HELIX
Environmental Planning

Regional Lift Station Force Main Replacement Project

Initial Study/Mitigated Negative Declaration

March 2019 | TTI-07

Submitted to:

Moulton Niguel Water District
26161 Gordon Road
Laguna Hills, CA 92653

Prepared for:

Tetra Tech, Inc.
17885 Von Karman Avenue, Suite 500
Irvine, CA 92614

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

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MITIGATED NEGATIVE DECLARATION

Name or Description of Project:	Regional Lift Station Force Main Replacement Project
Project Location:	The project area is generally located 1.6 miles to the west of Interstate 5 and 2.7 miles to the east of State Route 133 in the City of Laguna Niguel (City). The project is contained within the Laguna Niguel Regional Park, located at 28241 La Paz Road. The project area extends generally from the most southern portion of the park to the most northern portion of the park, traversing the park along the east bank of the Sulphur Creek Reservoir. At the northern extent of Laguna Niguel Regional Park, the project area extends west and terminates near Alicia Parkway.
Lead Agency Name:	Moulton Niguel Water District

Moulton Niguel Water District (MNWD) is proposing the Regional Lift Station Force Main Replacement Project (project), which would involve the replacement of two existing force mains that carry pumped wastewater from MNWD's sewer collection system to the Joint Regional Treatment Plant operated by the South Orange County Wastewater Authority (SOCWA). The force mains are located within the Laguna Niguel Regional Park.

FINDINGS

MNWD, the Lead Agency, having reviewed the Initial Study of this proposed project, does hereby find and declare that the proposed project will not have a significant effect on the environment with implementation of mitigation measures. A brief statement of the reasons supporting the Lead Agency's findings are as follows:

MNWD finds that the project WILL NOT have a significant effect on the environment for the following reasons:

1. The proposed project may potentially result in significant impacts to sensitive animal species (including migratory birds), sensitive riparian habitat, and jurisdictional waters; however, implementation of mitigation measures **BIO-1** through **BIO-6** would reduce impacts to below a level of significance.
2. The proposed project may potentially result in significant impacts to unknown buried cultural and tribal cultural resources; however, implementation of mitigation measures **CUL-1** through **CUL-4** would reduce associated impacts to below a level of significance.
3. The proposed project may potentially result in significant impacts to unknown paleontological resources; however, implementation of mitigation measure **PAL-1** would reduce associated impacts to below a level of significance.

In addition, the proposed project would not result in significant impacts to aesthetics, agricultural and forestry resources, air quality, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise,

population and housing, public services, recreation, transportation, utilities and service systems, or wildfire.

MITIGATION MEASURES

Implementation of the project-specific mitigation measures identified below would reduce potentially significant impacts to below a level of significance.

BIO-1 **Southwestern Pond Turtle and Two-Striped Garter Snake**: A clearance survey for southwestern pond turtle and two-striped garter snake shall be conducted by a qualified biologist within the proposed work areas no more than 14 days prior to construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) The clearance survey shall be conducted within the work areas. If the qualified biologist determines that southwestern pond turtles and/or two-striped garter snakes are present within the work areas during the clearance survey, no construction shall occur until the qualified biologist determines that the pond turtles and/or garter snakes have moved out of the work areas on their own accord. Once the qualified biologist determines that there are no southwestern pond turtles or two-striped garter snakes within the work areas, an exclusionary fence shall be placed between suitable habitat and the work areas to prevent pond turtles and/or garter snakes from reentering the work area. The qualified biologist shall determine the placement of the exclusionary fencing. Prior to commencement of construction activities and after the exclusionary fencing has been erected, a final clearance survey shall be conducted within the work areas to confirm there are no southwestern turtles or garter snakes within the work area. Exclusionary fencing will be required to stay in place for the duration of any construction activities to deter southwestern pond turtles and/or two-striped garter snakes from entering the work areas. The results of the clearance surveys shall be documented by the qualified biologist and submitted to MNWD.

To avoid potential impacts to southwestern pond turtles and/or two-striped garter snakes from vehicles and construction equipment adjacent to suitable habitat, all project personnel shall attend a training program presented by a qualified biologist prior to commencement of construction activities. The training program will inform project personnel about the life history of southwestern pond turtle and two-striped garter snake and all avoidance and minimization measures.

BIO-2 **Nesting Birds**: Construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) shall occur outside of the general bird nesting season for migratory birds, which is February 15 through August 31 for songbirds and January 15 through August 31 for raptors, to the extent feasible.

If construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) must occur during the general bird nesting season for migratory birds and raptors (January 15 through August 31), MNWD shall retain a qualified biologist to perform a pre-construction survey of potential nesting habitat to confirm the absence of active nests belonging to migratory birds and raptors afforded protection under the Migratory Bird Treaty Act (MBTA) and the California Fish and Game (CFG) Code. The pre-construction survey shall be performed no more than seven days prior to the commencement of construction activities.

The results of the pre-construction survey shall be documented by the qualified biologist and submitted to MNWD.

If the qualified biologist determines that no active migratory bird or raptor nests are present, the activities shall be allowed to proceed without any further requirements. If the qualified biologist determines that an active migratory bird or raptor nest is present, no impacts within 300 feet (500 feet for raptors) of the active nest shall occur until the young have fledged the nest and the nest is confirmed to no longer be active, or as determined by the qualified biologist. The biological monitor may modify the buffer or propose other recommendations in order to minimize disturbance to nesting birds.

BIO-3 **Tricolored Blackbird**: Due to presence of suitable habitat for tricolored blackbird within the project area, the following avoidance and minimization measures shall be implemented to avoid potential indirect impacts:

1. Construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) shall occur outside of the nesting season for tricolored blackbird (March 15 through July 31) to the extent feasible.

2. If construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) are proposed within the tricolored nesting season, the following measures shall be taken:

    a. Three pre-construction surveys shall be conducted within 15 days prior to commencing constructions activities on the project area. The third survey shall be conducted within five days prior to construction activities. The surveys shall be conducted within all suitable habitat located in the project area and a 300-foot buffer. The results of the pre-construction surveys shall be documented by the qualified biologist and submitted to MNWD and the California Department of Fish and Wildlife (CDFW).

        If no tricolored blackbirds are observed within 300 feet of proposed construction, the activities shall be allowed to proceed without any further requirements. If tricolored blackbirds are observed within 300 feet of the proposed activities, the following avoidance and minimization measures shall be implemented:

        i. A qualified biological monitor shall clearly delineate a 300-foot buffer around occupied tricolored blackbird habitat. The buffer shall be clearly marked with flags and/or fencing prior to the initiation of construction activities.

        ii. The biological monitor shall be present during any construction activities conducted within the nesting season to observe the birds' behavior. The construction supervisor shall be notified if the construction activities appear to be altering the birds' normal behavior. In this event, construction activities shall cease until additional minimization measures have been performed. Measures may include, but are not limited to, limitation on the use of certain equipment, placement of equipment, restrictions on the

simultaneous use of equipment, or noise attenuation measures (e.g., sound blanket, berm, wall). If the birds' behavior is still altered from normal breeding behavior, construction activities shall cease until CDFW is contacted to discuss alternative methods.

iii. If construction activities are planned within or adjacent to the 300-foot avoidance buffer, a qualified acoustician shall be retained to determine ambient noise levels and project-related noise levels at the edge of occupied habitat. The need for sound monitoring and attenuation shall be recommended by the biological monitor based on the presence of nesting individuals and observation of the birds' behavior. The biological monitor shall prepare written documentation of all monitoring activities at the completion of construction activities, which shall be submitted to MNWD and CDFW.

iv. All project personnel shall attend a training program presented by a qualified biologist prior to construction activities. The training program will inform project personnel about the life history of tricolored blackbird and all avoidance and minimization measures.

v. The construction contractor shall only allow construction activities to occur during daylight hours.

vi. The construction contractor shall require functional mufflers on all construction equipment (stationery or mobile) used within or immediately adjacent to any 300-foot avoidance buffers to reduce construction equipment noise. Stationary equipment shall be situated so that noise generated from the equipment is not directed towards habitat occupied by tricolored blackbird.

vii. The construction contractor will place staging areas as far as feasible from any habitat occupied by tricolored blackbird.

BIO-4 **Burrowing Owl**: In compliance with CDFW's *Staff Report on Burrowing Owl Mitigation* (2012), a take avoidance survey shall be conducted in the project area within 14 days prior to ground disturbance to determine presence of burrowing owls. If the take avoidance survey is negative and burrowing owls are confirmed absent, then ground-disturbing activities shall be allowed to commence and no further mitigation would be required.

If burrowing owls are observed during the take avoidance survey, active burrows shall be avoided by the project in accordance with the CDFW's Staff Report (2012). The CDFW shall be immediately informed of any burrowing owl observations. A Burrowing Owl Protection and Relocation Plan (plan), which must be sent for approval by CDFW prior to initiating ground disturbance, shall be prepared by a qualified biologist. The plan shall detail avoidance measures that shall be implemented during construction and passive or active relocation methodology. Relocation shall only occur outside of the nesting season (February 1 through August 31).

BIO-5 **Least Bell's Vireo**: Due to presence of least Bell's vireos in the project area, the following measures shall be implemented to avoid potential direct impacts:

1. If canopy trimming for construction vehicle access is required, it shall be conducted by an ISA certified arborist outside of the nesting season for least Bell's vireo (March 15 through August 31).

2. Compensatory mitigation for direct temporary impacts to 0.04 acre of suitable least Bell's vireo habitat shall be offset through compensatory mitigation. Compensatory mitigation may include, but is not necessarily limited to, on-site or off-site riparian enhancement, payment to Orange County Parks (OC Parks) to fund non-native vegetation removal, or purchase of off-site enhancement credits at a ratio of no less than 1:1.

Due to presence of least Bell's vireo in the study area, the following measures shall be implemented to avoid or minimize potential indirect impacts:

1. Construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) shall occur outside of the nesting season for least Bell's vireo (March 15 through August 31) to the extent feasible.

2. If construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) are proposed within the least Bell's vireo nesting season, the following measures shall be taken:

    a. If construction activities are planned within the least Bell's vireo nesting season, a qualified biological monitor shall clearly delineate a 500-foot buffer around suitable least Bell's vireo habitat. The buffer shall be clearly marked with flags and/or fencing prior to the initiation of construction activities.

    b. The biological monitor shall be present during any construction activities conducted within the nesting season to observe the birds' behavior. The construction supervisor shall be notified if the construction activities appear to be altering the birds' normal behavior. In this event, construction activities shall cease until additional minimization measures have been performed. Measures may include, but are not limited to, limitation on the use of certain equipment, placement of equipment, restrictions on the simultaneous use of equipment, or noise attenuation measures (e.g., sound blanket, berm, wall). If the birds' behavior is still altered from normal breeding behavior, construction activities shall cease until CDFW and U.S. Fish and Wildlife Service (USFWS) are contacted to discuss alternative methods.

    c. If construction activities (e.g., ground disturbance and canopy trimming) are planned within or adjacent to the 500-foot buffer, a qualified acoustician shall be retained to determine ambient noise levels and project-related noise levels at the edge of occupied habitat. The need for sound monitoring and attenuation shall be recommended by the biological monitor based on the presence of nesting individuals and observation of the birds' behavior. Noise levels at the edge of the occupied habitat shall not exceed an hourly average of

60 A-weighted decibels (dBA). If project-related noise levels exceed the threshold described above, construction activities shall cease until additional minimization measures are taken to reduce project-related noise levels to below an hourly average of 60 dBA). If additional measures do not decrease project-related noise levels below the thresholds described above, construction activities shall cease until CDFW and USFWS are contacted to discuss alternative methods.

d. All project personnel shall attend a training program presented by a qualified biologist prior to construction activities. The training program will inform project personnel about the life history of least Bell's vireo and all avoidance and minimization measures.

e. The construction contractor shall only allow construction activities to occur during daylight hours.

f. The construction contractor shall require functional mufflers on all construction equipment (stationery or mobile) used within or immediately adjacent to any 500-foot buffers to reduce construction equipment noise. Stationary equipment shall be situated so that noise generated from the equipment is not directed towards habitat occupied by least Bell's vireo.

g. The construction contractor shall place staging areas as far as feasible from habitat occupied by least Bell's vireo.

h. The biological monitor shall prepare written documentation of all monitoring activities at the completion of construction activities, which shall be submitted to MNWD, CDFW, and USFWS.

BIO-6 **Jurisdictional Resources**: Prior to impacts to jurisdictional resources, MNWD shall obtain regulatory permits from USACE, RWQCB, and CDFW. Jurisdictional resources temporarily impacted shall be returned to pre-project contours once the project has been completed. Compensatory mitigation for temporary impacts to jurisdiction shall include, but is not necessarily limited to, on-site or off-site riparian enhancement, payment to OC Parks to fund non-native vegetation removal, or the purchase of off-site mitigation enhancement credits at a ratio of no less than 1:1. The following minimization measures will also be implemented during construction:

- Use of standard Best Management Practices (BMPs) to minimize the impacts during construction.
- Construction-related equipment will be stored in developed areas, outside of drainages.
- Source control and treatment control BMPs will be implemented to minimize the potential contaminants that are generated during and after construction. Water quality BMPs will be implemented throughout the project to capture and treat potential contaminants.

- To avoid attracting predators during construction, the project shall be kept clean of debris to the extent possible. All food-related trash items shall be enclosed in sealed containers and regularly removed from site.

- Employees shall strictly limit their activities, vehicles, equipment and construction material to the proposed project footprint, staging areas, and designated routes of travel.

- Exclusion fencing shall be maintained until the completion of construction activities.

CUL-1 **Worker Environmental Awareness Program.** Prior to the commencement of any ground-disturbing activities for the project, a qualified archaeologist and a Native American monitor from a traditionally culturally affiliated (TCA) tribe shall conduct a Worker Environmental Awareness Program (WEAP) to present to MNWD, the grading contractor, and any relevant subcontractors information regarding the cultural and archaeological sensitivity of the project area, as well as the requirements of the monitoring program. The WEAP can be presented at a pre-grading meeting or separately. If the WEAP is held separately, the qualified archaeologist and TCA Native American monitor shall be present for a pre-grading meeting with the grading contractor to discuss project schedule, safety requirements, and monitoring protocols.

CUL-2 **Cultural Resources Monitoring.** Ground disturbing activities during construction shall be monitored by a qualified archaeologist and a TCA Native American monitor. If cultural material is encountered during monitoring, both the archaeologist and the Native American monitor would have the authority to temporarily halt or redirect activity in the area of the find while the cultural material is documented, and a decision is made regarding the significance/eligibility of the find and whether additional excavation, analysis, or other mitigation measures are required. Determinations of significance will be made in consultation among the archaeological Principal Investigator, Native American monitor, and MNWD staff.

CUL-3 **Cultural Resources Monitoring Report.** Following the conclusion of monitoring, a report shall be prepared documenting the methods and results of the monitoring program and submitted to MNWD and the South Central Coast Information Center (SCCIC).

CUL-4 **Human Remains.** In the event that human remains are discovered, the County Coroner shall be contacted. If the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission (NAHC), shall be contacted in order to determine proper treatment and disposition of the remains. All requirements of Health & Safety Code Section 7050.5 and Public Resources Code Section 5097.98 shall be followed.

PAL-1 **Paleontological Resources Mitigation and Monitoring Plan.** A Paleontological Resources Mitigation and Monitoring Plan shall be prepared prior to construction of the proposed project. A qualified paleontologist shall be retained by MNWD to carry out and manage the plan. Fieldwork may be carried out by a qualified paleontological monitor working under the direction of the paleontologist. Components of the Paleontological Resources Mitigation and Monitoring Plan shall include, but not be limited to:

- The paleontologist shall attend all pre-grading meetings to inform the grading and excavation contractors of the paleontological resource mitigation program and shall consult with them with respect to its implementation.

- The paleontological monitor shall be on site at all times during the original cutting of previously undisturbed sediments to inspect cuts for contained fossils.

- If fossils are discovered, the paleontologist or monitor shall recover them. In instances where recovery requires an extended salvage time, the paleontologist or monitor shall be allowed to temporarily redirect, divert, or halt grading to allow recovery of fossil remains in a timely manner. Where deemed appropriate by the paleontologist or monitor, a screen-washing operation for small fossil remains shall be set up.

Recovered fossils, along with copies of pertinent field notes, photographs, and maps, shall be deposited (with MNWD's permission) with OC Parks. A final summary report that outlines the results of the mitigation program shall be completed. This report shall include discussion of the methods used, stratigraphy exposed, fossils collected, and significance of recovered fossils.

The Lead Agency hereby finds that the Mitigated Negative Declaration reflects its independent judgment. A copy of the Initial Study is attached.

The location and custodian of the documents and other materials which constitute the record of proceedings upon which the Lead Agency based its decision to adopt this Mitigated Negative Declaration are as follows:

Moulton Niguel Water District
26161 Gordon Road
Laguna Hills, CA 92653
http://www.mnwd.com/engineering/

3-6-19
Date Received for Filing

Staff Signature

1.0 INTRODUCTION

The following Initial Study addresses the environmental impacts associated with the construction and operation of Moulton Niguel Water District's (MNWD's) proposed Regional Lift Station Force Main Replacement Project (project). This Initial Study has been prepared in accordance with the California Environmental Quality Act of 1970 (CEQA), as amended, and the State CEQA Guidelines.

1.1 INITIAL STUDY INFORMATION SHEET

1. Project title:

Regional Lift Station Force Main Replacement Project

2. Lead agency name and address:

Moulton Niguel Water District, 26161 Gordon Road, Laguna Hills, CA 92653, Building 1

3. Contact person and phone number:

Contact: Todd Dmytryshyn
Phone: (949) 425-3549

4. Project location:

The project area is generally located 1.6 miles west of Interstate 5 and 2.7 miles east of State Route 133 in the City of Laguna Niguel (City; Figure 1, *Regional Location,* and Figures 2a through 2d, *Proposed Project*). The project is contained within the Laguna Niguel Regional Park, located at 28241 La Paz Road. The project area extends generally from the most southern portion of the park to the most northern portion of the park, traversing the park along the east bank of the Sulphur Creek Reservoir. At the northern extent of Laguna Niguel Regional Park, the project area extends west and terminates near Alicia Parkway.

5. Project sponsor's name and address:

Moulton Niguel Water District, 26161 Gordon Road, Laguna Hills, CA 92653, Building 1

6. General Plan designation:

City of Laguna Niguel: The land use designation for the project area includes "Parks and Recreation" and "Open Space."

7. Zoning designation:

City of Laguna Niguel: The zoning designation for the project area includes "Park & Recreation District (PR)" and "Open Space District (OS)."

8. Description of project:

MNWD is proposing replacement of two existing force mains that carry pumped wastewater from MNWD's sewer collection system. The force mains are located within the Laguna Niguel Regional Park.

Project Background and Need

The Regional Lift Station is located at 28386 Alicia Parkway in Laguna Niguel. The Regional Lift Station and Force Mains are critical wastewater facilities that carry pumped flow from MNWD's sewer collection system to the Joint Regional Treatment Plant operated by the South Orange County Wastewater Authority (SOCWA). The lift station contains five pumps, each with a capacity of 3,600 gallons per minute (gpm) at 147 feet of lift. The daily flow-rate of the lift station typically ranges from 5,800 gpm to 7,200 gpm. However, during periods of heavy rains, the lift station has historically discharged a maximum peak flow-rate of 15,500 gpm.

The lift station currently pumps flow into parallel 20-inch and 24-inch Techite pipe force mains (see Figure 2a for alignment of the existing force mains). Only one pipe is used at a time for typical flows. The existing force mains were originally constructed in 1979 and are located in service roads within the Laguna Niguel Regional Park, generally to the west of Sulphur Creek Reservoir. The length of each existing force main is approximately 7,325 feet. Due to the brittle nature of Techite pipe and the industry reputation of failure, MNWD is proceeding with this project to replace the existing force mains.

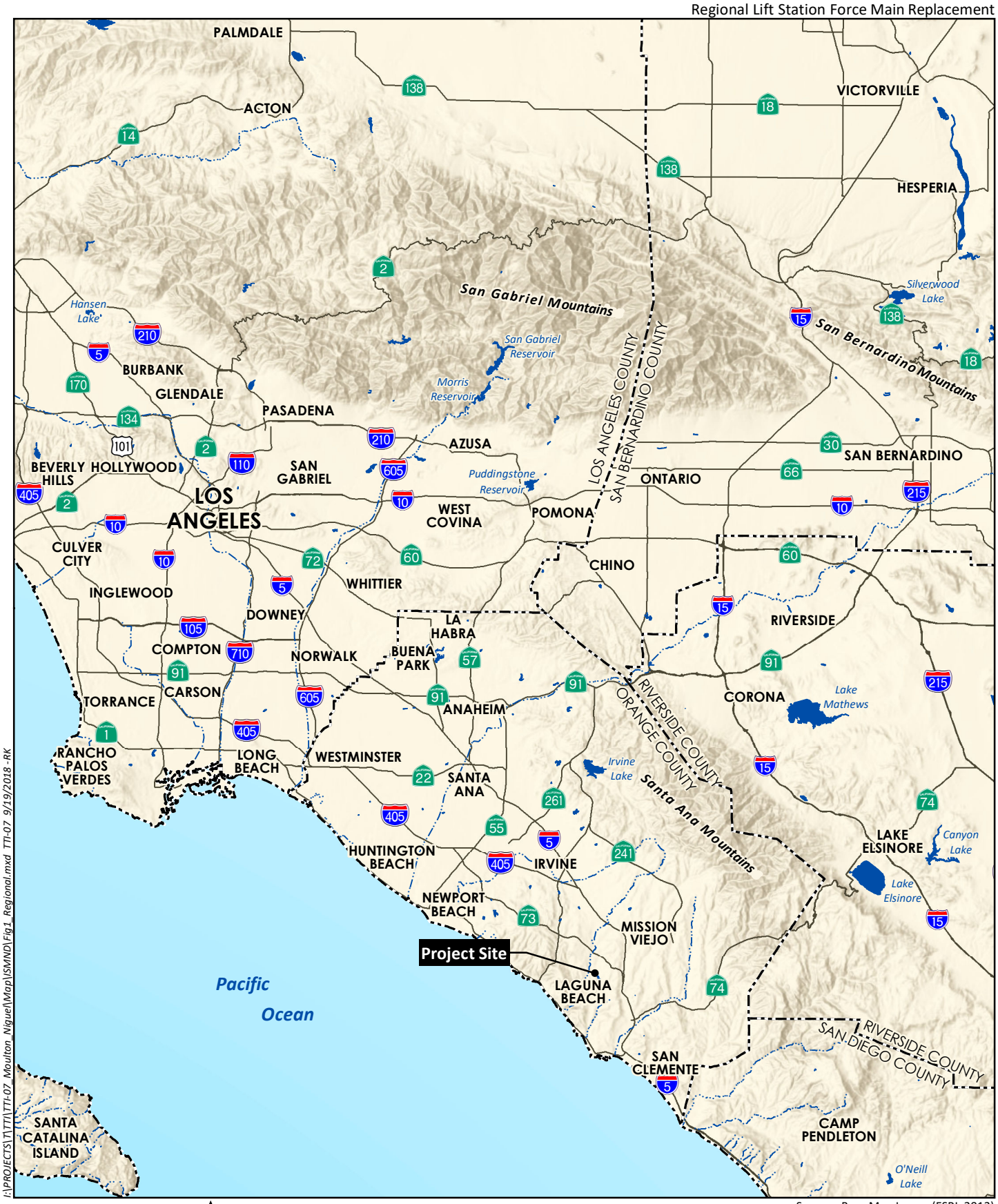
Project Description

The project would replace existing sewage force mains with new dual 24-inch force mains, each approximately 8,500 linear feet in length, in a new alignment. The force mains would begin at the Regional Lift Station near Alicia Parkway, and head east and travel alongside the main access road for the Laguna Niguel Regional Park. The force mains would then head south following a service path on the east side of the Sulphur Creek Reservoir. The alignment would end at the Joint Regional Treatment Plant operated by the South Orange County Wastewater Authority (SOCWA). Sewer service would be maintained through the existing pipes during construction. MNWD would install the new force mains utilizing open-cut trenching and trenchless installation methods. Trenchless installation methods may include microtunneling or jack and bore construction. One or both of the existing force mains will be repurposed for secondary effluent from the Regional Treatment Plant. It should be noted that prior to any construction work occurring on County of Orange or OC Parks property, MNWD would be required to obtain an OC Parks construction/encroachment permit and would be subject to the conditions specified therein.

The depth of disturbance for trenching activities would be between 6 and 12 feet (9 feet average). Access pits and tunnels would occur at a depth approximately between 19 and 31 feet (22 feet average). From construction activities, the project would have an import of 6,000 cubic yards of soil with an export of 8,000 cubic yards, for a net export of 2,000 cubic yards (due to the physical size of the force mains displacing soil).

Total construction activities are estimated to have a duration of 550 calendar days. Trenching for the force mains would occur for 200 working days, with 70 working days for trenchless activities. Two tunnels would be constructed simultaneously; typically, one tunnel would require 20 to 30 working days. Site restoration would require 20 working days. Construction would occur during allowable hours per the City Noise Ordinance (between the hours of 7 a.m. to 8 p.m. on weekdays, including Saturday); and no construction would occur on Sunday or a federal holiday. Trenching activities would construct approximately 40 feet of the dual force mains per day; tunneling activities would construct approximately 20 feet of the dual force mains per day.

Construction access areas are shown on Figures 2a through 2d. For trenching activities, construction equipment would include an excavator, loader, two utility trucks, and two dump trucks. Trenching



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0 10 Miles

Source: Base Map Layers (ESRI, 2013)

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Regional Location

Figure 1

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Source: Aerial (Esri 2016)

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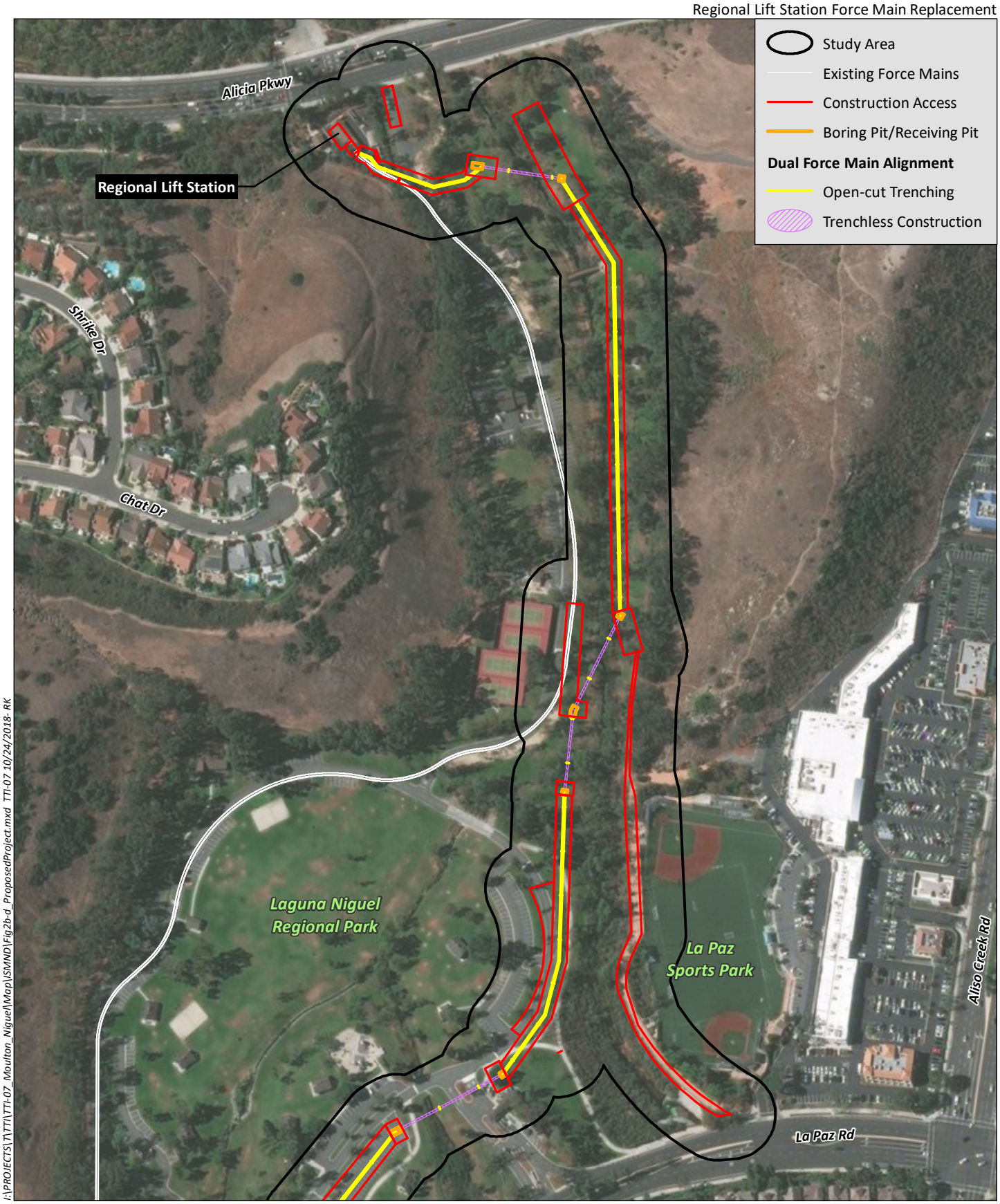
Proposed Project

Figure 2a



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0 300 Feet

Source: Aerial (Esri 2016)

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Proposed Project

Figure 2b

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0 300 Feet

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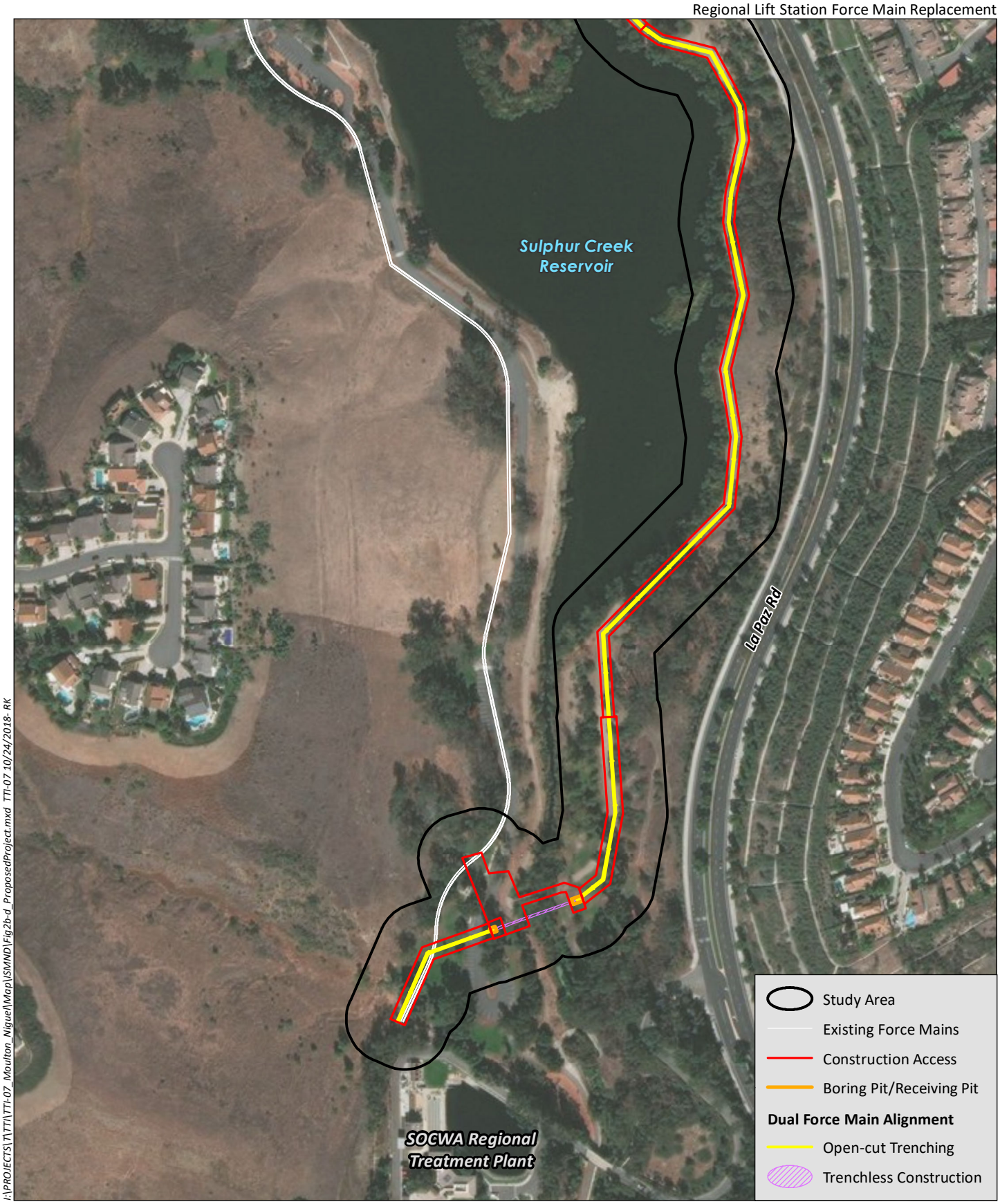
Source: Aerial (Esri 2016)

HELIX Environmental Planning

Proposed Project

Figure 2c



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0 300 Feet

Source: Aerial (Esri 2016)

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Proposed Project

Figure 2d

would involve eight daily truck trips for bedding material and pipe material deliveries and spoil haul out. Trenchless construction activities would involve similar construction equipment, along with tunneling equipment (e.g., microtunnel boring machine [MTBM], horizontal auger boring machine, etc.). Trenchless construction would involve four daily truck trips (including delivery of shoring, transporting excavated material off site for storage at an authorized location, delivery of pipe material, transporting excavated material back to the site, and removal of shoring from the site), and site restoration would require two daily truck trips.

Along the construction route, several trees would be removed to accommodate trenching. Removed trees would be trees that are dead and/or non-native. In addition, portions of the concrete trail would be removed and replaced. Ground surfaces would be restored to preexisting conditions and trees would be replaced in in nearby areas of the park (the trees must be planted outside of the force main alignment to allow for future maintenance and to avoid root conflicts with the pipeline).

To reduce potential for hydrofracture and inadvertent returns from trenchless construction activities, a Frac-Out Contingency Plan would be prepared and implemented, which may include, but not necessarily be limited to, the following construction best management practices:

- Sufficient earth cover to increase resistance to hydrofracture;
- Use of an adequately dense drilling fluid to avoid travel of drilling fluid in porous sands;
- Structurally stabilizing the bore to avoid collapse;
- Maintaining a low enough borehole pressure to avoid hydrofracture;
- Maintaining reaming and pullback rates slow enough to avoid over-pressurization of the bore;
- Visually monitoring the surface above the vicinity of the drill head for surface evidence of hydrofracture;
- Modifying drilling methods to suit site conditions such that hydrofracture does not occur;
- Cleaning hydrofractures immediately after they occur; and
- Keeping necessary response equipment readily accessible and in good working order.

Following construction, project activities would be limited to routine maintenance of the force mains, similar to ongoing maintenance of the existing force mains.

9. Surrounding Land Uses and Setting:

Immediate surrounding land uses include La Paz Sports Park, Aliso Village Shopping Center, and an undeveloped hillside to the north; Sulphur Creek Reservoir, park land, undeveloped hillsides, and single-family residences to the west and south; the Joint Regional Treatment Plant operated by the SOCWA to the south; and La Paz Road and single-family residences to the east.

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

    - OC Parks
    - State Water Resources Control Board (SWRCB)
    - California Department of Fish and Wildlife (CDFW)
    - U.S. Army Corps of Engineers (USACE)

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

MNWD invited interested tribes to consult pursuant to Assembly Bill (AB) 52; letters were sent in March 2018. The only response received has been from the Viejas Band of Kumeyaay Indians, who indicated that the project area has little cultural significance or ties to Viejas. They recommended contacting the tribe(s) closest to the project area. However, they do request to be informed of any new developments such as inadvertent discovery of cultural artifacts, cremation sites, or human remains in order to reevaluate their participation in the consultation process.

1.2 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that may require mitigation to reduce the impact from "Potentially Significant Impact" to "Less Than Significant" as indicated by the checklist on the following pages.

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

1.3 DETERMINATION

On the basis of this initial evaluation:

☐	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
■	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
☐	I find that the proposed project MAY have a significant effect on the environment, and an environmental impact report is required.
☐	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect I) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
☐	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

3-5-19
Date

Rodney S. Woods
Printed Name:

Moulton Niguel Water District
For:

1.4 EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other California Environmental Quality Act (CEQA) process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a. Earlier Analysis Used. Identify and state where they are available for review.

    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c. Mitigation Measures. For effects that are "Less Than Significant with Mitigation Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used, or individuals contacted should be cited in the discussion.

8. The explanation of each issue should identify:

    a. The significance criteria or threshold, if any, used to evaluate each question; and

    b. The mitigation measure identified, if any, to reduce the impact to less than significant.

2.0 ENVIRONMENTAL INITIAL STUDY CHECKLIST

I. AESTHETICS

Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	■	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	■
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	■	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	■

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

Less Than Significant Impact. The project alignment is within Laguna Niguel Regional Park, which includes scenic vistas of trees and vegetated slopes. Construction activities would involve the presence of construction equipment, fencing/signage, vehicles, and soil stockpiles; however, the project alignment is generally located at a lower elevation than that of the surrounding areas, and these construction components would therefore not be highly visible from the surrounding public roadways, from which scenic vistas within the park can be observed. In addition, the presence of construction equipment would be temporary. Following completion of construction, disturbed ground surfaces would be restored to preexisting conditions and the below-ground force mains would not be visible and would not affect scenic vistas. Installation of the force mains would require the removal of nine interspersed trees within Laguna Niguel Regional Park; however, in comparison to the total number of trees in the park, the removal of nine trees would be minimal and would not substantially affect existing scenic vistas. In addition, the removed trees would be trees that are infected and/or non-native, and the trees would be replaced at a future date in nearby areas of the park (the trees must be planted outside of the force main alignment to allow for future maintenance and to avoid root conflicts with the pipeline). Therefore, the project would not have a substantial adverse effect on a scenic vista, and impacts would be less than significant.

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

No Impact. Highways in the vicinity of the project alignment include State Routes 1, 73, 74, and 133, as well as Interstate 5. Although nearby portions of State Routes 1 and 74 and Interstate 5 are eligible for listing as scenic highways, none is currently officially designated (Caltrans 2018). In addition, the closest eligible portion of one of these highways is State Route 1, which is located approximately 3.4 miles

southwest of the project alignment. Although nine trees would be removed as part of the project, they would not be removed within a state scenic highway. Therefore, the proposed project would not substantially damage scenic resources within a state scenic highway, and no impacts would occur.

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

Less Than Significant Impact. The project site is located in an area characterized by a developed regional park and associated facilities, as well as open space and residential uses and associated landscaping and other improvements. The proposed project would result in a temporary change of appearance along the project alignment during construction. Construction equipment, fencing/signage, vehicles, and soil stockpiles in the construction work and staging areas would be visible to those traveling along La Paz Road and Alicia Parkway, users of the park, and residents in adjacent neighborhoods. These impacts would be temporary. Installation of the force mains would require the removal of nine interspersed trees within Laguna Niguel Regional Park; however, in comparison to the total number of trees in the park, the removal of nine trees would be minimal and would not substantially affect the existing visual character of the park. In addition, the removed trees would be trees that are infected and/or non-native, and the trees would be replaced at a future date in nearby areas of the park. Upon completion of construction, no substantial permanent changes to visual character or quality of the project alignment would occur, as the force mains would be located below ground. Therefore, impacts to the visual character and quality of the site and its surroundings would be less than significant.

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

No Impact. The proposed project would include the construction and operation of below-ground sewer force mains. Construction activities would occur during daylight hours, and no supplemental lighting would be required during such activities. Construction equipment would not be a substantial source of glare. Once completed, the proposed project components would be located below ground and operation would not create light or glare. Therefore, no impacts would occur.

II. AGRICULTURE AND FORESTRY RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	■
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	■

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section l 2220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	■
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	■
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non- forest use?	☐	☐	☐	■

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

No Impact. The project alignment is within an area characterized as "Urban and Built-up Land" and "Other Land" with no land mapped as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (CDC 2016). Therefore, the project would not convert farmland to non-agricultural use, and no impacts would occur.

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

No Impact. The proposed project alignment is in a regional park within an urbanized area and would not occur in areas that are under Williamson Act contract or zoned for agricultural use. Therefore, no impacts related to conflicts with existing agricultural zoning would occur.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section l 2220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. The project alignment is in a regional park within an urbanized area and is not zoned as forest land or timberland. Therefore, no impact would occur.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The project alignment is not within or near forest land. Therefore, project construction and operation would not convert forest land to non-forest use, and no impact would occur.

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

No Impact. The project alignment is in a regional park within an urbanized area, with no nearby agricultural or forestry land uses. Implementation of the proposed project would not involve changes to

the existing environment which would result in conversion of farmland to non-agricultural use or forest land to non-forest use. Therefore, no impact would occur.

III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	■
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard ?	☐	☐	■	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	■	☐
d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people)?	☐	☐	■	☐

a) Conflict with or obstruct implementation of the applicable air quality plan?

No Impact. The project is located in Orange County (County) within the South Coast Air Basin (SCAB). Air quality in the SCAB is regulated by the South Coast Air Quality Management District (SCAQMD). As a regional agency, the SCAQMD works directly with Southern California Association of Governments (SCAG), county transportation commissions, and local governments, as well as cooperates actively with applicable federal and state government agencies. The SCAQMD develops rules and regulations; establishes permitting requirements for stationary sources; inspects emissions sources; and enforces such measures through educational programs or fines, when necessary.

The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a sequence of Air Quality Management Plans (AQMPs). An AQMP establishes a program of rules and regulations directed at attaining the National Ambient Air Quality Standards and California Ambient Air Quality Standards. The regional plan applicable to the project is the SCAQMD's 2016 AQMP (SCAQMD 2017).

The two principal criteria for conformance to the AQMP are (1) whether a project would result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of air quality standards and (2) whether a project would exceed the assumptions in the AQMP (SCAQMD 1993).

As described under Item III.b below, pollutant emissions from construction and operation of the proposed project would not violate an air quality standard or contribute substantially to an existing or projected air quality violation. Further, the project does not involve a change to General Plan designations or zoning and, therefore, would not exceed the assumptions in the AQMP. No conflict with the 2016 AQMP would occur with the proposed project.

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

Less Than Significant Impact. The region is a federal and/or state nonattainment area for particulate matter 10 micrometers or less in diameter (PM_{10}), particulate matter 2.5 micrometers or less in diameter ($PM_{2.5}$), and ozone. For the reasons described above in Item III.a and b, the proposed project would not result in a cumulatively considerable net increase of these criteria pollutants, including precursors to ozone. In addition, daily emissions would be low, temporary in duration, and localized within the immediate project vicinity. Accordingly, cumulative impacts associated with air quality would be less than significant.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. The nearest sensitive receptors to the proposed project would be users of Laguna Niguel Regional Park, through which the project alignment traverses. For the reasons described for Items III.a through III.c, the proposed project would not generate substantial pollutant concentrations. Accordingly, impacts would be less than significant.

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

Less Than Significant Impact. In the short term, diesel exhaust from construction equipment may create noticeable odors near the proposed project; however, the diesel exhaust odors would be temporary and minor, and would not affect a substantial number of people. Accordingly, impacts would be less than significant.

IV. BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	■	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	■	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	■	☐	☐

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	■	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	■
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	■

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

Less Than Significant with Mitigation. A Biological Technical Report was prepared for the proposed project by HELIX Environmental Planning Inc. (HELIX; 2018a; refer to Appendix A). Potential impacts to sensitive plant and animal species within the project area and vicinity are presented below.

Sensitive Plant Species

Eight of the 16 rare plant species recorded in the vicinity of the project area are not considered to have potential to occur on site based on geographic range, elevation range, and/or lack of suitable habitat. The remaining eight species were considered to have a potential to occur in the project area based on the presence of southern willow scrub, fresh water marsh, and chaparral habitats.

Seven of the eight rare plant species with potential to occur were not observed in the project area during focused surveys; therefore, these species are presumed to be absent from the project area. Two individuals of San Diego marsh elder, which is considered a rare species (but not listed as threatened or endangered at the state or federal level), were observed adjacent Sulphur Creek. No permanent impacts or temporary disturbances to the two San Diego marsh elder individuals are anticipated. Therefore, no impacts to sensitive plant species would occur.

Sensitive Animal Species

Three of the 18 sensitive animal species recorded (tidewater goby, western spadefoot, and coastal cactus wren) in the vicinity of the project area are not considered to have potential to occur on site to lack of suitable habitat. One species, the grasshopper sparrow, is not expected to occur due to lack of suitable habitat for residence and/or breeding but could disperse through or across the project area.

Of the remaining 14 species, four species have low potential to occur, four species have moderate potential to occur, one species has a high potential to occur, three species are presumed to be absent, and two species are presumed to be present. These species are discussed in further detail below.

Low Potential Species

Four species were determined to have a low potential to occur on the project site due to the presence of low-quality habitat, limited acreage of habitat, and lack of recent observations within the immediate vicinity of the project area. These species include arroyo chub, California glossy snake, coastal whiptail, and coast horned lizard.

These four species with a low potential to occur in the project area are species of special concern. No impacts to suitable habitat for arroyo chub are proposed; therefore, this species would not be impacted by the project. The project would result in temporary disturbance to small portions of low-quality habitat for California glossy snake, coastal whiptail, and coast horned lizard. Temporary disturbance is proposed to 0.01 acre of coyote brush chaparral, less than 0.01 acre of coyote brush chaparral/ ornamental, and 0.11 acre of non-native vegetation/coyote brush chaparral. Temporary disturbance to small areas of low-quality habitat would not result in a significant impact to these species. No permanent impacts are proposed to habitat suitable to these species.

Moderate Potential Species

Four species were determined to have a moderate potential to occur based on the presence of small areas of low-quality suitable habitat and recent observations within the immediate vicinity of the project area. These species include southwestern pond turtle, two-striped garter snake, white-tailed kite, and western mastiff bat.

Southwestern pond turtle and two-striped garter snake are species of special concern. Although the project area contains suitable habitat for these species, no work is proposed within the suitable habitat, and no direct impacts are anticipated; however, since work areas are adjacent to suitable habitat, incidental impacts related to encroachment into the suitable habitat have the potential to occur. To avoid incidental impacts to southwestern pond turtle and two-striped garter snake, mitigation measure BIO-1 would be implemented.

White-tailed kite is a State Fully Protected species and is protected under the Migratory Bird Treaty Act (MBTA). The study area does not support suitable foraging habitat, although suitable nesting habitat is present within the study area. White-tailed kites prefer to nest in the upper two-thirds of full-canopied trees (CDFW 2018). A total of nine non-native park trees are proposed to be removed by the project and will be replaced by MNWD in coordination with Orange County Parks (OC Parks). Trees proposed for removal include dead trees (one western sycamore tree and one Gooding's black willow), and non-native trees (two red river gum, two Aleppo pine, and three bottlebrush trees). These trees are located adjacent to a heavily-trafficked cement footpath within the park landscaping and most are not full-canopied trees. Although white-tailed kite is not expected to nest in these trees due to proximity to daily human disturbance and lack of preferred tree structure, the species does have a low potential to nest during the nesting season (January 15 through August 31) in the red river gum and Aleppo pine trees that are proposed for removal. Therefore, the project could potentially result in a direct impact to this species. In addition, construction noise could indirectly affect white-tailed kites that may be nesting in trees within or adjacent to work areas. Impacts would therefore be potentially significant and mitigation measure BIO-2 would be required to reduce impacts to a less-than-significant level.

Western mastiff bat is a species of special concern. Although the project area supports suitable foraging habitat for this species, no suitable roosting habitat is present within or adjacent to the work areas. Therefore, no direct or indirect impacts to roosting western mastiff bat would occur. Temporary disturbance to a small portion of suitable foraging habitat would be considered less than significant.

High Potential Species

Tricolored blackbird is a state candidate species, which is considered a "State-listed" species pursuant to the California Endangered Species Act. The project area supports suitable nesting and foraging habitat for this species. Although the project would avoid direct impacts to this species' habitat, construction noise during the nesting season could generate potentially significant indirect impacts. To avoid indirect impacts to tricolored blackbird, mitigation measure BIO-3 would be implemented.

Presumed Absent Species

Focused surveys for burrowing owl (species of special concern), coastal California gnatcatcher (federally threatened and a species of special concern), and southwestern willow flycatcher (federally and state endangered) were conducted in 2018. Survey results were negative, and these species are presumed to be absent from the project area. Therefore, no direct or indirect impacts are anticipated to these species.

Because the project area supports suitable habitat, however, a take avoidance survey is required prior to ground disturbance in accordance with CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). The take avoidance survey is included as part of mitigation measure BIO-4, which would avoid impacts to burrowing owl.

Presumed Present Species

Least Bell's vireo (federally and state endangered) and yellow warbler (species of special concern) were observed in the project area during focused surveys and are therefore presumed to be present on site.

The project would trim canopy of 0.04 acre of least Bell's vireo habitat (0.03 acre of southern willow scrub and 0.01 acre of mule fat scrub) to allow access for construction equipment. The areas proposed for trimming are located along the perimeter of the suitable habitat, adjacent to walking trails, and represent a very small portion of the community within the study area, approximately one percent. Additionally, some of these areas may not require trimming since the park setting has resulted in willow trees with a high canopy and trimming would only be required to allow for construction vehicle clearance. While this would not result in a permanent direct impact to the species' habitat, this trimming would be considered a temporary direct impact to least Bell's vireo habitat. Mitigation measure BIO-5 would be implemented to reduce this temporary direct impact through compensatory mitigation for temporal loss of 0.04 acre of suitable least Bell's vireo habitat and performing canopy trimming outside of the nesting season with an International Society of Arboriculture (ISA) certified arborist.

In addition, construction noise could impose indirect impacts to individuals that are adjacent to work areas. Temporary direct and/or indirect impacts to least Bell's vireo during the nesting season would be a potentially significant impact. To avoid potential impacts to least Bell's vireo, mitigation measures BIO-5 would be implemented.

The project would also avoid permanent direct impacts to this yellow warbler habitat, although temporary direct impacts to habitat would include canopy trimming of 0.03 acre of southern willow scrub to allow access for construction equipment. In addition, construction noise could impose indirect impacts to individuals that are adjacent to work areas. Temporary direct and/or indirect impacts to yellow warbler during the nesting season would be a significant impact. Implementation of mitigation measure BIO-2 would reduce potential indirect impacts to yellow warbler to less than significant.

Hydrofractures

The project would conduct trenchless construction activities. During these activities, use of a clay lubricant, specifically bentonite slurry, can potentially impact amphibians, aquatic reptiles, fish, and other aquatic species and their habitats when hydrofractures (commonly referred to as "frac-outs") occur. Bentonite is often considered non-toxic; however, benthic invertebrates, aquatic plants, fish, and their eggs could potentially be smothered by fine particles of bentonite if it is discharged into waterways. Through the implementation of the Frac-Out Contingency Plan, described under Section 1.1, impacts would be less than significant.

With implementation of the following mitigation measures, impacts to sensitive animal species would be less than significant:

BIO-1 **Southwestern Pond Turtle and Two-Striped Garter Snake**: A clearance survey for southwestern pond turtle and two-striped garter snake shall be conducted by a qualified biologist within the proposed work areas no more than 14 days prior to construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.). The clearance survey shall be conducted within the work areas. If the qualified biologist determines that southwestern pond turtles and/or two-striped garter snakes are present within the work areas during the clearance survey, no construction shall occur until the qualified biologist determines that the pond turtles and/or garter snakes have moved out of the work areas on their own accord. Once the qualified biologist determines that there are no southwestern pond turtles or two-striped garter snakes within the work areas, an exclusionary fence shall be placed between suitable habitat and the work areas to prevent pond turtles and/or garter snakes from reentering the work area. The qualified biologist shall determine the placement of the exclusionary fencing. Prior to commencement of construction activities and after the exclusionary fencing has been erected, a final clearance survey shall be conducted within the work areas to confirm there are no southwestern turtles or garter snakes within the work area. Exclusionary fencing will be required to stay in place for the duration of any construction activities to deter southwestern pond turtles and/or two-striped garter snakes from entering the work areas. The results of the clearance surveys shall be documented by the qualified biologist and submitted to MNWD.

To avoid potential impacts to southwestern pond turtles and/or two-striped garter snakes from vehicles and construction equipment adjacent to suitable habitat, all project personnel shall attend a training program presented by a qualified biologist prior to commencement of construction activities. The training program will inform project personnel about the life history of southwestern pond turtle and two-striped garter snake and all avoidance and minimization measures.

BIO-2 **Nesting Birds**: Construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) shall occur outside of the general bird nesting season for migratory birds, which is February 15 through August 31 for songbirds and January 15 through August 31 for raptors, to the extent feasible.

If construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) must occur during the general bird nesting season for migratory birds and raptors (January 15 through August 31), MNWD shall retain a qualified biologist to perform a pre-construction survey of potential nesting habitat to confirm the absence of active nests belonging to migratory birds and raptors afforded protection under the MBTA and the California Fish and

Game (CFG) Code. The pre-construction survey shall be performed no more than seven days prior to the commencement of construction activities. The results of the pre-construction survey shall be documented by the qualified biologist and submitted to MNWD.

If the qualified biologist determines that no active migratory bird or raptor nests are present, the activities shall be allowed to proceed without any further requirements. If the qualified biologist determines that an active migratory bird or raptor nest is present, no impacts within 300 feet (500 feet for raptors) of the active nest shall occur until the young have fledged the nest and the nest is confirmed to no longer be active, or as determined by the qualified biologist. The biological monitor may modify the buffer or propose other recommendations in order to minimize disturbance to nesting birds.

BIO-3 **Tricolored Blackbird**: Due to presence of suitable habitat for tricolored blackbird within the project area, the following avoidance and minimization measures shall be implemented to avoid potential indirect impacts:

1. Construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) shall occur outside of the nesting season for tricolored blackbird (March 15 through July 31) to the extent feasible.

2. If construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) are proposed within the tricolored nesting season, the following measures shall be taken:

    a. Three pre-construction surveys shall be conducted within 15 days prior to commencing construction activities on the project area. The third survey shall be conducted within five days prior to construction activities. The surveys shall be conducted within all suitable habitat located in the project area and a 300-foot buffer. The results of the pre-construction surveys shall be documented by the qualified biologist and submitted to MNWD and CDFW.

        If no tricolored blackbirds are observed within 300 feet of proposed construction, the activities shall be allowed to proceed without any further requirements. If tricolored blackbirds are observed within 300 feet of the proposed activities, the following avoidance and minimization measures shall be implemented:

        i. A qualified biological monitor shall clearly delineate a 300-foot buffer around occupied tricolored blackbird habitat. The buffer shall be clearly marked with flags and/or fencing prior to the initiation of construction activities.

        ii. The biological monitor shall be present during any construction activities conducted within the nesting season to observe the birds' behavior. The construction supervisor shall be notified if the construction activities appear to be altering the birds' normal behavior. In this event, construction activities shall cease until additional minimization measures have been performed. Measures may include, but are not limited to, limitation on the use of certain equipment, placement of equipment, restrictions on the simultaneous use of equipment, or noise attenuation measures (e.g., sound

blanket, berm, wall). If the birds' behavior is still altered from normal breeding behavior, construction activities shall cease until CDFW is contacted to discuss alternative methods.

iii. If construction activities are planned within or adjacent to the 300-foot avoidance buffer, a qualified acoustician shall be retained to determine ambient noise levels and project-related noise levels at the edge of occupied habitat. The need for sound monitoring and attenuation shall be recommended by the biological monitor based on the presence of nesting individuals and observation of the birds' behavior. The biological monitor shall prepare written documentation of all monitoring activities at the completion of construction activities, which shall be submitted to MNWD and CDFW.

iv. All project personnel shall attend a training program presented by a qualified biologist prior to construction activities. The training program will inform project personnel about the life history of tricolored blackbird and all avoidance and minimization measures.

v. The construction contractor shall only allow construction activities to occur during daylight hours.

vi. The construction contractor shall require functional mufflers on all construction equipment (stationery or mobile) used within or immediately adjacent to any 300-foot avoidance buffers to reduce construction equipment noise. Stationary equipment shall be situated so that noise generated from the equipment is not directed towards habitat occupied by tricolored blackbird.

vii. The construction contractor will place staging areas as far as feasible from any habitat occupied by tricolored blackbird.

BIO-4 **Burrowing Owl**: In compliance with CDFW's *Staff Report on Burrowing Owl Mitigation* (2012), a take avoidance survey shall be conducted in the project area within 14 days prior to ground disturbance to determine presence of burrowing owls. If the take avoidance survey is negative and burrowing owls are confirmed absent, then ground-disturbing activities shall be allowed to commence and no further mitigation would be required.

If burrowing owls are observed during the take avoidance survey, active burrows shall be avoided by the project in accordance with the CDFW's Staff Report (2012). The CDFW shall be immediately informed of any burrowing owl observations. A Burrowing Owl Protection and Relocation Plan (plan), which must be sent for approval by CDFW prior to initiating ground disturbance, shall be prepared by a qualified biologist. The plan shall detail avoidance measures that shall be implemented during construction and passive or active relocation methodology. Relocation shall only occur outside of the nesting season for BUOW (February 1 through August 31).

BIO-5 **Least Bell's Vireo**: Due to presence of least Bell's vireos in the project area, the following measures shall be implemented to avoid potential direct impacts:

1. If canopy trimming for construction vehicle access is required, it shall be conducted by an ISA certified arborist outside of the nesting season for least Bell's vireo (March 15 through August 31).

2. Compensatory mitigation for direct temporary impacts to 0.04 acre of suitable least Bell's vireo habitat shall be offset through compensatory mitigation. Compensatory mitigation may include, but is not necessarily limited to, on-site or off-site riparian enhancement, payment to OC Parks to fund non-native vegetation removal, or purchase of off-site enhancement credits at a ratio of no less than 1:1.

Due to presence of least Bell's vireo in the study area, the following measures shall be implemented to avoid or minimize potential indirect impacts:

3. Construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) shall occur outside of the nesting season for least Bell's vireo (March 15 through August 31) to the extent feasible.

4. If construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) are proposed within the least Bell's vireo nesting season, the following measures shall be taken:

    a. If construction activities are planned within the least Bell's vireo nesting season, a qualified biological monitor shall clearly delineate a 500-foot buffer around suitable least Bell's vireo habitat. The buffer shall be clearly marked with flags and/or fencing prior to the initiation of construction activities.

    b. The biological monitor shall be present during any construction activities conducted within the nesting season to observe the birds' behavior. The construction supervisor shall be notified if the construction activities appear to be altering the birds' normal behavior. In this event, construction activities shall cease until additional minimization measures have been performed. Measures may include, but are not limited to, limitation on the use of certain equipment, placement of equipment, restrictions on the simultaneous use of equipment, or noise attenuation measures (e.g., sound blanket, berm, wall). If the birds' behavior is still altered from normal breeding behavior, construction activities shall cease until CDFW and U.S. Fish and Wildlife Service (USFWS) are contacted to discuss alternative methods.

    c. If construction activities (e.g., ground disturbance and canopy trimming) are planned within or adjacent to the 500-foot buffer, a qualified acoustician shall be retained to determine ambient noise levels and project-related noise levels at the edge of occupied habitat. The need for sound monitoring and attenuation shall be recommended by the biological monitor based on the presence of nesting individuals and observation of the birds' behavior. Noise levels at the edge of the occupied habitat shall not exceed an hourly average of 60 dBA. If project-related noise levels exceed the threshold described above, construction activities shall cease until additional minimization measures are taken to reduce

project-related noise levels to below an hourly average of 60 dBA. If additional measures do not decrease project-related noise levels below the thresholds described above, construction activities shall cease until CDFW and USFWS are contacted to discuss alternative methods.

d. All project personnel shall attend a training program presented by a qualified biologist prior to construction activities. The training program will inform project personnel about the life history of least Bell's vireo and all avoidance and minimization measures.

e. The construction contractor shall only allow construction activities to occur during daylight hours.

f. The construction contractor shall require functional mufflers on all construction equipment (stationery or mobile) used within or immediately adjacent to any 500-foot buffers to reduce construction equipment noise. Stationary equipment shall be situated so that noise generated from the equipment is not directed towards habitat occupied by least Bell's vireo.

g. The construction contractor shall place staging areas as far as feasible from habitat occupied by least Bell's vireo.

h. The biological monitor shall prepare written documentation of all monitoring activities at the completion of construction activities, which shall be submitted to MNWD, CDFW, and USFWS.

b) 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 the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less Than Significant with Mitigation. Fifteen vegetation communities/land cover types occur within the project area, including coast live oak woodland, coyote brush chaparral, coyote brush chaparral/ southern willow scrub, coyote brush chaparral/ornamental, fresh water marsh, mule fat scrub, southern willow scrub, eucalyptus woodland, non-native herbaceous cover, non-native herbaceous cover/coyote brush chaparral, ornamental, park, open water, developed, and disturbed. One of the fifteen vegetation communities/land cover types, southern willow scrub, is considered a sensitive natural community.

Southern willow scrub consists of dense, broad-leaved, winter-deciduous stands of trees dominated by shrubby willows intermixed with mule fat and scattered Fremont cottonwoods and western sycamores. It is a streambed-associated community and is under CDFW jurisdiction. The project area supports 3.12 acres of southern willow scrub, generally located along the banks of Sulphur Creek in the northern portion of the project area.

Installation of the force mains would require canopy trimming of 0.03 acre of southern willow scrub to allow access for construction equipment. Impacts associated with canopy trimming would be temporary and no permanent impacts to southern willow scrub would occur. Since southern willow scrub is under CDFW jurisdiction, however, mitigation measure BIO-6, which requires obtaining a Section 1602 Streambed Alteration Agreement through CDFW prior to ground disturbance, would be implemented.

BIO-6 **Jurisdictional Resources**: Prior to impacts to jurisdictional resources, MNWD shall obtain regulatory permits from USACE, the Regional Water Quality Control Board (RWQCB), and CDFW. Jurisdictional resources temporarily impacted shall be returned to pre-project contours once the project has been completed. Compensatory mitigation for temporary impacts to jurisdiction shall include, but is not necessarily limited to, on-site or off-site riparian enhancement, payment to OC Parks to fund non-native vegetation removal, or the purchase of off-site mitigation enhancement credits at a ratio of no less than 1:1. The following minimization measures will also be implemented during construction:

- Use of standard Best Management Practices (BMPs) to minimize the impacts during construction.
- Construction-related equipment will be stored in developed areas, outside of drainages.
- Source control and treatment control BMPs will be implemented to minimize the potential contaminants that are generated during and after construction. Water quality BMPs will be implemented throughout the project to capture and treat potential contaminants.
- To avoid attracting predators during construction, the project shall be kept clean of debris to the extent possible. All food-related trash items shall be enclosed in sealed containers and regularly removed from site.
- Employees shall strictly limit their activities, vehicles, equipment and construction material to the proposed project footprint, staging areas, and designated routes of travel.
- Exclusion fencing shall be maintained until the completion of construction activities.

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

Less Than Significant with Mitigation. Two major drainage features, Sulphur Creek and Narco Channel, occur within the project area. Both are heavily disturbed and associated with largely developed upstream watersheds. The project area also supports four small tributaries to Sulphur Creek. Approximately 5.8 acres of USACE/RWQCB Waters of the U.S. (pursuant to Sections 404/401 of the Clean Water Act) and 12.34 acres of CDFW jurisdictional streambed and riparian vegetation (pursuant to Section of 1602 of the CFG Code) are present within the project area. In addition, approximately 0.9 acre of potential wetland Waters of the U.S. were observed throughout the project area based on the presence of hydrophytic vegetation.

Through the use of trenchless construction activities, the project would avoid permanent impacts to USACE/RWQCB and CDFW jurisdictional waters. Temporary impacts, however, would occur in association with trenching and culvert replacement. Temporarily disturbed area would be returned to pre-project conditions following project completion. The project would offset temporary impacts to 0.09 acre of CDFW jurisdiction through compensatory mitigation, described in mitigation measure BIO-6. The measure also requires MNWD to obtain a Section 404 Permit through USACE, a Section 401 Permit

through RWQCB, and a Section 1602 Streambed Alternation Agreement through CDFW prior to ground disturbance.

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

Less Than Significant with Mitigation.

Wildlife Movement

The project area is not part of a regional corridor and does not serve as a nursery site. It is also not identified as being part of a local or regional corridor or linkage by the South Coast Missing Linkages (South Coast Wildlands 2008) or the Natural Community Conservation Plan (NCCP)/Habitat Conservation Plan (HCP; R.J. Meade Consulting, Inc. 1996). The project area has no direct connectivity to two or more large blocks of habitat and is constrained by existing development. The project area does support native southern willow scrub and fresh water marsh in addition to chaparral and ornamental vegetation, which provide habitat for local wildlife movement and migratory birds passing through the project area. Wildlife movement mostly likely occurs within Narco Channel and Sulphur Creek. Some small mammals that are adapted to human disturbance may use the existing culvert under Alicia Parkway to move between the project area to Aliso and Woods Canyon Wilderness Park. Birds may fly over existing development to access the project area for foraging and/or nesting. The project would not permanently impact local wildlife movement since it would only result in temporary disturbance to native vegetation, which would be allowed to return to pre-project conditions. The nine park trees that are proposed for removal would be replaced by OC Parks staff and do not represent a significant impact to cover or wildlife movement within the project area. Although implementation of the project may result in some temporary disturbance to local wildlife movement from construction noise, the project would have a less-than-significant impact to wildlife movement and no mitigation measures would be required.

Migratory Species

The project area has the potential to support songbird and raptor nests due to the presence of shrubs, ground cover, and trees on site. Project activities could disturb or destroy active migratory bird nests including eggs and young. Disturbance to or destruction of migratory bird eggs, young, or adults is in violation of the MBTA and is considered a potentially significant impact. The nesting season is generally defined as February 15 through August 31 for songbirds and January 15 to August 31 for raptors. Some suitable nesting habitat occurs within the work areas while denser vegetation occurs adjacent to the work areas, which offer nesting habitat for protected nesting bird species. As such, mitigation measure BIO-2 (nesting birds) would be required to reduce impacts to a less-than-significant level.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. The City does not have a policy or ordinance protecting trees. Section 9-1-81 of the City Municipal Code lists protections for biological resources located on hillsides; however, the project would not impact hillsides. Therefore, the project would not conflict with any local policies or ordinances protecting biological resources.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. Although the project area falls within the NCCP/HCP for the central/coastal subregion, MNWD is not a Participating Entity of the NCCP/HCP. Therefore, project activities are not covered under the plan. The project would, however, need to ensure activities are not in conflict with the conservation plan. Aside from impacts associated with nine tree removals within the existing park land, the project would only result in temporary disturbance. The removal of nine landscaping trees (seven non-native ornamental trees and two dead native trees) that were planted by OC Parks and would be replaced by OC Parks as part of a park wide tree replacement program would not conflict with the conservation plan. In addition, the project area is not located within any reserves identified by the NCCP/HCP; therefore, the project would not conflict with the conservation goals of the plans.

V. CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	■
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	■	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	■	☐	☐

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

No Impact. A Cultural Resources Report was prepared for the proposed project by HELIX (2018b; refer to Appendix B). A records search of the project alignment and a 0.5-mile radius was conducted at the South Central Coast Information Center (SCCIC), and a pedestrian survey was conducted at the project alignment, to evaluate the presence of historical resources. The records search indicated that there are no historical resources within or adjacent to the project alignment. Therefore, implementation of the project would not cause an adverse change in the significance of a historical resource, and no impacts would occur.

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

Less Than Significant with Mitigation. A records search at the SCCIC, a Sacred Lands File (SLF) search, Native American outreach, and a pedestrian survey were conducted for the project area to evaluate the presence of archaeological resources. The SCCIC has records of 10 previously recorded cultural resources within 1.5 miles of the project alignment, one (P-30-000018 [CA-ORA-18]) of which is located within the project alignment, and three of which are located in the immediate vicinity. P-30-000018 (CA-ORA-18) was previously recorded as a potentially large Native American camp/settlement and burial site. The site was later indicated to have been destroyed by development of the park and nearby residential and commercial uses; however, the depths of grading for various park features are unknown, and there remains a potential for subsurface cultural material in this site location. Though there is no evidence of cultural materials associated with the other three recorded sites in the immediate vicinity of

the project alignment, the potential for subsurface cultural material adjacent to the project area remains.

No new cultural resources were identified during the pedestrian survey conducted by HELIX on March 8, 2018; however, ground visibility within the survey area was poor outside the footpaths, and much of the study area supports landscape and hardscape related to park development. In other areas, thick vegetation obscured the ground surface.

HELIX contacted the Native American Heritage Commission (NAHC) on September 15, 2017 for a SLF search and a list of Native American contacts for the project area. The NAHC indicated in a response dated September 25, 2017 that the SLF search was negative but cautioned that absence of specific site information in the SLF does not indicate the absence of Native American cultural resources. Letters regarding the project were sent on March 9, 2018 to the contacts listed by the NAHC. Two written responses have been received as of July 25, 2018. Both the Agua Caliente Band of Cahuilla Indians and the Rincon Band of Luiseño Indians indicated that the project area is outside the Tribes' Traditional Use Area.

In addition to the tribal outreach conducted by HELIX, MNWD invited interested tribes to consult in accordance with AB 52; letters were sent in March 2018. The only response received is from the Viejas Band of Kumeyaay Indians, who indicated that the project area has little cultural significance or ties to Viejas. They recommended contacting the tribe(s) closest to the cultural resources. They also requested to be informed of any new developments such as inadvertent discovery of cultural artifacts, cremation sites, or human remains in order to reevaluate their participation in the consultation process.

While no cultural resources have been identified within the project area, significant sites have been previously recorded within and adjacent to the project area, and the potential for subsurface cultural resources remains. In addition, the project is located in an area with alluvial soils, which typically have higher concentrations of cultural resources. Therefore, impacts to cultural resources are conservatively assessed as potentially significant. The following mitigation measures would reduce potential impacts to cultural resources to a less-than-significant level:

CUL-1 **Worker Environmental Awareness Program.** Prior to the commencement of any ground-disturbing activities for the project, a qualified archaeologist and a Native American monitor from a traditionally culturally affiliated (TCA) tribe shall conduct a Worker Environmental Awareness Program (WEAP) to present to MNWD, the grading contractor, and any relevant subcontractors' information regarding the cultural and archaeological sensitivity of the project area, as well as the requirements of the monitoring program. The WEAP can be presented at a pre-grading meeting or separately. If the WEAP is held separately, the qualified archaeologist and TCA Native American monitor shall be present for a pre-grading meeting with the grading contractor to discuss project schedule, safety requirements, and monitoring protocols.

CUL-2 **Cultural Resources Monitoring.** Ground disturbing activities during construction shall be monitored by a qualified archaeologist and a TCA Native American monitor. If cultural material is encountered during monitoring, both the archaeologist and the Native American monitor would have the authority to temporarily halt or redirect activity in the area of the find while the cultural material is documented and a decision is made regarding the significance/eligibility of the find and whether additional excavation, analysis, or other mitigation measures are required. Determinations of significance will be made in

consultation among the archaeological Principal Investigator, Native American monitor, and MNWD staff.

CUL-3 **Cultural Resources Monitoring Report.** Following the conclusion of monitoring, a report shall be prepared documenting the methods and results of the monitoring program and submitted to MNWD and the SCCIC.

CUL-4 **Human Remains.** In the event that human remains are discovered, the County Coroner shall be contacted. If the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the NAHC, shall be contacted in order to determine proper treatment and disposition of the remains. All requirements of Health & Safety Code Section 7050.5 and Public Resources Code Section 5097.98 shall be followed.

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

Less Than Significant with Mitigation. As indicated in the Cultural Resources Report prepared for the proposed project, known burial grounds have been recorded within and adjacent to the project alignment. As such, the project has the potential to disturb human remains and impacts would be potentially significant. Implementation of mitigation measures CUL-1 through CUL-4 , described above, would reduce impacts to human remains to a less than significant level.

VI. ENERGY

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☐	■
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	■

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

No Impact. The proposed project would involve the construction of new wastewater conveyance facilities, which would replace aging existing facilities. While construction activities would result in the temporary consumption of energy resources in the form of vehicle and equipment fuels (gasoline and diesel fuel) and electricity/natural gas (directly or indirectly), such consumption would be incidental and temporary and would thus not have the potential to result in wasteful, inefficient, or unnecessary consumption of energy resources. With regard to long-term operations, because the project would replace existing force mains (which would be repurposed in-place), the operation of the new facilities would not represent a new demand source for energy resources in the long-term. Overall, the project would not result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources. No impact would occur.

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

No Impact. See Item VI.a, above. The proposed project would not result in a substantial new demand for energy resources or have any direct or indirect effect on any state or local plan for renewable energy or energy efficiency. No impact would occur.

VII. GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	☐	☐	☐	■
ii. Strong seismic ground shaking?	☐	☐	■	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	■	☐
iv. Landslides?	☐	☐	■	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	■	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	■	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	■	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	■
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	■	☐	☐

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

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

No Impact. The project is located within the seismically active southern California region; however, the project alignment is not located within a known earthquake fault zone (California Geological Survey

[CGS] 2015). The project, including the workers and the force mains, is therefore not at risk from fault rupture from a known earthquake fault, and no impacts would occur.

ii. Strong seismic ground shaking?

Less Than Significant Impact. Although there are no active or potentially active faults in the City, there are two active faults within the County (the Newport-Inglewood Fault and the Whittier Fault) that could cause seismic shaking at the project alignment (City 1992). The proposed project would therefore be subject to potential seismic ground shaking. However, construction of the proposed force mains would incorporate measures to accommodate projected seismic loading, pursuant to existing guidelines such as the "Greenbook" Standard Specifications for Public Works Construction (Greenbook Committee of Public Works Standards, Inc. 2015) and the International Building Code (IBC; International Code Council 2015). These guidelines are produced through joint efforts by industry groups to provide standard specifications for engineering and construction activities, including measures to accommodate seismic loading parameters. The referenced guidelines, while not comprising formal regulatory requirements per se, are widely accepted by regulatory authorities and are regularly included in related standards such as municipal building and grading codes. In addition, construction of the proposed force mains would follow guidelines within the California Building Code (CBC; California Code of Regulations, Title 24, Part 2). The CBC is based on the previously described IBC, with appropriate amendments and modifications to reflect site-specific conditions in California. Potential damage to the facilities from strong seismic ground shaking would be reduced with the new force mains relative to the brittle existing force mains. Based on the incorporation of applicable measures into design and construction of the proposed force mains, the potential impacts associated with strong seismic ground shaking are assessed as less than significant.

iii. Seismic-related ground failure, including liquefaction?

Less Than Significant Impact. The potential for seismic-related ground failure is associated with the probability of severe ground shaking as a result of an earthquake at a nearby active fault. Liquefaction is the phenomenon where saturated granular soils develop high-pore water pressures during seismic shaking and behave like a heavy fluid. This phenomenon generally occurs in areas of high seismicity where groundwater is shallow and loose granular soils or hydraulic fill soils subject to liquefaction are present. For liquefaction to occur, loose granular sediments below the groundwater table must be present and shaking of sufficient magnitude and duration must occur. Liquefaction has been identified as a seismic hazard in the City (City 1992). Construction and design of the proposed force mains, however, would incorporate the measures outlined in Item VII.a.ii to accommodate potential liquefaction and ground failure. Based on the incorporation of applicable guidelines for the proposed force mains, the potential impacts associated with liquefaction would be less than significant.

iv. Landslides?

Less Than Significant Impact. The project alignment is in an area characterized by moderately sloping hills, which are identified as potential landslide areas (City 1992). The force mains would not be located on a hillside and trenching during construction would therefore not result in instability that could cause landslides. Risks to construction workers from potential landslides on hills in the project vicinity would be minimal due to the short-term presence of the workers on-site. During operation, the below-ground force mains would not expose people or structures to substantial adverse effects from landslides. Therefore, impacts related to landslides would be less than significant.

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

Less Than Significant Impact. Potential short-term erosion and sedimentation impacts would be addressed through a Stormwater Pollution Prevention Plan (SWPPP), prepared specifically for the proposed force mains, in accordance with the National Pollutant Discharge Elimination System (NPDES) permit. The SWPPP would incorporate BMPs in accordance with the California Stormwater Best Management Practices Handbook to control erosion and protect the quality of surface water runoff during project construction. Based upon compliance with the NPDES permit and implementation of a SWPPP, impacts would be less than significant.

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

Less Than Significant Impact. Although the potential exists for landslides, lateral spreading, subsidence, liquefaction, and collapse, construction and design of the proposed force mains would incorporate measures to accommodate geologic units or soil that are unstable, pursuant to standard guidelines from the Greenbook, IBC, and CBC, as discussed in Item VII.a.ii. Based on the incorporation of standard guidelines into force main design and construction, potential impacts associated with a geologic unit or soil that is unstable would be less than significant.

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

Less Than Significant Impact. Expansive soils are soils subject to volumetric fluctuations in response to changes in moisture content (wetting and drying). Expansive soils have a substantial amount of clay particles, which can both release water (shrink) or absorb and hold water (swell). The project alignment is in an area of clay-based soils and would therefore be located on potentially expansive soils (National Resource Conservation Service [NRCS] 2017). Although the potential exists for soil expansion along the project alignment, construction and design of the proposed force mains would incorporate measures to accommodate expansive soils, pursuant to standard guidelines from the Greenbook, IBC, and CBC, as discussed on Item VII.a.ii. Based on the incorporation of standard guidelines into force main design and construction, potential impacts associated with expansive soils would be less than significant.

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

No Impact. No septic tanks or alternative wastewater disposal systems would be installed as part of the proposed project. No impacts would occur.

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

Less Than Significant with Mitigation. According to the Open Space/Parks/Conservation Element of the City's General Plan, the City is within the San Joaquin Hills District and Laguna Hills – Dana Point District general areas of paleontological sensitivity (City 1992). As such, the proposed project has the potential to cause a substantial adverse change in the significance of a paleontological resource through inadvertent damage or destruction during trenching and trenchless construction activities. Implementation of mitigation measure PAL-1 would reduce the potential impacts to a less-than-significant level:

PAL-1 **Paleontological Resources Mitigation and Monitoring Plan.** A Paleontological Resources Mitigation and Monitoring Plan shall be prepared prior to construction the proposed project. A qualified paleontologist shall be retained by MNWD to carry out and manage the plan. Fieldwork may be carried out by a qualified paleontological monitor working under the direction of the paleontologist. Components of the Paleontological Resources Mitigation and Monitoring Plan shall include, but not be limited to:

- The paleontologist shall attend all pre-grading meetings to inform the grading and excavation contractors of the paleontological resource mitigation program and shall consult with them with respect to its implementation.
- The paleontological monitor shall be on site at all times during the original cutting of previously undisturbed sediments to inspect cuts for contained fossils.
- If fossils are discovered, the paleontologist or monitor shall recover them. In instances where recovery requires an extended salvage time, the paleontologist or monitor shall be allowed to temporarily redirect, divert, or halt grading to allow recovery of fossil remains in a timely manner. Where deemed appropriate by the paleontologist or monitor, a screen-washing operation for small fossil remains shall be set up.

Recovered fossils, along with copies of pertinent field notes, photographs, and maps, shall be deposited (with MNWD's permission) with OC Parks. A final summary report that outlines the results of the mitigation program shall be completed. This report shall include discussion of the methods used, stratigraphy exposed, fossils collected, and significance of recovered fossils.

VIII. GREENHOUSE GAS EMISSIONS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	■	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	■	☐

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

Less Than Significant Impact. California Health and Safety Code Section 38505(g) defines greenhouse gas (GHG) emissions to include the following compounds: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). As individual GHGs have varying heat-trapping properties and atmospheric lifetimes, GHG emissions are converted to carbon dioxide equivalent (CO_2e) units for comparison. The CO_2e is a consistent methodology for comparing GHG emissions because it normalizes various GHG emissions to a

consistent measure. The most common GHGs related to the project are CO_2 (CO_2e = 1), CH_4 (CO_2e = 21), and N_2O (CO_2e = 310).

There are no established federal, state, or local quantitative thresholds applicable to the project to determine the quantity of GHG emissions that may have a significant effect on the environment. The California Air Resources Board (CARB), the SCAQMD, and various cities and agencies have proposed, or adopted on an interim basis, thresholds of significance or screening threshold levels that require the implementation of GHG emission reduction measures. Because the project is not a residential or commercial land use development project, the SCAQMD-adopted interim screening threshold of 10,000 metric tons (MT) CO_2e for industrial projects is being used for project consistency with CEQA (SCAQMD 2008). The 10,000 MT-CO_2e per year screening threshold was developed by analyzing the capture of 90 percent or more of future discretionary development for industrial projects. Construction emissions are typically amortized over a duration of 30 years in the screening threshold. Examples of projects that would generate 10,000 MT CO_2e per year include residential development with 550 dwelling units; office space with 400,000 square feet of development; retail space with 120,000 square feet of development, or medium to larger industrial buildings (California Air Pollution Control Officers Association [CAPCOA] 2008). Given the temporary nature of construction of the proposed project of less than two years, and since construction emissions are amortized over 30 years, construction GHG emissions would be relatively minor. In addition, with only minor maintenance trips occurring during operation (consistent with current activities), operational GHG emissions would be negligible. Therefore, the proposed project's scale and scope would generate GHG emissions on a much lower scale than the typical types of projects that generate 10,000 MT CO_2e, and, GHG emissions from the project would be less than significant.

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

Less Than Significant Impact. Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, established statutory limits on GHG emissions in California. Under AB 32, CARB is responsible for adopting rules and regulations to reduce statewide GHG emissions to 1990 levels by the year 2020. The CARB's Climate Change Scoping Plan outlines the state's strategy to achieve the 2020 GHG emissions limit and future emissions reduction targets established by Executive Order (EO) S-3-05. As a follow-up to AB 32, Senate Bill (SB) 32 was passed by the California legislature in August 2016 to codify California's GHG reduction target of 40 percent below 1990 levels by 2030. The SCAQMD guidelines were established for the purpose of reducing the emissions of GHGs to meet the state requirements of AB 32.

As discussed under Item VIII.a, the 10,000-MT CO_2e per year significance threshold was designed to capture a substantial fraction of future industrial development. The capture of 90 percent of new development establishes a strong basis for demonstrating that cumulative reductions are being achieved across the state, in accordance with AB 32 goals (CAPCOA 2008).

Project-related GHG emissions would not exceed the 10,000-MT CO_2e per year significance threshold; therefore, the proposed project would not result in emissions that would adversely affect state-wide attainment of GHG emission reduction goals, as described in AB 32. Emissions would therefore have a less than cumulatively considerable contribution to global climate change impacts, and the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	■	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	■	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	■	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	■
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	■
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	■
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	■	☐

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

Less Than Significant Impact. Construction of the project may require the use of hazardous materials (fuels, lubricants, solvents, etc.), which would require proper storage, handling, use, and disposal. The use of these materials would be temporary and in accordance with applicable standards and regulations. Operation of the proposed below-ground force mains would not require the routine transport, use, or disposal of hazardous materials. Therefore, impacts would be less than significant.

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

Less Than Significant Impact. The proposed project is not anticipated to result in a release of hazardous materials into the environment. During the temporary, short-term construction period, there is the possibility of accidental release of hazardous substances such as spilling of hydraulic fluid or diesel fuel associated with construction equipment maintenance. The level of risk associated with the accidental release of these hazardous substances is not considered significant due to the small volume and low

concentration of hazardous materials. The construction contractor would be required to use standard construction controls and safety procedures to avoid or minimize the potential for accidental release of such substances into the environment. Therefore, the impact of the proposed project with respect to exposing the public or the environment to hazardous materials through upset and accident conditions would be less than significant.

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

Less Than Significant Impact. As discussed in Item IX.a, construction of the project may require the use of hazardous materials (fuels, lubricants, solvents, etc.), which would require proper storage, handling, use, and disposal. The closest school, Wood Canyon Elementary School, is located approximately 0.25 mile from the northwestern portion of the project alignment. Although hazardous materials used during construction may be handled within one-quarter mile of the school, the potential use of these materials would be temporary and in accordance with applicable standards and regulations. Therefore, impacts related to the handling of hazardous materials within one-quarter mile of a school would be less than significant.

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

No Impact. Pursuant to Government Code Section 65962.5 (Cortese List) requirements, the SWRCB GeoTracker database (SWRCB 2015) and the California Department of Toxic Substances Control (DTSC) EnviroStor database (DTSC 2018) were searched for hazardous materials sites within the project area. Laguna Niguel Regional Park, within which the project alignment is located, is listed on the SWRCB GeoTracker as a leaking underground storage tank (LUST) cleanup site. The cleanup was completed and the case was closed as of October 1990. No other listed hazardous material sites are located within or adjacent to the project alignment. Therefore, no impacts would occur.

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

No Impact. The nearest public airport, John Wayne Airport, is located approximately 12 miles northwest of the project alignment. Due to this distance, the project would not result in a safety hazard or excessive noise for people residing or working in the project area. Therefore, no impact would occur.

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

No Impact. The proposed project alignment would occur within Laguna Niguel Regional Park and would not require or result in the closure of public roads. The project would use trenchless installation methods where the alignment crosses the park's access road, and access to the park would be maintained during project construction. Operationally, the below-ground force mains would not interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, no impact would occur.

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

Less Than Significant Impact. The project area is mapped as a Very High Fire Hazard Severity Zone according to the CAL FIRE Fire Hazard Severity Zones map (CAL FIRE 2007). As below-ground force mains, the proposed project would not expose people or structures to wildland fires during operation. The presence of project-related workers in the area would be temporary and limited to a small number, and the contractor would be required to follow specifications to minimize fire hazards during construction. Therefore, the project would not expose people or structures to substantial risk from wildland fires, and impacts would be less than significant.

X. HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water?	☐	☐	■	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	■	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	■	☐
i. result in substantial erosion or siltation on- or offsite;	☐	☐	■	☐
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	■	☐
iii. create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☐	■
iv. impede or redirect flood flows?	☐	☐	■	☐
d) In flood hazard, tsunami, or seiche zones, risk or release of pollutants due to project inundation?	☐	☐	■	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	■	☐

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

Less Than Significant Impact. Potential water quality impacts associated with the proposed project would be limited to short-term construction-related erosion and sedimentation. Because the proposed

project involves the construction of below-ground force mains, no potential long-term impacts to water quality would result. As required under the NPDES, a SWPPP would be created specifically for construction of the proposed force mains. The plan would address erosion control measures that would be implemented to avoid or minimize erosion impacts to exposed soil associated with construction activities. The SWPPP would include a program of BMPs to provide erosion and sediment control and reduce potential impacts to water quality that may result from construction activities. BMPs would include but not be limited to such measures as street sweeping and vacuuming, sand bag barriers, storm drain inlet protection, wind erosion control, and stabilized construction entrances and exits. Implementation of the SWPPP for the proposed force mains and associated BMPs would reduce or eliminate the discharge of potential pollutants from stormwater runoff to the maximum extent practicable. Therefore, impacts to water quality standards or waste discharge requirements, including degradation of surface or groundwater quality, would be less than significant.

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

Less Than Significant Impact. The proposed project does not entail long-term withdrawal or other use of groundwater, with no associated impacts to local groundwater supplies, aquifer volumes, or water tables. It would also not create new impervious surfaces that would interfere with groundwater recharge. In the unlikely event that shallow groundwater is encountered during project construction, temporary dewatering efforts would be implemented in conformance with applicable NPDES requirements. Based on the minor and temporary nature of such potential dewatering activities, as well as the fact that disposal of any extracted groundwater would likely occur within the areal extent of the same basin from which the groundwater was extracted (with associated potential for infiltration/ recharge), impacts related to drawdown or depletion of local groundwater resources would be less than significant.

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

i. result in substantial erosion or siltation on- or offsite;

Less Than Significant Impact. The project alignment would intersect jurisdictional waters at multiple points. At these points, the project would utilize trenchless installation methods and would not alter the course of the waters or the drainage pattern of the site. The trenchless installation method would result in the disturbance of soil at the launching and receiving shafts that could be subjected to erosion if a rain event were to occur during construction. However, soil disturbance would be temporary, and, as discussed in Item X.a, project construction would comply with applicable NPDES requirements through implementation of a SWPPP specific for the project and implementation of applicable BMPs to avoid erosion and siltation. Therefore, impacts to drainage patterns resulting in erosion or siltation would be less than significant.

ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

Less Than Significant Impact. Project implementation would not substantially alter the drainage pattern of the area. Construction and operation of the below-ground force mains would not increase the amount of impervious surface and would therefore not increase the rate or amount of surface runoff. Flooding would not result from project implementation, and impacts would be less than significant.

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

No Impact. As below-ground force mains, the project would not result in a net increase in impervious surfaces. As discussed in Item X.a, construction of the proposed force mains would comply with applicable NPDES requirements through implementation of a SWPPP specific for the project and implementation of applicable BMPs to limit polluted runoff. Project operation would not create or contribute runoff water or provide additional sources of polluted runoff. Therefore, no impacts would occur.

iv. impede or redirect flood flows?

Less Than Significant Impact. The project alignment is within a FEMA Special Flood Hazard Area (FEMA 2009). The force mains would be located below ground and would have no long-term potential to impede or redirect flood flows. During the construction period, construction equipment would be present on site and would have the potential to impede or redirect flood flows in the instance of a flood. However, the construction equipment would be present on a temporary basis and would be expected to be moved in the event of a flood. Therefore, impacts related to redirection of flood flows would be less than significant.

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

Less Than Significant Impact. As noted above in Item X.c (iv), the project alignment is located within a FEMA Special Flood Hazard Area (FEMA 2009). The closest dam, located at Sulphur Creek Reservoir, is located immediately adjacent to a portion of the project alignment. The below-ground force mains, however, would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam during operation. The presence of project-related construction workers in the area would be temporary and limited to a small number. Therefore, impacts from the failure of a levee or dam would be less than significant.

With regard to seiche and tsunami risks and releases of pollutants (including mudflows from adjacent hillside areas), the project alignment is approximately 3.5 miles inland from the Pacific Ocean, which is too far inland for inundation by tsunami. The project alignment is in an area characterized by moderately sloping hills, which have the potential to produce mudflows, and is located immediately adjacent to Sulphur Creek Reservoir, which has the potential to produce a seiche. The below-ground force mains, however, would not expose people or structures to inundation by mudflow or seiche during operation. The presence of project-related construction workers in the area would be temporary and limited to a small number. Therefore, impacts related to inundation by seiche, tsunami, or mudflow, or the release of pollutants dur to project inundation, would be less than significant.

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

Less Than Significant Impact. Refer to Item X.a. Through conformance with applicable regulatory standards and implementation of BMPs, the project would not substantially degrade water quality and therefore would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan, and impacts would be less than significant.

XI. LAND USE AND PLANNING

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	■	☐
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	■

a) Physically divide an established community?

Less Than Significant Impact. The proposed project would include the construction of force mains, which would be below ground upon completion. Construction of the linear alignment would involve trenching, which would result in a physical barrier; however, the presence of the trench would be temporary and construction would not stay in one area for a long period of time (i.e., trenching activities would construct approximately 40 feet of the dual force mains per day). In addition, the disturbed areas would be restored to preexisting conditions following installation of the force mains. The project would also utilize trenchless methods where the alignment intersects the access road to Laguna Niguel Regional Park. Access to the park would therefore be maintained, and construction of the project would not physically divide or prohibit access to the surrounding community. Impacts would be less than significant.

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

No Impact. The proposed project's alignment would occur within a regional park, and no changes to existing land uses would be required. The project would not conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, and no impacts would occur.

XII. MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	■
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	■

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

No Impact. The proposed project would be constructed within a regional park adjacent to developed areas. The project area is not currently used for mineral resource extraction, and no mineral resources have been identified within the project area. Therefore, no impacts to mineral resources would occur.

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

No Impact. The proposed project would be constructed within a regional park adjacent to developed areas. The project alignment is not currently used for mineral resource extraction, nor is it located in an area with the known potential for locally important mineral resources. Additionally, the site is not designated in the City General Plan as a mineral resource recovery site. Therefore, no impacts to mineral resources would occur.

XIII. NOISE

Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	■	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	■	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	■

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

Less Than Significant Impact.

Fundamentals of Sound and Environmental Noise

Noise can be defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep. Sound intensity or acoustic energy is measured in decibels that are A weighted (indicated by dBA) to correct for the relative frequency response of the human ear.

Since decibels are logarithmic units, sound pressure levels cannot be added or subtracted by ordinary arithmetic means. Typically, a doubling of sound volume will increase a noise level by 3 dBA. A 3 dBA change in sound is the level where humans generally notice a barely perceptible change in sound, and a

5 dBA change is generally readily perceptible. The predominant rating scale for analyzing construction noise is the equivalent sound level (L_{EQ}), which is based on dBA. The L_{EQ} represents the sound pressure level equivalent to the total sound energy over a given period of time (e.g., over one hour).

Sensitive Noise Receptors

Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise. NSLUs in the project vicinity include single-family residences and a church. The closest residences are located approximately 200 feet from the project alignment, and the church is located approximately 350 feet from the project alignment.

Existing Noise Environment

The dominant noise source in the vicinity of the project alignment is traffic noise from vehicles traveling on Alicia Parkway and La Paz Road.

Regulatory Framework

Chapter 6.6 of the City of Laguna Niguel Municipal Code establishes noise standards to control unnecessary and excessive sounds that may be detrimental to health, welfare, safety, and contrary to public interest. Section 9.22.035 of the Noise Ordinance discusses exemptions to the noise standards. Noise sources associated with construction, repair, remodeling, or grading activities are not subject to noise standards provided activities do not take place between the hours of 8 p.m. and 7 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday.

Construction

Construction noise impacts were estimated using the Roadway Construction Noise Model (RCNM), a model developed by the Federal Highway Administration (FHWA). At certain points along the project alignment, construction would utilize a method of trenchless installation. An example method of trenchless installation is called microtunneling that uses a steerable, unmanned, MTBM. This would occur below ground and noise from the MTBM would therefore be attenuated and negligible at nearby NSLUs. An excavator, front loader, and dump truck would operate simultaneously during open-cut trenching and would generate the highest levels of noise. An excavator, front loader, and dump truck operating simultaneously for 40 percent of an 8-hour construction day would generate 67.8 dBA L_{EQ} at a distance of 200 feet.

As described above, noise sources associated with construction and repair activities in the City are not subject to City noise standards provided activities do not take place between the hours of 8 p.m. and 7 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday. Project construction would be performed during the allowable hours. Therefore, based on this exemption under the City Noise Ordinance, impacts from project-generated noise would be less than significant.

Operation

Force main facilities, once installed, are passive and would not generate a permanent increase in ambient noise levels. Therefore, no operational noise impacts would occur.

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

Less Than Significant Impact. Ground-borne vibration is a concern for projects that require heavy construction activity such as blasting, pile-driving, and operating heavy earth-moving equipment. Ground-borne vibration can result in a range of impacts, from minor annoyances to people to major shaking that damages buildings. Typically, ground-borne vibration generated by man-made sources attenuates rapidly with distance from the source of vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly and sick), and vibration-sensitive equipment.

Construction vibration for the project may be caused by the use of a MTBM for tunnel boring. Construction vibration would result in a potentially significant impact if it exceeds the "severe" criterion of 0.4 peak particle velocity (PPV) inches per second (in/s), as specified by Caltrans (2013). Caltrans provides a vibration level of 0.089 PPV in/s at 25 feet for a caisson drill. It is assumed that a MTBM would produce a similar PPV to a caisson drill. Therefore, caisson drill vibration levels are used as a proxy for MTBM levels.

The closest NSLU to the operation of the MTBM would be single-family residences, located approximately 200 feet from the project alignment. As a MTBM is expected to generate a maximum vibration level of 0.089 PPV in/s at 25 feet, it would not generate levels above the "severe" criterion for the residential structures at 200 feet away. Therefore, impacts would be less than significant.

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

No Impact. The nearest public airport, John Wayne Airport, is located approximately 12 miles northwest of the project alignment. Due to this distance, temporary construction workers would not be exposed to excessive aircraft-related noise. No impact would occur.

XIV. POPULATION AND HOUSING

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	■
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	■

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

No Impact. As a wastewater conveyance project, no houses or businesses are proposed, and the project would not directly induce population growth. The proposed project would replace existing force mains

serving an existing population and would not indirectly cause substantial population growth from the extension of infrastructure. Therefore, no impact would occur.

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

No Impact. The force mains would be constructed within a regional park and would not displace existing housing or people, or necessitate the construction of replacement housing. Therefore, no impact would occur.

XV. PUBLIC SERVICES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a) Fire protection?	☐	☐	■	☐
b) Police protection?	☐	☐	■	☐
c) Schools?	☐	☐	☐	■
d) Parks?	☐	☐	■	☐
e) Other public facilities?	☐	☐	☐	■

a) Fire protection?

Less Than Significant Impact. Operation of below-ground force mains would not generate a demand for increased fire protection services. During construction, fire protection may be required in the case of accident conditions, but these would be short-term demands and would not require increases in the level of service offered or affect these agencies' response times. Because of the low probability and short-term nature of potential fire protection needs during construction, the proposed project would result in less-than-significant impacts.

b) Police protection?

Less Than Significant Impact. The proposed project would not result in the construction of uses that would typically require police protection services, and therefore, would not have operational impacts to police protection or cause a need for new or altered police protection facilities. A police protection need could occur during project construction if theft or crime associated with the construction equipment or construction site would occur; however, these types of events would not trigger an increase above already provided police protection levels. Therefore, the project would result in less-than-significant impacts.

c) Schools?

No Impact. The proposed project would place no demand on school services because it would not involve the construction of facilities that would generate school-aged children, and would not involve the introduction of a temporary or permanent population into this area. Therefore, the project would have no impact on schools.

d) Parks?

Less Than Significant Impact. The proposed project would place no demand on parks because it would not involve the introduction of a temporary or permanent population into the area that would use parks. Portions of the park temporarily disturbed by project construction activities would be returned to pre-existing conditions. Therefore, the project would have a less-than-significant impact related to parks.

e) Other public facilities?

No Impact. The proposed project would not involve the introduction of a temporary or permanent human population into this area. Therefore, the proposed project would not result in long-term impacts to other public facilities.

XVI. RECREATION

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	■	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	■

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

Less Than Significant Impact. The proposed project would not generate residents who would require parks or other recreational facilities. Construction of the project may temporarily limit accessibility in certain regions of the Laguna Niguel Regional Park. However, construction of the force mains would not stay in one area for a long period of time and would be temporary. In addition, trenchless construction methods would be utilized where the alignment intersects the park's access road so that that project would not limit accessibility to the park or surrounding area. Portions of the park temporarily disturbed by project construction activities would be returned to pre-existing conditions. Therefore, a less-than-significant impact would occur to the physical deterioration of recreational facilities.

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

No Impact. The proposed project would involve construction of below-ground force mains within Laguna Niguel Regional Park. However, this construction would be temporary and would not construct or expand the existing recreational facilities. Therefore, no impact would occur.

XVII. TRANSPORTATION

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	■	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	■	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	■	☐
d) Result in inadequate emergency access?	☐	☐	☐	■

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

Less Than Significant Impact. The proposed project would not include components that would result in operational traffic generation, except for occasional routine maintenance trips (consistent with maintenance of the existing force mains). While construction activities would generate a small number of trips associated with construction equipment and worker vehicles, these trips would be limited to the construction period, and would not be considered substantial in relation to the existing traffic load in the project vicinity. The force mains would be installed within Laguna Niguel Regional Park and trenchless construction methods would be utilized where the alignment intersects the park's access road so that that project would not limit accessibility to the park or surrounding area. Because the project alignment is within the park, it would not interfere with bicycle lanes or sidewalks along La Paz Road or Alicia Parkway. The Orange County Transportation Authority Bus Route 87, which serves Rancho Santa Margarita and Laguna Niguel, runs along Alicia Parkway to the west of the project alignment, but would not be affected by project construction or operation. Portions of pedestrian pathways within Laguna Niguel Regional Park would be inaccessible during construction. The inaccessibility would be temporary and would not impact a substantial number of people. Therefore, the project would not conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities, and impacts would be less than significant.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less Than Significant Impact. CEQA Guidelines Section 15064.3(b) provides criteria for analyzing transportation impacts, and states "…Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to

cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact." The Project Site is not located within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor. However, the Project would not result in any intensification of land uses in the project area and would not generate notable traffic once constructed. As such, the project would not measurably increase vehicle miles traveled that could potentially exceed thresholds. Therefore, impacts would be less than significant.

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

Less Than Significant Impact. Construction activity would occur within Laguna Niguel Regional Park. The work areas, however, would be clearly demarcated and closed to public access. No changes to the park access roads would occur. Therefore, the impacts from hazards associated with the work areas would be temporary and less than significant.

d) Result in inadequate emergency access?

No Impact. Traffic patterns would not be affected during project construction or operation, as access to roadways in the project area would be maintained. Emergency access to the area would not be limited. Therefore, no impact would occur.

XVIII. TRIBAL CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	■	☐	☐
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	■	☐	☐

a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is

geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

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

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

Less Than Significant with Mitigation. Tribal cultural resources (TCRs) are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the California Register of Historical Resources or included in a local register of historical resources, as defined in subdivision (k) of Public Resources Code Section 5020.1, or determined to be significant pursuant to criteria set forth in Public Resources Code Section 5024.1.

MNWD invited interested tribes to consult under AB 52; letters were sent in March 2018. The only response received has been from the Viejas Band of Kumeyaay Indians, who indicated that the project area has little cultural significance or ties to Viejas. They recommended contacting the tribe(s) closest to the project area. However, they do request to be informed of any new developments such as inadvertent discovery of cultural artifacts, cremation sites, or human remains in order to reevaluate their participation in the consultation process.

As discussed in Item V.b, the project would occur within an area sensitive for cultural resources, and therefore the potential exists for encountering TCRs during ground disturbing activities of project construction. As a result, project construction would be required to implement mitigation measures CUL-1 through CUL-4, listed under Item V, to reduce potentially significant impacts to TCRs to a less than significant level.

XIX. UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	■
b) Have sufficient water supplies available to serve the project and responsibly foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	■
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	■

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	■	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	■

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

No Impact. The proposed project would replace existing force mains that transport wastewater, and repurpose one or both of the existing force mains. It would not require or result in the construction of new water or wastewater treatment facilities or the expansion of existing treatment facilities beyond what is proposed as part of the project. Therefore, no impact would occur.

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

No Impact. The project proposes the replacement of existing wastewater force mains and would not require additional water supplies or new or expanded entitlements. Therefore, no impact would occur.

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

No Impact. The proposed project would replace existing force mains and would accommodate existing wastewater flows. The project would not increase the amount of wastewater generated and would therefore not require increased wastewater treatment capacity. Therefore, no impact would occur.

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

Less Than Significant Impact. Solid waste generation during construction would be short-term and minimal. Construction debris (e.g., asphalt, concrete) would be recycled, as feasible. Excess soil would be hauled from the site, and would be disposed of at locations approved for such use. Operation of the force mains would not generate solid waste or affect landfill capacities. Therefore, impacts would be less than significant.

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

No Impact. The proposed project would comply with all applicable, federal, state, and local management and reduction statutes and regulations related to solid waste. Therefore, no impact would occur.

XX. WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	■
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?	☐	☐	■	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	■	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	■	☐

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

No Impact. The proposed project alignment would occur within Laguna Niguel Regional Park and would not require or result in the closure of public roads. The project would use trenchless installation methods where the alignment crosses the park's access road, and access to the park would be maintained during project construction. Operationally, the below-ground force mains would not interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, no impact would occur.

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

Less Than Significant Impact. The proposed project would involve the construction of new wastewater infrastructure and potential repurposing of existing below-grade facilities. While construction activities in the project area could temporarily increase wildfire risks due to the presence of vehicles and vehicle fuels, welding and electrical equipment, gasoline and electric-powered tools, and other potential ignition sources, the risk of construction-related wildfires is considered remote given the limited vegetation sources in proximity to proposed construction areas. Once constructed, the proposed project would operate passively and would not have any potential to exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of wildfire. Impacts would therefore be less than significant.

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

No Impact. The proposed project would involve construction of new wastewater facilities in an area already characterized by urban development and associated infrastructure. Because the project would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk, no adverse impacts would occur.

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

No Impact. The proposed project would involve the construction of below-grade wastewater conveyance facilities that would operate passively once constructed. As such, the project would have no potential to expose people or structured to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. No impact would occur.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self- sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	■	☐	☐
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of current projects, and the effects of probable future projects)?	☐	☐	■	☐
c) Have environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	■	☐

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

Less Than Significant with Mitigation. The project may result in potentially significant impacts to sensitive animal species (including migratory birds), sensitive riparian habitat, and jurisdictional waters. The project may also result in potentially significant impacts to unknown archaeological and TCRs. However, potential degradation of the quality of the environment would be reduced to below a level of significance through implementation of mitigation measures BIO-1 through BIO-6, as identified in Section IV, and mitigation measures CUL-1 through CUL-4, as identified in Section V.

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

Less Than Significant Impact. As documented in this Initial Study, the majority of impacts associated with the project would be localized and short-term. Additionally, the project would be consistent with regional and local plans, including the AQMP, and the project's air pollutant and GHG emissions would be well below the thresholds of significance. The project would adhere to applicable land use plans and policies. The location of the project in an area that is a designated regional park surrounded by existing development also reduces the likelihood that other projects would be under construction at the same time as the proposed project and result in cumulative impacts. Other future projects within the surrounding area also would be required to comply with applicable local, state, and federal regulations to reduce potential impacts to less than significant, or to the extent feasible. Therefore, the project is not anticipated to contribute to cumulatively considerable environmental impacts.

c) Have environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant Impact. As documented in this Initial Study, the project is not expected to result in substantial adverse effects on human beings. Construction-related aesthetics, air quality, hazardous materials, and noise impacts would be temporary and minimal. Operation of the below-ground force mains would not result in substantial adverse effects to humans. Therefore, impacts would be less than significant.

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Appendix A

Biological Technical Report

HELIX Environmental Planning

Regional Lift Station Force Main Replacement Project

Biological Technical Report

January 16, 2019 | TTI-07

Submitted to:

Moulton Niguel Water District
26161 Gordon Road
Laguna Hills, CA 92653

Prepared for:

Tetra Tech, Inc.
17885 Von Karman Avenue
Suite 500
Irvine, CA 92614

Prepared by:

HELIX Environmental Planning, Inc.
16485 Laguna Canyon Road
Suite 150
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Regional Lift Station Force Main Replacement Project

Biological Technical Report

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January 16, 2019 | TTI-07

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ACRONYMS AND ABBREVIATIONS

AMSL	Above Mean Sea Level
BUOW	Burrowing Owl
CAGN	Coastal California Gnatcatcher
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFG	California Fish and Game
City	City of Laguna Niguel
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CMP	corrugated metal pipe
CRPR	California Rare Plant Rank
CSS	Coastal Sage Scrub
CWA	Clean Water Act
DB(A)	decibels
EPA	Environmental Protection Agency
FESA	Federal Endangered Species Act
G	Global
GPS	Global Positioning System
HELIX	HELIX Environmental Planning, Inc.
I	Interstate
ISA	International Society of Arboriculture
LBVI	Least Bell's Vireo
MBTA	Migratory Bird Treaty Act
MCV	A Manual of California Vegetation
MNWD	Moulton Niguel Water District
NCCP/HCP	Orange County Central and Coastal Subregion Natural Community Conservation Plan and Habitat Conservation Plan
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service

OHWM	Ordinary High Water Mark
OCHCS	Orange County Habitat Classification System
OC Parks	Orange County Parks
Park	Laguna Niguel Regional Park
Project	Regional Lift Station Force Main Replacement Project
RJMC	R. J. Meade Consulting, Inc.
RPW	Relatively Permanent Water Body
RWQCB	Regional Water Quality Control Board
S	State
SFP	State Fully Protected
SOCWA	South Orange County Wastewater Authority
SSC	Species of Special Concern
SWFL	Southwestern Willow Flycatcher
TNW	Traditional Navigable Waters
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WUS	Waters of the U.S.

EXECUTIVE SUMMARY

HELIX Environmental Planning, Inc. (HELIX) completed this biological technical report for the Regional Lift Station Force Main Replacement Project (project), which is proposed by the Moulton Niguel Water District (MNWD) in the City of Laguna Niguel (City), Orange County, California. MNWD is proposing replacement of the existing lift station and two force mains that transport flow from the MNWD sewer collection system to the South Orange County Wastewater Authority (SOCWA) Regional Treatment Plant. The project would occur within a 54.99-acre study area, which is generally located 1.6 miles to the west of Interstate 5 and 2.7 miles to the east of State Route 133.

The study area extends from the most southern portion of Laguna Niguel Regional Park to the most northern portion of the park, traversing the park along the east bank of the Sulphur Creek Reservoir. The study area is located within the Central/Coastal Subregion of the Orange County Natural Community Conservation Plan and Habitat Conservation Plan (NCCP/HCP; R.J. Meade Consulting, Inc. 1996). Although the study area falls within the subregion, MNWD (as well as the City) are not participating entities of the NCCP/HCP. Therefore, project activities are not covered under the plan. HELIX conducted a general biological survey (including vegetation mapping and a general habitat assessment) and a jurisdictional assessment in 2017. Spring and summer focused surveys for rare plant species, burrowing owl (*Athene cunicularia*; BUOW), coastal California gnatcatcher (*Polioptila californica californica*; CAGN), southwestern willow flycatcher (*Empidonax traillii extimus*); SWFL), and least Bell's vireo (*Vireo bellii pusillus*; LBVI) were conducted in 2018.

A total of 15 vegetation communities/land uses were mapped on the study area, including coast live oak woodland, coyote brush chaparral, coyote brush chaparral/southern willow scrub, coyote brush chaparral/ornamental, fresh water marsh, mule fat scrub, southern willow scrub, eucalyptus woodland, non-native herbaceous cover, non-native herbaceous cover/coyote brush chaparral, ornamental, park, open water, developed, and disturbed. Southern willow scrub is considered a sensitive community pursuant to the California Department of Fish and Wildlife (CDFW). Two major drainage features occur within the study area, including Sulphur Creek and Narco Channel. Sulphur Creek and Narco Channel are heavily disturbed drainage features within the Aliso Creek Watershed. The study area also supports four small tributaries to Sulphur Creek (Tributaries A through D). The study area supports a total of 5.81 acres of U.S. Army Corps of Engineers (USACE)/Regional Water Quality Control Board (RWQCB) waters of the U.S. (WUS) and 12.34 acres of CDFW jurisdictional streambed and associated vegetation. A total of two San Diego marsh elder (*Iva hayesiana*) individuals were observed during the summer rare plant survey. No BUOW, CAGN, or SWFL were observed during focused surveys. One LBVI pair was observed during the focused survey, and yellow warbler (*Setophaga petechia*) was also detected during the surveys. In addition, nine sensitive wildlife species have a potential to occur on the study area, including four species with a low potential (arroyo chub [*Gila orcuttii*], California glossy snake [*Arizona elegans occidentalis*], coastal whiptail [*Aspidoscelis tigris stejnegeri*], and coast horned lizard [*Phrynosoma blainvillii*]), four with a moderate potential (southwestern pond turtle [*Emys marmorata*], two-striped gartersnake [*Thamnophis hammondii*], white-tailed kite [*Elanus leucurus*], and western mastiff bat [*Eumops perotis californicus*; foraging potential only]), and one with a high potential (tricolored blackbird [*Agelaius tricolor*]). None of these species were incidentally observed during field surveys.

Potential significant impacts were identified for southwestern pond turtle, two-striped gartersnake, tricolored blackbird, BUOW (if present during the take avoidance survey), LBVI, jurisdictional resources (including southern willow scrub), and nesting bird species (including white-tailed kite and yellow

warbler). The project would avoid the two San Diego marsh elder individuals. Permanent impacts are proposed to approximately 0.01 acre of park areas due to removal of nine park trees. Temporary disturbance is proposed to 3.23 acres, including 0.01 acre of coyote brush chaparral, <0.01 acre of coyote brush chaparral/ornamental, 0.80 acre of disturbed areas, 0.29 acre of developed areas, 0.06 acre eucalyptus stand, 0.01 acre mule fat scrub, 0.14 acre non-native vegetation, 0.11 acre non-native vegetation/ coyote brush chaparral, 1.78 acres of park, and 0.03 acre southern willow scrub. In addition, the project would temporary disturb 0.01 acre of non-wetland USACE/RWQCB WUS, <0.01 acre of USACE/RWQCB wetland, and 0.09 acre of CDFW jurisdictional streambed and vegetation. The proposed project would not impact wildlife corridors or conflict with regional conservation plans.

Measures related to the following topics are proposed herein to fully mitigate potential impacts of the project: southwestern pond turtle, two-striped gartersnake, tricolored blackbird, BUOW, LBVI, jurisdictional resources (including southern willow scrub), and nesting birds (including white-tailed kite and yellow warbler). Successful implementation of these measures would mitigate potential impacts to below a level of significance.

1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

This report provides the Moulton Niguel Water District (MNWD; California Environmental Quality Act [CEQA] lead agency), resource agencies, and the public with current biological data to satisfy review of the proposed Regional Lift Station Force Main Replacement Project (project) located in the City of Laguna Niguel, Orange County, California. The purpose of this report is to document the existing biological conditions on and in the immediate vicinity of the project and provide an analysis of potential impacts to sensitive biological resources with respect to local, state, and federal policy. This report provides the biological resources technical documentation necessary for project review under CEQA by the lead agency.

1.2 STUDY AREA LOCATION

The approximately 54.99-acre study area is generally located 1.6 miles to the west of Interstate (I-) 5 and 2.7 miles to the east of State Route 133 in the City of Laguna Niguel (Figure 1, *Regional Location*). The study area is mostly contained within Laguna Niguel Regional Park located at 28241 La Paz Road, although a portion falls within the La Paz Sports Park. The study area is located within Sections 21, 22, and 27 of Township 7 North, Range 8 West of the San Juan Capistrano, California U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 2, *USGS Topography*). The study area extends from the most southern portion of Laguna Niguel Regional Park to the most northern portion of the park, traversing the park along the east bank of the Sulphur Creek Reservoir. At the northern extent of Laguna Niguel Regional Park, the study area extends west and terminates at Alicia Parkway. The limits of the study area are depicted on Figure 3, *Aerial Vicinity*.

1.3 PROJECT DESCRIPTION

The MNWD is proposing replacement of two existing force mains that pump wastewater from MNWD's sewer collection system. The force mains are located within the Laguna Niguel Regional Park. The 20-inch and 24-inch force mains would be replaced by dual 24-inch force mains, each approximately 8,500 linear feet. The force mains would begin at the South Orange County Wastewater Authority (SOCWA) Regional Treatment Plant, and head north following a service path on the east side of the Sulphur Creek Reservoir. North of the reservoir, the force mains alignment would travel through the main access road for the Laguna Niguel Regional Park and turn west. The alignment would end at the Regional Lift Station near Alicia Parkway. The existing force mains, following service roads on the west side of the Sulphur Creek Reservoir, would be abandoned in place. One or both of the force mains may be repurposed in the future for secondary effluent from SOCWA's Regional Treatment Plant. Sewer service would be maintained through the existing pipes during construction. MNWD would install the new force mains utilizing open-cut trenching and trenchless microtunneling installation methods. The trenches, launching shafts, and receiving shafts are shown on Figure 4, *Proposed Project*.

2.0 METHODS

Project evaluation included a review of project plans; a literature review of biological resources occurring on the study area and surrounding vicinity; a general biological survey, including vegetation

mapping and a general habitat assessment; jurisdictional assessment; and focused surveys for rare plant species, burrowing owl (*Athene cunicularia*; BUOW), coastal California gnatcatcher (*Polioptila californica californica*; CAGN), southwestern willow flycatcher (*Empidonax traillii extimus*); SWFL), and least Bell's vireo (*Vireo bellii pusillus*; LBVI). The methods used to evaluate the biological resources present on the study area are discussed in this section.

2.1 NOMENCLATURE

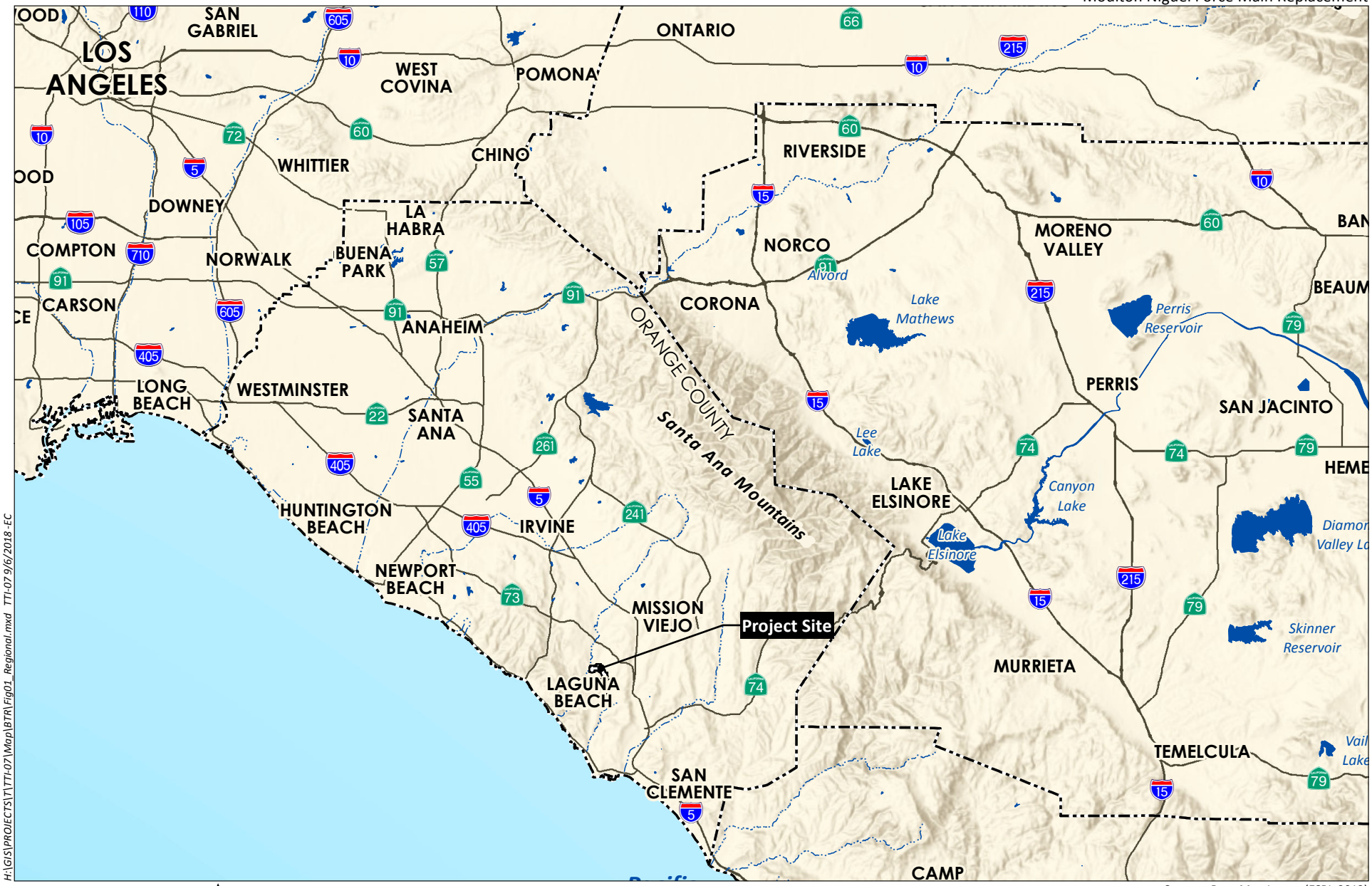
Nomenclature for this report follows Baldwin et al. (2012) for plants and the Orange County Habitat Classification System (OCHCS; Gray and Bramlet 1992) for vegetation community classifications, with additional vegetation community information taken from Manual of California Vegetation, Second Edition (MCV; Sawyer et al. 2009). Animal nomenclature follows Emmel and Emmel (1973) for butterflies, Center for North American Herpetology (Taggart 2016) for reptiles and amphibians, American Ornithologists' Union (2018) for birds, and Baker et al. (2003) for mammals. Rare plant and sensitive animal statuses are from the Inventory of Rare and Endangered Plants of California (California Native Plant Society [CNPS] 2017; 2018) and the California Natural Diversity Database (California Department of Fish and Wildlife [CDFW] 2017; 2018a). Rare plant species' habitats and flowering periods are from the Jepson Manual (Baldwin et al. 2012), the Inventory of Rare and Endangered Plants of California (CNPS 2017), and California Natural Diversity Database (CNDDB; CDFW 2017). Soil classifications were obtained from the Web Soil Survey (Natural Resources Conservation Service [NRCS] 2017).

2.2 LITERATURE REVIEW

Prior to conducting the site visit, HELIX Environmental Planning, Inc. (HELIX) reviewed regional planning documents, Google Earth aerials (2017), Web Soil Survey (NRCS 2017), and sensitive species database records, including the Inventory of Rare and Endangered Plants of California (CNPS 2017), CNDDB (CDFW 2017), and critical habitat maps for endangered and threatened species (U.S. Fish and Wildlife Service [USFWS] 2017a). An eight-quadrangle database search was conducted on CNDDB and CNPS, which included the following quadrangles: Canada Gobernadora, Dana Point, El Toro, Laguna Beach, Santiago Peak, San Clemente, San Juan Capistrano, and Tustin. In addition, the Orange County Central and Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP; R. J. Meade Consulting, Inc. [RJMC] 1996) and the Orange County Southern Subregion Habitat Conservation Plan (HCP; County of Orange 2006) was consulted to ensure the project is not in conflict with the NCCP/HCP or HCP.

2.3 FIELD SURVEYS

Field surveys were conducted to document the existing condition of the study area and surrounding lands. A general biological survey and habitat assessment were conducted on the study area to map existing vegetation communities and to determine habitat suitability for sensitive plant and animal species. A list of plant and animal species observed and/or detected during the field surveys are provided as Appendix A, *Plant Species Observed* and Appendix B, *Animal Species Observed and/or Detected*. Noted animal species were identified by direct observation, vocalizations, or the observance of scat, tracks, or other signs. However, the list of animal species identified is not necessarily a comprehensive account of all species that use the study area, as species that are nocturnal, secretive, or seasonally restricted may not have been observed. A jurisdictional assessment was also conducted to determine the existing jurisdictional limits regulated by the U.S. Army Corps of Engineers (USACE),



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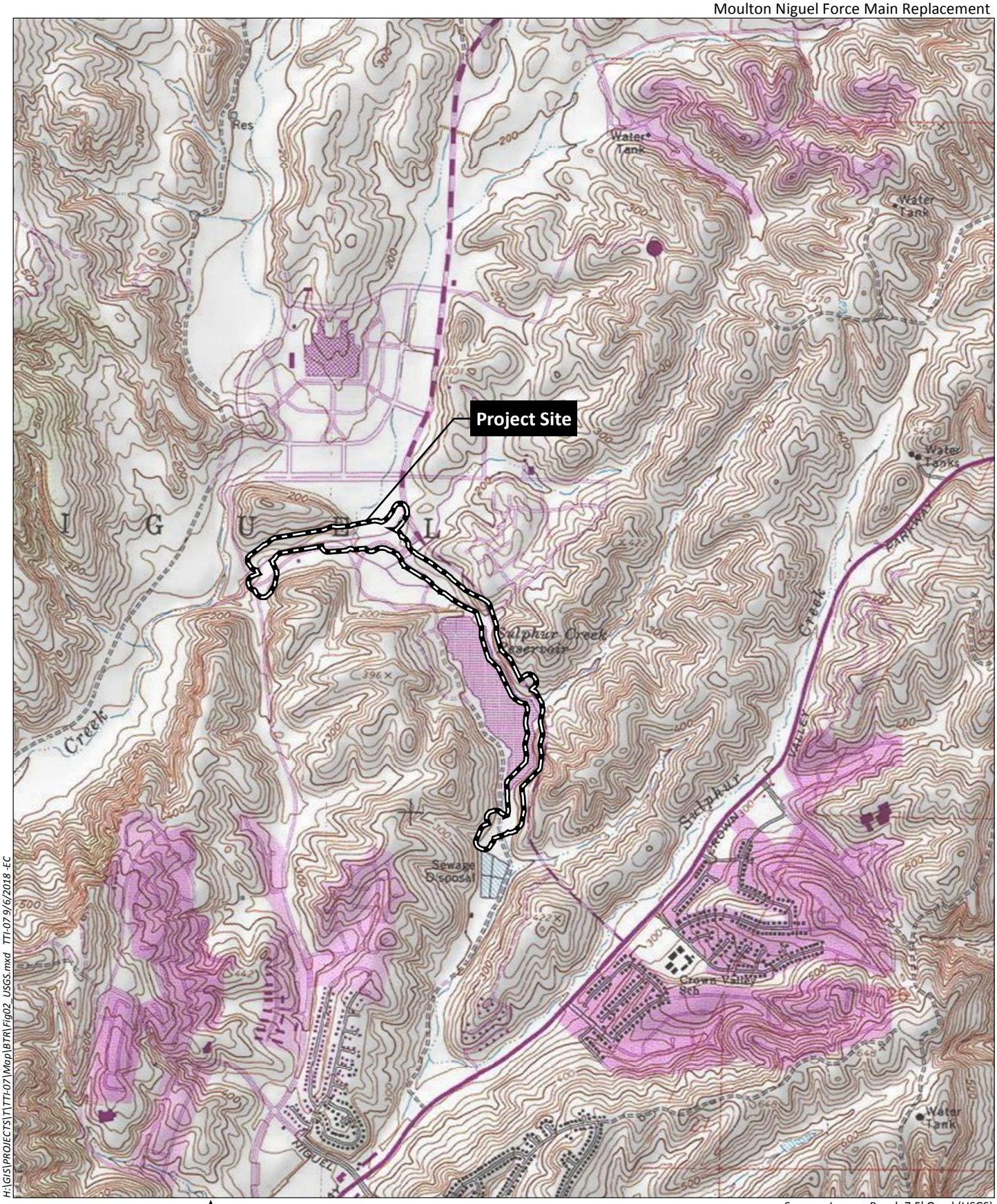
Source: Base Map Layers (ESRI, 2013)

HELIX Environmental Planning

Regional Location

Figure 1



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0 2,000 Feet

Source: Laguna Beach 7.5' Quad (USGS)

HELIX Environmental Planning

USGS Topography

Figure 2

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0 1,000 Feet

Source: Aerial (NAIP 2016)

HELIX Environmental Planning

Aerial Vicinity

Figure 3

Regional Water Quality Control Board (RWQCB), and CDFW. Focused surveys for rare plant species, BUOW, CAGN, SWFL, and LBVI were also conducted.

2.3.1 General Biological Survey

HELIX Biologist and Regulatory Specialist Ezekiel Cooley and Biologist Lauren Singleton conducted a general biological survey of the study area on September 15, 2017. Vegetation communities were classified and mapped in accordance with the OCHCS (Gray and Bramlet 1992), with additional information from the MCV (Sawyer et al. 2009). Vegetation was mapped on a 100-foot (1 inch = 100 feet) aerial photograph of the site. Vegetation communities were mapped by HELIX to one-hundredth of an acre (0.01 acre). The entire site was surveyed on foot with the aid of binoculars. Representative photographs of the site were taken, with select photographs included in this report as Appendix C, *Representative Site Photographs*. Plant and animal species observed or otherwise detected were recorded in field notebooks. Animal identifications were made in the field by direct, visual observation or indirectly by detection of calls, burrows, tracks, or scat. Plant identifications were made in the field or in the lab through comparison with voucher specimens or photographs.

2.3.2 Jurisdictional Assessment

Prior to beginning fieldwork, aerial photographs (1 inch = 100 feet), topographic maps (1 inch = 100 feet), USGS quadrangle maps, and National Wetland Inventory maps (USFWS 2017b) were reviewed to assist in determining the location of potential jurisdictional waters on the study area. Mr. Cooley and Ms. Singleton conducted the jurisdictional assessment field work on September 15, 2017. The assessment was conducted to identify and jurisdictional waters potentially subject to USACE jurisdiction pursuant to Section 404 of the Clean Water Act (CWA), RWQCB jurisdiction pursuant to Section 401 of the CWA, and streambed habitats potentially subject to CDFW jurisdiction pursuant to Sections 1600 *et seq.* of the California Fish and Game (CFG) Code. Data collection was targeted in areas that were deemed to have the potential to support jurisdictional resources, such as the presence of an ordinary high water mark (OHWM), the presence of a bed/bank and streambed associated vegetation and/or other surface indications of streambed hydrology. Representative photographs were taken of the drainage features and are included as Appendix D, *Representative Drainage Photographs*.

2.3.2.1 U.S. Army Corps of Engineers and Regional Water Quality Control Board Jurisdiction

The USACE waters of the U.S. (WUS) were determined using current USACE guidelines (Environmental Laboratory 1987, USACE 2008a). Areas were determined to be WUS if there was evidence of regular surface flow (e.g., bed and bank). Jurisdictional limits for these areas were measured according to the presence of a discernible OHWM, which is defined in 33 Code of Federal Regulations Section 329.11 as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas." The USACE has issued further guidance on the OHWM (Riley 2005; USACE 2008b), which also was considered in this jurisdictional assessment. Although potential wetlands were observed within the Oso Creek and La Paz Creek during the jurisdictional assessment, a formal wetland assessment using the three criteria (vegetation, hydrology, and soils) established for wetland delineations (Environmental Laboratory 1987, USACE 2008a) was not

warranted since the pipelines will be installed outside of all potential wetlands identified within the project study area.

The jurisdictional delineation was conducted in accordance with court decisions (i.e., Rapanos v. United States, Carabell v. United States, and Solid Waste Agency of Northern Cook County v. USACE), as outlined and applied by the USACE (USACE 2007; Grumbles and Woodley 2007); and USACE and U.S. Environmental Protection Agency (EPA; 2007). These publications explain that the EPA and USACE will assert jurisdiction over traditional navigable waters (TNW) and tributaries to TNWs that are a relatively permanent water body (RPW), which has year-round or continuous seasonal flow. For water bodies that are not RPWs, a significant nexus evaluation is used to determine if the non-RPW is jurisdictional. As an alternative to the significant nexus evaluation process, a preliminary jurisdictional delineation may be submitted to the USACE. The preliminary jurisdictional delineation treats all waters and wetlands on a site as if they are jurisdictional WUS (USACE 2008a). A significant nexus evaluation or preliminary jurisdictional delineation are typically only required for projects that propose impacts to potentially jurisdictional features and, therefore, require a Section 404 permit from the USACE.

The RWQCB asserts regulatory jurisdiction over activities affecting wetland and non-wetland waters of the State pursuant to Section 401 of the CWA and the State Porter-Cologne Water Quality Control Act. Potential RWQCB jurisdiction found within the study area follows the boundaries of potential USACE jurisdiction for WUS. There are no areas supporting isolated waters of the State subject to exclusive RWQCB jurisdiction pursuant to the State Porter-Cologne Water Quality Control Act.

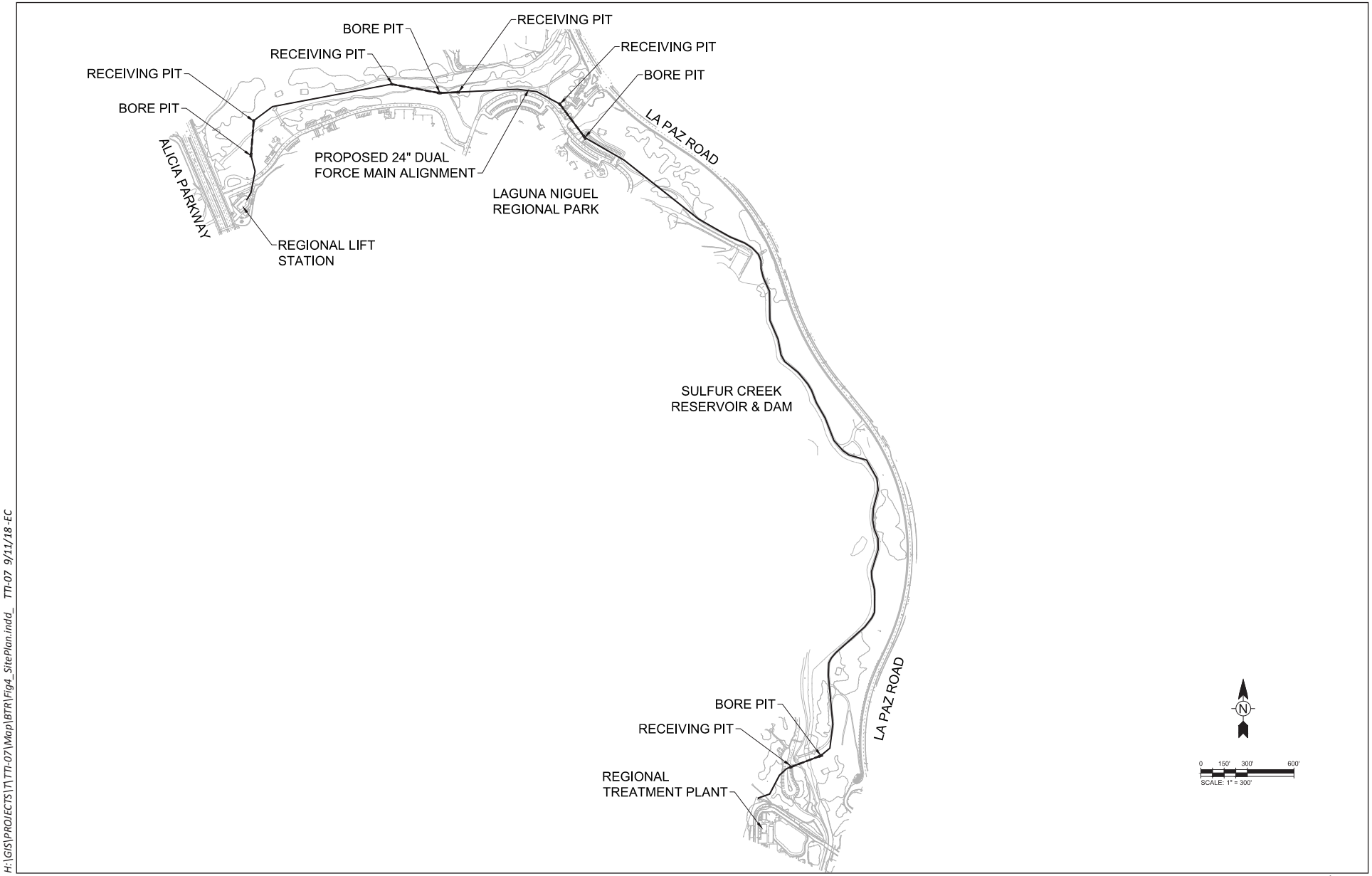
2.3.2.2 California Department of Fish and Wildlife Jurisdiction

The CDFW jurisdictional boundaries were determined based on the presence of riparian vegetation or regular surface flow, if present. Streambeds 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 with surface or subsurface flow that supports riparian vegetation” (Title 14, Section 1.72). This definition for CDFW jurisdictional habitat allows for a wide variety of habitat types to be jurisdictional, including some that do not include wetland species (e.g., oak woodland and alluvial fan sage scrub). Jurisdictional limits for CDFW streambeds were defined by the top of bank. Vegetated CDFW habitats were mapped at the limits of streambed-associated vegetation, if present.

2.3.3 Rare Plant Species Surveys

Rare plants investigated include those that are listed as threatened or endangered by the USFWS or the CDFW and those afforded a California Rare Plant Rank (CRPR) of 1 through 4 by CNPS.

Ms. Singleton and HELIX Biologist Daniel Torres conducted a spring rare plant survey on May 11, 2018 and Mr. Cooley and Mr. Torres conducted a summer rare plant survey on August 17, 2018. The surveys were conducted in accordance with published agency guidelines (CDFW 2009, CDFW 2000, and USFWS 2000) and during the appropriate flowering period to maximize the detection of those rare plant species with the potential occur on the study area. Survey methods incorporated a combination of meandering transects and focused searches in areas with the greatest potential to support rare plant species with the potential to occur on the study area. If observed, individual rare plants were mapped using a handheld Global Positioning System (GPS) unit. HELIX also recorded any rare plant species incidentally encountered during other field surveys.



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Source: Tetra Tech, 2018

HELIX Environmental Planning

Proposed Project

Figure 4

2.3.4 Burrowing Owl

A habitat assessment was conducted on the study area by Mr. Cooley and Mr. Torres on March 9, 2018 to identify areas with potential BUOW habitat and eliminate those that did not contain habitat suitable to support the species. A focused burrow survey was conducted concurrently with the habitat assessment. All suitable burrows (i.e., greater than approximately 4 inches [11 cm] in height and width and greater than approximately 59 inches [50 cm] in depth) and burrow surrogates were recorded using a handheld GPS unit. The assessment was conducted on the study area and included an approximately 500-foot (150-m) buffer zone around the periphery of the study area. The study area was determined to support suitable BUOW habitat and burrows; therefore, a focused survey was conducted as described below.

A focused survey for BUOW was conducted between April 10 and June 29, 2018 by HELIX Biologist Amy Lee, Mr. Cooley, Mr. Torres, and Ms. Singleton. The survey consisted of four breeding season (February 1 – August 31) surveys that were performed in accordance with the current CDFW survey guidelines (formerly California Department of Fish and Game 2012). The surveys were spaced at least three weeks apart, with at least one survey conducted between February 15 and April 15 and one survey conducted between June 15 and July 15. Biologists slowly walked meandering transects spaced no greater than 20 meters apart through areas of potential habitat visually searching for BUOW sign and BUOW individuals with the aid of binoculars. Fence posts, rocks, and other possible perching locations, as well as mammal burrows (especially those of California ground squirrel [*Otospermophilus beecheyi*]) potentially suitable for use by BUOW were inspected. Burrows were searched for sign of recent BUOW occupation including pellets with regurgitated fur, bones, and insect parts; white wash (excrement); tracks; and feathers. If observed, BUOW sign and/or BUOW individuals were recorded with a handheld GPS unit. The findings for the BUOW survey is included as Appendix E, *Burrowing Owl Focused Survey Report*.

2.3.5 Coastal California Gnatcatcher

A focused breeding season survey for CAGN was performed by HELIX Biologists Erica Harris and Katie Bellon in accordance with the current USFWS protocols (USFWS 1997). Ms. Harris and Ms. Bellon are permitted to conduct CAGN surveys under HELIX's Threatened and Endangered Species Permit TE-778195-13. Since MNWD is not a participating entity of the NCCP/HCP, the USFWS protocol requires that a minimum of six surveys be conducted at least one week apart between March 15 and June 30. The CAGN survey area encompassed the anticipated project area and a 500-foot buffer area. The CAGN survey area totaled approximately 14.5 acres of potential CAGN habitat within the survey area, which comprised coyote brush chaparral (including coyote brush chaparral/ornamental, coyote brush chaparral/southern willow scrub, and non-native vegetation/coyote brush chaparral), mule fat scrub, and adjacent habitat.

The surveys were conducted by walking within and along the perimeter of suitable CAGN habitat. The survey route was arranged to ensure complete survey coverage of habitat with potential for occupancy by CAGN. Surveys were conducted with binoculars to aid in bird detection. Recorded CAGN vocalizations were played sparingly and only if other means of detection had failed. If a CAGN was detected before playing recorded vocalizations, the recordings were not played. Once CAGNs were initially detected in an area, use of playback was discontinued. The CAGN survey findings are documented in a separate letter report included as Appendix F, *Coastal California Gnatcatcher Focused Survey Report*.

2.3.6 Southwestern Willow Flycatcher

A focused survey for SWFL was performed by Ms. Harris (TE-778195-13) and Cereus Environmental biologist Jason Berkley (TE-09015-4) in accordance with the current USFWS approved survey protocol (Sogge et al. 2010). The survey protocol requires that five survey visits be conducted at least five days apart, between the hours of sunrise and 10:30 a.m., and within three identified survey periods. One survey was conducted between Survey Period 1 (May 15–31), two surveys were conducted during Survey Period 2 (June 1–24), and two surveys were conducted during Survey Period 3 (June 25–July 17), totaling five surveys.

The surveys were conducted by walking within and along the perimeter of suitable SWFL habitat on the study area. Surveys were conducted with binoculars to aid in bird detection. Recorded SWFL vocalizations were played every 20 to 30 meters followed by a one-minute silent period to listen for a response. The survey route was arranged to ensure complete survey coverage of habitat with potential for SWFL occupancy. The survey area consisted of approximately 5.4 acres of potential SWFL habitat comprising coyote brush chaparral/southern willow scrub, freshwater marsh, mule fat scrub, and southern willow scrub located along Sulphur Creek and Sulphur Creek Reservoir. The SWFL survey findings are documented in a separate letter report included as Appendix G, *Southwestern Willow Flycatcher Focused Survey Report*.

2.3.7 Least Bell's Vireo

A focused survey for LBVI was conducted in accordance with current USFWS survey protocol (USFWS 2001). The survey consisted of eight site visits conducted by Ms. Harris, Mr. Cooley, Ms. Singleton, and Mr. Berkley between April 27 and July 11, 2018.

The surveys were conducted by walking along the edges of, as well as within, potential LBVI habitat in the survey area while listening for LBVI and viewing birds with the aid of binoculars. The survey route was arranged to ensure complete survey coverage of habitat with potential for LBVI occupancy. The survey area consisted of approximately 5.4 acres of suitable LBVI habitat within the study area, including coyote brush chaparral/southern willow scrub, mule fat scrub, and southern willow scrub within Narco Channel, Sulphur Creek, and Sulphur Creek Reservoir. The LBVI survey findings are documented in a separate letter report included as Appendix H, *Least Bell's Vireo Focused Survey Report*.

3.0 RESULTS

3.1 ENVIRONMENTAL SETTING

The study area is primarily located within the limits of Laguna Niguel Regional Park (park) and is dominated by park landscaping. The eastern boundary in the southern portion of the study area contains some moderately steep slopes that separate the park from La Paz Road, which occurs at a higher elevation to the east of the study area. Two major drainage features occur within the study area, including Sulphur Creek and Narco Channel. A portion of Sulphur Creek was dammed within the park's limits in the 1960s, forming Sulphur Creek Reservoir (Historic Aerials 1967). Although most of the park's vegetation was planted and is maintained regularly, some remnant natural vegetation remains within Sulphur Creek. Eight soil types are mapped on the study area, including Alo clay, Sorrento clay loam,

Sorrento loam, Botella clay loam, Cropley clay, Bosanko clay, Balcom-Rock outcrop complex, and Riverwash (NRCS 2017).

The topography of the study area is mostly flat with some gentle rolling hills throughout. Elevations on the study area range from approximately 141 feet above mean sea level (AMSL) near the northwestern end of the study area near Alicia Parkway to approximately 250 feet AMSL near the southeastern corner. Immediate surrounding land uses include La Paz Sports Park, Aliso Village Shopping Center, and an undeveloped hillside to the north; Sulphur Creek Reservoir, park land, and undeveloped hillsides to the west; SOCWA Regional Treatment Plant to the south; and La Paz Road and residential homes to the east. Aliso and Wood Canyons Wilderness Park is located directly to the west of the northern portion of the study area, which is separated from the study area by Alicia Parkway.

3.2 VEGETATION COMMUNITIES

A total of 15 vegetation communities or land uses were mapped on the study area (Table 1, *Vegetation Communities and Land Uses*; Figures 5-5D, *Vegetation and Land Uses*). The OCHCS Habitat Classification Numbers and CDFW CaCodes are provided in parentheses next to each community name in Table 1. A brief description of each vegetation community and land uses mapped on the study area is provided below.

Table 1
VEGETATION COMMUNITIES

Habitat Type (OCHCS)[1]	Habitat Type (MCV)[2]	Acres
Coast Live Oak Woodland (8.1)	Coast Live Oak Woodland (71.060.00)	0.20
Coyote Brush Chaparral (2.3.9)	Coyote Brush Scrub (32.060.23)	0.80
Coyote Brush Chaparral (2.3.9)/Southern Willow Scrub (7.2)	Coyote Brush Scrub/Arroyo Willow Thickets (32.060.00)	0.69
Coyote Brush Chaparral (2.3.9)/Ornamental (15.5)	Coyote Brush Scrub/Ornamental (32.060.20)	0.86
Fresh Water Marsh (6.4)	California Bulrush Marsh (52.114.02)	1.26
Mule Fat Scrub (7.3)	Mule Fat Thickets (63.510.01)	0.59
Southern Willow Scrub (7.2)	Arroyo Willow Thickets (61.201.01)[3]	3.12
Eucalyptus Woodland (15.5)	Eucalyptus Groves (79.100.02)	6.53
Non-native Herbaceous Cover (16.2)	Non-native Herbaceous Cover (42.011.05)	2.92
Non-native Herbaceous Cover (16.2)/Coyote Brush Chaparral (2.3.9)	Non-native Herbaceous Cover/Coyote Brush Scrub (42.011.05/32.060.20)	3.79
Ornamental (15.5)	Ornamental (N/A)	0.96
Park (15.5)	Park (N/A)	16.76
Open Water (12.1)	Open Water (N/A)	4.00
Developed (15.6)	Developed (N/A)	8.90
Disturbed (16.0)	Disturbed (N/A)	3.61
	TOTAL	**54.99**

[1] Orange County Habitat Classification System (OCHCS)
[2] Manual of California Vegetation
[3] Sensitive habitats pursuant to the California Department of Fish and Wildlife (CDFW) Natural Communities List (2018b).

3.2.1 Coast Live Oak Woodland

Coast live oak woodland is an open to dense evergreen woodland or forest community dominated by coast live oak (*Quercus agrifolia*) trees, which may reach heights between 35 and 80 feet. Components

of the shrub layer generally include toyon (*Heteromeles arubitifolia*) and Mexican elderberry (*Sambucus mexicana)*. This community occurs on coastal foothills of the Peninsular Ranges, typically on north-facing slopes and shaded ravines.

There is one small patch of coast live oak woodland in the southwest corner of the study area totaling 0.20 acre. Other species observed within this community included laurel sumac (*Malosma laurina*) and lemonade berry (*Rhus integrifolia*).

3.2.2 Coyote Brush Chaparral

Coyote brush chaparral is a largely coastal shrub community dominated by coyote brush (*Baccharis pilularis*) that are usually less than 10 feet tall. The canopy can be co-dominated with shrubs such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum),* and white sage (*Salvia apiana*). The herbaceous layer of this community is variable.

The study area supports 0.80 acre of coyote brush chaparral. Two small patches are located to the south of La Paz Sports Park and two patches are located along the southeastern edge of Sulphur Creek Reservoir. Species observed in this community included mule fat (*Baccharis salicifolia*), toyon, elderberry, and non-native plants such as perennial pepperweed (*Lepidium latifolium*), and white bladderflower (*Araujia sericifera*).

3.2.3 Coyote Brush Chaparral/Southern Willow Scrub

Coyote brush chaparral/southern willow scrub is dominated by coyote brush scrub, consistent with the coyote brush chaparral community described in Section 3.3.2 above. However, there is a component of southern willow scrub (described in Section 3.2.7 below) represented by the presence of shrubby willows (*Salix* sp.) and western sycamores (*Platanus racemosa*).

The study area supports 0.69 acre of coyote brush chaparral/southern willow scrub, which is located along the eastern end of Narco Channel just south of La Paz Sports Park. Other species observed in this community included California bulrush (*Schoenoplectus californicus*), mule fat, and California wild rose (*Rosa californica*).

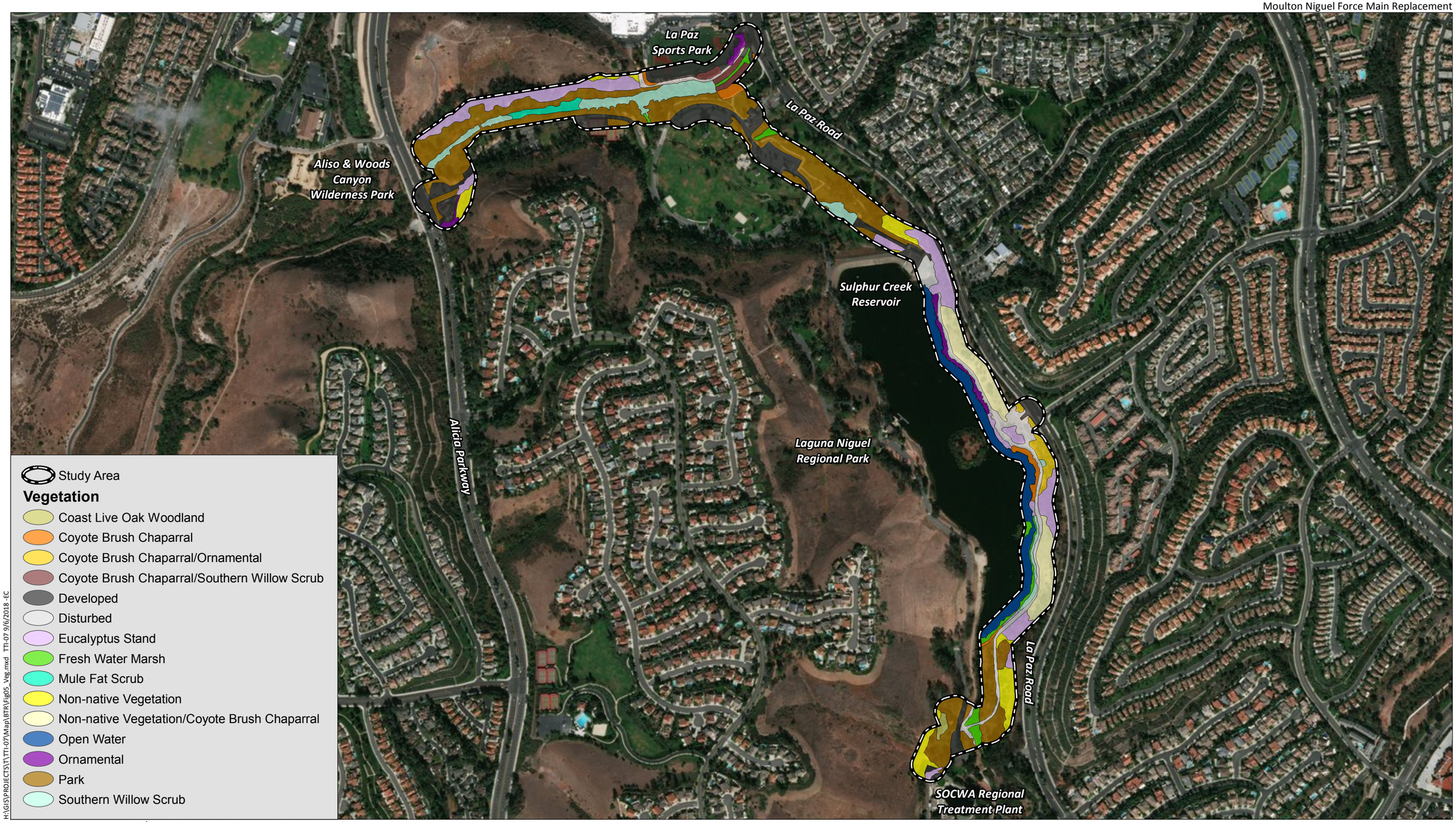
3.2.4 Coyote Brush Chaparral/Ornamental

Coyote brush chaparral/ornamental is dominated by coyote brush scrub, consistent with the coyote brush chaparral community described in Section 3.2.3 above. However, non-native ornamental species (described in Section 3.2.11 below) are codominant in this community.

The study area supports 0.86 acre of coyote brush chaparral/ornamental, located on the eastern edge of the study area near the intersection of La Paz Road and Rancho Niguel Road. Other species observed in this community included multiple species of ornamental acacia (*Acacia* spp.).

3.2.5 Fresh Water Marsh

Fresh water marsh is dominated by perennial, emergent monocots ranging between 5 and 13 feet tall that form incomplete to completely closed canopies. This vegetation type occurs along the coast and in coastal valleys near river mouths and around the margins of lakes and springs. These areas are semi- or permanently flooded (Holland 1986). Dominant species include cattails (*Typha* spp.) and bulrushes



Source: Aerial (NAIP, 2016)

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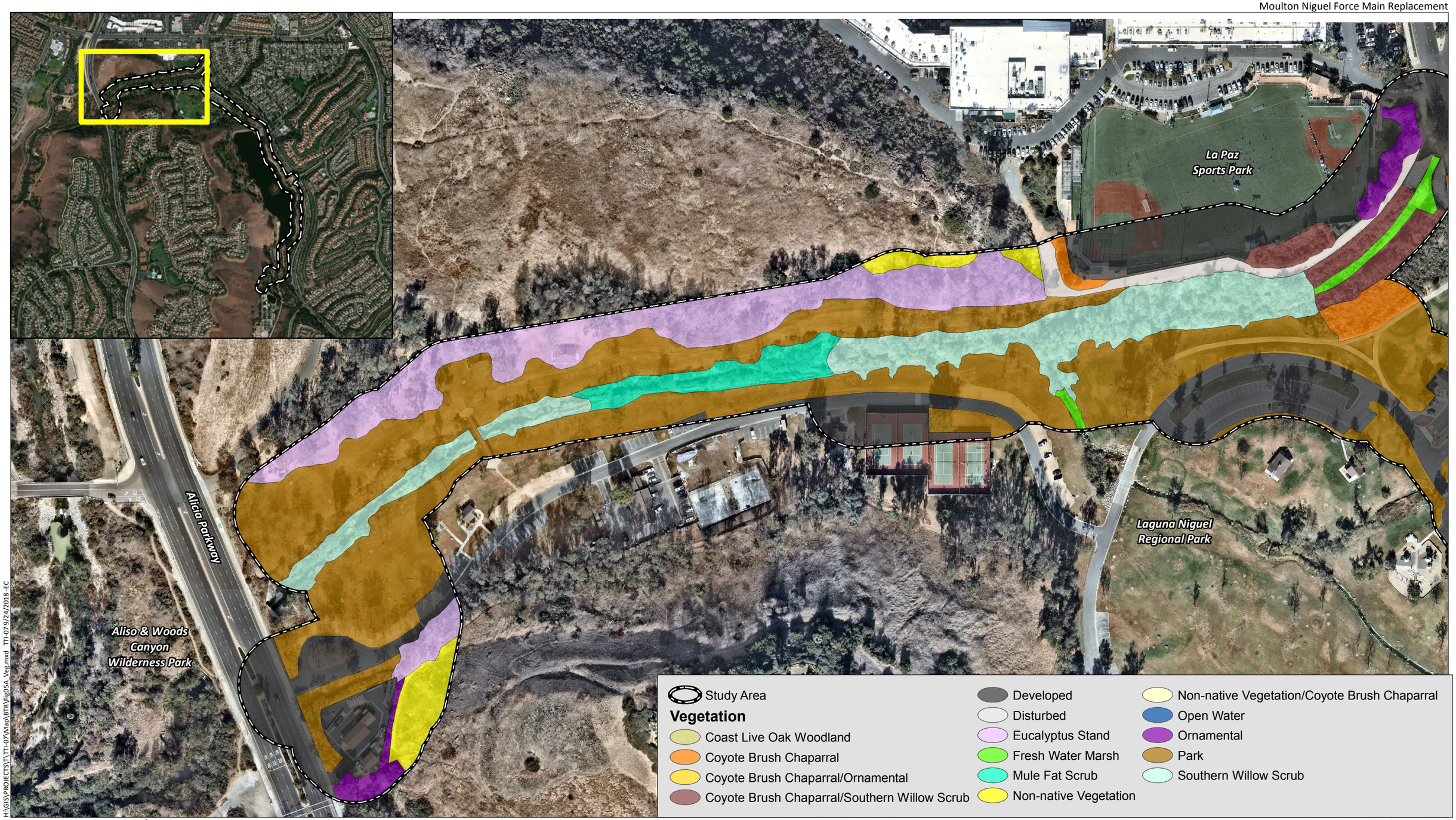
Vegetation and Land Uses

Figure 5



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Source: Aerial (Nearmap, 2017)

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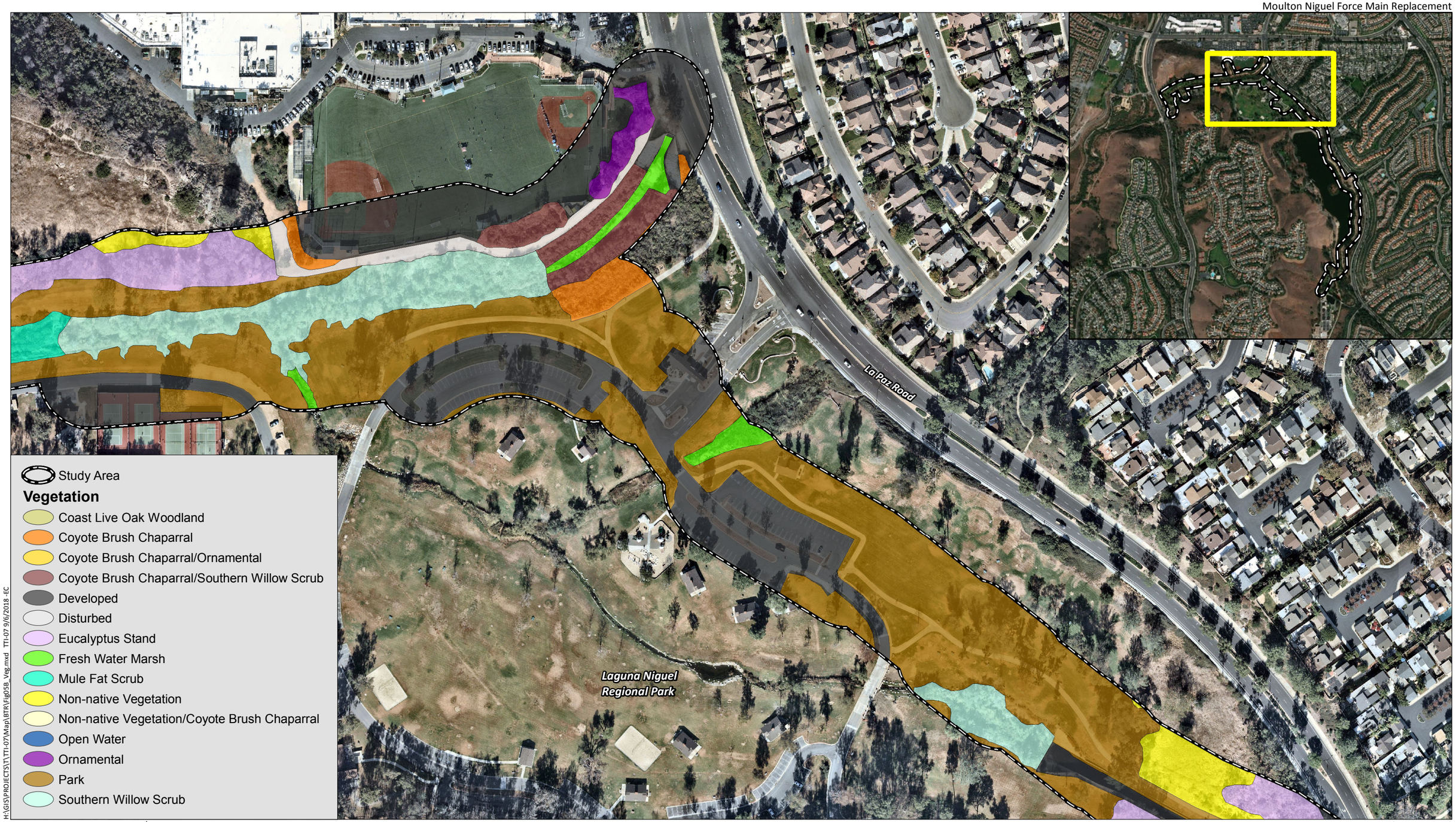
Vegetation and Land Uses

Figure 5A

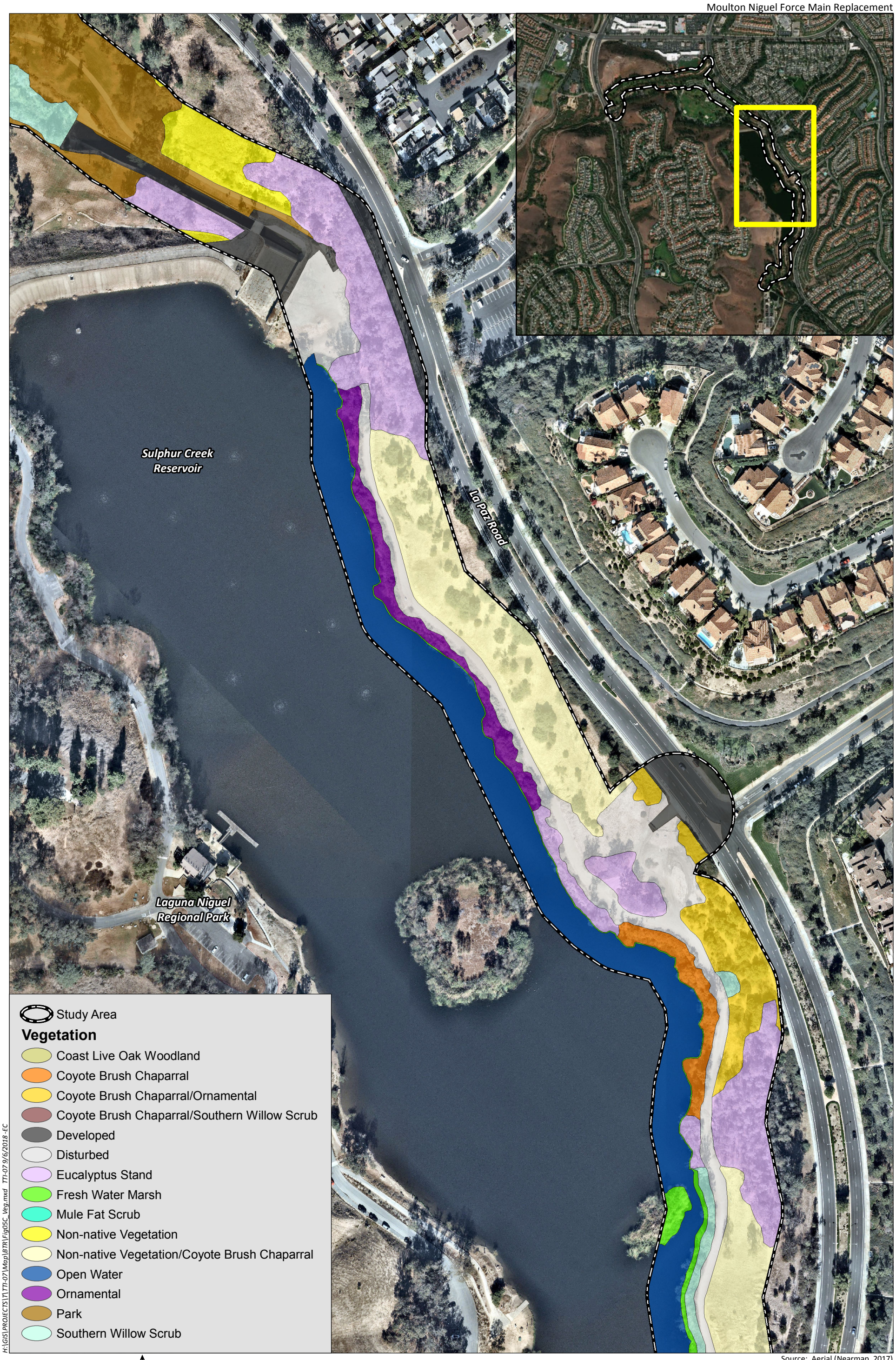


Source: Aerial (Nearmap, 2017)

HELIX Environmental Planning

Vegetation and Land Uses

Figure 5B



Source: Aerial (Nearmap, 2017)

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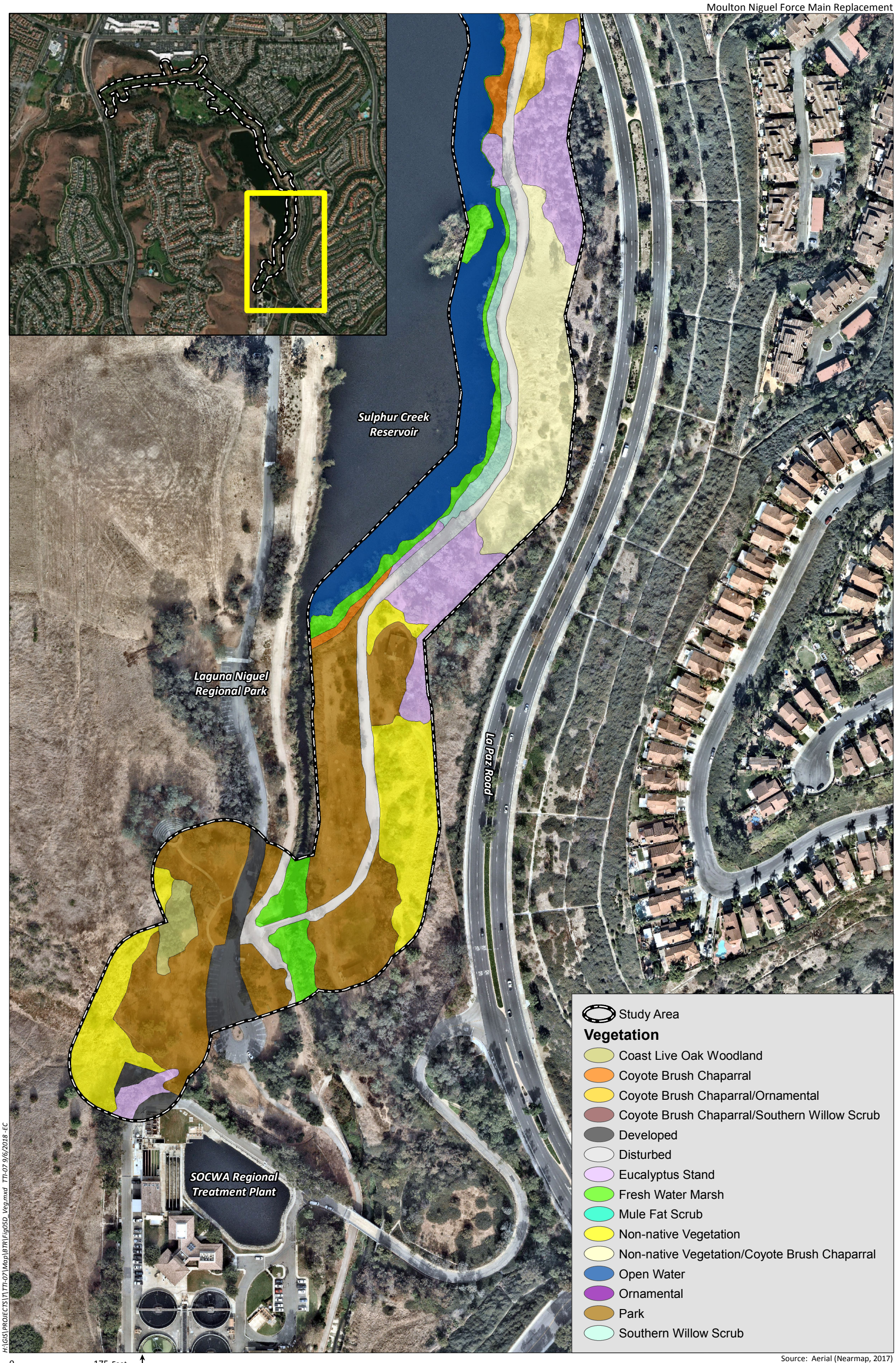
Vegetation and Land Uses

Figure 5C



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Source: Aerial (Nearmap, 2017)

HELIX Environmental Planning

Vegetation and Land Uses

Figure 5D

(*Schoenoplectus* spp.) along with umbrella sedges (*Cyperus* spp.), rushes (*Juncus* spp.), and spike-sedges (*Eleocharis* spp.). Fresh water marshes are relatively scarce and remaining acreage provides important habitat for migrant birds as well as performing many other functions, such as floodwater conveyance and water quality enhancement.

The study area supports several small patches of fresh water marsh, which totaled 1.26 acres. One linear patch was mapped along the southeast edge of Sulphur Creek Reservoir. Other smaller patches were mapped throughout along Sulphur Creek and adjacent tributaries. Other species observed in this community included native mule fat, fringed willowherb (*Epilobium ciliatum*), and watercress (*Nasturtium officinale*) in addition to non-native Spanish false fleabane (*Pulicaria paludosa*).

3.2.6 Mule Fat Scrub

Mule fat scrub is a depauperate, shrubby riparian scrub community dominated by mule fat interspersed with small willows. This early seral community is dominated by frequent flooding, the absence of which would lead to a cottonwood or sycamore dominated woodland or forest. In some environments, limited hydrology may favor the persistence of mule fat.

The study area supports one patch of mule fat scrub totaling 0.59 acre along Sulphur Creek. In addition to mule fat, other species found included native tall cyperus (*Cyperus eragrostis*) and non-native saltcedar (*Tamarix ramosissima*) and Spanish false fleabane. There were also some escaped ornamentals observed in this plant community, which included bottlebrush (*Callistemon* spp.) and red river gum (*Eucalyptus camaldulensis*).

3.2.7 Southern Willow Scrub

Southern willow scrub consists of dense, broad-leaved, winter-deciduous stands of trees dominated by shrubby willows in association with mule fat and scattered Fremont cottonwoods (*Populus fremontii*) and western sycamores. This vegetation community occurs on loose, sandy or fine gravelly alluvium deposited near stream channels during flood flows. Frequent flooding maintains this early seral community, preventing succession to a riparian woodland or forest.

The study area supports a total of 3.12 acres of southern willow scrub, which dominates the adjacent banks of Sulphur Creek. Southern willow scrub was found in a narrow patch along the southwestern edge of Sulphur Creek Reservoir. Four species of willows were observed in this plant community, including red willow (*Salix laevigata*), Goodding's black willow (*Salix gooddingii*), arroyo willow (*Salix lasiolepis*), and narrow leaved willow (*Salix exigua*). Non-native saltcedar and Mexican fan palm (*Washingtonia robusta*) as well as native western sycamore contributed to the canopy of this community. The understory comprised a mixture of scattered shrubs, including (*Isocoma menziesii*), mule fat, and California wild rose (*Rosa californica*), as well as several herbaceous species, such as Italian thistle (*Carduus pycnocephalus*), white pampas grass (*Cortaderia selloana*), perennial pepperweed, and California blackberry (*Rubus ursinus*).

3.2.8 Eucalyptus Woodland

Eucalyptus woodland is dominated by eucalyptus (*Eucalyptus* spp.), an introduced species that has often been planted purposely for wind blocking, ornamental, and hardwood production purposes. The

understory within well-established groves is usually very sparse due to the closed canopy and allelopathic nature of the abundant leaf and bark litter.

A total of 6.53 acres of eucalyptus woodland was mapped throughout the study area. The canopy of this plant community was dominated by red river gum. The understory comprised scattered shrubs, including bush sunflower (*Encelia californica*), California buckwheat, and fourwing saltbush (*Atriplex canescens*). There were several non-native herbaceous species observed in the understory such as Russian thistle (*Salsola tragus*), black mustard (*Brassica nigra*), and hyssop loosestrife (*Lythrum hyssopifolia*).

3.2.9 Non-native Herbaceous Cover

Non-native herbaceous cover is typically associated with land that has been heavily influenced by human activities, including areas adjacent to roads, manufactured slopes, and abandoned lots. Non-native vegetation areas are dominated by ornamental and non-native species that take advantage of previously cleared or abandoned landscaping or land showing signs of past or present animal usage that removes any capability of providing viable habitat.

Non-native herbaceous cover totaled 2.92 acres and was observed in five patches on the study area, including along the eastern boundary, in the southern portion, and in the northern portion near La Paz Sports Park and adjacent to Alicia Parkway. This community was dominated by black mustard and other non-native species, such as short-pod mustard (*Hirschfeldia incana*) and Russian thistle.

3.2.10 Non-native Herbaceous Cover/Coyote Brush Chaparral

Non-native herbaceous cover/coyote brush chaparral is dominated by non-native species as described in Section 3.2.9. above. However, there is a large component of species associated with coyote brush chaparral consistent with the community described in Section 3.2.2. above.

The study area supports 3.79 acres of non-native herbaceous cover/coyote brush chaparral in two large patches located near the eastern boundary of the study area. Species observed in this community included black mustard, short-pod mustard, Russian thistle, coyote brush, and perennial pepperweed.

3.2.11 Ornamental

Ornamental vegetation is characterized as stands of naturalized trees and shrubs, many of which are also used in landscaping.

Ornamental vegetation was observed along the northeastern bank of Sulphur Creek Reservoir and along the baseball fields at the northeastern corner of the study area. This community totals 0.96 acre on the study area. Ornamental species observed included acacia, Aleppo pine (*Pinus halepensis*), Indian hawthorn (*Rhaphiolepis indica*), and Deodar cedar (*Cedrus deodara*).

3.2.12 Park

Parks include open recreational areas that support landscape vegetation and/or turfgrass, such as greenbelts, golf courses, and city and county parks.

The majority of the study area was mapped as park, which totals 16.76 acres. The park areas were highly disturbed from recreational activities and supported a low diversity of plant species. These areas were dominated by turfgrass, such as a Bermuda grass (*Cynodon dactylon*). Other species observed included ornamental trees, such as Aleppo pine and Peruvian pepper tree (*Schinus molle*).

3.2.13 Open Water

Open water includes perennial bodies of fresh water, such as lakes, ponds, rivers, and streams, that support less than 10 percent of vegetative cover.

Open water totaled 4.00 acres and was observed along the southwestern boundary of the study area. Mapped open water was associated with Sulphur Creek Reservoir.

3.2.14 Developed

Developed land is where permanent structures and/or pavement have been placed, which prevents the growth of vegetation, or where landscaping is clearly tended and maintained.

Developed areas were found in the northern and southern portions of the study area, totaling 8.90 acres. Developed areas included parking lots, buildings, and paved roads within the park, as well as ballfields and parking lots associated with the La Paz Sports Park in the northern portion of the study area.

3.2.15 Disturbed

Disturbed habitat includes land cleared of vegetation (e.g., dirt roads) or actively maintained or heavily disturbed areas that are mostly unvegetated but may support scattered non-native plant species, such as ornamentals or ruderal exotic species that take advantage of disturbance. Disturbed habitat is similar to the non-native vegetation community described above, although disturbed areas generally supports little to no vegetative cover.

Disturbed areas totaling 3.61 acres were observed throughout the study area and were mostly associated with pedestrian trails. The disturbed areas were unvegetated and consisted of compacted soils.

3.3 JURISDICTIONAL WATERS AND WETLANDS

Two major drainage features occur within the study area, including Sulphur Creek and Narco Channel. Sulphur Creek and Narco Channel are heavily disturbed drainage features with largely developed upstream watersheds within the Aliso Creek Watershed. The study area also supports four small tributaries to Sulphur Creek (Tributaries A through D). The drainage features are described in detail below. The study area supports approximately 5.81 acres of USACE/RWQCB WUS and 12.34 acres of CDFW jurisdictional streambed and riparian vegetation (Figure 6-6D, *Jurisdictional Features*; Table 2, *Jurisdictional Features*). Potential wetland WUS were observed throughout the study area based on the presence of obligate hydrophytic vegetation, totaling approximately 0.94 acre. However, a formal wetland delineation was not warranted since project impacts would avoid areas identified as potential wetland.

Table 2
JURISDICTIONAL FEATURES[1]

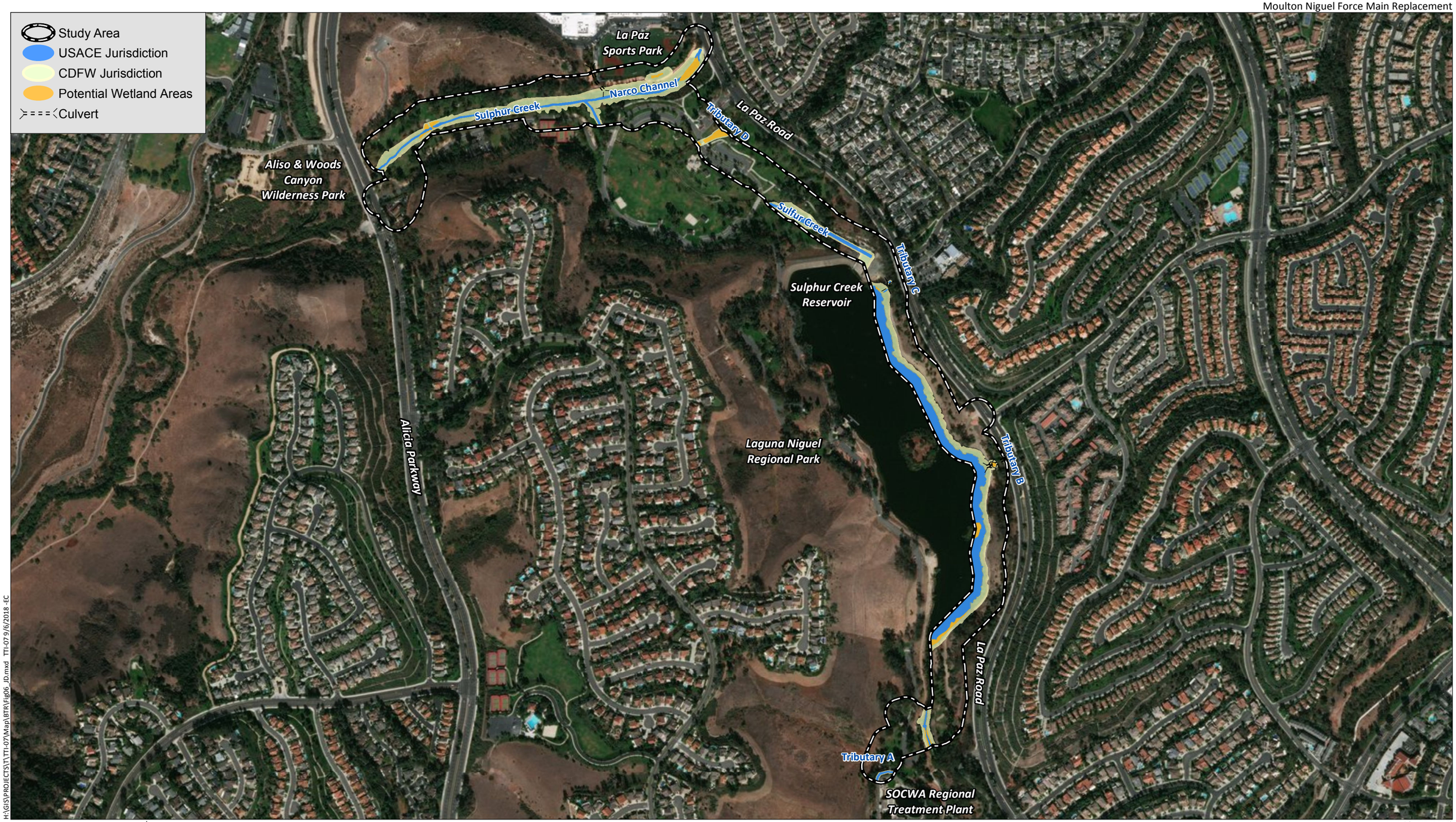
Drainage	U.S. Army Corps of Engineers (USACE)/Regional Water Quality Control Board (RWQCB) Acres[2] (wetland)[3]	CDFW Acres[2]
Sulphur Creek	5.16 (0.47)	9.93
Narco Channel	0.43 (0.28)	2.16
Tributary A	0.03	0.03
Tributary B	0.02 (0.02)	0.03
Tributary C	<0.01 (<0.01)	<0.01
Tributary D	0.17 (0.17)	0.19
TOTAL	**5.81 (0.94)**	**12.34**

1 Jurisdictional acreages overlap and are not additive (e.g., USACE/RWQCB acreages are included in the CDFW acreages.
2 Acreage is rounded to the nearest hundredths.
3 Acreages in parentheses indicate jurisdictional acreage that was identified as potential wetland.

3.3.1 Sulphur Creek

Sulphur Creek is a USGS mapped blueline stream that originates within heavily developed hillsides located approximately 0.85 mile to the southwest of the study area. The course of Sulphur Creek has been severely modified from its natural state, most notably in the 1960s when a portion of the creek was dammed to create Sulphur Creek Reservoir (Historic Aerials 1967). Most of the creek within the park has been either concrete-lined or armored. Sulphur Creek enters the study area as a soft-bottomed channel near the southern extent of the study area. The creek flows north through the study area for approximately 250 feet. Sulphur Creek exits the study area and flows parallel to the western boundary until the creek reaches the Sulphur Creek Reservoir. The study area contains a portion of the eastern shore of the reservoir, although the majority of the study area is located to the east of the reservoir. At the northern extent of the reservoir above the spillway, Sulphur Creek reforms as a concrete-lined channel where it also accepts flows from a storm drain that enters from under La Paz Road. Sulphur Creek flows northwest within the study area for approximately 425 feet, exiting the study area and reentering for another 125 feet at an Arizona Crossing that is a part of the park's public roadways. Sulphur Creek continues to flow northwest outside of the study area, where it enters at the southern boundary of the northern extent of the study area where Sulphur Creek and Narco Channel converge. From this confluence, Sulphur Creek flows west within the study area for approximately 1,500 feet until it exits at the western boundary of the northern extent of the study area. After exiting the study area, Sulphur Creek crosses under Alicia Parkway and drains into Aliso Creek, approximately 750 feet to the southwest of the study area. Aliso Creek ultimately drains into the Pacific Ocean approximately 3.5 miles to the southwest of the study area. The vegetation within Sulphur Creek is a mixture freshwater marsh, southern willow scrub, and mule fat scrub. Vegetation directly adjacent to the eastern shore of Sulphur Creek Reservoir is primarily freshwater marsh. The banks support a mixture of southern willow scrub, coyote brush scrub, and ornamental trees (including stands of eucalyptus). Mapped soils within Sulphur Creek and the banks of Sulphur Creek Reservoir include soils of the Alo clay and Sorrento loam series.

Within the study area, Sulphur Creek supports approximately 5.16 acres of USACE/RWQCB WUS, of which roughly 0.47 acre was identified as potential wetland. In addition, Sulphur Creek supports approximately 9.93 acres of CDFW jurisdictional streambed and riparian vegetation.



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0 625 Feet

Source: Aerial (NAIP, 2016)

HELIX Environmental Planning

Jurisdictional Features

Figure 6

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0 175 Feet

Source: Aerial (NAIP, 2016)

HELIX Environmental Planning

Jurisdictional Features

Figure 6A

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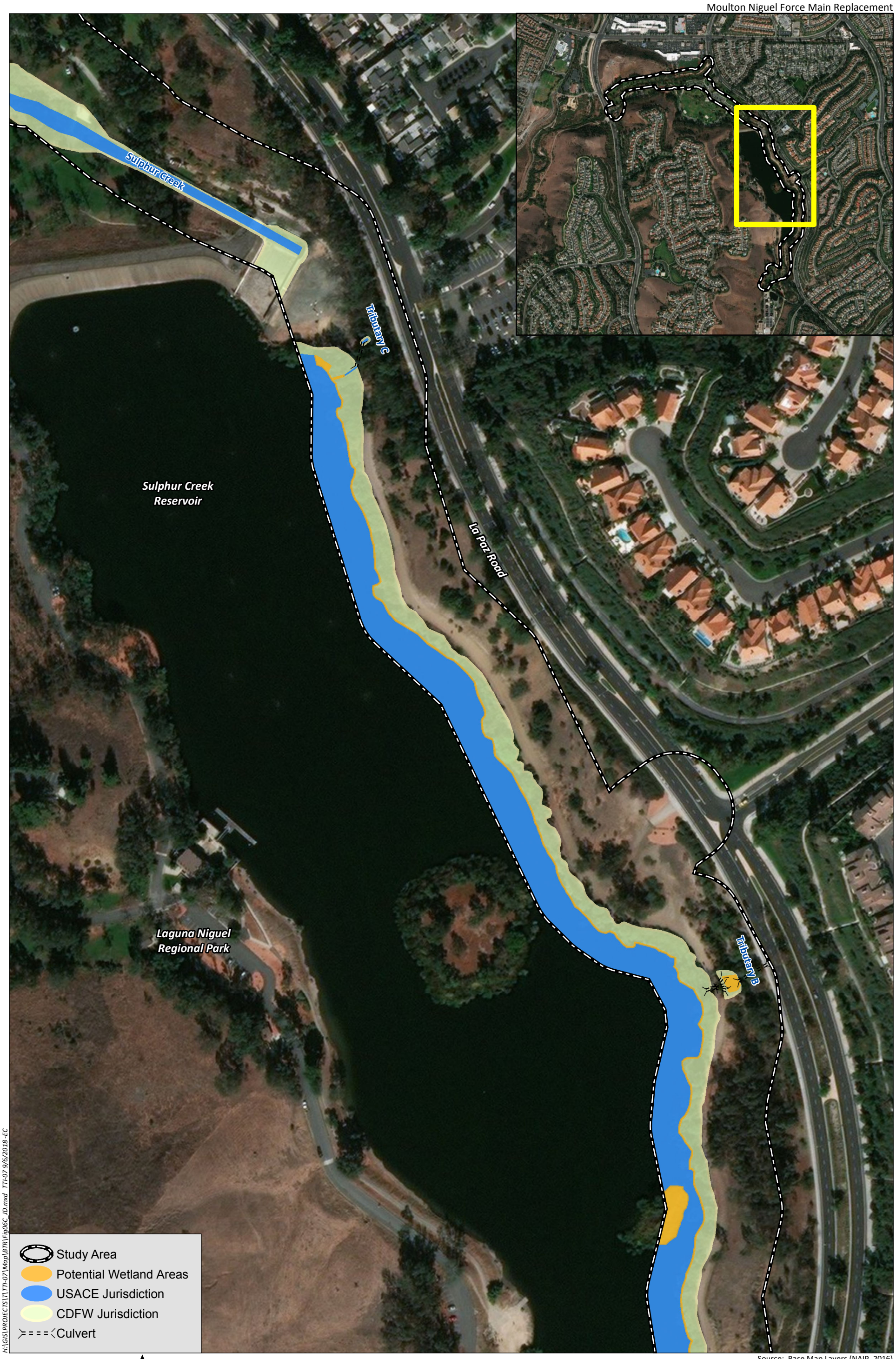
Source: Aerial (NAIP, 2016)

HELIX Environmental Planning

Jurisdictional Features

Figure 6B



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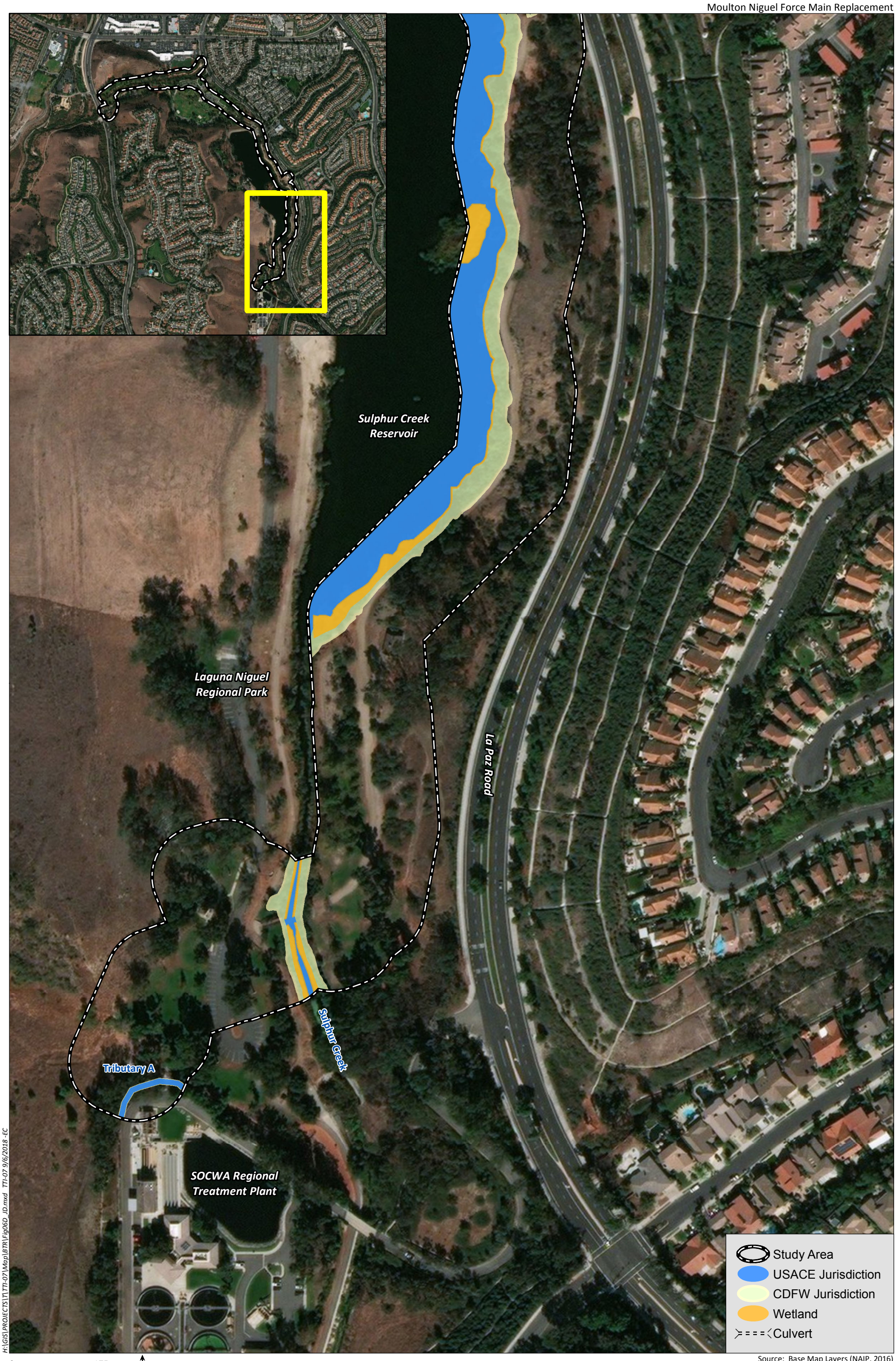
Source: Base Map Layers (NAIP, 2016)

HELIX Environmental Planning

Jurisdictional Features and Potential Wetlands

Figure 5C



Source: Base Map Layers (NAIP, 2016)

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HELIX Environmental Planning

Jurisdictional Features

Figure 6D

3.3.2 Narco Channel

Narco Channel is an earthen and rock-lined trapezoidal channel that enters the study area at the most northeastern portion from under La Paz Road. The channel conveys nuisance flows and storm water runoff from the adjacent developed areas. The channel flows southwest within the study area for approximately 800 feet, where it eventually drains into Sulphur Creek. Prior to 2007, the channel was mostly unvegetated. The Narco Channel Restoration project was completed in 2008. Restoration included channel dredging, bank regrading, widening, terracing, and planting native wetland riparian vegetation within the channel (County of Orange 2014). Mapped communities within Narco Channel include southern willow scrub and freshwater marsh. Mapped soils within the channel included Basanko clay, Cropley clay, Sorrento clay loam, and Sorrento loam.

Within the study area, Narco Channel supports approximately 0.43 acre of USACE/RWQCB WUS, of which roughly 0.28 acre was identified as potential wetland. In addition, Narco Channel supports approximately 2.16 acre of CDFW jurisdictional streambed and riparian vegetation.

3.3.3 Tributary A

The southern portion of the study area supports a concrete channel. The concrete channel appears to convey sheet flows from the hillsides west of the SOCWA Regional Treatment Plant. The concrete channel enters the study area in the southern most point and flows for approximately 230 feet before exiting the site. The concrete channel continues off site to the southeast for approximately 350 feet, where it ultimately confluences with Sulphur Creek.

Within the study area, the concrete channel supports approximately 0.03 acre of USACE/RWQCB WUS and 0.03 acre of CDFW jurisdictional streambed and riparian vegetation.

3.3.4 Tributary B

A small tributary to Sulphur Creek Reservoir (Tributary B) is located between La Paz Road and Sulphur Creek Reservoir in the southeastern portion of the study area. Tributary B appears to be fed by nuisance flows from the adjacent development to the east. Tributary B enters the study area from underneath La Paz Road and flows west within a storm drain until it daylights approximately 65 feet west of La Paz Road. The Tributary then flows above ground for approximately 30 feet before entering a corrugated metal pipe (CMP) culvert and continuing under the park trail where flows outlet into Sulphur Creek Reservoir.

Within the study area, Tributary B supports 0.02 acre of USACE/RWQCB WUS, all of which were identified as potential wetland. Tributary B also supports approximately 0.03 acre of CDFW jurisdictional streambed and riparian vegetation.

3.3.5 Tributary C

A small tributary to Sulphur Creek Reservoir (Tributary C) is located between La Paz Road and Sulphur Creek Reservoir in the central portion of the study area. Tributary C also appears to be fed by nuisance flows from the adjacent development to the east. Tributary C enters the study area from underneath La Paz Road and flows southwest within a storm drain until it daylights approximately 70 feet west of La Paz Road. The tributary then flows above ground for approximately 20 feet before entering a CMP

culvert and continuing under the park trail where flows exit the pipe and continue for approximately 60 feet prior to its confluence with Sulphur Creek Reservoir.

Within the study area, Tributary C supports less than 0.01 acre of USACE/RWQCB WUS, of which less than 0.01 acre were identified as potential wetland. Tributary C also supports less than 0.01 acre of CDFW jurisdictional streambed and riparian vegetation.

3.3.6 Tributary D

A small tributary to Sulphur Creek (Tributary D) is located near the park entrance in the northwestern portion of the study area. Drainage A enters the study area from underneath La Paz Road and flows southwest within the study area for approximately 200 feet, exiting the study area and ultimately flowing into Sulphur Creek 400 feet to the southwest of the study area.

Within the study area, Tributary D supports approximately 0.17 acre of USACE/RWQCB WUS, all of which were identified as potential wetland. Tributary D also supports approximately 0.19 acre of CDFW jurisdictional streambed and riparian vegetation.

3.4 PLANTS

HELIX identified a total of 158 plant species within the study area during surveys to date, of which 88 (56 percent) are non-native species (Appendix A).

3.5 ANIMALS

A total of 89 animal species were identified on the study area during biological surveys, including 3 invertebrate species, 1 amphibian species, 2 reptile species, 81 bird species, and 2 mammal species (Appendix B).

3.6 HABITAT AND WILDLIFE CORRIDOR EVALUATION

Wildlife corridors connect otherwise isolated pieces of habitat and allow movement or dispersal of plants and animals. Corridors can be local or regional in scale; their functions may vary temporally and spatially based on conditions and species presence. Local wildlife corridors allow access to resources such as food, water, and shelter within the framework of their daily routine. Animals use these corridors, which are often hillsides or tributary drainages, to move between different habitats. Regional corridors provide these functions over a larger scale and link two or more large habitat areas, allowing the dispersal of organisms and the consequent mixing of genes between populations.

The study area is located within the Laguna Niguel Regional Park. Although the study area consists mostly of maintained park areas, Sulphur Creek and Narco Channel support southern willow scrub, mule fat scrub, and fresh water marsh that provide habitat and refuge for wildlife. Coast live oak woodland, coyote brush chaparral, eucalyptus woodland, and ornamental vegetation also occur within the study area and support a number of shrubs and trees that provide habitat for wildlife. Non-native herbaceous cover supports mostly short-pod mustard, which may also provide low value foraging habitat for some bird species.

As previously described, corridors can be local or regional in scale. The majority of the study area and surrounding areas are highly urbanized and support limited cover that would facilitate wildlife movement. Although Sulphur Creek Reservoir has tributaries that are blueline streams and is a tributary to Aliso Creek, it is highly constrained and disturbed by adjacent development, heavy park use, and fuel modification. Sulphur Creek surfaces approximately 2.34 miles upstream of the study area and is constrained on both sides by development. Multiple roads confine movement through the drainage, including Moulton Parkway, Nueva Vista, La Paz Road, La Plata Drive, and Central Park Drive. Sulphur Creek has also been fully channelized approximately 1,600 feet upstream of the study area adjacent to the SOCWA Regional Treatment Plant, which is regularly maintained and supports little to no vegetation in this portion. The upstream portion of Narco Channel occurs underground, and surfaces within the study area.

The study area is not considered a regional wildlife corridor since it does not directly connect two or more large blocks of habitat that would otherwise be fragmented or isolated from one another. The study area is located within a highly-trafficked area and is surrounded by existing development. The study area is not within any wildlife corridors or linkages identified by the South Coast Missing Linkages Project (South Coast Wildlands 2008). The nearest wildlife movement corridor to the study area identified by the South Coast Missing Linkages Project is the Santa Ana-Palomar Connection located approximately 40 miles to the southeast of the study area. The study area is not within any area identified as a NCCP/HCP Special Linkage (RJMC 1996). The nearest special linkage identified by the NCCP/HCP is the Shady Canyon Special Linkage located approximately 5 miles to the northwest of the study area (Figure 7, *NCCP/HCP Context*).

While the study area is not considered a regional wildlife movement corridor, the study area does support habitat suitable for local wildlife movement. Although urbanized, wildlife could move between the study area and Aliso and Woods Canyon Wilderness Park via Sulphur Creek by passing through the box culvert under Alicia Parkway. However, most wildlife movement through the box culvert would likely occur at night since the upstream portions of Sulphur Creek and Narco Channel are bounded by a manicured, heavily-trafficked regional park and La Paz Sports Park, which are both open seven days a week. Common mammals that are adapted to human disturbance (e.g., raccoon [*Procyon lotor*], skunk [*Mephitis* sp.], cottontail rabbits [*Sylvilagus* spp.], and coyote [*Canis latrans*]) may use the study area for local movement within the area. Common amphibian species, such as Baja California tree frog (*Pseudacris hypochondriaca*), may use the study area and upstream portions of Sulphur Creek for juvenile dispersal. Birds species may fly over surrounding development to nest and/or forage within study area. However, movement of larger animals (e.g., mountain lion [*Puma concolor*]) through the study area is not expected since the study area is surrounded by heavy development within a heavily-trafficked area and is mostly surrounded by existing development. Therefore, the study area supports opportunities for local wildlife movement of smaller animals and birds, but does not function as wildlife corridor since it does not directly connect to two or more blocks of large habitat.

3.7 SENSITIVE BIOLOGICAL RESOURCES

3.7.1 Sensitive Vegetation Communities/Habitats

Sensitive vegetation communities/habitats are considered either rare within the region or sensitive by CDFW (CDFW 2018b). Communities are given a Global (G) and State (S) ranking on a scale of 1 to 5. Communities afforded a rank of 5 are most common while communities with a rank of 1 are considered highly periled. The CDFW considers sensitive communities as those with a rank between S1 and S3.

The study area supports one sensitive plant community. Southern willow scrub is considered a sensitive habitat pursuant to CDFW. A total of 3.12 acres of southern willow scrub was mapped on the study area.

3.7.2 Rare Plant Species

Rare plant species are uncommon or limited in that they: (1) are only found in the Orange County region; (2) are a local representative of a species or association of species not otherwise found in the region; or (3) are severely depleted within their ranges or within the region. Rare plant species include those species listed by CNPS with a CRPR of 1, 2, or 3 or federally and state listed endangered and threatened species.

A total of 16 rare plant species were recorded within the San Juan Capistrano quadrangle database search conducted on CNDDB (CDFW 2018a) and CNPS (CNPS 2018). These species are included in Appendix I, *Rare Plant Species Potential to Occur.* Of the 16 rare plant species recorded within the vicinity of the study area, eight species were considered have no potential to occur on the study area based on geographic range, elevation range, and/or lack of suitable habitat on the study area. The remaining eight species were considered to have a potential to occur on the study area, primarily based on the presence of southern willow scrub, fresh water marsh, and chaparral habitats (see Appendix I). These species include intermediate mariposa lily (*Calochortus weedii* var. *intermedius*), summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*), Laguna Beach dudleya (*Dudleya stolonifera*), San Diego marsh elder (*Iva hayesiana*), Allen's pentachaeta (*Pentachaeta aurea* ssp. *allenii*), south coast branching phacelia (*Phacelia ramosissima* var. *austrolitoralis*), white rabbit-tobacco (*Pseudognaphalium leucocephalum*), and Nuttall's scrub oak (*Quercus dumosa*).

A spring rare plant survey was conducted on May 11, 2018, and a summer rare plant survey was conducted in August 17, 2018. San Diego marsh elder (CRPR 2B.2) was observed in the northern portion of the study area adjacent to Sulphur Creek. A total of two individuals were observed during the summer rare plant survey (Figure 8, *San Diego Marsh Elder Locations*). The remaining seven rare plant species were not detected and are presumed absent from the study area.

3.7.3 Sensitive Animal Species

Sensitive animal species include federally and state listed endangered and threatened, candidate species for listing by USFWS or CDFW, and/or are species of special concern (SSC) pursuant to CDFW.

A total of 18 sensitive animal species were recorded within the San Juan Capistrano database search conducted on CNDDB (CDFW 2018a). These species are included in Appendix J, *Sensitive Animal Species Potential to Occur.* An evaluation of each sensitive animal species' potential to occur on the study area is also provided in Appendix J. Of the 18 sensitive animal species recorded within the vicinity of the study area, three species were considered to have no potential to occur on the study area due to lack of suitable habitat. One species (grasshopper sparrow [*Ammodramus savannarum*]) is not expected to occur due to lack of suitable habitat for residence and/or breeding but may disperse through or across the study area.

A total of four species were determined to have a low potential to occur on the study area based on the presence of low quality habitat, limited acreage of habitat, and lack of recent observations within the immediate vicinity of the study area. All of the species with a low potential to occur are SSC, including

Study Area

NCCP/HCP

County of Orange Central/Coastal Subregion

Orange County Central Coastal HCP Reserve

Status

- Existing Use
- Reserve
- Conservation Easement
- Non-Reserve Open Space
- Special Linkage

0 2 Miles

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Source: Aerial (NAIP, 2016)

HELIX Environmental Planning

NCCP/HCP Context

Figure 7

Source: Aerial (NearMap, 2017)

HELIX Environmental Planning

San Diego Marsh Elder Locations

Figure 8

arroyo chub (*Gila orcuttii*), California glossy snake (*Arizona elegans occidentalis*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), and coast horned lizard (*Phrynosoma blainvillii*).

Four species were determined to have a moderate potential to occur based on the presence of habitat that was either low-quality or limited in size, and observations in the immediate vicinity of the study area. These species include southwestern pond turtle (*Emys marmorata*), two-striped gartersnake (*Thamnophis hammondii*), white-tailed kite (*Elanus leucurus*), and western mastiff bat (*Eumops perotis californicus*; foraging potential only). Southwestern pond turtle, two-striped gartersnake, and western mastiff bat are SSC and white-tailed kite is a state fully protected (SFP) species. Southwestern pond turtle was recorded on the study area in 1970 (CDFW 2018a). However, the CNDDB record notes that the lake was drained and the spillway was altered between 1971 and 1972, which may have buried and extirpated that population. No other southwestern pond turtle observations have been recorded within the study area since 1970.

One species (tricolored blackbird [*Agelaius tricolor*]) has a high potential to occur due to the presence of suitable habitat and recent observations on the study area. Tricolored blackbird is a state candidate species, which is considered a "State-listed" species pursuant to CESA. This species was reported on CNDDB at Sulphur Creek Reservoir between 1994 and 2000. However, tricolored blackbird was not noted during a survey conducted in 2014 (CDFW 2018a). A number of sightings have also been reported on eBird at Laguna Niguel Regional Park between 1997 and 2016 (eBird 2018).

Focused surveys were conducted for four sensitive bird species with the potential to occur on the study area, including BUOW, CAGN, SFWL, and LBVI. Three of these species (BUOW, CAGN, and SFWL) are presumed absent from the study area based on negative focused survey results. One species (LBVI) is presumed present on the study area based on positive focused survey results. Yellow warbler (*Setophaga petechia*), a SSC, was also detected during the LBVI surveys and is presumed present. Survey results are discussed further below.

Burrowing Owl

The BUOW is a SSC. A focused survey for BUOW was conducted between March and June 2018. No BUOW were observed during the surveys; therefore, this species is presumed absent from the study area. The detailed report findings for the BUOW surveys are included as Appendix E.

Coastal California Gnatcatcher

The CAGN is a federally threatened species and SSC. A focused survey for CAGN was conducted between March and June 2018. No CAGN were observed during the surveys; therefore, this species is presumed absent from the study area. The detailed report findings for the CAGN surveys are included as Appendix F.

Southwestern Willow Flycatcher

The SFWL is a federally and state endangered species. A focused survey for SWFL was conducted between May and July 2018. No SWFL were observed during the surveys; therefore, this species is presumed absent from the study area. The detailed report findings for the SWFL surveys are included as Appendix G.

Least Bell's Vireo

The LBVI is a federally and state endangered species. A focused survey for LBVI was conducted between April and July 2018. An LBVI pair was observed during the 2018 protocol surveys; therefore, this species is presumed present on the study area. The LBVI pair was detected in the central portion of the study area within the park landscaping, approximately 1,000 feet to the southeast of the park entrance and 250 feet north of Sulfur Creek Reservoir (Figure 9, *Least Bell's Vireo Locations*). The detailed report findings for the LBVI surveys are included as Appendix H.

4.0 REGIONAL AND REGULATORY CONTEXT

Biological resources located within the study area are subject to regulatory review by federal, State, and local agencies. Biological resources-related laws and regulations that apply to the project include the Federal Endangered Species Act (FESA), Migratory Bird Treaty Act (MBTA), CWA, California Endangered Species Act (CESA), and CFG Code.

4.1 FEDERAL REGULATIONS

4.1.1 Federal Endangered Species Act

Administered by the USFWS, the FESA provides the legal framework for the listing and protection of species (and their habitats) identified as being endangered or threatened with extinction. Actions that jeopardize endangered or threatened species and the habitats upon which they rely are considered a "take" under the ESA. Section 9(a) of the ESA defines take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." "Harm" and "harass" are further defined in federal regulations and case law to include actions that adversely impair or disrupt a listed species' behavioral patterns.

Sections 4(d), 7, and 10(a) of the FESA regulate actions that could jeopardize endangered or threatened species. Section 7 describes a process of federal interagency consultation for use when federal actions may adversely affect listed species. A biological assessment is required for any major construction activity if it may affect listed species. In this case, take can be authorized via a letter of biological opinion issued by the USFWS for non-marine related listed species issues. A Section 7 consultation is required when there is a nexus between federally listed species' use of the site and impacts to USACE jurisdictional areas. Section 10(a) allows issuance of permits for "incidental" take of endangered or threatened species. The term "incidental" applies if the taking of a listed species is incidental to and not the purpose of an otherwise lawful activity.

4.1.2 Federal Clean Water Act

Federal wetland regulation (non-marine issues) is guided by the Rivers and Harbors Act of 1899 and the CWA. The Rivers and Harbors Act deals primarily with discharges into navigable waters, while the purpose of the CWA is to restore and maintain the chemical, physical, and biological integrity of all WUS. Permitting for projects filling WUS, including wetlands and vernal pools, is overseen by USACE under Section 404 of the CWA. Projects may be permitted on an individual basis or may be covered under one of several approved Nationwide Permits. Individual Permits are assessed individually based on the type of action, amount of fill, etc. Individual Permits typically require substantial time (often longer than

Study Area

Least Bell's Vireo (*Vireo Bellii pusillus*)

Pair #1

Brown-headed Cowbird (*Molothrus ater*)

Observation

Least Bell's Vireo Habitat

Coyote Brush Chaparral/Southern Willow Scrub

Mule Fat Scrub

Southern Willow Scrub

Aliso Creek Road

La Paz Sports Park

La Paz Road

Pair #1
04/27/18 – single male
05/08/18 – not detected
05/18/18 – single male
05/29/18 – single male
06/08/18 – single male
06/19/18 – pair with nest
07/03/18 – single male
07/11/18 – not detected

Sulphur Creek Reservoir

Alicia Parkway

Laguna Niguel Regional Park

La Paz Road

SOCWA Regional Treatment Plant

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0 500 Feet

Source: Base Map Layers (SanGIS, 2016)

HELIX Environmental Planning

Least Bell's Vireo Locations

Figure 9

six months) to review and approve, while Nationwide Permits are pre-approved if a project meets the appropriate conditions. A CWA Section 401 Water Quality Certification, which is administered by the State Water Resources Control Board, must be issued prior to any 404 Permit.

4.1.3 Migratory Bird Treaty Act

All migratory bird species that are native to the United States or its territories are protected under the federal MBTA, as amended under the Migratory Bird Treaty Reform Act of 2004 (FR Doc. 05-5127). The MBTA is generally protective of migratory birds but does not actually stipulate the type of protection required. In common practice, the MBTA is used to place restrictions on disturbance of active bird nests during the nesting season, which is generally defined as February 15 to August 31 for songbirds. In addition, the USFWS commonly places restrictions on disturbances allowed near active raptor nests, which the nesting season is generally defined as January 15 to August 31.

4.1.4 Critical Habitat

As described by the FESA, critical habitat is the geographic area occupied by a threatened or endangered species essential to species conservation that may require special management considerations or protection. Critical habitat also may include specific areas not occupied by the species but that have been determined to be essential for species conservation.

Critical habitat does not occur on the study area. The nearest critical habitat to the study area is CAGN critical habitat, which is approximately two miles to the south (USFWS 2017a).

4.2 STATE REGULATIONS

4.2.1 California Environmental Quality Act

Primary environmental legislation in California is found in CEQA and its implementing guidelines (State CEQA Guidelines), which require that projects with potential adverse effects (i.e., impacts) on the environment undergo environmental review. Adverse environmental impacts are typically mitigated as a result of the environmental review process in accordance with existing laws and regulations.

4.2.2 California Endangered Species Act

The CESA is similar to the FESA in that it contains a process for listing of species and regulating potential impacts to listed species. Section 2081 of the CESA authorizes the CDFW to enter into a memorandum of agreement for take of listed species for scientific, educational, or management purposes. The golden eagle (*Aquila chrysaetos*) and white-tailed kite are considered SFP species. A SFP species may not be taken or possessed at any time, and no state licenses or permits may be issued for their take except for collecting the species necessary for scientific research and relocation of the bird species for the protection of livestock (Fish and Game Code Sections 3511, 4700, 5050, and 5515).

The Native Plant Protection Act (NPPA) enacted a process by which plants are listed as rare or endangered. The NPPA regulates the collection, transport, and commerce of plants that are listed. The CESA followed the NPPA and covers both plants and animals that are determined to be endangered or threatened with extinction. Plants listed as rare under NPPA were designated threatened under the CESA.

4.2.3 California Fish and Game Code

4.2.3.1 Protection of Raptor Species

Raptors (birds of prey) and owls and their active nests are protected by CFG Code Section 3503.5, which states that it is unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird unless authorized by the CDFW.

4.2.3.2 Streambed Alteration Agreement

The CFG Code (Section 1600 et seq.) requires an agreement with the CDFW for projects affecting riparian and wetland habitats through the issuance of a Streambed Alteration Agreement.

4.3 LOCAL REGULATIONS

4.3.1 Orange County Central and Coastal Subregion NCCP/HCP

The study area is located within the Orange County Central and Coastal Subregion NCCP/HCP, which is a multi-jurisdictional conservation plan that includes portions of Orange County and multiple cities within the County. Rather than addressing sensitive species on an individual basis, the NCCP/HCP focuses on conservation of California sagebrush scrub (CSS) and adjacent habitats. Using a habitat-based conservation approach allows regional protection of CSS, CSS-associated species, and other covered habitats as well as establishes a mechanism to fund and implement a reserve system. The NCCP/HCP habitat reserve system protects over 37,000 acres of habitat, including CSS, chaparral, grasslands, riparian, oak woodlands, cliff and rock, forest, and other habitats.

The NCCP/HCP allows Participating Entities to issue take permits for listed species so that individual applicants do not need to obtain their own permits from USFWS and/or CDFW. The Incidental Take Permit for the NCCP/HCP covers impacts to three target species that are the focus of the NCCP/HCP, including coastal California gnatcatcher, coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), and orange-throated whiptail (*Aspidoscelis hyperythra beldingi*). In addition to Target Species, the NCCP/HCP provides the conservation, protection, and management of 36 Identified Species and their habitats.

Although many of these species are not currently listed as endangered, threatened, or candidate species, the Incidental Take Permit would authorize impacts to these species if they become listed by the state in the future. Of the 36 Identified Species, 10 species are conditionally covered species, which require specific conditions to be met for the species to be considered covered under the NCCP/HCP.

The NCCP/HCP allows for Participating Entities to pay a fee for incidental take of species covered under plans. Although the study area falls within the NCCP/HCP subregion, MNWD is not a Participating Entity of the NCCP/HCP. Therefore, project activities are not covered under the plan. The project would need to ensure activities are not in conflict with the conservation plan.

5.0 PROJECT EFFECTS

This section describes potential direct and indirect impacts associated with the proposed project. Direct impacts immediately alter the affected biological resources such that those resources are eliminated

temporarily or permanently. Indirect impacts consist of secondary effects of a project, including noise, decreased water quality (e.g., through sedimentation, urban contaminants, or fuel release), fugitive dust, colonization of non-native plant species, animal behavioral changes, and night lighting. The magnitude of an indirect impact can be the same as a direct impact; however, the effect usually takes a longer time to become apparent.

The significance of impacts to biological resources present or those with potential to occur was determined based upon the sensitivity of the resource and the extent of the anticipated impacts. For certain highly sensitive resources (e.g., a federally listed species), any impact would be significant. Conversely, other resources that are of low sensitivity (e.g., species with a large, locally stable population in the region but declining elsewhere) could sustain some impact with a less than significant effect.

5.1 SENSITIVE SPECIES

5.1.1 Rare Plant Species

No Impacts

A total of eight of the 16 rare plant species recorded within the San Juan Capistrano quadrangle were not considered to have a potential to occur based on geographic range, elevation range, and/or lack of suitable habitat (see Appendix I). The remaining eight species were considered to have a potential to occur on the study area based on the presence of southern willow scrub, fresh water marsh, and chaparral habitats. Rare plant surveys were conducted in May and August 2018.

Seven of the eight rare plant species were not observed on the study area during focused surveys; therefore, these species are presumed absent from the study area. A total of two San Diego marsh elder (CRPR 2B.2) individuals were observed adjacent to Sulphur Creek (Figure 8). San Diego marsh elder does not carry a federal or state listing as threatened or endangered. No permanent impacts or temporary disturbance are proposed to the two San Diego marsh elder individuals and therefore no mitigation is required.

5.1.2 Sensitive Animal Species

Less than Significant Impacts with Mitigation Incorporated

Of the 18 animal species recorded within the San Juan Capistrano quadrangle, three species do not have a potential to occur on the study area due to lack of suitable habitat, and one species (grasshopper sparrow) is not expected to occur due to lack of suitable habitat for residence and/or breeding but may disperse through or across the study area (see Appendix J). Therefore, no significant impacts to these sensitive animal species are anticipated by the project.

Of the remaining 14 species, four species have a low potential to occur, four species have a moderate potential to occur, one species has a high potential to occur, three species are presumed absent, and two species are presumed present. These species are discussed in further detail below. No permanent impacts are proposed to suitable habitat for these species.

5.1.2.1 Low Potential Species

A total of four species were determined to have a low potential to occur on the study area based on the presence of low quality habitat, limited acreage of habitat, and lack of recent observations within the immediate vicinity of the study area. These species include arroyo chub, California glossy snake, coastal whiptail, and coast horned lizard.

All four species with a low potential to occur on the study area are SSC. No impacts to suitable habitat for arroyo chub are proposed; therefore, this species would not be impacted by the project. The project would result in temporary disturbance to small portions of low-quality habitat for California glossy snake, coastal whiptail, and coast horned lizard. No permanent impacts are proposed to suitable habitat for any of these species. Temporary disturbance is proposed to 0.01 acre of coyote brush chaparral, <0.01 acre of coyote brush chaparral/ornamental, and 0.11 acre of non-native vegetation/ coyote brush chaparral. Temporary disturbance to small areas of low-quality habitat would not result in a significant impact to these species.

5.1.2.2 Moderate Potential Species

A total of four species were determined to have a moderate potential to occur based on the presence of small areas of low-quality suitable habitat and recent observations within the immediate vicinity of the study area. These species include southwestern pond turtle, two-striped gartersnake, white-tailed kite, and western mastiff bat.

Southwestern pond turtle and two-striped garter snake are SSC. Although the study area supports suitable habitat for these species, no suitable habitat is present within the work areas. Since the work areas are adjacent to suitable habitat for these species, potential impacts could occur if an individual incidentally enters into the work areas. To avoid any incidental direct impacts to southwestern pond turtle and two-striped garter snake, an avoidance and minimization measure is provided in BIO-1 in Section 6.0 below to conduct clearance surveys and erect exclusionary fencing. The exclusionary fencing will be placed between suitable habitat and the active work areas to deter southwestern pond turtles and/or two-striped garter snake from entering the work area.

White-tailed kite is an SFP species. The study area does not support suitable foraging habitat, although suitable nesting habitat is present within the study area. White-tailed kites prefer to nest in the upper two-thirds of full-canopied trees (CDFW 2018a). A total of nine park trees are proposed to be removed by the project and will be replaced by MNWD in coordination with Orange County Parks (OC Parks). Trees proposed for removal include one dead western sycamore tree, one dead Gooding's black willow, two red river gum, two Aleppo pine, and three bottlebrush trees. These trees are located adjacent to a heavily-trafficked cement footpath within the park landscaping and most are not full-canopied trees. White-tailed kite has a low potential to nest in the red river gum and Aleppo pine trees that are proposed for removal, therefore the project could potentially result in a direct impact to this species. Photographs of trees proposed for removal are depicted in Appendix C, photographs 9-14. In addition, construction noise could indirectly impact any white-tailed kites that may be nesting within or adjacent to the work areas. Direct and/or indirect impacts to this species during the nesting season (January15 through August 31) would be a significant impact. White-tailed kite is protected under MBTA regulations, which is addressed in Section 5.4.2 below. To avoid potential direct and indirect impacts to white-tailed kite, an avoidance and minimization measure is provided as BIO-6 in Section 6.0 if vegetation removal or construction are proposed during the nesting season.

Western mastiff bat is a SSC. Although the study area supports suitable foraging habitat for this species, no suitable roosting habitat is present within or adjacent to the work areas. Therefore, no direct or indirect impacts to roosting western mastiff bat are anticipated by the project. Temporary disturbance to a small portion of suitable foraging habitat would be considered less than significant.

5.1.2.3 High Potential Species

Tricolored blackbird is a state candidate species, which is considered a "State-listed" species pursuant to CESA. The study area supports suitable nesting and foraging habitat for this species. Although the project would avoid direct impacts to this species' habitat, construction noise could impose indirect impacts. Indirect impacts to tricolored blackbird during the nesting season (March 15 through July 31) would be considered a significant impact. To avoid potential indirect impacts to tricolored blackbird, an avoidance and minimization measure is provided as BIO-2 in Section 6.0 below, which recommends pre-construction surveys if construction is proposed during the nesting season. If tricolored blackbird is observed during the pre-construction survey, additional avoidance and minimization measures would be required, as outlined in BIO-2.

5.1.2.4 Presumed Absent Species

Focused surveys for BUOW (SSC), CAGN (federally threatened and SSC), and SWFL (federally and state endangered species) were conducted in 2018. Survey results were negative, and these species are presumed absent from the study area. Therefore, no direct or indirect impacts are anticipated to these species.

Since the study area supports suitable habitat, a take avoidance survey is required prior to ground disturbance in accordance with CDFW's *Staff Report on Burrowing Owl Mitigation* (2012). An avoidance and minimization measure is included as BIO-3 in Section 6.0 below, which requires a take avoidance survey and avoidance of active nests and/or relocation of BUOW (if BUOW are observed).

5.1.2.5 Presumed Present Species

The LBVI is a federally and state endangered species. A LBVI pair was observed during a focused survey conducted in 2018. The project would trim canopy of 0.04 acre of LBVI habitat (0.03 acre of southern willow scrub and 0.01 acre of mule fat scrub) to allow access for construction equipment. The areas proposed for trimming are located along the perimeter of the suitable habitat, adjacent to walking trails, and represent a very small portion of the community within the study area, approximately 0.04 acre or 1 percent. Additionally, some of these areas may not require trimming since the park setting has resulted in willow trees with a high canopy and trimming will only be required to allow for construction vehicle clearance. While this would not result in a permanent direct impact to the species' habitat, this trimming would be considered a temporary direct impact to LBVI habitat. Mitigation measure BIO-4, included in Section 6.0 below, would be implemented to reduce this temporary direct impact through compensatory mitigation for temporal loss of 0.04 acre of suitable LBVI habitat and performing canopy trimming outside of the nesting season with an International Society of Arboriculture (ISA) certified arborist.

In addition, construction noise could impose indirect impacts to LBVI individuals that are adjacent to work areas. Temporary direct and/or indirect impacts to LBVI during the nesting season (March 15

through August 31) would be a significant impact. To avoid potential impacts to LBVI during the nesting season, an avoidance and minimization measure is provided as BIO-4 in Section 6.0.

Yellow warbler is a SSC. This species was detected during the LBVI focused survey. Since these species share the same habitat, direct temporary impacts to yellow warbler habitat would be offset by compensatory mitigation proposed for LBVI outlined in BIO-4. In addition, construction noise could impose indirect impacts to any individuals that are adjacent to work areas. Temporary direct and/or indirect impacts to yellow warbler during the nesting season (February 15 through August 31) would be a significant impact. Yellow warbler is protected under MBTA regulations, which is addressed in Section 5.4.2 below. Compliance with MBTA and implementation of the recommended avoidance and minimization measure BIO-6 discussed below would reduce potential indirect impacts to less than significant.

5.2 SENSITIVE VEGETATION COMMUNITIES

5.2.1 California Department of Fish and Wildlife Sensitive Vegetation Communities/Habitats

Less than Significant Impacts with Mitigation Incorporated

The study area supports native vegetation totaling 11.30 acres, including coast live oak woodland (0.20 acre), coyote brush chaparral (0.80 acre), coyote brush chaparral/southern willow scrub (0.69 acre), coyote brush chaparral /ornamental (0.86 acre), fresh water marsh (1.26 acres), mule fat scrub (0.59 acre), southern willow scrub (3.12 acres), and non-native herbaceous cover /coyote brush chaparral (3.79 acres). The remainder of the study area comprises eucalyptus woodland (6.53 acres), non-native herbaceous cover (2.92 acres), ornamental (0.96 acre), park (16.76 acres), open water (4.00 acres), developed (8.90 acres), and disturbed (3.61 acres).

Permanent impacts to vegetation are only proposed within the park land use type and would result in the removal of canopy totaling 0.01 acre. Temporary disturbance is proposed to 3.24 acres, including 0.01 acre of coyote brush chaparral, 0.01 acre of mule fat scrub, 0.03 acre of southern willow scrub, 0.06 acre of eucalyptus woodland, 0.14 acre of non-native herbaceous cover, 0.11 acre of non-native herbaceous cover /coyote brush chaparral, 1.78 acres of park, 0.29 acre of developed, and 0.81 acre of disturbed habitat. Proposed permanent impacts and temporary disturbance to vegetation communities are shown on Figures 10-10D, *Impacts to Vegetation and Land Uses* and summarized below in Table 3, *Impacts to Vegetation and Land Uses*.

As discussed above, the study area supports 3.12 acres of southern willow scrub, which is considered a sensitive community pursuant to CDFW (CDFW 2018b). Southern willow scrub is streambed-associated and is considered suitable LBVI habitat as well asCDFW jurisdiction. However, no permanent impacts are proposed to southern willow scrub and the 0.03 acre of temporary disturbance would only result in canopy trimming to allow access for machinery. Since southern willow scrub is considered suitable LBVI habitat as well as CDFW jurisdiction, the project would offset temporary impacts to 0.03 acre of southern willow scrub through compensatory mitigation. Compensatory mitigation for temporal loss of southern willow scrub is outlined in BIO-4 and BIO-5 included in Section 6.0 below.

Additional avoidance and minimization measures that would protect southern willow scrub from inadvertent impacts are outlined in BIO-1 included in Section 6.0 below.

Source: Aerial (NAIP, 2016)

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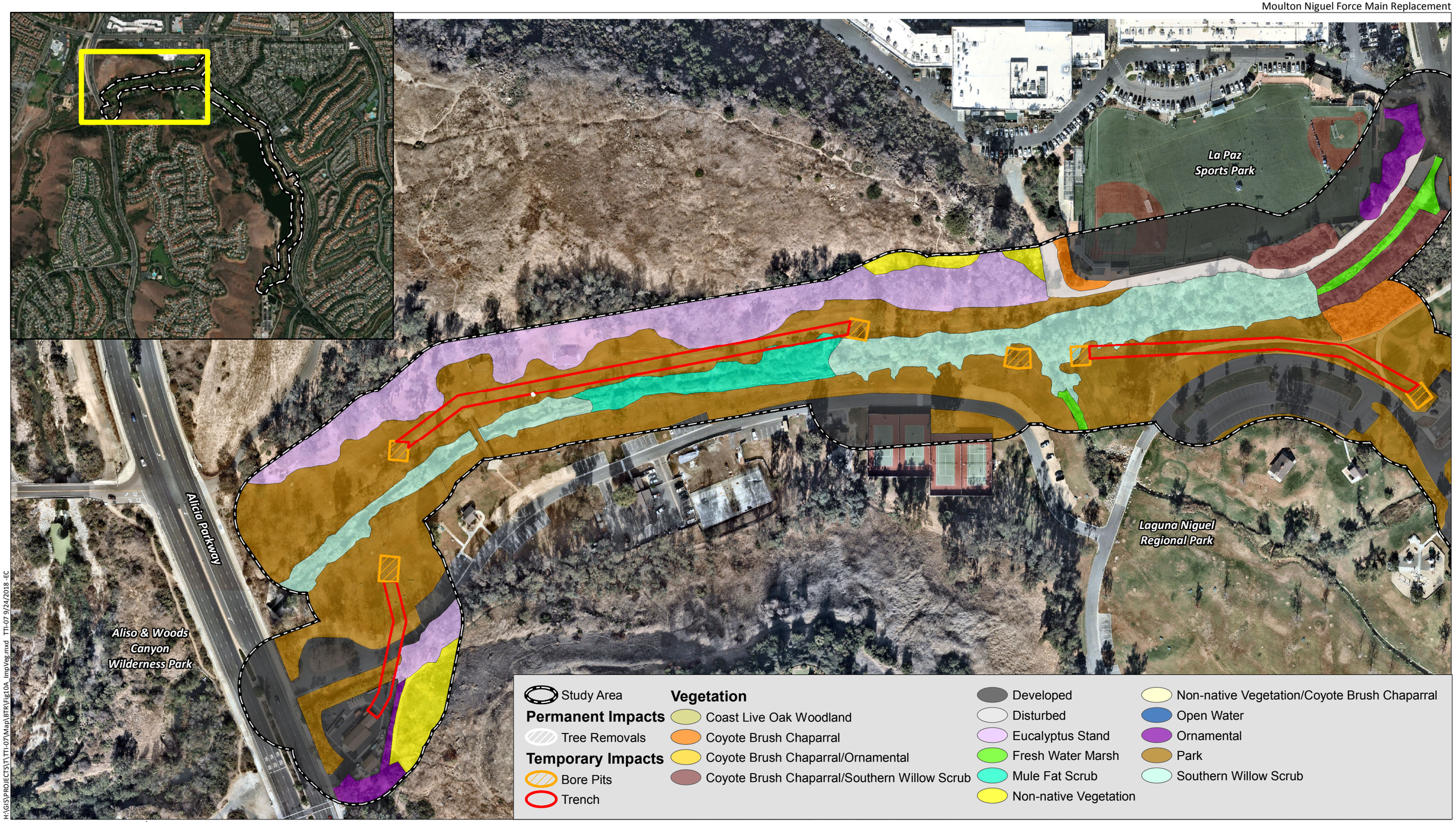
Impacts to Vegetation and Land Uses

Figure 10



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Source: Aerial (Nearmap, 2017)

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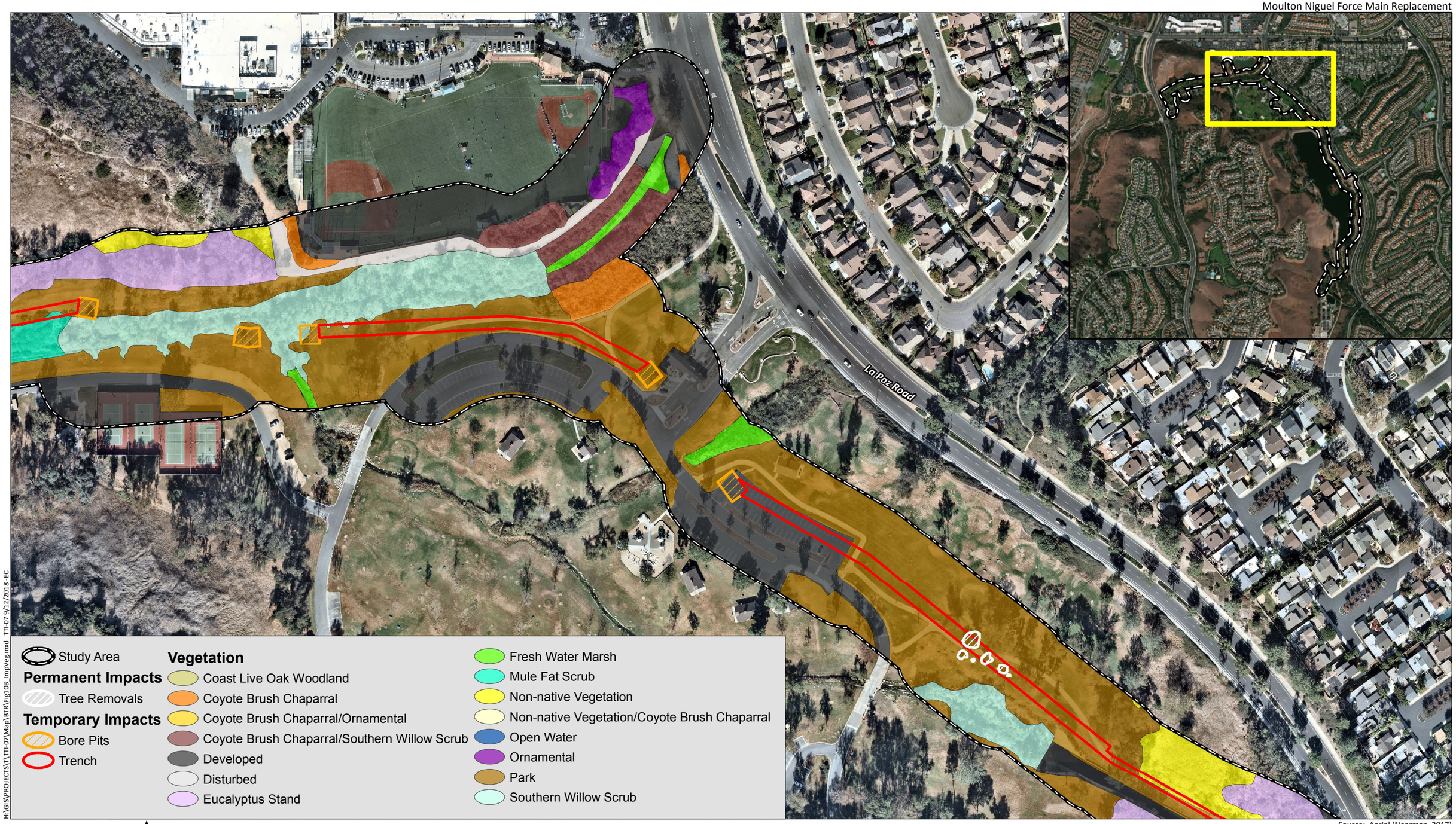
Impacts to Vegetation and Land Uses

Figure 10A

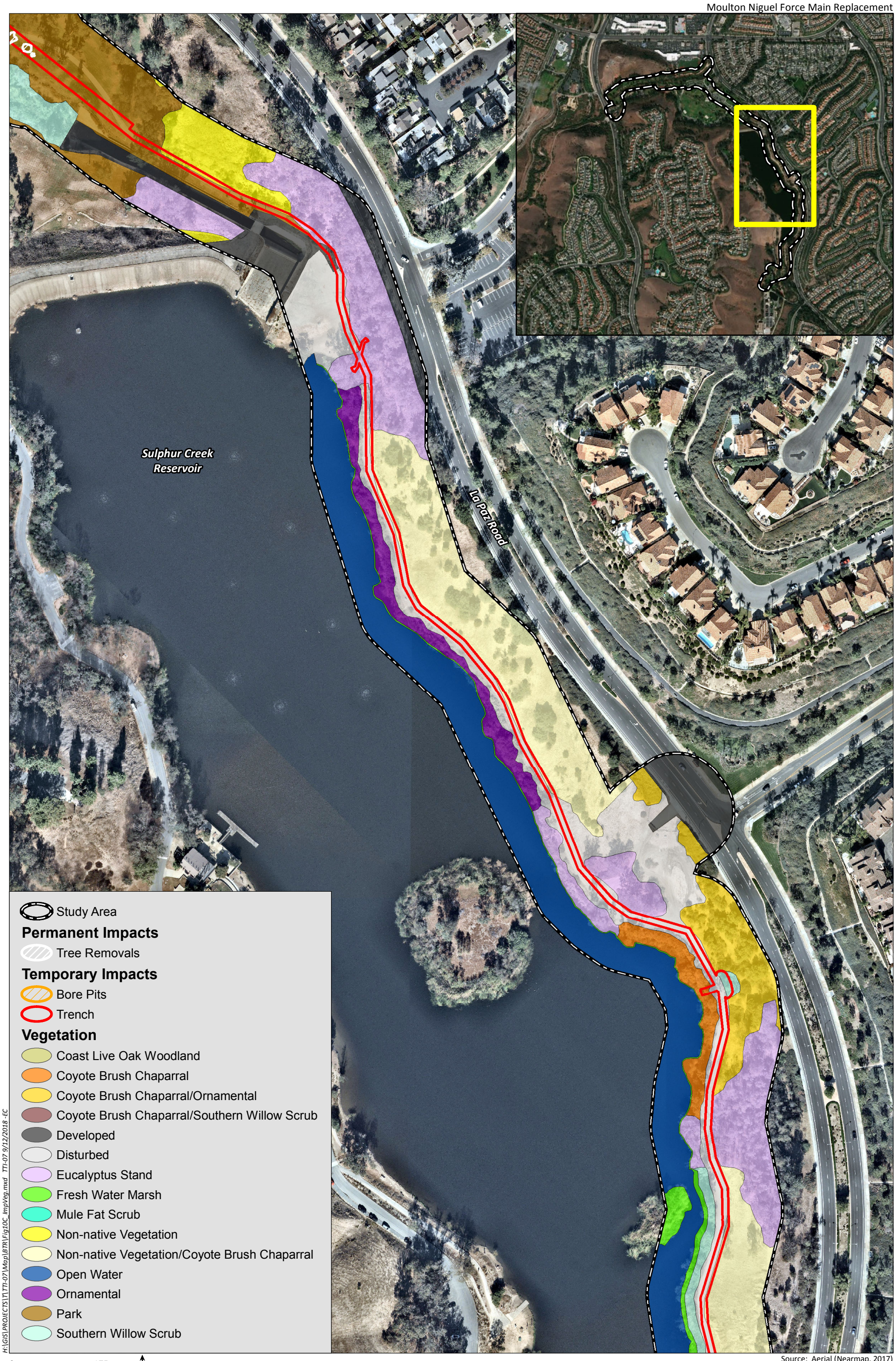


Source: Aerial (Nearmap, 2017)

HELIX Environmental Planning

Impacts to Vegetation and Land Uses

Figure 10B



Source: Aerial (Nearmap, 2017)

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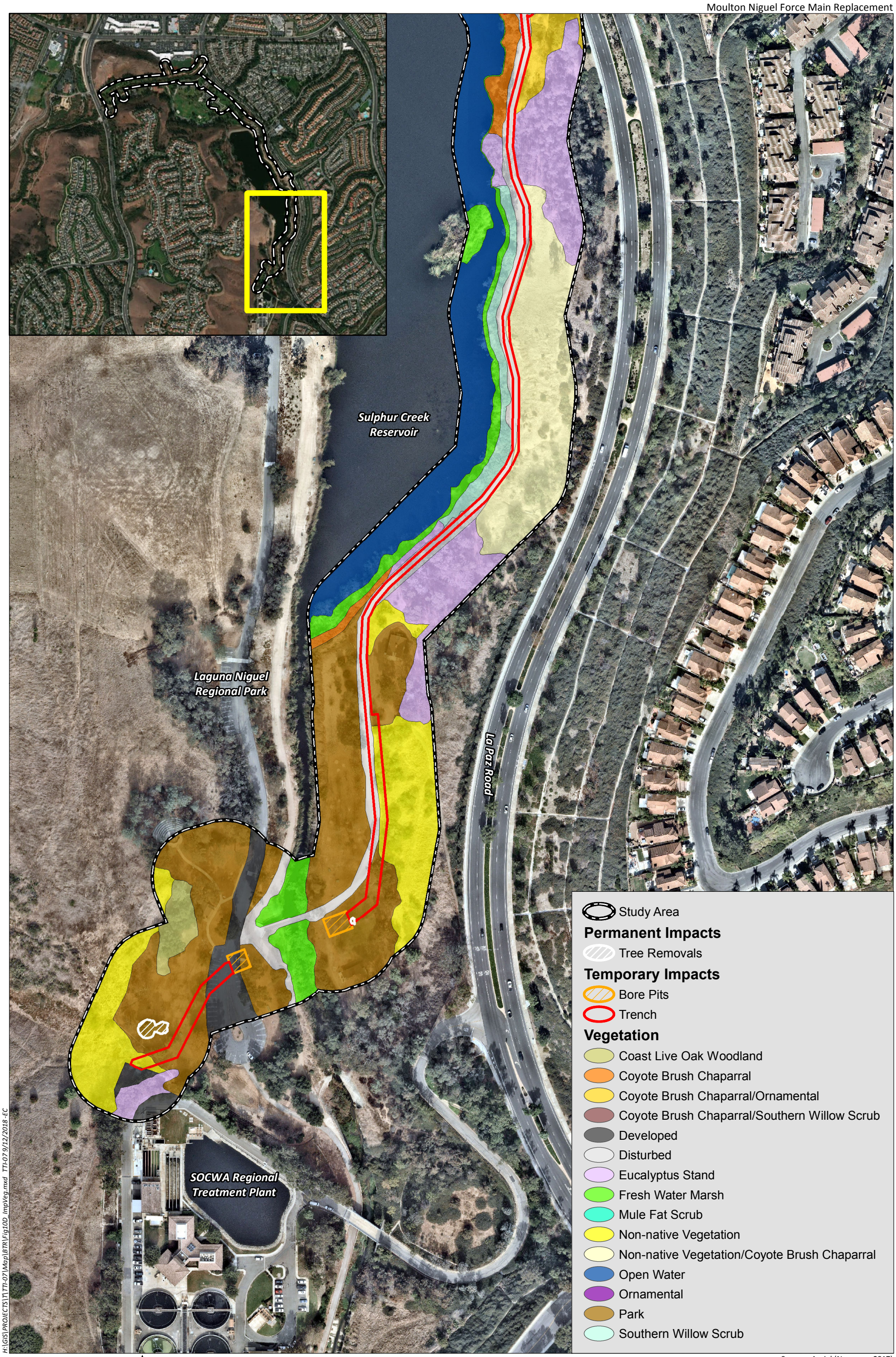
Impacts to Vegetation and Land Uses

Figure 10C



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Source: Aerial (Nearmap, 2017)

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Impacts to Vegetation and Land Uses

Figure 10D

Table 3
IMPACTS TO VEGETATION AND LAND USES

Vegetation Community	Existing (acres)	Temporary Disturbance (acres)	Permanent Impact (acres)
Coast Live Oak Woodland	0.20	0.00	0.00
Coyote Brush Chaparral	0.80	0.01	0.00
Coyote Brush Chaparral/Southern Willow Scrub	0.69	0.00	0.00
Coyote Brush Chaparral /Ornamental	0.86	0.00	0.00
Fresh Water Marsh	1.26	0.00	0.00
Mule Fat Scrub	0.59	0.01	0.00
Southern Willow Scrub	3.12	0.03	0.00
Eucalyptus Woodland	6.53	0.06	0.00
Non-native Herbaceous Cover	2.92	0.14	0.00
Non-native Herbaceous Cover /Coyote Brush Chaparral	3.79	0.11	0.00
Ornamental	0.96	0.00	0.00
Park	16.76	1.78	0.01
Open Water	4.00	0.00	0.00
Developed	8.90	0.29	0.00
Disturbed	3.61	0.81	0.00
TOTAL	**54.99**	**3.24**	**0.01**

5.2.2 California Department of Fish and Wildlife Riparian Habitat and Streambed

Less than Significant Impacts with Mitigation Incorporated

The study area supports drainages that are considered jurisdictional streambed pursuant to Section 1602 of the California Fish and Game Code, as regulated by CDFW. However, the project was designed to avoid permanent impacts to CDFW jurisdiction. Generally, CDFW does not require compensatory mitigation for minor temporary streambed impacts. Therefore, compensatory mitigation requirements for temporary project impacts are not anticipated as part of a future Section 1602 Streambed Alteration.

Although no permanent impacts are proposed to CDFW jurisdiction, the project would result in approximately 0.09 acre of temporary disturbance to CDFW jurisdiction within Sulphur Creek, Narco Channel, Tributary B and Tributary C (Figures 11-11D, *Impacts to Jurisdictional Features*; Table 4, *Temporary Disturbance to CDFW Jurisdiction*). Temporary disturbance to CDFW jurisdiction associated with trenching and culvert replacement would be returned to pre-project contours and trimmed canopy would be allowed to return to pre-project condition following completion of the project. The project would offset temporary impacts to 0.09 acre of CDFW jurisdiction through compensatory mitigation. Compensatory mitigation for temporal loss of CDFW jurisdiction is outlined in BIO-4 included in Section 6.0 below.

Additionally, the avoidance and minimization measure BIO-1 included in Section 6.0 below requires an exclusionary fence to be installed to avoid potential impacts to southwestern pond turtle and two-striped garter snakes. A qualified biologist would determine the placement. Since suitable habitat for these species overlap with jurisdictional areas, the exclusionary fence would prevent any inadvertent impacts to CDFW jurisdictional areas during construction activities.

Table 4
TEMPORARY DISTURBANCE TO CDFW JURISDICTION

Drainage	Existing (acres)[2]	Temporary Disturbance (acres)
Sulphur Creek	9.93	0.05
Narco Channel	2.16	0.01
Tributary A	0.03	0.00
Tributary B	0.03	0.02
Tributary C	<0.01	<0.01
Tributary D	0.19	0.00
TOTAL	**12.34**	**0.09**

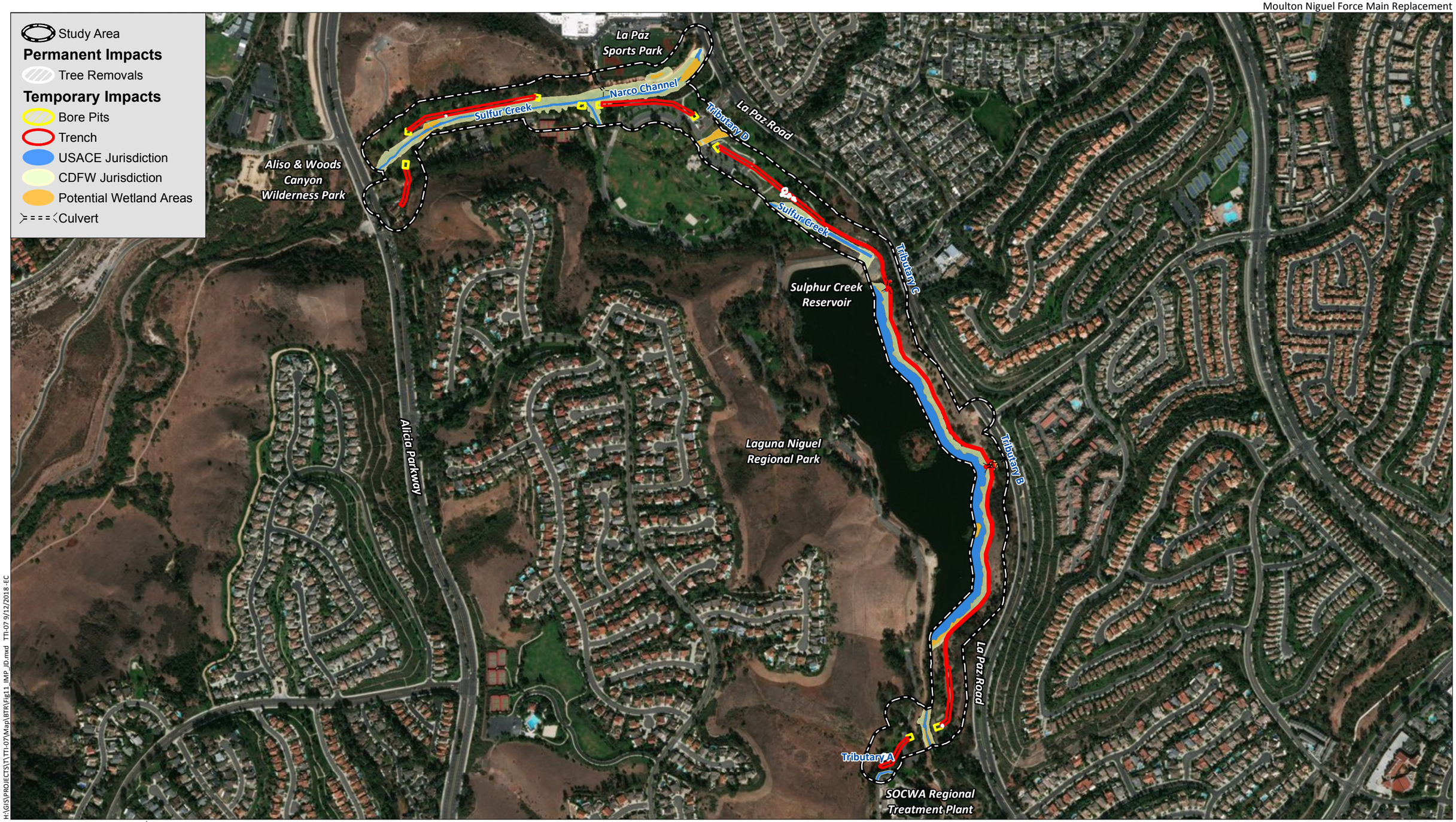
5.3 U.S. ARMY CORPS OF ENGINEERS/REGIONAL WATER QUALITY CONTROL BOARD JURISDICTION

Less than Significant Impacts with Mitigation Incorporated

The study area supports drainages that are considered jurisdictional streambed pursuant to Section under Sections 404/401 of the CWA, as regulated by USACE and RWQCB. However, the project was designed to avoid permanent impacts to USACE/RWQCB jurisdiction occur. Therefore, no compensatory mitigation for impacts to USACE/RWQCB jurisdiction is anticipated.

Although no permanent impacts are proposed to USACE/RWQCB jurisdiction, the project would result in approximately 0.02 acre of temporary disturbance to USACE/RWQCB jurisdiction within Tributary B and Tributary C (Figure 11; Table 5, *Temporary Impacts to USACE/RWQCB Jurisdiction*). Of the 0.02 acre of temporary disturbance, less than 0.01 acre (0.007 acre or 305 square feet) of temporary disturbance to areas identified as potential wetland will occur. Temporary disturbance to USACE/RWQCB jurisdiction associated with culvert replacement would be returned to pre-project contours following completion of the project. The project would offset temporary impacts to 0.03 acre of USACE jurisdiction through compensatory mitigation. Compensatory mitigation for temporal loss of USACE jurisdiction is outlined in BIO-5 included in Section 6.0 below.

Additionally, the avoidance and minimization measure BIO-1 included in Section 6.0 below requires an exclusionary fence to be installed to avoid potential impacts to southwestern pond turtle and two-striped garter snakes. A qualified biologist would determine the placement. Since suitable habitat for these species overlap with jurisdictional areas, the exclusionary fence would prevent any inadvertent impacts to USACE/RWQCB jurisdictional areas during construction activities.



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Source: Aerial (NAIP, 2016)

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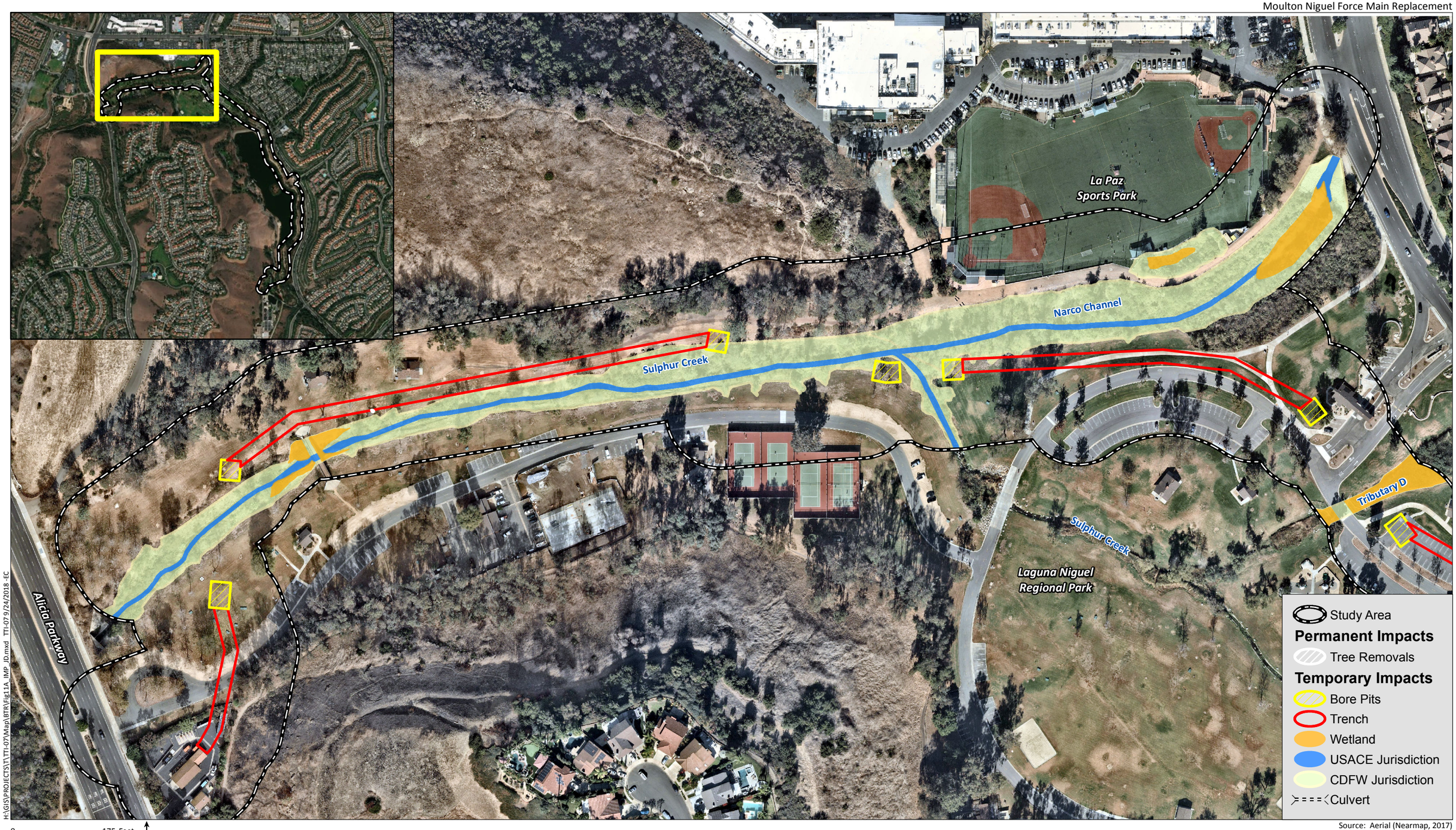
Impacts to Jurisdictional Features

Figure 11



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Source: Aerial (Nearmap, 2017)

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Impacts to Jurisdictional Features

Figure 11A

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Source: Aerial (Nearmap, 2017)

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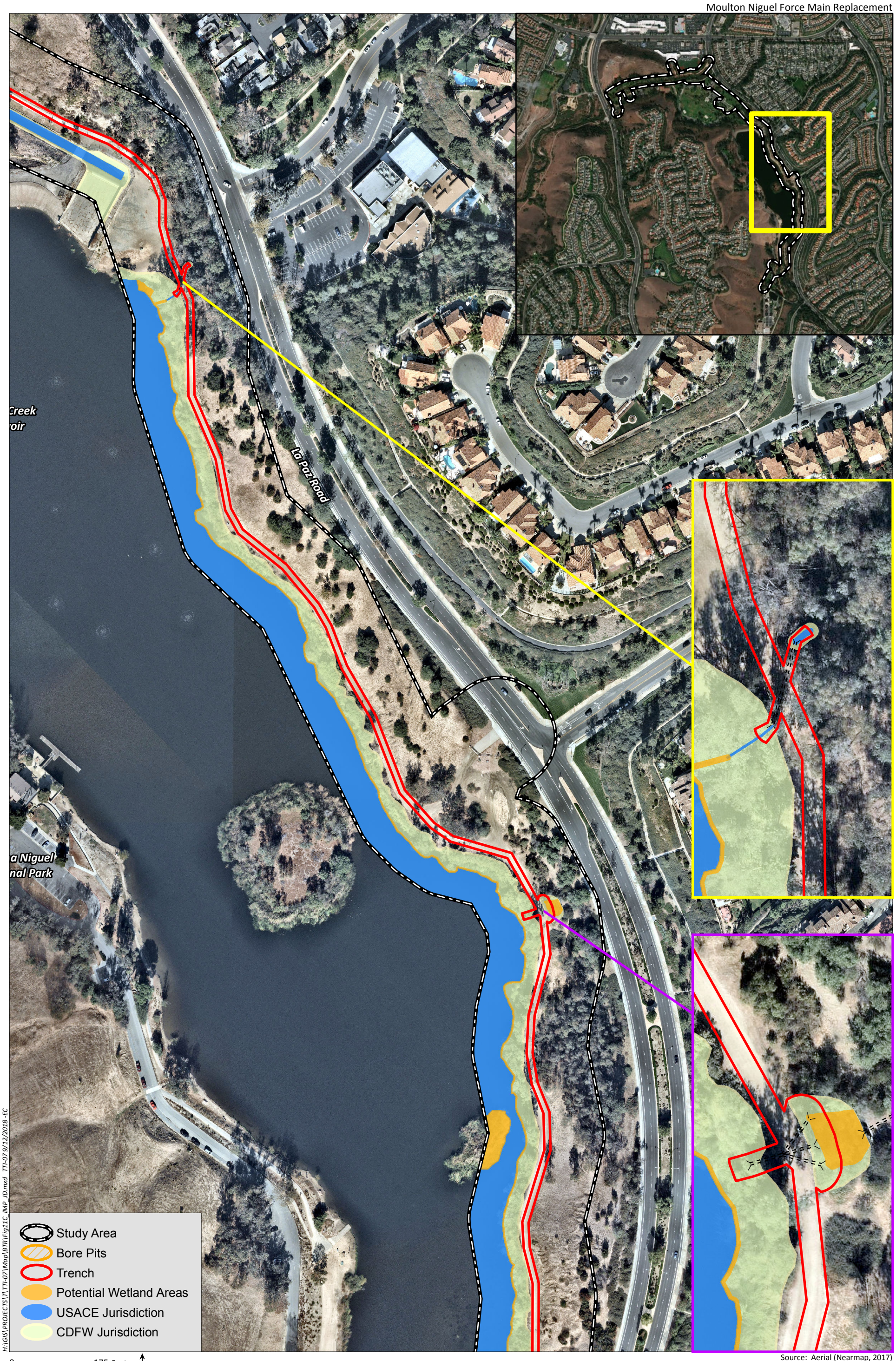
Impacts to Jurisdictional Features

Figure 11B



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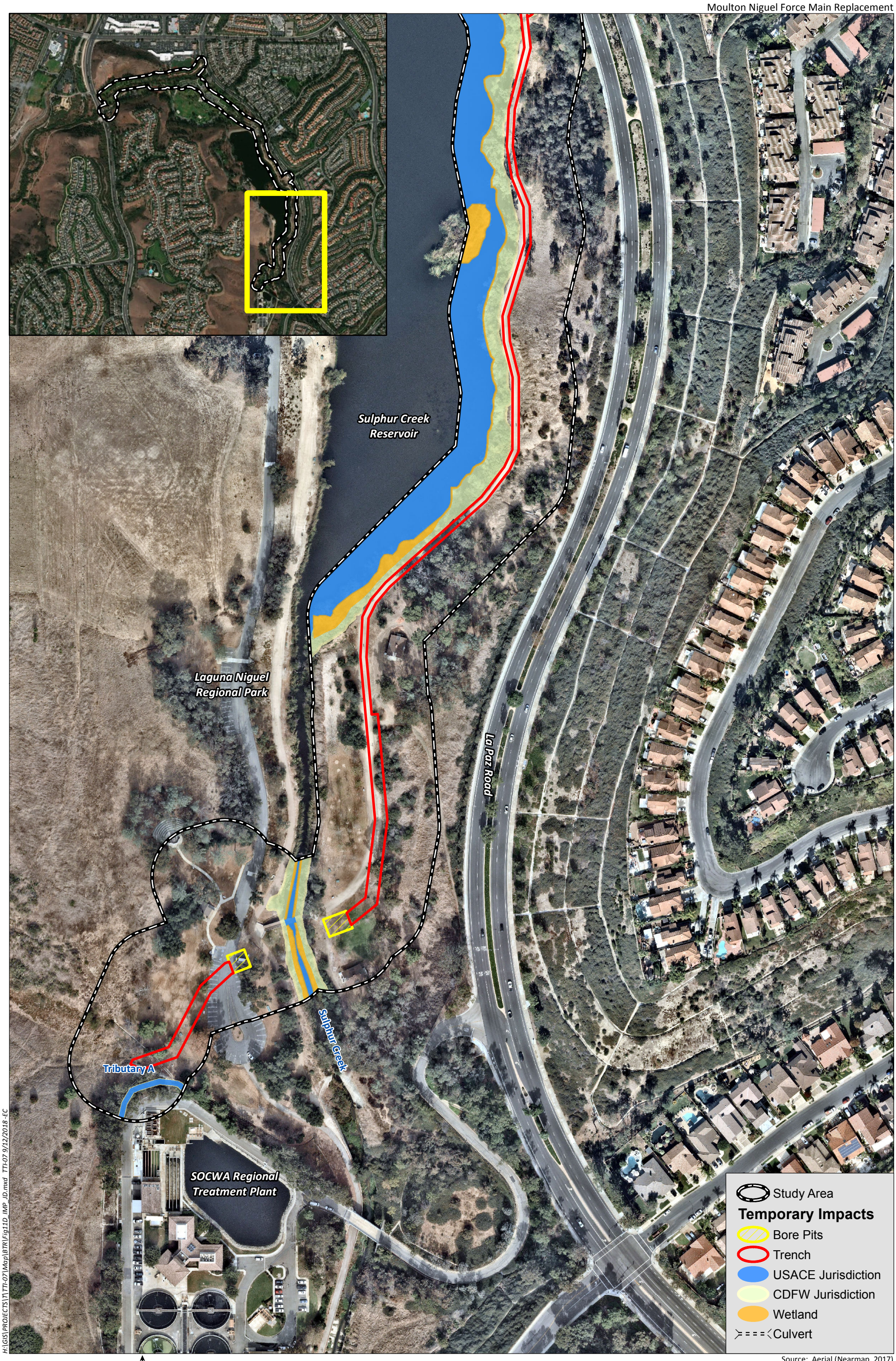
Temporary Impacts to Jurisdictional Features

Figure 11C



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Source: Aerial (Nearmap, 2017)

HELIX Environmental Planning

Impacts to Jurisdictional Features

Figure 11D

Table 5
TEMPORARY DISTURBANCE TO USACE/RWQCB JURISDICTION

Drainage	Existing (acres)	Temporary Disturbance (acres)
Sulphur Creek	5.16	0.00
Narco Channel	0.43	0.00
Tributary A	0.03	0.00
Tributary B	0.02	0.01
Tributary C	<0.01	<0.01
Tributary D	0.17	0.00
TOTAL	**5.81**	**0.02**

5.4 WILDLIFE MOVEMENT AND MIGRATORY SPECIES

5.4.1 Wildlife Movement

Less than Significant

The study area is not part of a regional corridor and does not serve as a nursery site. The study area is not identified as being part of a local or regional corridor or linkage by the South Coast Missing Linkages (South Coast Wildlands 2008) or the NCCP/HCP (RJMC 1996). The study area currently has no direct connectivity to two or more large blocks of habitat and is constrained by existing development. The study area does support native southern willow scrub and fresh water marsh in addition to chaparral and ornamental vegetation, which provide habitat for local wildlife movement and migratory birds passing through the study area. Wildlife movement mostly likely occurs within Narco Channel and Sulphur Creek. Some small mammals that are adapted to human disturbance may use the existing culvert under Alicia Parkway move between the study area to Aliso and Woods Canyon Wilderness Park. Birds may fly over existing development to access the study area for foraging and/or nesting. The project would not permanently impact local wildlife movement since only temporary disturbance to native vegetation would occur, which would be allowed to return to pre-project conditions. The five park trees that are proposed for removal would be replaced by MNWD in coordination with OC Parks and do not represent a significant impact to cover or wildlife movement within the study area. Although implementation of the project may result in some temporary disturbance to local wildlife movement from construction noise, the project would have a less than significant impact to wildlife movement and no mitigation measures would be required.

5.4.2 Migratory Species

Less than Significant Impacts with Mitigation Incorporated

The study area has the potential to support songbird and raptor nests due to the presence of shrubs, ground cover, and trees on-site. Project activities could disturb or destroy active migratory bird nests including eggs and young. Disturbance to or destruction of migratory bird eggs, young, or adults is in violation of the MBTA and is considered a potentially significant impact. The nesting season is generally defined as February 15 through August 31 for songbirds and January 15 to August 31 for raptors. Some suitable nesting habitat occurs within the work areas while denser vegetation occurs adjacent to the work areas, which offer nesting habitat for protected nesting bird species. An avoidance and

minimization measure is provided as BIO-6 in Section 6.0 below, which would ensure the project is in compliance with MBTA regulations.

5.5 LOCAL POLICIES AND ORDINANCES

No Impacts

The project does not conflict with any local policies or ordinances protecting biological resources, such as tree preservations or local ordinances.

5.6 ADOPTED HABITAT CONSERVATION PLANS

No Impacts

Although the study area falls within the NCCP/HCP central/coastal subregion, MNWD is not a Participating Entity of the NCCP/HCP. Therefore, project activities are not covered under the plan. The project would need to ensure activities are not in conflict with the conservation plan. Aside from impacts associated with nine tree removals within the existing park land, the project would only result in temporary disturbance. The removal of nine landscaping trees, seven non-native ornamental trees and two diseased dead native trees that were originally planted by OC Parks will be replaced by MNWD in coordination with OC Parks and would not conflict with the conservation plan. In addition, the study area is not located within any reserves identified by the NCCP/HCP; therefore, the project would not conflict with the conservation goals of the plans.

6.0 MITIGATION MEASURES

The following provides recommended measures intended to minimize or avoid impacts to biological resources:

BIO-1 **Southwestern Pond Turtle and Two-Striped Garter Snake**: A clearance survey for southwestern pond turtle and two-striped garter snake shall be conducted by a qualified biologist within the proposed work areas no more than 14 days prior to construction activities (i.e., earthwork, clearing, grubbing, etc.). The clearance survey shall be conducted within the work areas. If the qualified biologist determines that southwestern pond turtles and/or two-striped garter snakes are present within the work areas during the clearance survey, no construction shall occur until the qualified biologist determines that the pond turtles and/or garter snakes have moved out of the work areas on their own accord. Once the qualified biologist determines that there are no southwestern pond turtles or two-striped garter snakes within the work areas, an exclusionary fence shall be placed between suitable habitat and the work areas to prevent pond turtles and/or garter snakes from reentering the work area. The qualified biologist shall determine the placement of the exclusionary fencing. Prior to commencement of construction activities and after the exclusionary fencing has been erected, a final clearance survey shall be conducted within the work areas to confirm there are no southwestern turtles or garter snakes within the work area. Exclusionary fencing will be required to stay in place for the duration of any construction activities to deter southwestern pond turtles and/or two-striped garter snakes from entering the

work areas. The results of the clearance surveys shall be documented by the qualified biologist and submitted to MNWD.

To avoid potential impacts to southwestern pond turtles and/or two-striped garter snakes from vehicles and construction equipment adjacent to suitable habitat, all project personnel shall attend a training program presented by a qualified biologist prior to commencement of construction activities. The training program will inform project personnel about the life history of southwestern pond turtle and two-striped garter snake and all avoidance and minimization measures.

BIO-2 **Tricolored Blackbird**: Due to presence of suitable habitat for tricolored blackbird on the study area, the following avoidance and minimization measures shall be implemented to avoid potential indirect impacts:

1. Construction activities (i.e., earthwork, clearing, and grubbing) shall occur outside of the nesting season for tricolored blackbird (March 15 through July 31).

2. If construction activities (i.e., earthwork, clearing, grubbing, etc.) are proposed within the tricolored nesting season, the following measures shall be taken:

    a. Three pre-construction surveys shall be conducted within 15 days prior to commencing constructions activities on the study area. The third survey shall be conducted within five days prior to construction activities. The surveys shall be conducted within all suitable habitat located on the study area and within a 300-foot buffer where suitable habitat occurs. The results of the pre-construction surveys shall be documented by the qualified biologist and submitted to CDFW.

        If no tricolored blackbirds are observed within 300 feet proposed construction, the activities shall be allowed to proceed without any further requirements. If tricolored blackbirds are observed within 300 feet of the proposed activities, the following avoidance and minimization measures shall be implemented.

    b. A qualified biological monitor shall clearly delineate a 300-foot avoidance buffer around occupied tricolored blackbird habitat. The buffer shall be clearly marked with flags and/or fencing prior to the initiation of construction activities.

    c. The biological monitor shall be present during any ground disturbance conducted within the nesting season to observe the birds' behavior. The construction supervisor shall be notified if the construction activities appear to be altering the birds' normal behavior. Ground disturbance shall cease until additional minimization measures have been performed. Measures may include, but are not limited to, limitation on the use of certain equipment, placement of equipment, restrictions on the simultaneous use of equipment, or noise attenuation measures (e.g., berm, wall). If the birds' behavior is still altered from normal breeding behavior, ground disturbance shall cease until CDFW is contacted to discuss alternative methods.

    d. If ground disturbance occurs within or adjacent to the 300-foot avoidance buffer, a qualified acoustician shall be retained to determine ambient noise

levels and project-related noise levels at the edge of suitable habitat. The need for sound monitoring shall be recommended by the biological monitor based on the presence of nesting individuals and observation of the birds' behavior. Noise levels at the edge of the suitable habitat shall not exceed an hourly average of 60 decibels (dB[A]), or a 3-dB(A) increase in noise levels if ambient noise levels exceed 60 dB(A). If project-related noise levels at the edge of the suitable habitat are above 60 dB(A) or the 3-dB(A) increase in noise occurs, additional minimization measures shall be taken to reduce project-related noise levels to an acceptable level as determined by the biological monitor. If additional measures do not decrease project-related noise levels below the thresholds described above, ground disturbance shall cease until CDFW is contacted to discuss alternative methods. The biological monitor shall prepare written documentation of all monitoring activities at the completion of construction activities, which shall be submitted to CDFW.

e. All project personnel shall attend a training program presented by a qualified biologist prior to construction activities. The training program will inform project personnel about the life history of tricolored blackbird and all avoidance and minimization measures.

f. The construction contractor shall only allow construction activities to occur during daylight hours and high noise levels shall generally be limited according to these hours.

g. The construction contractor shall require functional mufflers on all construction equipment (stationery or mobile) used within or immediately adjacent to any 300-foot avoidance buffers to reduce construction equipment noise. Stationing equipment situated so that noise generated from the equipment is not directed towards any habitat occupied by tricolored blackbird.

h. The construction contractor will place staging areas as far as feasible from any habitat occupied by tricolored blackbird.

BIO-3 **Burrowing Owl**: In compliance with the CDFW *Staff Report on Burrowing Owl Mitigation* (2012), a take avoidance survey shall be conducted on the study area within 14 days prior to ground disturbance to determine presence of BUOW. If the take avoidance survey is negative and BUOW is confirmed absent, then ground-disturbing activities shall be allowed to commence, and no further mitigation would be required.

If BUOW are observed during the take avoidance survey, active burrows shall be avoided by the project in accordance with the CDFW's Staff Report (2012). The CDFW shall be immediately informed of any BUOW observations. A Burrowing Owl Protection and Relocation Plan (plan) shall be prepared by a qualified biologist, which must be sent for approval by CDFW prior to initiating ground disturbance. The plan shall detail avoidance measures that shall be implemented during construction and passive or active relocation methodology. Relocation shall only occur outside of the nesting season (September 1 through January 31).

BIO-4 **Least Bell's Vireo**: Due to presence of LBVI in the study area, the following measures shall be implemented to avoid potential direct impacts:

1. If canopy trimming for construction vehicle access is required, it shall be conducted by an ISA certified arborist outside of the nesting season for LBVI (March 15 through August 31).

2. Compensatory mitigation for direct temporary impacts to 0.04 acre of suitable LBVI habitat shall be off-set through compensatory mitigation. Compensatory mitigation may include, but is not necessarily limited to, on-site or off-site riparian enhancement, payment to OC Parks to fund non-native vegetation removal, or purchase of off-site enhancement credits at a ratio of no less than 1:1.

Due to presence of LBVI in the study area, the following measures shall be implemented to avoid or minimize potential indirect impacts:

1. Construction activities (i.e., earthwork, clearing, and grubbing) shall occur outside of the nesting season for LBVI (March 15 through August 31) to the extent feasible.

2. If construction activities (i.e., earthwork, clearing, grubbing, etc.) are proposed within the LBVI nesting season, the following measures shall be taken:

    a. If construction activities are planned within the LBVI nesting season, a qualified biological monitor shall clearly delineate a 500-foot buffer around suitable LBVI habitat. The buffer shall be clearly marked with flags and/or fencing prior to the initiation of construction activities.

    b. The biological monitor shall be present during any construction activities conducted within the nesting season to observe the birds' behavior. The construction supervisor shall be notified if the construction activities appear to be altering the birds' normal behavior. Construction activities shall cease until additional minimization measures have been performed. Measures may include, but are not limited to, limitation on the use of certain equipment, placement of equipment, restrictions on the simultaneous use of equipment, or noise attenuation measures (e.g., berm, wall). If the birds' behavior is still altered from normal breeding behavior, construction activities shall cease until CDFW and USFWS are contacted to discuss alternative methods.

    c. If construction activities (e.g., ground disturbance and canopy trimming) are planned within or adjacent to the 500-foot buffer, a qualified acoustician shall be retained to determine ambient noise levels and project-related noise levels at the edge of occupied habitat. The need for sound monitoring and attenuation shall be recommended by the biological monitor based on the presence of nesting individuals and observation of the birds' behavior. Noise levels at the edge of the occupied habitat shall not exceed an hourly average of 60 decibels (dB[A]), or a 3-dB(A) increase in noise levels if ambient noise levels exceed 60 dB(A). If project-related noise levels exceed the threshold described above, construction activities shall cease until additional minimization measures are taken to reduce project-related noise levels to below an hourly average of 60

dB(A), or below a 3-dB(A) increase in noise levels if ambient noise levels exceed 60 dB(A). If additional measures do not decrease project-related noise levels below the thresholds described above, construction activities shall cease until CDFW and USFWS are contacted to discuss alternative methods.

d. All project personnel shall attend a training program presented by a qualified biologist prior to construction activities. The training program will inform project personnel about the life history of LBVI and all avoidance and minimization measures.

e. The construction contractor shall only allow construction activities to occur during daylight hours.

f. The construction contractor shall require functional mufflers on all construction equipment (stationery or mobile) used within or immediately adjacent to any 500-foot buffers to reduce construction equipment noise. Stationary equipment shall be situated so that noise generated from the equipment is not directed towards habitat occupied by LBVI.

g. The construction contractor shall place staging areas as far as feasible from habitat occupied by LBVI.

h. The biological monitor shall prepare written documentation of all monitoring activities at the completion of construction activities, which shall be submitted to CDFW and USFWS.

BIO-5 **Jurisdictional Resources**: Prior to issuance of a grading permit for impacts to jurisdictional resources, the Project Applicant shall obtain regulatory permits from USACE, RWQCB, and CDFW (collectively, the "Resource Agencies"). Temporary impacts to jurisdictional resources shall be returned to pre-project contours once the project has been completed. Compensatory mitigation for temporary impacts to jurisdiction may be required as part of subsequent permitting requirements. Temporary impacts to jurisdiction may include, but is not limited to, on-site or off-site riparian enhancement, payment to OC Parks to fund non-native vegetation removal, or the purchase of off-site mitigation enhancement credits at a ratio of no less than 1:1. The following minimization measures will be implemented during construction:

- Use of standard Best Management Practices (BMPs) to minimize the impacts during construction.
- Construction-related equipment will be stored in developed areas, outside of drainages.
- Source control and treatment control BMPs will be implemented to minimize the potential contaminants that are generated during and after construction. Water quality BMPs will be implemented throughout the project to capture and treat potential contaminants.

- To avoid attracting predators during construction, the project shall be kept clean of debris to the extent possible. All food-related trash items shall be enclosed in sealed containers and regularly removed from site.

- Employees shall strictly limit their activities, vehicles, equipment and construction material to the proposed project footprint, staging areas, and designated routes of travel.

- Exclusion fencing should be maintained until the completion of construction activities.

BIO-6 **Nesting Birds**: Construction activities (i.e., earthwork, clearing, and grubbing) shall occur outside of the general bird nesting season for migratory birds, which is February 15 through August 31 for songbirds and January 15 to August 31 for raptors.

If construction activities (i.e., earthwork, clearing, and grubbing) must occur during the general bird nesting season for migratory birds and raptors (January 15 and August 31), MNWD shall retain a qualified biologist to perform a pre-construction survey of potential nesting habitat to confirm the absence of active nests belonging to migratory birds and raptors afforded protection under the MBTA and CFG Code. The pre-construction survey shall be performed no more than seven days prior to the commencement of construction activities. The results of the pre-construction survey shall be documented by the qualified biologist and submitted to MNWD.

If the qualified biologist determines that no active migratory bird or raptor nests occur, the activities shall be allowed to proceed without any further requirements. If the qualified biologist determines that an active migratory bird or raptor nest is present, no impacts within 300 feet (500 feet for raptors) of the active nest shall occur until the young have fledged the nest and the nest is confirmed to no longer be active, or as determined by the qualified biologist. The biological monitor may modify the buffer or propose other recommendations in order to minimize disturbance to nesting birds.

7.0 CERTIFICATION/QUALIFICATION

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Appendix A

Plant Species Observed

Appendix A
PLANT SPECIES OBSERVED

Family	Scientific Name	Common Name
GYMNOSPERMS		
Pinaceae	*Pinus halepensis**	Aleppo pine
ANGIOSPERMS – EUDICOTS		
Adoxaceae	*Sambucus nigra* ssp. *caerulea*	blue elderberry
Aizoaceae	*Carpobrotus chilensis**	sea-fig
Altingiaceae	*Liquidambar styraciflua**	sweetgum
Anacardiaceae	*Malosma laurina*	laurel sumac
	Rhus integrifolia	lemonadeberry
	Rhus ovata	sugar bush
	*Schinus molle**	Peruvian pepper tree
	*Schinus terebinthifolia**	Brazilian pepper tree
Apiaceae	*Apiastrum angustifolium*	mock parsley
	*Apium graveolens**	celery
	*Foeniculum vulgare**	fennel
Apocynaceae	*Araujia sericifera**	bladderflower
Asteraceae	*Ambrosia psilostachya*	western ragweed
	Artemisia californica	California sagebrush
	Artemisia douglasiana	mugwort
	Baccharis pilularis	coyote brush
	Baccharis salicifolia	mule fat
	*Carduus pycnocephalus**	Italian thistle
	*Centaurea melitensis**	tocalote
	*Cirsium vulgare**	bull thistle
	*Cotula coronopifolia**	common brassbuttons
	*Cynara cardunculus**	artichoke thistle
	Encelia californica	California encelia
	Encelia farinosa	brittlebush
	Erigeron canadensis	horseweed
	Grindelia hirsutula	gumweed
	*Helminthotheca echioides**	bristly ox-tongue
	Isocoma menziesii	goldenbush
	Iva hayesiana†	San Diego marsh elder
	*Lactuca serriola**	wild lettuce
	Pluchea odorata	salt marsh fleabane
	Pluchea sericea	arrow weed
	Pseudognaphalium californicum	California everlasting
	*Pseudognaphalium luteoalbum**	everlasting cudweed
	*Pulicaria paludosa**	Spanish false fleabane
	*Silybum marianum**	milk thistle
	*Sonchus asper**	prickly sow thistle
Bignoniaceae	*Chilopsis linearis*	desert willow
Boraginaceae	*Heliotropium curassavicum* var. *occulatum*	salt heliotrope
Brassicaceae	*Brassica nigra**	black mustard
	*Hirschfeldia incana**	short-pod mustard
	*Lepidium didymum**	wart cress, spine cress
	*Lepidium latifolium**	perennial pepperweed
	Nasturtium officinale	water cress
	*Raphanus sativus**	wild radish

Appendix A (cont.)
PLANT SPECIES OBSERVED

Family	Scientific Name	Common Name
ANGIOSPERMS – EUDICOTS (cont.)		
Cactaceae	*Cylindropuntia prolifera*	coastal cholla
	Opuntia littoralis	coastal prickly pear
Capparaceae	*Peritoma arborea*	bladderpod
Chenopodiaceae	*Amaranthus albus**	white tumbleweed
	Amaranthus blitoides	prostrate amaranth
	Atriplex canescens ssp. *canescens*	shad scale
	Atriplex glauca	waxy saltbush
	Atriplex lentiformis	quail saltbush
	*Atriplex prostrata**	triangle orache
	*Atriplex semibaccata**	Australian saltbush
	*Chenopodium album**	pigweed
	*Salsola tragus**	Russian thistle
	Suaeda taxifolia	woolly seablite
Cistaceae	*Cistus incanus**	hairy rock-rose
Convolvulaceae	*Cressa truxillensis*	alkali weed
Euphorbiaceae	*Euphorbia maculata**	spotted spurge
	*Euphorbia peplus**	petty spurge
	Euphorbia serpens	matted sandmat
	*Ricinus communis**	castor bean
Fabaceae	*Acacia pycnantha **	golden wattle
	*Acacia redolens**	bank catclaw
	*Acacia saligna**	orange wattle
	*Lotus corniculatus**	birdfoot trefoil
	*Melilotus albus**	white sweet clover
	*Melilotus indicus**	Indian sweet clover
Fagaceae	*Quercus agrifolia* var. *agrifolia*	coast live oak
Frankeniaceae	*Frankenia salina*	alkali heath
Geraniaceae	*Erodium cicutarium**	redstem filaree
Lamiaceae	*Marrubium vulgare**	horehound
	Salvia apiana	white sage
Lythraceae	*Lythrum hyssopifolia**	grass poly
Malvaceae	*Malva parviflora**	cheeseweed
	*Malvella leprosa**	alkali-mallow
Meliaceae	*Melia azederach**	chinaberry
Moraceae	*Ficus carica**	edible fig
Myrsinaceae	*Anagallis arvensis**	scarlet pimpernel
Mytaceae	*Callistemon citrinus**	common bottle brush
	*Corymbia citriodora**	lemon-scented gum
	*Eucalyptus camaldulensis**	river red gum
	*Eucalyptus cinerea**	silver dollar tree
	*Melaleuca leucadendra**	weeping paperbark
	Callistemon sp.*	bottlebrush
Oleaceae	*Fraxinus uhdei**	shamel ash
Onagraceae	*Epilobium ciliatum* ssp. *ciliatum*	willow herb
Papaveraceae	*Fumaria parviflora**	fineleaf fumitory
Phrymaceae	*Mimulus aurantiacus*	monkey-flower

Appendix A (cont.)
PLANT SPECIES OBSERVED

Family	Scientific Name	Common Name
ANGIOSPERMS – EUDICOTS (cont.)		
Plantaginaceae	*Kickxia elatine**	sharp leaved fluellin
	*Plantago lanceolata**	English plantain
	*Plantago major**	common plaintain
	Plantago ovata	desert indianwheat
	*Veronica anagallis-aquatica**	water speedwell
Platanaceae	*Platanus racemosa*	western sycamore
	Platunus x *acerifolia**	London plane
Plumbaginaceae	*Limonium californicum*	California sealavender
	*Limonium perezii**	Perez's sealavender
	Limonium ramosissimum ssp. *provinciale**	Algerian sealavender
Polygonaceae	*Eriogonum fasciculatum*	buckwheat
	Persicaria lapathifolia	willow weed
	*Rumex crispus**	curly dock
	Rumex salicifolius	willow dock
Portulacaceae	*Claytonia perfoliata* ssp. *perfoliata**	miner's lettuce
	*Portulaca oleracea**	common purslane
Primulaceae	*Anagallis arvensis*	scarlet pimpernel
Rhamnaceae	*Frangula californica*	California coffeeberry
Rosaceae	*Heteromeles arbutifolia*	toyon
	Rosa californica	California rose
	Rubus ursinus	California blackberry
Salicaceae	*Populus fremontii* ssp. *fremontii*	Fremont cottonwood
	Salix exigua	narrow leaved willow
	Salix gooddingii	Goodding's black willow
	Salix laevigata	red willow
	Salix lasiolepis	arroyo willow
Sapindaceae	*Koelreuteria bipinnata*	Chinese flame tree
Saururaceae	*Anemopsis californica*	yerba mansa
Scrophulariaceae	*Myoporum laetum**	false sandalwood
Simaroubaceae	*Ailanthus altissima**	tree-of-heaven
Solanaceae	*Datura wrightii*	jimson weed
	*Nicotiana glauca**	tree tobacco
	Solanum sp.	nightshade
Tamaricaceae	*Tamarix ramosissima**	saltcedar
Urticaceae	*Urtica dioica*	stinging nettle
	*Urtica urens**	dwarf nettle
Verbenaceae	*Verbena lasiostachys*	verbena
ANGIOSPERMS – MONOCOTS		
Araceae	*Lemna* sp.	duckweed
Arecaceae	*Washingtonia robusta**	Mexican fan palm
Cyperaceae	*Bolboschoenus maritimus*	alkali bulrush
	Cyperus eragrostis	tall flatsedge
	Eleocharis geniculata	bent spikerush
	Schoenoplectus americanus	American rush
	Schoenoplectus californicus	California bulrush
Liliaceae	*Yucca elephantipes**	giant yucca

Appendix A (cont.)
PLANT SPECIES OBSERVED

Family	Scientific Name	Common Name
ANGIOSPERMS – MONOCOTS (cont.)		
Poaceae	*Avena barbata**	slender oat
	*Avena fatua**	wild oats
	*Bromus catharticus**	rescue grass
	*Bromus diandrus**	common ripgut grass
	*Bromus hordeaceus**	soft brome
	*Bromus madritensis**	foxtail chess
	*Cortaderia selloana**	white pampasgrass
	*Cynodon dactylon**	Bermuda grass
	Distichlis spicata	saltgrass
	*Ehrharta erecta**	panic veldtgrass
	Elymus condensatus	giant wild rye
	Elymus triticoides	beardless wild rye
	*Festuca perennis**	Italian ryegrass
	*Hordeum murinum**	hare barley
	*Paspalum dilatatum**	dallis grass
	*Pennisetum setaceum**	purple fountain grass
	*Phalaris canariensis**	annual canarygrass
	*Polypogon monspeliensis**	annual beardgrass
	*Stenotaphrum secundatum**	St. Augustine grass
Typhaceae	*Typha domingensis*	southern cattail
	Typha latifolia	broad-leaved cattail

*Non-native species
†Sensitive species

Appendix B

Animal Species Observed or Detected

Appendix B
ANIMAL SPECIES OBSERVED OR DETECTED

Order	Family	Scientific Name	Common Name
INVERTEBRATES			
Coleoptera	Scarabaeidae	*Popillia japonica*	Japanese beetle
Lepidoptera	Pieridae	*Colias* sp.	sulphur
		Pieris rapae	cabbage white
VERTEBRATES			
Amphibians			
Anura	Ranidae	*Lithobates catesbeianus*	American bullfrog
Reptiles			
Cryptodira	Emydidae	*Trachemys scripta elegans*	red-eared slider
Squamata	Phrynosomatidae	*Sceloporus occidentalis*	western fence lizard
Birds			
Accipitriformes	Accipitridae	*Accipiter cooperii*	Cooper's hawk
		Buteo lineatus	red-shouldered hawk
	Cathartidae	*Cathartes aura*	turkey vulture
	Pandionidae	*Pandion haliaetus*	osprey
Anseriformes	Anatidae	*Alopochen aegyptiaca*	Egyptian goose
		Anas platyrhynchos	mallard
		Branta canadensis	Canada goose
		Mareca americana	American wigeon
		Mareca strepera	gadwall
		Oxyura jamaicensis	ruddy duck
		Spatula cyanoptera	cinnamon teal
Apodiformes	Trochilidae	*Calypte anna*	Anna's hummingbird
		Selasphorus rufus	rufous hummingbird
		Selasphorus sasin	Allen's hummingbird
Charadriiformes	Charadriidae	*Charadrius vociferus*	killdeer
	Laridae	*Sterna forsteri*	Forster's tern
		Sterna hirundo	common tern
	Recurvirostridae	*Himantopus mexicanus*	black-necked stilt
Columbiformes	Columbidae	*Columba livia*	rock pigeon
		Streptopelia decaocto	Eurasian collared-dove
		Zenaida macroura	mourning dove
Coraciiformes	Alcedinidae	*Megaceryle alcyon*	belted kingfisher
Cuculiformes	Cuculidae	*Geococcyx californianus*	greater roadrunner
Falconiformes	Falconidae	*Falco sparverius*	American kestrel
Gruiformes	Rallidae	*Fulica americana*	American coot
		Gallinula galeata	common gallinule

Appendix B (cont.)
ANIMAL SPECIES OBSERVED OR DETECTED

Order	Family	Scientific Name	Common Name
VERTEBRATES (cont.)			
Birds (cont.)			
Passeriformes	Aegithalidae	*Psaltriparus minimus*	bushtit
	Cardinalidae	*Pheucticus melanocephalus*	black-headed grosbeak
		Piranga ludoviciana	western tanager
	Corvidae	*Aphelocoma californica*	California scrub-jay
		Corvus brachyrhynchos	American crow
		Corvus corax	common raven
	Estrildidae	*Lonchura punctulata*	scaly-breasted munia
	Fringillidae	*Haemorhous mexicanus*	house finch
		Spinus psaltria	lesser goldfinch
		Spinus tristis	American goldfinch
	Hirundinidae	*Hirundo rustica*	barn swallow
		Petrochelidon pyrrhonota	cliff swallow
		Stelgidopteryx serripennis	northern rough-winged swallow
	Icteridae	*Agelaius phoeniceus*	red-winged blackbird
		Icterus bullockii	Bullock's oriole
		Icterus cucullatus	hooded oriole
		Molothrus ater	brown-headed cowbird
		Quiscalus mexicanus	great-tailed grackle
	Mimidae	*Mimus polyglottos*	northern mockingbird
		Toxostoma redivivum	California thrasher
	Paridae	*Baeolophus inornatus*	oak titmouse
	Parulidae	*Cardellina pusilla*	Wilson's warbler
		Geothlypis trichas	common yellowthroat
		Oreothlypis celata	orange-crowned warbler
		Setophaga coronata	yellow-rumped warbler
		Setophaga petechia†	yellow warbler
	Passerellidae	*Melospiza melodia*	song sparrow
		Melozone crissalis	California towhee
		Pipilo maculatus	spotted towhee
		Zonotrichia leucophrys	white-crowned sparrow
	Sturnidae	*Sturnus vulgaris*	European starling
	Sylviidae	*Chamaea fasciata*	wrentit
	Troglodytidae	*Thryomanes bewickii*	Bewick's wren
		Troglodytes aedon	house wren
	Turdidae	*Sialia mexicana*	western bluebird
	Tyrannidae	*Contopus sordidulus*	western wood-pewee
		Empidonax difficilis	Pacific-slope flycatcher
		Myiarchus cinerascens	ash-throated flycatcher
		Sayornis nigricans	black phoebe
		Sayornis saya	Say's phoebe
		Tyrannus verticalis	western kingbird
		Tyrannus vociferans	Cassin's kingbird
	Viduidae	*Vidua macroura*	pin-tailed whydah
	Vireonidae	*Vireo bellii pusillus*†	least Bell's vireo
		Vireo huttoni	Hutton's vireo

Appendix B (cont.)
ANIMAL SPECIES OBSERVED OR DETECTED

Order	Family	Scientific Name	Common Name
VERTEBRATES (cont.)			
Birds (cont.)			
Pelecaniformes	Ardeidae	*Ardea herodias*	great blue heron
		Butorides virescens	green heron
		Egretta thula	snowy egret
		Nycticorax nycticorax	black-crowned night-heron
	Threskiornithidae	*Plegadis chihi*	white-faced ibis
Piciformes	Picidae	*Melanerpes formicivorus*	acorn woodpecker
		Picoides nuttallii	Nuttall's woodpecker
Podicipediformes	Podicipedidae	*Podilymbus podiceps*	pied-billed grebe
Suliformes	Phalacrocoracidae	*Phalacrocorax auritus*	double-crested cormorant
		Phalacrocorax penicillatus	Brandt's cormorant
Mammals			
Lagomorpha	Leporidae	*Sylvilagus audubonii*	desert cottontail
Rodentia	Sciuridae	*Otospermophilus beecheyi*	California ground squirrel

† Sensitive

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Appendix C

Representative Site Photographs

Photograph 1: View of open water, eucalptus woodland, freshwater marsh and park within the southern portion of the study area facing north.

Photograph 2: View of coyote brush chaparral to the left, disturbed areas, and non-native vegetation/coyote brush chaparral to the right on the hillside within the southern portion of the study area facing north.

Photograph 3: View of the eucalyptus woodland and disturbed areas within the southern portion of the study area facing north.

Photograph 4: View of non-native vegetation and eucalptus woodland facing east toward La Paz Road within the central portion of the study area.

Source: HELIX 2018

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Photograph 5: View of freshwater marsh and park within the northern portion of the study area near the park entrance facing northwest.

Photograph 6: View of coyote brush chaparral and La Paz Sports Park within the northern portion of the study area facing north.

Photograph 7: View of mule fat scrub, southern willow scrub and park areas within the northern portion of the study area facing south.

Photograph 8: View of southern willow scrub and park areas within the northern portion of the study area facing east.

Source: HELIX 2018

H:\GIS\PROJECTS\TI\TTI-07\Map\BTR\AppendixC_RepSitePhotos 5-8.indd TTI-07 09/06/18 -EC

Photograph 9: Photograph of two Aleppo pine trees proposed for removal.

Photograph 10: Photograph of dead western sycamore tree proposed for removal.

Photograph 11: Photograph of one red river gum tree and one bottlebrush tree proposed for removal.

Photograph 12: Photograph of two bottlebrush trees and one red river gum proposed for removal.

Source: HEGIS 2018

H:\GIS\PROJECTS\T\TTI-07\Map\BTR\AppendixC_RepSitePhotos 9-12.indd TTI-07 09/11/18 -EC

Photograph 13: Photograph of the dead Goodding's black willow tree proposed for removal.

Photograph 14: Photograph of the trunk of the same dead Goodding's black willow tree proposed for removal.

Source: HELIX 2018

H:\GIS\PROJECTS\T\TTI-07\Map\BTR\AppendixD_RepSitePhotos13-14.indd TTI-07 09/11/18 EC

Appendix D

Representative Drainage Photographs

Photo graph1: View of Tributary A, facing east.

Photograph 2: View of Sulphur Creek Reservoir, facing west.

Photograph 3: View of Tributary B, facing east.

Photograph 4: View of Tributary C, facing northeast.

Source: HELIX 2018

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Photograph 5: View of Sulphur Creek Reservoir outlet into Sulphur Creek, facing southeast.

Photograph 6: View of Sulphur Creek confined in a cement ditch, facing east.

Photograph 7: View of Tributary D, facing west.

Photograph 8: View of Narco Channel entering the site under La Paz Road , facing southwest.

Source: HELIX 2018

H:\GIS\PROJECTS\T\TTI-07\Map\BTR\AppendixD_DrainagePhotos5-8.indd TTI-07 09/06/18 -EC

Photograph 9: View of Sulphur Creek downstream of confluece with Narco Channel, facing east.

Photograph 10: View of Sulphur Creek within the western portion of the study area, facing north.

Photograph 11: View of Sulphur Creek within the western portion of the study area, facing west.

Photograph 12: View of Sulphur Creek exiting the study area under Alicia Parkway through a box culvert, facing southwest.

Source: HELIX 2018

H:\GIS\PROJECTS\TI\TTI-07\Map\BTR\AppendixD_DrainagePhotos9-12.indd TTI-07 09/06/18 -EC

Appendix E

Burrowing Owl Focused Survey Report

HELIX Environmental Planning, Inc.
16485 Laguna Canyon Road
Suite 150
Irvine, CA 92618
949.234.8792 **tel.**
619.462.0552 **fax**
www.**helixepi**.com

August 17, 2018 TTI-07

Mr. David Larsen
Moulton Niguel Water District
26161 Gordon Road
Laguna Hills, CA 92653

Subject: 2018 Burrowing Owl (*Athene cunicularia*) Survey Report for the Regional Lift Station Force Main Replacement Project

Dear Mr. Larsen:

This letter report presents the results of the 2018 focused burrowing owl (*Athene cunicularia*; BUOW) survey conducted by HELIX Environmental Planning, Inc. (HELIX) for the Regional Lift Station Force Main Replacement Project (project) located in the City of Laguna Niguel, Orange County, California. The survey was conducted in accordance with the California Department of Fish and Wildlife (CDFW; previously California Department of Fish and Game [CDFG]) Staff Report on Burrowing Owl Mitigation (CDFG 2012). This letter report describes the methods used to perform the survey and the survey results.

STUDY AREA LOCATION

The 54.99-acre study area is generally located 1.6 miles to the west of Interstate 5 and 2.7 miles to the east of State Route 133 in the City of Laguna Niguel (Figure 1, *Regional Location*). The study area is mostly contained within Laguna Niguel Regional Park located at 28241 La Paz Road, although a portion falls within the La Paz Sports Park. The study area is located within Sections 21, 22, and 27 of Township 7 North, Range 8 West of the San Juan Capistrano, California U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 2, *USGS Topography*). The study area extends from the most southern portion of Laguna Niguel Regional Park to the most northern portion of the park, traversing the park along the east bank of the Sulphur Creek Reservoir. At the northern extent of Laguna Niguel Regional Park, the study area extends west and terminates at Alicia Parkway (Figure 3, *Aerial Vicinity*).

STUDY AREA DESCRIPTION

The study area is primarily located within the limits of Laguna Niguel Regional Park (park) and is dominated by park landscaping. Two major drainage features occur within the study area, including

Sulphur Creek and Narco Channel. A portion of Sulphur Creek is dammed, forming Sulphur Creek Reservoir. Although most of the park's vegetation was planted and is maintained regularly, some remnant natural vegetation remains within Sulphur Creek. The topography of the study area is mostly flat with some gentle rolling hills throughout. The eastern boundary in the southern portion of the study area contains some moderately steep slopes that separate the park from La Paz Road, which occurs at a higher elevation to the east of the study area. Elevations on the study area range from approximately 141 feet above mean sea level (AMSL) near the northwestern end of the study area near Alicia Parkway to approximately 250 feet AMSL near the southeastern corner. Immediate surrounding land uses include La Paz Sports Park, Aliso Village Shopping Center, and an undeveloped hillside to the north; Sulphur Creek Reservoir, park land, and undeveloped hillsides to the west; South Orange County Wastewater Authority Regional Treatment Plant to the south; and La Paz Road and residential homes to the east. Aliso and Wood Canyons Wilderness Park is located directly to the west of the northern portion of the study area, which is separated from the study area by Alicia Parkway.

Vegetation Communities

A total of 15 vegetation communities and land uses were mapped on the study area, including disturbed, non-native herbaceous cover, and park. A brief description of vegetation communities and land uses that were surveyed for BUOW and sign during the focused surveys is provided below and representative photographs of the site are shown on Attachment A, *Site Photographs*.

Disturbed

Disturbed habitat includes land cleared of vegetation (e.g., dirt roads) or actively maintained or heavily disturbed areas that are mostly unvegetated but may support scattered non-native plant species, such as ornamentals or ruderal exotic species that take advantage of disturbance. Disturbed habitat is similar to the non-native vegetation community described above, although disturbed areas generally supports little to no vegetative cover.

Disturbed areas totaling 3.61 acres were observed throughout the study area and were mostly associated with pedestrian trails. The disturbed areas were unvegetated and consisted of compacted soils.

Non-native Herbaceous Cover

Non-native herbaceous cover is typically associated with land that has been heavily influenced by human activities, including areas adjacent to roads, manufactured slopes, and abandoned lots. Non-native vegetation areas are dominated by ornamental and non-native species that take advantage of previously cleared or abandoned landscaping or land showing signs of past or present animal usage that removes any capability of providing viable habitat.

Non-native herbaceous cover totaled 2.92 acres and was observed in five patches on the study area, including along the eastern boundary, in the southern portion, and in the northern portion near La Paz Sports Park and adjacent to Alicia Parkway. This community was dominated by black mustard (*Brassica nigra*) and other non-native species, such as short-pod mustard (*Hirschfeldia incana*) and Russian thistle (*Salsola tragus*).

Park

Parks include open recreational areas that support landscape vegetation and/or turfgrass, such as greenbelts, golf courses, and city and county parks.

The majority of the study area was mapped as park, which totals 16.76 acres. The park areas were highly disturbed from recreational activities and supported a low diversity of plant species. These areas were dominated by turfgrass, such as a Bermuda grass (*Cynodon dactylon*). Other species observed included ornamental trees, such as Aleppo pine (*Pinus halepensis*) and Peruvian pepper tree (*Schinus molle*).

METHODS

The focused BUOW survey was conducted according to the CDFW BUOW survey guidelines (CDFG 2012), which includes Part I Habitat Assessment and Focused Burrow Survey and Part II Focused BUOW Surveys. The survey methods are described in further detail below.

Part I: Habitat Assessment and Focused Burrow Survey

Prior to conducting the habitat assessment, HELIX consulted the California Natural Diversity Database (CNDDB) to determine the nearest BUOW occurrence(s). A habitat assessment was conducted by HELIX biologists Ezekiel Cooley and Daniel Torres on March 9, 2018 to determine whether the study area supports suitable BUOW habitat. A focused burrow survey was conducted concurrently with the habitat assessment. All suitable burrows (i.e., greater than approximately 4 inches [11 cm] in height and width and greater than approximately 59 inches [50 cm] in depth) and burrow surrogates were recorded using a handheld Global Positioning System (GPS) unit. The habitat assessment and focused burrow survey were conducted prior to commencement of the BUOW focused surveys. The assessment was conducted on the study area and included an approximately 500-foot (150-m) buffer zone around the periphery of the study area (survey area). Inaccessible areas of the survey area, including land behind fences, were visually assessed using binoculars. The survey area was slowly walked and assessed for suitable BUOW habitat, including:

- disturbed, low-growing vegetation within grassland and shrublands (less than 30 percent canopy cover);
- gently rolling or level terrain;
- areas with abundant small mammal burrows, especially California ground squirrel (*Otospermophilus beecheyi*) burrows;
- fence posts, rocks, or other low perching locations; and
- man-made structures, such as earthen berms, debris piles, and cement culverts.

All potential owl burrows were checked for signs of recent owl occupation. Signs of occupation include:

- pellets/casting (regurgitated fur, bones, and/or insect parts);
- white wash (excrement); and/or
- feathers.

Part II: Focused Burrowing Owl Survey

Since suitable habitat and burrows were observed within the survey area during the habitat assessment, a focused BUOW survey was conducted to determine whether the survey area supports BUOW. The focused survey consisted of four breeding season surveys that were performed by HELIX biologists Ezekiel Cooley, Lauren Singleton, Amy Lee, and Daniel Torres between April 10 and June 29, 2018. The surveys were spaced at least three weeks apart, with at least one survey conducted between February 15 and April 15 and three surveys conducted between April 15 and July 15 (Table 1, *Survey Information*).

The biologist walked transects spaced no greater than approximately 65 feet apart (20 meters) to allow for 100 percent visual coverage of all suitable habitat within the survey area. The biologist walked slowly and methodically, closely checking suitable habitat within the survey area for BUOW diagnostic sign (e.g., molted feathers, pellets/castings, or whitewash at or near a burrow entrance) and individual BUOW. If observed, BUOW sign and BUOW observations were recorded with a GPS unit. Inaccessible areas of the survey area were visually assessed using binoculars.

Table 1
SURVEY INFORMATION

Site Visit	Survey Date	Biologist	Start/Stop Time	Start/Stop Weather Conditions	Survey Results
HA[1]	03/09/18	Ezekiel Cooley Daniel Torres	0800-0115	60°F, wind 0-1 mph, 15% clouds 68°F, wind 2-3 mph, 5% clouds	Suitable habitat and burrows present.
1	04/10/18	Amy Lee	0715-0950	58°F, wind 0-1 mph, 75% clouds 74°F, wind 1-2 mph, 0% clouds	No BUOW detected.
2	05/11/18	Lauren Singleton Daniel Torres	0555-0800	58°F, wind 6-7 mph, 100% clouds 60°F, wind 7-8 mph, 100% clouds	No BUOW detected.
3	06/01/18	Ezekiel Cooley	0530-1000	55°F, wind 0-1 mph, 50% clouds 64°F, wind 1-2 mph, 10% clouds	No BUOW detected.
4	06/29/18	Ezekiel Cooley	0600-0930	60°F, wind 1-2 mph, 100% clouds 65°F, wind 2-3 mph, 100% clouds	No BUOW detected.

[1] Part I Habitat Assessment and focused burrowing survey.

RESULTS

No BUOW have been previously recorded on the study area. The nearest BUOW observation recorded in CNDDB was observed in 2005, approximately 6.4 miles to the southeast of the survey area (CDFW 2018).

Suitable BUOW habitat was observed within the survey area, including low-growing vegetation within the disturbed habitat and open land on the nurseries (Attachment A). Several burrows that could potentially be used by BUOW were observed within the survey area and suitable foraging habitat was observed within and adjacent to the survey area. No BUOW or sign of BUOW occupation were observed within the survey area during the four breeding season surveys. Therefore, BUOW do not currently occupy the survey area. Observed burrow locations and transects walked are show on Figure 4, *Suitable Burrow and Transect Locations*.

CONCLUSION

No BUOW were observed or detected within the survey area during the focused surveys. Burrows with potential to support BUOW were noted within the survey area, but no sign of BUOW occupation was observed. A take avoidance (pre-construction) survey is required to be conducted within 14 days prior to construction activities (including ground disturbance) in accordance with CDFW Staff Report on Burrowing Owl Mitigation (2012). If construction activities are delayed more than 14 days after the take avoidance survey has been completed, the study area must be resurveyed.

If you have any questions regarding the information presented in this letter report, please contact us or Amir Morales at (949) 234-8770.

Sincerely,

Ezekiel Cooley
Biologist/Regulatory Specialist

Lauren Singleton
Biologist

Daniel Torres
Biologist

Amy Lee
Biologist

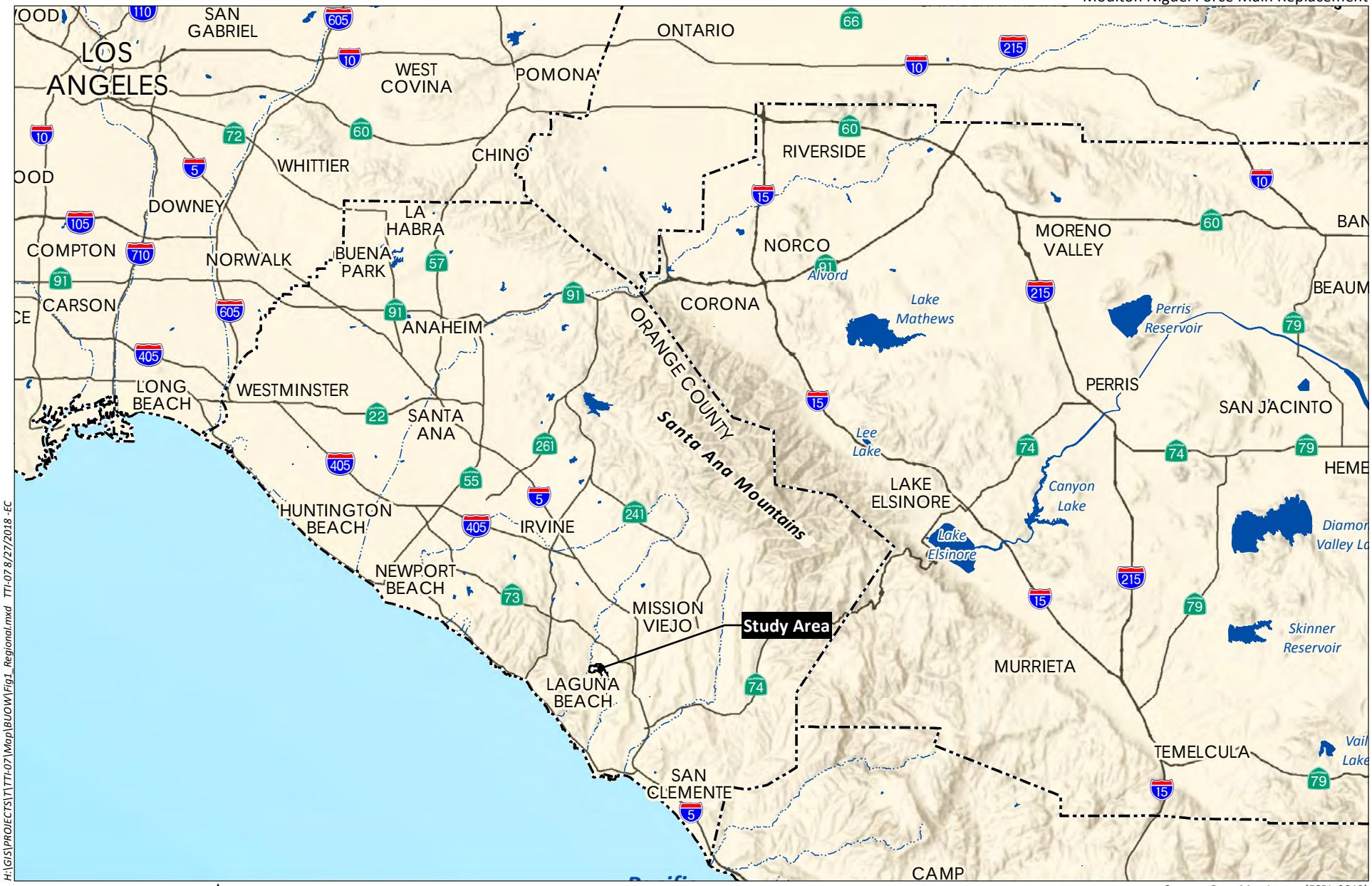
Enclosures:

Figure 1: Regional Location
Figure 2: USGS Topography
Figure 3: Aerial Vicinity
Figure 4: Suitable Burrow and Transect Locations
Figure 5: Site Photographs

REFERENCES

California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. State of California Natural Resource Agency. March 7.

California Department of Fish and Wildlife. 2018. California Natural Diversity Database and Rarefind. California Department of Fish and Wildlife: Sacramento, California. Retrieved from: https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed August 3, 2018.



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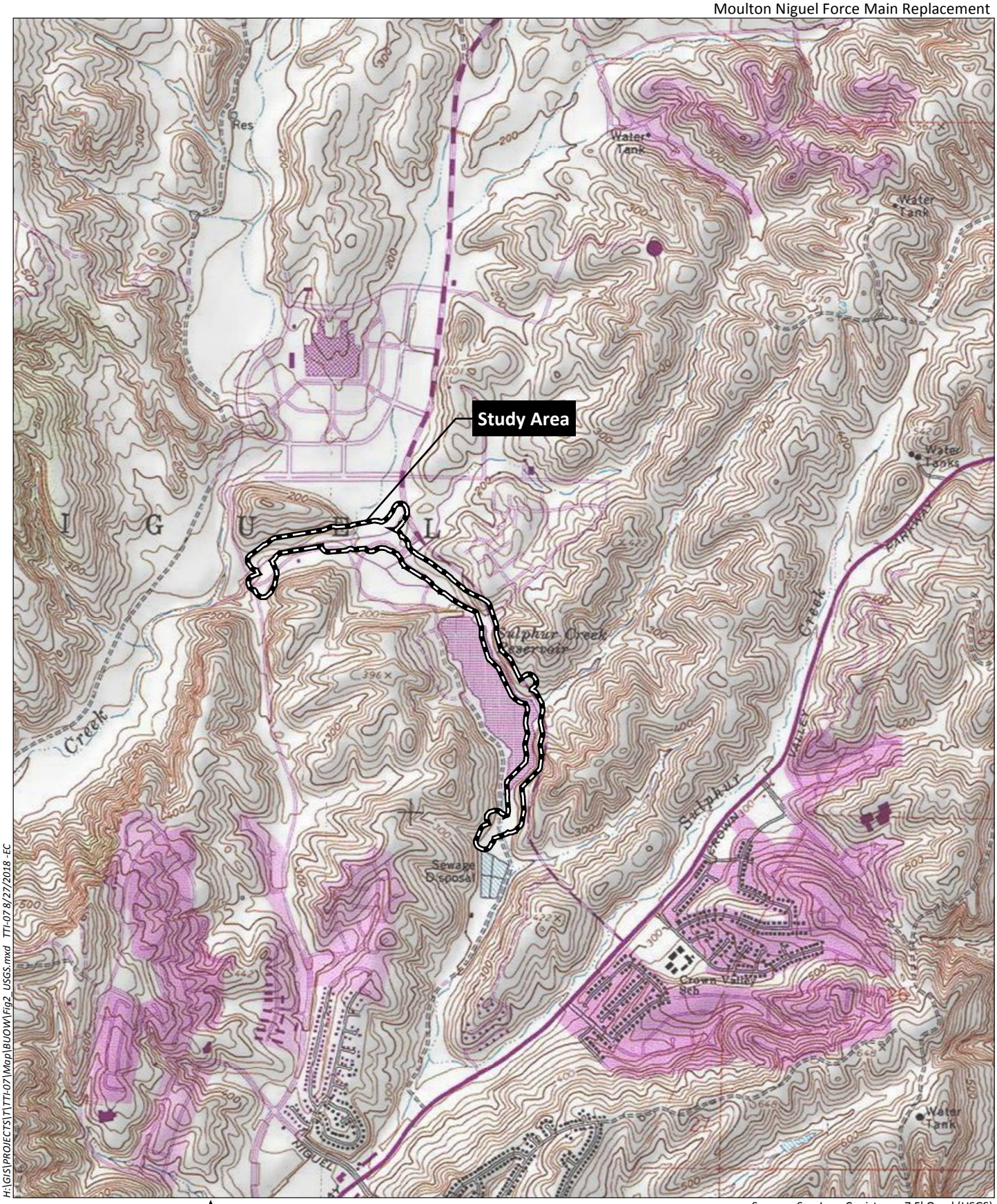
Source: Base Map Layers (ESRI, 2013)

HELIX Environmental Planning

Regional Location

Figure 1



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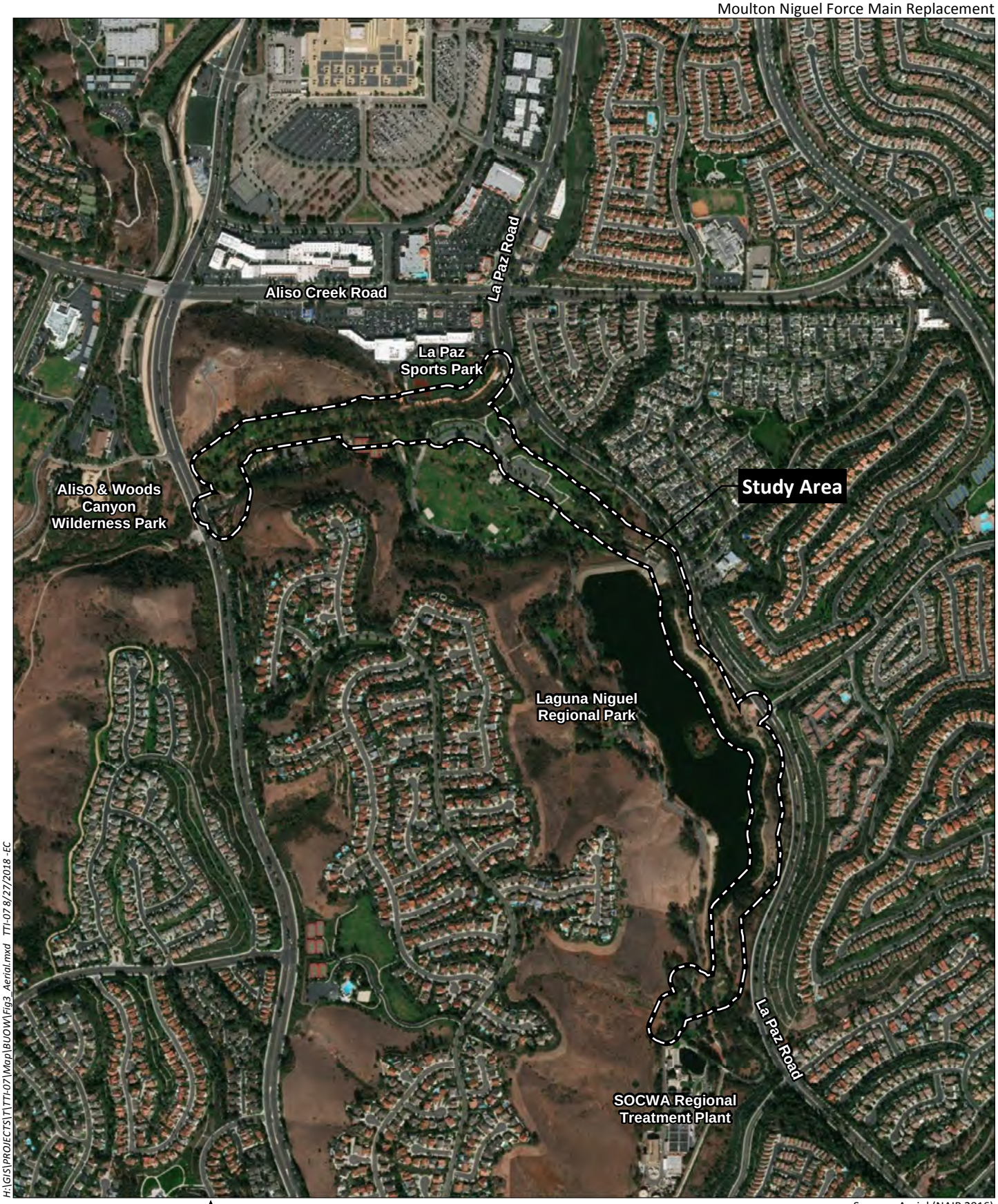
Source: San Juan Capistrano 7.5' Quad (USGS)

HELIX Environmental Planning

USGS Topography

Figure 2



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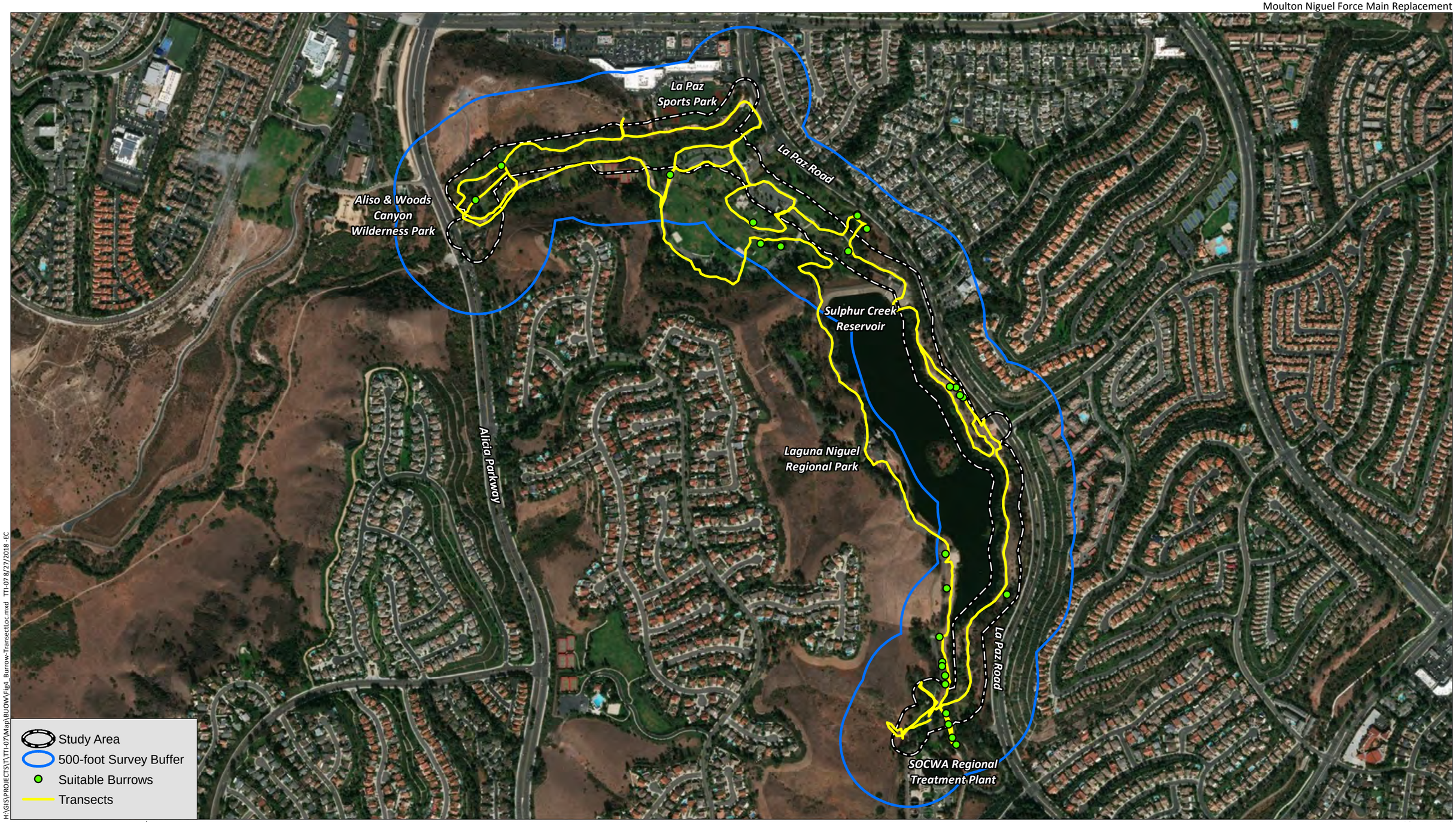
Source: Aerial (NAIP 2016)

HELIX
Environmental Planning

Aerial Vicinity

Figure 3



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Source: Aerial (NAIP, 2016)

HELIX
Environmental Planning

Suitable Burrow and Transect Locations

Figure 4

Photograph 1: View of the park areas within the northern portion of the study area, facing east.

Photograph 2: View of disturbed habitat within the central portion of the study area, facing southeast.

Photograph 3: View of disturbed habitat within the central portion of the study area, facing northwest.

Photograph 4: View of non-native vegetation within the central portion of the study area, facing east towards La Paz Road.

Source: HELIX 2018

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Appendix F

Coastal California Gnatcatcher Focused Survey Report

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942
619.462.1515 **tel**
619.462.0552 **fax**
www.**helixepi**.com

June 8, 2018 TTI-07

Ms. Stacey Love
U.S. Fish and Wildlife Service
2177 Salk Ave., Suite 250
Carlsbad, CA 92008

Subject: 2018 Coastal California Gnatcatcher (*Polioptila californica californica*) Survey Report for the Regional Lift Station Force Main Replacement Project

Dear Ms. Love:

This letter presents the results of a US Fish and Wildlife Service (USFWS) protocol presence/absence survey of the federally threatened coastal California gnatcatcher (*Polioptila californica californica*; CAGN) conducted by HELIX Environmental Planning, Inc. (HELIX) for the Regional Lift Station Force Main Replacement Project (project). The project includes replacement of the existing lift station and two force mains that transport flow from the Moulton Niguel Water District (MNWD) sewer collection system to the South Orange County Wastewater Authority Regional Treatment Plant. This report describes the methods used to perform the survey and the results, which is being submitted to the USFWS as a condition of HELIX's Threatened and Endangered Species Permit TE-778195-13.

PROJECT LOCATION

The approximately 55-acre project site is located within the City of Laguna Niguel (City), California (Figure 1). The site is generally located west of Interstate 5 and east of State Route 133 within the Laguna Niguel Regional Park located at 28241 La Paz Road (Figure 2). The site lies within unsectioned portions of Township 7 South, Range 8 West, on the U.S. Geological Survey (USGS) 7.5-minute Laguna Beach quadrangle map (Figure 3). The site is situated within the Central-Coastal Subregion of the Orange County Natural Community Conservation Plan (NCCP)/Habitat Conservation Plan (HCP); however, MNWD is not a participating entity of the NCCP/HCP.

METHODS

The MNWD is not a participating entity of the Orange County NCCP/HCP; therefore, the survey protocol for non-NCCP areas was followed for this project site. The survey consisted of six breeding season surveys that were performed by HELIX biologists Katie Bellon and Erica Harris (TE-778195-13) in accordance with the current (1997) USFWS protocol. The CAGN survey area encompassed the potential CAGN habitat within anticipated project area and a 500-foot buffer area. Approximately 14.5 acres of potential CAGN habitat occur within the survey area, which consists of coyote brush chaparral and

adjacent mule fat scrub and southern willow scrub habitat (Figure 4). Table 1 details the survey dates, times, and conditions.

The surveys were conducted by walking within and along the perimeter of potential CAGN habitat within the survey area. The survey route was arranged to ensure complete survey coverage of habitat with potential for occupancy by CAGN. Surveys were conducted with binoculars to aid in bird detection. Recorded CAGN vocalizations were played sparingly and only if other means of detection had failed. The approximate survey route followed is depicted on Figure 4.

Table 1
GNATCATCHER SURVEY INFORMATION

Site Visit	Survey Date	Biologist(s)	Start/Stop Time	Approx. Acres Surveyed/ Acres per Hour	Start/Stop Weather Conditions	Survey Results
1	03/20/18	Katie Bellon	0815/1000	14.5 ac/ 8.3 ac/hr	56°F, wind 1-3 mph, 100% cloud cover 61°F, wind 3-4 mph, 35% cloud cover	No CAGN detected
2	03/27/18	Katie Bellon	0920/1100	14.5 ac/ 8.7 ac/hr	58°F, wind 6-12 mph, 0% cloud cover 66°F, wind 6-12 mph, 0% cloud cover	No CAGN detected
3	04/03/18	Katie Bellon	0910/1040	14.5 ac/ 9.7 ac/hr	58°F, wind 1-2 mph, 100% cloud cover 61°F, wind 3-4 mph, 70% cloud cover	No CAGN detected
4	04/10/18	Erica Harris	0845/1045	14.5 ac/ 7.3 ac/hr	70°F, wind 0-1 mph, 5% cloud cover 84°F, wind 0-1 mph, 0% cloud cover	No CAGN detected
5	04/17/18	Katie Bellon	0915/1050	14.5 ac/ 9.2 ac/hr	53°F, wind 1-3 mph, 0% cloud cover 58°F, wind 1-3 mph, 0% cloud cover	No CAGN detected
6	04/24/18	Katie Bellon	0930/1120	14.5 ac/ 7.9 ac/hr	59°F, wind 1-3 mph, 30% cloud cover 64°F, wind 3-6 mph, 20% cloud cover	No CAGN detected

COASTAL CALIFORNIA GNATCATCHER HABITAT

Coyote brush chaparral was the only suitable habitat present within the survey area; however, mule fat scrub and southern willow scrub adjacent to coyote brush chaparral were also surveyed.

Coyote Brush Chaparral

Coyote brush chaparral (including coyote brush/ornamental, coyote brush/southern willow scrub and non-native vegetation/coyote brush chaparral) consists of evergreen shrubs with hard leaves that are thick to reduce evapotranspiration water loss. This vegetation community is dominated by coyote brush (*Baccharis pilularis*). Coyote brush/ornamental is dominated by coyote brush with several ornamental trees intermixed, such as acacias (*Acacia* spp.), Peruvian peppertree (*Schinus molle*), and red gum (*Eucalyptus camaldulensis*). Coyote brush/southern willow scrub is dominated by coyote brush with some black willows (*Salix gooddingii*) and mule fat (*Baccharis salicifolia*) intermixed. Non-native vegetation/coyote brush chaparral is dominated by non-native black mustard (*Brassica nigra*) with several coyote brush shrubs scattered throughout.

RESULTS

No coastal California gnatcatchers were detected during the survey (Figure 4). CAGN is assumed to be absent from the survey area.

CERTIFICATION

We certify that the information in this survey report and enclosed exhibit fully and accurately represent our work.

Sincerely,

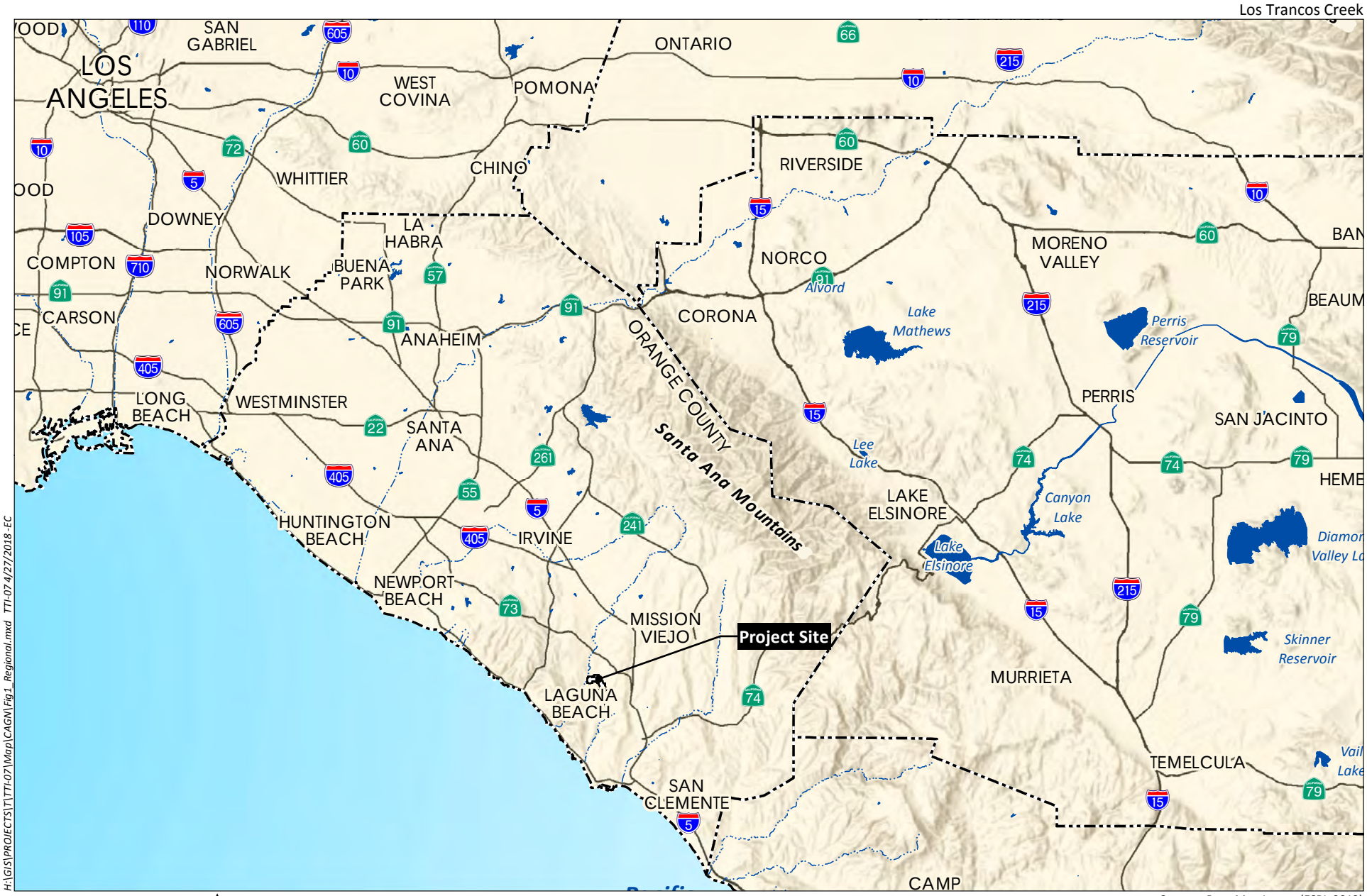
Katie Bellon
Biologist

Erica Harris
Biologist

Enclosures:
Figure 1 Regional Location
Figure 2 Project Vicinity (Aerial Photograph)
Figure 3 Project Vicinity (USGS Topography)
Figure 4 2018 Coastal California Gnatcatcher Survey Results

REFERENCES

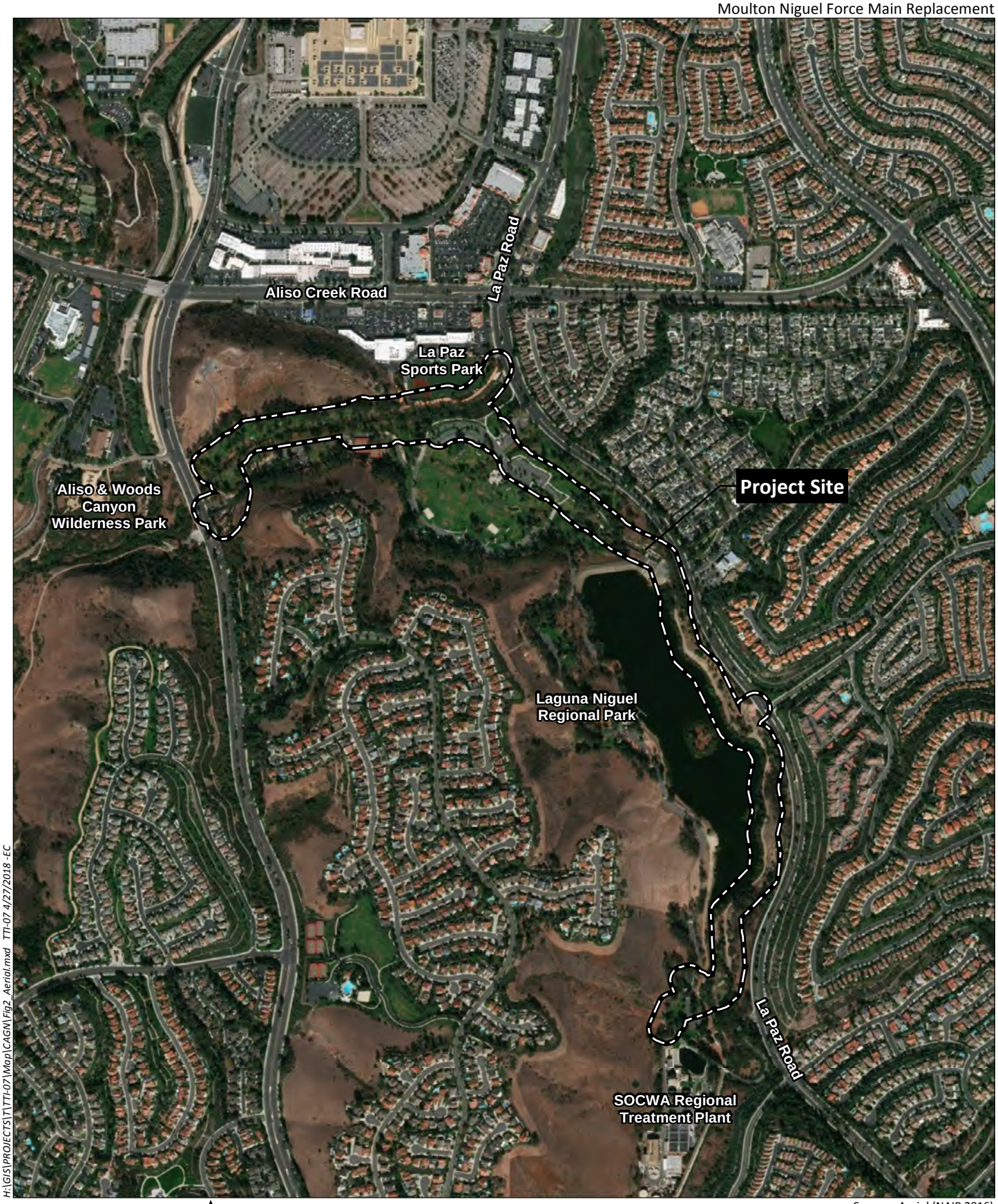
U.S. Fish and Wildlife Service (USFWS). 1997. Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Protocol. 5pp.



HELIX Environmental Planning

Regional Location

Figure 1



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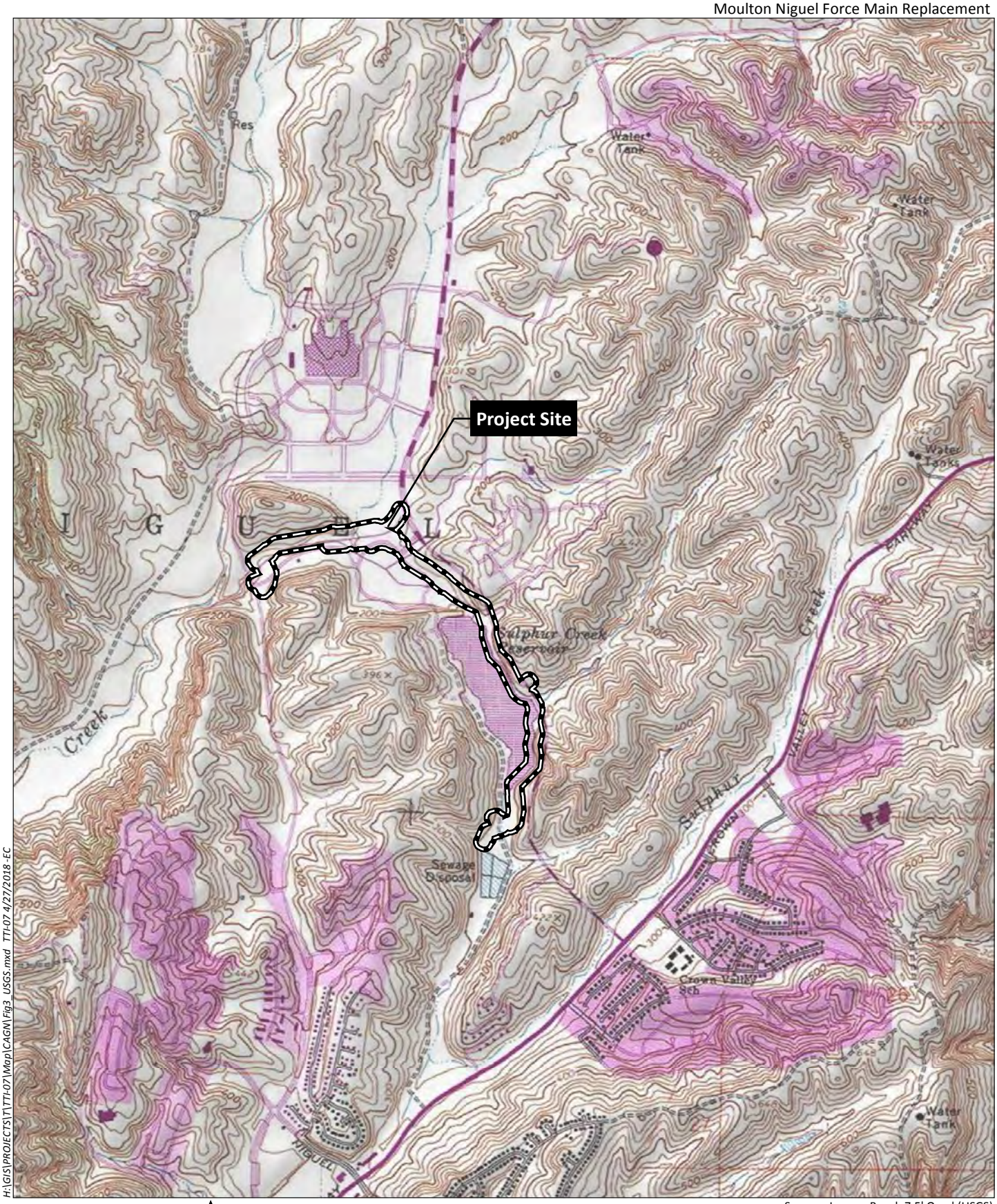
Source: Aerial (NAIP 2016)

HELIX
Environmental Planning

Aerial Vicinity

Figure 3

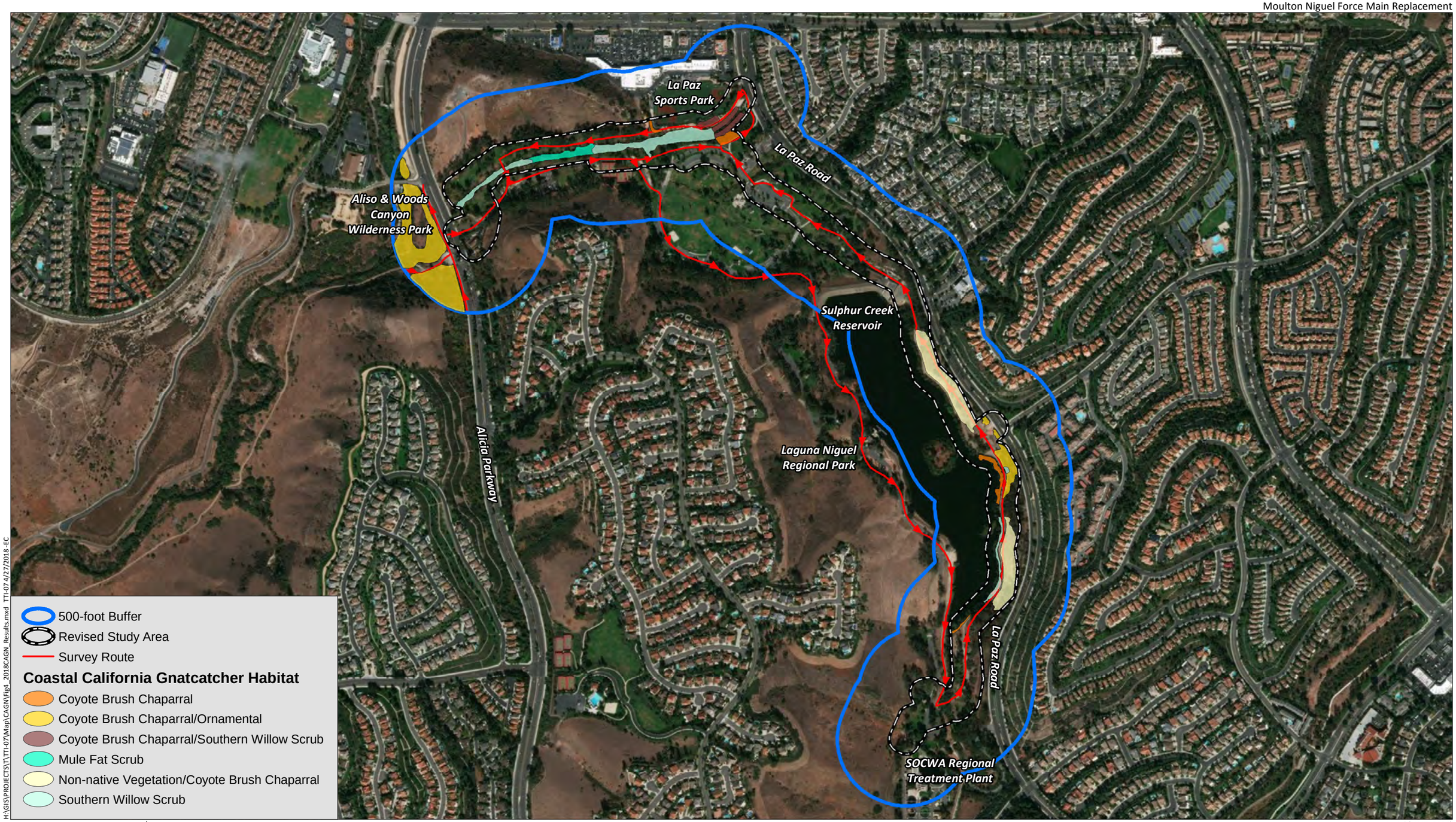


Source: Laguna Beach 7.5' Quad (USGS)

HELIX Environmental Planning

USGS Topography

Figure 3



Source: Aerial (NAIP, 2016)

HELIX Environmental Planning

2018 Coastal California Gnatcatcher Survey Results

Figure 4

Appendix G

Southwestern Willow Flycatcher Focused Survey Report

HELIX Environmental Planning, Inc.
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August 9, 2018 TTI-07

Ms. Stacey Love
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008

Subject: 2018 Southwestern Willow Flycatcher (Empidonax traillii extimus) Survey Report for the Regional Lift Station Force Main Replacement Project

Dear Ms. Love:

This letter presents the results of a U.S. Fish and Wildlife Service (USFWS) protocol presence/absence survey for the federally listed southwestern willow flycatcher (*Empidonax traillii extimus*; SWFL) conducted by HELIX Environmental Planning, Inc. (HELIX) for the Regional Lift Station Force Main Replacement Project (project). This report describes the methods used to perform the survey and the results. It is being submitted to the USFWS as a condition of HELIX's Threatened and Endangered Species Permit TE-778195-13.

PROJECT LOCATION

The approximately 49.64-acre study area is located in the City of Laguna Niguel, Orange County, California (Figure 1). It is situated in Sections 21, 22, and 27 of Township 7 North, Range 8 West of the San Juan Capistrano U.S. Geological Survey (USGS) 7.5-minute quadrangle (Figure 2). The study area is approximately 1.6 miles west of Interstate (I-) 5 and 2.7 miles east of State Route 133. It is mostly contained within Laguna Niguel Regional Park located at 28241 La Paz Rd., although a portion falls within the La Paz Sports Park (Figure 3). The study area extends from the most southern portion of Laguna Niguel Regional Park to the most northern portion of the park, traversing the park along the east bank of the Sulphur Creek Reservoir. At the northern extent of Laguna Niguel Regional Park, the study area extends west and terminates at Alicia Parkway (Figure 3).

METHODS

The survey consisted of five site visits conducted by HELIX biologist Erica Harris (TE-778195-13) and Cereus Environmental biologist Jason Berkley (TE-09015-4) in accordance with the current USFWS approved survey protocol (Sogge et al. 2010). The SWFL survey area consisted of approximately 4.1 acres of potential SWFL habitat made up of coyote brush chaparral/southern willow scrub, mule fat scrub, and southern willow scrub located along Sulphur Creek and Sulphur Creek Reservoir (Figure 4). Table 1 details the survey dates, times, and conditions.

Table 1
SURVEY INFOMRATION

Survey Period[1]	Site Visit	Survey Date	Biologist	Start/Stop Time	Approx. Acres Surveyed/ Acres Per Hour	Start/Stop Weather Conditions	Survey Results
1	1	5/29/18	Erica Harris	0745/0915	4.1 ac/ 2.7 ac per hr.	63°F, wind 1-2 mph, 100% clouds 71°F, wind 0-2 mph, 80% clouds	No flycatchers observed
2	2	6/08/18	Erica Harris	0745/0915	4.1 ac/ 2.7 ac per hr.	63°F, wind 0-1 mph, 100% clouds 76°F, wind 0-1 mph, 0% clouds	No flycatchers observed
2	3	6/19/18	Erica Harris	0900/1000	4.1 ac/ 4.1 ac per hr.	69°F, wind 0-2 mph, 30% clouds 76°F, wind 0-2 mph, 0% clouds	No flycatchers observed
3	4	7/3/18	Erica Harris	0800/0915	4.1 ac/ 3.3 ac per hr.	67°F, wind 0-1 mph, 100% clouds 70°F, wind 1-2 mph, 95% clouds	No flycatchers observed
3	5	7/11/18	Jason Berkley	0630/0815	4.1 ac/ 2.3 ac per hr.	68°F, wind 0-1 mph, 0% clouds 84°F, wind 0-1 mph, 0% clouds	No flycatchers observed

[1] Survey Period 1 (May 15–31), Survey Period 2 (June 1–24), Survey Period 3 (June 25–July 17).

Survey protocol requires that five survey visits be conducted at least five days apart, between the hours of sunrise and 10:30 a.m., within the three identified survey periods. A minimum of one survey was conducted between Survey Period 1 (May 15–31), a minimum of two surveys were conducted during Survey Period 2 (June 1–24), and a minimum of one survey was conducted during Survey Period 3 (June 25–July 17).

The surveys were conducted by walking within and along the perimeter of suitable SWFL habitat. Surveys were conducted with binoculars to aid in bird detection. Recorded SWFL vocalizations were played every 20 to 30 meters followed by a one-minute silent period to listen for a response. The survey route was arranged to ensure complete survey coverage of habitat with potential for occupancy by SWFL.

The surveys were conducted on the same days as the protocol surveys for the least Bell's vireo (*Vireo bellii pusillus*; LBVI). The LBVI survey was conducted sequentially after the SWFL survey. The surveyor surveyed for SWFL as they walked one direction along/within suitable SWFL habitat, and then surveyed for LBVI as they walked back the other direction. A separate survey report is being submitted for the LBVI survey effort (HELIX in preparation).

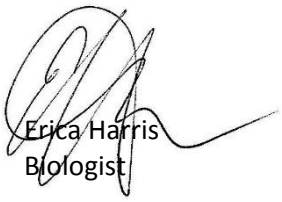
SURVEY RESULTS

No southwestern willow flycatchers were detected during the survey effort (Figure 4). A Willow Flycatcher Survey and Detection Form was completed and is included as Attachment A.

CERTIFICATION

I certify that the information in this survey report and attached exhibits fully and accurately represents our work. Please contact Amir Morales or Erica Harris at (949) 234-8792 should you have any questions.

Sincerely,



Erica Harris
Biologist

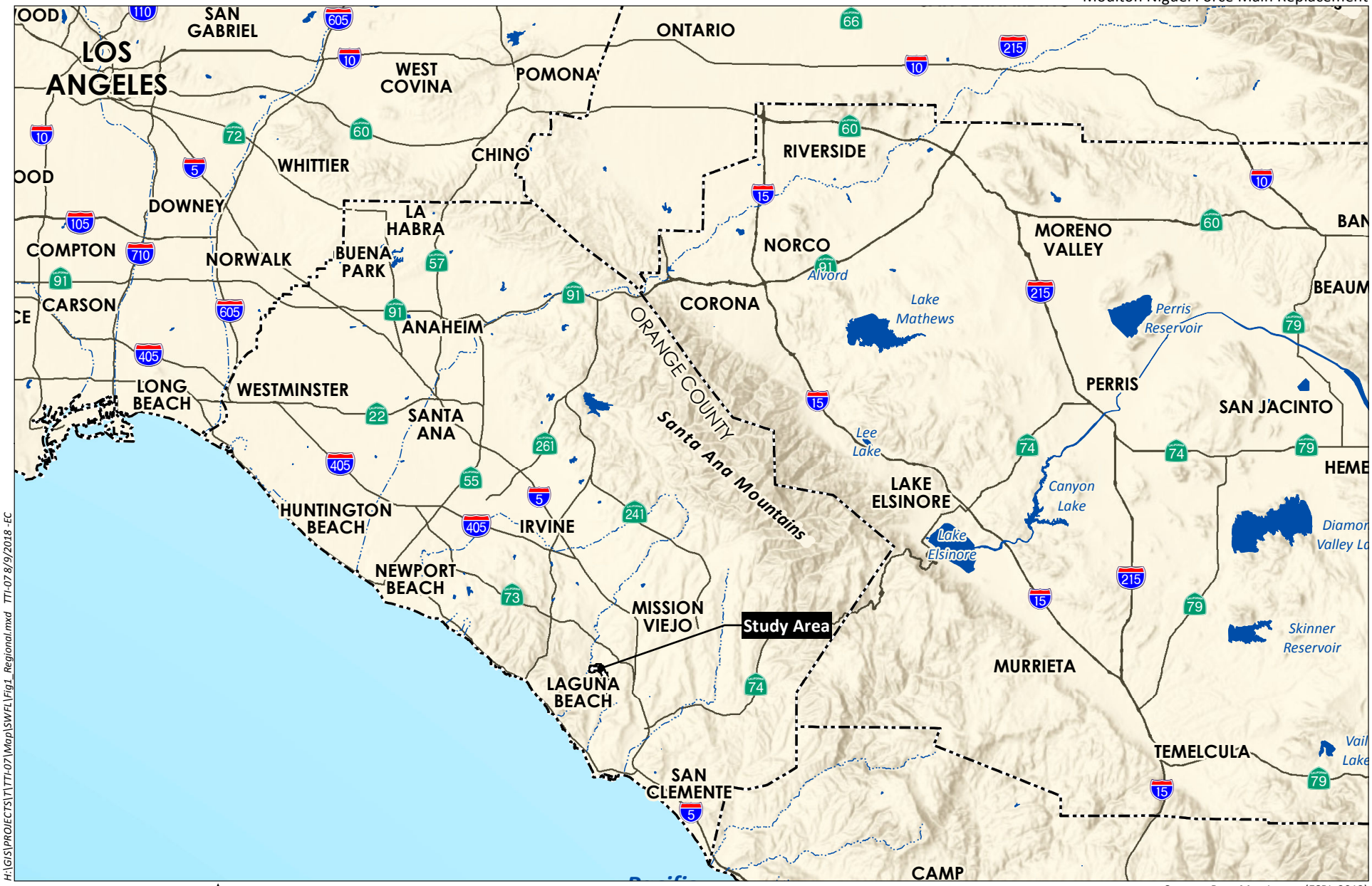
Jason Berkley
Biologist

Attachments:

Figure 1: Regional Location
Figure 2: USGS Topography
Figure 3: Aerial Vicinity
Figure 4: 2018 Southwestern Willow Flycatcher Survey Results
Attachment A: Willow Flycatcher Survey and Detection Form

REFERENCES

Sogge, Mark K., Ahlers, Darrell, and Sferra, Susan J. 2010. A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher: U.S. Geological Survey Techniques and Methods 2A-10.



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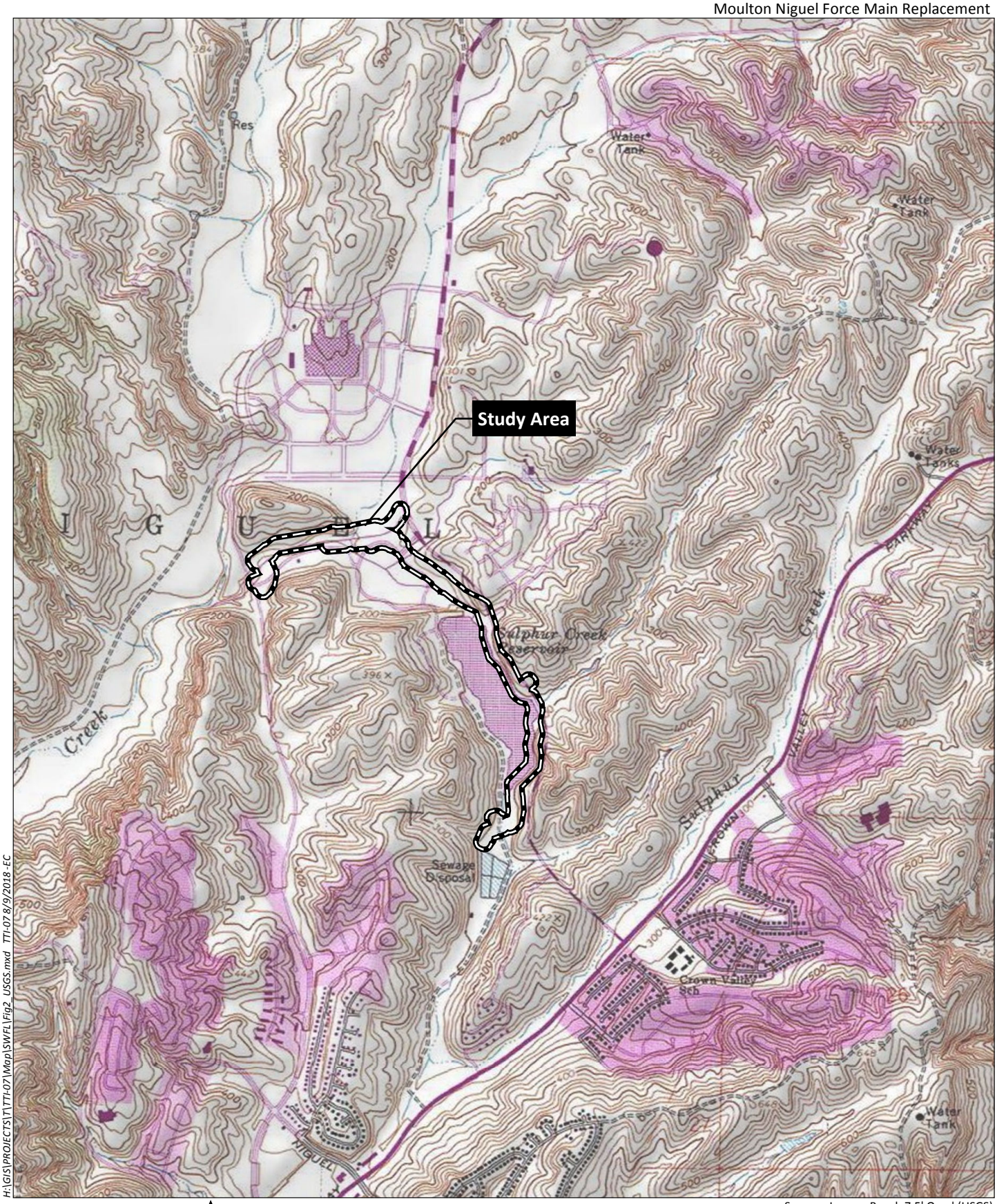
Source: Base Map Layers (ESRI, 2013)

HELIX Environmental Planning

Regional Location

Figure 1



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Source: Laguna Beach 7.5' Quad (USGS)

HELIX Environmental Planning

USGS Topography

Figure 2

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0 1,000 Feet

Source: Aerial (NAIP 2016)

HELIX Environmental Planning

Aerial Vicinity

Figure 3

Study Area

Southwestern Willow Flycathcer Habitat*

Coyote Brush Chaparral/Southern Willow Scrub

Mule Fat Scrub

Southern Willow Scrub

* No Southwestern Willow Flycatcher Detected

Aliso Creek Road

La Paz Sports Park

La Paz Road

Sulphur Creek Reservoir

Alicia Parkway

Laguna Niguel Regional Park

La Paz Road

SOCWA Regional Treatment Plant

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0 500 Feet

Source: Base Map Layers (SanGIS, 2016)

HELIX Environmental Planning

2018 Southwestern Willow Flycatcher Survey Results

Figure 4

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name: **Laguna Niguel Regional Park** State: **CA** County: **Orange**

USGS Quad Name: **San Juan Capistrano** Elevation: **60** (meters)

Creek, River, or Lake Name: **Sulphur Creek and Sulphur Creek Reservoir**

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? ***Yes*** **X** ***No*** ____

Survey Coordinates: Start: E **434628.75** N **3711346.99** UTM Datum: **WSG84** (See instructions)

Stop: E **433420.37** N **3712657.43** UTM Zone: **11S**

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

*****Fill in additional site information on back of this page*****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey Time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding;-potential threats [livestock, cowbirds, *Diorhabda* spp.]). If *Diorhabda* found, contact USFWS and State WIFL coordinator.	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1	Date: 5/29/2018	0	0	0	N	n/a				
Observer(s): Erica Harris	Start: 7:45									
	Stop: 9:15									
	Total hrs: 1.5									
Survey # 2	Date: 6/8/2018	0	0	0	N	n/a	# Birds	Sex	UTM E	UTM N
Observer(s): Erica Harris	Start: 7:45									
	Stop: 9:15									
	Total hrs: 1.5									
Survey # 3	Date: 6/19/2018	0	0	0	N	n/a	# Birds	Sex	UTM E	UTM N
Observer(s): Erica Harris	Start: 9:00									
	Stop: 0:00									
	Total hrs: 1.0									
Survey # 4	Date: 7/3/2018	0	0	0	N	n/a	# Birds	Sex	UTM E	UTM N
Observer(s): Erica Harris	Start: 8:00									
	Stop: 9:15									
	Total hrs: 1.3									
Survey # 5	Date: 7/11/2018	0	0	0	N	n/a	# Birds	Sex	UTM E	UTM N
Observer(s): Jason Berkley	Start: 6:30									
	Stop: 8:15									
	Total hrs: 1.8									

Overall Site Summary	Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any WIFLs color-banded? Yes ____ No ____
Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals.	0	0	0	0	If yes, report color combination(s) in the comments section on back of form and report to USFWS.
Total survey hrs: 7.0					

Reporting Individual: **Erica Harris** Date Report Completed: **8/9/2018**

US Fish & Wildlife Service Permit #: **TE-778195-13** State Wildlife Agency Permit #: ____

***Submit** form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.*

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual: **Erica Harris** Phone #: **619-462-1515**

Affiliation: **HELIX Environmental Planning, Inc.** E-mail: EricaH@helixepi.com

Site Name: **Laguna Niguel Regional Park** Date report Completed: **8/9/2018**

Was this site surveyed in a previous year? Yes____ No__X__ Unknown____

Did you verify that this site name is consistent with that used in previous yrs? Yes____ No____ Not Applicable **X**

If name is different, what name(s) was used in the past? **N/A**

If site was surveyed last year, did you survey the same general area this year? Yes____ No____ If no, summarize below.

Did you survey the same general area during each visit to this site this year? Yes____ No____ If no, summarize below.

Management Authority for Survey Area: Federal____ Municipal/County **X** State____ Tribal____ Private____

Name of Management Entity or Owner (e.g., Tonto National Forest) **County of Orange**

Length of area surveyed: **1.8** (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

____ Native broadleaf plants (entirely or almost entirely, > 90% native)

X Mixed native and exotic plants (mostly native, 50 - 90% native)

____ Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)

____ Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.

Baccharis salicifolia, Salix gooddingii, Salix laevigata

Average height of canopy (Do not include a range): **4** (meters)

Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections;
2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests;
3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features. Attach additional sheets if necessary.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Appendix H

Least Bell's Vireo Focused Survey Report

HELIX Environmental Planning, Inc.
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Irvine, CA 92618
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619.462.0552 **fax**
www.**helixepi**.com

August 9, 2018 TTI-07

Ms. Stacey Love
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008

Subject: 2018 Least Bell's Vireo (*Vireo bellii pusillis*) Survey Report for the Regional Lift Station Force Main Replacement Project

Dear Ms. Love:

This letter presents the results of a U.S. Fish and Wildlife Service (USFWS) protocol presence/absence survey for the federally endangered least Bell's vireo (*Vireo bellii pusillus*; LBVI) conducted by HELIX Environmental Planning, Inc. (HELIX) for the Regional Lift Station Force Main Replacement Project (project). This letter describes the survey methods and results and is being submitted to the USFWS in accordance with protocol survey guidelines.

PROJECT LOCATION

The approximately 49.64-acre study area is located in the City of Laguna Niguel, Orange County, California (Figure 1). It is situated in Sections 21, 22, and 27 of Township 7 North, Range 8 West of the San Juan Capistrano U.S. Geological Survey (USGS) 7.5-minute quadrangle (Figure 2). The site is approximately 1.6 miles west of Interstate (I-) 5 and 2.7 miles east of State Route 133. It is mostly contained within Laguna Niguel Regional Park located at 28241 La Paz Rd., although a portion falls within the La Paz Sports Park (Figure 3). The study area extends from the most southern portion of Laguna Niguel Regional Park to the most northern portion of the park, traversing the park along the east bank of the Sulphur Creek Reservoir. At the northern extent of Laguna Niguel Regional Park, the study area extends west and terminates at Alicia Parkway (Figure 3).

METHODS

The survey consisted of eight site visits conducted by HELIX biologists Erica Harris, Ezekiel Cooley, and Lauren Singleton and Cereus Environmental biologist Jason Berkley between April 27 and July 11, 2018 (Table 1), in accordance with the current USFWS survey protocol (2001). The surveys were conducted by walking along the edges of, as well as within, potential LBVI habitat in the survey area while listening for LBVI and viewing birds with the aid of binoculars. The survey route was designed to ensure complete

survey coverage of habitat potentially occupied by LBVI. The survey area consisted of approximately 5.4 acres of suitable LBVI habitat within the study area, including coyote brush chaparral/southern willow scrub, mule fat scrub, and southern willow scrub within Narco Channel, Sulphur Creek, and Sulphur Creek Reservoir (Figure 4). Accessible habitat in the immediate vicinity was also surveyed. Table 1 details the survey dates, times, and conditions.

A portion of the surveys were conducted on the same days as the protocol surveys for the southwestern willow flycatcher (*Empidonax traillii extimus*; SWFL). During these survey visits, a permitted biologist for SWFL surveyed the entire survey area for SWFL. Once the SWFL survey was completed, the biologist surveyed the entire survey area for LBVI (Table 1). A separate survey report is being submitted for the SWFL surveys (HELIX; in preparation).

Table 1
SURVEY INFORMATION

Site Visit	Survey Date	Biologist	Time Start-End	Approx. Acres Surveyed/Acres per Hour	Start/Stop Weather Conditions	Survey Result	
						Least Bell's Vireo (LBVI)	Brown-Headed Cowbird[1]
1	04/27/18	Ezekiel Cooley	0745-1100	5.4 ac/ 1.7 ac per hr.	56°F, wind 0-1 mph, 100% clouds 61°F, wind 0-1 mph, 100% clouds	• Male (later determined to be same male as in Pair No. 1) singing in the central portion of the study area to the north of Sulfur Creek Reservoir and south of the park entrance.	0
2	05/08/18	Lauren Singleton	0715-1100	5.4 ac/ 1.4 ac per hr.	58°F, wind 3-4 mph, 100% clouds 65°F, wind 1-2 mph, 35% clouds	No LBVI detected.	0
3	05/18/18	Ezekiel Cooley	0545-0900	5.4 ac/ 1.7 ac per hr.	56°F, wind 1-2 mph, 90% clouds 64°F, wind 0-1 mph, 100% clouds	• Male from Pair No. 1 heard singing in the same general area.	0
4	05/29/18	Erica Harris[2]	0915-1030	5.4 ac/ 4.3 ac per hr.	63°F, wind 1-2 mph, 100% clouds 70°F, wind 0-2 mph, 80% clouds	• Male from Pair No. 1 heard singing in the same general area.	5
5	06/8/18	Erica Harris[2]	0915-1030	5.4 ac/ 4.3 ac per hr.	63°F, wind 0-1 mph, 100% clouds 76°F, wind 0-1 mph, 0% clouds	• Male from Pair No. 1 heard singing in the same general area.	3
6	06/19/18	Erica Harris[2]	1000-1100	5.4 ac/ 5.4 ac per hr.	69°F, wind 0-2 mph, 30% clouds 76°F, wind 0-2 mph, 0% clouds	• Pair No. 1 observed building a nest within a coast live oak (*Quercus agrifolia*) in the same general area.	7
7	06/29/18	Erica Harris[2]	0915-1030	5.4 ac/ 4.3 ac per hr.	67°F, wind 0-1 mph, 100% clouds 70°F, wind 1-2 mph, 95% clouds	• Male from Pair No. 1 observed singing in the same general area, away from the nest. Female from Pair No. 1 was not observed. No activity observed at nest.	10
8	07/11/18	Jason Berkely[2]	0815-1000	5.4 ac/ 3.1 ac per hr.	68°F, wind 0 mph, 0% clouds 84°F, wind 0 mph, 0% clouds	No LBVI detected.	0

[1] Number of brown-headed cowbird (*Molothrus ater*) detected during survey.
[2] Southwestern willow flycatcher (*Empidonax traillii extimus*) biologist; Conducted surveys on same day as the flycatcher surveys.

SURVEY RESULTS

One least Bell's vireo pair was detected within the study area during the 2018 survey effort (Figure 4). No banded individuals were observed during the survey. The LBVI pair (Pair No. 1) was detected in the central portion of the study area within the park landscaping, approximately 1,000 feet to the southeast of the park entrance and 250 feet north of Sulfur Creek Reservoir (Figure 4). A single male was detected at this location during the first survey. The male was not detected during the second survey but was observed singing in the same general location during the third, fourth, and fifth survey. A pair was observed building a nest in a coast live oak (*Quercus agrifolia*) in the same general location. The male is presumed to be the same male observed during the first, third, fourth, and fifth surveys. The male was observed further south of the nest during the seventh survey and no other LBVI individuals were detected at the nest location. No LBVI were detected within this area during the eighth survey.

The brown-headed cowbird (*Molothrus ater*; BHCO), a nest parasite of the LBVI, was detected during four of the eight surveys in three separate locations (Figure 4). Observations of BHCO included singing males, calling females, and multiple individuals observed in courtship displays.

CERTIFICATION

I certify that the information in this survey report and attached exhibits fully and accurately represents our work. Please contact Amir Morales or us at (949) 234-8792 should you have any questions.

Sincerely,

Erica Harris
Biologist

Ezekiel Cooley
Biologist

Lauren Singleton
Biologist

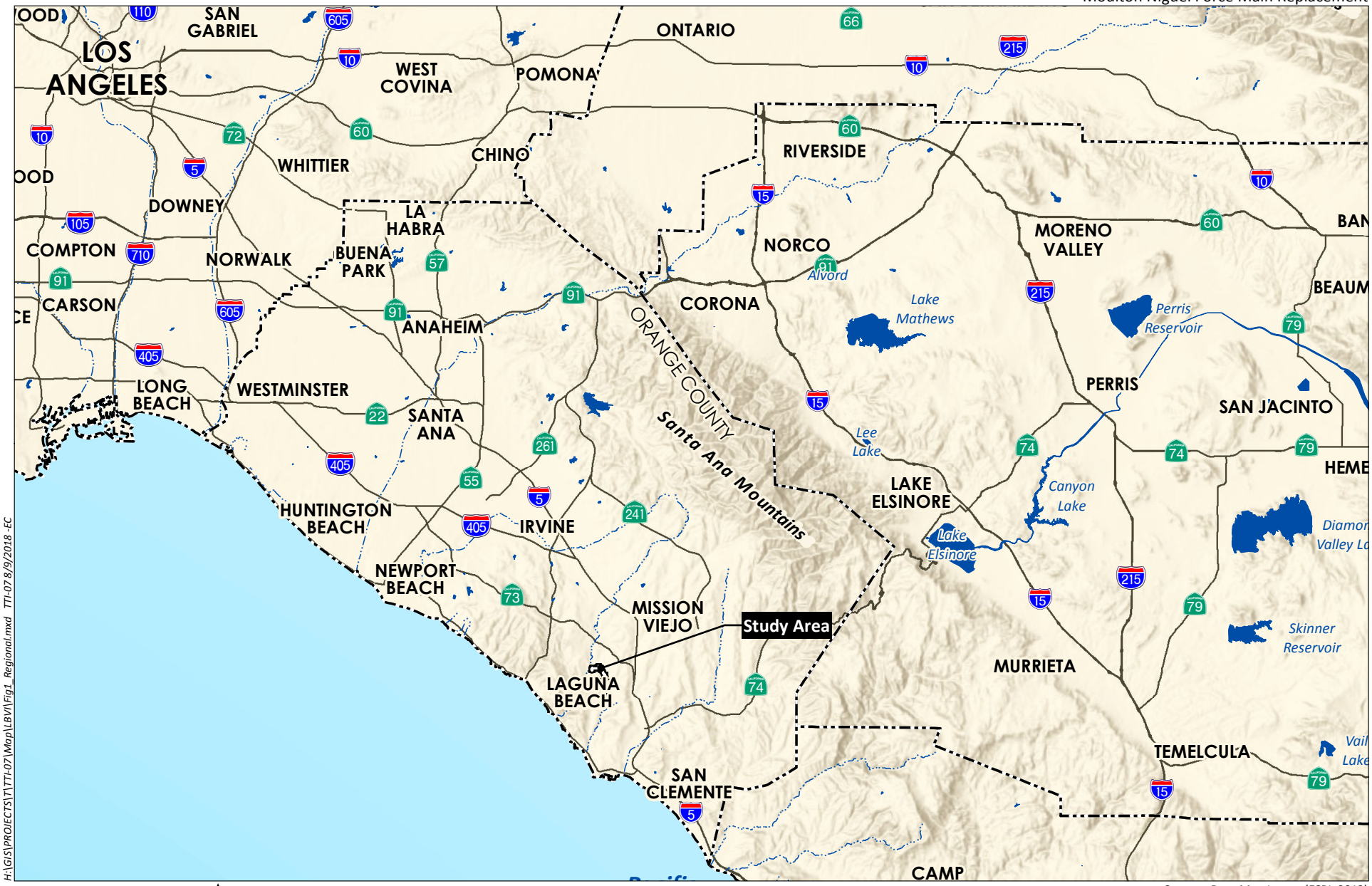
Jason Berkley
Biologist

Attachments:

Figure 1: Regional Location
Figure 2: USGS Topography
Figure 3: Aerial Vicinity
Figure 4: 2018 Least Bell's Vireo Survey Results

REFERENCES

U.S. Fish and Wildlife Service (USFWS). 2001. Least Bell's Vireo Survey Guidelines. January 19.



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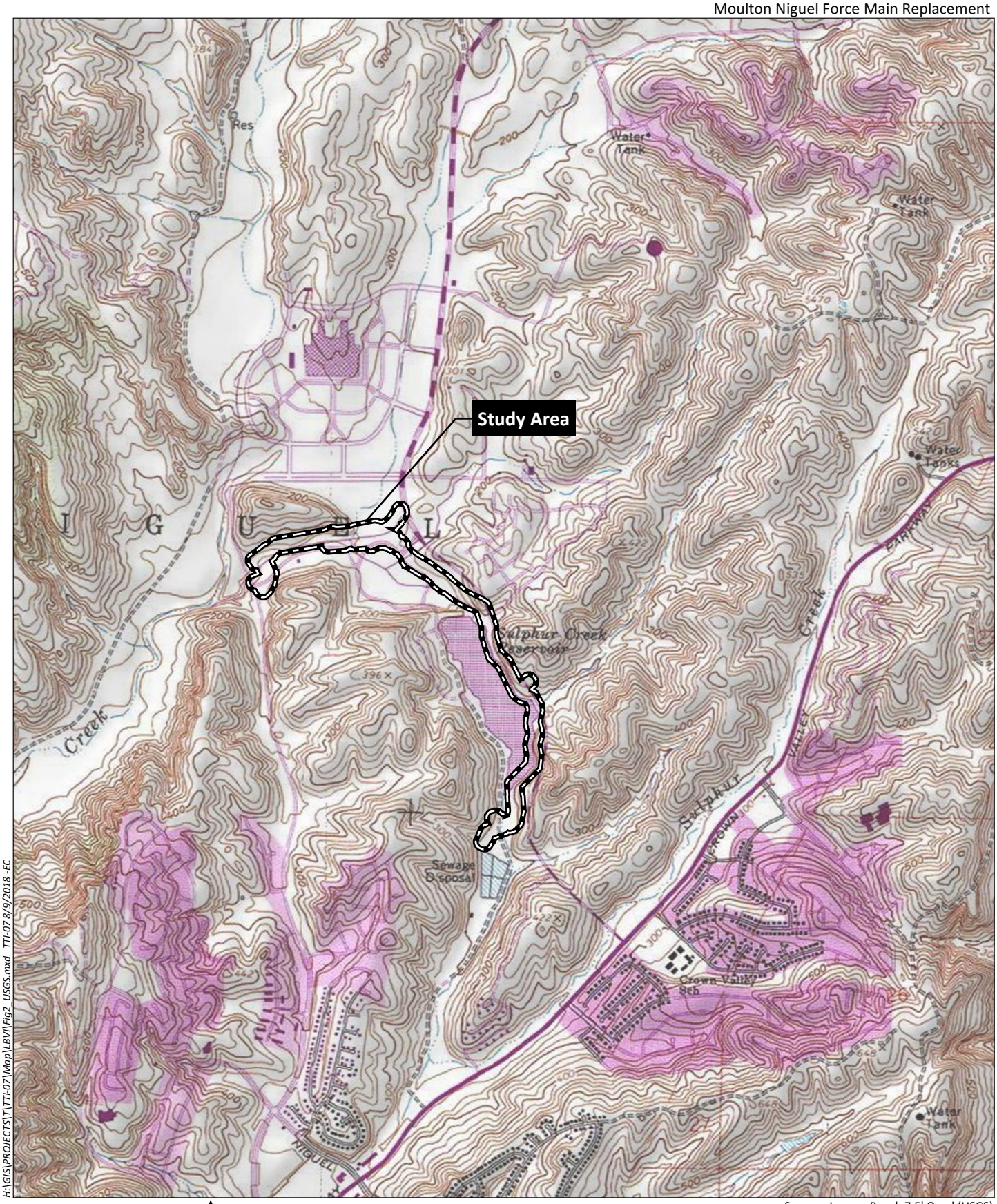
Source: Base Map Layers (ESRI, 2013)

HELIX Environmental Planning

Regional Location

Figure 1



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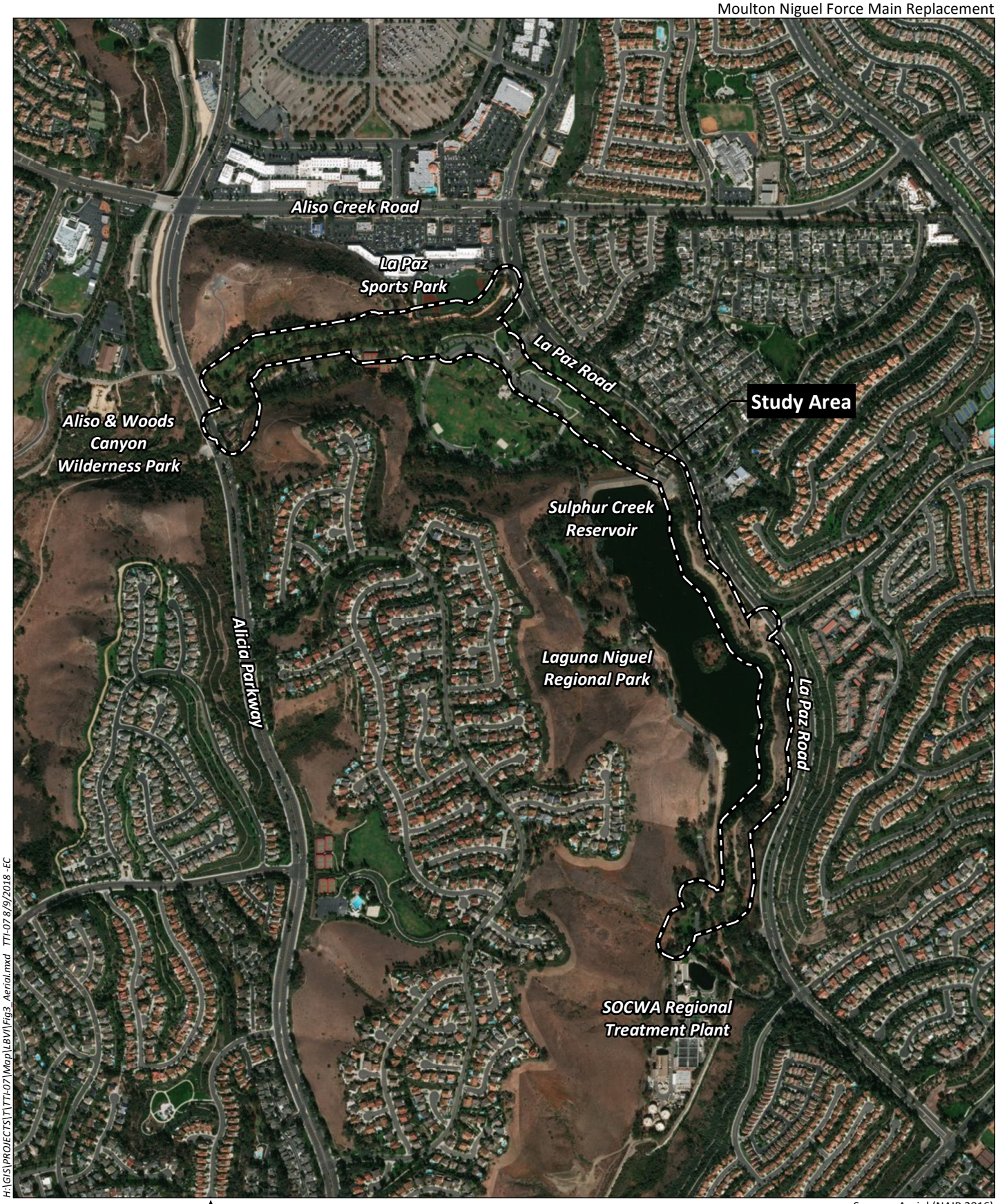
0 2,000 Feet

Source: Laguna Beach 7.5' Quad (USGS)

HELIX Environmental Planning

USGS Topography

Figure 2



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0 1,000 Feet

N

Source: Aerial (NAIP 2016)

HELIX Environmental Planning

Aerial Vicinity

Figure 3

Study Area

Least Bell's Vireo (*Vireo Bellii pusillus*)

Pair #1

Brown-headed Cowbird (*Molothrus ater*)

Observation

Least Bell's Vireo Habitat

Coyote Brush Chaparral/Southern Willow Scrub

Mule Fat Scrub

Southern Willow Scrub

Aliso Creek Road

La Paz Sports Park

La Paz Road

Pair #1
04/27/18 – single male
05/08/18 – not detected
05/18/18 – single male
05/29/18 – single male
06/08/18 – single male
06/19/18 – pair with nest
07/03/18 – single male
07/11/18 – not detected

Sulphur Creek Reservoir

Laguna Niguel Regional Park

Alicia Parkway

La Paz Road

SOCWA Regional Treatment Plant

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0 500 Feet

Source: Base Map Layers (SanGIS, 2016)

HELIX Environmental Planning

2018 Least Bell's Vireo Survey Results

Figure 4

Appendix I

Rare Plant Species Potential to Occur

Appendix I
Rare Plant Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Atriplex coulteri	Coulter's saltbush	CRPR 1B.2	Coastal bluff scrub, coastal dunes, valley and foothill grasslands, and desert slopes. Associated with alkaline and clay soils. Elevation range 3-460 m. Flowering period Mar-Oct.	**None.** The study area does not support coastal bluff scrub, coastal dunes, valley and foothill grasslands, or desert slope habitats.
Brodiaea filifolia	thread-leaved brodiaea	FT/SE CRPR 1B.1	Medium perennial herb. Occurs in clay soils within vernally moist grasslands and vernal pool periphery are typical locales. Elevation range 25-860 m. Flowering period Mar-Jun.	**None.** The study area does not support vernally moist grassland or vernal pool habitats.
Calochortus weedii var. *intermedius*	intermediate mariposa lily	CRPR 1B.2	Medium perennial herb. Occurs on dry, rocky slopes within openings in chaparral, coastal scrub, and grassland habitats. Elevation range 0-680 m. Flowering period Jun-Oct.	**Presumed Absent.** There is potential for this species to occur in chaparral habitat on the study area. The potential is considered moderate since this species was recorded on the Consortium of California Herbaria in 2014, approximately 3.5 miles to the southwest of the study area. This species was not observed during the rare plant surveys.
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	CRPR 1B.1	Small annual herb. Occurs in sandy soils within coastal bluff scrub and coastal dunes. Elevation range 0-100 m. Flowering period Apr-Jul.	**None.** The study area does not support coastal bluff scrub or coastal dunes habitat.

Appendix I (cont.)
Rare Plant Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	CRPR 1B.2	Large shrub. Occurs on mesic north-facing slopes in southern mixed chaparral. Rugged steep drainages seem to be a preferred location for isolated shrubs. Elevation range 30-790 m. Flowering period May-Jun.	**Presumed Absent.** The study area does support mixed chaparral habitats but does not support steep, rugged drainages. The potential is considered low since this species was recorded on the Consortium of California Herbaria in 2014, approximately 3.5 miles to the southwest of the study area. This species was not observed during the rare plant surveys.
Dudleya multicaulis	many-stemmed dudleya	CRPR 1B.2	Medium perennial herb. Occurs in heavy soils (often clay) and sandstone outcrops. Often associated with dry, stony places within coastal sage scrub, valley grasslands, and coastal plains. Elevation range 0-600 m. Flowering period May-Jun.	**None.** The study area does not support heavy soils or sandstone outcrops. There are no valley grasslands or coastal plains in the study area.
Dudleya stolonifera	Laguna Beach dudleya	FT/ST CRPR 1B.1	Medium perennial herb. Occurs in rocky soils within chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitats. Elevation range 10-260 m. Flowering period May-Jul.	**Presumed Absent**. The study area supports low-quality chaparral habitats. This species was not observed during the rare plant surveys.
Euphorbia misera	cliff spurge	CRPR 2B.2	Medium shrub. Sea bluffs in coastal scrub within rocky soils. Also occurs in Mojavean desert scrub. Elevation range 10-500 m. Flowering period Jan-Aug.	**None.** The study area does not support sea bluffs with coastal scrub or Mojavean desert scrub habitats.
Hordeum intercedens	vernal barley	CRPR 3.2	Small annual grass. Saline flats and depressions in grasslands or in vernal pool basins. Elevation range 5-1000 m. Flowering period Mar-Jun.	**None.** The study area does not support saline flats, depressional areas, or vernal pool basins.

Appendix I (cont.)
Rare Plant Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Iva hayesiana	San Diego marsh elder	CRPR 2B.2	Large perennial herb. Occurs in alkali flats, depressions, and streambanks. Elevation range 0-300 m. Flowering period Mar-Sep.	**Presumed Present.** The study area supports alkaline area and streambanks. Two individuals were observed in the north portion of Sulphur Creek during the summer rare plant survey.
Nolina cismontana	chaparral nolina	CRPR 1B.2	Large shrub. Occurs on sandstone, shale, and gabbro substrates within chaparral and coastal scrub. Elevation range 200-1300 m. Flowering period May-Jul.	**None.** The study area does not support chaparral or coastal scrub habitats within sandstone or gabbro soils. Additionally, the study area is below the elevation range of this species.
Pentachaeta aurea ssp. *allenii*	Allen's pentachaeta	CRPR 1B.1	Small annual herb. Occurs in openings of coastal scrub and valley and foothill grassland habitats. Elevation range 75-520 m. Flowering period Mar-May.	**Presumed Absent.** The study area does not support coastal scrub habitat. This species was not observed during the rare plant surveys.
Phacelia ramosissima var. *austrolitoralis*	south coast branching phacelia	CRPR 3.2	Medium perennial herb. Occurs in chaparral, coastal dunes, coastal scrub, coastal salt marshes and swamps within sandy or rocky substrates. Elevation range 5-300 m. Flowering period Mar-Aug.	**Presumed Absent.** The study are does support low-quality chaparral habitats. The potential is considerate moderate because there is was a fairly large population recorded in 2017 by Barry Nerhus along the banks of Aliso Creek, approximately 2 miles to the northwest of the study area. This species was not observed during the rare plant surveys.

Appendix I (cont.)
Rare Plant Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Pseudognaphalium leucocephalum	white rabbit-tobacco	CRPR 2B.2	Medium biennial or short-lived perennial herb. Occurs in sandy and gravelly benches, dry stream and canyon bottoms within woodland, coastal scrub, and chaparral. Elevation range 0-500 m. Flowering period Jul-Oct.	**Presumed Absent.** There is a potential for this species to occur within the southern willow scrub habitat. The potential is considered moderate since there are several populations recorded in by the Consortium of California Herbaria in Oso Creek, approximately 12 miles to the southeast of the study area. This species was not observed during the rare plant surveys.
Quercus dumosa	Nuttall's scrub oak	CRPR 1B.1	Large shrub. Occurs in chaparral habitats with a relatively open canopy cover and coastal scrub. Typically occurs on north-facing slopes and may grow in dense monotypic stands. Prefers sandy or clay loam soils. Elevation range 15-400 m. Flowering period Mar-May.	**Presumed Absent.** The study are does support low-quality chaparral habitats. This species was not observed during the rare plant surveys.
Verbesina dissita	big-leaved crownbeard	FT/ST CRPR 1B.1	Large perennial herb. Typically grows on north-facing slopes within maritime chaparral, coastal sage scrub, and mixed chaparral habitats. Favors gravelly soil with humus topsoil. Elevation range 45-205 m. Flowering period May-Aug.	**None.** This species occurs further south of the study area, less than 2 miles from the coast.

Source: HELIX (2018)

[1] Sensitive species reported within the San Juan Capistrano quadrangle on CNDDB and CNPS databases.

[2] Listing is as follows: F = Federal; S = State of California; E = Endangered; T = Threatened.
CRPR = California Rare Plant Rank: 1A – presumed extinct; 1B – rare, threatened, or endangered in California and elsewhere; 2A – rare, threatened, or endangered in California and elsewhere; 2B – rare, threatened, or endangered in California but more common elsewhere; 3 – more information on distribution, endangerment, ecology, and/or taxonomic validity is needed. Extension codes: .1 – seriously endangered; .2 – moderately endangered; . 3 – not very endangered.

[3] Potential to Occur is assessed as follows: **None**: Habitat suitable for species survival does not occur on the study area, the study area is not within geographic range of the species, and/or the study area is not within the elevation range of the species; **Low**: Suitable habitat is present on the study area but of low quality and/or small extent. The species has not been recorded recently on or near the study area. Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty; **Moderate**: Suitable habitat is present on the study area and the species was recorded recently near the study area; however, the habitat is of moderate quality and/or small extent. Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty; **High**: Suitable habitat of sufficient extent is present on the study area and the species has been recorded recently on or near the study area, but was not observed during surveys for the current project. However, focused/protocol surveys are not required or have not been completed; **Presumed Present**: The species was observed during focused surveys for the current project and is assumed to occupy the study area; **Presumed Absent**: Suitable habitat is present on the study area but focused surveys for the species were negative.

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Appendix J

Sensitive Animal Species Potential to Occur

Appendix J
Sensitive Animal Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Fish				
Eucyclogobius newberryi	tidewater goby	FE/SSC	Occurs in still brackish water that is shallow and high in dissolved oxygen.	**None.** The study area does not support suitable brackish water habitat for this species.
Gila orcuttii	arroyo chub	SSC	Prefers slow moving streams or backwaters with sand or mud bottoms. Streams are typically deeper than 40 centimeters (16 inches). Primary food source is aquatic vegetation and invertebrates.	**Low.** The study area supports slow moving streams with sandy/muddy bottoms, particularly between the Sulphur Creek Reservoir and Alicia Parkway. However, the potential for this species is considered low since suitable habitat is not present upstream or downstream from this location and Sulphur Creek receives significant runoff from surrounding development, which poor water quality limits the study area's suitability for this species. The nearest CNDDB occurrence record of this species was observed in 1998 within Arroyo Trabuco, approximately 2.5 miles to the east of the study area.
Amphibians				
Spea hammondii	western spadefoot	SSC	Occurs in open coastal sage scrub, chaparral, and grassland, along sandy or gravelly washes, floodplains, alluvial fans, or playas; require temporary pools for breeding and friable soils for burrowing; generally excluded from areas with bullfrogs (*Rana catesbiana*) or crayfish (*Procambarus* spp.)	**None.** The study area does not support suitable temporary pools required for breeding.

Appendix J (cont.)
Sensitive Animal Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Reptiles				
Arizona elegans occidentalis	California glossy snake	SSC	Most common in desert habitats but also occur in chaparral, sagebrush, valley-foothill hardwood, pine-juniper, and annual grass. Prefers open sandy areas with scattered brush, but also found in rocky areas.	**Low.** The study area supports low-quality chaparral habitat, although there has not been a CNDDB occurrence record in the area in over 50 years.
Aspidoscelis tigris stejnegeri	coastal whiptail	SSC	Open coastal sage scrub, chaparral, and woodlands. Frequently found along the edges of dirt roads traversing its habitats. Important habitat components include open, sunny areas, shrub cover with accumulated leaf litter, and an abundance of insects, spiders, or scorpions.	**Low.** The study area supports some suitable habitat for this species. However, the habitat within the study area is low-quality and does not connect to any other suitable habitat. The nearest CNDDB occurrence was recorded in 2001, approximately 3 miles to the southwest of the study area within Aliso and Wood Canyons Wilderness Park.
Emys marmorata	southwestern pond turtle	SSC	Almost entirely aquatic; occurs in freshwater marshes, creeks, ponds, rivers and streams, particularly where basking sites, deep water retreats, and egg laying areas are readily available.	**Moderate.** The study area supports suitable habitat for this species within Sulphur Creek and the Sulphur Creek reservoir. There is a CNDDB occurrence recorded in 1970 at the north end of Sulphur Creek.

Appendix J (cont.)
Sensitive Animal Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Reptiles (cont.)				
Phrynosoma blainvillii	coast horned lizard	SSC	Coastal sage scrub and open areas in chaparral, oak (*Quercus* sp.) woodlands, and coniferous forests with sufficient basking sites, adequate scrub cover, and areas of loose soil; require native ants, especially harvester ants (*Pogonomyrmex* spp.), and are generally excluded from areas invaded by Argentine ants (*Linepithema humile*).	**Low.** The study area does support low-quality chaparral, oak woodlands, and coastal scrub.
Thamnophis hammondii	two-striped gartersnake	SSC	Occurs along perennial and intermittent streams bordered by dense riparian vegetation, but occasionally associated with vernal pools or stock ponds.	**Moderate.** The study area supports suitable habitat with riparian vegetation. The nearest CNDDB occurrence record was observed in 1999, approximately 3.0 miles to the east of the study area within Arroyo Trabuco.
Birds				
Agelaius tricolor	tricolored blackbird	SCE	Breeds in dense stands of cattails (*Typha* sp.) or bulrushes (*Schoenoplectus* sp./*Scirpus* sp.) located within large freshwater marshes. Forages in adjacent open habitats, such as agricultural fields, pastures, shallow wetlands, or grasslands.	**High.** The study area supports suitable habitat for this species. There is an CNDDB record of this species occurring within Sulphur Creek Reservoir between 1994 and 2000.
Ammodramus savannarum	grasshopper sparrow	SSC	Breeds and forages in dense grasslands (prefers native grasslands) on rolling hills, plains, valleys, and lower mountain slopes. This species nests directly on the ground within thick grasses.	**Not Expected**. The study area does not support suitable grassland habitat, although this species may occasionally pass through the study area to access more suitable habitat.

Appendix J (cont.)
Sensitive Animal Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Birds (cont.)				
Athene cunicularia	burrowing owl	SSC	Typical habitat is grasslands, open scrublands, agricultural fields, and other areas where there are ground squirrel burrows or other areas in which to burrow.	**Presumed Absent.** Although the study area supports suitable habitat and burrows, no burrowing owls were observed during the focused survey.
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	SSC	Occurs in coastal sage scrub with large cactus for nesting.	**None.** The study area does not support cactus patches suitable for this species.
Elanus leucurus	white-tailed kite	SFP	Nests in trees with dense canopies within open grasslands, woodlands, and marshes. Forages for small mammals within lightly grazed/ungrazed pastures and grasslands.	**Moderate.** The study area supports suitable nesting habitat but does not support suitable foraging habitat. The nearest CNDDB occurrence record was in 2008, approximately 2.10 miles to the east of the study area within Arroyo Trabuco.
Empidonax traillii extimus	southwestern willow flycatcher	FE/SE	Nests within thickets of willows or other riparian understory usually along streams, ponds, lakes, or canyons. Migrants may be found among other shrubs in wetter areas.	**Presumed Absent.** Suitable habitat is present within the southern willow scrub. No southwestern willow flycatchers were observed during the focused survey.
Polioptila californica californica	coastal California gnatcatcher	FT/SSC	Occurs in coastal sage scrub and very open chaparral.	**Presumed Absent.** The study area supports low-quality coastal scrub or chaparral habitat. The nearest CNDDB occurrence was recorded in 2001, approximately 1.5 miles to the southeast of the study area in the vicinity of Arroyo Trabuco.
Setophaga petechia	yellow warbler	SSC	Breeds in lowland and foothill riparian woodland, dominated by cottonwoods, alder (*Alnus* sp.), or willows.	**Presumed Present.** This species was observed during the least Bell's vireo focused survey.

Appendix J (cont.)
Sensitive Animal Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Birds (cont.)				
Vireo bellii pusillus	least Bell's vireo	FE/SE	Inhabits riparian woodland and is most frequent in areas that combine an understory of dense, young willows or mule fat with a canopy of tall willows.	**Presumed Present.** Suitable habitat is present within the southern willow scrub. One least Bell's vireo pair was detected during the focused survey in the central portion of the study area within the park landscaping, approximately 1,000 feet to the southeast of the park entrance and 250 feet north of Sulfur Creek Reservoir.
Mammals				
Eumops perotis californicus	western mastiff bat	SSC	Roosts under exfoliating rock slabs on cliff faces and occasionally in large boulder crevices and building cracks. Forages in a variety of open areas, including washes, floodplains, chaparral, coastal sage scrub, woodlands, ponderosa pine forests, grassland, and agricultural areas.	**Moderate.** Although the study area does not support suitable roosting habitat, this species may forage within the southern willow scrub habitat. The species was recorded on CNDDB as an auditory observation within nearby Aliso and Woods Canyon Wilderness Park.

Source: HELIX (2018)

[1] Sensitive species reported within the San Juan Capistrano quadrangle on CNDDB and CNPS databases.

[2] Listing is as follows: F = Federal; S = State of California; E = Endangered; T = Threatened; CE = Candidate Endangered; CT = Candidate Threated; FP = Fully Protected; SSC = State Species of Special Concern.

[3] Potential to Occur is assessed as follows. **None**: Species is so limited to a particular habitat that it cannot disperse across unsuitable habitat (*e.g.* aquatic organisms), and habitat suitable for its survival does not occur on the study area; **Not Expected**: Species moves freely and might disperse through or across the study area, but suitable habitat for residence or breeding does not occur on the study area (includes species recorded during surveys but only as transients); **Low**: Suitable habitat is present on the study area but of low quality and/or small extent. The species has not been recorded recently on or near the study area. Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty; **Moderate**: Suitable habitat is present on the study area and the species was recorded recently near the study area; however, the habitat is of moderate quality and/or small extent. Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty; **High**: Suitable habitat of sufficient extent for residence or breeding is present on the study area and the species has been recorded recently on or near the study area, but was not observed during surveys for the current project. However, focused/protocol surveys are not required or have not been completed; **Presumed Present**: The species was observed during biological surveys for the current project and is assumed to occupy the study area; **Presumed Absent**: Suitable habitat is present on the study area but focused/protocol surveys for the species were negative.

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Appendix B

Cultural Resources Technical Report

HELIX Environmental Planning

Moulton Niguel Water District Regional Lift Station Force Main Replacement Project

Cultural Resources Report

July 2018

Mary Robbins-Wade
Director of Cultural Resources

Submitted to:

Moulton Niguel Water District
27500 La Paz Road
Laguna Niguel, CA 92677

Prepared for:

Tetra Tech, Inc.
17885 Von Karman Avenue, Suite 500
Irvine, CA 92614

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

Moulton Niguel Water District Regional Lift Station Force Main Replacement Project

Cultural Resources Survey

Submitted to:

Moulton Niguel Water District
27500 La Paz Road
Laguna Niguel, CA 92677

Prepared for:

Tetra Tech, Inc.
17885 Von Karman Avenue, Suite 500
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Prepared by:

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July 2018 | TTI-07

National Archaeological Database Information

Authors:	Mary Robbins-Wade, M.A., RPA, and Julie Roy, B.A.
Firm:	HELIX Environmental Planning, Inc.
Client/Project:	Tetra Tech, Inc., 17885 Von Karman Avenue, Suite 500, Irvine, CA 92614/ Moulton Niguel Water District Regional Lift Station Force Main Replacement Project
Report Date:	July 2018
Report Title:	Cultural Resources Survey for the Moulton Niguel Water District Regional Lift Station Force Main Replacement Project, Laguna Niguel, Orange County, California
Submitted to:	Moulton Niguel Water District, 27500 La Paz Road, Laguna Niguel, CA 92677
Type of Study:	Cultural resources survey
New Sites:	None
Updated Sites:	CA-ORA-18
USGS Quad:	San Juan Capistrano 7.5-minute quadrangle
Acreage:	Approximately 55 acres
Key Words:	Orange County; Niguel land grant; Laguna Niguel; Alicia Parkway; Laguna Niguel Regional Park; cultural resources survey; CA-ORA-18, CA-ORA-423/CA-ORA-1072, CA-ORA-424, CA-ORA-509; village site, burials, bedrock milling, ground stone, flaked stone; perpetual spring; Township 7 South, Range 8 West, unsectioned

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
AMSL	above mean sea level
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CHRIS	California Historical Resources Information System
CFR	Code of Federal Regulations
CRHR	California Register of Historical Resources
HELIX	HELIX Environmental Planning, Inc.
NAHC	Native American Heritage Commission
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
OHP	Office of Historic Preservation
PRC	Public Resources Code
SLF	Sacred Lands File
SCCIC	South Central Coastal Information Center
TCR	Tribal Cultural Resources
TCP	Traditional Cultural Properties
USGS	U.S. Geological Survey

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EXECUTIVE SUMMARY

HELIX Environmental Planning, Inc. (HELIX) was contracted to provide cultural resources services for the Moulton Niguel Water District Regional Lift Station Force Main Replacement Project (project) in the City of Laguna Niguel, in southern Orange County, California. The project consists of the replacement of two aging forced main pipelines, totaling 7,325 feet, located within the Laguna Niguel Regional Park. A cultural resources study including a records search and literature review, Sacred Lands File search, Native American outreach, a review of historic aerial photographs and maps, and a pedestrian survey was conducted for the project. The survey area included a 100-foot buffer on either side of the proposed centerline of the pipeline alignment. This report details the methods and results of the cultural resources study and has been prepared to comply with the California Environmental Quality Act (CEQA) and the National Historic Preservation Act (NHPA).

The records search obtained from the South Central Coastal Information Center (SCCIC) in September 2017 indicated that 38 previous cultural resources studies have been conducted within ½ mile of the project area, seven of which included portions of the project study area. The records search results also indicated that a total of nine cultural resources have been previously recorded within ½ mile of the project area, one of which (P-30-000018/CA-ORA-18) is located partially within the project site, and three of which are within 150 feet of the project study area (P-30-000423/CA-ORA-423, P-30-000424/CA-ORA-424, and P-30-000509/CA-ORA-509). In addition, site P-30-001072/CA-ORA-1072 is now considered a part of P-30-000423.

P-30-000018 was originally described in 1935 and was recorded in 1949 as "probably very large camp" with material scattered over wide area. In addition to bedrock mortars, a "burial ground" was noted. A 1960 site record indicated the presence of a midden deposit approximately 50 feet wide and 3 to 4 feet deep. A "perpetual spring" was noted on the site record; this, in addition to the stream, would have been a draw for settlement by the Native people. A later note on the site record indicates the site has been destroyed and cites a 1986 report (Bissell 1986a). The depths of disturbance to the site within the project area are not known, and there is a potential for subsurface cultural material to be present.

P-30-000423 was originally recorded in 1973 and described as possibly covering 2 to 3 acres; freshwater mussel shell, worked chert, and ground stone were noted. The site record indicated that the "[d]eepest part of site may actually be buried". A site record update from 2000 described P-30-000423 as a "large, relatively undisturbed village." Three burials were recovered, and the site record noted both data recovery excavations at the site and excavations by a college field school. Radiocarbon dates of 1665 to 355 years ago were obtained. Deep midden deposits have been recorded at the site, which is mapped to the west of the project area, and there is a potential that subsurface cultural material may extend into the project area. P-30-001072 is mapped within the boundaries for P-30-000423 and is now considered to be a part of that site. P-30-001072 was recorded in 1985 and described as a shell scatter with ground stone, chipping waste and fire modified fragments. However, data recovery excavations revealed rich cultural deposits to almost 2 meters in some places. The subsurface extent of the site was found to be much greater than what was visible on the surface.

P-30-000424 was recorded in 1973 as a small flat or terrace adjacent to a small stream. Artifacts noted were six manos, five metate fragments, and one chert core. The site record noted that the site had been graded, and artifacts were strewn around; thus, the exact site boundaries were unclear. P-30-000424 is mapped a short distance west of the project alignment.

P-30-000509 was recorded in 1975 and described as a scatter of chert flakes, but the site record goes on to say that a basalt metate, two projectile points, and five point fragments were collected. Remnants of a possible house pit were noted as well. This site is mapped just north of the project study area.

The field investigation included intensive pedestrian survey of the study area by HELIX archaeologists and a Native American monitor from the Juaneño Band of Mission Indians, Acjachemen Nation on March 8, 2018. The survey did not result in the identification of any cultural material within the project survey area. However, the project site was covered by dense vegetation, as well as landscape and hardscape; thus, the original ground surface could not be observed. As discussed in the report, the project site is located in an area of alluvial and colluvial deposits, as well as developed park features, where there is a potential for buried cultural resources.

Based on the results of the current study, no historical resources (per CEQA) or historic properties (per NHPA) will be affected by the Moulton Niguel Water District Regional Lift Station Force Main Replacement Project. However, due to the cultural sensitivity of the project area and the lack of visibility of the ground surface, it is recommended that an archaeological and Native American monitoring program be implemented for ground-disturbing activities. The monitoring program would include attendance by the archaeologist and Native American monitor at a preconstruction meeting with the grading contractor and the presence of archaeological and Native American monitors during ground-disturbing activities on site. Both archaeological and Native American monitors would have the authority to temporarily halt or redirect grading and other ground-disturbing activity in the event that cultural resources are encountered. If significant cultural material is encountered, the monitors will coordinate with Moulton Niguel Water District staff to develop and implement appropriate mitigation measures.

1.0 INTRODUCTION

1.1 PROJECT LOCATION

The Moulton Niguel Water District (District) Regional Lift Station Force Main Replacement Project (project) is located in the City of Laguna Niguel (City) in South Orange County (Figure 1, *Regional Location*). The project is located west of Interstate (I-) 5 and south of California State Route (SR) 73 within the Niguel Land Grant on the U.S. Geological Survey (USGS) 7.5-minute San Juan Capistrano quadrangle (Figure 2, *USGS Topography*). The project alignment is bordered by La Paz Road to the east and Alicia Parkway to the west, with Aliso Creek Road to the north (Figure 3, *Aerial Vicinity*). The project area is located in an unsectioned portion of Township 7 South, Range 8 West (Figure 2).

1.2 PROJECT DESCRIPTION

The District is proposing replacement of two existing force mains that pump wastewater from the District's sewer collection system. The force mains are located within the Laguna Niguel Regional Park.

The Regional Lift Station is located at 28386 Alicia Parkway in Laguna Niguel. The Regional Lift Station and Force Mains are critical wastewater facilities that pump flow from the District's sewer collection system to the South Orange County Wastewater Authority (SOCWA) Regional Treatment Plant. The lift station contains five pumps, each with a capacity of 3,600 gallons per minute (gpm) at 147 feet of lift. The typical minimum daily flow-rate of the lift station is 5,800 gpm, and typical maximum daily flow-rate is 7,200 gpm. However, during periods of heavy rains, the lift station has historically discharged a maximum peak flow-rate of 15,500 gpm.

The lift station currently pumps flow into parallel 20-inch and 24-inch Techite pipe force mains. Only one pipe is used at a time for typical flows. The existing force mains were originally constructed in 1979 and are located in service roads within the Laguna Niguel Regional Park. The length of each existing force main is approximately 7,325 feet. Due to the brittle nature of Techite pipe and the industry reputation of failure, the District is proceeding with this project to replace the existing force mains.

The 20-inch and 24-inch force mains would be replaced by dual 24-inch force mains, each approximately 8,500 linear feet. The force mains would begin at the SOCWA Regional Treatment Plant, and head north following a service path on the east side of the Sulphur Creek Reservoir. North of the reservoir, the force mains' alignment would travel through the main access road for the Laguna Niguel Regional Park and turn west. The alignment would end at the Regional Lift Station near Alicia Parkway. The existing force mains, following service roads on the west side of the Sulphur Creek Reservoir, would be abandoned in place (one or both of the force mains may be repurposed in the future for secondary effluent from the Regional Treatment Plant). Sewer service would be maintained through the existing pipes during construction. The District would install the new force mains utilizing open-cut trenching and trenchless microtunneling installation methods.

Microtunneling is a method of trenchless installation that uses a steerable, unmanned microtunnel boring machine (MTBM) launched from an entry shaft toward a pre-excavated receiving shaft. As the MTBM excavates the tunnel, jacking pipes are simultaneously jacked behind the MTBM. Jacks are located in the bore pit. This process enables immediate and continuous support of the tunnel, with excavation and lining occurring simultaneously in a single operation. For this project, microtunneling

would be a two-pass method with the first pass being the installation of the steel casing. The second pass would be the installation of the dual force mains pipes. Microtunneling is necessary to minimize and avoid impacts to the environment (e.g., to avoid trenching through jurisdictional).

The depth of disturbance for trenching activities would be between 6 and 12 feet (9 feet average). Access pits for microtunneling would occur at a depth between 19 and 31 feet (22 feet average). From construction activities, the project would have an import of 6,000 cubic yards of soil with an export of 8,000 cubic yards, for a net export of 2,000 cubic yards (due to the physical size of the pipeline displacing soil).

Total construction activities are estimated to have a duration of 550 calendar days. Trenching for the force mains would occur for 200 working days, with 70 working days for trenchless activities. Two tunnels would be constructed simultaneously; typically, one tunnel would require 20 to 30 working days. Site restoration would require 20 working days. Construction would occur Monday through Friday, typically between 8:00 a.m. to 4:00 p.m. Trenching activities would construct approximately 40 feet of the dual force mains per day; tunneling activities would construct approximately 20 feet of the dual force mains per day.

For trenching activities, construction equipment would include an excavator, loader, two utility trucks, and two dump trucks. Trenching would involve eight daily truck trips for bedding material and pipe material deliveries and spoil haul out. Along with an MBTM, microtunneling would involve similar construction equipment. Microtunneling would involve four daily truck trips (including delivery of shoring, transporting excavated material off site for storage to an authorized location, delivery of pipe material, transporting excavated material back to site, and removal of shoring from site), and site restoration would require two daily truck trips.

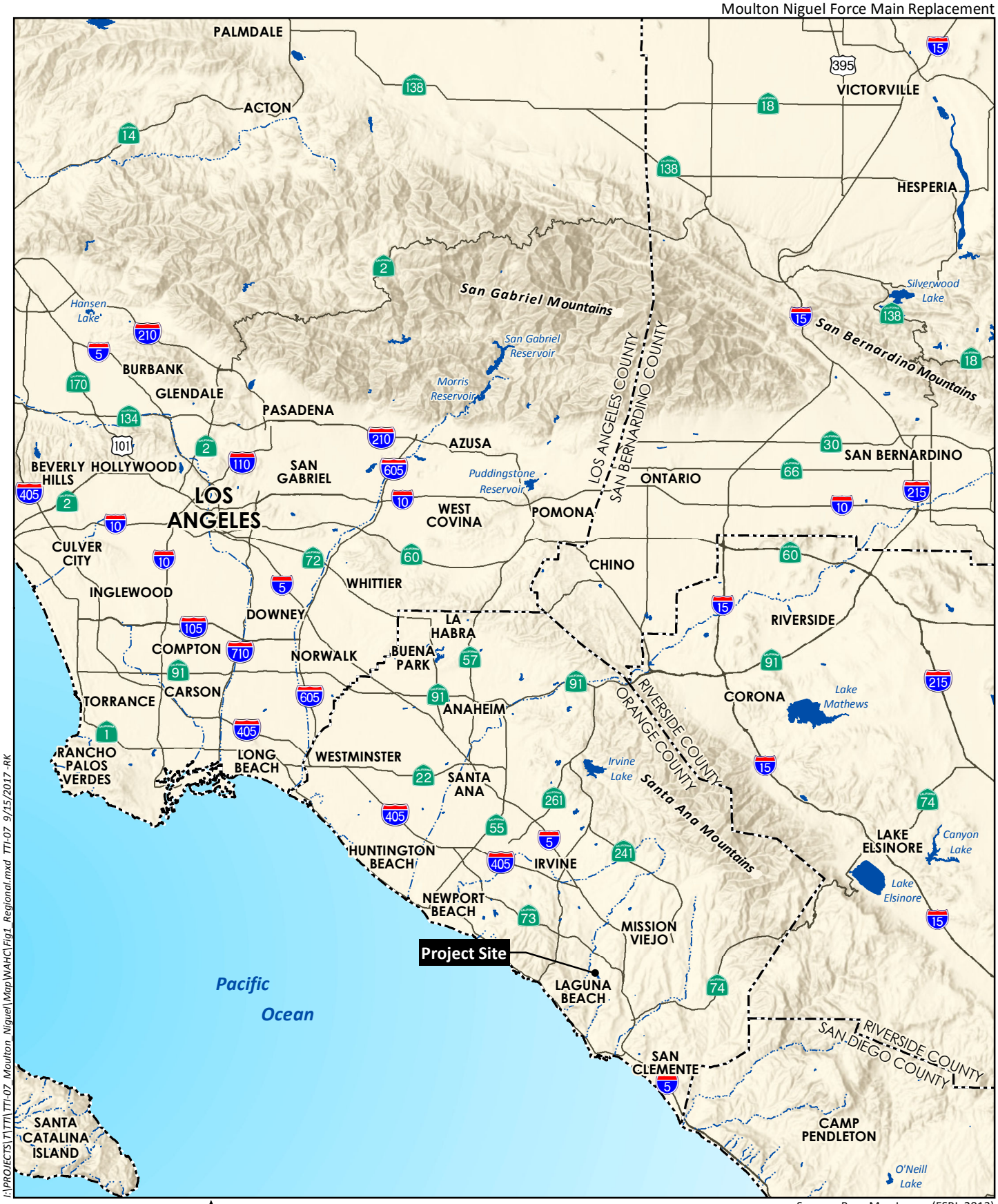
Along the construction route, several trees would be removed to accommodate trenching. In addition, portions of the concrete trail would be removed and replaced. Ground surfaces would be restored to preexisting conditions.

Following construction, project activities would be limited to routine maintenance of the force mains, similar to ongoing maintenance of the existing force mains.

HELIX Environmental Planning, Inc. (HELIX) was contracted to conduct a cultural resources due diligence study in 2017 to help inform project design. That study included a records search and a Sacred Lands File search (Robbins-Wade 2017). A cultural resources survey was conducted by HELIX in 2018, including a field survey by HELIX archaeologists and a Native American monitor from the Juaneño Band of Mission Indians, Acjachemen Nation, as well as tribal outreach, review of reports addressing cultural resource studies in the vicinity of the project area, and completion of this report. As shown in Figure 3, the project survey area included a 100-foot buffer on each side of the proposed alignment centerline and totaled approximately 55 acres.

1.3 REGULATORY FRAMEWORK

Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, and/or scientific importance. Significant resources are those resources that have been found eligible to the California Register of Historical Resources (CRHR) or National Register of Historic Places (NRHP), as applicable.



I:\PROJECTS\T\TTI\TTI-07_Moulton_Niguel\Map\WAHC\Fig1_RegionalLmxd TTI-07 9/15/2017 -RK

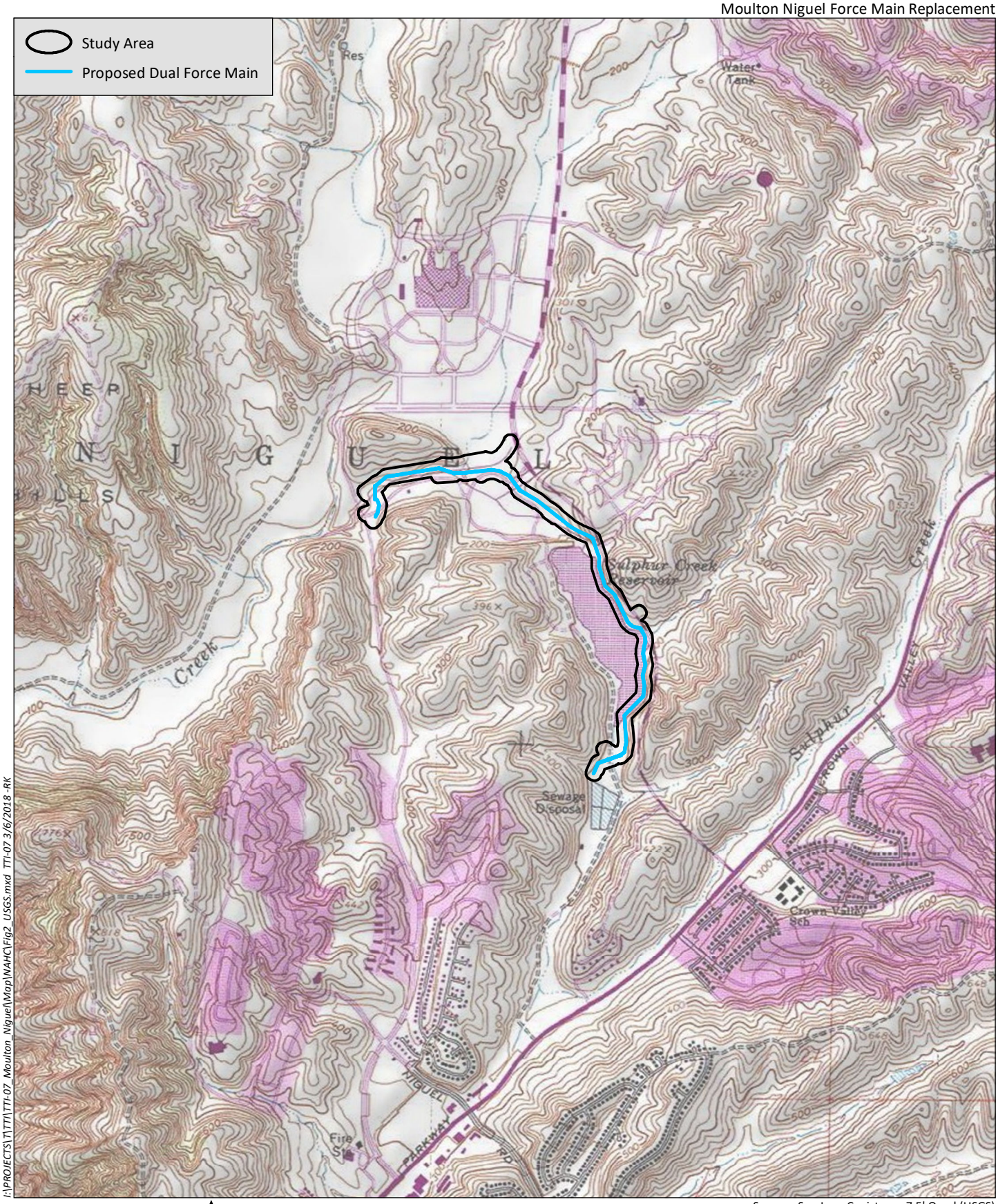
0 10 Miles

Source: Base Map Layers (ESRI, 2013)

HELIX Environmental Planning

Regional Location

Figure 1



I:\PROJECTS\1\TI\TI-07_Moulton_Niguel\Map\MAHC\Fig2_USGS.mxd TTI-07 3/6/2018 - RK

0 2,000 Feet

Source: San Juan Capistrano 7.5' Quad (USGS)

HELIX Environmental Planning

USGS Topography

Figure 2

I:\PROJECTS\TI\TTI-07_Moulton_Niguel\Map\MAHC\Fig3_AerialVicinity.mxd TTI-07 3/6/2018- RK

0 700 Feet

Aerial Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

HELIX Environmental Planning

Aerial Vicinity

Figure 3

1.3.1 National Historic Preservation Act (NHPA)

Federal regulations that would be applicable to the project if there is a federal nexus, such as funding or permits from a federal agency, consist of the National Historic Preservation Act (NHPA) and its implementing regulations (16 United States Code 470 et seq., 36 CFR Part 800). Section 106 of the NHPA requires Federal agencies to take into account the effects of their undertakings on "historic properties", that is, properties (either historic or archaeological) that are eligible for the NRHP. To be eligible for the NRHP, a historic property must be significant at the local, state, or national level under one or more of the following four criteria:

A. Associated with events that have made a significant contribution to the broad patterns of our history;

B. Associated with the lives of persons significant in our past;

C. Embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; and/or

D. Has yielded or may be likely to yield, information important in prehistory or history.

1.3.2 California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA), Public Resources Code (PRC) 21084.1 and CEQA Guidelines, California Code of Regulations (CCR) Title 14 Section 15064.5 discuss significant cultural resources as "historical resources" and define them as:

- Resource(s) listed or determined eligible by the State Historical Resources Commission for listing in the CRHR (14 CCR Section 15064.5[a][1])

- Resource(s) either listed in the National Register of Historic Places (NRHP) or in a "local register of historical resources" or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the PRC, unless "the preponderance of evidence demonstrates that it is not historically or culturally significant" (14 CCR Section 15064.5[a][2])

- Resources determined by the Lead Agency to meet the criteria for listing on the CRHR (14 CCR Section 15064.5[a][3])

For listing in the CRHR, a historical resource must be significant at the local, state, or national level under one or more of the following four criteria:

A. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

B. It is associated with the lives of persons important to local, California, or national history;

C. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values;

D. It has yielded or has the potential to yield information important to the prehistory or history of the local area, California, or the nation.

Under 14 CCR Section 15064.5(a)(4), a resource may also be considered a "historical resource" for the purposes of CEQA at the discretion of the lead agency.

All resources that are eligible for listing in the NRHP or CRHR must have integrity, which is the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Resources, therefore, must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. In an archaeological deposit, integrity is assessed with reference to the preservation of material constituents and their culturally and historically meaningful spatial relationships. A resource must also be judged with reference to the particular criteria under which it is proposed for nomination. Under Section 106 of the NHPA, actions that alter any of the characteristics that qualify a property for eligibility for listing in the NRHP "in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association" (36 CFR 800.5[a]) constitute an adverse effect to the historic property.

California State Assembly Bill (AB) 52 revised PRC Section 21074 to include Tribal Cultural Resources as an area of CEQA environmental impact analysis. Further, per new PRC Section 21080.3, a CEQA lead agency must consult with any California Native American tribe that requests consultation and that is traditionally and culturally affiliated with the geographic area of a proposed project to identify resources of cultural or spiritual value to the tribe, even if such resources are already eligible as historical resources as a result of cultural resources studies.

1.3.3 Native American Heritage Values

Federal and state laws mandate that consideration be given to the concerns of contemporary Native Americans with regard to potentially ancestral human remains, associated funerary objects, and items of cultural patrimony. Consequently, an important element in assessing the significance of the study site has been to evaluate the likelihood that these classes of items are present in areas that would be affected by the proposed project.

Potentially relevant to prehistoric archaeological sites is the category termed Traditional Cultural Properties (TCP) in discussions of cultural resource management (CRM) performed under federal auspices. According to Patricia L. Parker and Thomas F. King (1998), "Traditional" in this context refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice. The traditional cultural significance of a historic property, then, is significance derived from the role the property plays in a community's historically rooted beliefs, customs, and practices. Cultural resources can also include TCPs, such as gathering areas, landmarks, and ethnographic locations, in addition to archaeological districts. Generally, a TCP may consist of a single site, or group of associated archaeological sites (district or traditional cultural landscape), or an area of cultural/ethnographic importance.

In California, the Traditional Tribal Cultural Places Bill of 2004 requires local governments to consult with Native American Tribes during the project planning process, specifically before adopting or amending a General Plan or a Specific Plan, or when designating land as open space for the purpose of protecting

Native American cultural places. The intent of this legislation is to encourage consultation and assist in the preservation of Native American places of prehistoric, archaeological, cultural, spiritual, and ceremonial importance. State Assembly Bill (AB) 52, effective July 1, 2015, introduced the Tribal Cultural Resource (TCR) as a class of cultural resource and additional considerations relating to Native American consultation into CEQA. As a general concept, a TCR is similar to the federally defined TCP; however, it incorporates consideration of local and state significance and required mitigation under CEQA. A TCR may be considered significant if included in a local or state register of historical resources; or determined by the lead agency to be significant pursuant to criteria set forth in PRC §5024.1; or is a geographically defined cultural landscape that meets one or more of these criteria; or is a historical resource described in PRC §21084.1, a unique archaeological resource described in PRC §21083.2; or is a non-unique archaeological resource if it conforms with the above criteria.

1.4 PROJECT PERSONNEL

A cultural resources survey was conducted by HELIX in 2018 to assess whether the project would have any effects on cultural resources. Mary Robbins-Wade, M.A., RPA, served as the principal investigator and is the primary author of this technical report. Kristina Davison, B.A. and Mary Villalobos, B.A. conducted the field survey. Julie Roy, B.A. served as report contributor. Resumes of key HELIX personnel are included as Appendix A. Dustin Murphey, a Native American observer from the Juaneño Band of Mission Indians, Acjachemen Nation, participated in the survey. This report addresses the methods and results of the cultural resources survey, which included a records search, Sacred Land File search, Native American outreach, review of previous cultural resources reports for the area, historic archival research, and an intensive pedestrian field survey.

2.0 PROJECT SETTING

2.1 NATURAL SETTING

The climate of Orange County is characterized as a semi-arid environment with low humidity and rainfall. Almost all rainfall occurs in the winter, with an average rainfall around 14 inches per year. The coolest month is December and the hottest is August with occasional temperatures rising to over 100 degrees (National Oceanic and Atmospheric Administration [NOAA] 2014). Summers in the Laguna Niguel area are warm, arid, and generally clear, with an August average high of 78° Fahrenheit (F) and low of 63°F. Winters are cool and partly cloudy, with an average low of 49°F and high of 65°F in December (Weather Spark n.d.)

The project is located in an area of numerous ridge fingers and hills separated creeks and tributary drainages. The San Joaquin Hills are located to the northwest of the project area with the Santa Ana Mountains to the east, and the Santa Margarita Mountains to the south. Aliso Creek is located along the northwest side of the project area with Sulphur Creek on the north and the east (Figure 2). Following Aliso Creek downstream, the Pacific Ocean is less than 5 miles away. The elevation of the project area ranges from approximately 157 to 240 feet above mean sea level (AMSL).

Geologically, the project area is underlain by Quaternary young alluvium, with pre-Quaternary bedrock comprising the surrounding hills (Pridmore 2001:Plate 1.1). The bedrock “consists of Tertiary marine and non-marine sedimentary strata ranging in age from late Eocene through Pliocene” (Pridmore 2001:6),

including sandstone, siltstone, and breccia. Soils mapped for the project alignment and the surrounding area include Alo clay, 30-50 percent slopes; Sorrento loam, 2-9 percent slopes; Sorrento clay loam, 2-9 percent slopes; and Botella clay, 9-15 percent slopes. Balcom-Rock outcrop complex, 15-50 percent slopes is mapped just north of the project alignment (Natural Resources Conservation Service 2017). The Alo series consists of soils formed in material weathered from calcareous sandstone and shale; vegetation includes annual grasses and forbs. The Botella series consists of well-drained soils on alluvial fans; vegetation is mainly annual grasses and forbs, with some oak trees and brush. The Sorrento series consists of well-drained soils on alluvial fans and flood plains; vegetation is annual grasses and forbs and some sycamores. The Balcom series also supports annual grasses and forbs, with some brush in eroded areas (Wachtell 1978). Water would have been available from creeks and springs in the immediate area of the project (Figures 2 and 3).

Vegetation communities mapped by HELIX biologists within the project study area include coast live oak woodland, coyote brush chaparral, southern willow scrub, fresh water marsh, and mule fat scrub, as well as a variety on non-native habitat types (HELIX 2017). Plant species naturally occurring in the project area and vicinity are known to have been used by native populations for food, medicine, tools, ceremonial and other uses (Bean and Shipek 1978; Hedges and Beresford 1986; White 1963). Many of the animal species living within these communities (such as rabbits, deer, small mammals, and birds) would have been used by native inhabitants. Rabbits and rodents were very important to the prehistoric diet; deer were somewhat less significant for food, but were an important source of leather, bone, and antler.

2.2 CULTURAL SETTING

2.2.1 Prehistoric Period

Proposed dates for the earliest human occupation in California vary from around 20,000 years ago to 10,000 years ago. Several researchers have argued for the presence of Pleistocene humans in California (Carter 1957, 1978, 1980; Minshall 1976); however, these sites identified as "early man" are all controversial. The material from the sites is generally considered nonartifactual, and the investigative methodology is often questioned (Moratto 1984). The most widely recognized timeline for the prehistory of Southern California was proposed by Wallace (1955) and divides the region's prehistory into four main periods, or "horizons": Early, Milling Stone (Archaic Period), Intermediate, and Late horizons.

The best example of Early Prehistoric Period archaeological evidence in Southern California is in the San Dieguito complex of San Diego County, dating to over 9,000 years ago (Warren 1967; Warren et al. 2004). The San Dieguito Tradition is thought by most researchers to have an emphasis on big game hunting and coastal resources (Warren 1967). The material culture of the San Dieguito complex consists primarily of scrapers, scraper planes, choppers, large blades, and large projectile points. In some areas of California, the Early Prehistoric Period is often referred to as the Paleo-Indian period and is associated with the last Ice Age occurring during the Terminal Pleistocene (pre-10,000 years ago) and the Early Holocene, beginning circa 10,000 years ago (Erlandson 1994, 1997).

The Millingstone Horizon, or Archaic Period, dates from 7,000-8,600 to 1,300-3,000 years ago and is generally consistent with the Oak Grove complex of Santa Barbara, the Topanga complex of Los Angeles and the La Jolla complex of San Diego (Warren et al. 2004). The Millingstone Horizon is also referred to as the Encinitas Tradition (Warren 1968). The Encinitas tradition is generally "recognized by millingstone

assemblages in shell middens, often near sloughs and lagoons" (Moratto 1984:147). According to Wallace, "a changeover from hunting to the collection of seed foods is clearly reflected in the archaeological record for the period between 6000 and 3000 B.C. The importance of seeds in the diet of the prehistoric peoples can be seen in the numbers of food-grinding implements present at their settlements" (Wallace 1978:28). Basin metates, manos, discoidals, a small number of Pinto series and Elko series points, and flexed burials are also characteristic. Most of the archaeological evidence for Archaic Period occupation in southern California is derived from sites located in near-coastal valleys, and around estuaries that are present along the San Diego coast (Warren et al. 2004).

Dates for the Intermediate Horizon vary by locale but can generally be dated to between 2,000 BC and AD 500 (Elsasser 1978). The Intermediate Horizon is consistent with the Hunting Culture of Santa Barbara County and is characterized by the presence of Pinto style points, named after the Pinto Basin in Riverside County, an increased use of the mortar and pestle, and the consumption of fleshier foods such as acorns as opposed to small, hard seeds (Stickel 1978). This change resulted in the adoption of a more sedentary lifestyle as seen in the presence of seasonal campsites (Van Horn 1980).

The Late Prehistoric period in southern California is characterized by the incursion of Uto-Aztecan - speaking people who occupied large portions of the Great Basin and an area stretching from southern Arizona and northwest and central Mexico into Nevada, Oregon, and Idaho (Miller 1986). The expansion of the Takic group into southern California is unrefined, but several scholars have hypothesized as to when and how the so-called "Uto-Aztecan wedge" occurred. Sutton (2009) argues that the Takic group expanded into southern California from the San Joaquin Valley about 3,500 years ago. Moratto (1984) also proposes that Takic expansion into the Southern Coast region correlates to the end of the Early Period (Late Archaic) ca. 3,200 to 3,500 years ago, while Golla (2007) suggests an expansion of Uto-Aztecan speakers into southern California at approximately 2,000 years ago. While the exact chronology of Takic-speaking groups' immigration to southern California remains uncertain, the beginning of the Late Prehistoric Period is marked by evidence of a number of new tool technologies and subsistence shifts in the archaeological record and is characterized by higher population densities and intensification of social, political, and technological systems. The changes include the production of pottery and the use of the bow and arrow for hunting instead of atlatl and dart, a reduction of shellfish gathering in some areas, an increase in the storage of foodstuffs such as acorns, and new traits such as the cremation of the dead (Gallegos 2002; McDonald and Eighmey 2004).

Native American population figures in the region substantially increased toward the end of the Late Prehistoric Period. After AD 1600, a change occurred in settlement and subsistence patterns, and land use intensified region, which was reflected into the ethnohistoric period (Bean et al. 1991; Wilke 1974, 1978).

2.2.2 Ethnohistory

Aliso Creek is considered to be the traditional territorial divide between the Gabrielino and the Juaneño-Acjachemen peoples (Bean and Shipek 1978; Bean and Smith 1978; Kroeber 1976), so the project site is in an area that may have been used by either or both groups.

2.2.2.1 Juaneño-Acjachemen

The language, culture, and territory of the Juaneño people and their neighbors to the south and east, the Luiseño, are so closely related that the two have sometimes been considered to be a single ethnic

nationality (Bean and Shipek 1978; White 1963). However, Luiseño and Juaneño individuals consider themselves to be separate tribes, and Cameron (1987:319-321) noted archaeological differences between the two peoples. The name "Juaneño" was applied by the Spanish to the people indigenous to the area of Mission San Juan Capistrano, from whence the name comes and is often used today, although tribal members prefer to identify themselves as Acjachemen (Juaneño Band of Mission Indians 2016). They spoke Juaneño, a Takic language of the Uto-Aztecan language family closely related to Luiseño, Cahuilla, and Cupeño (The Regents of the University of California 2016). A thorough account of Juaneño life and especially ritual thought and practice was recorded in Chinigchinich by Father Geronimo Boscana, a Spanish Friar who lived at Mission San Juan Capistrano and wrote his account sometime between the Mission's founding in 1776 and his death in 1831 (Boscana 1947 [1846]; Robinson 1947 [1846]). Subsequent examination of the linguistic evidence in this record suggests that it was heavily influenced by the Gabrielino to the north; however, whether this influence was due to precontact cultural transmission or author error is unknown (Kroeber 1976 [1925]: 636).

2.2.2.2 Gabrielino

The Gabrielino traditionally occupied most of present-day Los Angeles and Orange Counties, extending along the coast from the southern portion of the Santa Monica Mountains to the northern portion of the Santa Ana Mountains and east along the watersheds of the Los Angeles, San Gabriel, and Santa Ana Rivers (Bean and Smith 1978). Additionally, the Gabrielino occupied several off-shore islands, including San Clemente, Santa Catalina, and San Nicholas. The name Gabrielino stems from one of the two major Spanish missions established in the Gabrielino territory, the San Gabriel Mission. The Gabrielino were among the most powerful and populous ethnic nationalities in California's prehistory, however few ethnographic studies were accomplished, and therefore little is known of them (Bean and Smith 1978).

At the time of Spanish explorer Juan Rodriguez Cabrillo's entrance into Gabrielino territory, it is estimated that their population may have reached nearly 5,000 people (Bean and Smith 1978; Shipley 1978). They were semi-nomadic and subsisted on a hunter-gatherer lifestyle in the rich landscape abundant in coastal resources, as well as acorns, pine nuts, and small game. The Gabrielino settlements were situated near water courses; permanent villages were always established "in the fertile lowlands along rivers and streams" (Bean and Smith 1978: 540). Both primary and subsistence villages were occupied continuously, with smaller gathering camps being intermittently occupied, depending on the season and resource. Gabrielino people maintained a rich material culture of varied and technical tools. They created wooden planked canoes, called ti'ats, which allowed them to populate and exploit the resources of the Southern Channel Islands (Welch 2006:3-4). Among these resources was steatite, a type of soapstone that was carved into vessels and ornaments and traded with neighboring tribes. The Gabrielino also created rock art and produced ceramic vessels. They used asphaltum, which occurs naturally in the area, both as a waterproof seal and as an adhesive to attach shell decorations to items. Other tools included portable mortars and metates, scrapers, knives, drills, paddles, wooden spoons and bowls, bone saws, needles, fishhooks, awls, slings, clubs, and baskets (Bean and Smith 1978). Their pre-contact and contact period burial practices included cremation and flexed burials (Moratto 1984).

2.2.3 Historical Background

2.2.3.1 Spanish Period

Mission San Juan Capistrano was established in 1776 approximately 3 ½ miles southeast of the current project area. For over the next 30 years, the mission "grew in population, buildings, livestock, and

prominence. By 1806, Mission San Juan Capistrano had a population of over a 1,000 people, over 10,000 head of cattle, and a completed architectural gem, The Great Stone Church" (Mission San Juan Capistrano 2016). The mission began to decline in 1812, due to a number of factors, including an earthquake that caused the church to collapse, a decline in birth rates, increasing mortality rates from disease among the neophyte population, and "the inability of Spanish government to adequately protect and supply the Missions with needed goods" (Mission San Juan Capistrano 2016). Throughout the Spanish Period, the influence of the Spanish progressively spread further from the coast and into the inland areas of southern California as Missions San Luis Rey and San Gabriel extended their influence into the surrounding regions and used the lands for grazing cattle and other animals. Mexico won its independence from Spain in 1821, bringing an end to the Spanish Period in California.

2.2.3.2 Mexican Period

Although Mexico gained its independence from Spain in 1821, Spanish patterns of culture and influence remained for a time. The missions continued to operate as they had in the past, and laws governing the distribution of land were also retained in the 1820s. Following secularization of the missions in 1834, large ranchos were granted to prominent and well-connected individuals, ushering in the Rancho Era, with the society making a transition from one dominated by the church and the military to a more civilian population, with people living on ranchos or in pueblos. With the numerous new ranchos in private hands, cattle ranching expanded and prevailed over agricultural activities.

What is now southern Orange County was made up of Rancho Niguel, Rancho Mission Vieja, Rancho Trabuco, Rancho Los Desechos, and others (Orange County Recorder n.d.). The project area and its surrounding vicinity were within Rancho Niguel, which was granted to Juan Avila in 1842.

2.2.3.3 American Period

American governance began in 1848, when Mexico signed the Treaty of Guadalupe Hidalgo, ceding California to the United States at the conclusion of the Mexican–American War. A great influx of settlers to California occurred during the American Period, resulting from several factors, including the discovery of gold in the state in 1848, the end of the Civil War, and the availability of free land through passage of the Homestead Act. The increase in American and European populations quickly overwhelmed many of the Spanish and Mexican cultural traditions, and greatly increased the rate of population decline among Native American communities.

While the American system required that the newly acquired land be surveyed prior to settlement, the Treaty of Guadalupe Hidalgo bound the United States to honor the land claims of Mexican citizens who were granted ownership of ranchos by the Mexican government. The Land Act of 1851 established a board of commissioners to review land grant claims, and land patents for the land grants were issued throughout the following years.

The Treaty of Guadalupe Hidalgo and the California Land Act of 1851 ensured that Rancho Niguel remained under the ownership of Juan Avila, who retained ownership until 1865, when he sold the property to his son-in-law's father, John (Don Juan) Forster. Forster passed the property to his son and daughter-in-law, Marco and Guadalupe Forster, who sold it to Louis Moulton and Jean Pierre Daguerre in 1895. Moulton added Rancho Niguel to his previous holding of the adjacent Rancho San Joaquin (Armor 1921). Don Juan Forster had also purchased Rancho Trabuco in 1843 and Rancho Mission Vieja (also known as Rancho La Paz) in 1845, as well as other land holdings in southern California. Under Spanish and Mexican ownership, what is now Orange County was dominated economically by cattle and

sheep herding and by agriculture. In the mid-1960s, Rush noted that the "Moulton Company at one time farmed 21,000 acres" (Rush 1965:107).

Initially southern California was divided into only two counties: Los Angeles and San Diego. In 1853, San Bernardino County was added, placing what is now Riverside County primarily within San Diego County and partially within San Bernardino County. Orange County divided from Los Angeles County in 1889.

Oil was first successfully extracted in the 1890s and became another important resource for the county throughout the first half of the 1900s. However, agriculture remained the primary economic resource throughout the American period, with Orange County producing up to one-sixth of the nation's Valencia oranges by the 1930s (Orange County Historical Society 2016). Increasing populations led to the development of the county's first master planned communities in the late 1950s and 1960s.

3.0 ARCHIVAL RESEARCH AND NATIVE AMERICAN CONTACT PROGRAM

3.1 RECORDS SEARCH

HELIX obtained a records search of the California Historical Resources Information System (CHRIS) from the South Central Coastal Information Center (SCCIC). The records search was requested on September 15, 2017 and received on October 13, 2017. The records search covered a ½-mile radius around the project area and included archaeological and historical resources, locations and citations for previous cultural resources studies, and a review of the state Office of Historic Preservation (OHP) historic properties directory. The records search summary and map are included as Appendix B (Confidential Appendices, bound separately).

3.1.1 Previous Surveys

The records search results identified 38 cultural resources studies within a ½-mile radius of the project, seven of which cover portions of the project survey area (Table 1, *Previous Studies within the Project Area*. A full listing of the studies within the search radius is included in Appendix B (Confidential Appendices, bound separately).

Table 1
PREVIOUS STUDIES WITHIN THE PROJECT AREA

Report Number (OR-)	Year	Author	Report Title
00255	1977	Scientific Resource Surveys, Inc.	Archaeological Report on the Aliso Creek Corridor-Planning Units 2 & 3 Orange County, California
00512	1935	Romero, John B.	Orange County, California, Indian Campsites
00580	1977	Scientific Resource Surveys, Inc.	The Aliso Creek Watershed, Orange County, California a Proposal for Creating an Archaeological District for the National Register of Historic Places and a Suggested Research and Study Design
00705	1973	Archaeological Research, Inc.	Final Report on the Scientific Resources Survey for Moulton Ranch
00824	1986	Bissell, Ronald M. (RMW Paleo Associates, Inc.)	Report of the Status of Archaeological Sites on and Near Property Owned by the S&S Construction Company in Laguna Niguel, Orange County, California
00938	1988	Bissell, Ronald M. (RMW Paleo Associates, Inc.)	Status of Cultural Resources in the Wood Canyon Area, Southern Orange County, California
01712	1963	Lytton, Alma C.	Archaeological Investigations at Laguna Niguel, Orange County Department of Anthropology-Sociology, UCLA

3.1.2 Previously Recorded Resources

The SCCIC has a record of 10 previously recorded cultural resources within a ½-mile radius of the project (Table 2, *Previously Recorded Resources within ½ Mile of the Project Area*). One of these resources, P-30-000018 (CA-ORA-18), is crossed by the proposed dual force main and potential access paths. Other resources in the immediate vicinity of the project area are P-30-000423 (CA-ORA-423), P-30-000424 (CA-ORA-424), and P-30-000509 (CA-ORA-509), which are described in further detail below. P-30-001072 (CA-ORA-1072) is also addressed below, because it is subsumed within P-30-000423, although it was originally recorded as a separate site. Mapped locations of the sites discussed below are shown in Figure 4, *Locations of Cultural Resources in Proximity to Project Area*. In general, the sites recorded within the ½-mile search radius consist of prehistoric resources described as habitation and village sites, including bedrock milling features, deep midden deposits, and burials; artifact scatters; shell scatters with artifacts; and campsites.

Table 2
PREVIOUSLY RECORDED RESOURCES WITHIN ½ MILE

Resource Number (P-30-#)	Resource Number (CA-ORA-#)	Description	Recorder, Date
000018	18	"Probably very large camp." Materials scattered over wide area, burial ground 300 feet north of the mortar holes, camp southwest of mortar holes, near spring. Midden deposit approximately 50-foot diameter, 3 to 4 feet deep, on edge of intermittent stream with perpetual spring.	Unknown, 1949; Fitzwater, 1960
000019	19	Well-defined with midden material scattered. Oyster shells, clam shells and large tar covered stone. Semi-permanent village site. Test excavations recovered a wide range of artifacts. Middle through Late Prehistoric Period. Site has been damaged.	Briggs, 1949; Maxon, 2000
000133	133	Roughly triangular flat hilltop with crude scattered artifacts and broken stones found on surface. An excavated test pit was sterile.	Hafner, 1963
000423	423	Large, relatively undisturbed village. Data recovery excavations at the northern end of site produced more than 1,000 artifacts. Radiocarbon dates range from 1665 to 335 years ago. Three burials, dating to the Millingstone Period, recovered near confluence of Aliso and Sulphur Creeks.	Cooley, 1973; Maxon 2000
000424	424	A small, flat terrace area adjacent to a small tributary stream to Sulphur Creek. Ground stone artifacts and a core were noted.	Cooley, 1973
000509	509	Chert flake scatter with dispersed artifacts; probably a temporary campsite. Numerous rock outcrops but no bedrock mortars.	Fowler, 1975
000581	581	Light scatter of shell and chipping waste on the stream bank, directly adjacent to stream channel.	Leonard, 1975
000606	606	Seasonal campsite; a sparse scatter of artifacts over what remains of the knoll.	Desautels, 1976
000607	607	Campsite occupying ridge crest overlooking Aliso Creek to the west. Lithic scatter. Site has been destroyed due to housing development.	Desautels and Desautels, 1976; Bissell and Hoover, 2000
001072	1072	Shell scatter with ground stone, chipping waste and fire modified fragments.	Bissell, 1985

3.1.2.1 P-30-000018 (CA-ORA-18)

John B. Romero discussed this site in his "Orange County, California Indian Campsites" in 1935; the site was designated Camp number 18. Romero noted, "This Indian camp was probably very big in population

SENSITIVE MATERIAL
IN CONFIDENTIAL APPENDIX D

G:\PROJECTS\TTI-ALL\TTI-07_MNWDRegionalLiftForceMain_Reports\Cultural_Reports\Survey Report

Locations of Cultural Resources in Proximity to Project Area

HELIX Environmental Planning

Figure 4

because much evidence is found" (Romero 1935:7). He noted five large flat bedrock boulders with "pot holes" of varying diameters and depths and indicated, "The Burial Ground is 300 feet NE from this point (north of pot holes) and the campsite grounds southwest from the pot holes are level" (Romero 1935:7). The site's location was described as "on the west side of the cattle chutes parallel to the station" (Romero 1935:7). Romero's information was used to record the site in 1949; the 1949 site record lists the site location as east of the cattle chutes. No cattle chutes or other structures could be discerned in the mapped area of P-30-000018 on a 1938 aerial photograph (NETR Online 2018). Romero also noted two springs nearby: one freshwater and one "sulphurized".

A 1960 site record indicated the presence of a midden deposit approximately 50 feet wide and 3 to 4 feet deep. A "perpetual spring" was noted on the site record; this, in addition to the stream, would have been a draw for settlement by the Native people. A later note on the site record indicates the site has been destroyed and cites a 1986 report (Bissell 1986a). Bissell's 1986 report utilized a combination of review of site records and previous reports and field visits to assess the status of several previously recorded archaeological sites over a large potential project area. He noted that a field class from University of California Los Angeles conducted an excavation at P-30-000018 (Lytton 1963), which was described as a Late Prehistoric Period site with a date range of A.D. 1400-1850. Bissell indicated: "The site has been totally destroyed by construction of streets, housing areas and a shopping center" (Bissell 1986a:4). The project alignment crosses the mapped area of the site.

3.1.2.2 P-30-000423 (CA-ORA-423)

P-30-000423 was originally recorded in 1973 and described as possibly covering 2 to 3 acres; freshwater mussel shell, worked chert, and ground stone were noted. The 1973 site record noted that the site is bounded on the east by a road and that the "[d]eepest part of site may actually be buried" (site record, on file at SCCIC). A site record update from 2000 described P-30-000423 as a "large, relatively undisturbed village." Three burials were recovered, and the site record noted both data recovery excavations at the site and excavations by a college field school. Radiocarbon dates of 1665 to 355 years ago were obtained.

Bissell (1986a) described P-30-000423 has having a long time depth, based on the apparent depth of cultural deposits and indicated the site was largely undisturbed. Three burials were exposed by erosion along the banks of Aliso Creek during the winter of 1992-1993. Consultation among the Orange County Coroner; Orange County Department of Harbors, Beaches and Parks (administrators of Aliso and Wood Canyons Wilderness Park, in which the burials were exposed); and representatives of the Juaneño Band of Mission Indians resulted in the decision to remove and repatriate the burials to prevent them from further destruction by erosion or vandalism. Burial 1 actually contained two individuals, a man and a woman; each of the other burials contained a single individual. A fragmentary abalone shell, possibly an ornament, was recovered from Burial 1; it was the only identifiable grave good from the three burials. Langenwalter (1994) studied the burials and reported on the analysis, which was approved by the Juaneño Band of Mission Indians; no destructive analysis was conducted. The skeletal elements were inventoried; scale drawings were made, showing the positions of the elements of the burials; evidence of "trauma, pathology and other modifications" was photographed; and biometric measurements were taken. The analysis is presented in detail in Langenwalter's (1994) report. Regarding the site overall, Langenwalter noted, "Given the depth of the midden, presence of multiple burials and general size of the site, Ora-423 appears to have been a village occupied for a long period of time" (Langenwalter 1994:12). He further noted, "Given the location of Ora-423 at the Luiseno-Gabrielino territorial boundary, the ethnic identity of the occupants is not necessarily determinable" (Langenwalter 1994:11).

During a 2000 study for the proposed Aliso Creek Emergency Sewer (ACES) project, Maxon (2000) indicated that P-30-000423 was a significant resource, and impacts to it from the ACES project would require mitigation measures; he also recommended monitoring during project implementation. No reports are available at SCCIC more recent than 2000, and no further site records are on file for the site.

The site is mapped to the west of the project area but in close proximity to it, separated by Alicia Parkway. As noted above, there is a potential for buried resources, the extent of which may not be evident on the surface.

3.1.2.3 P-30-000424 (CA-ORA-424)

This site was recorded in 1973 as a small flat or terrace adjacent to a small stream. Artifacts noted were six manos, five metate fragments, and one chert core, none of which were collected. The site record noted that the site had been graded, and artifacts were strewn around; thus, the exact site boundaries were unclear (site record, on file at SCCIC). Bissell (1986a) noted that no archaeological work had been conducted at P-30-000424 prior to development of the park that created the damage to the site and that the site had been "[s]eriously damaged by park construction and nearby home construction" (Bissell 1986a:11). Because his project would only affect a portion of the site that had been graded, Bissell did not provide an assessment of the potential for intact deposits to remain in other site areas. P-30-000424 is mapped a short distance west of the project alignment.

3.1.2.4 P-30-000509 (CA-ORA-509)

P-30-000509 was recorded in 1975 and described as a scatter of chert flakes, but the site record goes on to say that a basalt metate, two projectile points, and five point fragments were collected. Remnants of a possible house pit were noted as well. One projectile point was described as possibly from Obsidian Butte, which "may date the site at later than 1400 A.D." (site record, on file at SCCIC). Bissell (1986a) noted that portions of the site had been destroyed, but it was mainly intact at the time of his study. This site, too, is located in proximity to the project alignment but does not extend into the project area.

3.1.2.5 P-30-001072 (CA-ORA-1072)

P-30-001072 is mapped within the boundaries for P-30-000423, although no mention of the previously recorded site is made on the site record for P-30-001072, which was recorded in 1985. P-30-001072 was described as a shell scatter with "groundstone, chipping waste and fire modified fragments. No complete artifact noted." Bissell (1986b) conducted a data recovery excavation at this site to salvage as much information as possible prior to the development of a church; grading permits had already been obtained, so a formal data recovery program informed by test excavations and a research design was not feasible. Bissell (1986a) described the site as having deep and large subsurface deposits, the extent of which are unknown. Some of the excavation units yielded cultural material to depths of almost 2 meters (m). In places, the deposit was stratified, with 40 to 60 centimeters (cm) of sterile sand between two midden deposits. Bissell noted that similar conditions could be expected at P-30-000423 and that P-30-001072 may be the northern expression of the former site (Bissell 1986a). As previously noted, P-30-001072 is now considered part of P-30-000423.

3.2 OTHER ARCHIVAL RESEARCH

Various archival sources were also consulted, including historic topographic maps and aerial imagery (NETR Online 2018) to identify historic structures and land use in the area. These include historic aerials available at historicaerials.com (NETR Online 2018) and several historic USGS topographic maps: the 1902 30-minute Corona, the 1942 15-minute Santiago Peak , and the 1948, 1949, and 1968 7.5-minute San Juan Capistrano topographic maps, as well as the 1974 USGS 7.5-minute San Juan Capistrano orthophoto map.

No buildings appear within or adjacent to the project area in any of the maps prior to 1968, although there are roads shown in the vicinity on all the historic topographic maps. By 1968,the Sulphur Creek Reservoir and the SOCWA facility (shown as “sewage disposal”) are present, as well as additional dirt roads. The 1974 orthophoto also shows some development of the park and related facilities.

Historic aerial photographs were examined from the years 1938, 1946, 1952, 1963, 1967, 1972, 1980, and 1994. No buildings or structures are visible in the vicinity of the project on the aerial images from 1938 and 1946, but by 1952 some dirt roads are present. Agricultural uses can be seen in relative proximity to the project area but not within it. The 1963 aerial photograph shows additional dirt roads and extensions of the existing ones, as well as terracing on many of the hillsides in proximity to the project alignment. In the 1967 photo, the Sulphur Creek Dam and Reservoir are present. By 1972, grading for the park can be seen, as well as some grading for facilities adjacent to the reservoir; further development of the park and facilities at the reservoir are visible on the 1980 aerial photo, as well as grading for residential development nearby. By 1981, there is additional residential and commercial development in the areas surrounding the project, and the 1994 aerial shows a greater degree of development nearby (NETR Online 2018).

3.3 NATIVE AMERICAN CONTACT PROGRAM

HELIX contacted the Native American Heritage Commission (NAHC) on September 15, 2017 for a Sacred Lands File search and list of Native American contacts for the project area. The NAHC indicated in a response dated September 25, 2017 that the Sacred Lands File search was negative but cautioned that absence of specific site information in the Sacred Lands File does not indicate the absence of Native American cultural resources. Letters were sent on March 9, 2018 to the 30 Native American representatives and interested parties identified by the NAHC. Two responses have been received to date (Table 3, *Native American Contact Program Responses*). Both the Agua Caliente Band of Cahuilla Indians and the Rincon Band of Luiseño Indians indicated that the project area is outside the Tribes’ Traditional Use Area and defer to other tribes closer to the project site. If any additional responses are received, they will be forwarded to Moulton Niguel Water District staff. Native American correspondence is included as Appendix C (Confidential Appendices, bound separately).

In addition to the tribal outreach conducted by HELIX, Moulton Niguel Water District invited interested tribes to consult under AB 52; letters were sent in March 2018. The only response received has been from the Viejas Band of Kumeyaay Indians , who indicated that the project site has little cultural significance or ties to Viejas. They recommended contacting the tribe(s) closest to the cultural resources. However, they do request to be informed of any new developments such as inadvertent discovery of cultural artifacts, cremation sites, or human remains in order to reevaluate their participation in the consultation process.

Table 3
NATIVE AMERICAN CONTACT PROGRAM RESPONSES

Contact/Tribe	Response
Agua Caliente Band of Cahuilla Indians	Responded on March 26, 2018; this project is not located within the Tribe's Traditional Use Area. Therefore, the Agua Caliente Band of Cahuilla Indians defers to other tribes. Their response concludes their consultation efforts.
Rincon Band of Luiseño Indians	Responded in a letter dated March 19, 2018, received on April 16, 2018; determined that the project is not located within the boundaries of the recognized Luiseño Aboriginal Territory. They recommended to locate a tribe within the project area to receive direction on how to handle any inadvertent findings according to their customs and traditions.

4.0 SURVEY METHODS

A pedestrian survey of the project site was conducted on March 8, 2018 by HELIX staff archaeologists Kristina Davison and Mary Villalobos, with tribal monitor Dustin Murphey from the Juaneño Band of Mission Indians, Acjachemen Nation. The survey area included 100 feet on each side of the centerline of the proposed pipeline alignment and included all proposed associated facilities (see Figure 3). The survey area was walked in parallel transects spaced approximately 15 m apart.

As a majority of the survey alignment had little to no ground visible for inspection, these transect intervals were the most efficient way to cover the area and identify whether there were cultural constraints to the proposed project. Much of the footpath areas, including areas where the pipeline is proposed, afforded excellent ground visibility; however, outside the footpaths, ground visibility was generally quite poor or nonexistent, due to heavy vegetation cover, landscape, hardscape, and some small areas of imported fill. Cut slopes were examined, and bedrock outcrops were examined for evidence of milling.

Plate 1. Overview (looking east) of proposed alignment along north side of creek; near northwestern terminus of alignment.

Plate 2. Overview looking northwest, view downslope toward footpath along reservoir; La Paz Road to the right, footpath to the left.

Plate 3. Overview of the mapped area of P-30-000018, showing the degree of disturbance to the site.

5.0 RESULTS

No cultural material was observed within the project survey area; however, as discussed above, ground visibility within the survey area is poor outside the footpaths, and much of the study area supports landscape and hardscape related to park development. In other areas, thick vegetation obscured the ground surface.

Freshwater clam shells were noted in a few areas, but no marine shell (which would have been used by Native inhabitants) was observed. Sandstone bedrock outcrops were examined for evidence of bedrock milling features, but none could be found.

As discussed in Chapter 3.1.2, Previously Recorded Resources, the project alignment crosses the recorded location of one archaeological site (P-30-000018), and other sites are mapped almost adjacent to the project area (P-30-000423/001072, P-30-000424, and P-30-000509). Bissell (1986a) indicated that P-30-000018 had been destroyed by development of the park and nearby residential and commercial uses; however, the depths of grading for various park features are unknown, and there remains a potential for subsurface cultural material in this site location.

P-30-000423/001072, as mapped, is separated from the project area by a graded road, and no evidence of the site was found during the current survey. However, Bissell (1986b) noted that at the portion of the site he excavated (P-30-001072), the subsurface extent of the deposit was much larger than what was visible on the surface. Given this, there is a possibility that subsurface deposits associated with this site extend into the project area with no surface evidence.

P-30-000424 was noted to have been disturbed by grading that occurred before the site was recorded; the current status of the site is unknown. Because there is no record of archaeological excavations at P-30-000424, the depth of cultural material is unknown; thus, the potential for subsurface cultural material adjacent to the project area remains.

P-30-000509 is recorded on a knoll above the project alignment. No cultural material was observed along the northern study area boundary, which coincides with the southern site boundary; however, ground visibility was nil, due to thick vegetation.

Although cultural resource sites in the vicinity have been recorded as individual resources, they appear to make up a village complex with a long time depth. Some of the sites are separated from one another by very little distance, and as noted by Bissell (1986a), the subsurface extent of deposits is sometimes not evident on the surface. Thus, the sites should be considered in relationship to one another, not as completely separate resources.

6.0 SUMMARY OF EFFECTS AND MANAGEMENT RECOMMENDATIONS

A study was undertaken to identify cultural resources that are present in the Moulton Niguel Water District Regional Lift Station Force Main Replacement Project Area and to determine the effects of the project on historical resources/historic properties. The cultural resources survey did not identify any cultural resources within the project area. Based on this, the project will have no effects to historical resources per CEQA and no effects to historic properties per the NHPA. However, significant sites (i.e., historical resources/historic properties) have been previously recorded within and adjacent to the project area, as discussed throughout this report. Although the single resource mapped within the project area (P-30-000018) was noted as having been destroyed by park development, the potential for subsurface cultural resources remains. In addition, given the alluvial setting and the presence of deep midden deposits at sites adjacent to the project area, as well as known burials from P-30-000018 and P-30-000423, it is recommended that all ground-disturbing activity for the project be monitored by an archaeologist and a Native American monitor, as described below.

Should the project limits change to incorporate new areas of proposed disturbance, a cultural resources survey of these areas will be required.

No TCRs have been identified for the project area either by the NAHC or through tribal outreach. However, as previously discussed, burials have been exposed in Aliso Creek in proximity to the project area, and the original recording of P-30-000018 noted a “burial ground”. Based on these and other factors, the area is considered sensitive for tribal cultural resources.

Therefore, the following measures are recommended:

CUL-1 Prior to the commencement of any ground-disturbing activities for the project, a qualified archaeologist and a Native American monitor from a traditionally culturally affiliated (TCA) tribe shall conduct a Worker Environmental Awareness Program (WEAP) to present to the District, the grading contractor, and any relevant subcontractors information regarding the cultural and

archaeological sensitivity of the project area, as well as the requirements of the monitoring program. The WEAP can be presented at a pre-grading meeting or separately. If the WEAP is held separately, the qualified archaeologist and TCA Native American monitor shall be present for a pre-grading meeting with the grading contractor to discuss project schedule, safety requirements, and monitoring protocols.

CUL-2 Ground disturbing activities during construction shall be monitored by a qualified archaeologist and a TCA Native American monitor. These activities brushing/grubbing, grading, trenching, excavation, etc. If cultural material is encountered during monitoring, both the archaeologist and the Native American monitor would have the authority to temporarily halt or redirect activity in the area of the find while the cultural material is documented and a decision is made regarding the significance/eligibility of the find and whether additional excavation, analysis, or other mitigation measures are required. Determinations of significance will be made in consultation among the archaeological Principal Investigator, Native American monitor, and District staff.

CUL-3 Following the conclusion of monitoring, a report shall be prepared documenting the methods and results of the monitoring program and submitted to the District and the SCCIC.

CUL-4 In the event that human remains are discovered, the County Coroner shall be contacted. If the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the NAHC, shall be contacted in order to determine proper treatment and disposition of the remains. All requirements of Health & Safety Code Section 7050.5 and Public Resources Code Section 5097.98 shall be followed.

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Appendix A

Resumes

Mary Robbins-Wade, RPA

Director of Cultural Resources

HELIX Environmental Planning

Summary of Qualifications

Ms. Robbins-Wade has over 35 years of experience in both archaeological research and general environmental studies. She oversees the management of all of HELIX's archaeological, historic, and interpretive projects; prepares and administers budgets and contracts; designs research programs; supervises personnel; and writes reports. Ms. Robbins-Wade has managed or participated in hundreds of projects under the California Environmental Quality Act (CEQA), as well as numerous archaeological studies under various federal jurisdictions, addressing Section 106 compliance and National Environmental Policy Act (NEPA) issues. She has an excellent relationship with the local Native American community and the Native American Heritage Commission (NAHC). Ms. Robbins-Wade has worked in Southern California archaeology for most of her robust career. Her clients regularly include numerous government agencies, including the counties of San Diego, Imperial, Riverside, Orange, and Los Angeles and the cities of San Diego, Vista, Oceanside, Chula Vista, Carlsbad, La Mesa, Poway, Santee, Escondido, and others. She has conducted studies for many water districts/water agencies, Caltrans, SANDAG, U.S. Navy, SDG&E, UC San Diego, San Diego Community College District, various non-profits, and a variety of other entities. Although Ms. Robbins-Wade has extensive experience with public sector projects, most of her work has been for private developers. She has managed projects from monitoring of single-family home remodels to survey and data recovery programs for Specific Plan areas, large residential developments, and a variety of commercial projects. Work for public projects has ranged from constraints studies for pipeline alternatives to survey, testing, and monitoring programs for public projects, such as parks, roadways, and various utilities. Ms. Robbins-Wade has also managed a range of monitoring projects in the public sector, including the installation of a manhole in Old Town State Historic Park, an emergency pipeline repair in a culturally sensitive area, monitoring improvements to Highway 76 along the San Luis Rey River, and lengthy monitoring programs for sewer/water/storm water projects.

Selected Project Experience

1125 Cleveland Street- Cultural Resource (2014 - 2014). Project Manager/Principal Investigator on a cultural resources study for a 15-unit residential townhome development in the City of Oceanside. Oversaw the cultural resources survey and the testing of a small archaeological site, completion of archaeological site record, and report preparation. Conducted Native American coordination. Work performed for Hallmark Communities, Inc.

Education

Master of Arts, Anthropology, San Diego State University, California, 1990

Bachelor of Arts, Anthropology, University of California, Santa Barbara, 1981

Registrations/ Certifications

Register of Professional Archaeologists #10294, 1991

County of San Diego, Approved CEQA Consultant for Archaeological Resources, 2014

NCTD, Roadway Worker ID #C02943, 2015

Orange County Approved Archaeologist, 2016

Riverside County Approved Cultural Resources Consultant, 2017

Mary Robbins-Wade, RPA

Director of Cultural Resources

11th and F Mixed Use Project (2014 - 2014). Project Manager for a cultural resources study for a proposed mixed-use commercial and residential tower in downtown San Diego. Initial work included an archaeological records search and a historic study, including assessment of the potential for historic archaeological resources. Subsequent work included development of an archaeological testing plan. Testing has not yet been conducted. Work performed for the Richman Group of Companies.

12 Oaks Winery Resort and Golf Community (2015 - 2018). Project Manager/ Principal Investigator for a cultural resources survey of approximately 650 acres for a proposed project in the County of Riverside. Oversaw background research, field survey, site record updates, Native American coordination, and report preparation. Met with Pechanga Cultural Resources staff to discuss Native American concerns. Worked with applicant and Pechanga to design the project to avoid impacts to cultural resources. Work performed for Standard Portfolio Temecula, LLC.

28th Street between Island Avenue and Clay Avenue Archaeological Monitoring (2014 - 2018). Project Manager/Principal Investigator for a utilities undergrounding project in a historic neighborhood of East San Diego. Responsible for project management; coordination of archaeological and Native American monitors; coordination with forensic anthropologist, Native American representative/Most Likely Descendent, and City staff regarding treatment of possible human remains; oversaw identification of artifacts and cultural features, report preparation, and resource documentation. Work performed for the City of San Diego.

Archaeological Testing for the F11 (2015 - 2017). Project Manager for a cultural resources study for a proposed mixed-use commercial and residential tower in downtown San Diego. Initial work included an archaeological records search and a historic study, including assessment of the potential for historic archaeological resources. Subsequent work included development and implementation of an archaeological testing plan, as well as construction monitoring and the assessment of historic archaeological resources encountered. Work performed for the Richman Group of Companies.

Balboa Station Specific Plan Area First Screencheck PEIR (2016 - 2017). Cultural Resources Task Manager for a Specific Plan that would provide the policy framework to establish transit-oriented development and multi-modal improvements within the Specific Plan area. One of the main objectives of the Specific Plan is to improve access to existing and future transit facilities. Oversaw background research, Native American outreach, cultural resources survey, and technical report in support of the PEIR. Work performed for RRM Design Group, with City of San Diego as the lead agency.

Professional Affiliations

Society for American Archaeology

Society for California Archaeology

San Diego Archaeological Center

San Diego History Center

San Diego Museum of Man

San Diego County Archaeological Society

Batiquitos Lagoon Double Track Project (2015 - 2015). Senior Archaeologist for the addition of a second main track along a 2.7-mile-long segment of the LOSSAN Rail Corridor in Encinitas and Carlsbad. Overseeing the Federal Communications Commission (FCC) Section 106 process for addition of antenna sites. Work performed for HNTB Corporation, with SANDAG as the local lead agency and Federal Transit Administration as the federal lead agency for the overall project, and FCC as the federal lead agency for the antenna sites.

Borrego Springs Community Library IS/MND (2015 - 2016). Cultural Resources Task Manager/ Principal Investigator for a cultural resources survey for a proposed development consisting of a public library, park, and police substation for the County of San Diego. The project is proposed on a 20.5-acre site on undeveloped land in the Borrego Springs community.

Brightwater Ranch (2014 - 2015). Project Manager/Principal Investigator of a cultural resources study update for a residential development located on a 76-acre property in the Lakeside area of San Diego County. Oversaw updated research, report preparation, and Native American coordination. Work performed for County of San Diego.

Buena Sanitation District Green Oak Sewer Replacement Project (2016 - 2017). Project Manager/Principal Investigator for a cultural resources testing program in conjunction with a proposed sewer replacement project for the City of Vista. Oversaw background research, fieldwork, site record update, Native American coordination, and report preparation. Work performed for Harris & Associates, Inc.

Burton Hawkins Monitoring (2014 - 2015). Project Manager/Principal Investigator for cultural resources testing and monitoring program for a remodel project at a home in La Jolla. Overseeing the archaeological testing program, which includes monitoring of several phases of construction, cataloging and analysis, research, and report preparation (work is still underway). Native American coordination included working with Most Likely Descendant and forensic anthropologists addressing possible human remains. The home is in the Spindrift site, a significant cultural resource in terms of both archaeological importance and Native American cultural values. Work performed for John Hawkins.

Cactus II Feeder Transmission Pipeline IS/MND (2017 - 2018). Senior Archaeologist overseeing cultural resources survey and report for this proposed pipeline project, including background research and Native American outreach. Assisted EMWD with Native American consultation under AB 52. The project would construct approximately five miles of new 30-inch to 42-inch diameter new transmission pipeline to serve planned development in Moreno Valley. Work was performed for EMWD.

Campo Creek Bridge (2016 - 2017). Project Manager/Principal Investigator for the cultural resources monitoring program for this emergency bridge replacement project on SR-94 in southeastern San Diego County. The project area is very sensitive in terms of Native American cultural resources, as well as historic resources. Responsible for development and implementation of the monitoring and discovery plan. The project requires effective communication and coordination with construction crews, Caltrans staff, and Native American monitors. Work performed as a subconsultant to Flatiron, with Caltrans as the lead agency.

Cemetery Area Water Pipeline Replacement-Construction Monitoring (2015 - 2016). Project Manager/Principal Investigator for a water pipeline replacement project in eastern Escondido, located partially within a historic cemetery. Initial work included a cultural resources survey and a historic study of the cemetery; HELIX later conducted cultural resources monitoring during construction. Oversaw historic study, cultural resources survey, and monitoring. Responsible for Native American outreach and report preparation. Work performed for the City of Escondido.

Coastal Meander Trail (2014 - 2015). Project Manager/Principal Investigator for a cultural resources monitoring program for a trail at Scripps Institution of Oceanography on the UC San Diego campus. The trail is located between two known archaeological sites. Oversaw construction monitoring, documentation of cultural resources encountered, site record update, and report preparation. Work performed for UC San Diego.

Cultural Resources Study - P16-0310 Pheasant Hill MND (2017 - 2017). Project Manager/Principal Investigator for a cultural resources survey and testing program for a proposed residential development in the City of Vista. Oversaw background research, field survey, testing, site recordation, Native American coordination, and report preparation. Work performed for City of Vista.

El Camino Real Road Widening-Archaeological Monitoring (2015 - 2016). Project Manager/Principal Investigator for an archaeological monitoring project for the City of Carlsbad in a culturally sensitive area. Project requires close coordination with Native American representatives, City staff, construction crews, and another cultural resources firm to ensure that there are no impacts to significant cultural resources. Work performed for the City of Carlsbad.

Elsinore Valley Municipal Water District Indirect Potable Reuse Feasibility Study (2016 - 2016). **Near Term Water Supply Program – Professional Environmental Services** (2016 - 2018). Diamond Regional Lift Station and Pipeline Project (2016 - 2018). Project Manager/Principal Investigator for a cultural resources survey of the proposed Diamond Regional Lift Station project in the City of Lake Elsinore, located at the confluence of the San Jacinto River at the eastern shoreline of Lake Elsinore. Oversaw background research, field survey, site record updates, Native American coordination, and report preparation. Coordinated with Pechanga Cultural Resources on Native American concerns and development of mitigation measures for the project. Work performed for Elsinore Valley Municipal Water District (EVMWD). Regional Agricultural Pipeline Conversion Project (2016 - 2018). Cultural Resources Task Leader/Principal Investigator for the cultural resources study for the proposed Ag Pipeline Conversion project, a three agency partnership between EVMWD, the City of Lake Elsinore, and the Riverside County Flood Control and Water Conservation District (RCFCWCD). The cultural resources study included a records search/literature review, Native American Heritage Commission correspondence, preparation of a report, and assisting the District with Native American outreach. Met with Pechanga Cultural Resources staff to discuss Native American concerns and alternative project alignments. Work performed EVMWD.

Fox Tank Replacement EIR (2017 - 2018). Senior Archaeologist for proposed project to construct a 1.0-million-gallon tank, as well as an on-site detention basin, paved access road, and other appurtenances. A

12-inch-diameter transmission pipeline would be constructed and the existing Orange Tank demolished. Oversaw cultural resources survey and report, including background research and Native American coordination. Assisted EMWD with Native American consultation in accordance with Assembly Bill (AB) 52. Work was performed for EMWD.

French Valley South Tract 30837 Project (2015 - 2016). Principal Investigator for a 153-acre residential project in the unincorporated community of French Valley, Riverside County. Oversaw background research, field survey, site record updates, Native American coordination, and preparation of a cultural resources report update in support of wetland permitting. The project proposes construction of 312 single-family residences.

Green Oak Villas Technical Reports (2016 - 2016). Project Manager/Principal Investigator for a cultural resources survey and testing program for a proposed multi-family residential development in the City of Vista. Oversaw background research, field survey, testing, site record update, Native American coordination, and report preparation. Work performed for Providence Capital Group, Inc., with the City of Vista as the lead agency.

Guava Street Bridge at Murrieta Creek Project (2017 - 2018). Principal investigator for cultural resources monitoring and environmental compliance tasks for the City of Murrieta's Capital Improvement Program (CIP) #8323 Guava Street Bridge at Murrieta Creek project, which includes replacement of the existing Washington Avenue bridge over Murrieta Creek with a new bridge at Guava Street. Work was performed for Falcon Engineering Services with the City of Murrieta as the lead agency.

Heritage Bluffs II (2014 - 2015). Project Manager/Principal Investigator for a cultural resources survey of approximately 170 acres and testing program at two archaeological sites, for a proposed residential development in the City of San Diego. Worked with project applicant and Red Tail on project design that would avoid impacts to a site area with cultural features and cremated human remains. Much of the work was completed prior to coming to HELIX, between 2007 and 2014. Work performed for Project Design Consultants.

Judson Potable Water Storage Tank and Transmission Pipeline IS/MND (2016 - 2017). Senior Archaeologist for a project proposing to construct a 2.5-million-gallon potable water storage tank, approximately 3,000 linear feet of 18-inch-diameter transmission pipeline, a paved access road, a detention basin, and other associated utilities to support tank operation. Project work included background research in preparation for field survey and assistance with report preparation. Work performed for Eastern Municipal Water District.

Lake Wohlford Dam (2015 - 2015). Project Manager/Principal Investigator for a cultural resources survey for proposed dam replacement for the City of Escondido. Oversaw background research; field survey; recording eight previously undocumented sites and five isolates, as well as updating 14 previously recorded sites; report preparation; and Native American outreach. Provided input for location of staging areas and access routes. Coordinating with City, engineering consultant, and environmental consultant. Work performed for AECOM.

Lilac del Cielo (2014 - 2014). Project Manager/Principal Investigator of a cultural resources survey for a proposed 56.07-acre residential development in the Bonsall area of northern San Diego County. Oversaw field survey, recording three previously undocumented sites, and report preparation. Responsible for Native American coordination. Previous study had been accepted by County staff, but USACE required a new cultural resources survey. Work performed for Glenn Lukos Associates.

Lilac Hills Ranch (2014 - 2017). Project Manager/Principal Investigator of a cultural resources survey and testing program for an approximately 608-acre mixed-use development in the Valley Center area. Oversaw background research, field survey, testing, recording of archaeological sites and historic structures, and report preparation. Responsible for development of the research design and data recovery program, preparation of the preservation plan, and Native American outreach and coordination. The proposed Specific Plan includes residential and commercial use, Town Center, park and private recreation areas, senior center, school site, waste recycling facility, wastewater reclamation facility, active orchards, and other supporting infrastructure. The project also included recording historic structures, development of a research design and data recovery program for a significant archaeological site, and coordination with the Native American community and the client to develop a preservation plan for a significant cultural resource. The project changed over time, so additional survey areas were included, and a variety of off-site improvement alternatives were addressed. Work performed for Accretive Investments, Inc. with County of San Diego as the lead agency.

Mission Cove Data Recovery (2014 - 2015). Project Manager/Principal Investigator for a cultural resources data recovery program at a significant archaeological site with cultural significance to the Luiseño people in the City of Oceanside. Prior to the data recovery program, worked with the client and the San Luis Rey Band of Mission Indians to redesign the project (an affordable housing/mixed-use development) to avoid impacts to cultural resources to the extent feasible. Oversaw background research, excavation and related fieldwork, cataloging and analysis, coordination of ancillary studies (e.g. radiocarbon analysis and shell analysis), Native American coordination, and report preparation. Analysis and report preparation are currently underway. The data recovery program was conducted to mitigate impacts that could not be avoided through project design. Work performed for National Community Renaissance.

Moulton Niguel Water District Regional Lift Force Main Replacement (2017 - 2018). Cultural Resources Task Lead for the replacement of a regional lift station force main operated by Moulton Niguel Water District (MNWD). The project comprises an approximately 9,200 linear foot alignment within Laguna Niguel Regional Park in Orange County, in an area that is quite sensitive in terms of cultural resources. HELIX is supporting Tetra Tech throughout the preliminary design, environmental review (CEQA), and final design, including permitting with applicable state and federal regulatory agencies. The cultural resources survey will inform project design, in order to avoid or minimize potential impacts to cultural resources. Overseeing background research and constraints analysis, Native American coordination, cultural resources survey, coordination with MNWD and Tetra Tech, and report preparation. Work performed for MNWD, as a subconsultant to Tetra Tech.

Moreno Valley Tentative Tract Map 36760 Project (2016 - 2016). Principal Investigator for a cultural resources survey of a 53-acre site in the City of Moreno Valley, Riverside County. Oversaw background

research, field survey, site record updates, Native American coordination, and preparation of a cultural resources report. Project proposed construction of 221 single-family residences, including the installation of necessary utilities and new connecting roadways.

Moulton Niguel Water Dis Pipeline Align (2017 - 2018). Cultural Resources Task Lead for the replacement of existing potable water (PW) and recycled water (RW) pipelines by Moulton Niguel Water District (MNWD). The study area is situated within the Mission Viejo Country Club on the east side of the I-5 and MNWD's Wastewater Plant 3A in the western portions. The general area is sensitive for cultural resources. Overseeing background research and constraints analysis, Native American coordination, cultural resources survey, coordination with MNWD and Tetra Tech, and report preparation. Work performed for MNWD, as a subconsultant to GHD.

Orange County Sanitation District Newhope-Placentia TSR, No. 2-72 B (2016 - 2016). Cultural Resources Task Leader/Principal Investigator for a sewer replacement project located in the City of Anaheim in southern Orange County. The project proposed the replacement of 20,679 feet of existing 33- to 42-inch sewer pipes with 48- to 54-inch pipes within an existing alignment. Project work included a records search, field check, review of historic maps and aerial photographs, Native American outreach, and report authorship. Work performed for Orange County Sanitation District.

Orange County Sanitation District Newhope-Placentia Trunk Sewer Replacement, No. 2-72A (2015 - 2016). Cultural Resources Task Leader/Principal Investigator for a sewer replacement project located in the cities of Anaheim and Fullerton. The project proposed the replacement and upsizing of 12,300 feet pipeline along an existing 14,205-foot alignment. Project work included a records search, field check, review of historic maps and aerial photographs, and Native American outreach. Work performed for Orange County Sanitation District.

Old Mission San Luis Rey Cemetery Expansion Project (2016 - 2017). Project Manager/ Principal Investigator for a cultural resources monitoring program for the expansion of the cemetery at Old Mission San Luis Rey, an area of sensitivity in terms of archaeological, historic, and Native American cultural resources. Worked performed for Old Mission San Luis Rey, with the City of Oceanside as the lead agency.

Otay Crossings Commerce Park EIR (2016 - 2018). Project Manager/Principal Investigator for a cultural resources program including testing, data recovery, and monitoring for a 311.5-acre project in the County of San Diego. Served as Project Manager/Principal Investigator for the cultural resources study that addressed 14 sites, including testing at the 10 sites that not been previously assessed. Work performed for Kearny PCCP Otay 311, LLC, with County of San Diego as the lead agency.

Park Circle - Cultural Resources (2014 - 2018). Project Manager/Principal Investigator of a cultural resources survey and testing program for a proposed 65-acre residential development in the Valley Center area of San Diego County. The project is located along Moosa Creek, in an area that is culturally sensitive to the Luiseño people. Overseeing background research, historic study, field survey, testing, recording archaeological sites and historic structures, and report preparation. Responsible for Native American outreach and coordination. The cultural resources study included survey of the project area,

testing of several archaeological sites, and outreach and coordination with the Native American community, as well as a historic study that addressed a mid-20th century dairy barn and a late 19th century vernacular farmhouse. Work performed for Touchstone Communities.

Peacock Hill Cultural Resources (2014 - 2017). Project Manager/Principal Investigator of a cultural resources study update for a residential development in Lakeside. Oversaw updated research, fieldwork, lab work, analysis by forensic anthropologists, report preparation, and Native American coordination. In the course of outreach and coordination with the Native American (Kumeyaay) community, possible human remains were identified, prompting additional fieldwork, as well as coordination with the Native American community and forensic anthropologists. Work performed for Peacock Hill, Inc.

San Diego County Women's Detention Facility (2014 - 2015). Leader/Principal Investigator for the construction monitoring program for the new Women's Detention Facility in Santee. The project site is in an alluvial setting on the south side of the San Diego River, in proximity to a recorded village site. Buried cultural resources were identified in the alluvial soils during monitoring. Other cultural material recovered was associated with the historic Edgemoor site. Prior to coming to HELIX, served as Cultural Resources Task Leader/Principal Investigator for archaeological survey and testing program for the project as a subconsultant to HELIX. Work performed for Balfour Beatty.

Simpson Farms (2014 - 2016). Project Manager/Principal Investigator in a cultural resources study update for a mixed-use development within a total disturbance area of approximately 75 acres in the unincorporated County of San Diego near the community of Jamul. Oversaw updated research, site recordation, historic analysis, testing/assessment of a previously undocumented archaeological site, report preparation, and Native American coordination. The project consists of 94 single-family dwelling units, a neighborhood commercial site, and related uses such as access roads, drainage facilities and open space. Historic research and a historic structures assessment is also part of this project. Work performed as subconsultant for Gotham Management, LLC, with County of San Diego as lead agency.

SR-76 East Mitigation Monitoring - Cultural Monitoring (2015 - 2018). Project Manager/Principal Investigator for a cultural resources monitoring project for roadway improvements at the SR-76/I-15 Interchange and on SR-76 along the San Luis Rey River in the Bonsall area of San Diego County. The area along the San Luis Rey River is quite sensitive in terms of cultural resources. Overseeing field monitoring, report preparation, and monitor coordination with Caltrans field staff. Responsible for Native American coordination and coordination with Caltrans cultural resources staff. Work is being conducted for Caltrans and SANDAG.

Aloft Hotel and Condominiums (2017 - 2017). [aka Aloft Hotel and Condominium] Project Manager/ Principal Investigator for a proposed private development located in the Old Town area of Temecula, Riverside County. The project entails conducting a cultural resources survey consistent with the requirements of CEQA and the standards of the City. Tasks include obtaining a records search from the Eastern Information Center, contacting the Native American Heritage Commission (NAHC) for a Sacred Lands File search, conducting tribal outreach to those tribes identified by the NAHC, conducting a field survey, including coordinating with a Native American monitor, and report preparation. Work is being performed for Herdman Architecture and Design with the City of Temecula as the lead agency.

Upper San Gabriel Valley Municipal Water District Direct Reuse System Support (2015 - 2016). Cultural Resources Task Leader/Principal Investigator for a project developed to increase non-potable recycled water reuse. The project would include the construction of pipelines, booster stations, and a reservoir to extend non-potable recycled water service to portions of the cities of La Puente, Industry, South El Monte, El Monte, and Pico Rivera. The Project also includes plumbing modifications to convert existing water users' irrigation systems from potable water supply to the recycled water supply. Work for the project included records search and literature review, review of historic maps and aerial photographs, Native American outreach, supervision of the field survey, report authorship, and coordination with the State Water Resources Control Board. Work performed for Upper San Gabriel Valley Municipal Water District.

Upper San Gabriel Valley Municipal Water District Indirect Reuse Replenishment (2015 - 2017). Cultural Resources Task Leader/Principal Investigator for the construction of a pump station at the San Jose Creek Water Reclamation Plant (SJCWRP) West Plant and an approximately 9-mile, 36-inch pipeline from the SJCWRP pump station to the Santa Fe Spreading Grounds (SFSG). Project also includes four new groundwater monitoring wells that would be installed in the SFSG area. Work for the project included records search and literature review, Native American outreach, supervision of the field survey, supervision of the recording of the historic Santa Fe Dam, and report authorship. Work performed for Upper San Gabriel Valley Municipal Water District.

Valiano Cultural Resources (2014 - 2015). Project Manager/Principal Investigator of a cultural resources survey and testing program for a 239-acre residential planned community in the Escondido area of the County of San Diego. Oversaw background research, field survey, testing, recording archaeological sites and assessment of historic structures, Native American outreach and coordination, and report preparation. Archaeological testing was conducted at several sites that could not be avoided through project design. The project site is in an area that is of cultural importance to both the Kumeyaay and Luiseño people; HELIX archaeologists worked with Native American representatives from both groups. Coordination was conducted to determine the feasibility of preserving bedrock milling features by moving them to open space areas within the project. Other archaeological sites were retained in open space through project design. Work performed for Integral Partners Funding, LLC.

Valiano Project (2015 - 2015). Project Manager/Principal Investigator for a cultural resources survey and testing project for a proposed residential development in the County of San Diego. Oversaw background research, field survey and testing, Native American coordination, report preparation, and development of a data recovery plan. Managed coordination and field meetings with both Kumeyaay and Luiseño representatives. The study included historic structures evaluation, as well as archaeological research. Work performed for Integral Partners Funding, LLC.

Villa Storia (2014 - 2015). Project Manager/Principal Investigator of a cultural resources survey for a proposed residential development in the City of Oceanside. Oversaw background research, field survey, Native American coordination, and report preparation. The project is in proximity to Mission San Luis Rey, in an area of great cultural significance to the Luiseño people, as well as archaeological sensitivity. The cultural resources study included background research, survey of the project area, archaeological

testing/assessment, and coordination with the Native American community. Work performed for Integral Partners Funding, LLC.

Vista Vineyards (2014 - 2015). Project Manager/Principal Investigator in a cultural resources survey and testing program for a proposed residential development in the City of Vista. The15.2-acre project is located along Buena Vista Creek, in an area that is culturally sensitive to the Luiseño people, and two archaeological sites within the project had previously been assessed as significant cultural resources. Overseeing background research, field survey, testing, recording archaeological sites, Native American outreach and coordination, and report preparation. The aim of the cultural resources study was to supplement the previous testing work, in order to guide the data recovery program at one site and to develop a preservation plan for the second site. In addition, the project included a historic study to provide the context and framework for recording a historic archaeological site associated with a significant pioneering family in Vista. Due to the project's location and the known significant cultural resources, the cultural resources study included outreach and coordination with the Luiseño community. The project addresses preservation of the significant resources. Work performed for City of Vista.

Washington Road (2017 - 2018). Project Manager/Principal Investigator for a cultural resources constraints analysis, historic study, and construction monitoring for a residential project in French Valley in Riverside County. The cultural resources study included historic background research and a field visit to assess a previously recorded historic archaeological site, preparation of a site record update, construction monitoring, documentation of isolated historic material encountered during monitoring, and preparation of a report for submittal to the County.

Santa Margarita Water District 3A Water Reclamation Plant Tertiary Treatment Expansion (2016 - 2016). Cultural Resources Task Leader/Principal Investigator for a project proposed to increase recycled water production capabilities The project would include: increasing the reliability of the aeration system; expanding and/or replacing the existing filters with more effective tertiary filters; expanding the disinfection system; expanding the tertiary effluent pumps; possibly upsizing the discharge pipeline that connects to the District's recycled water distribution system; modifying various in-plant piping and electrical systems, and adding a standby generator to the facility for use in case of a power outage. All improvements would occur within the existing boundaries of the 3A Treatment Plant property located in southern Orange County. Project work included a records search and literature review, review of historic maps and aerial photographs, Native American outreach, and report authorship. Work performed for Santa Margarita Water District.

Wildomar Crossings Retail Development Project (2016 - 2018). Principal Investigator for a cultural resources survey for a proposed retail development project in the City of Wildomar in Riverside County. The cultural resources survey included a records search, Sacred Lands File search and Native American outreach, review of historic maps and aerial photographs, an intensive field survey, and report preparation.

Kristina Davison

Staff Archaeologist

HELIX Environmental Planning

Summary of Qualifications

Ms. Davison assists in conducting archaeological, historic, and interpretive studies, and preparing reports. She has participated in projects under the California Environmental Quality Act (CEQA) and in studies under various federal jurisdictions addressing Section 106 compliance and National Environmental Policy Act (NEPA) issues. Ms. Davison has been an archaeologist in Southern California since 2012, previously working in Arizona under Northern Arizona University and the National Park Service. She regularly conducts fieldwork and research for projects under the jurisdiction of local agencies, including San Diego and Riverside Counties and the cities of San Diego, Oceanside, Vista, Carlsbad, Chula Vista, Escondido, Santee, Murrieta, and others. She has experience working with Caltrans, SANDAG, and several water agencies; has conducted numerous surveys; and served as archaeological monitor for various projects throughout San Diego and Riverside Counties. She also acts as crew chief supervising survey and excavation fieldwork, and conducts lab work, including cataloging and analysis. Ms. Davison has an excellent working relationship with the local Native American community, and effectively communicates and coordinates with their monitors, construction crews, and supervisors regarding scheduling and fieldwork.

Selected Project Experience

11th and F Mixed Use Project (2014 - 2014).Staff Archaeologist for an archaeological testing program for the F11 project in the City of San Diego. Assisted historians in archaeological excavation and mapping of features encountered during mechanical test trenching. Hazardous materials onsite required artifacts to be triple-rinsed prior to being removed from the site. Work performed under contract to The Richman Group of California Development Company, LLC.

28th Street between Island Avenue and Clay Avenue Archaeological Monitoring (2015 - 2015).Staff Archaeologist for undergrounding utilities project in the Sherman Heights neighborhood of the City of San Diego. Conducted cultural resources monitoring and identified historic-era artifact deposits within the work area. Work performed for the City of San Diego.

964 Urania Avenue (2016 - 2016).Field Archeologist for a cultural resources survey and testing program for a proposed residential development in the City of Solana Beach. Oversaw background research, field survey, testing, site recordation, Native American coordination, and report preparation. Work performed for Hall Land Company.

Balboa Station Specific Plan Area First Screencheck PEIR (2016 - 2016).Staff Archaeologist for the Balboa Station Specific Plan Preliminary Environmental Impact

Education

Bachelor of Arts, Anthropology with emphasis in Archaeology, Northern Arizona University, Arizona, 2012

Registrations/ Certifications

NCTD, Roadway Worker ID #C022385-16, 2014

Professional Affiliations

Society for California Archaeology

Report (PEIR). Conducted a cultural resources survey of the study area. Work performed for the City of San Diego.

Borrego Springs Community Library IS/MND (2015 - 2015).Staff Archaeologist for the development of a new library and park on approximately 17 acres in the unincorporated community of Borrego Springs in eastern San Diego County. Conducted a cultural resources survey of the project area and assisted in preparation of the survey letter report. Work performed for the County of San Diego.

Buena Sanitation District Green Oak Sewer Replacement Project (2016 - 2016).Staff Archaeologist for this sewer replacement project in the City of Vista, in northwestern San Diego County. Conducted an initial site visit to prepare for archaeological testing, and served as crew chief for the archaeological testing program implemented at a previously recorded site within the Area of Potential Effect (APE); conducted survey of the APE and areas adjacent in order to relocate the previously recorded resource. Photographed and obtained locational data for milling features near the project APE in order to supplement existing records for the resource and to aid in the mitigation process. Work performed on behalf of the City of Vista under contract to Harris & Associates.

Buena Vista Apartments Project (2016 - 2016).Staff Archaeologist for a proposed housing development project located in the City of Vista, in northern San Diego County. Conducted a cultural resources field survey of the project area, located on an old trailer park property adjacent to Buena Vista Creek and existing cultural resources. Assessed surface conditions through pedestrian reconnaissance, accompanied by a Native American monitor representing the San Luis Rey Band of Luiseño.

Coronado Strand Main Replacement (2017 - 2018).Conducted a constraints-level pedestrian reconnaissance survey of accessible areas within the proposed project APE, accompanied by a Kumeyaay Native American monitor. Assessed portions of numerous sites intersecting with the project APE; updating existing site documentation to reflect survey observations. Assisted in preparation of the constraints analysis report. Work performed for Brown and Caldwell.

Campo Bus Yard (2015 - 2016).Staff Archaeologist for a proposed Metropolitan Transit System bus yard in the community of Campo, in southeastern San Diego County. Conducted a cultural resources survey of the project site and assisted in review of previous studies and preparation of the cultural resources technical report. Work performed under contract to Kimley-Horn & Associates, Inc.

Campo Creek Bridge (2016 - 2017).Staff Archaeologist for this bridge replacement project in the community of Campo, in southeastern San Diego County. Conducted cultural resources monitoring of demolition, excavation and drilling within the creek

bed and creek banks. The project entailed demolition of the existing bridge across Campo Creek and the construction of a new bridge; the project site is adjacent to a historic structure, and there are additional archaeological resources in the immediate vicinity. Work performed for Caltrans.

Cemetery Area Water Pipeline Replacement-Construction Monitoring (2016 - 2016).Archaeological Monitor for a water pipeline replacement project in eastern Escondido. Responsible for field monitoring, coordination with construction crew and Native American monitors, and daily field notes. Work performed for the City of Escondido.

Cultural Resources Study - P16-0310 Pheasant Hill MND (2017 - 2017).Staff Archaeologist for this proposed residential development in the City of Vista, in northern San Diego County. Conducted a cultural resources survey of the project area and identified a historic artifact deposit within the property; researched historic imagery of the project area and co-authored the cultural resources technical report. Work performed for the City of Vista.

DD Buena Creek (2015 - 2015).Staff Archaeologist for this due diligence/ constraints analysis of eight parcels near and adjacent to Buena Creek in an unincorporated section of northern San Diego County near the City of Vista. Conducted a cultural resources survey of one of the eight parcels, the Apgar Lot, which was inaccessible at the time of the initial field survey. Work performed on behalf of the County of San Diego under contract to Integral Partners Funding, LLC.

Near Term Water Supply Program – Professional Environmental Services (2016 - 2017).Staff Archaeologist for a proposed extension of the Elsinore Valley Municipal Water District's (EVMWD) Regional Water Reclamation Facility outfall to Lake Elsinore, in western Riverside County. Conducted a cultural resources record search at the Eastern Information Center (EIC) and a survey of the project's Area of Potential Effect (APE) and identified remnants of a previously recorded resource within the APE. Reviewed previous studies and historic imagery of the project, and co-authored the cultural resources technical report. The project area is situated within an extremely sensitive area in terms of cultural resources; the archaeological site recorded within the APE is significant to the Luiseño people and has also been determined a significant resource through previous archaeological testing. Work performed for Elsinore Valley Municipal Water District.

Fox Tank Replacement EIR (2017 - 2018).Staff Archaeologist for a cultural resources survey for an environmental impact study in Riverside County. Conducted a cultural resources survey of the project APE and a buffer. Work performed under contract to Eastern Municipal Water District. Work performed for XX.

French Valley South Tract 30837 Project (2016 - 2016).Conducted a field check of previously recorded resources within the proposed project area for a cultural resources study update. The field check also included a records search at Eastern Information Center; the intent of the study update and field check was to relocate the resources and assess whether their condition had changed or whether new elements could be identified. Work performed for FVS Partners, LLC.

Green Oak Villas Technical Reports (2016 - 2016).Conducted archaeological testing and assisted in preparation of the technical report for the project, under the direction of the Cultural Resources Director and Lead Archaeologist. The testing program included excavation of shovel test pits, collection of previously observed surface artifacts, and documentation of testing results. Work performed for Providence Capital Group, Inc.

HUD NEPA Environmental Assessment Checklist for 18431 Beach Blvd Property (2016 - 2016).Staff Archaeologist for a U.S. Department of Housing and Urban Development NEPA Checklist and Environmental Assessment evaluating a proposed low-income housing development in the City of Huntington Beach. Conducted a cultural resources record search of the proposed Area of Potential Effect (APE) at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton. The project included 24 units of affordable housing on an approximately 34,000-square-foot lot. Work performed on behalf of the City of Huntington Beach and U.S. Department of Housing and Urban Development under contract to Wakefield Housing Development.

Jackson Street Recycled Water Pipeline Project (RPU - SWRCB Financial Application Water Recycling Funding Program) (2017 - 2017).Conducted an archaeological survey of the proposed project alignment, located in the City of Riverside, southwestern Riverside County, California. The survey included a pedestrian reconnaissance of the project area, identification of potentially historic addresses, assessment of historic drainage features, and documentation of survey observations. Work performed for Kennedy/Jenks Consultants.

Judson Potable Water Storage Tank and Transmission Pipeline IS/MND (2016 - 2017).Staff Archaeologist for a project proposing to construct a 2.5-million-gallon potable water storage tank, approximately 3,000 linear feet of 18-inch-diameter transmission pipeline, a paved access road, a detention basin, and other associated utilities to support tank operation. Project work included background research, field survey, and assistance with report preparation. Work performed for Eastern Municipal Water District.

Lake Elsinore MEBO Resort Project (2017 - 2017).Conducted a pedestrian reconnaissance accompanied by a Native American monitor representing the

Pechanga Band of Luiseño Indians. Identified and documented/assessed cultural resources within the survey area; assisted in preparation of the technical report.

Laurel Tree (APN 212-040-56-00) (2017 - 2017).Staff Archaeologist for this cultural resources study in the City of Carlsbad, in northwestern San Diego County. Conducted a pedestrian reconnaissance of the project APE accompanied by Native American monitors (Kumeyaay and Luiseño); assessed a previously recorded resource located within the project APE. Assisted in preparation of the survey report. Work performed for SummerHill Homes.

Library Tower Project (2016 - 2017).Staff Archaeologist for this archaeological testing program at 330 13th Street, in the City of San Diego. Directed mechanical test trenching throughout the project area under the supervision of an onsite historian and assisted in archaeological excavation and mapping of early- to mid-20th century features encountered during trenching. There was a potential for hazardous materials to be onsite, and as a result were triple-rinsed prior to being removed from the site. The testing program was undertaken in order to fulfill mitigation requirements set forth in the Mitigation Monitoring and Reporting Plan (MMRP) for the City's Downtown Community Area Plan; the project proposes to develop the currently vacant lot into a mixed-use development. Work performed on behalf of the City of San Diego under contract to The Richman Group of California Development Company, LLC.

Lighthouse Ridge (2016 - 2016).Staff Archaeologist for a 10-lot residential subdivision on a 4.8-acre parcel in the City of San Diego. Conducted a cultural resources survey of the project area and co-authored the cultural resources technical report. Identified remnants of a previously recorded resource within the project that had been apparently destroyed by previous site grading activities. Work performed on behalf of the City of San Diego under contract to Pacific Legacy Homes.

Mission Cove Data Recovery
(2014 - 2014).Conducted cultural resources monitoring for ground-disturbing activities within the 14.47-acre Mission Cove Affordable Housing project area in the City of Oceanside, including monitoring of bi-annual discing of the site, general site clearing, and mass grading of the site. The site is archaeologically significant with cultural importance to the Luiseño people. Work performed for National Community Renaissance.

North Education Center Monitoring Services (Amendment 4) (2017 - 2017).Staff Archaeologist for a new education facility in northern San Diego County, near the Town of Fallbrook. Served as lead archaeological monitor for the duration of ground-disturbing work associated with the project; assisted in the excavation of one historic deposit encountered during monitoring. Responsible for documentation of daily work, coordination with other monitors and onsite contractors, and coordination of

monitoring for adjacent biological mitigation areas within the College property. Work performed for Palomar College Community College District.

Orange County Sanitation District Newhope-Placentia TSR, No. 2-72 B (2016 - 2016).Staff Archaeologist for a sewer replacement project located in the City of Anaheim in southern Orange County. The project proposed the replacement of 20,679 feet of existing 33- to 42-inch sewer pipes with 48- to 54-inch pipes within an existing alignment. Project work included a field check of the alignment and proposed staging areas. Work performed for Orange County Sanitation District.

Palomar Station Pedestrian Bridge (2017 - 2017).Conducted a pedestrian reconnaissance of the project area, accompanied by a Native American monitor representing the San Luis Rey Band of Luiseño. Identified a previously recorded historic resource within and adjacent to the project APE; assisted in preparation of the cultural resources technical report. Work performed for Kleinfelder, Inc.

Paseo Del Norte (2016 - 2016).Staff Archaeologist for a proposed commercial project in the City of Carlsbad. Conducted a record search of the project area at South Coastal Information Center (SCIC) and a cultural resources survey of the project area. Assisted in preparation of the cultural resources technical report. Work performed under contract to BSD Builders, Inc.

Quince Street Senior Housing Project (2017 - 2017).Conducted a pedestrian reconnaissance of the project area, which included photography of the APE's built environment and documentation of structures over 50 years of age within the project APE. Work performed for San Diego InterFaith Housing Foundation.

Rady Murrieta Project (2016 - 2016).Staff Archaeologist for this proposed medical office building on an approximately 4-acre lot in the City of Murrieta, in western Riverside County. Conducted a cultural resources survey and historic imagery research of the project area and co-authored the cultural resources technical report. Work performed under contract to Rady Children's Hospital – San Diego.

Smilax (2016 - 2016).Staff Archaeologist for this Verizon Wireless tower and conduit installation project in Vista, California. Conducted cultural resources monitoring of ground-disturbing activities within the project area including potholing, vegetation removal, trenching for electrical utilities, and site overexcavation. Work performed under contract to Terracon Consultants, Inc.

SR-203 Sidewalk Improvements (N. Main Street and W. Minaret Road) (2017 - 2018).Staff Archaeologist providing environmental support to the Town of Mammoth Lakes (with oversight from Caltrans District 9) for two segments of the SR-203 sidewalk improvements project. Conducted Extended Phase I testing (XPI) for one segment (Phase 3) and construction monitoring for another segment (Phase 1). Work

for XPI included cataloging and report preparation. Work performed as a subconsultant to Triad Holmes Associates, with the Town of Mammoth Lakes as the lead agency.

SR-76 East Mitigation Monitoring - Cultural Monitoring (2015 - 2018).Staff Archaeologist and lead cultural resources monitor for the SR-76 Improvements project under Caltrans, in the communities of Bonsall and Fallbrook, in northern San Diego County. Responsible for monitoring all ground-disturbing activities within ESAs as well as coordination with Caltrans staff, Native American monitors, and contractors as part of construction monitoring. Several resources are located adjacent to the project area, and multiple contractors are working on the project; thus, steadfast communication was required in order to ensure all activities within ESAs were monitored. Work performed on behalf of SANDAG and Caltrans, under contract to HNTB Corporation.

SR-76 Monitoring-Cultural Resources (2014 - 2015).Cultural Resources Monitor for all environmentally sensitive areas (ESAs) in conjunction with the SR-76 Improvements project under Caltrans. Responsible for coordination with Caltrans staff, Native American monitors, and contractor as part of construction monitoring. Work performed for Caltrans and SANDAG.

Vista Ridge Apartment Project (2015 - 2015).Staff Archaeologist for survey, test excavation, and construction monitoring in conjunction with a proposed residential development project in the City of Vista. Responsible for field survey, mapping, excavation of shovel test pits, documentation of bedrock milling features, artifact cataloging, construction monitoring, and assistance with report preparation.

Washington Road (2017 - 2017).Conducted an archaeological survey of the project area and identified potentially significant historic elements associated with early pioneers (late 19th to early 20th century) to the area. In addition, conducted the records search at Eastern Information Center and conducted archival research at the Temecula Public Library.

Wildomar Crossings Retail Development Project (2016 - 2016).Staff Archaeologist for a proposed four-building commercial center on a vacant 3.48-acre parcel in the City of Wildomar, in western Riverside County. Conducted a cultural resources survey of the project site and co-authored the cultural resources technical report. Work conducted for Mann Property Company.

Julie Roy
Archaeological Field Director

HELIX Environmental Planning

Summary of Qualifications

Ms. Roy has over 20 years of experience as an archaeologist, field lead, and supervisor on more than 130 projects throughout California, Nevada, Arizona, and Guam. Conducted archaeological studies for a wide variety of development and resource management projects including work on military installations, energy and transmission projects, commercial and residential developments, historic archaeology projects, and water projects. Competent in all areas of archaeology and efficient in report preparation for a range of cultural resource studies including monitoring projects and archaeological Phase I, II, and III studies. Ms. Roy is proficient in laboratory activities including artifact preparation, cataloging, identification, and illustration. Accomplished in the initiation, coordination and completion of field assignments including survey, site testing, dry and wet screening, and data recovery projects. She is also knowledgeable in the preparation of proposals and report writing and research, client, contractor and subcontractor correspondence, laboratory, computer software including Microsoft, Adobe, GIS/ArcView, CADD, GPS and total-station operations, as well as in the illustration of archaeological features, artifacts, and burials.

Ms. Roy is established as a qualified archaeological monitor for the City and the County of San Diego. Her experience includes working closely with representatives of San Diego County Parks and Recreation for the past 10 years and she has received accolades from numerous county representatives for her work at park facilities. For the past 4 four years, she has served as the monitoring coordinator for the San Diego Gas & Electric Company (SDG&E) Fire Resource Mitigation Initiative (FiRM) project, where she regularly provided effective communication between field monitors, construction managers/foremen, and Principal Investigators for construction projects and assisted in scheduling and tracking of project progress.

Selected Project Experience

Padre Dam Municipal Water District East County Advanced Water Purification Program Year 2 (2018). Field Director for cultural resources survey of the East County Advanced Water Purification project, which proposes to increase the region's supply of potable water. Duties included conducting a pedestrian survey, coordination with a Native American monitor, completion of site forms, and assistance in the preparation of a technical report. Work performed for Kennedy/Jenks Consultants, Inc., with Padre Dam Municipal Water District as the lead agency and Helix Water District, the County of San Diego, and the City of El Cajon as participating agencies.

Kelly Drive and Park Drive Road Diet and Multi-Use Trail Project (2018). Field Director for the Multi-Use Trail project that proposes to create a balanced multi-modal transportation network, providing trail linkage from El Camino Real to Agua Hedionda Lagoon in coordination with the City of Carlsbad Trails system. Duties included field

Education

Bachelor of Arts, Anthropological Archaeology, University of California San Diego, 2002

Professional Affiliations

Society for California Archaeology

Society for American Archaeology

Association of Environmental Professionals

direction of a testing program and preparation assistance of a survey and assessment report. Work performed GHD, Inc., with the City of Carlsbad as the lead agency.

Ulric Street Apartments Project (2018). Field Director for the Ulric Street Apartments Project in the City of San Diego. The project proposes the construction of up to 188 affordable housing units. Duties included conducting a pedestrian survey, coordination with a Native American monitor, archival research and literature review, and co-authoring a technical report. Work performed for Community Housing Works, with the City of San Diego as the lead agency.

SDG&E, On-Call Archaeological Services (2018). Archaeologist and Field Lead for SDG&E infrastructure operations and transmission line maintenance activities for over 12 years. Projects include survey, testing, excavations, and data recovery of both historic and prehistoric resources including Native American burial sites. Approved to monitor for projects throughout San Diego and Imperial counties. Other duties include records search, survey, archaeological documentation and investigations, and preparation of reports under CEQA and NEPA guidelines.

County of San Diego Parks and Recreation, On-Call Archaeological Services (2018). Archaeologist and Field Lead for County Parks infrastructure and maintenance activities for San Diego County Department of Parks and Recreation. Responsible for communication with County supervisors and contractors, and the coordination of project activities with cultural and Native American monitors for projects throughout San Diego and Imperial Counties. Other duties include records search, field survey, archaeological documentation and investigations including testing, excavations and data recovery projects, and preparation of reports following CEQA and NEPA guidelines.

Archaeological Services, Marine Corps Base (MCB) Camp Pendleton (2007 - 2018). Archaeologist/ Crew Chief responsible for field crew and acted as safety officer during portions of the program. This program incorporated various projects including a base-wide utilities expansion project at MCB Camp Pendleton. Project duties included archaeological survey, testing and excavations, and the recordation of located resources. Testing included the excavation of STPs and 1-x-1-meter test excavation units for both previously recorded sites and previously undocumented sites identified during archaeological survey. Work performed for Naval Facilities Engineering Command, Southwest.

Archaeological Survey, Lake Hodges Erosion Impact Assessment Project (2007). Archaeologist for San Diego County Water Authority's lake shoreline survey and site relocation project to assess erosion impacts related to rising and falling lake levels. The project included the reassessment of a major prehistoric village site (CA-SDI-10920) and a variety of other prehistoric resources conducted in compliance with CEQA.

Archaeological Monitoring, 30th Street Utility Undergrounding Project (2006). Archaeological Monitor for residential utility undergrounding project in the community of South Park in San Diego. The project was conducted under CEQA and City of San Diego guidelines while working closely with the construction contractor.

Mary Villalobos

Staff Archaeologist

HELIX Environmental Planning

Summary of Qualifications

Ms. Villalobos serves as a field archaeologist on a number of cultural resource projects in southern California, including surveys, testing programs, and monitoring. She has also served as a laboratory assistant for major universities, museums, and archaeological centers. She has expertise in cultural resource surveying, cataloging site excavation data, and monitoring. Ms. Villalobos' experience includes international work for a key archaeological project in Peru focused on a temple excavation.

Education

Bachelor of Arts, Anthropology, concentration in Archaeology, University of California San Diego, CA, 2013

Selected Project Experience

12 Oaks Winery Resort and Golf Community (2015 - 2018). Field Archaeologist for survey of an approximately 600-acre project near Temecula in Riverside County. Responsibilities included identification of cultural material during field survey. Work performed for Standard Portfolio Temecula, LLC, with County of Riverside as the lead agency.

28th Street between Island Avenue and Clay Avenue Archaeological Monitoring (2016 - 2018). Archaeological Monitor for a utilities undergrounding project in a historic neighborhood of East San Diego. Responsible for field monitoring, coordination with construction crew and Native American monitors, identification of artifacts and cultural features, and daily field notes. Work performed for the City of San Diego.

Oceanside As-Needed Environmental Consulting Services, 2013-2015 (2015 - 2016). Archaeological Monitor for construction of a new facility at the Mission Basin Desalting Facility near the San Luis Rey River. Responsible for field monitoring, coordination with construction crew and Native American monitors, identification of artifacts and cultural features, and daily field notes. Work performed for the City of Oceanside.

Cemetery Area Water Pipeline Replacement-Construction Monitoring (2015 - 2016). Archaeological Monitor for a water pipeline replacement project in eastern Escondido. Responsible for field monitoring, coordination with construction crew and Native American monitors, identification of artifacts and cultural features, and daily field notes. Work performed for the City of Escondido.

El Camino Real Road Widening-Archaeological Monitoring (2016 - 2016). Archaeological Monitor for a road widening project in an area with archaeological and cultural sensitivity. Responsible for field monitoring, coordination with construction crew and Native American monitors, identification of artifacts and cultural features, and daily field notes. Work performed for the City of Carlsbad.

Magnolia Trails - Archaeological Monitoring (2015 - 2016). Archaeological Monitor for a residential development in the City of El Cajon. Responsible for field monitoring, coordination with construction crew

and Native American monitors, identification of artifacts and cultural features, and daily field notes. Work performed for KB Home.

Mast Park Project (2015 - 2015). Archaeological Monitor during grading associated with a 12.67-acre habitat restoration project in the City of Santee, which serves as a mitigation area for six public and private projects. Responsible for field monitoring, coordination with construction crew and Native American monitors, identification of artifacts and cultural features, and daily field notes. Work performed for the City of Santee.

Mission Cove Monitoring (2015 - 2016). Archaeological Monitor for a mixed-use development in Oceanside. A significant cultural resource site is located within the project area, and cultural material is found in the alluvial soils. Responsible for field monitoring, coordination with construction crew and Native American monitors, identification of artifacts and cultural features, and daily field notes. Work performed for National Community Renaissance.

Moreno Valley Tentative Tract Map 36760 Project (2016 - 2016). Staff Archaeologist for a cultural resources survey in the Moreno Valley area of Riverside County. Work performed for Mission Pacific Land Company.

Pottery Canyon Mitigation Monitoring (2015 - 2015). Archaeological Monitor for a cultural resources monitoring program in conjunction with the contaminated soils remediation program at a significant historic archaeological site in Pottery Canyon Park in the City of San Diego. The project included review of the previous testing report and the remediation plan, assessment of the capping program to ensure its compliance with the approved preservation measures, monitoring of capping, collection and cataloging of artifacts outside the capped area, and preparation of a monitoring report. Work performed for the City of San Diego.

Villa Storia (2015 - 2015).Field Archaeologist for a testing program at an important archaeological site near Mission San Luis Rey in the City of Oceanside. Responsibilities included excavation of test units, identification of cultural material, and preparation of field notes. Work performed for Integral Partners Funding, LLC.

Vista Grande (2015 - 2015).Field Archaeologist for a testing program at an archaeological site near Rancho Guajome in the City of Vista. Responsibilities included excavation of test units, identification of cultural material, and preparation of field notes. Work performed fore the City of Vista.

Previous Project Experience

San Diego County Archaeological Center (2014 - Present). Lab Volunteer under the direction of Ad Muniz at the San Diego Archaeological Center. Duties include identification and cataloging of collections obtained from cultural resource management firms, governmental agencies and private donations, entering the data into spreadsheets. The collections include cultural artifacts ranging from prehistoric to historic period and include Native and non-Native artifacts. Additionally, conduct educational sessions for school children visiting the center on field trips.

Mary Villalobos

Staff Archaeologist

University of California San Diego (2011 - 2013) Lab Volunteer for the Andean Archaeology Lab of Dr. Paul Goldstein at the University of California San Diego. Worked with several graduate students to enter excavation data into spreadsheets, cataloging site excavation photographs and transferring unit information to Geographic Information Systems (GIS). Responsibilities included scanning, redrawing and labeling unit information using the Inkscape vector drawing program.

OMO M10/Rio Muerto Archaeology Project (2012). Field Archaeologist for a field school located in Moqegua, Peru that is associated with the University of California San Diego and is headed by Dr. Paul Goldstein. This project focused on the excavation of a temple located within the remains of a Tiwanaku colony. Learned methods of excavating, specimen analysis, and surveying using the Total Station.

Museo Contisuyu (2012). Volunteer for a museum associated with the OMO M10/Rio Muerto Archaeology Project and dedicated to the Peruvian people of rural Moquegua to help connect them to their past. The museum collections included mummies, lithics, pottery, tools and textiles. Conducted pottery analysis and reconstruction.

Appendix C

Mitigation Monitoring and Reporting Program

MITIGATION MONITORING AND REPORTING PROGRAM
REGIONAL LIFT STATION FORCE MAIN REPLACEMENT PROJECT

Purpose of Mitigation Monitoring and Reporting Program: The California Environmental Quality Act (CEQA), Public Resources Code Section 21081.6, requires that a Mitigation Monitoring and Reporting Program (MMRP) be established upon completing findings. CEQA stipulates that "the public agency shall adopt a reporting or monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation."

This MMRP has been prepared in compliance with Section 21081.6 of CEQA to ensure that all required mitigation measures are implemented and completed according to schedule and maintained in a satisfactory manner during the construction of the project, as required. Table 1 has been prepared to assist the responsible parties in implementing the MMRP. The table identifies individual mitigation measures, monitoring/mitigation timing, the responsible agency for implementing the measure, and space to confirm implementation of the mitigation measures. The numbering of mitigation measures follows the numbering sequence found in the Initial Study and Mitigated Negative Declaration.

The Moulton Niguel Water District (MNWD) is the lead agency for the project under CEQA and shall administer and implement the MMRP. MNWD is responsible for review of all monitoring reports, enforcement actions, and document disposition. MNWD shall rely on information provided by the project site observers/ monitors (e.g., construction manager, project manager, archaeologist, etc.) as accurate and up-to-date and shall provide personnel to field check mitigation measure status, as required.

Project Description: The Regional Lift Station and Force Mains are critical wastewater facilities in the City of Laguna Niguel that carry pumped flow from MNWD's sewer collection system to the South Orange County Wastewater Authority (SOCWA) Regional Treatment Plant. The lift station currently pumps flow into parallel 20-inch and 24-inch Techite pipe force mains. Due to the brittle nature of Techite pipe and the industry reputation of failure, MNWD is proceeding with this project to replace the existing force mains.

One or both of the existing force mains may be abandoned in place or repurposed for secondary effluent from the Regional Treatment Plant. To replace the function of the existing force mains, dual 24-inch force mains would be constructed by the project, each approximately 8,500 linear feet. The force mains would begin at the SOCWA Regional Treatment Plant, and head north following a service path on the east side of the Sulphur Creek Reservoir. North of the reservoir, the force mains' alignment would travel alongside the main access road for the Laguna Niguel Regional Park and turn west. The alignment would end at the Regional Lift Station near Alicia Parkway. Sewer service would be maintained through the existing pipes during construction. MNWD would install the new force mains utilizing open-cut trenching and trenchless installation methods.

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Table 1
MITIGATION MONITORING AND REPORTING PROGRAM CHECKLIST FOR THE REGIONAL LIFT STATION FORCE MAIN REPLACEMENT PROJECT

Mitigation Measure		Monitoring/ Mitigation Timing	Responsible for Monitoring	Verification of Compliance	
				Initials	Date
BIOLOGICAL RESOURCES					
BIO-1	**Southwestern Pond Turtle and Two-Striped Garter Snake:** A clearance survey for southwestern pond turtle and two-striped garter snake shall be conducted by a qualified biologist within the proposed work areas no more than 14 days prior to construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.). The clearance survey shall be conducted within the work areas. If the qualified biologist determines that southwestern pond turtles and/or two-striped garter snakes are present within the work areas during the clearance survey, no construction shall occur until the qualified biologist determines that the pond turtles and/or garter snakes have moved out of the work areas on their own accord. Once the qualified biologist determines that there are no southwestern pond turtles or two-striped garter snakes within the work areas, an exclusionary fence shall be placed between suitable habitat and the work areas to prevent pond turtles and/or garter snakes from reentering the work area. The qualified biologist shall determine the placement of the exclusionary fencing. Prior to commencement of construction activities and after the exclusionary fencing has been erected, a final clearance survey shall be conducted within the work areas to confirm there are no southwestern turtles or garter snakes within the work area. Exclusionary fencing will be required to stay in place for the duration of any construction activities to deter southwestern pond turtles and/or two-striped garter snakes from entering the work areas. The results of the clearance surveys shall be documented by the qualified biologist and submitted to MNWD. To avoid potential impacts to southwestern pond turtles and/or two-striped garter snakes from vehicles and construction equipment adjacent to suitable habitat, all project personnel shall attend a training program presented by a qualified biologist prior to commencement of construction activities. The training program will inform project personnel about the life history of southwestern pond turtle and two-striped garter snake and all avoidance and minimization measures.	Pre-construction survey shall be performed no more than 14 days prior to the commencement of applicable construction activities Exclusionary fencing shall be placed around the work area prior to commencement of construction activities, and fencing placement would be ongoing as the work area moves through the alignment. Monitoring ongoing during construction as determined by the qualified biologist Training program shall occur prior to commencement of construction activities This mitigation measure shall be included in construction documents for implementation during construction	MNWD		

Table 1
MITIGATION MONITORING AND REPORTING PROGRAM CHECKLIST FOR THE REGIONAL LIFT STATION FORCE MAIN REPLACEMENT PROJECT

Mitigation Measure		Monitoring/ Mitigation Timing	Responsible for Monitoring	Verification of Compliance	
				Initials	Date
BIO-2	**Nesting Birds:** Construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) shall occur outside of the general bird nesting season for migratory birds, which is February 15 through August 31 for songbirds and January 15 through August 31 for raptors, to the extent feasible. If construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) must occur during the general bird nesting season for migratory birds and raptors (January 15 through August 31), MNWD shall retain a qualified biologist to perform a pre-construction survey of potential nesting habitat to confirm the absence of active nests belonging to migratory birds and raptors afforded protection under the Migratory Bird Treaty Act (MBTA) and the California Fish and Game (CFG) Code. The pre-construction survey shall be performed no more than seven days prior to the commencement of construction activities. The results of the pre-construction survey shall be documented by the qualified biologist and submitted to MNWD. If the qualified biologist determines that no active migratory bird or raptor nests are present, the activities shall be allowed to proceed without any further requirements. If the qualified biologist determines that an active migratory bird or raptor nest is present, no impacts within 300 feet (500 feet for raptors) of the active nest shall occur until the young have fledged the nest and the nest is confirmed to no longer be active, or as determined by the qualified biologist. The biological monitor may modify the buffer or propose other recommendations in order to minimize disturbance to nesting birds.	Pre-construction survey shall be performed no more than seven days prior to the commencement of construction activities Monitoring ongoing during construction as determined by the qualified biologist This mitigation measure shall be included in construction documents for implementation during construction	MNWD		
BIO-3	**Tricolored Blackbird**: Due to presence of suitable habitat for tricolored blackbird within the project area, the following avoidance and minimization measures shall be implemented to avoid potential indirect impacts: 1. Construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) shall occur outside of the nesting season for tricolored blackbird (March 15 through July 31) to the extent feasible.	Pre-construction surveys shall be performed no more than 15 days prior to the commencement of construction activities (third survey shall be conducted within five days prior to construction activities)	MNWD		

Table 1
MITIGATION MONITORING AND REPORTING PROGRAM CHECKLIST FOR THE REGIONAL LIFT STATION FORCE MAIN REPLACEMENT PROJECT

Mitigation Measure	Monitoring/ Mitigation Timing	Responsible for Monitoring	Verification of Compliance	
			Initials	Date
2. If construction activities i.e., earthwork, clearing, grubbing, pipeline installation, etc.) are proposed within the tricolored nesting season, the following measures shall be taken: a. Three pre-construction surveys shall be conducted within 15 days prior to commencing constructions activities on the project area. The third survey shall be conducted within five days prior to construction activities. The surveys shall be conducted within all suitable habitat located in the project area and a 300-foot buffer. The results of the pre-construction surveys shall be documented by the qualified biologist and submitted to MNWD and the California Department of Fish and Wildlife (CDFW). If no tricolored blackbirds are observed within 300 feet of proposed construction, the activities shall be allowed to proceed without any further requirements. If tricolored blackbirds are observed within 300 feet of the proposed activities, the following avoidance and minimization measures shall be implemented: i. A qualified biological monitor shall clearly delineate a 300-foot buffer around occupied tricolored blackbird habitat. The buffer shall be clearly marked with flags and/or fencing prior to the initiation of construction activities. ii. The biological monitor shall be present during any construction activities conducted within the nesting season to observe the birds' behavior. The construction supervisor shall be notified if the construction activities appear to be altering the birds' normal behavior. In this event, construction activities shall cease until additional minimization measures have been performed. Measures may include, but are not limited to, limitation on the use of certain equipment, placement of equipment, restrictions on the simultaneous use of equipment, or noise attenuation measures (e.g., sound blanket, berm, wall). If the birds' behavior is still altered from normal breeding behavior, construction activities shall cease until CDFW is contacted to discuss alternative methods.	Monitoring ongoing during construction as determined by the qualified biologist Exclusionary fencing shall be placed around the work area prior to commencement of construction activities near suitable habitat, and fencing placement would be ongoing as the work area moves through the alignment. Training program shall occur prior to commencement of construction activities This mitigation measure shall be included in construction documents for implementation during construction			

Table 1
MITIGATION MONITORING AND REPORTING PROGRAM CHECKLIST FOR THE REGIONAL LIFT STATION FORCE MAIN REPLACEMENT PROJECT

Mitigation Measure	Monitoring/ Mitigation Timing	Responsible for Monitoring	Verification of Compliance	
			Initials	Date
iii. If construction activities are planned within or adjacent to the 300-foot avoidance buffer, a qualified acoustician shall be retained to determine ambient noise levels and project-related noise levels at the edge of occupied habitat. The biological monitor shall prepare written documentation of all monitoring activities at the completion of construction activities, which shall be submitted to MNWD and CDFW.				
iv. All project personnel shall attend a training program presented by a qualified biologist prior to construction activities. The training program will inform project personnel about the life history of tricolored blackbird and all avoidance and minimization measures.				
v. The construction contractor shall only allow construction activities to occur during daylight hours.				
vi. The construction contractor shall require functional mufflers on all construction equipment (stationery or mobile) used within or immediately adjacent to any 300-foot avoidance buffers to reduce construction equipment noise. Stationary equipment shall be situated so that noise generated from the equipment is not directed towards habitat occupied by tricolored blackbird.				
vii. The construction contractor will place staging areas as far as feasible from any habitat occupied by tricolored blackbird.				

Table 1
MITIGATION MONITORING AND REPORTING PROGRAM CHECKLIST FOR THE REGIONAL LIFT STATION FORCE MAIN REPLACEMENT PROJECT

Mitigation Measure		Monitoring/ Mitigation Timing	Responsible for Monitoring	Verification of Compliance	
				Initials	Date
BIO-4	**Burrowing Owl**: In compliance with CDFW's *Staff Report on Burrowing Owl Mitigation* (2012), a take avoidance survey shall be conducted in the project area within 14 days prior to ground disturbance to determine presence of burrowing owls. If the take avoidance survey is negative and burrowing owls are confirmed absent, then ground-disturbing activities shall be allowed to commence and no further mitigation would be required. If burrowing owls are observed during the take avoidance survey, active burrows shall be avoided by the project in accordance with the CDFW's Staff Report (2012). The CDFW shall be immediately informed of any burrowing owl observations. A Burrowing Owl Protection and Relocation Plan (plan), which must be sent for approval by CDFW prior to initiating ground disturbance, shall be prepared by a qualified biologist. The plan shall detail avoidance measures that shall be implemented during construction and passive or active relocation methodology. Relocation shall only occur outside of the nesting season (February 1 through August 31).	Take avoidance survey shall be performed within 14 days prior to ground disturbance If burrowing owls are determined to be present, the plan shall be sent to CDFW prior to initiating ground disturbance This mitigation measure shall be included in construction documents for implementation during construction	MNWD		
BIO-5	**Least Bell's Vireo**: Due to presence of least Bell's vireos in the project area, the following measures shall be implemented to avoid potential direct impacts: 1. If canopy trimming for construction vehicle access is required, it shall be conducted by an ISA certified arborist outside of the nesting season for least Bell's vireo (March 15 through August 31). 2. Compensatory mitigation for direct temporary impacts to 0.04 acre of suitable least Bell's vireo habitat shall be offset through compensatory mitigation. Compensatory mitigation may include, but is not necessarily limited to, on-site or off-site riparian enhancement, payment to Orange County Parks (OC Parks) to fund non-native vegetation removal, or purchase of off-site enhancement credits at a ratio of no less than 1:1. Due to presence of least Bell's vireo in the study area, the following measures shall be implemented to avoid or minimize potential indirect impacts:	Ongoing during construction Compensatory mitigation to occur in a timely manner per agency requirements Training program shall occur prior to commencement of construction activities Exclusionary fencing shall be placed around the work area prior to commencement of construction activities near suitable habitat, and fencing placement would be ongoing as the work area moves	MNWD		

Table 1
MITIGATION MONITORING AND REPORTING PROGRAM CHECKLIST FOR THE REGIONAL LIFT STATION FORCE MAIN REPLACEMENT PROJECT

Mitigation Measure	Monitoring/ Mitigation Timing	Responsible for Monitoring	Verification of Compliance	
			Initials	Date
1. Construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) shall occur outside of the nesting season for least Bell's vireo (March 15 through August 31) to the extent feasible. 2. If construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) are proposed within the least Bell's vireo nesting season, the following measures shall be taken: a. If construction activities are planned within the least Bell's vireo nesting season, a qualified biological monitor shall clearly delineate a 500-foot buffer around suitable least Bell's vireo habitat. The buffer shall be clearly marked with flags and/or fencing prior to the initiation of construction activities. b. The biological monitor shall be present during any construction activities conducted within the nesting season to observe the birds' behavior. The construction supervisor shall be notified if the construction activities appear to be altering the birds' normal behavior. In this event, construction activities shall cease until additional minimization measures have been performed. Measures may include, but are not limited to, limitation on the use of certain equipment, placement of equipment, restrictions on the simultaneous use of equipment, or noise attenuation measures (e.g., sound blanket, berm, wall). If the birds' behavior is still altered from normal breeding behavior, construction activities shall cease until CDFW and U.S. Fish and Wildlife Service (USFWS) are contacted to discuss alternative methods. c. If construction activities (e.g., ground disturbance and canopy trimming) are planned within or adjacent to the 500-foot buffer, a qualified acoustician shall be retained to determine ambient noise levels and project-related noise levels at the edge of occupied habitat. The need for sound monitoring and attenuation shall be recommended by the biological monitor based on the presence of nesting individuals and observation of the birds' behavior. Noise levels at the edge of the occupied habitat shall	through the alignment. Written documentation of all monitoring activities shall be completed and submitted at the completion of construction activities This mitigation measure shall be included in construction documents for implementation during construction			

Table 1
MITIGATION MONITORING AND REPORTING PROGRAM CHECKLIST FOR THE REGIONAL LIFT STATION FORCE MAIN REPLACEMENT PROJECT

Mitigation Measure	Monitoring/ Mitigation Timing	Responsible for Monitoring	Verification of Compliance	
			Initials	Date
not exceed an hourly average of 60 A-weighted decibels (dBA). If project-related noise levels exceed the threshold described above, construction activities shall cease until additional minimization measures are taken to reduce project-related noise levels to below an hourly average of 60 dBA. If additional measures do not decrease project-related noise levels below the thresholds described above, construction activities shall cease until CDFW and USFWS are contacted to discuss alternative methods. d. All project personnel shall attend a training program presented by a qualified biologist prior to construction activities. The training program will inform project personnel about the life history of least Bell's vireo and all avoidance and minimization measures. e. The construction contractor shall only allow construction activities to occur during daylight hours. f. The construction contractor shall require functional mufflers on all construction equipment (stationery or mobile) used within or immediately adjacent to any 500-foot buffers to reduce construction equipment noise. Stationary equipment shall be situated so that noise generated from the equipment is not directed towards habitat occupied by least Bell's vireo. g. The construction contractor shall place staging areas as far as feasible from habitat occupied by least Bell's vireo. h. The biological monitor shall prepare written documentation of all monitoring activities at the completion of construction activities, which shall be submitted to MNWD, CDFW, and USFWS.				

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MITIGATION MONITORING AND REPORTING PROGRAM CHECKLIST FOR THE REGIONAL LIFT STATION FORCE MAIN REPLACEMENT PROJECT

	Mitigation Measure	Monitoring/ Mitigation Timing	Responsible for Monitoring	Verification of Compliance	
				Initials	Date
BIO-6	**Jurisdictional Resources**: Prior to impacts to jurisdictional resources, MNWD shall obtain regulatory permits from USACE, RWQCB, and CDFW. Jurisdictional resources temporarily impacted shall be returned to pre-project contours once the project has been completed. Compensatory mitigation for temporary impacts to jurisdiction shall include, but is not necessarily limited to, on-site or off-site riparian enhancement, payment to OC Parks to fund non-native vegetation removal, or the purchase of off-site mitigation enhancement credits at a ratio of no less than 1:1. The following minimization measures will also be implemented during construction: • Use of standard Best Management Practices (BMPs) to minimize the impacts during construction. • Construction-related equipment will be stored in developed areas, outside of drainages. • Source control and treatment control BMPs will be implemented to minimize the potential contaminants that are generated during and after construction. Water quality BMPs will be implemented throughout the project to capture and treat potential contaminants. • To avoid attracting predators during construction, the project shall be kept clean of debris to the extent possible. All food-related trash items shall be enclosed in sealed containers and regularly removed from site. • Employees shall strictly limit their activities, vehicles, equipment and construction material to the proposed project footprint, staging areas, and designated routes of travel. • Exclusion fencing shall be maintained until the completion of construction activities.	Ongoing during construction Compensatory mitigation to occur in a timely manner per agency requirements Exclusionary fencing shall be placed around the work area prior to commencement of construction activities near jurisdictional resources, and fencing placement would be ongoing as the work area moves through the alignment. This mitigation measure shall be included in construction documents for implementation during construction	MNWD		

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Mitigation Measure		Monitoring/ Mitigation Timing	Responsible for Monitoring	Verification of Compliance	
				Initials	Date
CULTURAL RESOURCES					
CUL-1	**Worker Environmental Awareness Program.** Prior to the commencement of any ground-disturbing activities for the project, a qualified archaeologist and a Native American monitor from a traditionally culturally affiliated (TCA) tribe shall conduct a Worker Environmental Awareness Program (WEAP) to present to MNWD, the grading contractor, and any relevant subcontractors' information regarding the cultural and archaeological sensitivity of the project area, as well as the requirements of the monitoring program. The WEAP can be presented at a pre-grading meeting or separately. If the WEAP is held separately, the qualified archaeologist and TCA Native American monitor shall be present for a pre-grading meeting with the grading contractor to discuss project schedule, safety requirements, and monitoring protocols.	Prior to commencement of ground disturbing activities This mitigation measure shall be included in construction documents for implementation during construction	MNWD		
CUL-2	**Cultural Resources Monitoring.** Ground disturbing activities during construction shall be monitored by a qualified archaeologist and a TCA Native American monitor. If cultural material is encountered during monitoring, both the archaeologist and the Native American monitor would have the authority to temporarily halt or redirect activity in the area of the find while the cultural material is documented, and a decision is made regarding the significance/eligibility of the find and whether additional excavation, analysis, or other mitigation measures are required. Determinations of significance will be made in consultation among the archaeological Principal Investigator, Native American monitor, and MNWD staff.	Ongoing during construction This mitigation measure shall be included in construction documents for implementation during construction	MNWD		
CUL-3	**Cultural Resources Monitoring Report.** Following the conclusion of monitoring, a report shall be prepared documenting the methods and results of the monitoring program and submitted to MNWD and the South Central Coast Information Center (SCCIC).	Report shall be prepared after conclusion of monitoring This mitigation measure shall be included in construction documents for implementation during construction	MNWD		

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CUL-4 **Human Remains.** In the event that human remains are discovered, the County Coroner shall be contacted. If the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission (NAHC), shall be contacted in order to determine proper treatment and disposition of the remains. All requirements of Health & Safety Code Section 7050.5 and Public Resources Code Section 5097.98 shall be followed.	Ongoing during construction This mitigation measure shall be included in construction documents for implementation during construction	MNWD		
PALEONTOLOGICAL RESOURCES				
PAL-1 **Paleontological Resources Mitigation and Monitoring Plan.** A Paleontological Resources Mitigation and Monitoring Plan shall be prepared prior to construction of the proposed project. A qualified paleontologist shall be retained by MNWD to carry out and manage the plan. Fieldwork may be carried out by a qualified paleontological monitor working under the direction of the paleontologist. Components of the Paleontological Resources Mitigation and Monitoring Plan shall include, but not be limited to: • The paleontologist shall attend all pre-grading meetings to inform the grading and excavation contractors of the paleontological resource mitigation program and shall consult with them with respect to its implementation. • The paleontological monitor shall be on site at all times during the original cutting of previously undisturbed sediments to inspect cuts for contained fossils. • If fossils are discovered, the paleontologist or monitor shall recover them. In instances where recovery requires an extended salvage time, the paleontologist or monitor shall be allowed to temporarily direct, divert, or halt grading to allow recovery of fossil remains in a timely manner. Where deemed appropriate by the paleontologist or monitor, a screen-washing operation for small fossil remains shall be set up. Recovered fossils, along with copies of pertinent field notes, photographs, and maps, shall be deposited (with MNWD's permission) with OC Parks. A final summary report that outlines the results of the mitigation program shall be completed. This report shall include discussion of the methods used, stratigraphy exposed, fossils collected, and significance of recovered fossils.	The plan shall be prepared prior to construction of the project Monitoring ongoing during construction Report shall be prepared after mitigation program is completed This mitigation measure shall be included in construction documents for implementation during construction	MNWD		