data

MERIDIAN STORM DRAIN

ROCKS BIOLOGICAL CONSULTING

0 200 400 FEET

N

Source: USDA NRCS, USFWS, USGS
Aerial Photo: NAIP 2020

Van Buren Blvd

215

Van Buren Blvd

Project Boundary

Survey Area

Vegetation

- Freshwater Marsh
- Mule Fat Scrub
- Riversidean Sage Scrub
- Ornamental
- Disturbed Habitat
- Developed

Special-Status Species*

- Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*)
- Stephens' Kangaroo Rat (*Dipodomys stephensi*)

* Mapped in 2018 during surveys for the Meridian Trunk Sewer Project.

FIGURE 4

Biological Resources

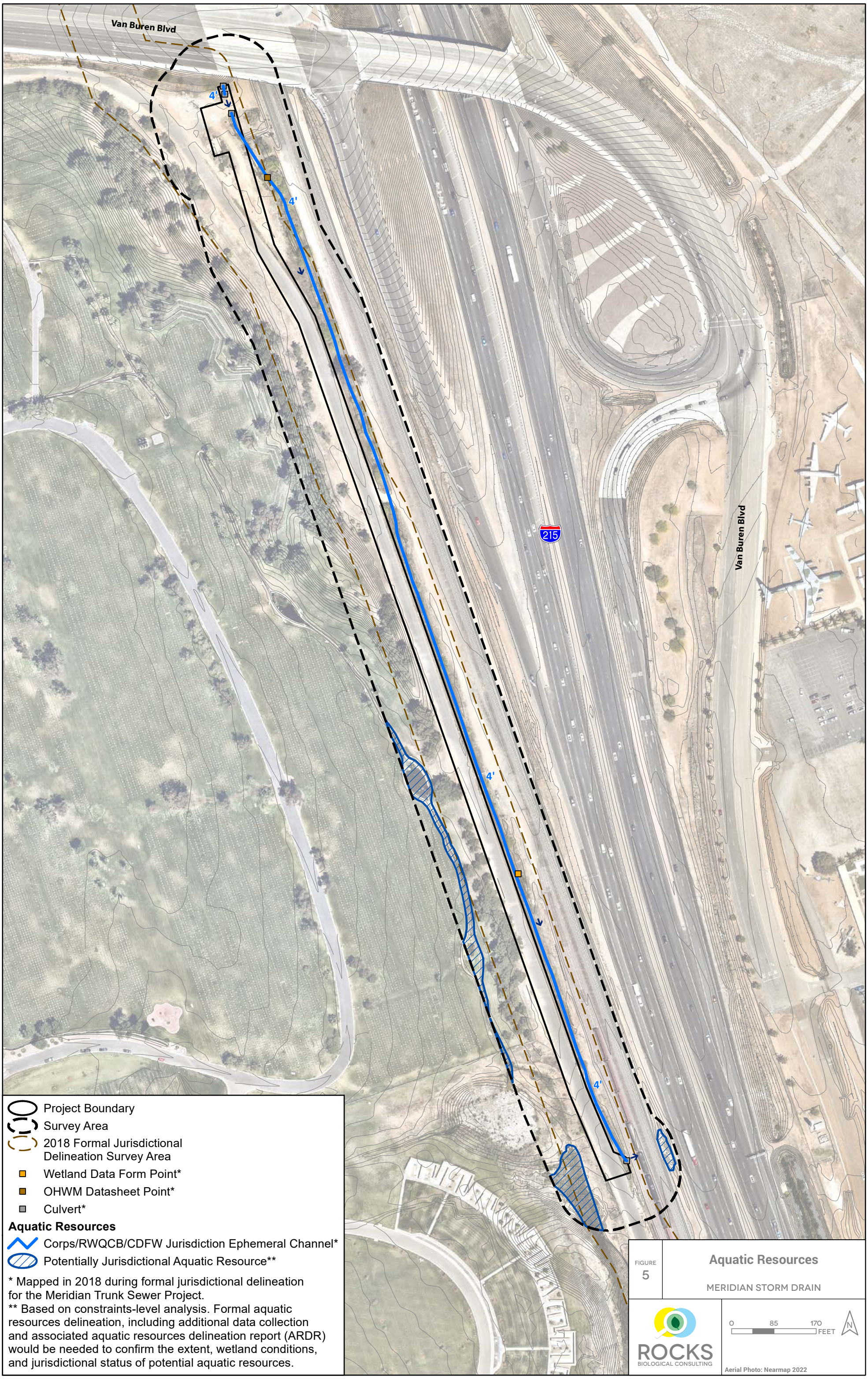
MERIDIAN STORM DRAIN

ROCKS BIOLOGICAL CONSULTING

0 85 170 FEET

N

Aerial Photo: Nearmap 2022


Van Buren Blvd
4'
4'
215
Van Buren Blvd
4'
4'
Project Boundary
Survey Area
2018 Formal Jurisdictional Delineation Survey Area
Wetland Data Form Point*
OHWM Datasheet Point*
Culvert*
Aquatic Resources
Corps/RWQCB/CDFW Jurisdiction Ephemeral Channel*
Potentially Jurisdictional Aquatic Resource**
* Mapped in 2018 during formal jurisdictional delineation for the Meridian Trunk Sewer Project.
** Based on constraints-level analysis. Formal aquatic resources delineation, including additional data collection and associated aquatic resources delineation report (ARDR) would be needed to confirm the extent, wetland conditions, and jurisdictional status of potential aquatic resources.
FIGURE 5
Aquatic Resources
MERIDIAN STORM DRAIN
ROCKS BIOLOGICAL CONSULTING
0 85 170 FEET
N
Aerial Photo: Nearmap 2022

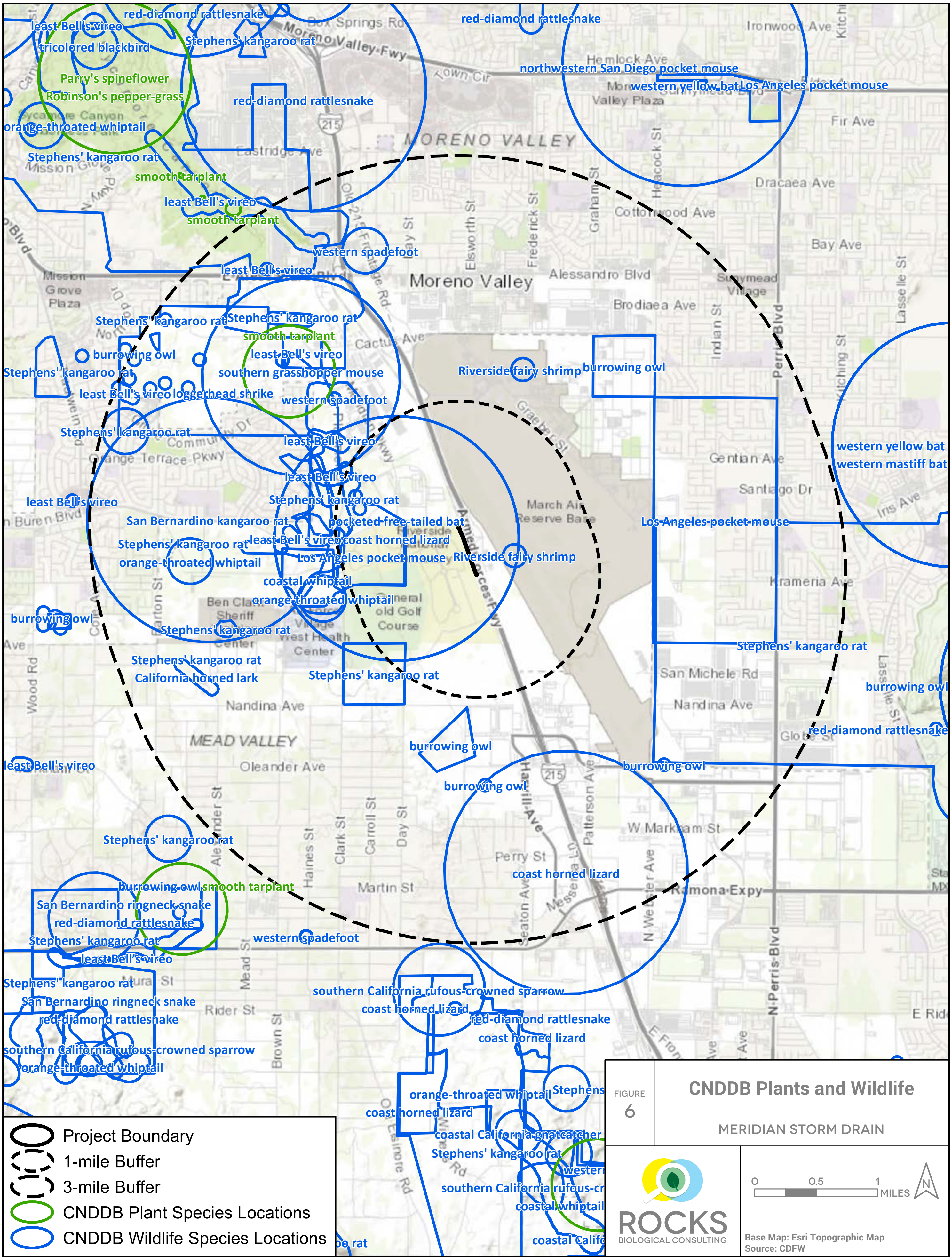
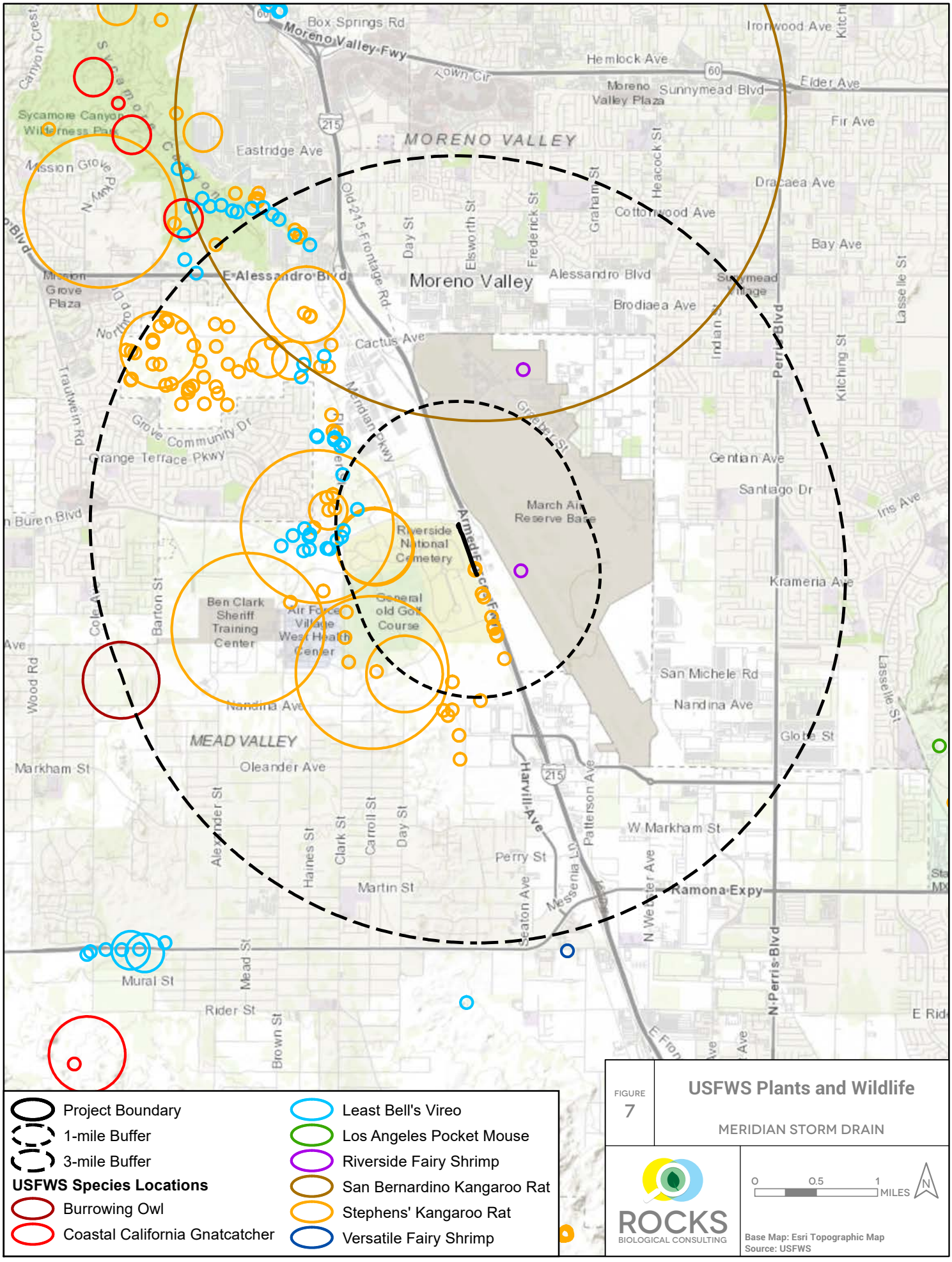


FIGURE 6
CNDDB Plants and Wildlife
MERIDIAN STORM DRAIN
Project Boundary
1-mile Buffer
3-mile Buffer
CNDDB Plant Species Locations
CNDDB Wildlife Species Locations
ROCKS
BIOLOGICAL CONSULTING
0
0.5
1
MILES
N
Base Map: Esri Topographic Map
Source: CDFW
MORENO VALLEY
Moreno Valley
March Air Reserve Base
MEAD VALLEY
red-diamond rattlesnake
least Bell's vireo
tricolored blackbird
Stephens' kangaroo rat
Parry's spineflower
Robinson's pepper-grass
orange-throated whiptail
smooth tarplant
western spadefoot
northwestern San Diego pocket mouse
western yellow bat
Los Angeles pocket mouse
burrowing owl
southern grasshopper mouse
loggerhead shrike
Riverside fairy shrimp
western mastiff bat
San Bernardino kangaroo rat
pocketed free-tailed bat
coast horned lizard
coastal whiptail
California horned lark
San Bernardino ringneck snake
southern California rufous-crowned sparrow
coastal California gnatcatcher
Moreno Valley Fwy
Alessandro Blvd
Cactus Ave
Iris Ave
Nandina Ave
Oleander Ave
Ramona Expy
Perris Blvd
Martin St
Heacock St
Frederick St
Graham St
Elsworth St
Indian St
San Michele Rd
Krameria Ave
Gentian Ave
Santiago Dr
Bay Ave
Dracaea Ave
Cottonwood Ave
Fir Ave
Ironwood Ave
Hemlock Ave
Box Springs Rd
Brodiaea Ave
Eastridge Ave
Alexander St
Haines St
Clark St
Carroll St
Day St
Mead St
Brown St
Rider St
Wood Rd
W Markham St
Perry St
Patterson Ave
Harvill Ave
Seaton Ave
N Webster Ave
N Perris Blvd
Orange Terrace Pkwy
Globe St
Lasselle St
Kitching St
215



Project Boundary
1-mile Buffer
3-mile Buffer

USFWS Species Locations

Burrowing Owl
Coastal California Gnatcatcher
Least Bell's Vireo
Los Angeles Pocket Mouse
Riverside Fairy Shrimp
San Bernardino Kangaroo Rat
Stephens' Kangaroo Rat
Versatile Fairy Shrimp

FIGURE 7

USFWS Plants and Wildlife

MERIDIAN STORM DRAIN

ROCKS BIOLOGICAL CONSULTING

0 0.5 1 MILES

N

Base Map: Esri Topographic Map
Source: USFWS

Van Buren Blvd

215

Van Buren Blvd

Project Boundary/Project Impacts
Survey Area

Aquatic Resources

Corps/RWQCB/CDFW
Jurisdiction Ephemeral Channel

Vegetation

Freshwater Marsh
Mule Fat Scrub
Riversidean Sage Scrub
Ornamental
Disturbed Habitat
Developed

Special-Status Species

Northwestern San Diego Pocket Mouse
(*Chaetodipus fallax fallax*)
Stephens' Kangaroo Rat
(*Dipodomys stephensi*)

FIGURE
8

Proposed Project Impacts

MERIDIAN STORM DRAIN

ROCKS
BIOLOGICAL CONSULTING

0 85 170
FEET

N

Aerial Photo: Nearmap 2022

APPENDIX A

SITE PHOTOGRAPHS

Appendix A

June 3, 2022 Site Photographs

Photo 1. View from northern end of survey area near Van Buren Boulevard, facing south.

Photo 2. View from northern end of survey area near Van Buren Boulevard, facing east.

Photo 3. View of northern extent of ephemeral channel and project impacts where storm drain will connect to existing reinforced concrete box culvert, facing north.

Photo 4: View of ephemeral channel near the center of the survey area, facing north.

Photo 5. View of dual reinforced concrete box culverts where the storm drain will connect at the southern terminus of the project, facing east.

Photo 6. View of freshwater marsh (background) and restored Riversidean sage scrub (foreground) in the southwestern project buffer, facing west.

Photo 7. View of disturbed habitat and ornamental vegetation in the western project buffer, facing north.

Photo 8. View of developed Avenue A along project alignment, facing north.

APPENDIX B

PLANT SPECIES OBSERVED WITHIN THE MERIDIAN STORM DRAIN PROJECT SURVEY AREA

APPENDIX B

PLANT SPECIES OBSERVED WITHIN THE MERIDIAN STORM DRAIN PROJECT SURVEY AREA

Family	Common Name	Scientific Name
Plants		
Arecaceae	Mexican fan palm	*Washingtonia robusta**
Asteraceae	western ragweed	*Ambrosia psilostachya*
Asteraceae	California sagebrush	*Artemisia californica*
Asteraceae	mule-fat, seep-willow	*Baccharis salicifolia* subsp. *salicifolia*
Asteraceae	Italian thistle	*Carduus pycnocephalus**
Asteraceae	tocalote	*Centaurea melitensis**
Asteraceae	common spikeweed	*Centromadia pungens* subsp. *pungens*
Asteraceae	bull thistle	*Cirsium vulgare**
Asteraceae	California sand-aster	*Corethrogyne filaginifolia* var. *filaginifolia*
Asteraceae	fascicled tarweed	*Deinandra fasciculata*
Asteraceae	brittlebush, incienso	*Encelia farinosa* var. *farinosa*
Asteraceae	thickbracted goldenbush	*Ericameria palmeri* var. *pachylepis*
Asteraceae	horseweed	*Erigeron canadensis*
Asteraceae	Western sunflower	*Helianthus annuus*
Asteraceae	telegraph weed	*Heterotheca grandiflora*
Asteraceae	goldenbush	*Isocoma menziesii*
Asteraceae	prickly lettuce	*Lactuca serriola**
Asteraceae	stinknet	*Oncosiphon piluliferum**
Asteraceae	California everlasting	*Pseudognaphalium californicum*
Asteraceae	Spanish false-fleabane	*Pulicaria paludosa**
Asteraceae	common sow-thistle	*Sonchus oleraceus**
Asteraceae	small wreath-plant	*Stephanomeria exigua*
Boraginaceae	rigid fiddleneck	*Amsinckia menziesii*
Brassicaceae	short-pod mustard	*Hirschfeldia incana**
Brassicaceae	London rocket	*Sisymbrium irio**
Chenopodiaceae	Australian tumbleweed	*Salsola australis**
Cyperaceae	tall flatsedge	*Cyperus eragrostis*
Euphorbiaceae	white-margin sandmat	*Euphorbia albomarginata*
Fabaceae	Spanish-clover	*Acmispon americanus*
Fabaceae	California burclover	*Medicago polymorpha**
Fabaceae	white sweetclover	*Melilotus albus**
Fabaceae	palo verde	*Parkinsonia* sp.*

Family	Common Name	Scientific Name
Geraniaceae	long-beak filaree/storksbill	*Erodium botrys**
Geraniaceae	red-stem filaree/storksbill	*Erodium cicutarium**
Lythraceae	grass poly	*Lythrum hyssopifolia**
Malvaceae	cheeseweed	*Malva parviflora**
Myrtaceae	ornamental eucalyptus	*Eucalyptus* sp.*
Papaveraceae	poppy	*Eschscholzia* sp.
Pineceae	ornamental pine	*Pinus* sp.*
Poaceae	slender wild oat	*Avena barbata**
Poaceae	ripgut grass	*Bromus diandrus**
Poaceae	soft chess	*Bromus hordeaceus**
Poaceae	foxtail chess, red brome	*Bromus rubens**
Poaceae	Bermuda grass	*Cynodon dactylon**
Poaceae	salt grass	*Distichlis spicata*
Poaceae	rat-tail fescue	*Festuca myuros**
Poaceae	perennial rye grass	*Festuca perennis**
Poaceae	hare barley	*Hordeum murinum* subsp. *leporinum**
Poaceae	California muhly	*Muhlenbergia californica*[+]
Poaceae	annual beard grass	*Polypogon monspeliensis**
Poaceae	foothill needle grass	*Stipa lepida*
Polygonaceae	curly dock	*Rumex crispus**
Salicaceae	Western cottonwood	*Populus fremontii* subsp. *fremontii*
Salicaceae	Goodding's black willow	*Salix gooddingii*
Solanaceae	Western jimson weed	*Datura wrightii*
Tamaricaceae	saltceder	*Tamarix ramosissima**
Typhaceae	cattail	*Typha* sp.
Zygophyllaceae	puncture vine	*Tribulus terrestris**

*Non-native species
[+]California Rare Plant Rank (CRPR) 4.3

APPENDIX C

WILDLIFE SPECIES OBSERVED WITHIN THE MERIDIAN STORM DRAIN PROJECT SURVEY AREA

APPENDIX C

WILDLIFE SPECIES OBSERVED WITHIN THE UPPER PLATEAU PROJECT SURVEY AREA

Family	Common Name	Scientific Name
Birds		
Accipitridae	red-tailed hawk	*Buteo jamaicensis*
Aegithalidae	bushtit	*Psaltriparus minimus*
Anatidae	mallard	*Anas platyrhynchos*
Apodidae	white-throated swift	*Aeronautes saxatalis*
Corvidae	common raven	*Corvus corax*
Fringillidae	house finch	*Haemorhous mexicanus*
Fringillidae	lesser goldfinch	*Spinus psaltria*
Icteridae	hooded oriole	*Icterus cucullatus*
Mimidae	Northern mockingbird	*Mimus polyglottos*
Passerellidae	song sparrow	*Melospiza melodia*
Turdidae	Western bluebird	*Sialia mexicana*
Tyrannidae	black phoebe	*Sayornis nigricans*
Tyrannidae	Cassin's kingbird	*Tyrannus vociferans*
Invertebrates		
Lycaenidae	Acmon blue	*Plebejus acmon*
Pieridae	orange sulphur	*Colias eurytheme*
Pieridae	checkered white	*Pontia protodice*
Reptiles		
Emydidae	red-eared slider	*Trachemys scripta elegans*
Phrynosomatidae	common side-blotched lizard	*Uta stansburiana*
Mammals		
Cricetidae	deer mouse	*Peromyscus maniculatus*
Leporidae	desert cottontail	*Sylvilagus audubonii*
Sciuridae	California ground squirrel	*Otospermophilus beecheyi*

APPENDIX D

MERIDIAN TRUNK SEWER PROJECT JURISDICTIONAL DELINEATION REPORT

ROCKS
BIOLOGICAL CONSULTING



MERIDIAN TRUNK SEWER PROJECT
JURISDICTIONAL DELINEATION REPORT

Riverside County, California

July 24, 2018

Prepared for:
March Joint Powers Authority
14205 Meridian Pkwy #140
Riverside, CA 92518

Prepared by:
Rocks Biological Consulting
2621 Denver Street, Ste. B
San Diego, CA 92110
(619) 701-6798

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1 INTRODUCTION

Rocks Biological Consulting (RBC) conducted a formal jurisdictional delineation for the Meridian Trunk Sewer Project (project) to identify areas potentially jurisdictional under the U.S. Army Corps of Engineers (Corps) pursuant to Section 404 of the Clean Water Act; the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the Clean Water Act and the Porter-Cologne Act; and streambed and riparian habitats under California Department of Fish and Wildlife (CDFW) pursuant to California Fish and Game Code (§1602). This information is necessary to evaluate jurisdictional impacts and permit requirements associated with the project, can be used by the agencies to assess project conformance with state and federal regulations, and serves as a request for the Corps to complete a Preliminary Jurisdictional Determination (PJD) based on the information provided in this report. Furthermore, Appendix A provides a checklist of the information contained in this report in compliance with the Corps Los Angeles District's *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports* (Corps 2017).

1.1 PROJECT LOCATION

The project study area is located along Interstate 215 between Van Buren Boulevard and a sewer treatment plant located on Nandina Avenue in the City of Riverside, California (Figure 1) within Sections 23, 26 and 35, Township 03S, Range 04W on the U.S. Geological Survey (USGS) 7.5-minute Riverside East and Steele Peak quadrangles (Figure 2). Interstate 215 (I-215) borders the eastern boundary of the site while the western boundary is adjacent to the Riverside National Cemetery; undeveloped lands occur along the southwest portion of the project survey buffer. Central project alignment coordinates are 33.879418, -117.268099.

1.2 PROJECT DESCRIPTION

The proposed project includes the construction of an approximately 8,200-linear-foot, 24-inch trunk sewer within the project area. The pipeline would extend south from an existing sewer lift station located north of Van Buren Boulevard to the existing sewer treatment plant located south of the Riverside National Cemetery on Nandina Avenue.

1.3 REGULATORY BACKGROUND

Several regulations have been established by federal, state, and local agencies to protect and conserve aquatic resources. The descriptions below provide a brief overview of agency regulations that may be applicable to the project. Regulatory agencies make the final determination of whether a project requires authorization pursuant to these regulations.

1.3.1 APPLICABLE AQUATIC RESOURCE PROTECTION REGULATIONS

Clean Water Act

Pursuant to Section 404 of the Clean Water Act (CWA), the Corps is authorized to regulate any activity that would result in the discharge of dredged or fill material into waters of the U.S. (including wetlands), which include those waters listed in 33 CFR 328.3. The Corps, with oversight from the U.S. Environmental Protection Agency (USEPA), has the principal authority to

issue CWA Section 404 permits. The Corps would require a Standard Individual Permit (SIP) for more than minimal impacts to waters of the U.S. as determined by the Corps. Projects with minimal individual and cumulative adverse effects on the environment may meet the conditions of an existing Nationwide Permit (NWP).

A water quality certification or waiver pursuant to Section 401 of the CWA is required for all Section 404 permitted actions. The RWQCB, a division of the State Water Resources Control Board, provides oversight of the 401-certification process in California. The RWQCB is required to provide "certification that there is reasonable assurance that an activity that may result in the discharge to waters of the United States will not violate water quality standards." Water Quality Certification must be based on the finding that proposed discharge will comply with applicable water quality standards.

The National Pollutant Discharge Elimination System (NPDES) is the permitting program for discharge of pollutants into surface waters of the U.S. under Section 402 of the CWA.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Water Code Section 13000 et seq.) provides for statewide coordination of water quality regulations. The State Water Resources Control Board was established as the statewide authority and nine separate RWQCBs were developed to oversee water quality on a day-to-day basis. The RWQCB is the primary agency responsible for protecting water quality in California. As discussed above, the RWQCB regulates discharges to surface waters under the federal CWA. In addition, the RWQCB is responsible for administering the California Porter-Cologne Water Quality Control Act.

Pursuant to the Porter-Cologne Water Quality Control Act, the state is given authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. As such, any person proposing to discharge waste into a water body that could affect its water quality must first file a Report of Waste Discharge if Section 404 is not required for the activity. "Waste" is partially defined as any waste substance associated with human habitation, including fill material discharged into water bodies.

California Fish and Game Code Sections 1600-1602

Pursuant to Division 2, Chapter 6, Section 1602 of the California Fish and Game Code (CFGC), CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream or lake that supports fish or wildlife. A Notification of Lake or Streambed Alteration must be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." CDFW has jurisdiction over riparian habitats associated with watercourses. Jurisdictional waters are delineated by the outer edge of riparian vegetation (i.e., drip line) or at the top of the bank of streams or lakes, whichever is wider. CDFW jurisdiction does not include tidal areas or isolated resources. CDFW reviews the proposed actions and, if necessary, submits (to the applicant) a proposal that includes measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and applicant is the Lake or Streambed Alteration Agreement.

1.4 CONTACT INFORMATION

Pending from KH

Applicant and Property Owner:

Name, Title

Company

Address Line 1

Address Line 2

email address

phone number

Agent:

Shanti Santulli

Rocks Biological Consulting

2621 Denver Street, Suite B

San Diego, CA 92110

shanti@rocksbio.com

619-674-8067

Agency access to the project site can be coordinated with the applicant and/or agent upon request.

2 METHODS

Prior to the on-site delineation, field maps were created using a Geographic Information System (GIS) and incorporating topographic maps and a color aerial photograph at a 1:100 scale. U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) and U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) data was overlaid on a USGS topographic map of the area (Figure 2) to further determine the locations of potential areas of jurisdiction. Google Earth, NetrOnline Historic Aerials, and University of California-Santa Barbara database was also utilized to assess historic presence or absence of flow.

Ian Hirschler and Emily Trevino of Rocks Biological Consulting (RBC) conducted the jurisdictional delineation field visit on June 27, 2018. Emily Trevino and Shanti Santulli conducted an additional field visit on July 17, 2018. Areas with depressions, drainage patterns, and/or wetland vegetation within the project survey area were evaluated for potential jurisdictional status, with focus on the presence of defined channels and/or wetland vegetation, soils and hydrology. RBC determined the project survey area to include a 50-foot buffer from the proposed sewer and storm drain alignment due to the constraints of the Riverside National Cemetery and I-215. Field staff examined potential jurisdictional wetland areas using the methods set forth in the Corps 1987 *Wetland Delineation Manual* (Wetland Manual) (Environmental Laboratory 1987) and the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0* (Arid West Supplement) (Corps

2008a). Wetland plant indicator status was determined using the *National Wetland Plant List* (NWPL; Corps 2016) and hydric soils indicators on *Field Indicators of Hydric Soils in the United States, Version 8.1* (NRCS 2017). Soil chromas were identified in the field according to *Munsell's Soil Color Charts* (Kollmorgen 2000).

Lateral limits of potential non-wetland waters of the U.S./State for the Corps and RWQCB were identified using field indicators of an ordinary high-water mark (OHWM) as described in *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States* (Corps 2008b). For each feature exhibiting potential presence of an OHMW, RBC prepared to complete a 2010 Arid West Ephemeral and Intermittent Streams OHWM Datasheet (OHWM Datasheet).

CDFW potential jurisdictional boundaries were determined based on the presence of riparian habitat and/or streambed. Streambeds considered within CDFW jurisdiction were delineated based on the definition of streambed as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports riparian vegetation" (Title 14, Section 1.72). Riparian habitat refers to vegetation and habitat associated with a stream. The CDFW jurisdictional habitat includes all riparian shrub or tree canopy that may extend beyond the banks of a stream.

While in the field, potentially jurisdictional features were recorded using a hand-held Global Positioning System (GPS) unit with a level of accuracy ranging from four to 12 feet. RBC staff refined the data using aerial photographs and topo maps with two-foot contours to ensure accuracy. Off-site portions of drainages were visited to confirm the presence of the indicators above, if appropriate, and general flow path. Plants were identified according to *The Jepson Manual 2nd edition* (Baldwin et al. 2012). Vegetation community classifications follow Holland (1986) and nomenclature follows Jepson eFlora (2018).

All figures generated for this jurisdictional delineation report follow the Corps' *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program* (Corps, 2016).

3 RESULTS

3.1 TOPOGRAPHY

The site is primarily flat with elevations on-site ranging from 1,522 to 1,570 feet. Potentially jurisdictional areas on the project site include a north-south trending drainage above Van Buren Boulevard (Feature 1), a north-south trending drainage in the northern portion of the survey area (Feature 2), and a west-east trending drainage in the southern portion of the survey area. (Feature 3; Figure 5).

3.2 WATERSHED

The proposed project area is within the San Jacinto Hydrologic Unit Code [HUC] 8 (18070202), Lower San Jacinto River Hydrologic Unit Code [HUC] 10 (1807020203), Perris Reservoir Hydrologic Unit Code [HUC] 12 (180702020305) (Figure 3). USGS NHD maps three "blue-line streams" on the central and southern portions of the project area, which flow under I-215 and

converge in a large canal within the adjacent March Air Force Base. (Figure 2). USFWS NWI also map Riverine designations within the projects central and southern portions which drain east into the canal on March Air Force Base. (Figure 4).

3.3 HYDROLOGY

Table 1 describes the estimated monthly total and average precipitation for the project area between 2007 and 2018 to provide the pertinent pre-site visit precipitation data. RBC staff accessed precipitation data through the National Resources Conservation Service (NRCS) Agricultural Applied Climate Information System (AgACIS) database from the March AFB station in Riverside County on June 27, 2018 and July 17, 2018.

Table 1. Precipitation Data

Monthly Total Precipitation (inches) for March AFB, CA (NOAA)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2007	M	M	M	M	M	M	M	M	M	M	M	M	M
2008	M	M	M	M	M	M	M	M	M	M	M	M	M
2009	M	M	M	M	M	M	M	T	0.42	T	0.07	1.43	M
2010	5.78	1.95	0.16	0.39	0.02	0	T	T	0.06	0.61	0.53	7.7	17.2
2011	0.33	2.6	1.51	0.37	0.26	0	0.19	0.01	0.03	0.15	1.29	0.34	7.08
2012	0.31	0.46	0.95	0.79	0.01	0	0.07	2.32	0.1	0.03	0.26	1.99	7.29
2013	0.57	0.78	0.72	T	0.28	0	0.02	0.4	T	0.43	0.46	0.36	4.02
2014	T	1.19	0.68	0.49	0	0	T	0.57	0.05	T	0.18	2.91	6.07
2015	0.6	0.33	0.13	0.14	0.61	T	1.39	T	0.45	0.31	0.05	0.3	4.31
2016	2.24	0.12	0.56	0.96	0.28	T	T	0	0.06	0.32	0.7	3.11	8.35
2017	3.78	1.91	0.01	T	0.02	T	0.01	0.59	T	T	T	T	6.32
2018	1.44	0.23	M	T	0.08	0	M	M	M	M	M	M	M
Mean	1.67	1.06	0.59	0.35	0.17	T	0.21	0.43	0.13	0.21	0.39	2.02	7.58

*Per AgACIS database: “Monthly summarized data - means, sums, daily extremes or frequencies for the selected variable for each month of the year for the selected range of years. HDD, CDD and GDD are heating, cooling and growing degree days, respectively. Note: trace precipitation/snowfall/snow depth amounts are treated as zero in sums, means, and frequency counts. Annual average temperatures are the average of the twelve-monthly values. Values of 'M' indicate missing data and 'T' indicates a trace.”

Table 1 indicates that the field survey date of June 27, 2018 occurred during average historic precipitation (0 inch) for the month of June, which averaged 0 inches between 2007-2018. The most recent complete year of precipitation data indicates that the 2017 annual sum of precipitation of 6.32 inches was slightly above the average annual sum of precipitation of 7.58 inches from 2010-2017.

Know hydrologic sources for the observed on-site drainages, discussed further below, appear to be fed by several culvert outlets (as mapped on Figure 5), surrounding commercial and recreational uses, and direct precipitation. Flows generally drain downslope, from west to east, into a culvert that runs under I-215 and subsequently into a large canal on the March Air Force Base. Flows continue southeast draining into the Perris Valley storm drain system which outlets

into the San Jacinto River and ultimately the Santa Ana River. The Santa Ana River flows east to west into the Pacific Ocean approximately 40 miles west of the project area.

3.4 SOILS

Based on the NRCS map of the project area (Figure 4), the following soils occur within the project site boundary and are described below per the USDA's Official Soil Series Description and Series Classification database:

Monserate sandy loam, 0 to 5 percent slopes – The Monserate series consist of well to well drained and moderately slow permeable soils. These soils are found primarily on nearly level to moderately steep terraces and fans in southern California and are primarily used for growing grain or pasture. The NRCS does not list this soil as hydric.

Monserate sandy loam, 5 to 8 percent slopes – The Monserate series consist of well to well drained and moderately slow permeable soils. These soils are found primarily on nearly level to moderately steep terraces and fans in southern California and are primarily used for growing grain or pasture. The NRCS does not list this soil as hydric.

3.5 FEATURES OBSERVED

RBC investigated five wetland delineation sampling points in the project survey boundaries to determine the presence or absence of federally jurisdictional wetlands (Figure 5; Appendix B). RBC also completed three Arid West Ephemeral and Intermittent Streams OHWM Datasheets (OHWM Datasheets) within each defined aquatic feature in the project survey boundary (Figure 5; Appendix B). The descriptions provided below detail the existing characteristics of each feature determined in the field. Appendix C provides site photographs of the features, and Figure 7 displays representative photo points also discussed below.

Feature 1

Feature 1 (F1) appears to be a drainage basin/channel which receives flows from several culverts along commercial use sites on the western side of I-215. The feature is approximately 20 feet wide; field staff identified an OHWM based primarily on the shift in vegetation cover and sedimentation patterns with a very small break in slope (Appendix B). Dominant vegetation within the channel is smooth tarplant (*Centromadia pungens ssp. laevis*; FAC*)* Wetland Sample Point 3, taken within a portion of the feature that displayed surface soil cracks, met the wetland hydrology parameter; however, hydric soils and hydrophytic vegetation were not present through the main drainage area of the feature (Appendix B; WSP 3). F1 drains south into Wetland 1 (W1).

Wetland 1

W1 is an area with observed saturation and ponding at the corner of Van Buren Boulevard and I-215 fed by F1 to the north and by an adjacent western culvert. W1 ponds between this western culvert and W1's terminus, an eastern culvert, approximately 45 feet away, which runs under I-215 into a large canal within March Air Force Base. Wetland Sample Point 1, taken within a saturated area along F1, met the hydrophytic vegetation, wetland hydrology, and hydric soil parameters per the Corps' Arid West Supplement (Appendix B). The hydrophytic vegetation

observed within and adjacent to the sample point included cattail (*Typha latifolia*), spanish false fleabane (*Pulicaria paludosa*), and mulefat (*Baccharis salicifolia*). Wetland Sample Point 2, taken in the adjacent uplands, met the hydrophytic vegetation dominance test but did not meet parameters for wetland hydrology or hydric soils (Appendix B).

Feature 2

Feature 2 (F2) is approximately four feet wide, originates from a culvert along Van Buren Boulevard, and flows northwest to southeast into a culvert that runs under I-215. The feature appeared to be a constructed drainage between the railroad and road to channelize flows downstream. RBC staff observed an OHWM in most sections of F2 based on the presence of a break in slope, change in sediment texture, and change in vegetation species and cover (Figure 5; Appendix B, OHWM Data Point 2). Some sections of F2 contain less defined flow (Appendix C); however, vegetation wracking was consistent throughout the feature. Wetland Sample Point 4, taken adjacent to several mulefat (*Baccharis salicifolia*) individuals, met the hydrophytic vegetation and wetland hydrology parameters per the Arid West Supplement; however, the sample point did not show evidence of hydric soils (Appendix B, WSP 4). F2 was predominately unvegeated.

Feature 3

Feature 3 (F3) is approximately four feet wide and originates from undeveloped property that borders the project survey area to the west. Wetland Sample Point 5, taken adjacent to a single black willow (Salix gooddingii) and Fremont's cottonwood (*Populus fremontii*), met the hydrophytic vegetation and wetland hydrology parameters; however, hydric soil indicators were not present (Appendix B). The feature flows into a culvert which runs under I-215 into March Air Force Base. The OHWM for F3 is approximately four feet wide based primarily on the shift in vegetation and sediment and faint break in slope throughout portions of the feature (Appendix B, Appendix C).

3.6 JURISDICTIONAL RESOURCES AND ANALYSES

F1 is a 20-foot-wide drainage in between several culverts and an adjacent railroad berm. RBC reviewed Google Earth Aerial images and determined the installation of culverts in 2011 helped create the wetland conditions observed at W1. Prior to 2011, the area did not appear vegetated or regularly ponded. In summary, W1 ponds at an area between two culverts sufficently enough to sustain the three parameters required for a federally jurisdictional wetland (Appendix B, WSP 1). As such, W1 is a potential wetland waters of the U.S./State within a streambed jurisdictional by the Corps, RWQCB and CDFW.

RBC determined the presence of an OHWM and bed and bank through most of F1, F2, and F3 and are therefore potential non-wetland, ephemeral waters of the U.S./State jurisdictional by the Corps and RWQCB and potential ephemeral streambed jurisdictional by the CDFW. Table 2 provides approximate acreages of potential jurisdictional resources per regulatory agency delineated within the project survey area and related information. Table 3 provides vegetation community acreages within the project area. Table 4 details approximate impacts based on the proposed project alignment provided by Kimley Horn on July 17, 2018.

Table 2. Jurisdictional Resources within the Project Area: Corps, RWQCB, and CDFW

Feature Name	Acreage	Linear Feet	Cowardin Code	Presence of OHWM	Wetland Presence	Dominant Vegetation	Location (lat/long)
Feature 1	0.30	645	R6	Yes	Yes	Channel/smooth tarplant dominated	33.8895090183, -117.272644407
Wetland 1	0.07	96	PEM	No	Yes	Freshwater marsh	33.8885223319, -117.272244869
Feature 2	0.21	2267	R6	Yes	No	Disturbed/non-native dominated	33.8874948622, -117.271350718
Feature 3	0.02	196	R6	Yes	No	Disturbed/non-native dominated	33.8753845798, -117.266022636
Total	0.60	3204					

Table 3. Vegetation Communities within Project Survey Area

Vegetation Community	Project Site (acres)
Channel	0.29
Developed	10.66
Disturbed	9.44
Freshwater Marsh	0.07
Non-native Grassland	5.35
Ornamental	2.85
Total	28.67

3.7 PROPOSED JURISDICTIONAL IMPACTS

The proposed project would temporarily impact approximately 0.01 acre (96 linear feet) of potential non-wetland, ephemeral Corps/RWQCB waters of the U.S./State and CDFW streambed within F3 (Table 4) through the placement of a trunk sewer. Impacted potentially jurisdictional features would be restored back to pre-construction elevations and contours after project implemenation. The associated permit application will provide further details regarding the proposed project impacts.

Table 4. Proposed Impacts on Corps, RWQCB, and CDFW Jurisdictional Resources

Feature Name	Impacted Acreage	Impacted Linear Feet	Cowardin Code	Location (lat/long)
Feature 1	0	0	R6	33.8895090183, -117.272644407
Wetland 1	0	0	PEM	33.8885223319, -117.272244869
Feature 2	0	0	R6	33.8874948622, -117.271350718
Feature 3	0.01	96	R6	33.8753845798, -117.266022636
Total	**0.01**	**96**		

4 CONCLUSION

The Meredian Trunk Sewer project area supports three non-wetland ephemeral drainages and one wetland potentially jurisdictinoal by the Corps, RWQCB, and CDFW (Table 2).

The project would temporarily impact 0.01 acre (96 linear feet) of non-wetland, ephemeral Corps/RWQCB waters of the U.S./State and CDFW streambed within F3 (Table 3).

Assuming concurrence with the provided jurisdictional delineation and estimated impact calculations, the proposed project would require Section 404 authorization from the Corps and a Section 401 water quality certification from the RWQCB. A Streambed Alteration Agreement from CDFW may not be required as the project likely would not cause a substantial alteration of or obstruction to the existing streambed. A detailed restoration plan may be required to ensure the proposed temporary impacts would be returned to pre-contruction conditions; such a plan could preclude the requirement for compensatory mitigation if the impact area is adequately restored in place. Furthermore, the project may qualify as a non-notifying Nationwide Permit (NWP) 12 given the small acreage and linear feet of impacts, assuming the project would not involve potential effects on species listed per the Endangered Species Act and/or historic properties pursuant to the National Historic Preservation Act.

Please note that the applicable agencies will make final jurisdictional determinations. RBC recommends early coordination with the resource agencies to determine the final jurisdictional boundaries, applicable permitting processes, compensatory mitigation requirements, and other potential permitting issues specific to the proposed project. Agency representatives may request to access to site to field-verify the results of this jurisdictional delineation report with the project applicant, or a designated representative.

The information provided in this report should remain valid for up to five years from the date of the field effort for the jurisdictional delineation unless site conditions change substantially, or a regulatory agency requires an updated report.

5 REFERENCES

Baldwin, B.G., Goldman, D.H., Keil, D.J., Patterson, R., Rosatti, T.J. (eds). 2012. The Jepson Manual: Vascular Plants of California, Second Edition, Thoroughly Revised and Expanded. University of California Press, Berkeley, California. 1400 pp.

California Environmental Protection Agency. (n.d.) Water Boards' Structure. Accessed on April 4, 2018. https://www.waterboards.ca.gov/sandiego/about_us/water_boards_structure/

City of San Diego. 2012. Biology Guidelines of the San Diego Municipal Code's Land Development Code. City of San Diego.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100 pp. with Appendices.

Google Earth Pro V 7.3.1.4507. 1994-2018. March Air Reserve Base, Riverside County, California. 33°53'14.54"N, 117°16'16.70"W, Eye alt 5209 feet. Image Landsat/Corpernicus. Accessed on June 25, 2018.

Holland R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Nongame-Heritage Program, State of California, Department of Fish and Game, Sacramento, 156 pp.

Jepson Flora Project (eds.) 2018. *Jepson eFlora*, Accessed on February 28, 2018. http://ucjeps.berkeley.edu/eflora/

Kollmorgen Instruments Corporation (Kollmorgen). 1994. Munsell Soil Color Charts, Revised edition. Baltimore, MD.

Laudenslayer, William F., Jr., W. E. Grenfell, Jr. and D. Zeiner. 1991. A check-list of the amphibians, reptiles, birds, and mammals of California. The Resources Agency: 77(3): 109-141.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1–17. Published 28 April. Retrieved from: http://wetland_plants.usace.army.mil/

National Resources Conservation Service (NRCS). Hydric Soils List. Accessed on June 25, 2018. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1316620.html

National Resources Conservation Service (NRCS) Agricultural Applied Climate Information System (AgACIS) Database. Monthly Total Precipitation for March AFB Station, 2007-2018. Accessed on June 25, 2018. http://agacis.rcc-acis.org/?fips=06065

National Resources Conservation Service (NRCS). Monserate Series. Accessed on June 27, 2018. https://soilseries.sc.egov.usda.gov/OSD_Docs/M/MONSERATE.html

Rebman, J.P. and M.G. Simpson. 2014. Checklist of the Vascular Plants of San Diego County. 5th edition. 130pp.

University of California-Santa Barbara. 1941. Rancho Mission Viejo to San Onofre, Leucadia to San Diego. UC Regents. Accessed on April 19, 2018. http://mil.library.ucsb.edu/apcatalog/report/report.php?filed_by=C-6850

U.S. Army Corps of Engineers (Corps). 2017. USACE Los Angeles District's Minimum Standards for Acceptance of Aquatic Resources Delineation Reports.

U.S. Army Corps of Engineers (Corps). 2016. Updated Map and Drawing Standards for the South Pacific Division Regulatory Program. February 10.

U.S. Army Corps of Engineers (Corps). 2008a. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). Eds. J.S. Wakely, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Army Corps of Engineers (Corps). 2008b. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, A Delineation Manual. R.W. Lichvar, and S.M. McColley. ERDC/CRREL TR-08-12. Hanover, NH: U.S. Army Engineer Research and Development Center.

U.S. Department of Agriculture. 2017. Field Indicators of Hydric Soils in the United States. Version 8.1. 55pp

Wyoming Geographic information Sciences Center. 2013. Subwatershed Boundaries, California (12-digit HUC), 2013. Earthworks, Stanford Libraries. Accessed on June 27, 2018. https://earthworks.stanford.edu/catalog/stanford-dq651jm030

FIGURE 1

Project Location

MERIDIAN TRUNK SEWER

ROCKS BIOLOGICAL CONSULTING

0 1,000 2,000 FEET

N

Source: Google; National Geographic Society

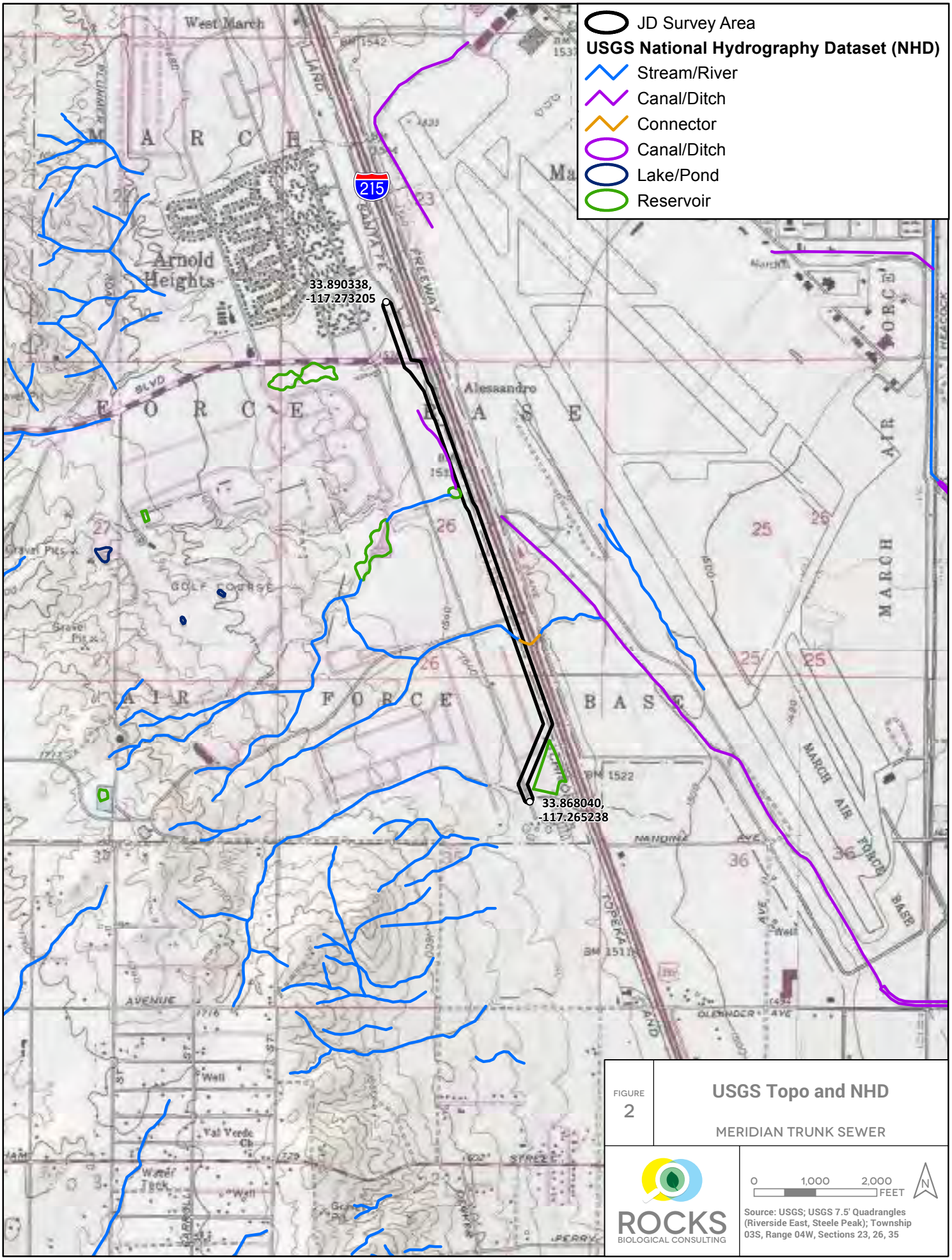


FIGURE 2

USGS Topo and NHD

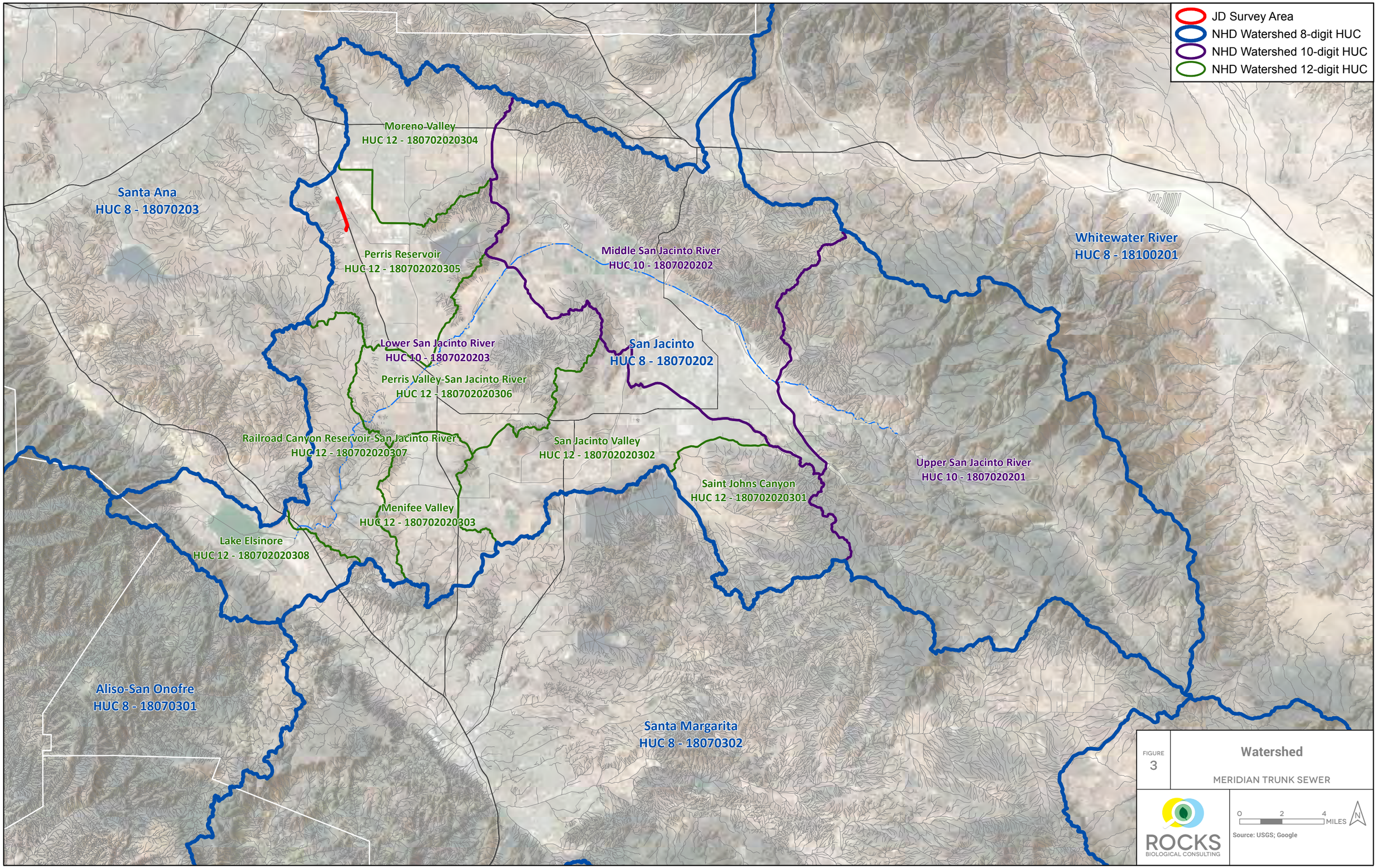
MERIDIAN TRUNK SEWER

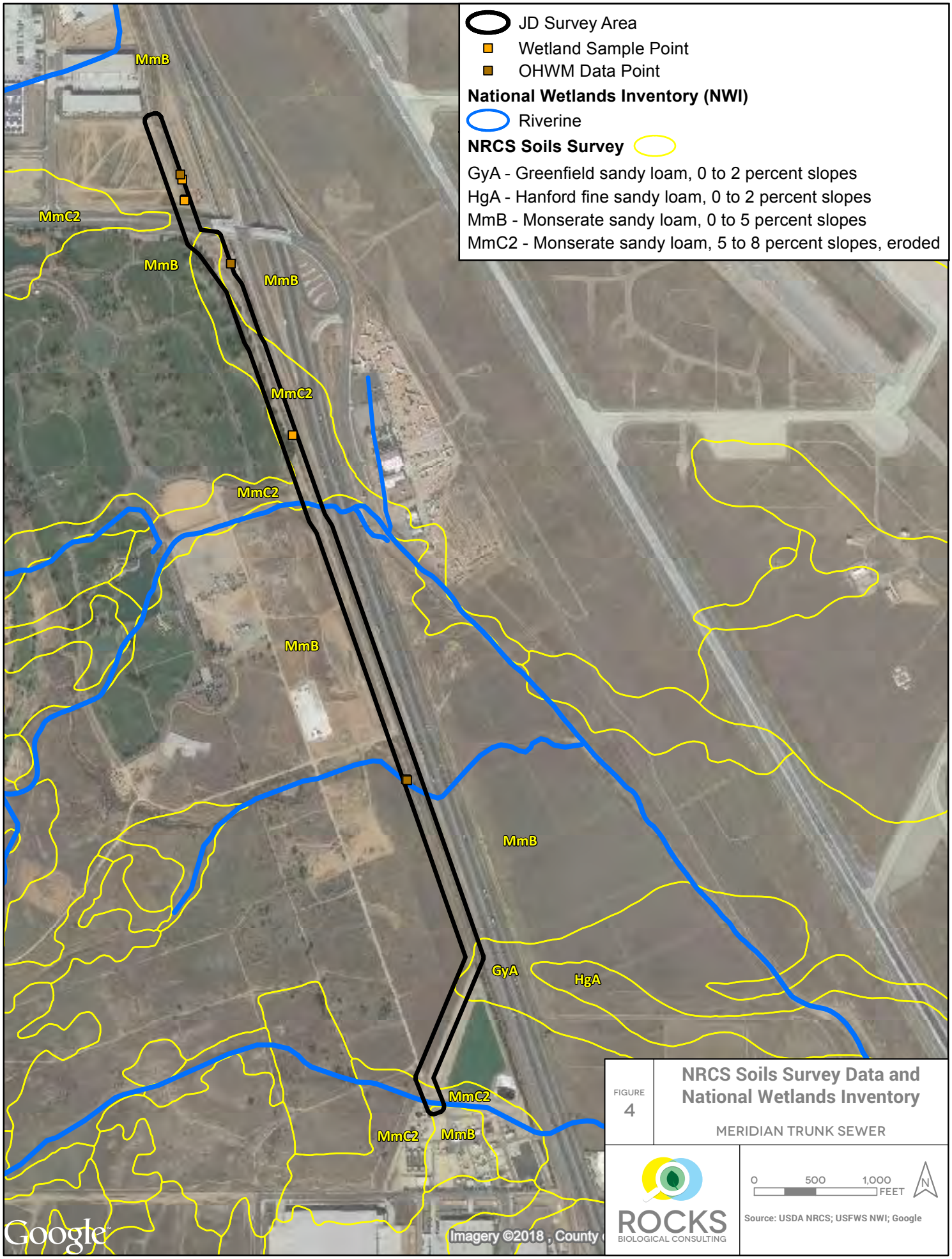
ROCKS BIOLOGICAL CONSULTING

0 1,000 2,000 FEET

N

Source: USGS; USGS 7.5' Quadrangles (Riverside East, Steele Peak); Township 03S, Range 04W, Sections 23, 26, 35


JD Survey Area
NHD Watershed 8-digit HUC
NHD Watershed 10-digit HUC
NHD Watershed 12-digit HUC
Moreno Valley
HUC 12 - 180702020304
Santa Ana
HUC 8 - 18070203
Perris Reservoir
HUC 12 - 180702020305
Middle San Jacinto River
HUC 10 - 1807020202
Whitewater River
HUC 8 - 18100201
Lower San Jacinto River
HUC 10 - 1807020203
San Jacinto
HUC 8 - 18070202
Perris Valley-San Jacinto River
HUC 12 - 180702020306
Railroad Canyon Reservoir-San Jacinto River
HUC 12 - 180702020307
San Jacinto Valley
HUC 12 - 180702020302
Upper San Jacinto River
HUC 10 - 1807020201
Saint Johns Canyon
HUC 12 - 180702020301
Menifee Valley
HUC 12 - 180702020303
Lake Elsinore
HUC 12 - 180702020308
Aliso-San Onofre
HUC 8 - 18070301
Santa Margarita
HUC 8 - 18070302
FIGURE
3
Watershed
MERIDIAN TRUNK SEWER
ROCKS
BIOLOGICAL CONSULTING
0 2 4 MILES
N
Source: USGS; Google


JD Survey Area
Wetland Sample Point
OHWM Data Point
National Wetlands Inventory (NWI)
Riverine
NRCS Soils Survey
GyA - Greenfield sandy loam, 0 to 2 percent slopes
HgA - Hanford fine sandy loam, 0 to 2 percent slopes
MmB - Monserate sandy loam, 0 to 5 percent slopes
MmC2 - Monserate sandy loam, 5 to 8 percent slopes, eroded
MmB
MmC2
MmB
MmB
MmC2
MmC2
MmB
MmB
GyA
HgA
MmC2
MmC2
MmB
Google
Imagery ©2018 , County
FIGURE 4
NRCS Soils Survey Data and National Wetlands Inventory
MERIDIAN TRUNK SEWER
ROCKS BIOLOGICAL CONSULTING
0 500 1,000 FEET
N
Source: USDA NRCS; USFWS NWI; Google

Detail Area 2

Van Buren Boulevard

4'

OHWM 2

4'

Feature 2

4'

Detail Area 1

Feature 1

20'

OHWM 1

WSP 3

Wetland 1

WSP 1

WSP 2

Key Map

Detail Area 1

Detail Area 2

Detail Area 3

215

WSP 4

4'

JD Survey Area

Proposed 24" VCP Sewer Main

Limits of Disturbance

Wetland Sample Point (WSP)

OHWM Data Point

Culvert

Corps/RWQCB/CDFW Jurisdiction

Ephemeral Stream

Ephemeral Channel

Ephemeral Channel

Wetland

Detail Area 3

WSP 5

OHWM 3

4'

Feature 3

FIGURE 5

Jurisdictional Delineation

MERIDIAN TRUNK SEWER

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET

N

Source: Google

Van Buren Boulevard

Riverside National Cemetery

215

MATCHLINE

MATCHLINE

215

Survey Area
Proposed 24" VCP Sewer Main
Limits of Disturbance

Special Status Species

Paniculate tarplant (*Deinandra paniculata*)
Smooth tarplant (*Centromadia pungens* ssp. *laevis*)
Smooth tarplant (*Centromadia pungens* ssp. *laevis*)

Vegetation

Freshwater Marsh
Channel
Non-native Grassland
Ornamental
Disturbed
Developed

FIGURE 6

Biological Resources

MERIDIAN TRUNK SEWER

ROCKS BIOLOGICAL CONSULTING

0 150 300 FEET

N

Source: Google


Feature 1
Wetland 1
Van Buren Boulevard
Riverside National Cemetery
Feature 2
215
MATCHLINE
Feature 3
MATCHLINE
JD Survey Area
Proposed 24" VCP Sewer Main
Limits of Disturbance
Photo Locations
Culvert
Corps/RWQCB/CDFW Jurisdiction
Ephemeral Stream
Ephemeral Channel
Ephemeral Channel
Wetland
FIGURE 7
Photo Locations
MERIDIAN TRUNK SEWER
ROCKS BIOLOGICAL CONSULTING
0 150 300 FEET
N
Source: Google

APPENDIX A

CHECKLIST: MINIMUM STANDARDS FOR ACCEPTANCE OF AQUATIC RESOURCES DELINEATION REPORTS, LOS ANGELES DISTRICT REGULATORY DIVISION, USACE

CHECKLIST: MINIMUM STANDARDS FOR ACCEPTANCE OF AQUATIC RESOURCES DELINEATION REPORTS, LOS ANGELES DISTRICT REGULATORY DIVISION, USACE, MARCH 16, 2017

REPORT SECTION/ PAGE NUMBER	MINIMUM STANDARDS FOR ACCEPTANCE OF AQUATIC RESOURCES DELINEATION REPORTS	ADDITIONAL NOTES
Cover Letter	JD REQUEST AND FORMS: A cover letter indicating whether you are requesting a jurisdictional determination (JD). If you are requesting a JD, you must complete, sign, and return the Request for Corps Jurisdictional Determination (JD) sheet. For preliminary jurisdictional determinations the Preliminary Jurisdictional Determination Form must be signed and submitted.	
Section 1.4	CONTACT INFORMATION: Contact information for the applicant(s), property owner(s), and agent(s).	
N/A	SITE ACCESS: If the property owner or their representatives will not accompany the Corps to the site, a signed statement from the property owner(s) allowing Corps personnel to enter the property and to collect samples during normal business hours. If the property lacks direct access by public roads (in other words, access requires passage through private property not owned by the applicant), the owner or proponent must obtain permission from the adjacent property owner(s) to provide access for Corps personnel.	Property owner and/or representatives will accompany the Corps for a site visit upon request.
Section 1.1	LOCATION: Directions to the survey area, an address (if available) and one or more set of geographic coordinates expressed in decimal degrees.	
Section 2, Paragraphs 2 and 3	DELINEATION MANUAL CONFIRMATION: A statement confirming the delineation has been conducted in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual and applicable regional supplement(s). The regional supplement(s) used must be identified. For OHWM delineations, a statement must be included confirming the use of the OHWM field guide or that it is not applicable.	
Section 3.5	AQUATIC RESOURCE(S) DESCRIPTION: A narrative describing all aquatic resources on-site and an explanation of the mapped boundaries and any complex transition zones. If the site contains resources that only meet one or two of the three wetland criteria or do not exhibit a clear OHWM, describe the rationale for their inclusion or exclusion from the delineation. Also explain if any erosional features, upland swales, ditches and other potential aquatic features were considered but not included in the delineation.	
Figure 5, Tables 2 and 3	AQUATIC RESOURCE MAPPING AND ACREAGE: Map the outside survey boundary, total extent of aquatic and proposed non-aquatic features, type of feature(s) (waters of the United States or wetland), and include the total acreage for each polygon.	
Section 2, Paragraph 2	FIELD WORK DATES: Date(s) field work was completed.	
Tables 2 and 3	AQUATIC RESOURCE TABLE: A table listing all aquatic resources. The table must include the name of each aquatic resource (actual or arbitrary), its Cowardin type, acreage, summary of OHWM/wetland presence, dominant vegetation for each, and location (latitude/longitude in decimal degrees). For linear features, the table must show both acreage and linear feet as well as channel measurements (active channel width).	
Section 1.1 and 2	FIELD CONDITIONS: A description of existing field conditions, including current land use, normal conditions, flood/drought conditions, irrigation practices, past or recent manipulation to the site, and	

ROCKS BIOLOGICAL CONSULTING

	characteristics considered atypical (for criteria see OHWM and wetland supplement guides). Include WETS tables or pre-site visit precipitation data as appropriate: https://www.wcc.nrcs.usda.gov/climate/wets_doc.html.	
Section 3.3	HYDROLOGY: A discussion of the hydrology at the site, including all known surface or subsurface sources, drainage gradients, downstream connections to the nearest traditional navigable waterway or interstate water, and any influence from manmade water sources such as irrigation.	
N/A	REMOTE SENSING: If remote sensing was used in the delineation, provide an explanation of how it was used and include the name, date and source of the tools and data used and copies of the maps/photographs.	
Section 3.4; Figure 4; Appendix C	SOILS: Soil descriptions, soil map(s), soil photos, and a discussion of hydric soils (for wetland delineations only).	
Figure 2	USGS QUADRANGLE: A site location map on a 7.5-minute USGS quadrangle. The map must provide the name of the USGS quadrangle, Section, Township, Range, and the latitude and longitude in decimal degree format.	
N/A	BULK UPLOAD FORM: For sites with 3 or more separate aquatic features a completed copy of the ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet must be submitted.	
Figure 5	FIGURES: Map(s) of all delineated aquatic resources in accordance with the Final Map and Drawing Standards for the South Pacific Division Regulatory Program, available at: http://www.spd.usace.army.mil/Missions/Regulatory/Public-Notices-and-References/Article/651327/updated-map-and-drawing-standards/	
Figure 7 and Appendix C	SITE PHOTOGRAPHS: Ground photographs showing representative aquatic resource sites (or lack of), as well as an accompanying map of photo-points and table of photographic information (see Final Map and Drawing Standards for the South Pacific Division Regulatory Program item no. 8 a-c).	
Appendix B	DATA FORMS: Completed data forms including all essential information to make a jurisdictional determination [e.g. 2006 Wetland Determination Data Form -- Arid West Supplement; 2010 Arid West Ephemeral and Intermittent Streams OHWM Datasheet].	
Section 2	METHODS: A description of the methods used to survey the aquatic resource boundaries. If GPS data is used, the level of accuracy must be included. Ideally, the GPS equipment should have the capability of sub-meter (<=1 meter) level horizontal accuracy.	
Appendix E	GIS DATA: Digital data for the site, aquatic resource boundaries, and data point locations must be provided in a geographic information system (GIS) format, preferably either ESRI shapefiles or Geodatabase format, but GoogleEarth KMZ or KML files may be acceptable non-complex projects. Each GIS data file must be accompanied by a metadata file containing the appropriate geographic coordinate system, projection, datum, and labeling description. If GIS data is unavailable or otherwise cannot be produced and the Corps determines a site visit is necessary, the aquatic resource boundaries should be physically marked with numbered flags or stakes to facilitate verification by the Corps.	

APPENDIX B

ARID WEST WETLAND DELINEATION AND EPHEMERAL AND INTERMITTENT ORDINARY HIGH WATER MARK (OHWM) DATASHEETS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Meridian Trunk Sewer City/County: Riverside/Riverside Co. Sampling Date: 06/27/2018

Applicant/Owner: March Joint Powers Authority State: CA Sampling Point: 1

Investigator(s): Ian Hirschler and Emily Trevino Section, Township, Range: S23, S26, S35; T03S; R04W

Landform (hillslope, terrace, etc.): depression in channel Local relief (concave, convex, none): Concave Slope (%): 0%

Subregion (LRR): LRR C - Mediterranean California Lat: 33.8884374614 Long: -117.272271561 Datum: WGS84

Soil Map Unit Name: Monserate sandy loam, 0 to 5 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✔ No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔ No _____	
Wetland Hydrology Present?	Yes ✔ No _____	

Remarks:

Feature is fed by several culverts from commercial lots and ponds in between the adjacent railroad tracks berm; area appears to be a constructed basin/drainage area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. Baccharis salicifolia	2	Y	FAC
2.			
3.			
4.			
5.			
	2 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. Typha latifolia	80	Y	OBL
2. Pulicaria paludosa	5	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. N/A			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Wetland pit surrounded by Typha latifolia which dominates the area; Baccharis salicifolia located immediately adjacent to one of the culverts. Sample point between two culverts, one with standing water.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	100					SL	Silt loam - organic material
4-12	10YR 3/2	80	10 YR 4/6	20	C	M*	CL	Clay loam
13-20	10YR 3/2	80	10 YR 4/6	20	C	M*	SCL	Sandy clay loam
								*redox occurs as soft masses
								within soil matrix

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Three visible layers within pit, the top layer (0-3 inches) is interwoven with plant material; soil saturated throughout every layer; bottom layer had sand component (not present in above layers)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✔ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): At surface

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Feature is fed by several culverts upstream and this area contains two culverts in close proximity, likely causing backup and allowing the area to pond and maintain a saturated state; FAC-Neutral Test was not met

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Meridian Trunk Sewer City/County: Riverside/Riverside Co. Sampling Date: 06/27/2018

Applicant/Owner: March Joint Powers Authority State: CA Sampling Point: 2

Investigator(s): Ian Hirschler and Emily Trevino Section, Township, Range: S23, S26, S35; T03S; R04W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex/Slope Slope (%): 2%

Subregion (LRR): LRR C - Mediterranean California Lat: 33.888414570 Long: -117.272292455 Datum: WGS84

Soil Map Unit Name: Monserate sandy loam, 0 to 5 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✔ No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____ No ✔	
Wetland Hydrology Present?	Yes _____ No ✔	

Remarks:

Feature is fed by several culverts from adjacent commercial lots and ponds in between the adjacent railroad tracks berm; area appears to be a constructed basin/drainage area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. Baccharis salicifolia	40	Y	FAC
2.			
3.			
4.			
5.			
	40 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. Typha latifolia	40	Y	OBL
2. Bromus rubens	5	N	UPL
3. Salsola australis	5	N	UPL
4. Pulicaria paludosa	2	N	FAC
5.			
6.			
7.			
8.			
	52 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. N/A			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Much leaf litter present in herb stratum.

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/4	100					SL	Sandy loam
6-15	10YR 3/3	100					SL	Sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard soils/shovel refusal

Depth (inches): 15 inches

Hydric Soil Present? Yes _____ No ✔

Remarks:

Pit dug only to 15" due to hard packed soils; soils a bit moist within the bottom 9 inches. No redox features observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators present. Upland pit taken adjacent to wetland/ponded area.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Meridian Trunk Sewer City/County: Riverside/Riverside Co. Sampling Date: 06/27/2018

Applicant/Owner: March Joint Powers Authority State: CA Sampling Point: 3

Investigator(s): Ian Hirschler and Emily Trevino Section, Township, Range: S23, S26, S35; T03S; R04W

Landform (hillslope, terrace, etc.): In channel Local relief (concave, convex, none): Concave Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 33.888885004 Long: -117.272360586 Datum: WGS84

Soil Map Unit Name: Monserate sandy loam, 0 to 5 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Pit taken due to presence of mud cracks and proximity to a wetland area downstream; area appears to be a constructed basin/drainage area and is adjacent to railroad tracks and highway

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. Centromadia pungens ssp. laevis	60	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. N/A			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 40% % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

No other vegetation present besides Centromadia pungens spp. laevis

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100					LS	Loamy sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compact soil/shovel refusal

Depth (inches): 8 inches

Hydric Soil Present? Yes _____ No ✔

Remarks:

Pit dug because of presence of surface soil cracks; pit dug to 8 inches only as the soil was extremely dry and compact

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✔ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Surface soil cracks present although no other indicators were observed; sample point does not meet FAC-neutral test.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Meridian Trunk Sewer City/County: Riverside/Riverside Co. Sampling Date: 07/18/2018

Applicant/Owner: March Joint Powers Authority State: CA Sampling Point: 4

Investigator(s): Shanti Santulli and Emily Trevino Section, Township, Range: S23, S26, S35; T03S; R04W

Landform (hillslope, terrace, etc.): in channel Local relief (concave, convex, none): Concave Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 33.883183958 Long: -117.269328078 Datum: WGS84

Soil Map Unit Name: Monserate sandy loam, 5 to 8 percent slopes, eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Sample point taken within small drainage feature that runs parallel railroad tracks and highway; several sections of the feature had mulefat and/or willow individuals scattered in the channel.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft.)			
1. Baccharis salicifolia	30	Y	FAC
2.			
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. N/A			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

A few mulefat individuals within an otherwise unvegetated channel/ditch.

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 4/3	100					SL	sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: shovel refusal/hard, dry soil

Depth (inches): 10 inches

Hydric Soil Present? Yes ___ No ✔

Remarks:

Some hydrophtes present within channel, but the area does not appear to pond enough to create or sustain hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ✔ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): ___

Water Table Present? Yes ___ No ✔ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): ___

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Channel ditch eventually drains into culvert which flows under I-215 into a more defined channel. Wrack present throughout channel.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Meridian Trunk Sewer City/County: Riverside/Riverside Co. Sampling Date: 06/27/2018

Applicant/Owner: March Joint Powers Authority State: CA Sampling Point: 5

Investigator(s): Ian Hirschler and Emily Trevino Section, Township, Range: S23, S26, S35; T03S; R04W

Landform (hillslope, terrace, etc.): In stream Local relief (concave, convex, none): Concave Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 33.875505223 Long: -117.266195808 Datum: WGS84

Soil Map Unit Name: Monserate sandy loam, 0 to 5 percent slopes NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Sample point taken within feature with one Salix goodingii and Populus fremontii in the area; hydrology visible but area does not pond enough to sustain hydric soils or hydrophytic vegetation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	8	Y	NL
2. Salix gooddingii	8	Y	FACW
3.			
4.			
	16 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. Bromus diandrus	40	Y	NL
2. Oncosiphon piluliferum	3	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	43 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. N/A			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	8	x 2 =	16
FAC species	0	x 3 =	0
FACU species	3	x 4 =	12
UPL species	48	x 5 =	240
Column Totals:	79 (A)		268 (B)

Prevalence Index = B/A = 3.39

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

One mulefat and cottonwood located adjacent to channel; NL (not listed) plants treated as UPL plants per AW manual

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 4/4	100					Sand	coarse

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

The sample pit continued to concave within itself due to extremely coarse sand; sand texture and color uniform throughout.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ✔ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Visible drift deposits and drainage patterns within the area; FAC-Neutral Test not met.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Meridian Trunk Sewer
Project Number: --
Stream: OHWM 1
Investigator(s): Shanti Santulli and Emily Trevino

Date: 07/17/2018
Town: Riverside
Photo begin file#:

Time: 1415
State: CALIFORNIA
Photo end file#:

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details:
See Figure 5 and Appendix C (photo log)

Projection:
Datum: WGS 1984
Coordinates: See below

Potential anthropogenic influences on the channel system:

Several culverts feed the feature from neighboring commercial buildings to the west; a railroad berm and Interstate 215 constrain the feature to the east. Feature appears to be a constructed basin/drainage area for surrounding development with downstream connectivity to large canal.

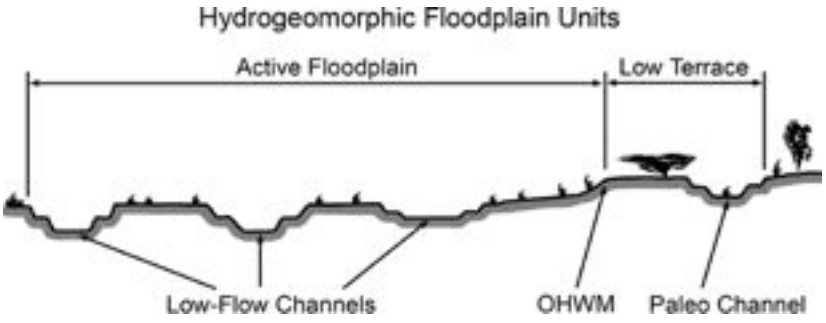
Brief site description:

Disturbed ephemeral features conveyed through multiple culverts to drain across the Interstate 215 into a large canal within March Air Force Base.

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

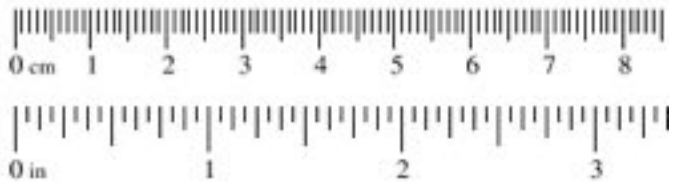


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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:

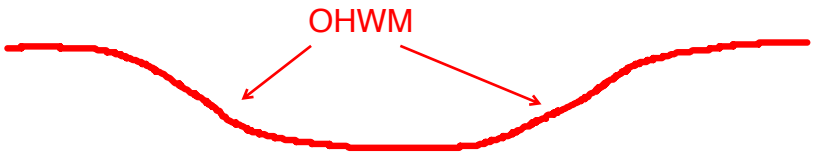
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	Gravel
2.56	64	Cobble	Gravel
0.157	4	Pebble	Gravel
0.079	2.00	Granule	Gravel
0.039	1.00	Very coarse sand	Sand
0.020	0.50	Coarse sand	Sand
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	Sand
1/8 0.0025	0.0625	Very fine sand	Sand
1/16 0.0012	0.031	Coarse silt	Silt
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	Silt
1/128 0.00015	0.0039	Very fine silt	Silt
		Clay	Mud



Project ID: Meridian **Cross section ID:** Feature 1 **Date:** 07/17/2018 **Time:** 1415

Cross section drawing:



OHWM

GPS point: 33.8889962027, -117.27241238

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Vegetation composed of mainly Centromadia pungens spp. laevis (wetland sample point taken downstream) within active floodplain. Large drainage/basin area with evidence of flow.

Floodplain unit:

- [ ] Low-Flow Channel
- [x] Active Floodplain
- [ ] Low Terrace

GPS point: 33.8889962027, -117.27241238

Characteristics of the floodplain unit:

Average sediment texture: coarse silt

Total veg cover: 30 % Tree: _____% Shrub: _____% Herb: 30 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [x] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [x] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Undetected low-flow channel within larger floodplain area defined by presence of mudcracks, drainage patterns, and a small break in slope (approx. 1-inch high).

Project ID: Meridian **Cross section ID:** Feature 1 **Date:** 07/17/2018 **Time:** 1415

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace

GPS point: just above OHWM/active floodplain

Characteristics of the floodplain unit:

Average sediment texture: fine silt

Total veg cover: 20 % Tree: _____% Shrub: _____% Herb: 20 %

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:

No defined low terrace, gradual slope out of the active basin/channel into uplands slopes.

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: Meridian Trunk Sewer
Project Number: --
Stream: OHWM 2
Investigator(s): Shanti Santulli and Emily Trevino

Date: 07/17/2018 **Time:** 1500
Town: Riverside **State:** CALIFORNIA
Photo begin file#: **Photo end file#:**

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details:
See Figure 5 and Appendix C (photo log)

Projection: **Datum:** WGS 1984
Coordinates: See below

Potential anthropogenic influences on the channel system:

The feature is fed by several culverts under Van Buren Blvd. and runs parallel to a road and cemetery to the west and the railroad on the east; Feature appears to be a constructed drainage for surrounding development with downstream connectivity to large canal.

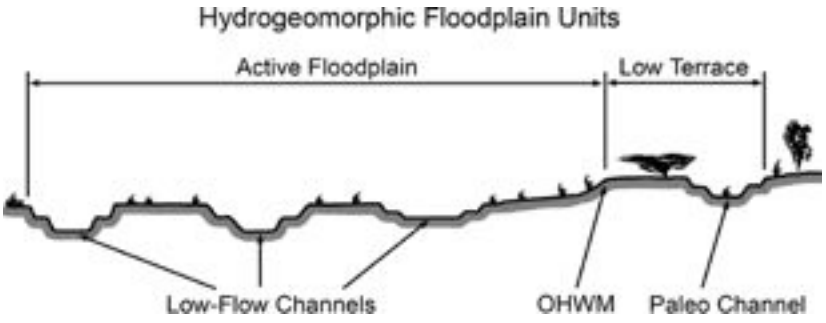
Brief site description:

Disturbed ephemeral features conveyed through multiple culverts to drain across the Interstate 215 to a large canal within March Air Force Base.

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

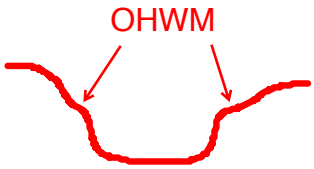


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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:

Project ID: Meridian **Cross section ID:** Feature 2 **Date:** 07/17/2018 **Time:** 1500

Cross section drawing:



OHWM

GPS point: 33.8870126907, -117.271032621

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Drainage with indicators of regular flow; abundant wrack present in channel.

Floodplain unit:

- [x] Low-Flow Channel
- [x] Active Floodplain
- [ ] Low Terrace

GPS point: 33.8870126907, -117.271032621

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: _____% Shrub: _____% Herb: 0 %

Community successional stage:

- [x] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [x] Mudcracks
- [ ] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

4-ft wide active floodplain, low-flow not easily detectable during site visit. Feature likely created drainage to convey flows along railroad tracks/road and into downstream canal.

Project ID: Meridian **Cross section ID:** Feature 2 **Date:** 07/17/2018 **Time:** 1500

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace

GPS point: Just above OHWM/active floodplain

Characteristics of the floodplain unit:

Average sediment texture: very fine sand

Total veg cover: 80 % Tree: 10 % Shrub: 10 % Herb: 60 %

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:

No true low terrace; channel goes straight to upland from active floodplain of constructed drainage.

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: Meridian Trunk Sewer
Project Number: --
Stream: OHWM 3
Investigator(s): Ian Hirschler and Emily Trevino

Date: 06/27/2018
Town: Riverside
Photo begin file#:

Time: 1430
State: CALIFORNIA
Photo end file#:

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details:
See Figure 5 and Appendix C (photo log)

Projection:
Datum: WGS 1984
Coordinates: See below

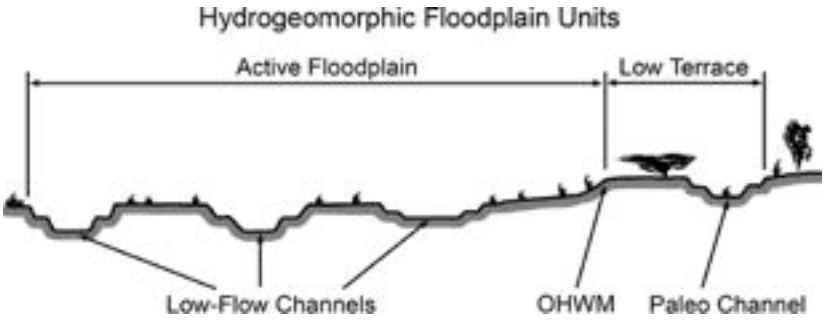
Potential anthropogenic influences on the channel system:
Based on aerial images, feature appears to be fed by an upstream golf course and upstream portions of the cemetery.

Brief site description:
Disturbed ephemeral features conveyed through multiple culverts to drain across the Interstate 215 to a large canal within March Air Force Base.

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

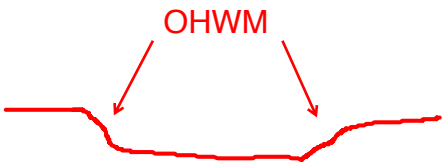


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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:

Project ID: Meridian **Cross section ID:** Feature 3 **Date:** 06/27/2018 **Time:** 1430

Cross section drawing:



OHWM

GPS point: 33.8754829622, -117.266160375

Indicators:

- ☑ Change in average sediment texture
- ☑ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

4-ft. wide defined channel (see Wetland Sample Point 5 also) defined by change in vegetation species, cover and sediment texture

Floodplain unit:

☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace

GPS point: 33.8754829622, -117.266160375

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 3 % Tree: 0 % Shrub: 0 % Herb: 3 %

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:

4-ft wide area with coarse sand and unvegetated; low flow is not visible and debris has accumulated in between the cottonwood and willow where the feature hits a dirt road.

Project ID: Meridian **Cross section ID:** Feature 3 **Date:** 06/27/2018 **Time:** 1430

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace

GPS point: just above OWHM/active floodplain

Characteristics of the floodplain unit:

Average sediment texture: Fine silt

Total veg cover: 70 % Tree: _____% Shrub: _____% Herb: 70 %

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:

Low terrace has a visible change in vegetation cover and sediment type and texture; extremely overgrown by non-native vegetation

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 C

SITE PHOTOGRAPHS

Appendix C – Site Photographs*

Meridian Trunk Sewer Jurisdictional Delineation

June 27, 2018 and July 18, 2018

Photo 1. Overview of Feature 1 (F1). Area is between a berm adjacent to the railroad track/Interstate 215 (I-215) and commercial property. Photo taken facing south. June 27, 2018

Photo 2. View of one of the culverts that feeds into F1. Culvert contains standing water and is approximately 45 feet away from the culvert that drains the entire feature. June 27, 2018

*See Corresponding Figure 7 for Photo Point Locations

Photo 3. View of F1 downstream culvert. This culvert runs across I-215 to a large canal within March Air Force Base. Photo taken facing south. June 27, 2018

Photo 4. Wetland Sample Pit 1 (WSP 1). The sample point met the hydrophytic vegetation, wetland hydrology, and hydric soil parameters. June 27, 2018

*See Corresponding Figure 7 for Photo Point Locations

Photo 5. Wetland Sample Pit 2 (WSP 2), The sample point was taken in the uplands adjacent to an area dominated by *Typha latifolia* where WSP 1 was taken. The sample point contained hydrophytic vegetation but did not have wetland hydrology or hydric soil indicators. June 27, 2018

Photo 6. View of F1 at the location where Ordinary High Water Mark (OHWM) Data Point 1 was taken. The OHWM was defined by a slight break in slope and change in sediment texture, vegetation cover and vegetation species. Photo taken facing south, downstream, towards the wetland area and culverts. July 18, 2018

*See Corresponding Figure 7 for Photo Point Locations

Photo 7. F1 at OHWM 1 facing north, upstream. Photo shows continuous soil cracks throughout feature and adjacent banks with vegetation cover change. July 18, 2018

Photo 8. Wetland Sample Point 3 (WSP 3), taken within F1 given the presence of large soil cracks. The sample point met the hydrophytic vegetation and wetland hydrology parameters; however, hydric soil indicators were not obeserved. June 27, 2018

*See Corresponding Figure 7 for Photo Point Locations

Photo 9. View of a culvert crossing under a dirt road within Feature 2 (F2). Photo taken facing upstream, north. July 18, 2018

Photo 10. Upstream view of F2 at OHWM Data Point 2. The OHWM is defined by the presence of a break in slope with a bed and bank and change in vegetation cover and sediment. Photo taken facing north. July 18, 2018

*See Corresponding Figure 7 for Photo Point Locations

Photo 11. View of OHWM 2 downstream within F2. Photo taken facing southeast. July 18, 2018

Photo 12. Upstream view of the area where Wetland Sample Point 4 (WSP 4) was taken. Photo taken facing northwest. July 18, 2018

*See Corresponding Figure 7 for Photo Point Locations

Photo 13. Wetland Sample Point 4 (WSP 4). The sample point met the hydrophytic vegetation and wetland hydrology parameters; hydric soils were not observed. July 18, 2018

Photo 14. Downstream view at WSP 4. Sample point was taken adjacent to some mulefat (*Baccharis salicifolia*) individuals within the feature. Photo taken facing southeast. July 18, 2018

*See Corresponding Figure 7 for Photo Point Locations

Photo 15. Downstream culverts at the end of F2. The culverts drain across I-215 to a canal within March Air Force Base. Photo taken facing east. July 18, 2018

Photo 16. Additional feature along dirt road and near Feature 3 (F3) that was assessed on site. Drainage patterns, OHWM, and/or streambed were not observed.
Photo taken facing northwest. June 27, 2018

*See Corresponding Figure 7 for Photo Point Locations

Photo 17. Additional feature along dirt road near F3 that was assessed on site. Drainage patterns, OHWM, and/or streambed were not observed. Photo taken facing southeast. June 27, 2018

Photo 18. View of F3 downstream culverts. Culverts runs under the railroad track and I-215, draining into a large canal on the adjacent March Air Reserve Base.
Photo taken facing east. June 27, 2018

*See Corresponding Figure 7 for Photo Point Locations

Photo 19. Upstream view of F3 near the downstream culvert.
Photo taken facing northwest. June 27, 2018

Photo 20. Downstream view of F3 towards the culvert. A portion of the feature runs under the canopy of an adjacent eucalyptus tree. Photo taken facing east. June 27, 2018

*See Corresponding Figure 7 for Photo Point Locations

Photo 21. Upstream view of F3 at the dirt road crossing. Photo shows accumulated debris. Photo taken facing west. June 27, 2018

Photo 22. Downstream view of F3 at the location of OHWM Data Point 3 and Wetland Sample Point 3 (WSP 3). OHWM 3 is defined by a break in slope, change in sediment texture, vegetation species and cover. Photo taken facing southeast. June 27, 2018.

*See Corresponding Figure 7 for Photo Point Locations

Photo 23. WSP 5, taken within F3. The sample pit met wetland hydrology indicators; however, hydrophytic vegetation and hydric soil indicators were not present. June 27, 2018

Photo 24. Upstream view of F1 at OHWM 3 and WSP 5.
Photo taken facing northwest. June 27, 2018

*See Corresponding Figure 7 for Photo Point Locations

Photo 25. Upstream view of F3. Photo taken facing west. June 27, 2018

Photo 26. Upstream view of F3 in area of defined break in slope.
Photo taken facing northwest. June 27, 2018

*See Corresponding Figure 7 for Photo Point Locations

Photo 27. View of large canal within the adjacent March Air Reserve Base. Photo taken facing southeast. June 27, 2018

Photo 28. View of additional culvert within March Air Reserve Base. F2 appears to drain across I-215 into this culvert. Photo taken facing west. June 27, 2018

*See Corresponding Figure 7 for Photo Point Locations

Photo 29. Downstream view at culvert within March Air Reserve Base. F3 appears to drain across I-215 into this culvert, which continues to connect with the larger canal (Photo 27). Photo taken facing east. June 27, 2018

*See Corresponding Figure 7 for Photo Point Locations

APPENDIX D

JD REQUEST FORMS

Appendix 1 - REQUEST FOR CORPS JURISDICTIONAL DETERMINATION (JD)

To: District Name Here

- I am requesting a JD on property located at: I-215 between Van Buren Blvd. and Nandina Ave.
  (Street Address)
  City/Township/Parish: Riverside County: Riverside State: California
  Acreage of Parcel/Review Area for JD: 28.67 acres
  Section: S23, 26, 35 Township: T03S Range: R04W
  Latitude (decimal degrees): 33.879418 Longitude (decimal degrees): -117.268099
  (For linear projects, please include the center point of the proposed alignment.)
- Please attach a survey/plat map and vicinity map identifying location and review area for the JD.
- KH: please confirm →
  ✓ I currently own this property. ___ I plan to purchase this property.
  ___ I am an agent/consultant acting on behalf of the requestor.
  ___ Other (please explain): _____.
- Reason for request: (check as many as applicable)
  ___ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.
  ___ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
  ___ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
  ✓ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.
  ___ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 10 list and/or is subject to the ebb and flow of the tide.
  ___ A Corps JD is required in order to obtain my local/state authorization.
  ___ I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
  ___ I believe that the site may be comprised entirely of dry land.
  ___ Other: _____
- Type of determination being requested:
  ___ I am requesting an approved JD.
  ✓ I am requesting a preliminary JD.
  ___ I am requesting a "no permit required" letter as I believe my proposed activity is not regulated.
  ___ I am unclear as to which JD I would like to request and require additional information to inform my decision.

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property.

*Signature: _____ Date: _____

- Typed or printed name: ???
  Company name: March Joint Powers Authority
  Address: 14205 Meridian Pkwy #140
  Riverside, CA 92518
  Daytime phone no.: ???
  Email address: ???

***Authorities:** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.
Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

District Office: Los Angeles District | File/ORM #: | PJD Date:

State: CA | City/County: Riverside/Riverside Co.

Nearest Waterbody: San Jacinto River

Location: TRS, LatLong or UTM: 33.879418, -117.268099

Name/ Address of Person Requesting PJD: ???
March Joint Powers Authority
14205 Meridian Pkwy #140
Riverside, CA 92518

Identify (Estimate) Amount of Waters in the Review Area:

Non-Wetland Waters: 3204 linear ft | 4-20 width | 0.53 acres | Stream Flow: Ephemeral

Wetlands: 0.07 acre(s) | Cowardin Class: Palustrine, emergent

Name of Any Water Bodies on the Site Identified as Section 10 Waters: Tidal: N/A | Non-Tidal: N/A

☐ Office (Desk) Determination
☐ Field Determination: Date of Field Trip:

SUPPORTING DATA: Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- ☑ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: 2018 JD Report, prepared by Rocks Biological Consult
- ☑ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps
- ☐ Corps navigable waters' study:
- ☑ U.S. Geological Survey Hydrologic Atlas:
  - ☑ USGS NHD data.
  - ☑ USGS 8 and 12 digit HUC maps.
- ☑ U.S. Geological Survey map(s). Cite quad name: USGS 7.5-minute Riverside East and Steele Peak
- ☑ USDA Natural Resources Conservation Service Soil Survey. Citation: USDA NRCS 2005
- ☑ National wetlands inventory map(s). Cite name: USFWS and NW1 2017
- ☐ State/Local wetland inventory map(s):
- ☐ FEMA/FIRM maps:
- ☐ 100-year Floodplain Elevation is:
- ☑ Photographs: ☑ Aerial (Name & Date): See attached figures, SanGIS 2017
  ☑ Other (Name & Date): See Appendix C, Site Photographs
- ☐ Previous determination(s). File no. and date of response letter:
- ☑ Other information (please specify): 2018 JD Report, prepared by Rocks Biological Consult

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Signature and Date of Regulatory Project Manager (REQUIRED)

Signature and Date of Person Requesting Preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

EXPLANATION OF PRELIMINARY AND APPROVED JURISDICTIONAL DETERMINATIONS:

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "preconstruction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

Appendix A - Sites

District Office: Los Angeles District | File/ORM #: | PJD Date:

State: CA | City/County: Riverside, Riverside Co. | Person Requestinq PJD: ???

Site Number	Latitude	Longitude	Cowardin Class	Est. Amount of Aquatic Resource in Review Area	Class of Aquatic Resource
F1	33.889509018	-117.27264440	Riverine	0.30	Non-Section 10 non-wetland
W1	33.888522331	-117.27224486	Palustrine, emergent	0.07	Non-Section 10 wetland
F2	33.884520028	-117.26992457	Riverine	0.21	Non-Section 10 non-wetland
F3	33.875384579	-117.26602263	Riverine	0.02	Non-Section 10 non-wetland

Notes:

The review area for this requested PJD includes the project survey area shown on the provided figures with the Meridian Trunk Sewer Project Jurisdictional Delineation Report (Rocks Biological Consulting 2018), incorporated here by reference. Wetland 1 displayed evidence of a federally jurisdictional wetland, and Feature 1, Feature 2, and Feature 3 displayed evidence of an OHWM as discussed in detail in the provided Jurisdictional Delineation Report.

The delineated features on site drain downslope across several culverts under Interstate 215 towards a large canal within March Air Force Base. Flows continue southeast into the Perris Valley storm drain system, draining into the San Jacinto River and ultimately the Santa Ana River. The Santa Ana River flows east to west into the Pacific Ocean approximately 40 miles west of the project area.

APPENDIX E

GIS DATA

APPENDIX E

RESULTS OF A TRAPPING SURVEY FOR THE FEDERALLY ENDANGERED STEPHEN'S KANGAROO RAT (*DIPODOMYS STEPHENSI*) ALONG AN APPROXIMATELY 8,600 FOOT PROPOSED MERIDIAN TRUNK SEWER IN RIVERSIDE COUNTY, CALIFORNIA

October 10, 2018

Ms. Stacey Love
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008

Subject: Results of a trapping survey for the federally endangered Stephen's kangaroo rat (*Dipodomys stephensi)* along an approximately 8,600 foot proposed Meridian Trunk Sewer in Riverside County, California.

Dear Ms. Love:

This report presents the results of a trapping survey for the federally threatened Stephen's kangaroo rat (SKR; *Dipodomys stephensi*) along the right-of-way for the proposed Meridian Trunk Sewer main project. The right-of-way extends from the vicinity of Van Buren Blvd west of I-215 south approximately 8,600 feet to a waste water facility located immediately north of Nandina Ave within the Western Municipal Water District wastewater treatment plant.

The survey area is located on the U.S. Geological Survey (USGS) 7.5-minute series quadrangle map Riverside East 7.5 minute topographic map (Township 3S, Range 4W, Sections 23, 26, and 35). The UTM coordinates of the approximate center of the survey area are 11S 475233E/ 3748751N (NAD 83). The site is approximately 1,530 feet in elevation. Figure 1 shows the project site on a vicinity map. Appendix A contains site photos.

INTRODUCTION

The March Joint Powers Authority (JPA) proposes to install a new sewer line, the Meridian Trunk Sewer (project), in Riverside County, California. The project involves installation of an underground sewer main immediately west of I-215 in Riverside County (see Figure 1). The proposed sewer line would be a new 24 - 36-inch diameter underground sewer main. Starting from north to south, the new sewer main would begin by connecting to the existing sewer lines at the lift station within the Meridian Development. The alignment would extend southerly under the Van Buren/Interstate 215 Interchange directly to the WMWD treatment plant approximately 8,600 linear feet (1.6 miles) from the beginning, paralleling the freeway and railroad tracks. The limits of construction along the proposed sewer line alignment would be 20-feet on either side of the centerline of the sewer line for a total width of 40-feet. This 40-foot area would include trenching and other construction activities along the alignment. The 40-foot area would be within a 40-foot sewer easement for most of the alignment. The southernmost 1,300 linear feet of the alignment would be outside of the easement area but within the Western Municipal Water District property. The project would also include connections for sewer lateral lines which will be constructed as part of a separate project.

The natural history and habitat requirements of SKR are fairly well known. Habitats occupied by SKR typically occur on level to gently sloping terrain, although the species has occasionally been found on relatively steep slopes. SKR typically occupy lands described as disturbed annual grassland and characterized by a relatively sparse cover of both shrubs and herbaceous vegetation. Occupied SKR habitat commonly exhibits an abundance of bare (unvegetated) ground during much of the year. When grasslands develop extremely high densities of herb cover following periods of rainfall, SKR usually occur only along dirt roads that traverse such

dense habitats. Similarly, SKR often will be found along truck or cow trails that traverse dense grasslands. Soils in habitats harboring SKR are typically loamy in nature, while soils dominated by clay or sand very rarely support this species (O'Farrell and Uptain 1989, O'Farrell 1990, Price and Endo 1989, USFWS 1997).

Stephens' kangaroo rat is known to occur widely in Riverside County, and in a few localities in southwestern San Bernardino County (O'Farrell and Uptain 1989; RCHCA 1995; USFWS 1997, 1993). The species has long been known to occur in the March Air Base area along Interstate 215 (Montgomery 2000, 2002, 2010).

METHODS

A live-trapping survey was carried out over five consecutive nights in accordance with USFWS guidelines from September 10-14, 2018 along the project right-of-way. The live-trapping effort used large (3 x 3.75 x 12") Sherman live-traps with doors shortened to avoid tail damage. Traps were opened and baited with bird seed within one hour of sunset and checked at night and in the morning. Animals were identified and released immediately at the point of capture. A total of 755 trap-nights were accrued during the field survey. Trapping was conducted by Dr. Phil Brylski (USFWS permit TE148555-2 and CDFG MOU). Steve Montgomery observed the night-time trap check on September 13, 2018 and confirmed the SKR identifications.

Figures 2A and 2B shows the survey area on an aerial photo and the locations of the survey transects. Initially, 155 large Sherman live traps were used along the survey area shown in Figure 2. After the first night of the survey, traps were stolen from the survey area north of Van Buren Blvd. This area is highly disturbed (see Photo 1 in Appendix A), had no small mammal burrows in the survey area, and was considered unsuitable for SKR. As a result, trapping was stopped in this small section of the survey area.

RESULTS

Site Description

The project site lies on flat to gently rolling land bordered by a railroad line and I-215 to the east. There are several land uses to the west, including (from north to south) vacant land under development that adjoins the existing light industrial development (north of Van Buren Blvd), the Riverside National Cemetery (south of Van Buren Blvd), vacant land under development south of the cemetery, and vacant land owned by the Western Municipal Water District in the southern part of the survey area. The soils on the site are sandy loams, which are suitable for SKR.

The plant communities in the survey area site include developed land cover (paved and dirt access roads), disturbed areas along roadsides, dominated by non-native annual species and ornamental trees and shrubs, and non-native grassland. The non-native grassland occurs mainly in the southern part of the survey area, dominated by red brome (*Bromus rubens*). Other common species include ripgut brome (*Bromus diandrus*), short-pod mustard (*Hirschfeldia incana*), and filaree (*Erodium* sp.).

Figure 1. Vicinity map of project site.

Project Site in Relation to SKR Historical Range and Habitat

The project site is within the historical range for SKR. The developed and roadside areas in the central and northern part of the survey area are poor quality habitat for SKR. The non-native grasslands in the southern part of the survey area are good quality along the dirt access road, and decline in quality west of the road due to the increase in grass and forb cover.

The California Natural Diversity Database (CNDDB; CDFWG 2018) contains a number of SKR records for the areas west of the project site. The closest of these are from 1 to 1.3 miles west and northwest of the survey area. Many of these SKR occurrences are from the years before residential and light industrial development of the area.

SKR Survey Results

Weather conditions during the survey were mild, with clear skies, low wind, and temperatures of 59-74°F. Weather conditions during the study are summarized in Table 2.

Table 1. Weather Conditions

Date	Temperature (F)	Cloud Cover (%)	Wind (mph)
September 9-10, 2018	74/62	0-3	0-2
September 9-11, 2018	67/62	0-3	0
September 9-12, 2018	63/58	0, fog at morning check	0-1
September 9-13, 2018	67/59	0	0
September 9-14, 2018	69/57	0	1-2

The survey yielded captures of six small mammal species: Stephens kangaroo rat (SKR), San Diego pocket mouse (*Chaetodipus fallax fallax*), deer mouse (*Peromyscus maniculatus*), harvest mouse (*Reithrodontomys megalotis*), house mouse (*Mus musculus*) and black rat (*Rattus rattus*). Table 2 summarizes the captures. Figure 2A and 2B show the capture locations for the unique SKR individuals (i.e., excluding recaptures).

Table 2. Summary of Small Mammal Captures

Date	Species						
	SKR						
	New	Recap	CFAL	PMAN	RMEG	MMUS	RRAT
September 9-10, 2018	4 A, 1 SA		1	8	1		1
September 9-11, 2018	9 A, 2 SA	2		9	1	1	
September 9-12, 2018	6 A	3	1	10	1	1	
September 9-13, 2018	1 A	4	1	10	1	2	
September 9-14, 2018	3 A, 1 SA	8		9		1	1
Totals	**23 A, 4 SA**	**17**	**3**	**46**	**4**	**5**	**2**

A: Adult
SA: Sub-adult
SKR: Stephens kangaroo rat (*Dipodomys stephensi*)
CFAL: San Diego pocket mouse (*Chaetodipus fallax fallax*)
RMEG: harvest mouse (*Reithrodontomys megalotis*)
PMAN: deer mouse (*Peromyscus maniculatus*),
MMUS: house mouse (*Mus musculus*)
RRAT, black rat (*Rattus rattus*)

Discussion

The survey yielded 27 SKR captures in the survey area, most of them on and along the dirt road in the southern part of the survey area. This area is on the northern and western edge of a patch of non-native grassland with a relatively dense cover of grasses and forbs. In the survey area, open habitats preferred by SKR occur along the dirt road (Photo 5); there are numerous SKR burrows on the side of the road. In the central part of the survey area, five SKR were captured on the western shoulder of the paved service road, in disturbed habitat just outside of the construction fence (Photo 4), and in ruderal habitat along the railroad tracks. The parcel west of the fence was being graded at the time of the SKR survey.

The route of the sewer main would generally follow the existing paved and dirt roads as shown in Figures 2A and 2B. The potential impacts to SKR of the project are as follows:

- The northern part of the project site (Figure 2A) lacks suitable habitat for SKR. The area consists of a dirt road that adjoins a steep earthen drainage channel to the east and an unvegetated graded area to the west. No potential kangaroo rat burrows or other sign (scat, tail drag) were observed along this segment. The project would not impact SKR in this area.

- The central part of the project site (Figure 2B), between the Van Buren Blvd bridge south to the end of the paved road (immediate south of the location shown in Photo 4), contains narrow strips of disturbed, ruderal, and/or non-native grassland habitat along the railroad tracks (Photos 2 and 3) and along the construction fence west of the paved service road (Photo 4). The five SKR captured in this segment had burrowed under the fence or used gaps in the fence to reach the trap, and moved back under the fence when released.

- The southern part of the project site (Figure 2B; Photo 5) extends along the dirt road south to the existing water treatment facility north of Nandina Ave. This part of the project site traverses vacant lands dominated by non-native grassland and forbs. SKR are abundant along the dirt road where the burrows are concentrated. SKR burrows are uncommon away from the road, where grass and forb cover is dense. These areas may be used infrequently by SKR in their current condition, however, disturbance and desiccation of the plants can create bare ground that can be occupied by SKR.

The proposed project would excavate the soil along the right of way, install the sewer main, and replace the soil. While these would be considered temporary impacts, there is potential for 'take' of SKR. Please refer to the project biological technical report regarding project compliance with relevant federal Endangered Species Act regulations.

Please contact me if you have any questions regarding this report or the associated field effort.

Sincerely,

Phil Brylski
31 Tahoe, Irvine, CA 92612
(949) 870-8878

Permit 148555-2
Email – pbrylski@gmail.com

Figure 2A. SKR capture locations, northern part of survey area.

Figure 2B. SKR capture locations, southern part of survey area.

LITERATURE CITED

California Department of Fish and Wildlife (CDFW) Natural Diversity Database. 2018. California Natural Diversity Database, Element reports for Stephens' kangaroo rat. California Department of Fish and Game, Natural Heritage Division, Sacramento, California.

Montgomery, S.J. 2000. Results of a field check for the federally endangered Stephens' kangaroo rat (*Dipodomys stephensi*) (SKR) at three sites located on the March Air Reserve Base property, east of Interstate 215, in Riverside County, California.

___. 2003. Assessment of potential Stephens' kangaroo rat and Los Angeles pocket mouse habitat at existing U.S. Army Reserve Facilities and possible areas of expansion of the former March Air Force Base, Riverside County, California.

___. 2010. Results of a Live-Trapping Survey for Stephens' Kangaroo rat (*Dipodomys stephensi*) at the Center for Natural Land Management March SKR Preserve, March Air Force Base Annex Riverside County, California November-December 2009.

NRCS (Natural Resources Conservation Service). 2018. Custom soil resource report for Western Riverside area, California. (http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx).

O'Farrell, M.J. 1990. Stephens' kangaroo rat: natural history, distribution, and current status. Pp 78-84, In P.J. Brant and J. Remington (eds.), Memoirs of the Natural History Foundation of Orange County; Vol. 3, Publ. By Nat. Hist. Found. Of Orange County.

O'Farrell, M.J. and C.E. Uptain. 1989. Assessment of population and habitat status of the Stephens' kangaroo rat (*Dipodomys stephensi*). Calif. Dept. Fish and Game, Non-game Bird and Mammal Section Report (July 1989).

RCHCA (Riverside County Habitat Conservation Agency). 1995. Habitat conservation plan for the Stephens' kangaroo rat in western Riverside County, California. (February 1995)

U.S. Fish and Wildlife Service. 1997. Draft Recovery plan for the Stephens' kangaroo rat (*Dipodomys stephensi*). Prepared by Region 1, USFWS. Portland, OR.

Appendix A. Site Photos

Photo 1. Developed and disturbed habitat at northern end of survey area, north of Van Buren Blvd
(view looking north)

Photo 2. Habitat along railroad tracks at northern end of survey area south of Van Buren Blvd
(view looking north)

Photo 3. Habitat along railroad tracks at northern end of survey area south of Van Buren Blvd (view looking south)

Photo 4. Habitat along paved road at southern part of survey area (view looking north)

Photo 5. Non-native grassland habitat in northern part of survey area
(view looking north)

APPENDIX F

MERIDIAN TRUNK SEWER PROJECT PROTOCOL PRESENCE/ABSENCE 2018 SURVEY REPORT FOR BURROWING OWL (*ATHENE CUNICULARIA*)

ROCKS
BIOLOGICAL CONSULTING



MERIDIAN TRUNK SEWER PROJECT

PROTOCOL PRESENCE/ABSENCE 2018 SURVEY REPORT FOR BURROWING OWL (*Athene cunicularia*)

Riverside County, California

July 23, 2018

Prepared for:
Kimley-Horn and Associates, Inc.
401 B Street #600
San Diego, CA 92101
(858) 234-2400

Prepared by:
Rocks Biological Consulting
2621 Denver Street, Ste. B
San Diego, CA 92110
(619) 701-6798

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1 SUMMARY

This report summarizes surveys Rocks Biological Consulting (RBC) conducted for burrowing owl (Athene cunicularia; BUOW) on the Meridian Trunk Sewer Project (project) in unincorporated Riverside County, California under the jurisdiction of the March Joint Powers Authority (JPA). The California Department of Fish and Wildlife (CDFW) lists the BUOW as a Species of Special Concern (SSC) and suitable habitat occurs on the project site. RBC conducted BUOW surveys in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (2012) from April 11 to June 27, 2018. RBC did not document any BUOW, BUOW sign (feathers, whitewash, pellets, etc.), or active burrows on the project alignment or within the 500-foot buffer.

2 INTRODUCTION

2.1 PROJECT DESCRIPTION

The proposed project is the construction of an approximately 8,200 linear-foot, 24-inch trunk sewer. The new pipeline would extend from an existing sewer lift station located north of Van Buren Boulevard, south to the existing sewer treatment plant located just south of the Riverside National Cemetery. The pipeline would traverse approximately 6,400 linear feet of the eastern edge of the cemetery. The proposed project would also include the construction of a 60-inch reinforced concrete pipe storm drain. The proposed alignment does not disturb existing gravesites or existing structures.

2.2 PROJECT LOCATION AND BACKGROUND

The proposed project is located in Riverside County within U.S. Geological Survey (USGS) 7.5-minute series quadrangle map Riverside East. The proposed project is just west of the Interstate 215 (I-215), south of Van Buren Blvd. and north of the terminus of Harvill Ave (Figure 1).

The proposed project occurs on unincorporated land in Riverside County under the jurisdiction of the March Joint Powers Authority (JPA). The project is planned under the March Joint Powers Authority General Plan and environmental review of the general plan was performed in 1999 under the Master Environmental Impact Report for the General Plan of the March Joint Powers Authority (March JPA, 1999, SCH No. 97071095).

RBC previously conducted BUOW surveys for the project alignment in 2015. The results of the 2015 surveys were negative for BUOW, active burrows, and BUOW sign.

2.3 BURROWING OWL NATURAL HISTORY

Suitable habitat for the BUOW in California is generally typified by short, sparse vegetation with few shrubs, level to gentle topography and well-drained soils (Haug et al. 1993). Grassland, shrub steppe, and desert are naturally occurring habitat types used by the species. In addition, BUOWs may occur in some agricultural areas, ruderal grassy fields, vacant lots and pastures if the vegetation structure is suitable and there are useable burrows and foraging habitat in proximity (Gervais et al. 2008). Burrows used by the BUOW are usually dug by other species, termed host

burrowers. In California, California ground squirrel (Otospermophilus beecheyi) and round-tailed ground squirrel (Citellus tereticaudus) burrows are frequently used by BUOWs. BUOWs may also use dens or holes dug by other fossorial species including badger (Taxidea taxus), coyote (Canis latrans), and fox (e.g., San Joaquin kit fox (Vulpes macrotis mutica) (Ronan 2002). Natural rock cavities, debris piles, culverts, and pipes also are used for nesting and roosting (Rosenberg et al. 1998). BUOWs have also been documented using artificial burrows for nesting and cover (Smith and Belthoff 2003).

According to the 2012 CDFW methodology, verification of occupied BUOW habitat can be achieved through observation of one of the following: BUOW(s), pellets, prey remains, whitewash, or decoration at or near a burrow entrance.

2.4 BURROWING OWL SUITABLE HABITAT

The proposed project area consists primarily of disturbed habitat, non-native grassland, and developed land. The site also contained several pipes, culverts, debris mounds and active California ground squirrel colonies. Representative photos of the site are included as Appendix A.

3 METHODS

RBC conducted BUOW surveys in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012). The CDFW requires a minimum of four BUOW surveys: 1) at least one survey between February 15 and April 15th, and 2) a minimum of three surveys, at least three weeks apart, between April 15 and July 15, with at least one survey after June 15. In accordance with CDFW guidelines, RBC conducted four protocol BUOW surveys between April 11 and June 27, 2018. Surveys were performed in order to identify one or more of the following; BUOW, active burrows, and/or sign of BUOW within the survey area. All burrows were examined for sign, including feathers, pellets, excrement, and prey remains during each survey.

RBC conducted surveys in suitable habitats within the proposed project alignment plus a 150-meter (500-foot) buffer. RBC conducted surveys by walking transects spaced 7-20 meters apart throughout suitable BUOW habitat. At the beginning of each transect, and every 100 meters, the survey area was scanned for BUOW using binoculars. RBC previously conducted BUOW surveys for the project alignment in 2015 using the same methods.

4 RESULTS

RBC conducted four protocol BUOW surveys. Surveys were conducted in weather favorable for observing BUOWs. Surveys were not conducted during rain, winds greater than 20 miles per hour, or dense fog. Each survey was conducted between morning civil twilight and 1000. Survey dates, conditions, and personnel are presented in Table 1, below.

Table 1. Burrowing Owl Survey Dates/Conditions

Survey Number	Date	Surveyor(s)	Time (Start-End)	Temp F (Start-End)	Cloud Cover (Start-End)	Wind Range in mph (Start-End)
#1	4/11/18	IH, OK	0810-1000	67-72	0%-0%	0-2; 1-4
#2	5/15/18	IH, OK	0655-1000	45-59	0%-5%	0-2; 0-2
#3	6/5/18	IH	0700-1000	58-68	100%-15%	0-2; 2-5
#4	6/27/18	IH, ET	0650-1000	68-86	0%-0%	0-1; 0-1
Surveyors: IH= Ian Hirschler, ET= Emily Trevino, OK= Olivia Koziel						

The site contains several ground squirrel burrows of suitable size, mainly concentrated in the center of the linear alignment. None of the potentially suitable burrows had evidence of BUOW activity. The 2018 surveys were negative for BUOW, active burrows, or BUOW sign. 2015 BUOW surveys were also negative. All bird species observed during the surveys are listed in Appendix B.

5 CONCLUSIONS

No BUOW, active burrows, or BUOW sign were observed along the project alignment or within the 500-foot buffer, and no impacts to BUOW will occur with project implementation. In accordance with CDFW guidelines, a pre-construction survey is recommended within 30 days prior to any construction activity to ensure suitable habitat on site does not support BUOW and impacts to BUOW are avoided.

6 REFERENCES

California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. http://www.dfg.ca.gov/wildlife/nongame/docs/BUOWStaffReport.pdf

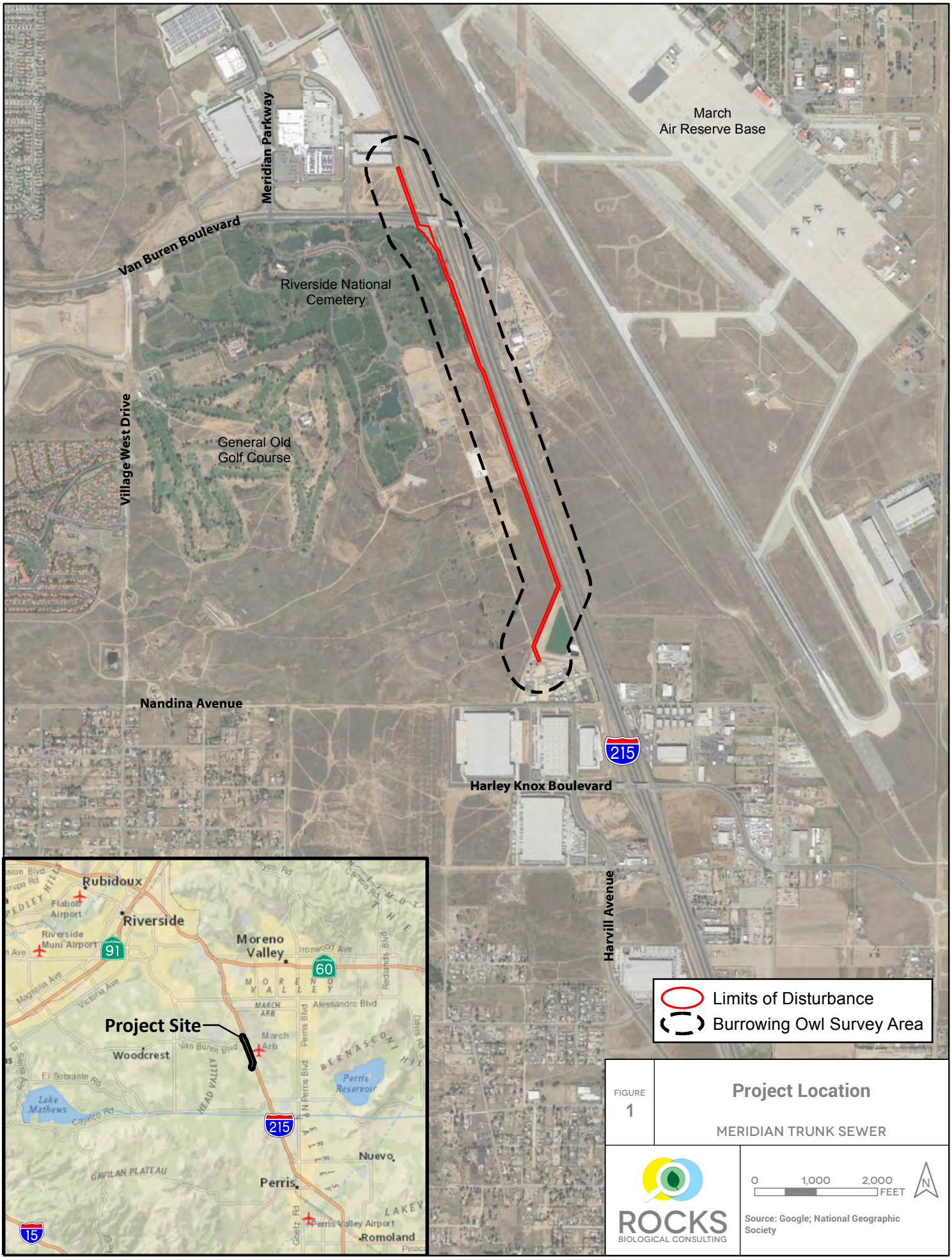
Gervais, J.A., D.K. Rosenberg, and L.A. Comrack. Burrowing owl (*Athene cunicularia*) in Shuford, W.D. and T. Gardali, editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento, California, USA.

Haug, E.A., B.A. Millsap, and M.S. Martell. 1993. Burrowing owl (*Speotyto cunicularia*), in A. Poole and F. Gill, editors, The Birds of North America, The Academy of Natural Sciences, Philadelphia, Pennsylvania, and The American Ornithologists' Union, Washington, D.C., USA.

March Joint Powers Authority (JPA). 1999. Master Environmental Impact Report for the General Plan of the March Joint Powers Authority. SCH No. 97071095. September 1999.

Ronan, N.A. 2002. Habitat selection, reproductive success, and site fidelity of burrowing owls in a grassland ecosystem. Thesis, Oregon State University, Corvallis, Oregon, USA.

Rosenberg, D.K., J.A. Gervais, H. Ober, and D.F. DeSante. 1998. An adaptive management plan for the burrowing owl population at Naval Air Station Lemoore, California, USA. Publication 95, Institute for Bird Populations, P.O. Box 1346, Pt. Reyes Station, CA 94956


Meridian Parkway
March
Air Reserve Base
Van Buren Boulevard
Riverside National
Cemetery
Village West Drive
General Old
Golf Course
Nandina Avenue
215
Harley Knox Boulevard
Harvill Avenue
Limits of Disturbance
Burrowing Owl Survey Area
Rubidoux
Riverside
Flabob
Airport
Riverside
Muni Airport
91
Moreno
Valley
60
Project Site
Woodcrest
March
Arb
Alessandro Blvd
Van Buren Blvd
Perris Blvd
Perris
Reservoir
Lake
Mathews
El Sobrante Rd
Cajalco Rd
215
Nuevo
Perris
GAVILAN PLATEAU
Perris Valley Airport
Romoland
15
FIGURE
1
Project Location
MERIDIAN TRUNK SEWER
ROCKS
BIOLOGICAL CONSULTING
0
1,000
2,000
FEET
N
Source: Google; National Geographic
Society

Appendix A

Site Photographs

Photo 1. Photo facing north from southern boundary of project area north of Van Buren Boulevard. April 11, 2018.

Photo 2: Photo facing south. View of thatch piles in project area south of Van Buren Boulevard. April 11, 2018.

Photo 3. Disturbed non-native grassland near the center of the project site facing north. April, 11 2018.

Photo 4: Disked non-native grassland near the center of the project site facing south. April 11, 2018.

Photo 5. Photo facing north from the top of a large berm within the northern section of the project site. April 11, 2018.

Photo 6. Photo facing south from eastern side of the Interstate 215 Freeway. May 15, 2018.

Appendix B

Bird Species Observed

Family	Code	Common Name	Scientific Name
Accipitridae	RTHA	red-tailed hawk	*Buteo jamaicensis*
Aegithalidae	BUSH	bushtit	*Psaltriparus minimus*
Alaudidae	HOLA	California horned lark (WL)	*Eremophila alpestris actia*
Anatidae	MALL	mallard	*Anas platyrhynchos*
Apodidae	WTSW	white-throated swift	*Aeronautes saxatalis*
Charadriidae	KILL	killdeer	*Charadrius vociferus*
Columbidae	ROPI	rock pigeon*	*Columba livia*
Columbidae	MODO	mourning dove	*Zenaida macroura*
Corvidae	CORA	common raven	*Corvus corax*
Corvidae	AMCR	American crow	*Corvus brachyrhynchos*
Cuculidae	GRRO	Greater roadrunner	*Geococcyx californianus*
Falconidae	AMKE	American kestrel	*Falco sparverius*
Fringillidae	LEGO	lesser goldfinch	*Spinus psaltria*
Fringillidae	HOFI	house finch	*Haemorhous mexicanus*
Hirundinidae	BARS	barn swallow	*Hirundo rustica*
Hirundinidae	CLSW	cliff swallow	*Petrochelidon pyrrhonota*
Icteridae	RWBL	red-winged blackbird	*Agelaius phoeniceus*
Icteridae	WEME	western meadowlark	*Sturnella neglecta*
Icteridae	BRBL	Brewer's blackbird	*Euphagus cyanocephalus*
Icteridae	GTGR	great-tailed grackle	*Quiscalus mexicanus*
Icteridae	HOOR	hooded oriole	*Icterus cucullatus*
Laniidae	LOSH	Loggerhead shrike	*Lanius ludovicianus*
Mimidae	NOMO	northern mockingbird	*Mimus polyglottos*
Parulidae	YEWA	yellow warbler (SSC)	*Setophaga petechia*
Passerellidae	SAVS	savannah sparrow	*Passerculus sandwichensis*
Passerellidae	WCSP	white-crowned sparrow	*Zonotrichia leucophrys*
Passerellidae	LASP	lark sparrow	*Chondestes grammacus*
Passerellidae	CALT	California towhee	*Melozone crissalis*
Trochillidae	ANHU	Anna’s hummingbird	*Calypte anna*
Turdidae	WEBL	western bluebird	*Sialia mexicana*

Family	Code	Common Name	Scientific Name
Tyrannidae	WEKI	western kingbird	*Tyrannus verticalis*
Tyrannidae	SAPH	Say's phoebe	*Sayornis saya*
Tyrannidae	BLPH	black phoebe	*Sayornis nigricans*
SSC: California Department of Fish and Wildlife (CDFW) Species of Special Concern WL: CDFW Watch List *Introduced species			