DRAFT 1

OSO SEWAGE LIFT STATION IMPROVEMENT PROJECT

Mitigated Negative Declaration

PREPARED FOR:

EL TORO WATER DISTRICT

24251 Los Alisos Boulevard

Lake Forest, California 92630

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AB	Assembly Bill
AQMP	Air Quality Management Plan
BMP	best management practice
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
City	City of Laguna Woods
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
dB	decibel
dBA	A-weighted decibel
ETWD	El Toro Water District
GHG	greenhouse gas
gpm	gallons per minute
GWP	global warming potential
Hz	hertz
kW	kilowatt
L_{eq}	equivalent noise level over given period
L_{max}	maximum sound level during the measurement interval
L_n	statistical sound level
LST	localized significance threshold
MM	mitigation measure
MND	Mitigated Negative Declaration
MNWD	Moulton Niguel Water District
MT	metric ton
NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
PPV	peak particle velocity
O_3	ozone
OSLS	Oso Sewage Lift Station

Acronym/Abbreviation	Definition
RCNM	Roadway Construction Noise Model
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SO_2	sulfur dioxide
SO_x	sulfur oxides
SRA	Source-Receptor Area
SWPPP	stormwater pollution prevention plan
TACs	Toxic Air Contaminants
VOC	volatile organic compound

1 INTRODUCTION

1.1 Project Overview

The El Toro Water District (ETWD) is proposing to improve the Oso Sewage Lift Station (OSLS) (proposed project) in order to increase efficiencies and ensure continued reliability. The OSLS is located in Orange County, within the City of Laguna Woods (City) adjacent to the Woods End Trail entrance at the intersection of El Toro Road and Aliso Creek Road. The existing lift station is outdated and poses significant maintenance costs for ETWD and is nearing the end of its useful life. The proposed project includes demolition of the existing lift station and installation of a new lift station and associated improvements (i.e., wet well and valve vault, new pumps, a new electrical system, new monitoring equipment, and other components). The footprint of the lift station would expand 10 feet to the north onto land that would be acquired from the City.

1.2 California Environmental Quality Act Compliance

ETWD is the lead California Environmental Quality Act (CEQA) agency responsible for the review and approval of the proposed OSLS project. Based on the findings of the Initial Study, ETWD has made the determination that a Mitigated Negative Declaration (MND) is the appropriate environmental document to be prepared in compliance with CEQA (California Public Resources Code, Section 21000 et seq.). As stated in CEQA Section 21064, an MND may be prepared for a project subject to CEQA when an Initial Study has identified no potentially significant effects on the environment.

This draft MND has been prepared by ETWD as lead agency and is in conformance with Section 15070(a), of the CEQA Guidelines and is in conformance with El Toro Water District's Local Guidelines for Implementing the California Environmental Quality Act (14 CCR 15000 et seq.; ETWD 2018). The purpose of the MND and the Initial Study Checklist is to determine any potentially significant impacts associated with the proposed project and to incorporate mitigation measures into the project design as necessary to reduce or eliminate the significant or potentially significant effects of the project.

1.3 Public Review Process

In accordance with CEQA, a good-faith effort has been made during the preparation of this MND to contact affected agencies, organizations, and persons who may have an interest in this project.

In reviewing the MND, affected public agencies and the interested public should focus on the sufficiency of the document in identifying and analyzing the project's possible impacts on the environment. A copy of the draft MND and related documents are available for review at the El Toro Water District, 24251 Los Alisos Boulevard, Lake Forest, California 92630, between the hours of 7:30 a.m. and 4:00 p.m., Monday through Thursday, and 7:30 a.m. and 3:00 p.m. alternate Fridays. It should be noted that ETWD is closed every other Friday. The document is also available on ETWD's website (https://etwd.com/doing-business/ceqa-documents/).

Comments on the MND may be made in writing before the end of the public review period. A 30-day review and comment period from October 9, 2018, to November 7, 2018, has been established in accordance with Section 15072(a) of the CEQA Guidelines. Following the close of the public comment period, ETWD will consider this MND and comments thereto in determining whether to approve the proposed project.

Written comments on the MND should be sent to the following address by 4:00 p.m., November 7, 2018.

El Toro Water District
24251 Los Alisos Boulevard
Lake Forest, California 92630
Contact: Bobby Young, Project Engineer
Telephone: 949.837.7050

2 PROJECT DESCRIPTION

2.1 Introduction

ETWD is proposing to replace the existing OSLS and associated equipment with a new lift station in order to improve the station's reliability and serviceability. The existing pump station is outdated and poses significant maintenance costs for ETWD and is nearing the end of its useful life. The new lift station would consist of a new pre-cast wet well with submersible pumps, a valve vault (including a meter), back-up generator, and an outdoor electrical enclosure. Implementation of the project would require the site to be expanded 10 feet to the north. The proposed project would not substantially increase the capacity from the current lift station since the area served by the station has been built out, and no substantial increase in wastewater flow is anticipated.

2.2 Project Location

The project site is located in southern Orange County, within the southwestern corner of the City of Laguna Woods (Figure 1, Project Location). The City occupies approximately 4 square miles, and is located approximately 5 miles inland from the coast, east of the Laguna Coast Wilderness Park, north of the City of Aliso Viejo, south of the City of Irvine, and south and west of the City of Laguna Hills. Regional access to the project area is via Interstate 5. The proposed project site is located on approximately 2,100 square feet of land located at the western intersection of El Toro Road and Aliso Creek Road, and immediately southwest of the Woods End Trail trailhead (Figure 2, Aerial Map of Project Site). ETWD currently owns and operates the existing lift station property (APN 622-071-21), which measures approximately 70 feet by 30 feet, for a total area of approximately 2,100 square feet, or just under 0.1 acres.

2.3 Environmental Setting

Surrounding Location

The existing lift station property is surrounded on three sides by the Laguna Coast Wilderness (to the north, west, and south). A 6-foot-high cinderblock perimeter wall surrounding the facility separates the facility on three sides from the sloping terrain and vegetation of the wilderness park. The perimeter wall is 6 feet high when measured above grade at street level, but is only 1 to 2 feet above grade where it abuts the slope.

The facility's eastern boundary runs parallel to El Toro Road and an approximately 9-foot-wide sidewalk. The facility's eastern boundary also provides vehicular access to the lift station via a 24-foot-wide driveway and rolling gate.

Just south of the facility are three curbside parallel parking stalls located along El Toro Road, and an approximately 4-foot-high wood fence, which starts at the southern corner of the facility and continues south, separating the wilderness park from the sidewalk along El Toro Road. In addition, a Southern California Edison (SCE) electrical facility is located approximately 120 feet southwest of the station.

Immediately north of the facility is an approximately 340-square-foot area containing several bushes and shrubs, along with two ETWD and City water meters and a telephone pull box. This area is bordered to the north by a 20-foot-wide paved driveway and locked wood fence that provides emergency vehicle access to the wilderness park. The fence begins at the northern corner of the facility and extends to the Woods End Trail trailhead, located approximately 50 feet northwest of the driveway.

Beyond the facility's immediate boundaries, land uses surrounding the project site include a mix of developed single-family residential developments and open space associated with the Laguna Coast Wilderness. The following land uses surround the project site:

- **North:** Beginning of Wood's End Trail, followed by the single-family residential community of Laguna Woods Village
- **East:** Intersection of Aliso Creek and El Toro Road, followed by single-family residential development and Hummingbird Park
- **South:** El Toro Road, SCE facility, and single-family residential development
- **West:** Laguna Coast Wilderness

The entire project site, including the construction staging and parking areas, which would be located at ETWD's Water Recycling Plant, are within the City of Laguna Woods and are both designated as Open Space on the City's General Plan Land Use Map (City of Laguna Woods 2017a). The underlying zoning for the project site is Open Space – Passive (OS-P), and the underlying zoning for the Water Recycling Plant is Open Space – Recreational (OS-R) (City of Laguna Woods 2017b). The project site is primarily surrounded by single-family residential and open space land uses. The project site is also in close proximity to the jurisdictional boundaries for the Cities of Laguna Beach and Aliso Viejo. See Figure 3, Zoning, for an illustration of land uses surrounding the project site, as well as the jurisdictional boundaries for abutting cities.

2.4 Existing Conditions

The OSLS conveys raw wastewater from the southwest portion of ETWD's service area of Laguna Woods to the gravity sewer collection system ultimately terminating at the ETWD Water Recycling Plant. The lift station receives flow from approximately 808 units and 1 clubhouse within the retirement community of Laguna Woods Village, located approximately 250 feet northwest of the lift station.

Existing OSLS Facility

The original facility was constructed in 1972 and includes a lift station building, dry well, wet well, emergency generator, and SCE transformer (Figure 4, Existing Site Plan). The lift station building is a 12-foot by 17-foot masonry block building that houses the existing pump motors, electrical equipment, and switchgear/motor control center. Underground, directly beneath the lift station building is the concrete dry well, which houses the pumps. The dry well is not intended for storage of sewage and is not sealed off from the lift station building above it, which contains the electrical equipment. Influent sewage is contained within the wet well, which is also located underground, immediately adjacent to the dry well.

The emergency generator is located on the northwest portion of the site, and due to its age, it no longer meets air quality regulatory requirements. The SCE transformer is located on the southwest corner of the site and would remain in its current location. The improvements associated with the proposed project would be coordinated with SCE to confirm if the existing transformer is adequate.

Other existing facilities include the bypass piping system and proximity to Moulton Niguel Water District (MNWD) gravity sewer system. Information regarding these facilities, and additional detail regarding the facilities described above, are provided below.

Existing Wet Well

The existing wet well interior dimensions are 10 feet by 6 feet, and it was designed and constructed under the 1970 edition of the Uniform Building Code. Influent sewage enters the wet well from a 12-inch-diameter vitrified clay pipe gravity sewer. Upstream of the existing wet well is a 60-inch manhole, which provides access via a 4-foot by 4-foot access hatch. The wet well has an operational capacity of approximately 1,100 gallons (capacity between the pump stop and pump start levels). Capacity for an additional 300 gallons is available in the event of an emergency. Emergency capacity is provided between the high-wet well level alarm and the spill elevation within the wet well. This equates to approximately 3 feet between the alarm and the elevation where a spill will occur. During peak flow (e.g., 270 gallons per minute [gpm]), available response time from the sounding of the alarm to a spill is approximately 5 minutes.

In the event of an emergency during peak flow, 5 minutes is not an adequate amount of time for ETWD staff to react to an alarm and make the needed repairs to avoid sewage overflow. Therefore, additional emergency storage capacity and on-site detention time is a primary goal of the proposed project.

Existing Dry Well

The existing pumps are housed in the drywell underneath the lift station building. The pump controls for the lift station are programmed in an on/off cycle based on wet well levels. The existing pumping equipment was installed in 1995, and they have reached the end of their useful design life.

Existing Emergency Generator

The existing lift station is equipped with a 181-kilowatt (kW) diesel-fueled Caterpillar generator that is capable of running both existing sewage pumps. The generator is equipped with an ASCO automatic transfer switch and a 105-gallon diesel tank that is capable of sustaining the generator operation for as long as 5 days. The existing generator is approximately 20 years old, and ETWD has already rebuilt it once. The existing generator will not meet current California Air Resources Board (CARB) and South Coast Air Quality Management District (SCAQMD) emission regulations.

Existing Bypass Piping System

The existing lift station currently includes valves and piping to accommodate the use of an existing portable pump to take suction from the wet well and discharge into the force main in the event of a pump station failure. The bypass system was previously relocated to the sidewalk just outside the site access gate and is in good condition. No improvements are recommended.

Existing MNWD Pipe

MNWD is the water district for the areas southwest of El Toro Road. MNWD owns and operates an 8-inch PVC pipe that crosses underneath El Toro Road, approximately 50 feet away from the frontage of the lift station. This pipe is part of the MNWD's gravity sewer system and is not connected to the ETWD system.

2.5 Project Characteristics

2.5.1 Project Description

ETWD is planning to replace the existing OSLS with a new and improved lift station (Figure 5, Proposed Site Plan). The new lift station would consist of a new pre-cast wet well with two new submersible pumps, a valve vault (including a meter), back-up generator, new electrical instrumentation and control equipment, and outdoor electrical enclosure. ETWD is proposing to abandon the existing wet well and use it as emergency storage. Implementation of the project would require the site to be expanded 10 feet to the north, and ETWD is proposing to acquire the unpaved area north of the existing facility to accommodate this expansion. The proposed project includes:

- Expansion of the existing lift station site. The current masonry block wall would be relocated to the north by approximately 10 feet. This relocation would encroach onto the City of Laguna Woods property by 10 feet to the north of the existing ETWD property line, expanding the lift station's footprint. ETWD would acquire this property from the City.
- New wet well. A new pre-cast wet well would be built underground, northwest of the existing lift station building, and partly within the expansion area. The new wet well would house two submersible pumps, and would be 10 feet deep with a 10 foot diameter. The new wet well would be sized for a maximum of six start/stops per hour using an inflow rate of 150 gpm (3 times the average daily flow rate) and a pumping rate of 440 gpm.
- New valve vault. A new valve vault would be constructed on the discharge piping, and the valve vault would include a new flow meter.
- New pumps. ETWD is planning to replace the two existing 75-horsepower vertical dry pit non-clog pumps with two new 75-horsepower submersible pumps. The design point of the submersible pumps would be 400 gpm at roughly 200 feet of lift. At 400 gpm, the velocity in the force main would be about 2.5 feet per second.
- New electrical, instrumentation, and control system. The new lift station would be equipped with new electrical equipment and a new stand-by diesel generator. It is anticipated the total horsepower of the new lift station would be 150 horsepower, which is the same horsepower as the existing OSLF. The new electrical

equipment would include a main switchboard, automatic transfer switch, motor control center, and Supervisory Control and Data Acquisition (SCADA) panel. Two constant speed soft starters with ramp down speed would be included. The new electrical equipment would be housed outdoors within a non-walk-in enclosure, along the northwest wall of the facility.

- New emergency generator. The new standby generator would be engine-driven (175 kW rating at 0.80 power factor), and would run on no. 2 diesel fuel. The new generator set would be located on southwest corner of the site (on top of the existing dry pit) and would include a sound-attenuated weather-protected enclosure and subbase fuel tank.
- The existing bypass connection and valves are located outside of the lift station within the sidewalk. A new bypass connection would be included and would be placed within the site. However, the existing bypass piping and valves would be required when the new lift station piping is connected to the force main. After the new lift station is connected to the force main, the existing bypass can be abandoned. However, the valves cannot be removed. In order to remove the valves, the force main would need to be taken out of service and drained, and sewage would be bypassed into the MNWD sewer or stored.

2.5.2 Project Construction and Scheduling

Construction of the proposed new lift station would take approximately 5 months. It is anticipated that construction would begin in December 2018 and would be completed in spring 2019. The existing lift station would remain operational until the proposed lift station is completed. Partial demolition and construction would occur in two phases.

Phase I demolition would last 5 weeks (week 0 to week 5) and would involve removal of existing vegetation and wooden fence from the north side of the site; relocating irrigation and the water meter; removing portions of the block wall; and removing the rolling gate, existing generator, and existing manhole. Phase 1 construction would last 10 weeks (week 6 to week 16) and would involve placement of the new wet well, and installation of the new influent sewer, manhole, electrical features, submersible pumps, discharge piping, and MNWD overflow pipeline in El Toro Road. Once Phase I construction is complete, the new electrical and mechanical systems would be tested to ensure they are operational and reliable. Once the new pump is in service, the block wall would be rebuilt around the north and east sites of the facility.

Phase II demolition would last 3 weeks (week 17 to week 19), and would involve removal of the existing dry pit building and foundation slab, motor control center building, and any mechanical and electrical features inside the existing pump station building. Phase II construction would last 4 weeks (week 20 to week 24) and would involve the installation of the new generator and base slab, and the completion of any remaining site work.

During demolition and construction, the contractor would install chain-link fencing around the construction site to keep pedestrians and other unauthorized people out of the construction zone. K-rails would be placed between the travel way of the road and construction site. Traffic control, including a flagman, would be used to reduce traffic impacts and ensure pedestrian safety.

The use of a dozer, backhoe crane, and or dump trucks would be necessary for project construction. Not all construction equipment would be operating simultaneously. All construction-related activities would be conducted during weekday, daylight hours only, with no construction on Sundays or federal holidays in accordance with the City of Laguna Woods Municipal Code (City of Laguna Woods 2013). Project construction would not require the use of special lighting, as all activities would be conducted during daylight hours.

Access to and from the construction site would occur via El Toro Road. Due to site constraints, construction staging and worker parking would not be provided at the project site. Rather, staging and parking would occur at ETWD's Water Recycling Plant located at 23542 Moulton Parkway, Laguna Woods, California. Access to the construction staging and parking area would be provided via Moulton Parkway to El Toro Road. Approximately 10 workers would be employed per day during construction. Average daily trips generated by construction include worker trips to and from the off-site parking location, two shuttle trips from the off-site parking location to the project site, and truck trips associated with equipment delivery or demolition hauling. In total, construction and demolition of the proposed project would generate an average of 21 trips per day.

3 INITIAL STUDY CHECKLIST

1. Project title:

Oso Sewage Lift Station Improvement Project

2. Lead agency name and address:

El Toro Water District (ETWD)

3. Contact person and phone number:

Bobby Young, Project Engineer
Phone: 949.837.7050

4. Project location:

The project is located in the County of Orange, within the City of Laguna Woods. More specifically, the project site is located immediately west of the intersection of El Toro Road and Aliso Creek Road adjacent to the entrance of the Woods End Trail.

5. Project sponsor's name and address:

El Toro Water District, 24251 Los Alisos Boulevard, Lake Forest, California 92630

6. General plan designation:

Open Space (OS)

7. Zoning:

Open Space – Passive District (OS-P)

8. Description of project. (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary):

ETWD is proposing to replace its existing Oso Sewage Lift Station and associated equipment with a new lift station in order to improve the station's reliability and serviceability. The existing pump station is old and poses significant maintenance cost and safety issues for ETWD. The new lift station would consist of a new pre-cast wet well with submersible pumps, a valve vault (including a meter), back-up generator, and outdoor electrical enclosure. Implementation of the project would require the site to be expanded 10 feet to the north.

The proposed project would not substantially increase the capacity from the current lift station since the area served by the station has been built out, and no substantial increase in wastewater flow is anticipated.

9. Surrounding land uses and setting (Briefly describe the project's surroundings):

The existing lift station property is surrounded on three sides by the Laguna Coast Wilderness on the northeast, northwest, and southwest. Beyond its immediate boundaries, the general vicinity surrounding the project site is a mix of developed residential uses and undeveloped greenbelts. These uses are listed below:

- **North:** Beginning of Wood's End Trail, followed by the residential community of Laguna Woods Village
- **East:** Intersection of Aliso Creek and El Toro Road, followed by residential development and Hummingbird Park
- **South:** El Toro Road, Southern California Edison facility, residential development
- **West:** Laguna Coast Wilderness

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

Approval of the following discretionary actions will be required in order to implement the proposed project:

- Approval of the project by the ETWD Board of Directors
- Acquisition of the additional land required for the facility (lot-line adjustment)
- Obtaining an encroachment permit from the City of Laguna Woods
- Obtaining a permit from the SCAQMD for an emergency generator

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, has consultation begun?

Yes. Refer to Section 3.17 for additional details.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ 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 and Traffic	☐ Tribal Cultural Resources	☐ Utilities and Service Systems
☐ Mandatory Findings of Significance		

DETERMINATION: (To be completed by the Lead Agency)

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 (1) 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 ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature	October 9, 2018 Date

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 Environmental Impact Report (EIR) is required.
4. "Negative Declaration: 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 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 Measures 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. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
   a. The significance criteria or threshold, if any, used to evaluate each question; and
   b. The mitigation measure identified, if any, to reduce the impact to less than significance

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
I.	**AESTHETICS –** Would the project:				
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)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒
II.	**AGRICULTURE AND FORESTRY RESOURCES –** In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
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?	☐	☐	☐	☒
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?	☐	☐	☐	☒
III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐
IV. BIOLOGICAL RESOURCES – Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game 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 Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	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?	☐	☐	☐	☒
V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐
VI. GEOLOGY AND SOILS – Would the project:				
a) Expose people or structures to 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?	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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 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?	☐	☐	☐	☒
VII. GREENHOUSE GAS EMISSIONS – Would the project:				
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?	☐	☐	☒	☐
VIII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
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 that 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 for people residing or working in the project area?	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐
IX. HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☒	☐	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☒	☐	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☒	☐	☐
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) 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?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒
X. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒
XI. MINERAL RESOURCES – Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
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?	☐	☐	☐	☒
XII. NOISE – Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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 expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
XIII. POPULATION AND HOUSING – Would the project:				
a) Induce substantial 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 housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XIV. PUBLIC SERVICES				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☒	☐
Other public facilities?	☐	☐	☐	☒
XV. RECREATION				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVI. TRANSPORTATION/TRAFFIC – Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☒	☐	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☒	☐	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☒	☐	☐
XVII. TRIBAL CULTURAL RESOURCES				
Would the project 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:				
a) 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	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
b) 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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☐	☐	☒	☐
XVIII. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) 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?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

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

3.1 Aesthetics

a) Would the project have a substantial adverse effect on a scenic vista?

Less-than-Significant Impact. The proposed project would replace an existing sewage lift station that is located in the southwestern corner of the Woods End Wilderness Preserve. To accommodate the new lift station, ETWD is planning to acquire an approximately 340-square-foot area from the City of Laguna woods that is north of the existing lift station. This area is currently landscaped with non-native plants and partially paved. These plants would be removed to allow ETWD to add a 340-square-foot extension to the existing lift station. The proposed extension would match the style of the existing lift station. Furthermore, the project would involve removing the masonry block building, which would reduce the massing of the facility. The project site is not a scenic vista, nor is it visible from a scenic vista within the City of Laguna Woods, City of Laguna Beach, or City of Aliso Viejo. The project would not have a substantial adverse effect on a scenic vista. The adjacent properties would have views of a construction site during the 5-month construction period. However, none of the adjacent properties are a scenic vista. No permanent changes to the character of the existing visual setting would occur. Therefore, the project would have a less-than-significant impact.

b) *Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*

No Impact. The project would replace an existing sewage lift station that involves a 340-square-foot extension of the facility and would not affect any trees, rock outcroppings, and historic buildings. There are no officially designated scenic highways in the City of Laguna Woods, City of Laguna Beach, or City of Aliso Viejo. According to the California Department of Transportation (Caltrans), the nearest eligible state scenic highway is the segment of State Route 1 (Pacific Coast Highway), located approximately 4.3 miles southwest of the project site in the City of Laguna Beach (Caltrans 2011). Due to the intervening environment and natural topography located between the project site and this eligible state scenic highway, development of the proposed project would occur outside of the viewshed of this, and any other, designated scenic highway. Therefore, no impacts associated with state scenic highways would occur. The proposed project involves the replacement of an existing sewage lift station. No changes to the character of the existing visual setting would occur. Accordingly, no impact would occur.

c) *Would the project substantially degrade the existing visual character or quality of the site and its surroundings?*

***Less-than-Significant Impact*.** Under the existing condition, the project site consists of a 70-foot by 30-foot masonry block wall which encloses an electrical building, dry well, wet well, emergency generator, and SCE transformer. During construction, equipment, vehicles, and materials are expected to be staged within a designated area and used on the project site during project construction. Although construction activities would be visible from adjacent properties and roadways, this would be temporary and would cease upon completion of construction. The project would also involve extending the masonry block wall 10 feet to the north of the existing property line. The proposed extension would match the style of the existing lift station and would not substantially increase the massing of the existing facility. After construction activities are complete, the surrounding areas would be restored to their previous condition. Given that the project would not substantially increase the overall massing of the project site, construction activities would be temporary, and the site would be restored to its previous existing condition, the project would not significantly degrade the existing visual character or quality of the site or its surroundings. Impacts would be less than significant.

d) *Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

No Impact. The project would replace an existing sewage lift station. No lighting other than low-level security lighting is currently being proposed similar to the existing facility; therefore, no light or glare impacts would occur as a result of implementing the proposed project.

3.2 Agriculture and Forestry Resources

a) ***Would the project 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. Based on farmland maps prepared by the California Department of Conservation, the project site is not located in an area designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The site is designated as "Other Land' (DOC 2016). Therefore, no impacts associated with conversion of Important Farmland would occur.

b) ***Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?***

No Impact. According the California Department of Conservation's Williamson Act Parcel map for Orange County, the project site is not located on or adjacent to any lands under a Williamson Act contract. The Orange County Williamson Act 2003 Map designates the project site and surrounding land as non-Williamson Act Land (DOC 2004). In addition, the project site and surrounding area are not zoned for agricultural uses, but for passive open space uses (City of Laguna Woods 2017b). As such, implementation of the proposed project would not conflict with existing zoning for agricultural use or land under a Williamson Act contract. Therefore, no impacts associated with agricultural zoning or Williamson Act contracts would occur.

c) ***Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(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 site is located within a developed part of the City. According to the City's Zoning Map, the project site is not located on or adjacent to forestland, timberland, or timberland zoned Timberland Production (City of Laguna Woods 2017b). Therefore, no impacts associated with forestland or timberland would occur.

d) ***Would the project result in the loss of forest land or conversion of forest land to non-forest use?***

No Impact. The project site is located within a developed part of the City. The project site is not located on or adjacent to forestland. No private timberlands or public lands with forests are located in the City. Therefore, no impact associated with the loss or conversion of forestland would occur.

e) ***Would the project 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 site is not located on or adjacent to any parcels identified as Important Farmland or forestland. In addition, the proposed project would not involve changes to the existing environment that would result in the indirect conversion of Important Farmland or forestland located away from the project site. Therefore, no impacts associated with the conversion of Farmland or forestland would occur.

3.3 Air Quality

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less-than-Significant Impact. The proposed project site is located within the South Coast Air Basin (SCAB), which includes the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County, and is within the jurisdictional boundaries of SCAQMD. The project site is located in the City of Laguna Woods.

The SCAQMD administers SCAB's Air Quality Management Plan (AQMP), which is a comprehensive document outlining an air pollution control program for attaining the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). The most recently adopted AQMP for the SCAB is the 2016 AQMP (SCAQMD 2017). The 2016 AQMP focuses on available, proven, and cost-effective alternatives to traditional strategies while seeking to achieve multiple goals in partnership with other entities seeking to promote reductions in greenhouse gases (GHGs) and toxic risk, as well as efficiencies in energy use, transportation, and goods movement (SCAQMD 2017).

The purpose of a consistency finding with regard to the AQMP is to determine if a project is consistent with the assumptions and objectives of the regional air quality plans, and if it would interfere with the region's ability to comply with federal and state air quality standards. The SCAQMD has established criteria for determining consistency with the currently applicable AQMP in Chapter 12, Sections 12.2 and 12.3, of the SCAQMD *CEQA Air Quality Handbook*. These criteria are as follows (SCAQMD 2015):

- **Consistency Criterion No. 1:** Whether the 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 the ambient air quality standards or interim emission reductions in the AQMP.
- **Consistency Criterion No. 2:** Whether the project would exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

To address the first criterion, project-generated criteria air pollutant emissions have been estimated and analyzed for significance and are addressed under Section 3.3(b). Detailed results of this analysis are included in Appendix A. As presented in Section 3.3(b), construction and operation of the project would not generate criteria air pollutant emissions that exceed the SCAQMD's thresholds, and it would therefore be consistent with Criterion No. 1.

The second criterion regarding the project's potential to exceed the assumptions in the AQMP or increments based on the year of project buildout and phase is primarily assessed by determining consistency between the project's land use designations and its potential to generate population growth. In general, projects are considered consistent with, and not in conflict with or obstruct implementation of, the AQMP if the growth in socioeconomic factors is consistent with the underlying regional plans used to develop the AQMP (per Consistency Criterion No. 2 of the SCAQMD *CEQA Air Quality Handbook*). The SCAQMD primarily uses demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) developed by the Southern California Association of Governments (SCAG) for its 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (SCAG 2016). This document, which is based on general plans for cities and counties in the SCAB, is used by SCAQMD to develop the AQMP emissions inventory (SCAQMD 2017).[1] The SCAG 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy, and associated Regional Growth Forecast, are generally consistent with the local plans; therefore, the 2016 AQMP is generally consistent with local government plans.

The proposed project consists of the demolition and replacement of an existing sewage lift station. As such, since the proposed project is not anticipated to result in population growth or generate an increase in employment that would conflict with existing employment population projections, it would not conflict with the 2016 AQMP or exceed the assumptions in the 2016 AQMP. Accordingly, the project is consistent with the SCAG Regional Transportation Plan/Sustainable Communities Strategy forecasts used in the SCAQMD AQMP development.

In summary, based on the considerations presented for the two criteria, impacts relating to the project's potential to conflict with or obstruct implementation of the applicable AQMP would be less than significant.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less-than-Significant Impact. A quantitative analysis was conducted to determine whether proposed construction and operational activities might result in emissions of criteria air pollutants that may cause exceedances of the NAAQS or CAAQS, or contribute to existing nonattainment of ambient air quality standards. Criteria air pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}),

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1 Information necessary to produce the emissions inventory for the SCAB is obtained from the SCAQMD and other governmental agencies, including CARB, Caltrans, and SCAG. Each of these agencies is responsible for collecting data (e.g., industry growth factors, socioeconomic projections, travel activity levels, emission factors, emission speciation profile, and emissions) and developing methodologies (e.g., model and demographic forecast improvements) required to generate a comprehensive emissions inventory. SCAG incorporates these data into its Travel Demand Model for estimating/projecting vehicle miles traveled and driving speeds. SCAG's socioeconomic and transportation activities projections in their 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy are integrated in the 2016 AQMP (SCAQMD 2017).

particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. Pollutants that are evaluated herein include volatile organic compounds (VOCs) and oxides of nitrogen (NO_x), which are important because they are precursors to O_3, as well as CO, sulfur oxides (SO_x), PM_{10}, and $PM_{2.5}$.

Regarding NAAQS and CAAQS attainment status,[2] SCAB is designated as a nonattainment area for federal and state O_3 standards, and federal and state $PM_{2.5}$ standards (CARB 2017a; EPA 2018a). SCAB is also designated as a nonattainment area for state PM_{10} standards; however, it is designated as an attainment area for federal PM_{10} standards. SCAB is designated as an attainment area for federal and state CO standards, federal and state NO_2 standards, and state SO_2 standards. Although SCAB has been designated as nonattainment for the federal rolling 3-month average lead standard, it is designated attainment for the state lead standard.[3]

Construction of the proposed project would result in emissions of criteria air pollutants for which CARB and the U.S. Environmental Protection Agency have adopted ambient air quality standards (i.e., the NAAQS and CAAQS). Projects that emit these pollutants have the potential to cause or contribute to violations of these standards. The SCAQMD *CEQA Air Quality Handbook*, as revised in March 2015, sets forth quantitative emission significance thresholds for criteria air pollutants, which, if exceeded, would indicate the potential for a project to contribute to violations of the NAAQS or CAAQS. Table 1 lists the SCAQMD Air Quality Significance Thresholds set forth in the SCAQMD *CEQA Air Quality Handbook* (SCAQMD 2015).

A project would result in a substantial contribution to an existing air quality violation of the NAAQS or CAAQS for O_3, which is a nonattainment pollutant, if the project's construction or operational emissions would exceed the SCAQMD VOC or NO_x thresholds shown in Table 1. These emission-based thresholds for O_3 precursors are intended to serve as a surrogate for an "ozone significance threshold" (i.e., the potential for adverse O_3 impacts to occur) because O_3 itself is not emitted directly, and the effects of an individual project's emissions of O_3 precursors (VOCs and NO_x) on O_3 levels in ambient air cannot be determined through air quality models or other quantitative methods.

Table 1. SCAQMD Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	*Construction*	*Operation*
VOC	75 lbs/day	55 lbs/day
NO_x	100 lbs/day	55 lbs/day

2 An area is designated as in attainment when it is in compliance with the NAAQS and/or the CAAQS. These standards are set by the USEPA and CARB, respectively, for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or the public welfare. Attainment = meets the standards; attainment/maintenance = achieve the standards after a nonattainment designation; nonattainment = does not meet the standards.

3 The phaseout of leaded gasoline started in 1976. Since gasoline no longer contains lead, the project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.

Table 1. SCAQMD Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
CO	550 lbs/day	550 lbs/day
SO_x	150 lbs/day	150 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
Lead[a]	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TACs) and Odor Thresholds		
TACs[b] (including carcinogens and noncarcinogens)	Maximum incremental cancer risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic and Acute Hazard index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	

Source: SCAQMD 2015.
SCAQMD = South Coast Air Quality Management District; lbs/day = pounds per day; VOC = volatile organic compound; NOx = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; TAC = toxic air contaminant.

a The phase-out of leaded gasoline started in 1976. Since gasoline no longer contains lead, the proposed project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.

b TACs include carcinogens and noncarcinogens.

The following discussion quantitatively evaluates project-generated construction and operational emissions and impacts that would result from implementation of the proposed project.

Construction Emissions

Proposed construction activities would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment and dust) and off-site sources (i.e., on-road trucks and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity; the specific type of operation; and, for dust, the prevailing weather conditions. Therefore, an increment of day-to-day variability exists.

As discussed in detail below, implementation of the project would generate criteria air pollutant emissions from off-road equipment, vehicle travel, and material handling. Internal combustion engines used by construction equipment, trucks, and worker vehicles would result in emissions of VOCs, NO_x, CO, PM_{10}, and $PM_{2.5}$. PM_{10} and $PM_{2.5}$ emissions would also be generated by material handling for truck loading/unloading activity, on-road vehicles traveling on paved roads, and from brake and tire wear. The project would be required to comply with SCAQMD Rule 403 to control dust emissions generated during any dust-generating activities (SCAQMD 2005). Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active dust areas up to three times per day, depending on weather conditions.

It is anticipated that construction activities would not include application of architectural coatings, such as exterior application/interior paint and other finishes, or application of asphalt pavement. Accordingly, associated VOC off-gassing emissions from coatings and asphalt are not estimated herein.

Construction assumptions were developed based on the current best available project information. Construction details were identified on a monthly basis. Although not all of the activities identified in the same month would occur simultaneously, for the purposes of estimating emissions, it was conservatively assumed that all construction activities (i.e., equipment operation, truck trips, worker trips, and material handling) identified within a given month would occur within the same 8-hour day (with equipment operating for a maximum of 8 hours per day). This overall approach to the construction scenario assumptions would result in maximum daily emissions that reflect a level of intensity that is not anticipated to occur. In addition to inherent limitations during any construction process associated with equipment and personnel availability and site constraints, concurrent maximum construction at each active site within each month is not anticipated. Nonetheless, because the level of intensity on any given day is speculative, this analysis assumes the worst-case day for each area within each month.

Construction Schedule

A detailed depiction of expected construction schedules—including information regarding phasing, equipment used during each phase, trucks, and worker vehicles—is provided in Appendix A and summarized in Section 2.4 of this Initial Study/MND.

Emissions Estimation Methodology and Assumptions

Emissions from the construction phase of the project were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 (Trinity Consultants 2017).

A summary of the emissions calculation methodology is provided below for off-road equipment, on-road vehicle travel, and fugitive dust associated with earthwork and material handling.

The construction equipment mix used for estimating the project construction emissions is based on information provided by the applicant and is shown in Table 2. For this analysis, it was assumed that heavy construction equipment would operate 5 days a week during project construction.

Table 2. Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Demolition	20	0	10	Air compressors	1	4
				Concrete/industrial saws	1	8

Table 2. Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
				Cranes	1	8
				Excavators	1	8
				Generator sets	2	24
				Off-highway trucks	1	1
				Rubber-tired loaders	1	8
				Skid steer loaders	1	8
Site Preparation	20	0	0	Rubber-tired loaders	1	8
				Skid steer loaders	1	8
Building Construction	20	2	0	Air compressors	1	8
				Concrete/industrial saws	1	8
				Cranes	1	8
				Excavators	1	8
				Generator sets	2	24
				Off-highway trucks	1	1
				Rubber-tired loaders	1	8
				Skid steer loaders	1	8
Paving	20	0	0	Crushing/processing equipment	1	8
				Off-highway trucks	1	1
				Paving equipment	1	4
				Plate compactors	1	8

Source: See Appendix A for details.

For the analysis, it was generally assumed that heavy construction equipment would be operating at the site for approximately 8 hours per day, 5 days per week (22 days per month) during project construction, unless otherwise noted. The project applicant provided construction worker trip estimates, and there were hauling trips for the project to account for demolition of the existing lift station.

A detailed depiction of the construction schedule—including information regarding subphases and equipment used during each subphase—is included in Appendix A of this report. The information contained in Appendix A was used as CalEEMod model inputs.

Estimated Maximum Daily Emissions

Estimated maximum daily construction criteria air pollutant emissions from all on-site and off-site emission sources is provided in Table 3.

Table 3. Estimated Maximum Daily Construction Emissions

Year	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per Day					
2018	5.33	47.15	37.82	0.07	2.94	2.67
2019	5.84	50.32	45.63	0.09	3.30	2.84
Maximum Daily Emissions	**5.84**	**50.32**	**45.63**	**0.09**	**3.30**	**2.84**
SCAQMD threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: SCAQMD 2015.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.
See Appendix A for detailed results.
a PM_{10} and $PM_{2.5}$ represents total particulate matter, which includes exhaust, brake wear, tire wear, paved road dust, and fugitive dust from earth moving and material handling. These estimates reflect control of fugitive dust required by SCAQMD Rule 403 (SCAQMD 2005).

As shown in Table 3, daily construction emissions would not exceed the SCAQMD significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction in all construction years. Therefore, construction impacts of the project would be less than significant.

Operational Emissions

Following the completion of construction activities, the proposed project would only generate criteria pollutant emissions from use of the emergency generator. The project is replacing an existing 180 kW generator with a 175 kW generator. The existing generator was a model year 1985 diesel generator. CalEEMod was used to model the emissions of the existing generator and the proposed generator. CalEEMod default emission factors were used for both the existing and proposed generators, corresponding with their install dates. All other operational sources of emissions do not change with the replacement of the lift station.

Table 4 summarizes the daily emissions of criteria pollutants that would be generated by intermittent maintenance of the proposed project and compares these emissions to the SCAQMD thresholds of significance.

Table 4. Estimated Maximum Daily Operational Emissions

Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Existing						
Emergency Generator	0.52	5.05	2.84	0.28	0.26	0.26
Proposed						
Emergency Generator	0.43	1.20	1.09	0.00	0.06	0.06
Net Emissions	**(0.09)**	**(3.85)**	**(1.75)**	**(0.28)**	**(0.20)**	**(0.20)**
SCAQMD threshold	*55*	*55*	*550*	*150*	*150*	*55*
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: SCAQMD 2015.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District. See Appendix A for detailed results.

As shown in Table 4, the proposed project would result in a net reduction of operational emissions compared to the existing lift station and therefore would not exceed the SCAQMD thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. Therefore, impacts would be considered less than significant for project operational emissions.

c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less-than-Significant Impact. Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and SCAQMD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are used in the determination of whether a project's individual emissions would have a cumulatively considerable contribution on air quality. If a project's emissions would exceed the SCAQMD significance thresholds, it would be considered to have a cumulatively considerable contribution. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant (SCAQMD 2003).

As discussed in Section 3.3(b), SCAB has been designated as a federal nonattainment area for O_3 and $PM_{2.5}$ and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The nonattainment status is the result of cumulative emissions from various sources of air pollutants and their precursors within SCAB, including motor vehicles, off-road equipment, and commercial and industrial facilities. Proposed construction and operational activities of the project would generate VOC and NO_x emissions (which are precursors to O_3) and emissions of PM_{10} and $PM_{2.5}$. However, as indicated in Tables 3.3-3 and 3.3-4, project-generated construction and operational emissions would not exceed the SCAQMD emission-based significance thresholds for VOC, NO_x, PM_{10}, or $PM_{2.5}$.

Cumulative localized impacts would potentially occur if a construction project were to occur concurrently with another off-site project. Construction schedules for potential future projects near the project site are currently unknown; therefore, potential construction impacts associated with two or more simultaneous projects would be considered speculative.[4] However, future projects would be subject to CEQA and would require air quality analysis and, where necessary, mitigation. Criteria air pollutant emissions associated with construction activity of future projects would be reduced through implementation of control measures required by SCAQMD. Cumulative PM_{10} and $PM_{2.5}$ emissions would be reduced because all future projects would be subject to SCAQMD Rule 403 (Fugitive Dust), which sets forth general and specific requirements for all construction sites in the SCAQMD (SCAQMD 2005).

4 The CEQA Guidelines state that if a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact (14 CCR 15145).

Therefore, the project would not result in a cumulatively considerable increase in emissions of nonattainment pollutants, and impacts would be less than significant.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact. The potential impact of project-generated air pollutant emissions at sensitive receptors has also been considered. Sensitive receptors are those individuals more susceptible to the effects of air pollution than the population at large. People most likely to be affected by air pollution include children, the elderly, and people with cardiovascular and chronic respiratory diseases. According to the SCAQMD, sensitive receptors include residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 2015).

Project construction would occur on the existing lift station site. Residential land uses are located in close proximity to the project site, the nearest approximately 300 feet to the east.

Localized Significance Thresholds

The SCAQMD recommends a localized significance threshold (LST) analysis to evaluate localized air quality impacts to sensitive receptors in the immediate vicinity of the project site as a result of construction activities. The impacts were analyzed using methods consistent with those in the SCAQMD's *Final Localized Significance Threshold Methodology* (2009). The project is located within the Source-Receptor Area (SRA) 20 (Central Orange County Coastal). This analysis applies the SCAQMD LST values for a 1-acre site within SRA 20 with a receptor distance of 50 meters, which is conservative.

Project construction activities would result in temporary sources of on-site criteria air pollutant emissions associated with construction equipment exhaust and material handling activities. According to the *Final Localized Significance Threshold Methodology*, "off-site mobile emissions from the project should not be included in the emissions compared to the LSTs" (SCAQMD 2009). Trucks and worker trips associated with project construction are not expected to cause substantial air quality impacts to sensitive receptors along off-site roadways since emissions would be relatively brief in nature and would cease once the vehicles pass through the main streets. Therefore, off-site emissions from trucks and worker vehicle trips are not included in the LST analysis. The maximum daily on-site construction emissions generated during construction of the proposed project in each construction year are presented in Table 5 and compared to the SCAQMD localized significance criteria for SRA 20 to determine whether project-generated on-site construction emissions would result in potential LST impacts.

Table 5. Construction Localized Significance Thresholds Analysis

Year	NO_2	CO	PM_{10}	$PM_{2.5}$
	Pounds per Day (On-Site)[a]			
2018	46.97	36.63	2.68	2.60

Table 5. Construction Localized Significance Thresholds Analysis

Year	NO_2	CO	PM_{10}	$PM_{2.5}$
	Pounds per Day (On-Site)[a]			
2019	49.87	43.46	2.74	2.69
Maximum Daily On-site Emissions	**49.87**	**43.46**	**2.74**	**2.69**
SCAQMD LST Criteria	*93*	*738*	*13*	*5*
Threshold Exceeded?	**No**	**No**	**No**	**No**

Source: SCAQMD 2009.
Notes: NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold.
See Appendix A for detailed results.
a Localized significance thresholds are shown for a 1-acre disturbed area corresponding to a distance to a sensitive receptor of 50 meters in SRA 20 (Central Orange County Coastal).

As shown in Table 5, proposed construction activities would not generate emissions in excess of site-specific LSTs; therefore, localized project construction impacts would be less than significant.

CO Hotspots

Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed federal and/or state standards for CO are termed CO "hotspots." CO transport is extremely limited and disperses rapidly with distance from the source. Under certain extreme meteorological conditions, however, CO concentrations near a congested roadway or intersection may reach unhealthy levels, affecting sensitive receptors. Typically, high CO concentrations are associated with severely congested intersections operating at an unacceptable level of service (LOS) (LOS E or worse is unacceptable). Projects contributing to adverse traffic impacts may result in the formation of a CO hotspot. Additional analysis of CO hotspot impacts would be conducted if a project would result in a significant impact or contribute to an adverse traffic impact at a signalized intersection that would potentially subject sensitive receptors to CO hotspots.

The Code of Federal Regulations (CFR) Procedures for Determining Localized CO, PM_{10}, and $PM_{2.5}$ Concentrations (hot-spot analysis), states that "CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses are not required to consider construction-related activities, which cause temporary increases in emissions. Each site that is affected by construction-related activities shall be considered separately, using established 'Guideline' methods. Temporary increases are defined as those which occur only during the construction phase and last 5 years or less at any individual site" (40 CFR 93.123(c)(5)). While project construction would involve on-road vehicle trips from trucks and workers during construction, construction activities would last approximately 6 months and, thus, are considered temporary. As a result, the proposed construction activities would not require a project-level construction hotspot analysis. Additionally, since the proposed project would not result in additional operational vehicular trips associated with routine maintenance, an operational CO hotspot evaluation is not required.

Accordingly, the proposed project would not generate traffic that would contribute to potential adverse traffic impacts that may result in the formation of CO hotspots. This conclusion is supported by the analysis in Section 3.16, which demonstrates that traffic impacts would be less-than-significant. In addition, due to continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in SCAB is steadily decreasing. Based on these considerations, the proposed project would result in a less-than-significant impact to air quality with regard to potential CO hotspots.

Toxic Air Contaminants

Toxic air contaminants (TACs) are defined as substances that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. As discussed under the LST analysis, the nearest sensitive receptors to the proposed project are residences located approximately 300 feet from the proposed construction area. Health effects from carcinogenic air toxics are usually described in terms of cancer risk. SCAQMD recommends an incremental cancer risk threshold of 10 in 1 million. "Incremental cancer risk" is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period will contract cancer based on the use of standard Office of Environmental Health Hazard Assessment risk-assessment methodology (OEHHA 2015). In addition, some TACs have noncarcinogenic effects. SCAQMD recommends a Hazard Index of 1 or more for acute (short-term) and chronic (long-term) effects.[5] TACs that would potentially be emitted during construction activities associated with development of the proposed project would be diesel particulate matter.

Diesel particulate matter emissions would be emitted from heavy equipment operations and heavy-duty trucks. Heavy-duty construction equipment is subject to a CARB Airborne Toxics Control Measure for in-use diesel construction equipment to reduce diesel particulate emissions. As described for the LST analysis and shown in Table 5, PM_{10} (representative of diesel particulate matter) exposure would be minimal. According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period for the maximally exposed individual resident; however, such assessments should be limited to the period/duration of activities associated with the project. Thus, the duration of the proposed construction activities would only constitute a small percentage of the total 30-year exposure period. The construction period for the proposed project would total approximately 6 months, after which construction-related TAC emissions would cease. Due to this relatively short period of exposure

5 Noncancer adverse health risks are measured against a hazard index, which is defined as the ratio of the predicted incremental exposure concentrations of the various noncarcinogens from the project to published reference exposure levels that can cause adverse health effects.

and minimal particulate emissions on-site, TACs generated during construction would not result in concentrations causing significant health risks.

Operation of the proposed project would not result in any non-permitted direct emissions (e.g., those from a point source) or result in a substantial increase in diesel vehicles (i.e., delivery trucks) over existing baseline conditions. As shown in Table 4, there would be a net reduction in emissions compared to the existing lift station as the older emergency generator is being replaced with a new cleaner version.

Overall, the project would not result in substantial TAC exposure to sensitive receptors in the vicinity of the proposed project, and impacts would be less than significant.

Health Impacts of Criteria Air Pollutants

Construction of the proposed project would generate criteria air pollutant emissions; however, the project would not exceed the SCAQMD mass-emission thresholds.

The SCAB is designated as nonattainment for O_3 for the NAAQS and CAAQS. Thus, existing O_3 levels in the SCAB are at unhealthy levels during certain periods. The health effects associated with O_3 are generally result in reduced lung function. Because the proposed project would not involve construction and operational activities that would result in O_3 precursor emissions (VOC or NO_x emissions) that would exceed the SCAQMD thresholds, as shown in Tables 3.3-3 and 3.3-4, the project is not anticipated to substantially contribute to regional O_3 concentrations and its associated health impacts.

In addition to O_3, NO_x emissions contribute to potential exceedances of the NAAQS and CAAQS for NO_2. Exposure to NO_2 and NO_x can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections. Project construction and operations would not exceed the SCAQMD NO_x threshold, as shown in Tables 3.3-3 and 3.3-4, and existing ambient NO_2 concentrations are below the NAAQS and CAAQS. Thus, proposed project construction and operation is not expected to result in exceedances of the NO_2 standards or contribute to associated health effects.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. CO hotspots were discussed previously as a less-than-significant impact. Thus, the proposed project's CO emissions would not contribute to the health effects associated with this pollutant.

SCAB is designated as nonattainment for PM_{10} under the CAAQS and nonattainment for $PM_{2.5}$ under the NAAQS and CAAQS. Particulate matter contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing (EPA 2018b). As with O_3 and NO_x, and as shown in Tables 3.3-3 and 3.3-4, the proposed project would not generate emissions of PM_{10} or $PM_{2.5}$ that would exceed the SCAQMD's thresholds. Accordingly, the proposed project's PM_{10} and $PM_{2.5}$ emissions are not expected to cause any increase in related regional health effects for this pollutant.

In summary, the proposed project would not result in a potentially significant contribution to regional concentrations of non-attainment pollutants, and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Impacts would be less than significant.

e) Would the project create objectionable odors affecting a substantial number of people?

Less-than-Significant Impact. The occurrence and severity of potential odor impacts depend on numerous factors. The nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying, cause distress among the public, and generate citizen complaints.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the proposed project. Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment. Such odors are temporary, dissipate relatively rapidly with distance, and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be considered less than significant.

Land uses and industrial operations typically associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. Although the project will deliver sewage, it will not increase odors compared to the existing lift station. Therefore, project operations would result in an odor impact that would be less than significant.

3.4 Biological Resources

The following analysis is based on the *Biological Resources Assessment for the El Toro Water District Oso Lift Station Project, Orange County, California*, prepared by Dudek in September 2018, and included as Appendix B.

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

Less-Than-Significant Impact with Mitigation Incorporated. The proposed project study area includes the construction footprint of the lift station plus a 500-foot buffer.

The study area is characterized by several vegetation communities and/or land covers: California sagebrush–California buckwheat, black sage scrub, black willow thickets, fuel mod zone, and urban/disturbed. These vegetation communities and land covers are described and illustrated on Figure 3 in the Biological Resources Assessment (included in Appendix B). Table 6 summarizes the extent of these vegetation communities and land covers within the study area.

Table 6. Vegetation Communities and Land Covers within the Study Area

Vegetation Community and Land Cover	Code*	Project Footprint (acres)	Project Study Area (acres)	Total (acres)
Natural Vegetation Communities				
California Sagebrush–California Buckwheat Scrub	3120	—	4.22	4.22
Black Willow Thickets	1720	—	3.18	3.18
Black Sage Scrub	3210	—	2.77	2.77
Non-Natural Land Covers				
Fuel Mod Zone	9320	—	1.88	1.88
Transportation	9301	—	3.86	3.86
Urban/Disturbed	9300	0.06	4.63	4.70
	Total**	**0.06**	**20.54**	**20.61**

Notes:
* Vegetation codes based on Sawyer et al. 2009 and AIS 2015.
** Totals may not sum due to rounding.
Source: Appendix B

Special-Status Vegetation Communities

Direct Impact

No special-status vegetation communities occur within the impact footprint. The lift station footprint is within existing developed area adjacent to Laguna Coast Wilderness Park. All construction activities would be limited to the existing developed project footprint plus 10 feet north in an urban/disturbed area, and no native vegetation would be removed. Therefore, no direct impacts to special-status vegetation communities would occur.

Indirect Impacts

Indirect impacts would be limited to short-term construction impacts related to erosion, runoff, and dust. However, all project ground-disturbing activities would be subject to the typical restrictions (e.g., best management practices [BMPs]) and requirements that address erosion and runoff, including those of the federal Clean Water Act, and preparation of a stormwater pollution prevention plan (SWPPP) (Mitigation Measure [**MM**]-**HYD-1**). With implementation of these BMPs and **MM-HYD-1**, potential indirect impacts to sensitive vegetation communities would be less than significant with mitigation incorporated.

Special-Status Plants

Direct Impacts

No special-status plant species have the potential to occur within the impact footprint due to the lack of suitable habitat; therefore, no direct impacts to special-status plant species are anticipated.

Indirect Impacts

No indirect impacts to special-status plant species are anticipated within the project site due to the lack of suitable habitat.

Suitable habitat for special-status plant species occurs within the adjacent study area (Attachment B in Appendix B), including intermediate mariposa lily (*Calochortus weedii* var. *intermedius*), many-stemmed dudleya (*Dudleya multicaulis*), Laguna Beach dudleya (*Dudleya stolonifera*), and Allen's pentachaeta (*Pentachaeta aurea* ssp. *allenii*). Potential indirect impacts to these species would be limited to short-term construction impacts related to erosion, runoff, and dust. However, standard BMPs would be implemented during construction as part of the project's SWPPP (**MM-HYD-1**) to address these indirect impacts. With implementation of these BMPs, potential indirect impacts to special-status plants would be less than significant.

Special-Status Wildlife

Direct Impacts

Special-status wildlife species are not expected to occur within the impact footprint due to lack of suitable habitat; therefore, no direct impacts to special-status wildlife are expected.

Indirect Impacts

Suitable habitat for several special-status wildlife species occurs within the surrounding Laguna Coast Wilderness Park (Attachment B in Appendix B), including California glossy snake (*Arizona elegans occidentalis*), orange-throated whiptail (*Aspidoscelis hyperythra*), red diamondback rattlesnake (*Crotalus ruber*), Blainville's horned lizard (*Phrynosoma blainvillii*), coastal California gnatcatcher (*Polioptila californica californica*), and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*). Potential indirect impacts to California glossy snake, orange-throated whiptail, red diamondback rattlesnake, Blainville's horned lizard, and northwestern San Diego pocket mouse would be limited to short-term construction impacts related to noise, erosion, runoff, and dust. Standard BMPs would be implemented during construction as part of the project's SWPPP (**MM-HYD-1**) to reduce these indirect impacts to less than significant.

The California sagebrush–California buckwheat scrub, black sage scrub, and fuel modification zone habitats located within the 500-foot buffer support occupied habitat for coastal California gnatcatcher. Potential indirect impacts to coastal California gnatcatcher would also include short-term construction impacts related to noise, erosion, runoff, and dust. Standard BMPs to address erosion, runoff, and dust would be implemented during construction as part of the project's SWPPP (**MM-HYD-1**) to reduce these indirect impacts to less than significant. However, although the project site occurs within an urban setting and there is an existing, baseline level of disturbance, indirect impacts associated with construction noise could be significant to coastal California gnatcatcher if they are conducted during the breeding/nesting season. Implementation of **MM-BIO-1** would reduce this indirect impact to less than significant.

MM-BIO-1 **Coastal California Gnatcatcher and Nesting Bird Avoidance.** Construction activities shall be conducted outside the coastal California gnatcatcher and general bird breeding/nesting season, which occurs from February 15 through August 30. However, if construction during February 15 through August 30 is unavoidable, then a focused survey for nesting birds shall be conducted by a qualified biologist of all suitable habitat within a 300-foot buffer of the impact area. The survey shall be conducted within the week prior to the initiation of construction.

If no nests, nesting behavior, or brood rearing activities are detected within 300 feet of the impact area, work may commence. However, if nesting birds are detected, the nest locations shall be mapped by the qualified biologist using GPS equipment. The species of the nesting bird and, to the degree feasible, the nesting stage (e.g., incubation of eggs, feeding of young, near fledging) would be documented. The biologist may establish an avoidance buffer around occupied nests if there is a significant potential for "take" of the species or potential for needless destruction of the nest. The buffer would be determined by the qualified biologist based on the species present, surrounding habitat, and existing environmental setting/level of disturbance. No construction or ground-disturbing activities would be conducted within the buffer until the qualified biologist has determined that the nest is no longer being used for breeding or rearing, and has informed the construction supervisor that activities may resume.

If coastal California gnatcatchers are detected, the qualified biologist shall monitor and determine if construction noise levels or motion are potential sources for nest failure, and 300-foot avoidance buffer shall be established accordingly in coordination with the Carlsbad Fish and Wildlife Office (CFWO). Avoidance buffers shall remain in place until the nest is determined either a success or failure by the biological monitor and approved by the CFWO. The frequency of nest monitoring shall be weekly, or as determined by the qualified biologist. If construction activities are delayed by more than 2 weeks, then another pre-disturbance survey shall be conducted

Additionally, the study area contains many trees and shrubs that could potentially be used by migratory birds for breeding. Nesting habitat occurs within the 500-foot buffer, which overlaps Laguna Coast Wilderness

Park, and within the residential areas surrounding the impact footprint. It is likely that construction of the project would occur during the nesting bird season (March 1–August 31). However, with the implementation of **MM-BIO-1**, impacts to nesting birds are considered less than significant.

With implementation of **MM-BIO-1** and **MM-HYD-1**, impacts related to species identified as a candidate, sensitive, or special status species would be less than significant with mitigation incorporated.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less than Significant with Mitigation Incorporated. All construction activities would be limited to developed and disturbed areas; therefore, no direct impacts to riparian habitat would occur. Additionally, as discussed above in Section 3.4(a), impacts related to sensitive natural communities are considered less than significant with the implementation of **MM-BIO-1** and **MM-HYD-1**.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. As discussed in Section 2.1, Project Description, the project site is located on an existing paved area within the City of Laguna Woods. The majority of the proposed work would occur within existing paved developed land of the existing lift station, with the exception of the 10-foot expansion north, occurring within urban/disturbed land. No federally defined waters of the United States or waters of the state occur within the study area. This includes the absence of federally defined wetlands and other waters (e.g., drainages), and state-defined waters (e.g., streams and riparian extent). Therefore, no impacts associated with jurisdictional waters or wetlands would occur.

d) Would the project 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?

No Impact. Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation; they may be continuous habitat or discrete habitat islands that function as stepping stones for wildlife dispersal. Due to the small and developed nature of the project site, there are no wildlife corridors within the impact footprint; therefore, no impacts associated with wildlife movement would occur.

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

Less-Than-Significant Impact. As described in Section 2.4.1, Project Description, the new lift station would replace the existing, outdated lift station with new, more reliable and more serviceable equipment, and would involve expanding the existing station 10 feet to the north. Preparation of the expansion area would require construction crews to clear approximately 340 square feet of vegetation. This vegetation consists of mostly ornamental plants and one young planted Coast live oak (*Quercus agrifolia*) tree. Chapter 4.26 (City Tree Ordinance) of the City's Municipal Code regulates the planting, maintenance, protection, and removal of trees on public streets, parks, other City-owned property and in the public rights-of-way, and trees on nonresidential properties. The City Tree Ordinance defines significant trees as all trees and shrubs located within public rights-of-way and/or on City-owned property (City of Laguna Woods 2007).

In compliance with the City's Tree Ordinance, ETWD would be required to obtain the necessary tree removal permit from the City prior to the removal of the planted oak tree. Therefore, the project would not conflict with any local policies or ordinances protecting biological resources, and impacts would be less than significant.

f) Would the project 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. The study area is within the County of Orange Central and Coastal Natural Community Conservation Plan/Habitat Conservation Plan area, but not within a designated conservation area (i.e., Reserve) (County of Orange 1996). Additionally, the project footprint does not support suitable habitat for listed species, and, therefore, does not have any permit obligations under the California or federal Endangered Species Acts. The proposed project would not conflict with, nor would it prevent implementation of, the conservation objectives of the County of Orange Central and Coastal Natural Community Conservation Plan/Habitat Conservation Plan. Therefore, no impacts would occur.

3.5 Cultural Resources

The following analysis is based on the *Cultural Resources Inventory Report for the El Toro Water District Oso Lift Station Project, City of Laguna Woods, Orange County, California*, prepared by Dudek in August 2018, and included as Appendix C.

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

Less-than-Significant Impact. For a building to be considered historic, it typically must be at least 50 years old so sufficient time has passed to determine whether the events or characteristics of the building will have a contribution to history (OHP 2015). Historically, the area surrounding the project site was undeveloped until the 1970s. The lift station that exists now was completed in 1972. Given the historical background of the station, the project site would not be eligible for listing in the National Register of Historic Places or California Register of Historical Resources. Thus, none of the structures on the project site would be considered historical resources as defined by CEQA.

A review of the National Register of Historic Places digital archive and the list of California Register of Historical Resources indicated there are no listed sites located on the project site. Additionally, no local properties are found on the California Register of Historical Resources and/or National Register of Historic Places. Therefore, impacts associated with historical resources would be less than significant.

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

Less-than-Significant Impact with Mitigation Incorporated. The Cultural Resources Inventory Report (Appendix C) included a review of California Historical Resources Information System (CHRIS) records covering the proposed project area plus a 0.5-mile radius conducted in 2015 and 2016 at the South Central Coastal Information Center; and a pedestrian survey of the project area for cultural resources. No archaeological resources were identified within the project area as a result of the CHRIS records search or the pedestrian survey. Additionally, the majority of the site has already been developed and is currently being used by ETWD. The only portion of the site with exposed ground surface is the 10-foot area to the north of the developed section, which has been extensively disturbed and was completely graded at one point in history. Due to the absence of archaeological resources within the project area and the disturbed characteristic of the project area, the likelihood of this project unearthing previously unknown archaeological deposits or resources is very low.

However, it is always possible that intact archaeological deposits are present at subsurface levels. For this reason, the project site should be treated as potentially sensitive for archaeological resources. Therefore, **MM-CUL-1** is recommended to reduce potential impacts to unanticipated archaeological resources to less than significant.

MM-CUL-1 If archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find under the California Environmental Quality Act (CEQA; 14 CCR 15064.5(f); California Public Resources Code, Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan and data recovery, may be warranted.

With the incorporation of mitigation, impacts associated with archaeological resources would be less than significant.

c) ***Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?***

Less-Than-Significant Impact with Mitigation Incorporated. The proposed project is located within the northernmost Peninsular Ranges geomorphic province (Norris and Webb 1990; CGS 2002; Harden 2004). This geomorphic province is characterized by northwest trending mountain ranges and valleys that extend over 900 miles from the tip of the Baja Peninsula to the Transverse Ranges (i.e., the San Bernardino and San Gabriel Mountains in Southern California). Regionally, the Peninsular Ranges are bounded to the east by the Colorado Desert and the west by the continental shelf and offshore islands (Santa Catalina, Santa Barbara, San Nicholas, and San Clemente) (Norris and Webb 1990; CGS 2002; Harden 2004). Regional mountain ranges in the Peninsular Ranges geomorphic province include the Santa Ana, San Jacinto, and Santa Rosa Mountains. Geologically, these mountains are dominated by Mesozoic, plutonic igneous and metamorphic rocks that are part of the Peninsular Ranges batholith (Southern California batholith) (Jahns 1954; Harden 2004).

More specifically, the proposed project is located in the eastern San Joaquin Hills, which is considered the southeastern boundary of the Los Angeles Basin (USGS 1965). According to surficial geological mapping by the U.S. Geological Survey (USGS 2006) at a scale of 1:100,000, the proposed project is underlain by Holocene to late Pleistocene (<12,000 years ago – 126,000 years ago) young axial channel deposits (map unit Qya_a). The late Eocene to Early Miocene (~ 38 million years ago – 23 million years ago) Sespe Formation (map unit Ts) crops out in the elevated terrain surrounding the proposed project area (USGS 2006) and at a depth of approximately 10 feet below the ground surface within the proposed project area according to geotechnical borings (Appendix D).

Past excavation activities in the area surrounding the proposed project site have encountered paleontological resources in older Quaternary alluvial deposits. Jefferson (1991, revised 2012) reported numerous localities from this part of Orange County that yielded Ice Age fossil amphibians, reptiles, birds, and mammals. Similarly, Whistler and Lander (2003) reported over 100 localities from the Sespe Formation and undifferentiated Sespe and Vaqueros Formations in the Santa Ana Mountains and San Joaquin Hills of Orange County. These localities, which were discovered during major grading projects since the early 1980s, have yielded more than 4,000 fossil specimens (Whistler and Lander 2003). During construction of the Upper Chiquita Reservoir in Rancho Santa Margarita, isolated mammal teeth were recovered through wet screening (Kelly 2011).

A paleontological records search request was sent to the Natural History Museum of Los Angeles County on July 16, 2018, and the results were received on July 30, 2018 (Appendix C). According to the records search, no paleontological localities are documented within a 1-mile radius of the proposed project boundaries. However, localities are documented nearby from the same geological units that may occur beneath portions of the project site. Young axial channel deposits are present on the surface within the proposed project area and consist of Holocene to late Pleistocene, slightly to moderately indurated clays, silts, sands, and gravels

(USGS 2006). This geological unit does not typically yield significant paleontological resources in the uppermost layers because of the young age; however, deeper excavations into Quaternary alluvium can impact older, Pleistocene strata that have the potential to yield significant paleontological resources. Citing Miller (1971), the Natural History Museum of Los Angeles County reported a fossil locality from older Quaternary alluvium, due east of the proposed project area in Costeau Park along Alicia Parkway, which produced a fossil locality with abundant, but unspecified vertebrate fossils. Review of Miller (1971) revealed fishes, amphibians, reptiles, birds, and large and small mammals were recovered from the Costeau Park locality. The paleontological records search also reported a locality from north–northwest of the proposed project area, west of the Laguna Freeway (Highway 133) that yielded a fossil ground sloth (Mylodontidae) from an unknown, but shallow depth. The Natural History Museum of Los Angeles County reported two localities from the Sespe Formation near the Upper Oso Reservoir that produced fossil specimens of turtle (Testudinata), opossum (*Peratherium*), rabbit (*Archaeolagus*), deer mouse (*Yatkolamys*), pocket mouse (*Trogomys*), and badger (Mustelidae).

No paleontological resources were identified within the project area as a result of the institutional records search and desktop geological and paleontological review, and the proposed project site is not anticipated to be underlain by unique geologic features. While the proposed project area is mapped as being underlain by young axial channel deposits that are generally too young to yield significant paleontological resources, intact paleontological resources may be present within older alluvial deposits or the Sespe Formation at depth. Given the proximity of past fossil discoveries in the surrounding area and the potential for intact, undisturbed Pleistocene age deposits or Sespe Formation at depth, the proposed project site is moderately to highly sensitive for supporting paleontological resources. In the event that intact paleontological resources are located on the project site, ground-disturbing activities associated with construction of the proposed project, such as excavating during site preparation, have the potential to destroy a unique paleontological resource or site. Without mitigation, the potential damage to paleontological resources during construction would be a potentially significant impact. However, upon implementation of **MM-CUL-2**, impacts would be reduced to below a level of significance. Impacts of the proposed project are considered less than significant with mitigation incorporated during construction.

MM-CUL-2 Prior to commencement of any grading activity on-site, the applicant shall retain a certified Orange County paleontologist. The certified paleontologist shall attend the preconstruction meeting and present worker environmental training to construction personnel. The certified Orange County paleontologist or a qualified paleontological monitor shall be on site during excavations greater than 10 feet below the ground surface. In the event that paleontological resources (e.g., fossils) are unearthed during ground-disturbing activities, the qualified paleontological monitor will temporarily halt and/or divert ground-disturbing activity while the paleontological resources are analyzed for significance. The area of discovery will be roped off and the paleontological monitor will document the find. Depending on the significance of the find, the paleontological monitor may allow work to continue, or may recommend salvage and recovery of the resource. All recommendations will be made in accordance with the Society of Vertebrate Paleontology's 2010 guidelines, and shall be subject to review and approval by the El Toro Water District. Work in the area of the find may only resume upon approval of the certified Orange County paleontologist.

d) Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

Less-than-Significant Impact. As previously discussed, there are no previously recorded cultural resources on the project site. Since the site has been previously disturbed, ground-disturbing activities associated with demolition and construction of the proposed structures are unlikely to uncover previously unknown archaeological resources. However, if human skeletal remains are discovered during ground-disturbing activities, California Health and Safety Code Section 7050.5 states that the County Coroner must be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains can occur until the County Coroner has determined, within 2 working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the County Coroner determines that the remains are, or are believed to be, Native American, he or she must notify the Native American Heritage Commission in Sacramento within 24 hours. In accordance with California Public Resources Code Section 5097.98, the Native American Heritage Commission must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant must complete his or her inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition for the human remains. Therefore, based on compliance with existing state law, impacts associated with the discovery of human remains would be less than significant.

3.6 Geology and Soils

The following analysis is based on the Geotechnical Exploration Report prepared by Leighton Consulting Inc., and included as Appendix D.

a) Would the project expose people or structures to 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 California Department of Mines and Geology has not identified the project site as an Alquist–Priolo Earthquake Fault Zone (DOC 2001). The City is located in an area considered to be seismically active, similar to most of Southern California. However, surface faulting does not occur near the project site or surrounding area, and the Geotechnical Exploration Report (Appendix

D) prepared for the proposed project determined that there are no known active fault crossings on the site. The nearest known active regional fault is the San Joaquin Hills Blind Thrust Fault, which is located approximately 4 miles northeast of the project site. Therefore, no impacts associated with fault rupture would occur.

ii) Strong seismic ground shaking?

Less-than-Significant Impact. Like most of Southern California, the project site is located within a seismically active area. Numerous faults considered active or potentially active have been mapped in Southern California, including in the vicinity of the City. According to the *City of Laguna Woods General Plan Safety Element*, the probability of an earthquake with a magnitude of 6.7 or greater occurring in Southern California by 2038 is 97% (City of Laguna Woods 2002). Earthquakes with magnitudes of 7.0, 7.5, and 8.0 over the same period have estimated probabilities of 82%, 37%, and 3%, respectively (City of Laguna Woods 2002). Thus, the proposed project could be exposed to strong seismic ground shaking in the event of an earthquake.

Appropriate measures to minimize the effects of earthquakes and other geotechnical hazards are included in the California Building Code, with specific provisions pertaining to seismic load and design. Design and construction of the proposed project in accordance with the California Building Code would minimize the adverse effects of strong ground shaking to the greatest degree feasible. Therefore, based on compliance with applicable state requirements related to seismic hazards, impacts associated with strong seismic ground shaking would be less than significant.

iii) Seismic-related ground failure, including liquefaction?

Less-than-Significant Impact. Soil liquefaction is a seismically induced form of ground failure that has been a major cause of earthquake damage in Southern California. Liquefaction is a process by which water-saturated granular soils transform from a solid to a liquid state because of a sudden shock or strain, such as an earthquake. The California Department of Mines and Geology has identified the project site as being located within an area where liquefaction has the potential to occur (DOC 2001). However, the proposed project would be designed in accordance with all applicable design provisions set forth by both the current California Building Code requirements, which dictate specifications to ensure that facilities and mechanical units would be able to withstand specified soil characteristics, including liquefaction and other seismic-related ground failure. Further, the Geotechnical Exploration Report (Appendix D) determined that, due to the presence of bedrock at a depth of 10.5 feet and the absence of shallow groundwater at the site, liquefaction susceptibility at the site is low. Therefore, impacts associated with liquefaction would be less than significant.

iv) Landslides?

Less-than-Significant Impact. Landslides pose a hazard to the City of Laguna Woods with the potential to cause loss of life, personal injury, economic loss, and property damage. The proposed project site is located at a low point within Laguna Canyon. However, the California Department of Mines and Geology has not identified the project site as being located within an earthquake-induced landslide zone (DOC 2001). As such, it is unlikely that the project site would be exposed to landslides. Therefore, impacts associated with landslides would be less than significant.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less-than-Significant Impact. The proposed project would involve earthwork and other construction activities that would disturb surface soils and temporarily leave exposed soil on the ground's surface. Common causes of soil erosion from construction sites include stormwater, wind, and soil being tracked off site by vehicles. To minimize the potential for wind or water erosion during construction, the proposed project would be subject to the typical restrictions (e.g., BMPs) and requirements that address erosion and runoff, including those of the Clean Water Act. Construction and operational BMPs would be implemented, as necessary, and may include stormwater and sediment source control, as well as treatment control, BMPs. The final list of BMPs to be implemented would be determined by the project engineer in conjunction with the construction contractor and would be employed to address erosion, siltation, stormwater, drainage, and water quality issues.

Additionally, upon completion of construction, all exposed areas would be returned to conditions similar to those prior to groundbreaking activities (i.e., hardscape areas would be repaved and landscaped areas would be re-vegetated). Overall, following completion of construction, the proposed project would not increase the amount of exposed soils on the project site. Therefore, impacts associated with soil erosion would be less than significant.

c) Would the project 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. As previously discussed, while the broader project area may be susceptible to certain soil instability, the proposed project would be designed in accordance with all applicable design provisions set forth by both the current California Building Code requirements, which dictate specifications to ensure that facilities and mechanical units would be able to withstand specified soil characteristics, including instability. Additionally, consistent with standard industry practices, soils testing may be conducted prior to completion of final project designs to better understand the specific qualities of the underlying soils and to design the proposed project in accordance with any potential limitations of the soils. Therefore, impacts associated with unstable soils would be less than significant.

d) Would the project 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 characterized by their potential shrink/swell behavior. Shrink/swell is the change in volume (expansion and contraction) that occurs in certain fine-grained clay sediments from the cycle of wetting and drying. Clay minerals are known to expand with changes in moisture content. The higher the percentage of expansive minerals present in near-surface soils, the higher the potential for substantial expansion.

However, the U.S. Department of Agriculture's Web Soil Survey does not identify the project site or surrounding area as containing expansive soil. The project site is classified as Capistrano sandy loam, 9% to 5% slopes (USDA 2018). Capistrano sandy loam is well-drained and does not have a high percentage of expansive minerals. Therefore, impacts associated with expansive soils would be less than significant.

e) Would the project 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. There would be no septic tank disposal systems associated with the proposed project.

3.7 Greenhouse Gas Emissions

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

Less-than-Significant Impact. Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system, and many factors (natural and human) can cause changes in Earth's energy balance. The greenhouse effect is the trapping and build-up of heat in the atmosphere near the Earth's surface (the troposphere). The greenhouse effect is a natural process that contributes to regulating the Earth's temperature, and it creates a livable environment on Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise. Global climate change is a cumulative impact; a project contributes to this impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. Thus, GHG impacts are recognized exclusively as cumulative impacts (CAPCOA 2008).

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code Section 38505(g) for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride (see also

CEQA Guidelines Section 15364.5).[6] The three GHGs evaluated herein are CO_2, CH_4, and N_2O because these gases would be emitted during project construction and/or operations.

The Intergovernmental Panel on Climate Change developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons (MT) of CO_2 equivalent (CO_2e). Consistent with CalEEMod Version 2016.3.2, this GHG emissions analysis assumed the GWP for CH_4 is 25 (i.e., emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the Intergovernmental Panel on Climate Change Fourth Assessment Report (IPCC 2007).

As discussed in Section 3.3, the project is located within the jurisdictional boundaries of SCAQMD. In October 2008, SCAQMD proposed recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential and commercial development projects as presented in its Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold (SCAQMD 2008). This document, which builds on the previous guidance prepared by the California Air Pollution Control Officers Association, explored various approaches for establishing a significance threshold for GHG emissions. The draft interim CEQA threshold guidance document was not adopted or approved by the Governing Board. However, in December 2008, the SCAQMD adopted an interim 10,000 MT CO_2e per-year screening level threshold for stationary source/industrial projects for which SCAQMD is the lead agency (see SCAQMD Resolution No. 08-35, December 5, 2008). The 10,000 MT CO_2e per-year threshold, which was derived from GHG reduction targets established in Executive Order S-3-05, was based on the conclusion that the threshold was consistent with achieving an emissions capture rate of 90% of all new or modified stationary source projects.

SCAQMD formed a GHG CEQA Significance Threshold Working Group to work with SCAQMD staff on developing GHG CEQA significance thresholds until statewide significance thresholds or guidelines are established. From December 2008 to September 2010, SCAQMD hosted working group meetings and revised the draft threshold proposal several times, although it did not officially provide these proposals in a subsequent document. SCAQMD has continued to consider adoption of significance thresholds for residential and general land use development projects. The most recent proposal issued by SCAQMD, issued in September 2010, uses the following tiered approach to evaluate potential GHG impacts from various uses (SCAQMD 2010):

Tier 1. Determine if CEQA categorical exemptions are applicable. If not, move to Tier 2.

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[6] Climate-forcing substances include GHGs and other substances such as black carbon and aerosols. This discussion focuses on the seven GHGs identified in the California Health and Safety Code Section 38505; impacts associated with other climate-forcing substances are not evaluated herein.

Tier 2. Consider whether or not the proposed project is consistent with a locally adopted GHG reduction plan that has gone through public hearing and CEQA review, that has an approved inventory, includes monitoring, etc. If not, move to Tier 3.

Tier 3. Consider whether the project generates GHG emissions in excess of screening thresholds for individual land uses. The 10,000 MT CO_2e per-year threshold for industrial uses would be recommended for use by all lead agencies. Under option 1, separate screening thresholds are proposed for residential projects (3,500 MT CO_2e per year), commercial projects (1,400 MT CO_2e per year), and mixed-use projects (3,000 MT CO_2e per year). Under option 2, a single numerical screening threshold of 3,000 MT CO_2e per year would be used for all non-industrial projects. If the project generates emissions in excess of the applicable screening threshold, move to Tier 4.

Tier 4. Consider whether the project generates GHG emissions in excess of applicable performance standards for the project service population (population plus employment). The efficiency targets were established based on the goal of Assembly Bill (AB) 32 to reduce statewide GHG emissions to 1990 levels by 2020. The 2020 efficiency targets are 4.8 MT CO_2e per-service population for project-level analyses and 6.6 MT CO_2e per-service population for plan-level analyses. If the project generates emissions in excess of the applicable efficiency targets, move to Tier 5.

Tier 5. Consider the implementation of CEQA mitigation (including the purchase of GHG offsets) to reduce the project efficiency target to Tier 4 levels.

To determine the project's potential to generate GHG emissions that would have a significant impact on the environment, the project's GHG emissions were compared to the SCAQMD recommended industrial quantitative threshold of 10,000 MT CO_2e per year. Per the SCAQMD guidance, construction emissions should be amortized over the operational life of the project, which is assumed to be 30 years (SCAQMD 2008). This impact analysis, therefore, sums the projected annual operational GHGs with the amortized construction emissions and compares the total to the proposed SCAQMD threshold of 10,000 MT CO_2e per year.

Construction Emissions

Construction of the project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. GHG emissions associated with temporary construction activity were quantified using CalEEMod. A detailed depiction of the construction schedule—including information regarding phasing, equipment utilized during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Section 3.3 of this report.

Table 7 shows the estimated annual GHG construction emissions associated with the project, as well as the amortized construction emissions over a 30-year "project life."

Table 7. Estimated Annual Construction GHG Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2018	65.12	0.01	0.00	65.35
2019	318.99	0.04	0.00	320.08
			Total	**385.43**
			Amortized Emissions	**12.85**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
See Appendix A for complete results.

Total construction emissions for the project were 385 MT CO_2e. Estimated amortized Project-generated construction emissions would be approximately 13 MT CO_2e. However, because there is no separate GHG threshold for construction emissions alone, the evaluation of significance is discussed in the operational emissions analysis below.

Operational Emissions

Operation of the project would generate GHG emissions through the use of the emergency generator. The project would not generate any new sources of GHG emissions from mobile sources or indirect use of electricity as there would be no increase compared to the existing lift station. CalEEMod was used to calculate the annual GHG emissions based on the operational assumptions described in Section 3.3.

The estimated operational (year 2019) project-generated GHG emissions and the existing baseline emissions are shown in Table 8.

Table 8. Estimated Annual Operational GHG Emissions

Emission Source	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Existing				
Emergency Generator	22.40	0.00	0.00	22.51
Project				
Emergency Generator	19.88	0.00	0.00	19.95
			Net Emissions	**(2.56)**
			Amortized Construction Emissions	*12.85*
			Operation + Amortized Construction Total	**10.29**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2E = carbon dioxide equivalent.
See Appendix A for detailed results.
These emissions reflect CalEEMod "mitigated" output and operational year 2019.

As shown in Table 8, the project would result in a net reduction of approximately 3 MT CO_2e per year from operations when accounting for the existing lift station. Including amortized construction emissions, the project would result in a total of 10 MT CO_2e per year. Estimated annual increased GHG emissions associated with development of the proposed project would not exceed the threshold of 10,000 MT CO_2e per year. Therefore, GHG impacts for the proposed 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. The City of Laguna Woods does not have a climate action plan or any other plan to reduce GHG emissions. The City does have a Climate Adaptation Plan, but it only addresses the affects and impacts of climate change; it does not account for GHG emissions or provide reduction strategies or goals for the City.

The Climate Change Scoping Plan, approved by CARB on in 2008 and updated in 2014 and 2017, provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. The Scoping Plan is not directly applicable to specific projects; nor is it intended to be used for project-level evaluations.[7] Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (hybrid, electric, and more fuel-efficient vehicles) and associated fuels, among others.

Regarding consistency with Senate Bill (SB) 32 (goal of reducing GHG emissions to 40% below 1990 levels by 2030) and Executive Order S-3-05 (goal of reducing GHG emissions to 80% below 1990 levels by 2050), there are no established protocols or thresholds of significance for that future-year analysis. However, CARB has expressed optimism with regard to both the 2030 and 2050 goals. It states in the First Update to the Climate Change Scoping Plan that "California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32" (CARB 2014). With regard to the 2050 target for reducing GHG emissions to 80% below 1990 levels, the First Update to the Climate Change Scoping Plan states the following (CARB 2014):

> This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under Assembly Bill 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in

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7 The Final Statement of Reasons for the amendments to the CEQA Guidelines reiterates the statement in the Initial Statement of Reasons that "[t]he Scoping Plan may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009).

> the developed world and to stay on track to reduce emissions to 80% below 1990 levels by 2050. Additional measures, including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions.

In other words, CARB believes that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, SB 32, and Executive Order S-3-05. This is confirmed in the 2017 Climate Change Scoping Plan Update, which states (CARB 2017b):

> The Proposed Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while also identifying new, technologically feasibility and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities. The Proposed Plan is developed to be consistent with requirements set forth in AB 32, SB 32, and AB 197.

The project would not interfere with implementation of GHG reduction goals for 2030 or 2050 because the project would not exceed SCAQMD's recommended threshold of 10,000 MT CO_2e per year. In addition, by remediating well fields and restoring the use of local water supplies, the project is consistent with the GHG emission reduction measures in the Scoping Plan and would not conflict with the state's trajectory toward future GHG reductions. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. This impact would be less than significant.

3.8 Hazards and Hazardous Materials

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

Less-than-Significant Impact. In order to describe the proposed project's potential impact related to hazardous materials, discussions related to construction and operation are provided.

Construction-Related Impacts

A variety of hazardous substances and wastes could be stored, used, and generated during construction of the proposed project. These would include fuels for machinery and vehicles, new and used motor oils, cleaning solvents, paints, sealants, and storage containers and applicators containing such materials. Accidental spills, leaks, fires, explosions, or pressure releases involving hazardous materials represent a potential threat to human health and the environment if not appropriately addressed. Accident prevention and containment are the responsibility of the construction contractors, and provisions to properly manage hazardous substances and wastes are typically included in ETWD's construction specifications. ETWD monitors all contractors for compliance with applicable regulations, including regulations regarding hazardous materials and hazardous wastes. Adherence to ETWD's construction specifications and applicable regulations regarding hazardous materials and hazardous waste would ensure that construction of the proposed facilities involving hazardous materials would not create a significant hazard to the public or the environment.

Operational Impacts

ETWD uses a number of hazardous materials in the maintenance and repair of the facility. These hazardous materials consist of small quantities of "off-the-shelf" substances that do not represent a significant potential health hazard, and include materials such as lubricant oils, paints, and diesel fuel (used to power the emergency generator). ETWD has adopted a comprehensive *Emergency Response Plan* to provide adequate equipment and training to its personnel to detect, respond to, mitigate, and abate hazards that could occur during an accidental release of hazardous materials. The proposed project would not introduce any additional hazardous materials to the site during the operation and maintenance phase that do not currently exist at the facility. Therefore, the proposed project would pose a less-than-significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

b) Would the project 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. Refer to Section 3.8(a).

c) Would the project 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. The closest school is The Geneva School OC, located at 24031 El Toro Road, which is approximately 1.13 miles northeast of the project site. Additionally, as discussed in Section 3.7(a), the project is not expected to emit hazardous materials into the environment. Impacts would be less than significant.

d) Would the project be located on a site that 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. The site is not located on, or adjacent to, a site that is included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5 (DTSC 2018). No hazardous materials sites are located within a 1-mile radius of the site. Therefore, the project is not located on a site that would create a significant hazard to the public or the environment, and 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 for people residing or working in the project area?***

No Impact. The project site is not located within an airport land use planning area or within 2 miles of a public airport or public use airport (ALUC 2005). There are no general aviation airports or airstrips in the vicinity of the project site. The closest airport is John Wayne Airport, which is located approximately 8.5 miles away (AirNav.com 2018). The proposed project would result in no impacts to the air station or the airport.

f) ***For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?***

No Impact. Refer to Section 3.8(e).

g) ***Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?***

Less-than-Significant Impact with Mitigation Incorporated. El Toro Road is a designated as a major evacuation route for the City of Aliso Viejo (City of Aliso Viejo 2018). Construction, including utility relocation and trenching to connect the proposed project to MNWD's existing sewer line within El Toro Road, may cause periodic and temporary lane closures along the street, and may temporarily obstruct the normal flow of traffic. Thus, potential impacts to regional emergency evacuation routes could occur during construction. Once constructed, the sewer connection within El Toro Road would be entirely below ground and would not impair or interfere with the applicable emergency response plans. In order to offset any potentially significant impacts during construction, incorporation of **MM-TRA-1** is required, as outlined in Section 3.16, Transportation and Traffic. Therefore, with the implementation of mitigation, impacts to emergency response and evacuation plans would be less-than-significant.

h) ***Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?***

Less-than-Significant Impact. According to Figure S-1, Fire Hazard Severity Zones, in the *City of Laguna Woods General Plan*, the proposed project is located entirely within a very high fire hazard area, and has the potential to expose people or structures to a significant risk of loss, injury or death involving wildland fires. The City of Laguna Woods contracts with the Orange County Fire Authority to provide fire protection services to the City. The project would be protected by Orange County Fire Authority Station 22, located 3.2 miles away. Additionally, the proposed project does not include housing or habitable structures, and project components would be restricted from public use. Therefore, impacts associated with wildland fires would be less than significant.

3.9 Hydrology and Water Quality

a) Would the project violate any water quality standards or waste discharge requirements?

Less-than-Significant Impact with Mitigation Incorporated. Construction of the project could result in a temporary increase in erosion and sedimentation from soil disturbance associated with trenching and backfilling at the project site. Additionally, as discussed in Section 3.8(a), an inadvertent release of hazardous substances associated with construction could occur at the project site. However, implementation of a SWPPP and use of BMPs during construction would ensure that construction activities would not violate water quality standards.

MM-HYD-1 A stormwater pollution and prevention plan (SWPPP) shall be developed and implemented to reduce siltation from the site and prevent the release of hazardous or toxic materials.

Furthermore, upon completion of construction, all exposed areas would be returned to conditions similar to those prior to ground-disturbing activities (i.e., hardscape areas would be repaved, and landscaped areas would be re-vegetated). The new OSLS would not significantly increase runoff during times of flooding. The proposed design would increase the emergency storage capacity of the lift station, thereby reducing the risk of a sewage overflow. Therefore, upon project completion, the proposed new OSLS would not violate any water quality standards, and is not expected to create any discharges. Impacts would be less than significant with mitigation.

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

Less-than-Significant Impact. The proposed project is not anticipated to encounter groundwater during excavation or ground-disturbing activities; however, the potential for encountering groundwater exists depending on the depth to groundwater. Should groundwater be encountered and dewatering be necessary during construction, a general National Pollutant Discharge Elimination System dewatering permit from the San Diego Regional Water Quality Control Board would be obtained. Discharges would be made in accordance with the San Diego Regional Water Quality Control Board requirements outlined in Order No. R9-2008-0002, General Waste Discharge Requirements for Discharges from Groundwater Extraction and Similar Discharges to Surface Waters within the San Diego Region, which includes southern Orange County. If necessary, the groundwater would be pumped out of the excavation and discharged in accordance with the SWPPP and/or general waste discharge requirements. The amount of potential groundwater pumped would have minimal effects on the local aquifer because it would be temporary, would be localized in nature, and would most likely consist of perched groundwater. Potential impacts associated with dewatering would be further reduced through the incorporation of waste management and materials pollution control BMPs and non-stormwater management BMPs included in the SWPPP. For these reasons, the proposed project would have less-than-significant impacts on groundwater.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

Less-than-Significant Impact with Mitigation Incorporated. The existing drainage pattern along the proposed alignments would be temporarily altered as a result of open-cut trenching. While surface disturbances associated with open-cut trenching and installation of the proposed pipelines would alter existing drainage patterns, a SWPPP (**MM-HYD-1**) would be prepared, and BMPs would be implemented during project construction to prevent pollutants from contacting stormwater and to reduce the potential for on-site and off-site erosion and sedimentation. With regard to sedimentation, control measures could include perimeter protection, storm drain inlet protection, and/or velocity reduction measures. Once the proposed pipelines are installed, the disturbed areas would be returned to pre-project conditions. The proposed project would result in a net increase in impervious surface area as a result of the proposed extension, but the increase would be minimal and not result in substantial runoff or erosion (340 square feet). As such, the project would have a minimal impact on existing drainage patterns that could potentially result in substantial on-site or off-site erosion or siltation. Therefore, with implementation of BMPs identified in the SWPPP, construction impacts associated with substantial on- or off-site erosion or sedimentation would be less than significant.

d) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Less-than-Significant Impact with Mitigation Incorporated. While surface disturbance associated with construction of the proposed project is not anticipated to increase the rate or amount of surface runoff, a SWPPP (**MM-HYD-1**) would be prepared and erosion- and sedimentation-control BMPs would be implemented to reduce the potential for on-site or off-site flooding. Also, once the proposed improvements are installed, trenches and other disturbed areas would be returned to pre-project conditions, and existing drainage patterns would be restored. The proposed pipelines would be installed underground, and disturbed areas would be returned to pre-project conditions. The proposed project would result in a net increase in impervious surface area as a result of the proposed extension, but the increase would be minimal and not result in substantial runoff or erosion (340 square feet). Therefore, impacts associated with surface runoff and on-site or off-site flooding during construction would be less than significant with mitigation.

e) Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less-than-Significant Impact with Mitigation Incorporated. The proposed project would be subject to the typical restrictions (e.g., BMPs) and requirements that address polluted runoff, including those of the CWA. Construction and operational BMPs would be implemented, as necessary, and would include stormwater and sediment source control (**MM-HYD-1**), as well as treatment control, BMPs. The final list of BMPs to be implemented would be determined by the project engineer in conjunction with the construction contractor and would be employed to address erosion, siltation, stormwater, drainage, and water quality issues. Therefore, impacts associated with runoff would be less-than-significant with mitigation.

f) Would the project otherwise substantially degrade water quality?

Less-than-Significant Impact with Mitigation Incorporated. Refer to Sections 3.9(a) and 309(c).

g) Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. The project does not involve the construction of housing; therefore, no impact would occur.

h) Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

No Impact. The project site is not located within or near a 100-year flood hazard zone (FEMA 2008). No impact would occur.

i) Would the project 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?

No Impact. The project site is not located within the vicinity of an existing levee or dam. No portion of the project would involve the construction of a levee or dam. Therefore, no impact would occur.

j) Inundation by seiche, tsunami, or mudflow?

No Impact. Hydrologic and topographic conditions of the project site and surrounding area do not lend themselves to these conditions. The proposed project is not near any waterbody that would potentially be affected by a seiche, tsunami, or mudflow. Therefore, the proposed project would not be affected by any of these natural phenomena.

3.10 Land Use and Planning

a) *Would the project physically divide an established community?*

No Impact. The project would replace an existing sewage lift station. No residential communities would be physically divided by the proposed project and no impact would occur.

b) *Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?*

***Less Than Significant Impact*.** The proposed project would replace an old sewage lift station with a new lift station in the same general location, the southwestern corner of the City of Laguna Woods. The proposed project would not significantly change the site's use. The proposed project would cause an approximately 340-square-foot vegetated and partially paved area north of the existing lift station to become an extension of the existing lift station. The existing lift station is currently designated as Open Space under the *City of Laguna Woods General Plan* Land Use Map (City of Laguna Woods 2017a). Government and quasi-governmental facilities, such as water districts and electric utilities, are allowable uses under the General Plan Open Space designation. However, the project site is zoned OS-P, Open Space–Passive on the City of Laguna Woods Zoning Map (City of Laguna Woods 2017a) and according to the City of Laguna Woods Municipal Code, public/private utility buildings/structures are not approved use within areas zoned OS-P (City of Laguna Woods 2003b). Therefore, the existing lift station is a legal non-conforming use in the OS-P zone and the extension of the lift station would require a variance. With implementation of the variance, the project would be in compliance with the Municipal Code and impacts would be less than significant.

c) *Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?*

No Impact. The project site is not located within a Habitat Conservation Plan area, Natural Community Conservation Plan area, or area affected by another such plan. There would be no impact.

3.11 Mineral Resources

a) *Would the project 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. Figure CO-5, Mineral Resources Zones, in the *City of Laguna Woods General Plan*, depicts the project site as being located within a Mineral Resource Zone 3, which means that it is unknown whether mineral deposits exist at the project site (City of Laguna Woods 2015a). However, the project site currently exists as a sewage lift station, and the proposed project would continue that use. As such, the project would not result in the loss of availability of any known mineral resources, and no impact would occur.

b) Would the project 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. Refer to Section 3.10(a).

3.12 Noise

3.12.1 Noise and Vibration Characteristics

Noise

Noise is defined as unwanted sound. Sound may be described in terms of level or amplitude (measured in decibels (dB)), frequency or pitch (measured in hertz (Hz) or cycles per second), and duration (measured in seconds or minutes). The standard unit of measurement of the amplitude of sound is the decibel (dB). Because the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale is used to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against low and very high frequencies in a manner approximating the sensitivity of the human ear. Several descriptors of noise (noise metrics) exist to help predict average community reactions to the adverse effects of environmental noise, including traffic-generated noise, on a community. These descriptors include the equivalent noise level over a given period (L_{eq}), the statistical sound level (L_n), the day–night average noise level (L_{dn}), and the community noise equivalent level (CNEL). Each of these descriptors uses units of dBA. Table 9 provides examples of A-weighted noise levels from common sounds. In general, human sound perception is such that a change in sound level of 3 dB is barely noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving of the sound level.

Table 9. Typical Sound Levels in the Environment and Industry

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
—	110	Rock band
Jet flyover at 300 meters (1,000 feet)	100	—
Gas lawn mower at 1 meter (3 feet)	90	—
Diesel truck at 15 meters (50 feet), at 80 kilometers per hour (50 mph)	80	Food blender at 1 meter (3 feet) Garbage disposal at 1 meter (3 feet)
Noisy urban area, daytime gas lawn mower at 30 meters (100 feet)	70	Vacuum cleaner at 3 meters (10 feet)
Commercial area Heavy traffic at 90 meters (300 feet)	60	Normal speech at 1 meter (3 feet)
Quiet urban daytime	50	Large business office Dishwasher, next room
Quiet urban nighttime	40	Theater, large conference room (background)

Table 9. Typical Sound Levels in the Environment and Industry

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Quiet suburban nighttime	30	Library
Quiet rural night time	20	Bedroom at night, concert hall (background)
—	10	Broadcast/recording studio
Lowest threshold of human hearing	0	Lowest threshold of human hearing

L_{eq} is a sound energy level averaged over a specified period (typically no less than 15 minutes for environmental studies). L_{eq} is a single numerical value that represents the amount of variable sound energy received by a receptor during a time interval. For example, a 1-hour L_{eq} measurement would represent the average amount of energy contained in all the noise that occurred in that hour. L_{eq} is an effective noise descriptor because of its ability to assess the total time-varying effects of noise on sensitive receptors (see Section 3.12.2). L_{max} is the greatest sound level measured during a designated time interval or event.

Unlike the L_{eq} metrics, L_{dn} and CNEL metrics always represent 24-hour periods, usually on an annualized basis. L_{dn} and CNEL also differ from L_{eq} because they apply a time-weighted factor designed to emphasize noise events that occur during the evening and nighttime hours (when speech and sleep disturbance is of more concern). "Time weighted" refers to the fact that L_{dn} and CNEL penalize noise that occurs during certain sensitive periods. In the case of CNEL, noise occurring during the daytime (7:00 a.m.–7:00 p.m.) receives no penalty. Noise during the evening (7:00 p.m.–10:00 p.m.) is penalized by adding 5 dB, while nighttime (10:00 p.m.–7:00 a.m.) noise is penalized by adding 10 dB. L_{dn} differs from CNEL in that the daytime period is defined as 7:00 a.m.–10:00 p.m., thus eliminating the evening period. L_{dn} and CNEL are the predominant criteria used to measure roadway noise affecting residential receptors. These two metrics generally differ from one another by no more than 0.5 dB to 1 dB and as such, are often treated as equivalent to one another.

Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration can be a serious concern, causing buildings to shake and rumbling sounds to be heard. In contrast to noise, vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of vibration are trains, buses on rough roads, and construction activities, such as blasting, pile driving, and heavy earthmoving equipment.

Several different methods are used to quantify vibration. Peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. PPV is most frequently used to describe vibration impacts to buildings and is usually measured in inches per second. The root mean square amplitude is most frequently used to describe the effect of vibration on the human body and is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure root mean square. The decibel notation acts to compress the range of numbers required to describe vibration.

High levels of vibration may cause physical personal injury or damage to buildings. However, vibration levels rarely affect human health. Instead, most people consider vibration to be an annoyance that can affect concentration or disturb sleep. In addition, high levels of vibration can damage fragile buildings or interfere with equipment that is highly sensitive to vibration (e.g., electron microscopes). Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or slamming of doors. Typical outdoor sources of perceptible vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If the roadway is smooth, the vibration from traffic is rarely perceptible.

3.12.2 Sensitive Receptors

Noise- and vibration-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would be considered noise and vibration sensitive and may warrant unique measures for protection from intruding noise. Sensitive receptors near the project site include the residential uses located to the northeast and east of the project site and the community park located to the southeast of the project site. These sensitive receptors represent the nearest sensitive land uses with the potential to be impacted by construction and operation of the proposed project. Additional sensitive receptors are located farther from the project site in the surrounding community and would be less impacted by noise and vibration levels than the above-listed sensitive receptors.

3.12.3 Existing Noise Conditions

Noise measurements were conducted near the project site on July 19, 2018, to characterize the existing noise levels. Table 10 provides the location, date, and time the noise measurements were taken. The noise measurements were taken using a Rion NL-62 sound level meter equipped with a 0.5-inch, pre-polarized condenser microphone with pre-amplifier. The sound level meter meets the current American National Standards Institute standard for a Type 1 (Precision Use) sound level meter. The accuracy of the sound level meter was verified using a field calibrator before and after the measurements, and the measurements were conducted with the microphone positioned approximately 5 feet above the ground.

Table 10. Measured Noise Levels

Receptors	Location	Date	Time	L_{eq} (dBA)	L_{max} (dBA)
ST1	North of project site, adjacent to residences along west side of El Toro Road	7/19/2018	10:10 a.m.–10:25 a.m.	59.9	73
ST2	East of project site, adjacent to residences at northeast corner of El Toro Road and Alicia Creek Road	7/19/2018	10:30 a.m.–10:45 a.m.	64.8	75.6

Table 10. Measured Noise Levels

Receptors	Location	Date	Time	L_{eq} (dBA)	L_{max} (dBA)
ST3	Southeast of project site, at community park south side of Aliso Creek Road	7/19/2018	10:50 a.m.–11:05 a.m.	52	59.8

Notes: L_{eq} = equivalent continuous sound level (time-averaged sound level); L_{max} = maximum sound level during the measurement interval; dBA = A-weighted decibels.

Three short-term noise measurement locations (ST) that represent existing sensitive receivers were selected on and near the project site. ST1 is located to the north and represents ambient noise levels near the residential neighborhood to the north. ST2 is located to the east and represents ambient noise levels across from the project site on the east side of El Toro Road at Aliso Creek Road. ST3 is located to the southeast of the project site, at the community park on the south side of Aliso Creek Road. The measured energy-averaged (L_{eq}) and maximum (L_{max}) noise levels are provided in Table 10. The field noise measurement data sheets are provided in Appendix E-1. The primary noise sources at the sites identified in Table 10 consisted of traffic on El Toro Road and Aliso Creek Road, distant landscape maintenance noise, distant aircraft overflights, and birdsong. As shown in Table 10, the measured sound levels ranged from approximately 52 dBA L_{eq} at ST3 to 65 dBA L_{eq} at ST2.

3.12.4 Regulatory Setting

3.12.4.1 City of Laguna Woods

The project site is located within the City of Laguna Woods, as are the residences north of the project site. The City outlines its noise regulations and standards as they pertain to this project (which is limited to construction noise and potential mechanical operation noise) in the Municipal Code (City of Laguna Woods 2013). The City establishes stationary noise limits in Section 7.08.060 and construction noise limitations in Section 7.08.0080.

Stationary Noise Regulation

The City has implemented exterior stationary noise limits for offending stationary noise sources (e.g., loading/unloading, condenser units, compressors, blowers), outlined in Municipal Code Section 7.08.060. Table 11 outlines the City's residential noise limits.

Table 11. City of Laguna Woods Noise Ordinance Exterior Noise Standards

Exterior Residential Standards Noise Level	Time Period
55 dBA	7:00 a.m. – 10:00 p.m.
50 dBA	10:00 p.m.– 7:00 a.m.

Source: City of Laguna Woods 2013, Section 7.08.060.
Notes: dBA = A-weighted decibels.
Per the City of Laguna Woods Noise Ordinance:

It shall be unlawful for any person any location within the City to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any other residential property to exceed:

1. The noise standard for a cumulative period of more than 30 minutes in any hour; or
2. The noise standard plus 5 dBA for a cumulative period of more than 15 minutes in any hour; or
3. The noise standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour; or
4. The noise standard plus 15 dBA for a cumulative period of more than one minute in any hour; or
5. The noise standard plus 20 dBA for any period of time.

In the event the ambient noise level exceeds any of the first four noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

Construction Noise Regulation

Per City of Laguna Woods Municipal Code Section 7.08.080(5), construction noise is exempt from the noise ordinance standards, provided that construction activities take place within prescribed daytime hours: "Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a Federal holiday" (City of Laguna Woods 2013).

3.12.4.2 City of Aliso Viejo

The City of Aliso Viejo municipal boundary is adjacent to the project site. The residences east of the project site and the community park to the southeast are located within the City of Aliso Viejo. Therefore, the City of Aliso Viejo's noise standards as they pertain to this project are summarized below.

Stationary Noise Regulation

The City of Aliso Viejo has implemented a stationary noise limit for offending stationary noise sources (e.g., loading/unloading, condenser units, compressors, blowers), outlined in Aliso Viejo Municipal Code Section 8.12.050A. Table 12 outlines the City's residential noise limits.

Table 12. City of Aliso Viejo Noise Ordinance Exterior Noise Standards

Exterior Residential Standards Noise Level	Time Period
55 dBA	7:00 a.m. – 10:00 p.m.
50 dBA	10:00 p.m.– 7:00 a.m.

Source: City of Aliso Viejo 2018, Section 8.12.050A.
Notes: dBA = A-weighted decibels.
Per the City of Aliso Viejo Noise Ordinance:
It is unlawful for any person any location within the City to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any other residential property to exceed:

1. The noise standard for a cumulative period of more than 30 minutes in any hour; or
2. The noise standard plus 5 dBA for a cumulative period of more than 15 minutes in any hour; or
3. The noise standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour; or
4. The noise standard plus 15 dBA for a cumulative period of more than one minute in any hour; or
5. The noise standard plus 20 dBA for any period of time.

In the event the noise consists of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by 5 dB.

Construction Noise Regulation

Per Aliso Viejo Municipal Code Section 8.12.070, construction noise is exempt from the noise ordinance standards, provided that construction activities take place within prescribed daytime hours: "Noise sources associated with construction, repair, remodeling, or grading of any real property, provided the activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, and 8:00 p.m. and 8:00 a.m. on Saturday, or at any time on Sunday or a federal holiday" (City of Aliso Viejo 2018).

As shown, the Cities of Laguna Woods and Aliso Viejo do not differ substantially in their regulation of stationary noise or construction noise. The main difference between the two sets of regulations is that the City of Laguna Woods restricts construction activities occurring on Saturdays to the hours between 7:00 a.m. and 8:00 p.m., whereas the City of Aliso Viejo restricts construction activities occurring on Saturdays to the hours between 8:00 a.m. and 8:00 p.m..

3.12.5 Impacts

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

On-site noise-generating activities associated with the proposed project would include short-term construction activities, as well as on-site mechanical noise. The proposed project would not generate off-site traffic noise along local roadways or noise from other sources.

Short-Term Construction Impacts

Less-than-Significant Impact. Construction noise and vibration are temporary phenomena. Construction noise and vibration levels vary from hour to hour and day to day, depending on the equipment in use, the operations being performed, and the distance between the source and receptor.

Equipment that would be in operation during construction would include, in part, excavators, graders, backhoes, compressors, welders, and paving equipment. The typical maximum noise levels for various pieces of construction equipment at a distance of 50 feet are presented in Table 13. Note that the equipment noise levels presented in Table 13 are maximum noise levels. Typically, construction equipment operates in alternating cycles of full power and low power, producing average noise levels less than the maximum noise level. The average sound level of construction activity also depends on the amount of time that the equipment operates and the intensity of construction activities during that time.

Table 13. Typical Construction Equipment Noise Emission Levels

Equipment	Typical Sound Level (dBA) 50 Feet from Source
Air compressor	81

Table 13. Typical Construction Equipment Noise Emission Levels

Equipment	Typical Sound Level (dBA) 50 Feet from Source
Backhoe	80
Compactor	82
Concrete mixer	85
Concrete pump	82
Concrete vibrator	76
Crane, mobile	83
Dozer	85
Generator	81
Grader	85
Impact wrench	85
Jackhammer	88
Loader	85
Paver	89
Pneumatic tool	85
Pump	76
Roller	74
Saw	76
Truck	88

Source: FTA 2006.
Note: dBA = A-weighted decibels.

The maximum noise levels at 50 feet for typical construction equipment would be approximately 89 dBA for the equipment typically used for this type of development project, although the hourly noise levels would vary. Construction noise in a well-defined area typically attenuates at approximately 6 dB per doubling of distance. Project construction would take place within approximately 275 feet of the nearest noise-sensitive land uses (residences to the east). Residences to the northeast are located approximately 310 feet away, and a park is located to the southeast, approximately 550 feet from the project site.

The Federal Highway Administration's Roadway Construction Noise Model (RCNM) (FHWA 2008) was used to estimate construction noise levels at the nearest occupied noise-sensitive land uses. (Although the model was funded and promulgated by the Federal Highway Administration, the RCNM is often used for non-roadway projects, because the same types of construction equipment used for roadway projects are often used for other types of construction.) Input variables for the RCNM consist of the receiver/land use types, the equipment type and number of each (e.g., two graders, a loader, a tractor), the duty cycle for each piece of equipment (e.g., percentage of hours the equipment typically works per day), and the distance from the noise-sensitive receiver. No topographical or structural shielding was assumed in the modeling. The RCNM has default duty-cycle values for the various pieces of equipment, which were derived from an extensive study of typical construction activity patterns. Those default duty-cycle values were used for this noise analysis.

Using the Federal Highway Administration's RCNM and construction information, the estimated noise levels from the major construction phases were calculated for the nearest noise-sensitive land uses, as presented in Table 14. The RCNM inputs and outputs are provided in Appendix E-2.

Table 14. Construction Noise Model Results Summary

Construction Phase	Construction Noise at Representative Receiver Distances (L_{eq} (dBA))		
	Nearest Residences (approx. 275 feet away)	*2nd-Nearest Residences (approx. 310 feet away)*	*Park (approx. 550 feet away)*
Demolition	66	65	61
Site Preparation	58	57	52
Building Construction	66	65	61
Paving	64	63	58

As shown in Table 14, the construction noise levels are predicted to range from approximately 58 to 66 dBA L_{eq} at the nearest existing residences, located to the east. At the next-nearest residences, located to the north, construction noise levels are estimated to range from approximately 57 to 65 dBA L_{eq}. At the park, located to the southeast, construction noise levels are estimated to range from approximately 52 to 61 dBA L_{eq}.

As previously discussed, the Aliso Viejo Municipal Code (being slightly more stringent than that of Laguna Woods) exempts noise from construction provided that construction activities take place between the hours of 7:00 a.m. and 8:00 p.m. on weekdays, between 8:00 a.m. and 8:00 p.m. on Saturdays, and not at any time on Sundays or federal holidays. It is anticipated that construction activities associated with the proposed project would take place exclusively during these permitted hours.

Although nearby off-site residences would be exposed to elevated construction noise levels, the exposure would be short term and would cease upon completion of project construction, and project construction would not violate the City of Laguna Woods or City of Aliso Viejo's standards for construction noise. Therefore, short-term construction impacts associated with a temporary increase in noise levels would be less than significant.

While construction noise impacts would already be at an acceptable level of significance and would not be substantially higher than existing ambient daytime noise levels, the following standard construction BMPs are recommended, in order to further reduce already less-than-significant noise levels.

- Construction shall not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, between 8:00 p.m. and 8:00 a.m. on Saturday, or at any time on Sunday or a federal holiday. No person shall arrive on site prior to 7:00 a.m.
- Stationary construction noise sources such as generators or pumps should be located at least 100 feet from sensitive land uses, as feasible.

- Construction staging areas should be located as far from noise-sensitive land uses as feasible.
- During construction, the contractor shall ensure all construction equipment is equipped with appropriate noise-attenuating devices. Idling equipment shall be turned off when not in use.
- Equipment shall be maintained so that vehicles and their loads are secured from rattling and banging.

In addition to noise from on-site construction activities, construction worker trips would create additional noise along local arterial roadways, accessing the project. However, the estimated 20 average daily worker trips would be minimal compared to the number of average daily trips along El Toro Road and Alicia Creek Road (16,000 and 27,000, respectively; OCTA 2017). Therefore, the potential increase in noise related to the project-related construction traffic would be less than significant. No mitigation is required.

Long-Term Operational Impacts

Less-than-Significant Impact. As described in Section 2.4.1, Project Description, the new lift station would replace the existing, outdated lift station with new, more reliable and more serviceable equipment. The proposed new lift station would have a capacity greater than the existing inflow at the current lift station; however, this additional capacity would be for emergency purposes. Although the project site would be extended approximately 10 feet to the north, the 6-foot-tall wall that surrounds the project site would be extended to the north as well, providing the same degree of noise reduction (to the extent that any is necessary). The proposed project's two new submersible pumps and motors would be completely enclosed within a 10-foot-deep well, and thus would not produce substantial noise levels beyond the project perimeter. Furthermore, the existing 180 kW standby generator (from circa 1985) would be replaced with a new 175 kW generator, which would be enclosed within a sound attenuated enclosure. Because the new standby generator would replace an existing generator of a higher power rating, and because the usage and testing of the generator would either not be altered or, if anything, would be reduced, noise levels would be unchanged or, more likely, would be reduced as a result of the proposed project. Therefore, noise levels would be less that significant.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less-than-Significant Impact. Construction activities have the potential to expose persons to excessive ground-borne vibration or ground-borne noise. Ground-borne vibration information related to construction activities has been collected by Caltrans (Caltrans 2013). Information from Caltrans indicates that continuous vibrations with a PPV of approximately 0.1 inches/second begin to annoy people. The heavier pieces of construction equipment, such as an excavator, would have PPVs of approximately 0.089 inches/second or less at a distance of 25 feet (FTA 2006). Ground-borne vibration is typically attenuated over short distances. At the distance from the nearest residences to the proposed project site (approximately 275 feet), and with the anticipated construction equipment, the PPV vibration level would be approximately 0.002 inches/second. This vibration level would be well below the vibration threshold of potential annoyance of 0.1 inches/second.

The major concern with regard to construction vibration is related to building damage. Construction vibration as a result of the proposed project would not result in structural building damage, which typically occurs at vibration levels of 0.5 inches/second or greater for buildings of reinforced-concrete, steel, or timber construction. The heavier pieces of construction equipment used would include typical construction equipment for this type of project, such as backhoes, front-end loaders, and flatbed trucks. Pile driving, blasting, and other special construction techniques will not be used for construction of the proposed project; therefore, excessive ground-borne vibration and ground-borne noise would not be generated. Vibration levels from project construction would be less than the thresholds of annoyance and potential for structural damage. Operation of the proposed project would not result in any sources of vibration. Therefore, impacts would be less than significant.

c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less-than-Significant Impact. As previously discussed in Section 3.12.5(a), operation of the proposed project is anticipated to result in noise level equivalent to or lower than existing noise levels. The project would therefore not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; noise impacts would be less than significant.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less-than-Significant Impact. As addressed in Section 3.12.5(a), project construction would not result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. Construction of the proposed project would include implementation of standard construction practices to minimize temporary increase in noise levels due to the intermittent operation of construction equipment (see Section 3.12.5(a)). These standard practices would result in a substantial decrease in construction noise. Therefore, impacts would be less than significant.

e) Would the project be 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 expose people residing or working in the project area to excessive noise levels?

No Impact. The project site is not located within an airport land use planning area or within 2 miles of a public airport or public use airport (ALUC 2005). There are no general aviation airports or airstrips in the vicinity of the project site. The closest airport is John Wayne Airport, which is located approximately 8.5 miles away (AirNav.com 2018). Any overhead air traffic noise above the project site would occur at heights where there is little possibility to expose construction workers or ETWD employees to excessive noise levels. Therefore, no impacts associated with public airport and air traffic noise would occur.

f) ***Would the project be within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?***

No Impact. No private airstrips are located within the broader vicinity of the City (AirNav.com 2018). Therefore, no impacts associated with private airstrip noise would occur.

3.13 Population and Housing

a) ***Would the project induce substantial 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. The proposed project would replace an old and inefficient lift station with a new lift station. The proposed new lift station would connect to the existing sewer lines and be built on top of the existing lift station. The proposed new lift station would have a capacity greater than the existing inflow at the current lift station. This additional capacity would be for emergency purposes. The new lift station is being designed strictly to replace the old lift station and increase serviceability and reliability. The area surrounding the lift station is built out. No new development is anticipated in the area, and the proposed new lift station is not being designed to handle any increase in flow through the facility. Therefore, the project is not considered to be growth-inducing, and no direct or indirect impacts would occur.

b) ***Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?***

No Impact. The proposed project does not include housing, and none would be displaced during project implementation.

c) ***Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?***

No Impact. Refer to Section 3.12(b).

3.14 Public Services

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

Fire protection?

Less-than-Significant Impact. The project is limited to the replacement of an existing sewage lift station. The project would not include the addition of housing, schools, or other community facilities that might require fire protection. The project would also not indirectly induce the addition of housing, schools, or other community facilities (see Section 3.14(a)). Replacement of the existing lift station would not change local fire protection response times or significantly affect demand for fire protection services in the project area. During the construction phase of the proposed project, the associated construction works and construction-related activities would result in a less-than-significant increase in need for emergency fire protective services. However, due to the limited number of construction workers and the duration of the construction schedule, impacts to fire protection services are considered less than significant.

Police protection?

No Impact. The project is limited to the replacement if an existing sewage lift station. The project would not include the addition of housing, schools, or other community facilities that might require police protection. The project would also not indirectly induce additional housing, schools, or other community facilities (see Section 3.14(a)). Replacement of the existing lift station would not change local police protection response times or affect demand for police protection services in the project area.

Schools?

No Impact. There is no housing component related to the project. The proposed project would not affect existing schools within the area. No impact to schools would occur.

Parks?

Less-than-Significant Impact. The proposed project would not involve a housing component or increase employment opportunities that would result in population growth within the City. Therefore, additional demands on existing public parks would not occur as a result of project implementation.

Implementation of the proposed project would result in construction activities occurring adjacent to the existing Woods End Trail and trailhead. However, access to the trail would be maintained throughout the duration of project construction, and impacts would be less than significant.

Other public facilities?

No Impact. Refer to Sections 3.14(a)(i) through 3.14(a)(iv).

3.15 Recreation

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

Less-than-Significant Impact. The proposed project would not involve a housing component or substantially increase employment opportunities within the City; therefore, the project would not substantially increase the use of existing neighborhood parks or other recreational facilities.

Implementation of the proposed project would result in construction activities occurring adjacent to the existing Woods End Trail and trailhead. However, access to the trail would be maintained throughout the duration of project construction, and impacts would be less than significant.

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 project would not affect existing recreational resources or require the need for new or expanded recreational facilities; therefore, no impacts would occur.

3.16 Transportation and Traffic

a) Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Less-than-Significant Impact with Mitigation Incorporated. Once operational, the proposed project would require a minimal number of trips, primarily for routine operations and maintenance activities. However, since ETWD staff already visits the project site to perform operations and maintenance activities on the existing OSLS, trips associated with the proposed project would not be considered new vehicle trips; thus, no new trips would be generated that would decrease the effectiveness of a circulation system.

The proposed project site is accessed by El Toro Road, which is a six-lane divided roadway classified as a Major Arterial roadway by the City of Laguna Woods (2015b). Average daily traffic on this roadway is approximately 20,700 to 24,200 vehicles per day. The employee parking lot and material staging area are proposed to be located on ETWD land, which is accessed by Moulton Parkway. Moulton Parkway is a six-lane arterial with average daily traffic ranging from 39,000 and 46,000 vehicles per day.

Implementation of the proposed project would generate traffic during the 5- to 6-month construction phase. This traffic would include construction vehicles, workers' vehicles, and supply trucks carrying equipment and ready-mixed concrete trucks from the construction staging areas to the project site. Construction activity would add approximately 21 average vehicle trips per day during the construction period and would not be substantial in terms of traffic load and capacity.

Construction of the project, including relocating existing utilities and connecting the proposed project to MNWD's existing sewer line within El Toro Road, may cause periodic, but temporary, lane closures along the El Toro Road, and may temporarily obstruct the normal flow of traffic. Once constructed, the sewer connection within El Toro Road would be entirely below ground and would not impair or interfere with the local circulation system. In order to offset any potentially significant impacts during construction, incorporation of **MM-TRA-1** is required. With the implementation of mitigation, impacts to performance of the local and regional circulation system would be less-than-significant.

MM-TRA-1 Prior to finalization of plans and specifications, a construction traffic control plan shall be prepared by El Toro Water District (ETWD) and/or their construction contractor for any construction activities that encroach into southbound El Toro Road's right-of-way. The traffic control plan shall include measures designed to ensure a free flow of traffic during lane closures, including, but not limited to, warning signs, lights, flashing arrow boards, barricades, cones, flaggers, pedestrian detours, parking restrictions, and/or restricted hours during which lane closures would not be allowed (e.g., peak AM and PM hours7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.).

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

Less-than-Significant Impact. According to 2017 Orange County Congestion Management Program (OCTA 2017), the closest Congestion Management Program facility is the intersection of El Toro Road and Moulton Parkway, which is located approximately 1.5 miles northwest of the project site. According to the 2017 Congestion Management Program, the intersection operates at a LOS B during AM peak hours and LOS C at PM peak hours. The intersection would be used while construction equipment and workers are transported from the construction staging/parking area to the project site. However, the project is expected to generate 21 average vehicle trips per day during the construction period, which would not be substantial in terms of traffic load and capacity. Therefore, the project would not conflict with an applicable congestion management program, and impacts would be less than significant.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

No Impact. The proposed project would not have any direct impacts on air traffic, as the site is not located in close proximity to a regional or private airport and does not include development of a private airstrip or heliport.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. The proposed project would use existing roadways and would not involve permanent alteration of existing roadways, nor would it require incompatible vehicular access. Therefore, the project would have no impact related to an increase in hazards due to a design feature or incompatible use.

e) Would the project result in inadequate emergency access?

Less-than-Significant Impact with Mitigation Incorporated. As previously discussed, construction of the proposed pipeline connections and utility relocations could require lane closures on El Toro Road. In order to offset any potentially significant impacts during construction, incorporation of mitigation measure **MM-TRA-1** is required. With the implementation of mitigation, impacts to emergency access would be less-than-significant with mitigation incorporated.

f) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Less–than-Significant Impact with Mitigation Incorporated. As previously addressed, construction of the proposed pipeline connections and utility relocations could require lane closures on El Toro Road that may cause periodic and temporary lane closures along the street, and potentially temporarily obstruct the normal flow of traffic. Once constructed, the sewer connection within El Toro Road would be entirely below ground and would not impair or interfere with the local circulation system. Thus, there would be no potential impacts to the City's alternative transit facilities, including sidewalks, bicycle lanes, and bus stops. In order to offset any potentially significant impacts during construction, incorporation of mitigation measure **MM-TRA-1** is required. With the implementation of mitigation, impacts to alternative transit facilities would be less-than-significant with mitigation incorporated.

3.17 Tribal Cultural Resources

a) ***Would the project 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)?***

No Impact. A review of the National Register of Historic Places digital archive and the list of California Register of Historical Resources indicated there are no listed sites located on the project site. Additionally, no local properties are found on the California Register of Historical Resources and/or National Register of Historic Places. The site does not contain any tribal cultural resources as defined by PRC Section 21074 that are 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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?***

Less-than-Significant Impact. AB 52 established a formal consultation process for California Native American Tribes to identify potential significant impacts to Tribal Cultural Resources, as defined in Public Resources Code Section 21074, as part of CEQA. As specified in AB 52, lead agencies must provide notice inviting consultation to California Native American Tribes that are traditionally and culturally affiliated with the geographic area of a proposed project. The tribes must respond in writing within 30 days of the District's AB 52 notice. On August 1, 2018, a letter was mailed to a total of eight tribes known to have affiliation with the area, describing the project and requesting any information regarding resources that may exist on or near the project site. One response letter was received by Dudek on August 3, 2018, from the Gabrieleño Band of Mission Indians – Kizh Nation requesting consultation. On September 13, 2018, ETWD contacted the Gabrieleño Band of Mission Indians – Kizh Nation and scheduled a date for consultation in early November. No other tribes have responded with a request for consultation. However, ETWD will continue to work with the tribes in consideration of their consultation.

The project site has been previously disturbed and is considered to have a low probability for encountering tribal cultural resources. Further, no information regarding the presence of tribal cultural resources has been provided to ETWD from the contacted tribes. Therefore, impacts to tribal cultural resources would be less than significant and no mitigation is required.

3.18 Utilities and Service Systems

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No Impact. The project does not involve any components that would generate wastewater since no development is proposed. Therefore, there would be no impact on wastewater treatment requirements.

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. The project is a proposed replacement of the existing OSLS. As discussed in Section 3.13(a), the proposed project would not generate population growth; therefore, no new demand on water or wastewater facilities would occur as a result of the facility replacement.

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. The project does not involve any components that would require or result in the construction of new stormwater drainage facilities. No impacts would occur.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

No Impact. No new water demands would occur as a result of the proposed project since no new development is proposed. No impacts would occur.

e) Would the project 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. No wastewater treatment demands would occur as a result of the proposed project since no new development is proposed. No impacts would occur.

f) ***Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?***

Less-than-Significant Impact. The proposed OSLS Improvement Project, once complete, would not require solid waste material disposal. Waste generated during construction would be minimal, and debris would be recycled as applicable. ETWD would require its construction contractor to comply with all federal, state, and local statutes and regulations related to solid waste. Impacts are considered less than significant.

g) ***Would the project comply with federal, state, and local statutes and regulations related to solid waste?***

No Impact. Refer to Section 3.16(f).

3.19 Mandatory Findings of Significance

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

Less-than-Significant Impact with Mitigation Incorporated. As discussed in Section 3.4, Biological Resources, potential indirect impacts could occur to sensitive vegetation communities. Indirect impacts would be limited to short-term construction impacts related to erosion, runoff, and dust. However, all project ground-disturbing activities would be subject to the typical restrictions (e.g., BMPs) and requirements that address erosion and runoff, including those of the federal Clean Water Act, and preparation of a SWPPP (**MM-HYD-1**). With implementation of BMPs and **MM-HYD-1**, potential indirect impacts to sensitive vegetation communities would be less than significant with mitigation incorporated. In addition, although the project site occurs within an urban setting and there is an existing, baseline level of disturbance, indirect impacts associated with construction noise could be significant to coastal California gnatcatcher if impacts occur during the breeding/nesting season. Implementation of **MM-BIO-1** would reduce these indirect impacts to less than significant.

In addition, it is always possible that intact archaeological deposits are present at subsurface levels. For this reason, the project site should be treated as potentially sensitive for archaeological resources. Therefore, **MM-CUL-1** is recommended to reduce potential impacts to unanticipated archaeological resources to less than significant. Furthermore, in the event that intact paleontological resources are located on the project site, ground-disturbing activities associated with construction of the proposed project, such as excavating during site preparation, have the potential to destroy a unique paleontological resource or site. Without mitigation, the potential damage to paleontological resources during construction would be a potentially significant impact. However, upon implementation of **MM-CUL-2**, impacts would be reduced to below a level of significance.

Therefore, impacts would be less than significant with mitigation incorporated.

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

No Impact. The project would replace an existing sewage lift station. No long-term significant impacts are associated with the project.

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

No Impact. It has been determined through this Initial Study and Mitigated Negative Declaration that the project's potential impacts would not cause substantial adverse effects on human beings either directly or indirectly. Therefore, no impacts would result.

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4.2 List of Preparers

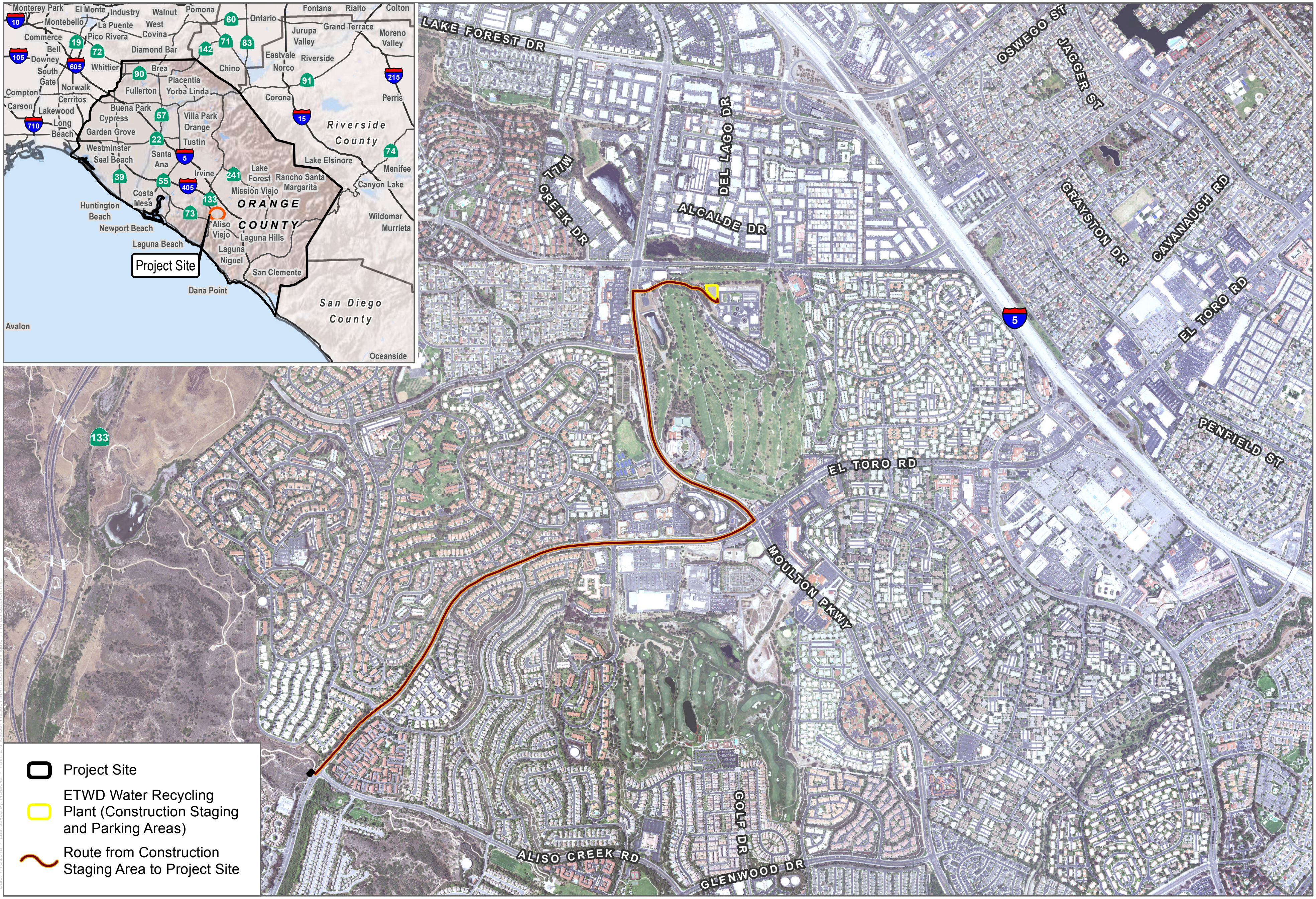
Preparers

El Toro Water Distract

Dennis Cafferty, P.E., Assistant General Manager/District Engineer
Bobby Young, P.E., Project Engineer

Dudek

Rachel Struglia, PhD, AICP, Principal
Alex Martini, LEED GA, Environmental Planner
Patrick Cruz, Environmental Analyst
Adam Poll, QEP, LEED AP BD+C, Air Quality Specialist
Ryan Henry, Senior Biologist
Janice Wondolleck, Associate Biologist
Micah Hale, PhD, RPA, Senior Cultural Archaeologist
Michael Williams, PhD, Cultural Archaeologist
Erica Nicolay, MA, Cultural Archaeological Technician
Michael Greene, Acoustical Specialist
Nina Isaieva, PhD, GIS Specialist
Amy Seals, MA, Technical Editor
Taylor Eaton, Publications Specialist Lead



SOURCE: USDA 2016

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

El Toro Water District Oso Sewage Lift Station

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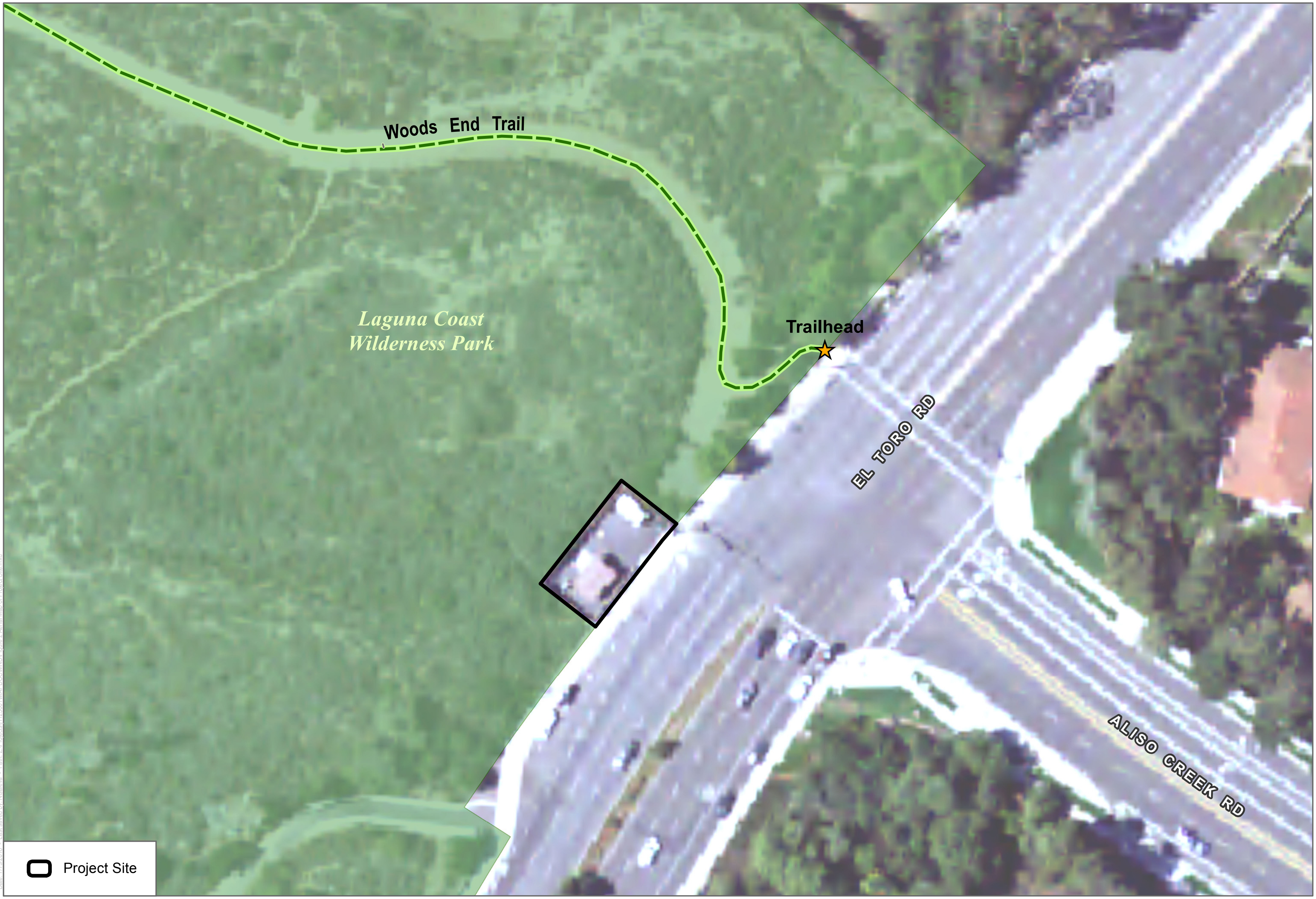

SOURCE: USDA 2016

DUDEK

0 35 70 Feet

FIGURE 2

Aerial Map of Project Site

El Toro Water District Oso Sewage Lift Station

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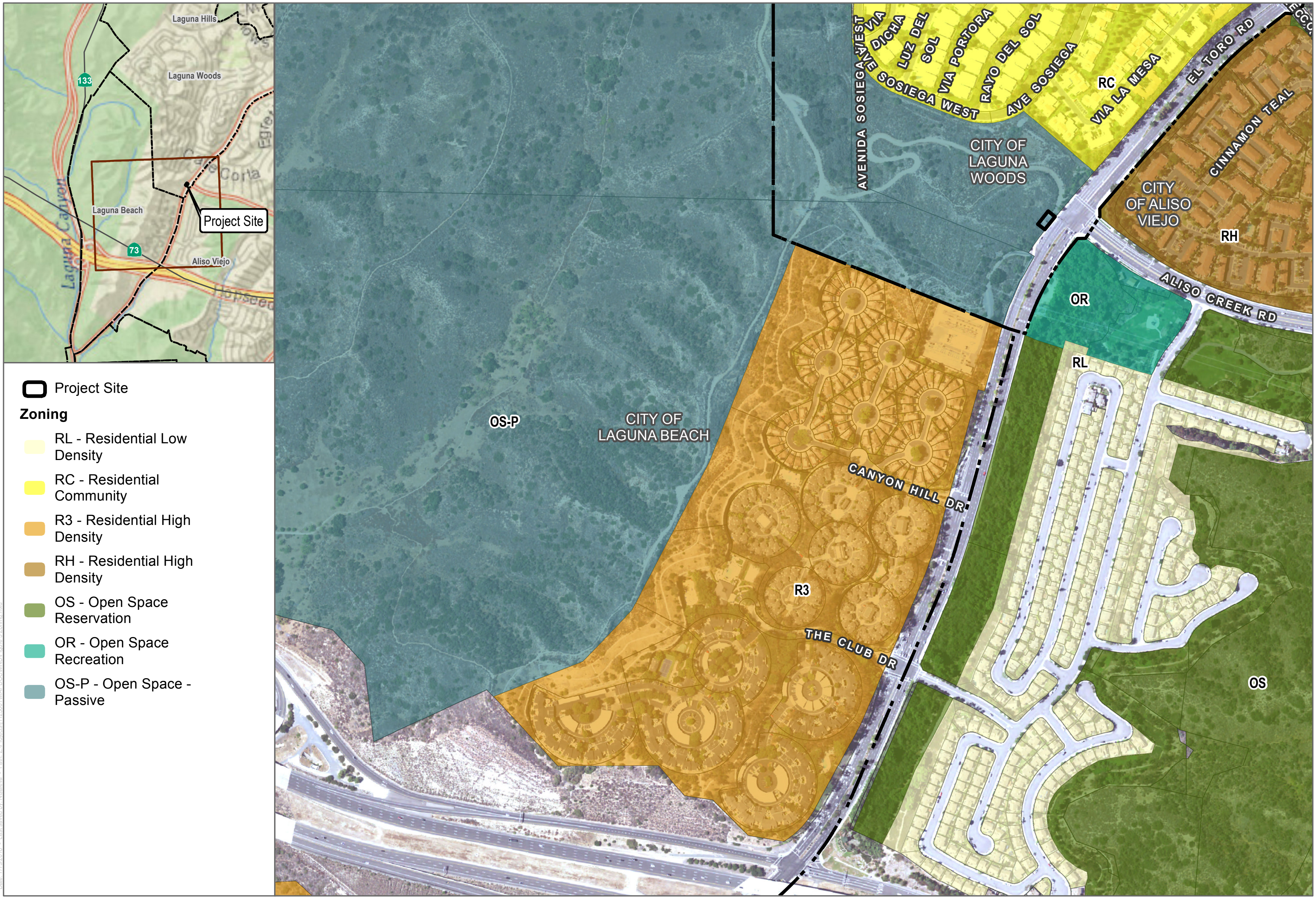

SOURCE: USDA 2016, City of Laguna Woods 2017, City of Aliso Viejo 2014, City of Laguna Beach 2009

DUDEK

0 250 500 Feet

FIGURE 3

Zoning

El Toro Water District Oso Sewage Lift Station

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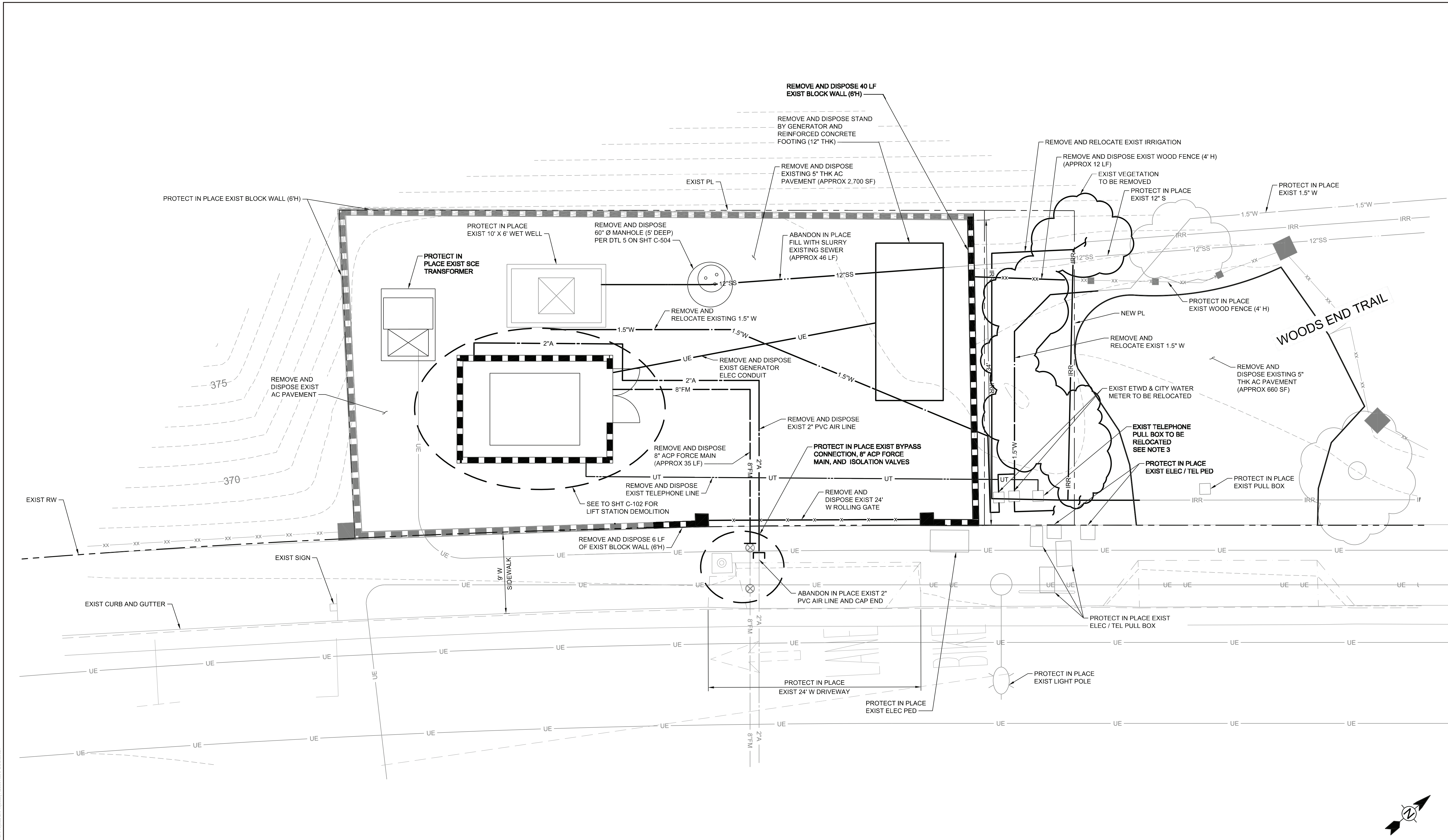

SOURCE: Tetra Tech 2018

DUDEK

FIGURE 4

Existing Site Plan

El Toro Water District Oso Sewage Lift Station

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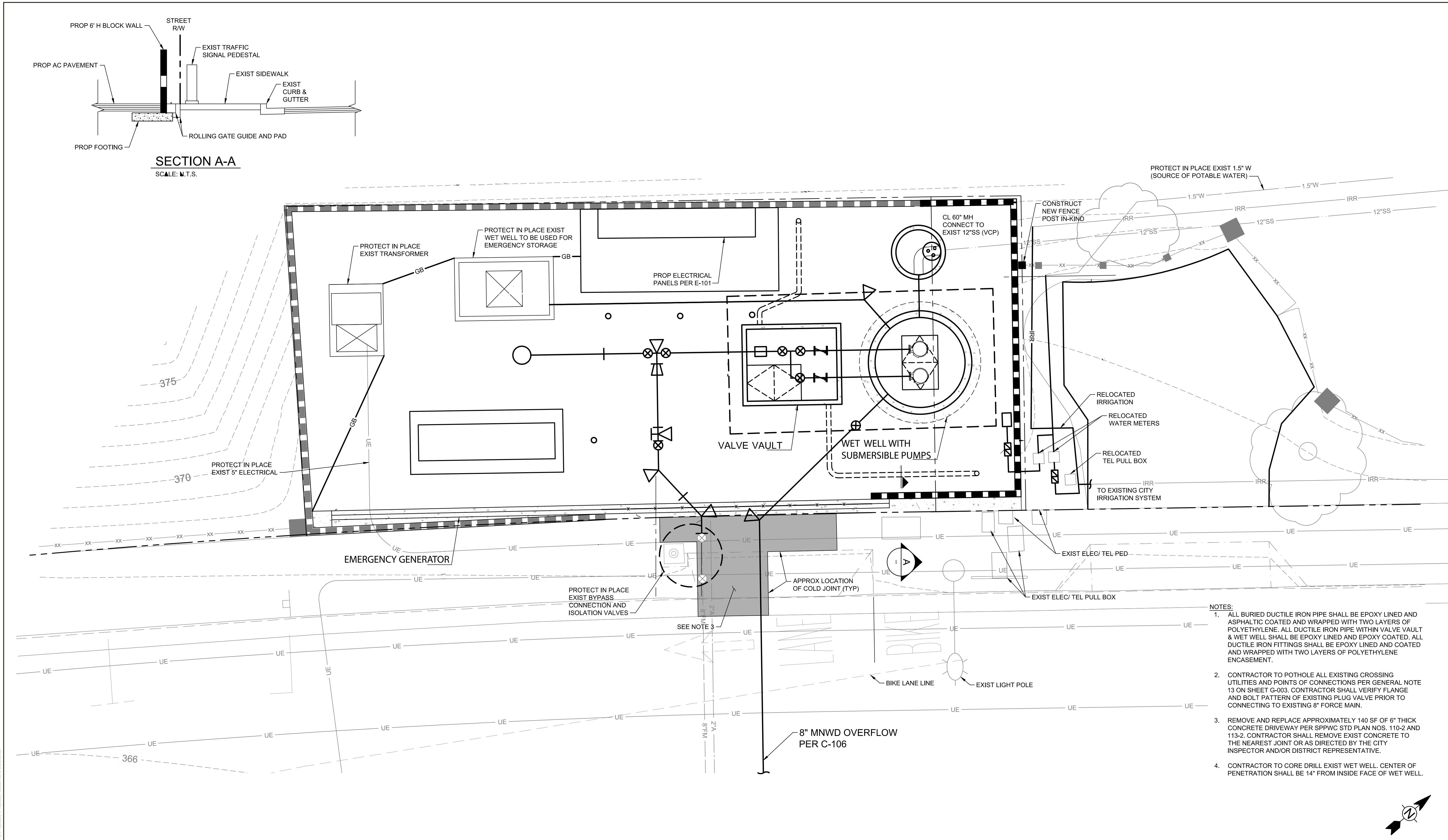

NOTES:

1. ALL BURIED DUCTILE IRON PIPE SHALL BE EPOXY LINED AND ASPHALTIC COATED AND WRAPPED WITH TWO LAYERS OF POLYETHYLENE. ALL DUCTILE IRON PIPE WITHIN VALVE VAULT & WET WELL SHALL BE EPOXY LINED AND EPOXY COATED. ALL DUCTILE IRON FITTINGS SHALL BE EPOXY LINED AND COATED AND WRAPPED WITH TWO LAYERS OF POLYETHYLENE ENCASEMENT.
2. CONTRACTOR TO POTHOLE ALL EXISTING CROSSING UTILITIES AND POINTS OF CONNECTIONS PER GENERAL NOTE 13 ON SHEET G-003. CONTRACTOR SHALL VERIFY FLANGE AND BOLT PATTERN OF EXISTING PLUG VALVE PRIOR TO CONNECTING TO EXISTING 8" FORCE MAIN.
3. REMOVE AND REPLACE APPROXIMATELY 140 SF OF 6" THICK CONCRETE DRIVEWAY PER SPPWC STD PLAN NOS. 110-2 AND 113-2. CONTRACTOR SHALL REMOVE EXIST CONCRETE TO THE NEAREST JOINT OR AS DIRECTED BY THE CITY INSPECTOR AND/OR DISTRICT REPRESENTATIVE.
4. CONTRACTOR TO CORE DRILL EXIST WET WELL. CENTER OF PENETRATION SHALL BE 14" FROM INSIDE FACE OF WET WELL.

SOURCE: Tetra Tech 2018

DUDEK

FIGURE 5

Proposed Site Plan

El Toro Water District Oso Sewage Lift Station

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APPENDIX A

Air Quality and Greenhouse Gas Emissions Calculations

El Toro Water District Oso Lift Station - Existing

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1,000.00	User Defined Unit	5.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	13			**Operational Year**	2000
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Modeling of emergency generator only.

Construction Phase - No construction.

Off-road Equipment - No construction.

Off-road Equipment - No construction.

Grading - No construction.

Trips and VMT - No construction.

Stationary Sources - Emergency Generators and Fire Pumps - Based on SCAQMD Permit No. R-D19945 A/N 211235.

Stationary Sources - Emergency Generators and Fire Pumps EF - Based on CalEEMod default emission factors for a 270 hp engine for year 1990.

Consumer Products - No consumer products.

Landscape Equipment - No landscaping.

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	0.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.11
tblStationaryGeneratorsPumpsEF	CO_EF	2.60	6.53
tblStationaryGeneratorsPumpsEF	CO2_EF	1.15	1.25
tblStationaryGeneratorsPumpsEF	NOX_EF	2.85	11.61
tblStationaryGeneratorsPumpsEF	PM10_EF	0.15	0.60
tblStationaryGeneratorsPumpsEF	PM2_5_EF	0.15	0.60
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.6367e-003
tblStationaryGeneratorsPumpsEF	SO2_EF	4.9000e-003	0.64
tblStationaryGeneratorsPumpsEF	TOG_EF	2.4700e-003	0.23
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	270.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	200.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	PhaseName		Architectural Coating

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Stationary	0.0520	0.5046	0.2838	0.0279		0.0259	0.0259		0.0259	0.0259	0.0000	22.4024	22.4024	4.2200e-003	0.0000	22.5078
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0520**	**0.5046**	**0.2838**	**0.0279**	**0.0000**	**0.0259**	**0.0259**	**0.0000**	**0.0259**	**0.0259**	**0.0000**	**22.4024**	**22.4024**	**4.2200e-003**	**0.0000**	**22.5078**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Stationary	0.0520	0.5046	0.2838	0.0279		0.0259	0.0259		0.0259	0.0259	0.0000	22.4024	22.4024	4.2200e-003	0.0000	22.5078
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0520**	**0.5046**	**0.2838**	**0.0279**	**0.0000**	**0.0259**	**0.0259**	**0.0000**	**0.0259**	**0.0259**	**0.0000**	**22.4024**	**22.4024**	**4.2200e-003**	**0.0000**	**22.5078**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	8/24/2019	9/18/2019	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48

<u>Trips and VMT</u>

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Architectural Coating - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.563301	0.087805	0.177371	0.086750	0.024607	0.005004	0.019215	0.027860	0.001385	0.001867	0.001946	0.000664	0.002226

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	200	270	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (175 - 300 HP)	0.0520	0.5046	0.2838	0.0279		0.0259	0.0259		0.0259	0.0259	0.0000	22.4024	22.4024	4.2200e-003	0.0000	22.5078
Total	**0.0520**	**0.5046**	**0.2838**	**0.0279**		**0.0259**	**0.0259**		**0.0259**	**0.0259**	**0.0000**	**22.4024**	**22.4024**	**4.2200e-003**	**0.0000**	**22.5078**

11.0 Vegetation

El Toro Water District Oso Lift Station - Existing

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1,000.00	User Defined Unit	5.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	13			**Operational Year**	2000
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Modeling of emergency generator only.

Construction Phase - No construction.

Off-road Equipment - No construction.

Off-road Equipment - No construction.

Grading - No construction.

Trips and VMT - No construction.

Stationary Sources - Emergency Generators and Fire Pumps - Based on SCAQMD Permit No. R-D19945 A/N 211235.

Stationary Sources - Emergency Generators and Fire Pumps EF - Based on CalEEMod default emission factors for a 270 hp engine for year 1990.

Consumer Products - No consumer products.

Landscape Equipment - No landscaping.

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	0.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.11
tblStationaryGeneratorsPumpsEF	CO_EF	2.60	6.53
tblStationaryGeneratorsPumpsEF	CO2_EF	1.15	1.25
tblStationaryGeneratorsPumpsEF	NOX_EF	2.85	11.61
tblStationaryGeneratorsPumpsEF	PM10_EF	0.15	0.60
tblStationaryGeneratorsPumpsEF	PM2_5_EF	0.15	0.60
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.6367e-003
tblStationaryGeneratorsPumpsEF	SO2_EF	4.9000e-003	0.64
tblStationaryGeneratorsPumpsEF	TOG_EF	2.4700e-003	0.23
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	270.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	200.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	PhaseName		Architectural Coating

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0254	1.2900e-003	0.1810	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004		0.2189	0.2189	1.4900e-003		0.2562
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Stationary	0.5197	5.0462	2.8375	0.2790		0.2590	0.2590		0.2590	0.2590		246.9436	246.9436	0.0465		248.1060
Total	**0.5451**	**5.0475**	**3.0185**	**0.2790**	**0.0000**	**0.2596**	**0.2596**	**0.0000**	**0.2596**	**0.2596**		**247.1625**	**247.1625**	**0.0480**	**0.0000**	**248.3622**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0254	1.2900e-003	0.1810	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004		0.2189	0.2189	1.4900e-003		0.2562
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Stationary	0.5197	5.0462	2.8375	0.2790		0.2590	0.2590		0.2590	0.2590		246.9436	246.9436	0.0465		248.1060
Total	**0.5451**	**5.0475**	**3.0185**	**0.2790**	**0.0000**	**0.2596**	**0.2596**	**0.0000**	**0.2596**	**0.2596**		**247.1625**	**247.1625**	**0.0480**	**0.0000**	**248.3622**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	8/24/2019	9/18/2019	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48

<u>Trips and VMT</u>

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Architectural Coating - 2019

<u>Unmitigated Construction On-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.563301	0.087805	0.177371	0.086750	0.024607	0.005004	0.019215	0.027860	0.001385	0.001867	0.001946	0.000664	0.002226

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0254	1.2900e-003	0.1810	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004		0.2189	0.2189	1.4900e-003		0.2562
Unmitigated	0.0254	1.2900e-003	0.1810	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004		0.2189	0.2189	1.4900e-003		0.2562

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0254	1.2900e-003	0.1810	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004		0.2189	0.2189	1.4900e-003		0.2562
Total	**0.0254**	**1.2900e-003**	**0.1810**	**1.0000e-005**		**6.4000e-004**	**6.4000e-004**		**6.4000e-004**	**6.4000e-004**		**0.2189**	**0.2189**	**1.4900e-003**		**0.2562**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0254	1.2900e-003	0.1810	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004		0.2189	0.2189	1.4900e-003		0.2562
Total	**0.0254**	**1.2900e-003**	**0.1810**	**1.0000e-005**		**6.4000e-004**	**6.4000e-004**		**6.4000e-004**	**6.4000e-004**		**0.2189**	**0.2189**	**1.4900e-003**		**0.2562**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	200	270	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (175 - 300 HP)	0.5197	5.0462	2.8375	0.2790		0.2590	0.2590		0.2590	0.2590		246.9436	246.9436	0.0465		248.1060
Total	**0.5197**	**5.0462**	**2.8375**	**0.2790**		**0.2590**	**0.2590**		**0.2590**	**0.2590**		**246.9436**	**246.9436**	**0.0465**		**248.1060**

11.0 Vegetation

El Toro Water District Oso Lift Station - Existing

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1,000.00	User Defined Unit	5.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	13			**Operational Year**	2000
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Modeling of emergency generator only.

Construction Phase - No construction.

Off-road Equipment - No construction.

Off-road Equipment - No construction.

Grading - No construction.

Trips and VMT - No construction.

Stationary Sources - Emergency Generators and Fire Pumps - Based on SCAQMD Permit No. R-D19945 A/N 211235.

Stationary Sources - Emergency Generators and Fire Pumps EF - Based on CalEEMod default emission factors for a 270 hp engine for year 1990.

Consumer Products - No consumer products.

Landscape Equipment - No landscaping.

El Toro Water District Oso Lift Station - Existing - South Coast AQMD Air District, Winter

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	0.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.11
tblStationaryGeneratorsPumpsEF	CO_EF	2.60	6.53
tblStationaryGeneratorsPumpsEF	CO2_EF	1.15	1.25
tblStationaryGeneratorsPumpsEF	NOX_EF	2.85	11.61
tblStationaryGeneratorsPumpsEF	PM10_EF	0.15	0.60
tblStationaryGeneratorsPumpsEF	PM2_5_EF	0.15	0.60
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.6367e-003
tblStationaryGeneratorsPumpsEF	SO2_EF	4.9000e-003	0.64
tblStationaryGeneratorsPumpsEF	TOG_EF	2.4700e-003	0.23
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	270.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	200.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	PhaseName		Architectural Coating

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0254	1.2900e-003	0.1810	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004		0.2189	0.2189	1.4900e-003		0.2562
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Stationary	0.5197	5.0462	2.8375	0.2790		0.2590	0.2590		0.2590	0.2590		246.9436	246.9436	0.0465		248.1060
Total	**0.5451**	**5.0475**	**3.0185**	**0.2790**	**0.0000**	**0.2596**	**0.2596**	**0.0000**	**0.2596**	**0.2596**		**247.1625**	**247.1625**	**0.0480**	**0.0000**	**248.3622**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0254	1.2900e-003	0.1810	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004		0.2189	0.2189	1.4900e-003		0.2562
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Stationary	0.5197	5.0462	2.8375	0.2790		0.2590	0.2590		0.2590	0.2590		246.9436	246.9436	0.0465		248.1060
Total	**0.5451**	**5.0475**	**3.0185**	**0.2790**	**0.0000**	**0.2596**	**0.2596**	**0.0000**	**0.2596**	**0.2596**		**247.1625**	**247.1625**	**0.0480**	**0.0000**	**248.3622**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	8/24/2019	9/18/2019	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.563301	0.087805	0.177371	0.086750	0.024607	0.005004	0.019215	0.027860	0.001385	0.001867	0.001946	0.000664	0.002226

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0254	1.2900e-003	0.1810	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004		0.2189	0.2189	1.4900e-003		0.2562
Unmitigated	0.0254	1.2900e-003	0.1810	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004		0.2189	0.2189	1.4900e-003		0.2562

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0254	1.2900e-003	0.1810	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004		0.2189	0.2189	1.4900e-003		0.2562
Total	**0.0254**	**1.2900e-003**	**0.1810**	**1.0000e-005**		**6.4000e-004**	**6.4000e-004**		**6.4000e-004**	**6.4000e-004**		**0.2189**	**0.2189**	**1.4900e-003**		**0.2562**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0254	1.2900e-003	0.1810	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004		0.2189	0.2189	1.4900e-003		0.2562
Total	**0.0254**	**1.2900e-003**	**0.1810**	**1.0000e-005**		**6.4000e-004**	**6.4000e-004**		**6.4000e-004**	**6.4000e-004**		**0.2189**	**0.2189**	**1.4900e-003**		**0.2562**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	200	270	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (175 - 300 HP)	0.5197	5.0462	2.8375	0.2790		0.2590	0.2590		0.2590	0.2590		246.9436	246.9436	0.0465		248.1060
Total	**0.5197**	**5.0462**	**2.8375**	**0.2790**		**0.2590**	**0.2590**		**0.2590**	**0.2590**		**246.9436**	**246.9436**	**0.0465**		**248.1060**

11.0 Vegetation

El Toro Water District Oso Lift Station - Project

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	2.10	1000sqft	0.05	2,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	13			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on project description.

Construction Phase - Based on project data needs from applicant.

Off-road Equipment - Based on project data needs from applicant.

Off-road Equipment - Based on project data needs from applicant.

Off-road Equipment - Based on project data needs from applicant.

Off-road Equipment - Based on project data needs from applicant.

Trips and VMT - Based on project data needs from applicant.

On-road Fugitive Dust - CalEEMod defaults.

Demolition - Based on demolition of the existing lift station.

Grading - No grading

Architectural Coating - No architectual coatings.

Vehicle Trips - No additional vehicle trips.

Consumer Products - No consumer products.

Landscape Equipment - No landscaping.

Energy Use - No additional energy use.

Water And Wastewater - No water use.

Solid Waste - No solid waste generation.

Construction Off-road Equipment Mitigation - In accordance with SCAQMD Rule 403, watering 3 times daily.

Stationary Sources - Emergency Generators and Fire Pumps - Replacement generator.

Stationary Sources - Emergency Generators and Fire Pumps EF -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	40
tblEnergyUse	LightingElect	2.83	0.00

tblEnergyUse	NT24E	4.27	0.00
tblEnergyUse	NT24NG	7.25	0.00
tblEnergyUse	T24E	1.21	0.00
tblEnergyUse	T24NG	4.31	0.00
tblOffRoadEquipment	HorsePower	402.00	200.00
tblOffRoadEquipment	HorsePower	402.00	200.00
tblOffRoadEquipment	HorsePower	402.00	200.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblSolidWaste	SolidWasteGenerationRate	2.60	0.00
tblTripsAndVMT	HaulingTripLength	20.00	22.80
tblTripsAndVMT	HaulingTripNumber	5.00	10.00
tblTripsAndVMT	VendorTripLength	6.90	9.70
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripLength	14.70	17.50
tblTripsAndVMT	WorkerTripLength	14.70	17.50
tblTripsAndVMT	WorkerTripLength	14.70	17.50
tblTripsAndVMT	WorkerTripLength	14.70	17.50

tblTripsAndVMT	WorkerTripNumber	23.00	20.00
tblTripsAndVMT	WorkerTripNumber	5.00	20.00
tblTripsAndVMT	WorkerTripNumber	1.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	20.00
tblVehicleTrips	ST_TR	1.50	0.00
tblVehicleTrips	SU_TR	1.50	0.00
tblVehicleTrips	WD_TR	1.50	0.00
tblWater	IndoorWaterUseRate	485,625.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0558	0.4951	0.3962	7.4000e-004	3.1300e-003	0.0278	0.0310	8.0000e-004	0.0272	0.0280	0.0000	65.1187	65.1187	9.2700e-003	0.0000	65.3504
2019	0.2446	2.2054	1.9168	3.6600e-003	0.0153	0.1183	0.1336	4.0500e-003	0.1158	0.1199	0.0000	318.9914	318.9914	0.0435	0.0000	320.0794
Maximum	**0.2446**	**2.2054**	**1.9168**	**3.6600e-003**	**0.0153**	**0.1183**	**0.1336**	**4.0500e-003**	**0.1158**	**0.1199**	**0.0000**	**318.9914**	**318.9914**	**0.0435**	**0.0000**	**320.0794**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0558	0.4951	0.3962	7.4000e-004	2.9500e-003	0.0278	0.0308	7.7000e-004	0.0272	0.0280	0.0000	65.1186	65.1186	9.2700e-003	0.0000	65.3503
2019	0.2446	2.2054	1.9168	3.6600e-003	0.0151	0.1183	0.1335	4.0200e-003	0.1158	0.1198	0.0000	318.9911	318.9911	0.0435	0.0000	320.0790
Maximum	**0.2446**	**2.2054**	**1.9168**	**3.6600e-003**	**0.0151**	**0.1183**	**0.1335**	**4.0200e-003**	**0.1158**	**0.1198**	**0.0000**	**318.9911**	**318.9911**	**0.0435**	**0.0000**	**320.0790**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**1.90**	**0.00**	**0.21**	**1.24**	**0.00**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**12-3-2018**	**3-2-2019**	1.5282	1.5282
2	**3-3-2019**	**6-2-2019**	1.4381	1.4381
		Highest	1.5282	1.5282

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.5600e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Stationary	0.0428	0.1197	0.1092	2.1000e-004		6.3000e-003	6.3000e-003		6.3000e-003	6.3000e-003	0.0000	19.8776	19.8776	2.7900e-003	0.0000	19.9473
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0514**	**0.1197**	**0.1092**	**2.1000e-004**	**0.0000**	**6.3000e-003**	**6.3000e-003**	**0.0000**	**6.3000e-003**	**6.3000e-003**	**0.0000**	**19.8777**	**19.8777**	**2.7900e-003**	**0.0000**	**19.9473**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.5600e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Stationary	0.0428	0.1197	0.1092	2.1000e-004		6.3000e-003	6.3000e-003		6.3000e-003	6.3000e-003	0.0000	19.8776	19.8776	2.7900e-003	0.0000	19.9473
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0514**	**0.1197**	**0.1092**	**2.1000e-004**	**0.0000**	**6.3000e-003**	**6.3000e-003**	**0.0000**	**6.3000e-003**	**6.3000e-003**	**0.0000**	**19.8777**	**19.8777**	**2.7900e-003**	**0.0000**	**19.9473**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

El Toro Water District Oso Lift Station - Project - South Coast AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/3/2018	1/25/2019	5	40	
2	Site Preparation	Site Preparation	1/25/2019	1/31/2019	5	5	
3	Building Construction	Building Construction	1/31/2019	5/22/2019	5	80	
4	Paving	Paving	5/22/2019	5/28/2019	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Air Compressors	1	4.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Cranes	1	8.00	231	0.29
Demolition	Excavators	1	8.00	158	0.38
Demolition	Generator Sets	2	24.00	84	0.74
Demolition	Off-Highway Trucks	1	1.00	200	0.38
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Demolition	Rubber Tired Loaders	1	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Rubber Tired Loaders	1	8.00	203	0.36

Site Preparation	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Air Compressors	1	8.00	78	0.48
Building Construction	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	0	6.00	89	0.20
Building Construction	Generator Sets	2	24.00	84	0.74
Building Construction	Off-Highway Trucks	1	1.00	200	0.38
Building Construction	Rubber Tired Loaders	1	8.00	203	0.36
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Crushing/Proc. Equipment	1	8.00	85	0.78
Paving	Off-Highway Trucks	1	1.00	200	0.38
Paving	Pavers	0	7.00	130	0.42
Paving	Paving Equipment	1	4.00	132	0.36
Paving	Plate Compactors	1	8.00	8	0.43
Paving	Rollers	0	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	9	20.00	0.00	10.00	17.50	6.90	22.80	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	20.00	0.00	0.00	17.50	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	20.00	2.00	0.00	17.50	9.70	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	20.00	0.00	0.00	17.50	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2018

<u>Unmitigated Construction On-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.0000e-004	0.0000	3.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0545	0.4931	0.3846	7.1000e-004		0.0278	0.0278		0.0272	0.0272	0.0000	62.2691	62.2691	9.1600e-003	0.0000	62.4982
Total	**0.0545**	**0.4931**	**0.3846**	**7.1000e-004**	**3.0000e-004**	**0.0278**	**0.0281**	**5.0000e-005**	**0.0272**	**0.0273**	**0.0000**	**62.2691**	**62.2691**	**9.1600e-003**	**0.0000**	**62.4982**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-005	9.1000e-004	1.7000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.2270	0.2270	2.0000e-005	0.0000	0.2274
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2800e-003	1.0700e-003	0.0114	3.0000e-005	2.7400e-003	2.0000e-005	2.7600e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.6226	2.6226	9.0000e-005	0.0000	2.6248
Total	**1.3100e-003**	**1.9800e-003**	**0.0116**	**3.0000e-005**	**2.8300e-003**	**2.0000e-005**	**2.8500e-003**	**7.5000e-004**	**2.0000e-005**	**7.8000e-004**	**0.0000**	**2.8496**	**2.8496**	**1.1000e-004**	**0.0000**	**2.8522**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.2000e-004	0.0000	1.2000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0545	0.4931	0.3846	7.1000e-004		0.0278	0.0278		0.0272	0.0272	0.0000	62.2690	62.2690	9.1600e-003	0.0000	62.4981
Total	**0.0545**	**0.4931**	**0.3846**	**7.1000e-004**	**1.2000e-004**	**0.0278**	**0.0279**	**2.0000e-005**	**0.0272**	**0.0272**	**0.0000**	**62.2690**	**62.2690**	**9.1600e-003**	**0.0000**	**62.4981**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-005	9.1000e-004	1.7000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.2270	0.2270	2.0000e-005	0.0000	0.2274
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2800e-003	1.0700e-003	0.0114	3.0000e-005	2.7400e-003	2.0000e-005	2.7600e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.6226	2.6226	9.0000e-005	0.0000	2.6248
Total	**1.3100e-003**	**1.9800e-003**	**0.0116**	**3.0000e-005**	**2.8300e-003**	**2.0000e-005**	**2.8500e-003**	**7.5000e-004**	**2.0000e-005**	**7.8000e-004**	**0.0000**	**2.8496**	**2.8496**	**1.1000e-004**	**0.0000**	**2.8522**

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0437	0.4049	0.3433	6.4000e-004		0.0217	0.0217		0.0213	0.0213	0.0000	56.0593	56.0593	7.9500e-003	0.0000	56.2581
Total	**0.0437**	**0.4049**	**0.3433**	**6.4000e-004**	**2.7000e-004**	**0.0217**	**0.0220**	**4.0000e-005**	**0.0213**	**0.0213**	**0.0000**	**56.0593**	**56.0593**	**7.9500e-003**	**0.0000**	**56.2581**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	7.8000e-004	1.5000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.2030	0.2030	1.0000e-005	0.0000	0.2033
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0500e-003	8.5000e-004	9.2500e-003	3.0000e-005	2.4800e-003	2.0000e-005	2.5000e-003	6.6000e-004	2.0000e-005	6.8000e-004	0.0000	2.2979	2.2979	7.0000e-005	0.0000	2.2997
Total	**1.0700e-003**	**1.6300e-003**	**9.4000e-003**	**3.0000e-005**	**2.5700e-003**	**2.0000e-005**	**2.5900e-003**	**6.8000e-004**	**2.0000e-005**	**7.1000e-004**	**0.0000**	**2.5009**	**2.5009**	**8.0000e-005**	**0.0000**	**2.5030**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1000e-004	0.0000	1.1000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0437	0.4049	0.3433	6.4000e-004		0.0217	0.0217		0.0213	0.0213	0.0000	56.0592	56.0592	7.9500e-003	0.0000	56.2580
Total	**0.0437**	**0.4049**	**0.3433**	**6.4000e-004**	**1.1000e-004**	**0.0217**	**0.0218**	**2.0000e-005**	**0.0213**	**0.0213**	**0.0000**	**56.0592**	**56.0592**	**7.9500e-003**	**0.0000**	**56.2580**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	7.8000e-004	1.5000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.2030	0.2030	1.0000e-005	0.0000	0.2033
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0500e-003	8.5000e-004	9.2500e-003	3.0000e-005	2.4800e-003	2.0000e-005	2.5000e-003	6.6000e-004	2.0000e-005	6.8000e-004	0.0000	2.2979	2.2979	7.0000e-005	0.0000	2.2997
Total	**1.0700e-003**	**1.6300e-003**	**9.4000e-003**	**3.0000e-005**	**2.5700e-003**	**2.0000e-005**	**2.5900e-003**	**6.8000e-004**	**2.0000e-005**	**7.1000e-004**	**0.0000**	**2.5009**	**2.5009**	**8.0000e-005**	**0.0000**	**2.5030**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2100e-003	0.0149	7.6700e-003	2.0000e-005		5.3000e-004	5.3000e-004		4.9000e-004	4.9000e-004	0.0000	1.8675	1.8675	5.9000e-004	0.0000	1.8823
Total	**1.2100e-003**	**0.0149**	**7.6700e-003**	**2.0000e-005**	**0.0000**	**5.3000e-004**	**5.3000e-004**	**0.0000**	**4.9000e-004**	**4.9000e-004**	**0.0000**	**1.8675**	**1.8675**	**5.9000e-004**	**0.0000**	**1.8823**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.2000e-004	2.4300e-003	1.0000e-005	6.5000e-004	1.0000e-005	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.6047	0.6047	2.0000e-005	0.0000	0.6052
Total	**2.8000e-004**	**2.2000e-004**	**2.4300e-003**	**1.0000e-005**	**6.5000e-004**	**1.0000e-005**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.6047**	**0.6047**	**2.0000e-005**	**0.0000**	**0.6052**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2100e-003	0.0149	7.6700e-003	2.0000e-005		5.3000e-004	5.3000e-004		4.9000e-004	4.9000e-004	0.0000	1.8675	1.8675	5.9000e-004	0.0000	1.8823
Total	**1.2100e-003**	**0.0149**	**7.6700e-003**	**2.0000e-005**	**0.0000**	**5.3000e-004**	**5.3000e-004**	**0.0000**	**4.9000e-004**	**4.9000e-004**	**0.0000**	**1.8675**	**1.8675**	**5.9000e-004**	**0.0000**	**1.8823**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.2000e-004	2.4300e-003	1.0000e-005	6.5000e-004	1.0000e-005	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.6047	0.6047	2.0000e-005	0.0000	0.6052
Total	**2.8000e-004**	**2.2000e-004**	**2.4300e-003**	**1.0000e-005**	**6.5000e-004**	**1.0000e-005**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.6047**	**0.6047**	**2.0000e-005**	**0.0000**	**0.6052**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1912	1.7538	1.4946	2.7900e-003		0.0949	0.0949		0.0930	0.0930	0.0000	242.8477	242.8477	0.0341	0.0000	243.6992
Total	**0.1912**	**1.7538**	**1.4946**	**2.7900e-003**		**0.0949**	**0.0949**		**0.0930**	**0.0930**	**0.0000**	**242.8477**	**242.8477**	**0.0341**	**0.0000**	**243.6992**

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.9000e-004	0.0111	2.7600e-003	3.0000e-005	7.1000e-004	8.0000e-005	7.9000e-004	2.0000e-004	8.0000e-005	2.8000e-004	0.0000	2.6062	2.6062	1.6000e-004	0.0000	2.6101
Worker	4.4300e-003	3.6000e-003	0.0389	1.1000e-004	0.0105	8.0000e-005	0.0105	2.7700e-003	8.0000e-005	2.8500e-003	0.0000	9.6754	9.6754	3.0000e-004	0.0000	9.6828
Total	**4.8200e-003**	**0.0147**	**0.0417**	**1.4000e-004**	**0.0112**	**1.6000e-004**	**0.0113**	**2.9700e-003**	**1.6000e-004**	**3.1300e-003**	**0.0000**	**12.2815**	**12.2815**	**4.6000e-004**	**0.0000**	**12.2930**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1912	1.7538	1.4946	2.7900e-003		0.0949	0.0949		0.0930	0.0930	0.0000	242.8474	242.8474	0.0341	0.0000	243.6989
Total	**0.1912**	**1.7538**	**1.4946**	**2.7900e-003**		**0.0949**	**0.0949**		**0.0930**	**0.0930**	**0.0000**	**242.8474**	**242.8474**	**0.0341**	**0.0000**	**243.6989**

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.9000e-004	0.0111	2.7600e-003	3.0000e-005	7.1000e-004	8.0000e-005	7.9000e-004	2.0000e-004	8.0000e-005	2.8000e-004	0.0000	2.6062	2.6062	1.6000e-004	0.0000	2.6101
Worker	4.4300e-003	3.6000e-003	0.0389	1.1000e-004	0.0105	8.0000e-005	0.0105	2.7700e-003	8.0000e-005	2.8500e-003	0.0000	9.6754	9.6754	3.0000e-004	0.0000	9.6828
Total	**4.8200e-003**	**0.0147**	**0.0417**	**1.4000e-004**	**0.0112**	**1.6000e-004**	**0.0113**	**2.9700e-003**	**1.6000e-004**	**3.1300e-003**	**0.0000**	**12.2815**	**12.2815**	**4.6000e-004**	**0.0000**	**12.2930**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0100e-003	0.0151	0.0152	3.0000e-005		9.2000e-004	9.2000e-004		9.0000e-004	9.0000e-004	0.0000	2.2252	2.2252	3.3000e-004	0.0000	2.2335
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0100e-003**	**0.0151**	**0.0152**	**3.0000e-005**		**9.2000e-004**	**9.2000e-004**		**9.0000e-004**	**9.0000e-004**	**0.0000**	**2.2252**	**2.2252**	**3.3000e-004**	**0.0000**	**2.2335**

3.5 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.2000e-004	2.4300e-003	1.0000e-005	6.5000e-004	1.0000e-005	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.6047	0.6047	2.0000e-005	0.0000	0.6052
Total	**2.8000e-004**	**2.2000e-004**	**2.4300e-003**	**1.0000e-005**	**6.5000e-004**	**1.0000e-005**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.6047**	**0.6047**	**2.0000e-005**	**0.0000**	**0.6052**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0100e-003	0.0151	0.0152	3.0000e-005		9.2000e-004	9.2000e-004		9.0000e-004	9.0000e-004	0.0000	2.2252	2.2252	3.3000e-004	0.0000	2.2335
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0100e-003**	**0.0151**	**0.0152**	**3.0000e-005**		**9.2000e-004**	**9.2000e-004**		**9.0000e-004**	**9.0000e-004**	**0.0000**	**2.2252**	**2.2252**	**3.3000e-004**	**0.0000**	**2.2335**

3.5 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.2000e-004	2.4300e-003	1.0000e-005	6.5000e-004	1.0000e-005	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.6047	0.6047	2.0000e-005	0.0000	0.6052
Total	**2.8000e-004**	**2.2000e-004**	**2.4300e-003**	**1.0000e-005**	**6.5000e-004**	**1.0000e-005**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.6047**	**0.6047**	**2.0000e-005**	**0.0000**	**0.6052**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.5600e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Unmitigated	8.5600e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.7000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.5900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Total	**8.5600e-003**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**6.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.7000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.5900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Total	**8.5600e-003**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**6.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	200	261	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (175 - 300 HP)	0.0428	0.1197	0.1092	2.1000e-004		6.3000e-003	6.3000e-003		6.3000e-003	6.3000e-003	0.0000	19.8776	19.8776	2.7900e-003	0.0000	19.9473
Total	**0.0428**	**0.1197**	**0.1092**	**2.1000e-004**		**6.3000e-003**	**6.3000e-003**		**6.3000e-003**	**6.3000e-003**	**0.0000**	**19.8776**	**19.8776**	**2.7900e-003**	**0.0000**	**19.9473**

11.0 Vegetation

El Toro Water District Oso Lift Station - Project

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	2.10	1000sqft	0.05	2,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	13			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on project description.

Construction Phase - Based on project data needs from applicant.

Off-road Equipment - Based on project data needs from applicant.

Off-road Equipment - Based on project data needs from applicant.

Off-road Equipment - Based on project data needs from applicant.

Off-road Equipment - Based on project data needs from applicant.

Trips and VMT - Based on project data needs from applicant.

On-road Fugitive Dust - CalEEMod defaults.

Demolition - Based on demolition of the existing lift station.

Grading - No grading

Architectural Coating - No architectual coatings.

Vehicle Trips - No additional vehicle trips.

Consumer Products - No consumer products.

Landscape Equipment - No landscaping.

Energy Use - No additional energy use.

Water And Wastewater - No water use.

Solid Waste - No solid waste generation.

Construction Off-road Equipment Mitigation - In accordance with SCAQMD Rule 403, watering 3 times daily.

Stationary Sources - Emergency Generators and Fire Pumps - Replacement generator.

Stationary Sources - Emergency Generators and Fire Pumps EF -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	40
tblEnergyUse	LightingElect	2.83	0.00

tblEnergyUse	NT24E	4.27	0.00
tblEnergyUse	NT24NG	7.25	0.00
tblEnergyUse	T24E	1.21	0.00
tblEnergyUse	T24NG	4.31	0.00
tblOffRoadEquipment	HorsePower	402.00	200.00
tblOffRoadEquipment	HorsePower	402.00	200.00
tblOffRoadEquipment	HorsePower	402.00	200.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblSolidWaste	SolidWasteGenerationRate	2.60	0.00
tblTripsAndVMT	HaulingTripLength	20.00	22.80
tblTripsAndVMT	HaulingTripNumber	5.00	10.00
tblTripsAndVMT	VendorTripLength	6.90	9.70
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripLength	14.70	17.50
tblTripsAndVMT	WorkerTripLength	14.70	17.50
tblTripsAndVMT	WorkerTripLength	14.70	17.50
tblTripsAndVMT	WorkerTripLength	14.70	17.50

tblTripsAndVMT	WorkerTripNumber	23.00	20.00
tblTripsAndVMT	WorkerTripNumber	5.00	20.00
tblTripsAndVMT	WorkerTripNumber	1.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	20.00
tblVehicleTrips	ST_TR	1.50	0.00
tblVehicleTrips	SU_TR	1.50	0.00
tblVehicleTrips	WD_TR	1.50	0.00
tblWater	IndoorWaterUseRate	485,625.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.3146	47.1399	37.8187	0.0709	0.3032	2.6508	2.9540	0.0771	2.5939	2.6710	0.0000	6,850.5260	6,850.5260	0.9732	0.0000	6,874.8566
2019	5.8189	50.2986	45.6270	0.0864	0.5700	2.7472	3.2973	0.1479	2.6913	2.8376	0.0000	8,306.5226	8,306.5226	1.2208	0.0000	8,334.1952
Maximum	**5.8189**	**50.2986**	**45.6270**	**0.0864**	**0.5700**	**2.7472**	**3.2973**	**0.1479**	**2.6913**	**2.8376**	**0.0000**	**8,306.5226**	**8,306.5226**	**1.2208**	**0.0000**	**8,334.1952**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.3146	47.1399	37.8187	0.0709	0.2857	2.6508	2.9365	0.0745	2.5939	2.6684	0.0000	6,850.5260	6,850.5260	0.9732	0.0000	6,874.8566
2019	5.8189	50.2986	45.6270	0.0864	0.5525	2.7472	3.2973	0.1463	2.6913	2.8376	0.0000	8,306.5226	8,306.5226	1.2208	0.0000	8,334.1952
Maximum	**5.8189**	**50.2986**	**45.6270**	**0.0864**	**0.5525**	**2.7472**	**3.2973**	**0.1463**	**2.6913**	**2.8376**	**0.0000**	**8,306.5226**	**8,306.5226**	**1.2208**	**0.0000**	**8,334.1952**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**4.01**	**0.00**	**0.28**	**1.87**	**0.00**	**0.05**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0469	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		4.9000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Stationary	0.4283	1.1971	1.0921	2.0600e-003		0.0630	0.0630		0.0630	0.0630		219.1132	219.1132	0.0307		219.8812
Total	**0.4753**	**1.1971**	**1.0923**	**2.0600e-003**	**0.0000**	**0.0630**	**0.0630**	**0.0000**	**0.0630**	**0.0630**		**219.1137**	**219.1137**	**0.0307**	**0.0000**	**219.8817**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0469	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		4.9000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Stationary	0.4283	1.1971	1.0921	2.0600e-003		0.0630	0.0630		0.0630	0.0630		219.1132	219.1132	0.0307		219.8812
Total	**0.4753**	**1.1971**	**1.0923**	**2.0600e-003**	**0.0000**	**0.0630**	**0.0630**	**0.0000**	**0.0630**	**0.0630**		**219.1137**	**219.1137**	**0.0307**	**0.0000**	**219.8817**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/3/2018	1/25/2019	5	40	
2	Site Preparation	Site Preparation	1/25/2019	1/31/2019	5	5	
3	Building Construction	Building Construction	1/31/2019	5/22/2019	5	80	
4	Paving	Paving	5/22/2019	5/28/2019	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Air Compressors	1	4.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Cranes	1	8.00	231	0.29
Demolition	Excavators	1	8.00	158	0.38
Demolition	Generator Sets	2	24.00	84	0.74
Demolition	Off-Highway Trucks	1	1.00	200	0.38
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Demolition	Rubber Tired Loaders	1	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Rubber Tired Loaders	1	8.00	203	0.36
Site Preparation	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Air Compressors	1	8.00	78	0.48
Building Construction	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	0	6.00	89	0.20

Building Construction	Generator Sets	2	24.00	84	0.74
Building Construction	Off-Highway Trucks	1	1.00	200	0.38
Building Construction	Rubber Tired Loaders	1	8.00	203	0.36
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Crushing/Proc. Equipment	1	8.00	85	0.78
Paving	Off-Highway Trucks	1	1.00	200	0.38
Paving	Pavers	0	7.00	130	0.42
Paving	Paving Equipment	1	4.00	132	0.36
Paving	Plate Compactors	1	8.00	8	0.43
Paving	Rollers	0	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	9	20.00	0.00	10.00	17.50	6.90	22.80	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	20.00	0.00	0.00	17.50	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	20.00	2.00	0.00	17.50	9.70	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	20.00	0.00	0.00	17.50	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0287	0.0000	0.0287	4.3400e-003	0.0000	4.3400e-003			0.0000			0.0000
Off-Road	5.1892	46.9652	36.6271	0.0678		2.6484	2.6484		2.5917	2.5917		6,537.1364	6,537.1364	0.9618		6,561.1824
Total	**5.1892**	**46.9652**	**36.6271**	**0.0678**	**0.0287**	**2.6484**	**2.6771**	**4.3400e-003**	**2.5917**	**2.5960**		**6,537.1364**	**6,537.1364**	**0.9618**		**6,561.1824**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.4000e-003	0.0841	0.0158	2.2000e-004	8.3900e-003	3.3000e-004	8.7200e-003	2.2000e-003	3.2000e-004	2.5200e-003		23.9956	23.9956	1.6000e-003		24.0355
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1230	0.0905	1.1758	2.9100e-003	0.2661	2.1000e-003	0.2682	0.0706	1.9300e-003	0.0725		289.3940	289.3940	9.7900e-003		289.6388
Total	**0.1254**	**0.1746**	**1.1916**	**3.1300e-003**	**0.2745**	**2.4300e-003**	**0.2769**	**0.0728**	**2.2500e-003**	**0.0750**		**313.3896**	**313.3896**	**0.0114**		**313.6743**

3.2 Demolition - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0112	0.0000	0.0112	1.6900e-003	0.0000	1.6900e-003			0.0000			0.0000
Off-Road	5.1892	46.9652	36.6271	0.0678		2.6484	2.6484		2.5917	2.5917	0.0000	6,537.1364	6,537.1364	0.9618		6,561.1823
Total	**5.1892**	**46.9652**	**36.6271**	**0.0678**	**0.0112**	**2.6484**	**2.6596**	**1.6900e-003**	**2.5917**	**2.5934**	**0.0000**	**6,537.1364**	**6,537.1364**	**0.9618**		**6,561.1823**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.4000e-003	0.0841	0.0158	2.2000e-004	8.3900e-003	3.3000e-004	8.7200e-003	2.2000e-003	3.2000e-004	2.5200e-003		23.9956	23.9956	1.6000e-003		24.0355
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1230	0.0905	1.1758	2.9100e-003	0.2661	2.1000e-003	0.2682	0.0706	1.9300e-003	0.0725		289.3940	289.3940	9.7900e-003		289.6388
Total	**0.1254**	**0.1746**	**1.1916**	**3.1300e-003**	**0.2745**	**2.4300e-003**	**0.2769**	**0.0728**	**2.2500e-003**	**0.0750**		**313.3896**	**313.3896**	**0.0114**		**313.6743**

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0287	0.0000	0.0287	4.3400e-003	0.0000	4.3400e-003			0.0000			0.0000
Off-Road	4.6032	42.6214	36.1382	0.0678		2.2877	2.2877		2.2383	2.2383		6,504.7127	6,504.7127	0.9228		6,527.7822
Total	**4.6032**	**42.6214**	**36.1382**	**0.0678**	**0.0287**	**2.2877**	**2.3163**	**4.3400e-003**	**2.2383**	**2.2426**		**6,504.7127**	**6,504.7127**	**0.9228**		**6,527.7822**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.2700e-003	0.0794	0.0155	2.2000e-004	9.1400e-003	3.1000e-004	9.4500e-003	2.3900e-003	2.9000e-004	2.6800e-003		23.7130	23.7130	1.5800e-003		23.7524
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1118	0.0799	1.0531	2.8100e-003	0.2661	2.0500e-003	0.2681	0.0706	1.8900e-003	0.0725		280.2858	280.2858	8.7000e-003		280.5033
Total	**0.1141**	**0.1593**	**1.0686**	**3.0300e-003**	**0.2752**	**2.3600e-003**	**0.2776**	**0.0730**	**2.1800e-003**	**0.0751**		**303.9988**	**303.9988**	**0.0103**		**304.2557**

3.2 Demolition - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0112	0.0000	0.0112	1.6900e-003	0.0000	1.6900e-003			0.0000			0.0000
Off-Road	4.6032	42.6214	36.1382	0.0678		2.2877	2.2877		2.2383	2.2383	0.0000	6,504.7127	6,504.7127	0.9228		6,527.7822
Total	**4.6032**	**42.6214**	**36.1382**	**0.0678**	**0.0112**	**2.2877**	**2.2988**	**1.6900e-003**	**2.2383**	**2.2400**	**0.0000**	**6,504.7127**	**6,504.7127**	**0.9228**		**6,527.7822**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.2700e-003	0.0794	0.0155	2.2000e-004	9.1400e-003	3.1000e-004	9.4500e-003	2.3900e-003	2.9000e-004	2.6800e-003		23.7130	23.7130	1.5800e-003		23.7524
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1118	0.0799	1.0531	2.8100e-003	0.2661	2.0500e-003	0.2681	0.0706	1.8900e-003	0.0725		280.2858	280.2858	8.7000e-003		280.5033
Total	**0.1141**	**0.1593**	**1.0686**	**3.0300e-003**	**0.2752**	**2.3600e-003**	**0.2776**	**0.0730**	**2.1800e-003**	**0.0751**		**303.9988**	**303.9988**	**0.0103**		**304.2557**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.4834	5.9529	3.0689	8.3200e-003		0.2134	0.2134		0.1964	0.1964		823.4182	823.4182	0.2605		829.9313
Total	**0.4834**	**5.9529**	**3.0689**	**8.3200e-003**	**0.0000**	**0.2134**	**0.2134**	**0.0000**	**0.1964**	**0.1964**		**823.4182**	**823.4182**	**0.2605**		**829.9313**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1118	0.0799	1.0531	2.8100e-003	0.2661	2.0500e-003	0.2681	0.0706	1.8900e-003	0.0725		280.2858	280.2858	8.7000e-003		280.5033
Total	**0.1118**	**0.0799**	**1.0531**	**2.8100e-003**	**0.2661**	**2.0500e-003**	**0.2681**	**0.0706**	**1.8900e-003**	**0.0725**		**280.2858**	**280.2858**	**8.7000e-003**		**280.5033**

3.3 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.4834	5.9529	3.0689	8.3200e-003		0.2134	0.2134		0.1964	0.1964	0.0000	823.4182	823.4182	0.2605		829.9313
Total	**0.4834**	**5.9529**	**3.0689**	**8.3200e-003**	**0.0000**	**0.2134**	**0.2134**	**0.0000**	**0.1964**	**0.1964**	**0.0000**	**823.4182**	**823.4182**	**0.2605**		**829.9313**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1118	0.0799	1.0531	2.8100e-003	0.2661	2.0500e-003	0.2681	0.0706	1.8900e-003	0.0725		280.2858	280.2858	8.7000e-003		280.5033
Total	**0.1118**	**0.0799**	**1.0531**	**2.8100e-003**	**0.2661**	**2.0500e-003**	**0.2681**	**0.0706**	**1.8900e-003**	**0.0725**		**280.2858**	**280.2858**	**8.7000e-003**		**280.5033**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.7808	43.8450	37.3658	0.0698		2.3735	2.3735		2.3241	2.3241		6,692.3447	6,692.3447	0.9386		6,715.8105
Total	**4.7808**	**43.8450**	**37.3658**	**0.0698**		**2.3735**	**2.3735**		**2.3241**	**2.3241**		**6,692.3447**	**6,692.3447**	**0.9386**		**6,715.8105**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.5600e-003	0.2701	0.0660	6.8000e-004	0.0180	2.1000e-003	0.0201	5.1700e-003	2.0000e-003	7.1800e-003		72.4840	72.4840	4.2500e-003		72.5902
Worker	0.1118	0.0799	1.0531	2.8100e-003	0.2661	2.0500e-003	0.2681	0.0706	1.8900e-003	0.0725		280.2858	280.2858	8.7000e-003		280.5033
Total	**0.1214**	**0.3500**	**1.1191**	**3.4900e-003**	**0.2841**	**4.1500e-003**	**0.2882**	**0.0757**	**3.8900e-003**	**0.0796**		**352.7698**	**352.7698**	**0.0130**		**353.0935**

3.4 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day								lb/day		
Off-Road	4.7808	43.8450	37.3658	0.0698		2.3735	2.3735		2.3241	2.3241	0.0000	6,692.344 7	6,692.344 7	0.9386		6,715.810 5
Total	**4.7808**	**43.8450**	**37.3658**	**0.0698**		**2.3735**	**2.3735**		**2.3241**	**2.3241**	**0.0000**	**6,692.344 7**	**6,692.344 7**	**0.9386**		**6,715.810 5**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day								lb/day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.5600e-003	0.2701	0.0660	6.8000e-004	0.0180	2.1000e-003	0.0201	5.1700e-003	2.0000e-003	7.1800e-003		72.4840	72.4840	4.2500e-003		72.5902
Worker	0.1118	0.0799	1.0531	2.8100e-003	0.2661	2.0500e-003	0.2681	0.0706	1.8900e-003	0.0725		280.2858	280.2858	8.7000e-003		280.5033
Total	**0.1214**	**0.3500**	**1.1191**	**3.4900e-003**	**0.2841**	**4.1500e-003**	**0.2882**	**0.0757**	**3.8900e-003**	**0.0796**		**352.7698**	**352.7698**	**0.0130**		**353.0935**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8049	6.0238	6.0891	0.0104		0.3675	0.3675		0.3614	0.3614		981.1223	981.1223	0.1466		984.7880
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8049**	**6.0238**	**6.0891**	**0.0104**		**0.3675**	**0.3675**		**0.3614**	**0.3614**		**981.1223**	**981.1223**	**0.1466**		**984.7880**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1118	0.0799	1.0531	2.8100e-003	0.2661	2.0500e-003	0.2681	0.0706	1.8900e-003	0.0725		280.2858	280.2858	8.7000e-003		280.5033
Total	**0.1118**	**0.0799**	**1.0531**	**2.8100e-003**	**0.2661**	**2.0500e-003**	**0.2681**	**0.0706**	**1.8900e-003**	**0.0725**		**280.2858**	**280.2858**	**8.7000e-003**		**280.5033**

3.5 Paving - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8049	6.0238	6.0891	0.0104		0.3675	0.3675		0.3614	0.3614	0.0000	981.1223	981.1223	0.1466		984.7880
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8049**	**6.0238**	**6.0891**	**0.0104**		**0.3675**	**0.3675**		**0.3614**	**0.3614**	**0.0000**	**981.1223**	**981.1223**	**0.1466**		**984.7880**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1118	0.0799	1.0531	2.8100e-003	0.2661	2.0500e-003	0.2681	0.0706	1.8900e-003	0.0725		280.2858	280.2858	8.7000e-003		280.5033
Total	**0.1118**	**0.0799**	**1.0531**	**2.8100e-003**	**0.2661**	**2.0500e-003**	**0.2681**	**0.0706**	**1.8900e-003**	**0.0725**		**280.2858**	**280.2858**	**8.7000e-003**		**280.5033**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0469	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		4.9000e-004
Unmitigated	0.0469	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		4.9000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.3300e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0416					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		4.9000e-004
Total	**0.0469**	**0.0000**	**2.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.6000e-004**	**4.6000e-004**	**0.0000**		**4.9000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.3300e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0416					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		4.9000e-004
Total	**0.0469**	**0.0000**	**2.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.6000e-004**	**4.6000e-004**	**0.0000**		**4.9000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	200	261	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (175 - 300 HP)	0.4283	1.1971	1.0921	2.0600e-003		0.0630	0.0630		0.0630	0.0630		219.1132	219.1132	0.0307		219.8812
Total	**0.4283**	**1.1971**	**1.0921**	**2.0600e-003**		**0.0630**	**0.0630**		**0.0630**	**0.0630**		**219.1132**	**219.1132**	**0.0307**		**219.8812**

11.0 Vegetation

El Toro Water District Oso Lift Station - Project

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	2.10	1000sqft	0.05	2,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	13			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on project description.

Construction Phase - Based on project data needs from applicant.

Off-road Equipment - Based on project data needs from applicant.

Off-road Equipment - Based on project data needs from applicant.

Off-road Equipment - Based on project data needs from applicant.

Off-road Equipment - Based on project data needs from applicant.

Trips and VMT - Based on project data needs from applicant.

On-road Fugitive Dust - CalEEMod defaults.

Demolition - Based on demolition of the existing lift station.

Grading - No grading

Architectural Coating - No architectual coatings.

Vehicle Trips - No additional vehicle trips.

Consumer Products - No consumer products.

Landscape Equipment - No landscaping.

Energy Use - No additional energy use.

Water And Wastewater - No water use.

Solid Waste - No solid waste generation.

Construction Off-road Equipment Mitigation - In accordance with SCAQMD Rule 403, watering 3 times daily.

Stationary Sources - Emergency Generators and Fire Pumps - Replacement generator.

Stationary Sources - Emergency Generators and Fire Pumps EF -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	40
tblEnergyUse	LightingElect	2.83	0.00

tblEnergyUse	NT24E	4.27	0.00
tblEnergyUse	NT24NG	7.25	0.00
tblEnergyUse	T24E	1.21	0.00
tblEnergyUse	T24NG	4.31	0.00
tblOffRoadEquipment	HorsePower	402.00	200.00
tblOffRoadEquipment	HorsePower	402.00	200.00
tblOffRoadEquipment	HorsePower	402.00	200.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblSolidWaste	SolidWasteGenerationRate	2.60	0.00
tblTripsAndVMT	HaulingTripLength	20.00	22.80
tblTripsAndVMT	HaulingTripNumber	5.00	10.00
tblTripsAndVMT	VendorTripLength	6.90	9.70
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripLength	14.70	17.50
tblTripsAndVMT	WorkerTripLength	14.70	17.50
tblTripsAndVMT	WorkerTripLength	14.70	17.50
tblTripsAndVMT	WorkerTripLength	14.70	17.50

tblTripsAndVMT	WorkerTripNumber	23.00	20.00
tblTripsAndVMT	WorkerTripNumber	5.00	20.00
tblTripsAndVMT	WorkerTripNumber	1.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	20.00
tblVehicleTrips	ST_TR	1.50	0.00
tblVehicleTrips	SU_TR	1.50	0.00
tblVehicleTrips	WD_TR	1.50	0.00
tblWater	IndoorWaterUseRate	485,625.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.3264	47.1499	37.7031	0.0707	0.3032	2.6508	2.9540	0.0771	2.5939	2.6710	0.0000	6,831.4305	6,831.4305	0.9727	0.0000	6,855.7467
2019	5.8410	50.3158	45.4179	0.0860	0.5700	2.7472	3.2974	0.1479	2.6913	2.8376	0.0000	8,268.6320	8,268.6320	1.2199	0.0000	8,296.2819
Maximum	**5.8410**	**50.3158**	**45.4179**	**0.0860**	**0.5700**	**2.7472**	**3.2974**	**0.1479**	**2.6913**	**2.8376**	**0.0000**	**8,268.6320**	**8,268.6320**	**1.2199**	**0.0000**	**8,296.2819**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.3264	47.1499	37.7031	0.0707	0.2857	2.6508	2.9365	0.0745	2.5939	2.6684	0.0000	6,831.4305	6,831.4305	0.9727	0.0000	6,855.7466
2019	5.8410	50.3158	45.4179	0.0860	0.5525	2.7472	3.2974	0.1463	2.6913	2.8376	0.0000	8,268.6320	8,268.6320	1.2199	0.0000	8,296.2819
Maximum	**5.8410**	**50.3158**	**45.4179**	**0.0860**	**0.5525**	**2.7472**	**3.2974**	**0.1463**	**2.6913**	**2.8376**	**0.0000**	**8,268.6320**	**8,268.6320**	**1.2199**	**0.0000**	**8,296.2819**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**4.01**	**0.00**	**0.28**	**1.87**	**0.00**	**0.05**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0469	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		4.9000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Stationary	0.4283	1.1971	1.0921	2.0600e-003		0.0630	0.0630		0.0630	0.0630		219.1132	219.1132	0.0307		219.8812
Total	**0.4753**	**1.1971**	**1.0923**	**2.0600e-003**	**0.0000**	**0.0630**	**0.0630**	**0.0000**	**0.0630**	**0.0630**		**219.1137**	**219.1137**	**0.0307**	**0.0000**	**219.8817**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0469	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		4.9000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Stationary	0.4283	1.1971	1.0921	2.0600e-003		0.0630	0.0630		0.0630	0.0630		219.1132	219.1132	0.0307		219.8812
Total	**0.4753**	**1.1971**	**1.0923**	**2.0600e-003**	**0.0000**	**0.0630**	**0.0630**	**0.0000**	**0.0630**	**0.0630**		**219.1137**	**219.1137**	**0.0307**	**0.0000**	**219.8817**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/3/2018	1/25/2019	5	40	
2	Site Preparation	Site Preparation	1/25/2019	1/31/2019	5	5	
3	Building Construction	Building Construction	1/31/2019	5/22/2019	5	80	
4	Paving	Paving	5/22/2019	5/28/2019	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Air Compressors	1	4.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Cranes	1	8.00	231	0.29
Demolition	Excavators	1	8.00	158	0.38
Demolition	Generator Sets	2	24.00	84	0.74
Demolition	Off-Highway Trucks	1	1.00	200	0.38
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Demolition	Rubber Tired Loaders	1	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Rubber Tired Loaders	1	8.00	203	0.36
Site Preparation	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Air Compressors	1	8.00	78	0.48
Building Construction	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	0	6.00	89	0.20

Building Construction	Generator Sets	2	24.00	84	0.74
Building Construction	Off-Highway Trucks	1	1.00	200	0.38
Building Construction	Rubber Tired Loaders	1	8.00	203	0.36
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Crushing/Proc. Equipment	1	8.00	85	0.78
Paving	Off-Highway Trucks	1	1.00	200	0.38
Paving	Pavers	0	7.00	130	0.42
Paving	Paving Equipment	1	4.00	132	0.36
Paving	Plate Compactors	1	8.00	8	0.43
Paving	Rollers	0	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	9	20.00	0.00	10.00	17.50	6.90	22.80	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	20.00	0.00	0.00	17.50	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	20.00	2.00	0.00	17.50	9.70	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	20.00	0.00	0.00	17.50	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0287	0.0000	0.0287	4.3400e-003	0.0000	4.3400e-003			0.0000			0.0000
Off-Road	5.1892	46.9652	36.6271	0.0678		2.6484	2.6484		2.5917	2.5917		6,537.1364	6,537.1364	0.9618		6,561.1824
Total	**5.1892**	**46.9652**	**36.6271**	**0.0678**	**0.0287**	**2.6484**	**2.6771**	**4.3400e-003**	**2.5917**	**2.5960**		**6,537.1364**	**6,537.1364**	**0.9618**		**6,561.1824**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.4600e-003	0.0855	0.0170	2.2000e-004	8.3900e-003	3.4000e-004	8.7300e-003	2.2000e-003	3.3000e-004	2.5300e-003		23.6114	23.6114	1.6600e-003		23.6530
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1347	0.0992	1.0589	2.7200e-003	0.2661	2.1000e-003	0.2682	0.0706	1.9300e-003	0.0725		270.6827	270.6827	9.1500e-003		270.9113
Total	**0.1372**	**0.1847**	**1.0759**	**2.9400e-003**	**0.2745**	**2.4400e-003**	**0.2769**	**0.0728**	**2.2600e-003**	**0.0750**		**294.2941**	**294.2941**	**0.0108**		**294.5643**

3.2 Demolition - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0112	0.0000	0.0112	1.6900e-003	0.0000	1.6900e-003			0.0000			0.0000
Off-Road	5.1892	46.9652	36.6271	0.0678		2.6484	2.6484		2.5917	2.5917	0.0000	6,537.1364	6,537.1364	0.9618		6,561.1823
Total	**5.1892**	**46.9652**	**36.6271**	**0.0678**	**0.0112**	**2.6484**	**2.6596**	**1.6900e-003**	**2.5917**	**2.5934**	**0.0000**	**6,537.1364**	**6,537.1364**	**0.9618**		**6,561.1823**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.4600e-003	0.0855	0.0170	2.2000e-004	8.3900e-003	3.4000e-004	8.7300e-003	2.2000e-003	3.3000e-004	2.5300e-003		23.6114	23.6114	1.6600e-003		23.6530
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1347	0.0992	1.0589	2.7200e-003	0.2661	2.1000e-003	0.2682	0.0706	1.9300e-003	0.0725		270.6827	270.6827	9.1500e-003		270.9113
Total	**0.1372**	**0.1847**	**1.0759**	**2.9400e-003**	**0.2745**	**2.4400e-003**	**0.2769**	**0.0728**	**2.2600e-003**	**0.0750**		**294.2941**	**294.2941**	**0.0108**		**294.5643**

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0287	0.0000	0.0287	4.3400e-003	0.0000	4.3400e-003			0.0000			0.0000
Off-Road	4.6032	42.6214	36.1382	0.0678		2.2877	2.2877		2.2383	2.2383		6,504.7127	6,504.7127	0.9228		6,527.7822
Total	**4.6032**	**42.6214**	**36.1382**	**0.0678**	**0.0287**	**2.2877**	**2.3163**	**4.3400e-003**	**2.2383**	**2.2426**		**6,504.7127**	**6,504.7127**	**0.9228**		**6,527.7822**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.3400e-003	0.0807	0.0166	2.2000e-004	9.1400e-003	3.1000e-004	9.4500e-003	2.3900e-003	3.0000e-004	2.6800e-003		23.3288	23.3288	1.6400e-003		23.3698
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1227	0.0875	0.9454	2.6300e-003	0.2661	2.0500e-003	0.2681	0.0706	1.8900e-003	0.0725		262.1308	262.1308	8.1100e-003		262.3336
Total	**0.1250**	**0.1682**	**0.9620**	**2.8500e-003**	**0.2752**	**2.3600e-003**	**0.2776**	**0.0730**	**2.1900e-003**	**0.0751**		**285.4596**	**285.4596**	**9.7500e-003**		**285.7034**

3.2 Demolition - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0112	0.0000	0.0112	1.6900e-003	0.0000	1.6900e-003			0.0000			0.0000
Off-Road	4.6032	42.6214	36.1382	0.0678		2.2877	2.2877		2.2383	2.2383	0.0000	6,504.7127	6,504.7127	0.9228		6,527.7822
Total	**4.6032**	**42.6214**	**36.1382**	**0.0678**	**0.0112**	**2.2877**	**2.2988**	**1.6900e-003**	**2.2383**	**2.2400**	**0.0000**	**6,504.7127**	**6,504.7127**	**0.9228**		**6,527.7822**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.3400e-003	0.0807	0.0166	2.2000e-004	9.1400e-003	3.1000e-004	9.4500e-003	2.3900e-003	3.0000e-004	2.6800e-003		23.3288	23.3288	1.6400e-003		23.3698
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1227	0.0875	0.9454	2.6300e-003	0.2661	2.0500e-003	0.2681	0.0706	1.8900e-003	0.0725		262.1308	262.1308	8.1100e-003		262.3336
Total	**0.1250**	**0.1682**	**0.9620**	**2.8500e-003**	**0.2752**	**2.3600e-003**	**0.2776**	**0.0730**	**2.1900e-003**	**0.0751**		**285.4596**	**285.4596**	**9.7500e-003**		**285.7034**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.4834	5.9529	3.0689	8.3200e-003		0.2134	0.2134		0.1964	0.1964		823.4182	823.4182	0.2605		829.9313
Total	**0.4834**	**5.9529**	**3.0689**	**8.3200e-003**	**0.0000**	**0.2134**	**0.2134**	**0.0000**	**0.1964**	**0.1964**		**823.4182**	**823.4182**	**0.2605**		**829.9313**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1227	0.0875	0.9454	2.6300e-003	0.2661	2.0500e-003	0.2681	0.0706	1.8900e-003	0.0725		262.1308	262.1308	8.1100e-003		262.3336
Total	**0.1227**	**0.0875**	**0.9454**	**2.6300e-003**	**0.2661**	**2.0500e-003**	**0.2681**	**0.0706**	**1.8900e-003**	**0.0725**		**262.1308**	**262.1308**	**8.1100e-003**		**262.3336**

3.3 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.4834	5.9529	3.0689	8.3200e-003		0.2134	0.2134		0.1964	0.1964	0.0000	823.4182	823.4182	0.2605		829.9313
Total	**0.4834**	**5.9529**	**3.0689**	**8.3200e-003**	**0.0000**	**0.2134**	**0.2134**	**0.0000**	**0.1964**	**0.1964**	**0.0000**	**823.4182**	**823.4182**	**0.2605**		**829.9313**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1227	0.0875	0.9454	2.6300e-003	0.2661	2.0500e-003	0.2681	0.0706	1.8900e-003	0.0725		262.1308	262.1308	8.1100e-003		262.3336
Total	**0.1227**	**0.0875**	**0.9454**	**2.6300e-003**	**0.2661**	**2.0500e-003**	**0.2681**	**0.0706**	**1.8900e-003**	**0.0725**		**262.1308**	**262.1308**	**8.1100e-003**		**262.3336**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.7808	43.8450	37.3658	0.0698		2.3735	2.3735		2.3241	2.3241		6,692.3447	6,692.3447	0.9386		6,715.8105
Total	**4.7808**	**43.8450**	**37.3658**	**0.0698**		**2.3735**	**2.3735**		**2.3241**	**2.3241**		**6,692.3447**	**6,692.3447**	**0.9386**		**6,715.8105**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.9200e-003	0.2720	0.0722	6.7000e-004	0.0180	2.1200e-003	0.0201	5.1700e-003	2.0300e-003	7.2000e-003		70.9033	70.9033	4.5200e-003		71.0163
Worker	0.1227	0.0875	0.9454	2.6300e-003	0.2661	2.0500e-003	0.2681	0.0706	1.8900e-003	0.0725		262.1308	262.1308	8.1100e-003		262.3336
Total	**0.1326**	**0.3595**	**1.0176**	**3.3000e-003**	**0.2841**	**4.1700e-003**	**0.2882**	**0.0757**	**3.9200e-003**	**0.0797**		**333.0342**	**333.0342**	**0.0126**		**333.3499**

3.4 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.7808	43.8450	37.3658	0.0698		2.3735	2.3735		2.3241	2.3241	0.0000	6,692.3447	6,692.3447	0.9386		6,715.8105
Total	**4.7808**	**43.8450**	**37.3658**	**0.0698**		**2.3735**	**2.3735**		**2.3241**	**2.3241**	**0.0000**	**6,692.3447**	**6,692.3447**	**0.9386**		**6,715.8105**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.9200e-003	0.2720	0.0722	6.7000e-004	0.0180	2.1200e-003	0.0201	5.1700e-003	2.0300e-003	7.2000e-003		70.9033	70.9033	4.5200e-003		71.0163
Worker	0.1227	0.0875	0.9454	2.6300e-003	0.2661	2.0500e-003	0.2681	0.0706	1.8900e-003	0.0725		262.1308	262.1308	8.1100e-003		262.3336
Total	**0.1326**	**0.3595**	**1.0176**	**3.3000e-003**	**0.2841**	**4.1700e-003**	**0.2882**	**0.0757**	**3.9200e-003**	**0.0797**		**333.0342**	**333.0342**	**0.0126**		**333.3499**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8049	6.0238	6.0891	0.0104		0.3675	0.3675		0.3614	0.3614		981.1223	981.1223	0.1466		984.7880
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8049**	**6.0238**	**6.0891**	**0.0104**		**0.3675**	**0.3675**		**0.3614**	**0.3614**		**981.1223**	**981.1223**	**0.1466**		**984.7880**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1227	0.0875	0.9454	2.6300e-003	0.2661	2.0500e-003	0.2681	0.0706	1.8900e-003	0.0725		262.1308	262.1308	8.1100e-003		262.3336
Total	**0.1227**	**0.0875**	**0.9454**	**2.6300e-003**	**0.2661**	**2.0500e-003**	**0.2681**	**0.0706**	**1.8900e-003**	**0.0725**		**262.1308**	**262.1308**	**8.1100e-003**		**262.3336**

3.5 Paving - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8049	6.0238	6.0891	0.0104		0.3675	0.3675		0.3614	0.3614	0.0000	981.1223	981.1223	0.1466		984.7880
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8049**	**6.0238**	**6.0891**	**0.0104**		**0.3675**	**0.3675**		**0.3614**	**0.3614**	**0.0000**	**981.1223**	**981.1223**	**0.1466**		**984.7880**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1227	0.0875	0.9454	2.6300e-003	0.2661	2.0500e-003	0.2681	0.0706	1.8900e-003	0.0725		262.1308	262.1308	8.1100e-003		262.3336
Total	**0.1227**	**0.0875**	**0.9454**	**2.6300e-003**	**0.2661**	**2.0500e-003**	**0.2681**	**0.0706**	**1.8900e-003**	**0.0725**		**262.1308**	**262.1308**	**8.1100e-003**		**262.3336**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0469	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		4.9000e-004
Unmitigated	0.0469	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		4.9000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.3300e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0416					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		4.9000e-004
Total	**0.0469**	**0.0000**	**2.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.6000e-004**	**4.6000e-004**	**0.0000**		**4.9000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.3300e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0416					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		4.9000e-004
Total	**0.0469**	**0.0000**	**2.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.6000e-004**	**4.6000e-004**	**0.0000**		**4.9000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	200	261	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (175 - 300 HP)	0.4283	1.1971	1.0921	2.0600e-003		0.0630	0.0630		0.0630	0.0630		219.1132	219.1132	0.0307		219.8812
Total	**0.4283**	**1.1971**	**1.0921**	**2.0600e-003**		**0.0630**	**0.0630**		**0.0630**	**0.0630**		**219.1132**	**219.1132**	**0.0307**		**219.8812**

11.0 Vegetation

APPENDIX B

Biological Resources Assessment

DUDEK

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September 4, 2018 11250

Dennis Cafferty
Assistant General Manager/District Engineer
El Toro Water District Offices
24251 Los Alisos Boulevard
Lake Forest, California 92630

Subject: Biological Resources Assessment for the El Toro Water District Oso Lift Station Project, Orange County, California

Dear Mr. Cafferty:

This letter report documents the results of a biological resources assessment for the El Toro Water District (ETWD) Oso Lift Station Project (project) located in Orange County, California.

This letter report is intended to describe the existing conditions of biological resources within the project study area in terms of vegetation, flora, wildlife, and wildlife habitats; discuss potential impacts to biological resources that would result from development of the project; and provide mitigation measures to minimize potential impacts to special-status biological resources, if necessary.

1 INTRODUCTION

1.1 Project Location and Description

The project site is located within an existing ETWD service area in the southwestern portion of the City of Laguna Woods, Orange County, California (Figure 1, Project Location). The project site is located northwest of the intersection of El Toro Road and Aliso Creek Road. The proposed project would consist of replacing the existing Oso Lift Station with a new lift station. It would involve purchasing the unpaved area north of the existing facility to accommodate an expansion 10 feet north. The site lies within the U.S. Geological Survey 7.5-minute map, San Juan Capistrano Quadrangle, Section 06, Township 7 South, Range 8 West; Principal Meridian: San Bernardino (Figure 1).

ETWD currently provides domestic water; recycled water; and sanitary sewer collection, treatment, and disposal services to a population of nearly 50,000 in a 5,430-acre service area that includes portions of the Cities of Aliso Viejo, Lake Forest, Laguna Hills, and Mission Viejo, and all of the City of Laguna Woods. The existing pump station is old and poses significant maintenance cost and safety issues for the ETWD, and is nearing the end of its useful life. The new lift station would consist of a new pre-cast wet well with submersible pumps, a valve vault (including a meter), a back-up generator, and an outdoor electrical enclosure. The proposed expansion 10 feet north would occur within existing urban/disturbed land.

2 METHODS

Dudek biologists evaluated the biological resources within the construction footprint of the lift station plus a 500-foot buffer (the study area) (see Figure 2, Study Area). Data regarding biological resources present within the study area were obtained through a review of pertinent literature and field reconnaissance; both are described in detail below.

2.1 Literature Review

Prior to conducting the field reconnaissance, a literature review was conducted to identify listed and other special-status biological resources present or potentially present within the vicinity of the study area using the following sources: U.S. Fish and Wildlife Service (USFWS) Critical Habitat and Occurrence Data (USFWS 2018), California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CDFW 2018a, 2018b, 2018c), and California Native Plant Society's (CNPS) Online Inventory of Rare and Endangered Vascular Plants (CNPS 2018). Dudek also queried the California Natural Diversity Database and CNPS for special-status resources within the San Juan Capistrano U.S. Geological Survey 7.5-minute quadrangles, plus the eight surrounding quadrangle maps (CDFW 2018a, 2018b, 2018c; CNPS 2018). The quadrangles queried were San Juan Capistrano, San Clemente, Dana Point, Laguna Beach, Tustin, Canada Gobernadora, Santiago Peak, and El Toro.

For purposes of this report, listed species include those plant and wildlife species that are listed as threatened or endangered by either the California or federal Endangered Species Act. Special-status plants include listed species, candidates for listing, and species designated with a California Rare Plant Rank by CNPS. Special-status wildlife species include listed species; candidates for listing; and species with a designation from the CDFW of Watch List, Fully Protected, or Species of Concern (CDFW 2018d). Other special-status biological resources include vegetation communities that are considered to support unique stands, are of particular value to special-status plant or wildlife species, or have a rank of S1–S3 on the CDFW's List of Terrestrial Communities (CDFW 2010a). Unique vegetation communities include habitats found only in the region, local representatives of species not generally found in Orange County, or outstanding examples of CDFW special-status vegetation communities. Additionally, riparian areas, wetlands, bays, estuaries, marshes, and wildlife corridors are generally considered special-status biological resources.

2.2 Field Reconnaissance

The study area was surveyed by Dudek biologist Janice Wondolleck on July 18, 2018, to identify existing biological resources and potential biological constraints within the study area. During the field surveys, vegetation communities and land covers were catalogued and confirmed based on existing site conditions. Vegetation community classifications followed *Vegetation Alliances and Associations: Natural Communities List Arranged Alphabetically by Life Form* (Natural Communities List) (CDFW 2010a) based on the *Manual of California Vegetation*, second edition (Sawyer et al. 2009). Land covers not included in the Natural Communities List followed the Orange County Habitat Classification System (Gray and Bramlet 1992). A general inventory of plant and wildlife species detected by sight, calls, tracks, scat, or other field indicators were compiled, and a determination was made concerning the potential for special-status species to occur within the study area. Additionally, a preliminary investigation of the extent and distribution of U.S. Army Corps of Engineers jurisdictional waters of the U.S., Regional Water Quality Control Board jurisdictional waters of the state, and CDFW jurisdictional streambed and associated riparian habitat was conducted.

Latin names follow the *Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California* (Jepson Flora Project 2018), and common names follow the U.S. Department of Agriculture's Natural Resources Conservation Service Plants Database (USDA 2018). Latin and common names for plant species with a California Rare Plant Rank (CRPR) (formerly CNPS List) follow the CNPS online *Inventory of Rare, Threatened, and Endangered Plants of California* (CNPS 2018). Latin and common names for wildlife species follow Crother (2012) for reptiles and amphibians, the American Ornithological Society for birds (AOS 2017), Wilson and Reeder (2005) for mammals, and Emmel and Emmel (1973) for butterflies.

3 PHYSICAL CHARACTERISTICS

3.1 Environmental Setting

The project site is located on an existing paved area within the City of Laguna Woods. The majority of the proposed work would occur within existing paved developed land of the ETWD development, with the exception of the 10-foot expansion north, occurring within urban/disturbed land. The impact footprint is within the Open Space Zoning Designation, which is used for passive and active recreation, as well as facilities of governmental and quasi-governmental agencies such as cities, water districts, and electric utilities (City of Laguna Woods 2010, 2011). Laguna Coast Wilderness Park is located immediately north of the project footprint and is within the 500-foot buffer; it is zoned as Open Space-Passive District (City of Laguna Woods 2010, 2011).

Topography/Hydrology

The study area is mostly hilly terrain with elevations ranging from 350 to 410 feet above mean sea level. According to the National Hydrology Dataset, there is one intermittent stream depicted within the 500-foot buffer location just south of the intersection of El Toro Road and Aliso Creek Road (USGS 2014). The San Juan Capistrano 7.5-minute quadrangle map also shows two historic "blue-line streams" in this general vicinity southeast of El Toro Road, which has since been converted to residential and ornamental land covers.

Soils

The proposed project would occur within existing developed land, and there are virtually no native soils present. The study area is mapped as containing four soil series: Botella clay loam, 2% to 9% slopes (132); Capistrano sandy loam, 9% to 15% slopes (136); Chino silty clay loam, drained (140); and Soper-Rock outcrop complex, 30% to 75% slopes (204) (USDA-NRCS 2018).

4 RESULTS

4.1 Vegetation Communities

The vegetation communities and land covers within the study area were mapped in 2015 by CNPS-AIS as part of the Orange County Vegetation Mapping Update Phase II Project (AIS 2015). Five vegetation communities and/or land covers (California sagebrush–California buckwheat, black sage scrub, black willow thickets, fuel mod zone, and urban/disturbed) were mapped within the study area. During the biological resource assessment on July 18, 2018, vegetation communities and land cover types on site and within the 500-foot buffer study area were confirmed and their extents updated (see Figure 3, Vegetation Communities and Land Cover Types). Table 1 summarizes the extent of these vegetation communities and land covers within the study area. The proposed impact footprint is located entirely on existing developed areas; no natural or special-status vegetation communities are present within the impact footprint. However, black willow thickets located south of Aliso Creek Road within the study area is considered a sensitive vegetation community by the Sensitive Communities List (CDFW 2010b). In addition, the study area supports other natural vegetation communities, including the California sagebrush–California buckwheat alliance and black sage scrub within Laguna Coast Wilderness Park. Although not considered sensitive vegetation communities, these areas provide habitat for several special-status plant and wildlife species, as well as nesting and breeding habitat for birds. No direct impacts would occur in these areas.

Table 1
Vegetation Communities and Land Covers within the Study Area

Vegetation Community and Land Cover	Code*	Project Footprint (acres)	Project Study Area (acres)	Total (acres)
Natural Vegetation Communities				
California Sagebrush–California Buckwheat Scrub	3120	—	4.22	4.22
Black Willow Thickets	1720	—	3.18	3.18
Black Sage Scrub	3210	—	2.77	2.77
Non-Natural Land Covers				
Fuel Mod Zone	9320	—	1.88	1.88
Transportation	9301	—	3.86	3.86
Urban/Disturbed	9300	0.06	4.63	4.70
	Total**	**0.06**	**20.54**	**20.61**

* Vegetation codes based on Sawyer et al. 2009 and AIS 2015.
** Totals may not sum due to rounding.

4.1.1 California Sagebrush–California Buckwheat Scrub

The California sagebrush–California buckwheat scrub (*Artemisia californica-Eriogonum fasciculatum* shrubland alliance) is dominated by California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*), with a two-tiered intermittent to continuous shrub 6.5 feet to 16 feet in height. This vegetation community occurs on steep and south-facing slopes (Sawyer et al. 2009).

Within the 500-foot buffer, this alliance encompasses 4.22 acres northwest, west, and southwest of the project footprint.

4.1.2 Black Willow Thickets

The black willow thickets woodland alliance is dominated by black willow (*Salix gooddingii*) in an open to continuous canopy less than 98 feet in height. This vegetation community occurs on terraces along large rivers and canyons, and along floodplains of intermittent streams, seeps, and springs (Sawyer et al. 2009).

Within the 500-foot buffer, this alliance encompasses 3.18 acres south and southeast of the project footprint.

4.1.3 Black Sage Scrub

The black sage scrub shrubland alliance is dominated by black sage (*Salvia mellifera*) in a continuous or intermittent shrub canopy less than 6.5 feet in height. This vegetation community occurs on dry slopes and alluvial fans with shallow soil (Sawyer et al. 2009).

Within the 500-foot buffer, this alliance encompasses 2.77 acres northwest and west of the project footprint.

4.1.4 Fuel Modification Zone

The fuel modification zone land cover is characterized as a fire protection zone adjacent to urban development (AIS 2015). Vegetation cover is generally less than 10% and is frequently dominated by non-native species. Fuel modification zones are designed as a buffer to natural vegetation and occur along the fringes of urban areas.

Within the 500-foot buffer, this land cover encompasses 1.88 acres north and southwest of the project footprint.

4.1.5 Transportation

Transportation land cover is characterized as a developed area that consists of freeways and arterial highways (Gray and Bramlet 1992). The transportation land cover type is typically unvegetated or supports a variety of ornamental plants and landscaping. Transportation facilities occurring within the 500-foot buffer consist of El Toro Road and Aliso Creek Road.

Within the 500-foot buffer, this land cover encompasses 3.86 acres south of the project footprint.

4.1.6 Urban/Disturbed

The urban/disturbed land cover is characterized as having been constructed upon or otherwise physically altered to an extent that native vegetation communities are not supported. This land cover consists of urban regions associated with non-native species that are not mapped separately (AIS 2015). The urban/disturbed mapped areas within the study area consist of the project footprint, dirt access roads, neighborhoods, and structures within the 500-foot buffer.

Within the 500-foot buffer, this land cover encompasses 4.70 acres north and northeast of the project footprint.

4.2 Special-Status Plant Species

Endangered, rare, or threatened plant species, as defined in the California Environmental Quality Act Guidelines Section 15380(b) (14 California Code of Regulations [CCR] 15000 et seq.), are referred to as "special-status plant species" in this report and include endangered and threatened plant species recognized in the context of the California and federal Endangered Species Acts (CDFW 2018c), and plant species with a CRPR 1 through 4 (CDFW 2018a; CNPS 2018). In considering rarity, the CNPS inventory of Rare and Endangered Vascular Plants of California was the primary reference (CNPS 2018). However, plant species with a CRPR 3 and 4 are not evaluated in this report due to their low status and sensitivity.

No special-status plant species were identified within the study area during the reconnaissance survey conducted on July 18, 2018. A total of 24 vascular plant species, consisting of 20 native species (83%) and four non-native species (17%), were recorded during the survey (Attachment A, Species Compendium).

The proposed impact footprint is entirely developed land. Therefore, it is unexpected for any special-status plant species to occur within the impact footprint. There is potential for special-status plants to occur within the coastal sage scrub and chaparral that occurs within the 500-foot buffer in Laguna Coast Wilderness Park. However, no project impacts would occur in this area. There is no USFWS designated critical habitat for listed plant species within the study area (USFWS 2018).

Attachment B, Special-Status Species Detected or Potentially Occurring in the Study Area, lists special-status plant species documented in the literature review and their potential to occur on site. "On site" exclusively refers to the proposed impact footprint. Due to the lack of suitable habitat within the impact footprint, no special-status plant species have the potential to occur on site.

4.3 Special-Status Wildlife Species

Species defined as "special-status wildlife species" in this report include endangered and threatened wildlife species recognized in the context of the California and federal Endangered Species Acts (CDFW 2018d); Species of Special Concern assigned by CDFW to species whose population levels are declining, have limited ranges, and/or are vulnerable to extinction due to continuing threats; Fully Protected species protected by the CDFW and Watch List species candidates for higher sensitivity statuses; and Birds of Conservation Concern provided by USFWS to migratory and non-migratory bird species that adhere to the 1988 amendment to the Fish and Wildlife Conservation Act that mandates USFWS to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973" (USFWS 2008).

No special-status wildlife species were identified within the project footprint during the reconnaissance survey conducted on July 18, 2018. However, one special-status wildlife species, the federally threatened coastal California gnatcatcher (*Polioptila californica californica*), was observed within the study area during focused nesting surveys for the species in April, May, and June 2018 as part of the ETWD's Phase II Recycled Water Project (Attachment C, Coastal California Gnatcatcher Survey Results) (Figure 4, Biological Resources). One nesting pair was identified on April 21, 2018, within the California sagebrush–California buckwheat scrub approximately 190 feet southeast from Avenida Sosiega, 205 feet southwest from Via La Mesa, and 260 feet northwest of El Toro Road; the pair was monitored for during following visits. During the final survey, one male California gnatcatcher was observed and heard signing within the California sagebrush–California buckwheat scrub within Laguna Coast Wilderness Park. There is no USFWS designated critical habitat for listed wildlife species within the study area (USFWS 2018).

Thirteen wildlife species were observed during the survey, including common bird species such as Bewick's wrens (*Thryomanes bewickii*), Anna's hummingbird (*Calypte anna*), and house finches (*Carpodacus mexicanus*). A full list of wildlife species observed during the survey is provided in Attachment A.

Attachment B lists special-status wildlife species documented in the literature review and their potential to occur on site. "On site" exclusively refers to the proposed impact footprint. Due to the lack of suitable habitat within the impact footprint, no special-status wildlife species have the potential to occur on site. Where pertinent, a distinction is made between foraging and breeding habitat available on site.

4.4 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation; they may be continuous habitat or discrete habitat islands that function as stepping stones for wildlife dispersal.

Due to the small and developed nature of the project site, there are no wildlife corridors within the impact footprint. The project site also occurs on the urban/wildland interface, with development immediately to the north, south, and east. However, the northwestern portion of the study area occurs within Laguna Coast Wilderness Park, which contains a large block of open space intended for maintaining wildlife movement throughout the region. The project site is located at the Wood's End trailhead that provides public access to the park.

4.5 Nesting Birds

The study area contains many trees and shrubs that could potentially be used by migratory birds for breeding. Nesting habitat occurs within the 500-foot buffer, which overlaps Laguna Coast Wilderness Park, and within the residential areas surrounding the impact footprint.

4.6 Jurisdictional Waters

No jurisdictional waters, including wetlands, regulated by the U.S. Army Corps of Engineers, Regional Water Quality Control Board, or CDFW occur within the project impact footprint. Several erosional, non-jurisdictional features occur north of the project site (Figure 4). Additionally, potential jurisdictional waters and wetlands occur south of the project site across El Toro Road, associated with the black willow woodland area. However, jurisdictional areas outside the impact footprint were not evaluated further because there would be no impacts to these aquatic resources.

4.7 Regional Conservation Plans

The study area is located within the boundaries of the County of Orange Central and Coastal Subregion Natural Communities Conservation Plan (NCCP)/Habitat Conservation Plan (HCP) area. ETWD is not a participating landowner under the NCCP/HCP, and the project is not subject to the provisions of the NCCP/HCP.

5 ANTICIPATED PROJECT IMPACTS

This section addresses direct and indirect impacts to biological resources that would result from implementation of the proposed project.

Direct Impacts

For the purposes of this assessment, direct impacts were quantified by evaluating resources within the impact footprint of the project site, which is confined to existing developed area.

Indirect Impacts

Indirect impacts would result primarily from adverse edge effects, and may be short term related to construction, and/or long-term and associated with development in proximity to biological resources within natural open space. For the proposed project, it is assumed that the potential indirect impacts resulting from short-term construction activities would include dust and noise that may temporarily disrupt species and habitat vitality.

5.1 Special-Status Vegetation Communities

Direct Impact

No special-status vegetation communities occur within the impact footprint. The lift station footprint is within existing developed area adjacent to Laguna Coast Wilderness Park. All construction activities would be limited to the existing developed project footprint plus 10 feet north in an urban/disturbed area, and no native vegetation would be removed. Therefore, no direct impacts to a special-status vegetation communities would occur.

Indirect Impact

Indirect impacts would be limited to short-term construction impacts related to erosion, runoff, and dust. However, all project ground-disturbing activities would be subject to the typical restrictions (e.g., best management practices [BMPs]) and requirements that address erosion and runoff, including those of the federal Clean Water Act, and preparation of a Storm Water Pollution Prevention Plan (SWPPP). With implementation of these BMPs and permit conditions, potential indirect impacts to sensitive vegetation communities would be less than significant.

5.2 Special-Status Plant Species

Direct Impact

No special-status plant species have the potential to occur within the impact footprint due to the lack of suitable habitat; therefore, no direct impacts to special-status plant species are anticipated.

Indirect Impacts

No indirect impacts to special-status plant species are anticipated within the project site due to the lack of suitable habitat.

Suitable habitat for special-status plant species occurs within the adjacent study area (Attachment B), including intermediate mariposa lily (*Calochortus weedii* var. *intermedius*), many-stemmed dudleya (*Dudleya multicaulis*), Laguna Beach dudleya (*Dudleya stolonifera*), and Allen's pentachaeta (*Pentachaeta aurea* ssp. *allenii*). Potential indirect impacts to these species would be limited to short-term construction impacts related to erosion, runoff, and dust. However, standard

BMPs would be implemented during construction as part of the project's SWPPP to address these indirect impacts. With implementation of these BMPs and permit conditions, potential indirect impacts to special-status plants would be less than significant.

5.3 Special-Status Wildlife Species

Direct Impacts

Special-status wildlife species are not expected to occur within the impact footprint due to lack of suitable habitat; therefore, no direct impacts to special-status wildlife are expected.

Indirect Impacts

Suitable habitat for several special-status wildlife species occurs within the surrounding Laguna Coast Wilderness Park (Attachment B), including California glossy snake (*Arizona elegans occidentalis*), orange-throated whiptail (*Aspidoscelis hyperythra*), red diamondback rattlesnake (*Crotalus ruber*), Blainville's horned lizard (*Phrynosoma blainvillii*), coastal California gnatcatcher, and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*). Potential indirect impacts to California glossy snake, orange-throated whiptail, red diamondback rattlesnake, Blainville's horned lizard, and northwestern San Diego pocket mouse would be limited to short-term construction impacts related to noise, erosion, runoff, and dust. Standard BMPs would be implemented during construction as part of the project's SWPPP to reduce these indirect impacts to less than significant.

The California sagebrush–California buckwheat scrub, black sage scrub, and fuel modification zone habitats located within the 500-foot buffer support occupied habitat for coastal California gnatcatcher. Potential indirect impacts to coastal California gnatcatcher would also include short-term construction impacts related to noise, erosion, runoff, and dust. Standard BMPs to address erosion, runoff, and dust would be implemented during construction as part of the project's SWPPP to reduce these indirect impacts to less than significant. However, although the project site occurs within an urban setting and there is an existing, baseline level of disturbance, indirect impacts associated with construction noise could be significant to coastal California gnatcatcher if they are conducted during the breeding/nesting season. Implementation of Mitigation Measure (MM) BIO-1 would reduce this indirect impact to less than significant.

MM-BIO-1 **Coastal California Gnatcatcher and Nesting Bird Avoidance.** Construction activities shall be conducted outside the coastal California gnatcatcher and general bird breeding/nesting season, which occurs from February 15 through August 30. However, if construction during February 15 through August 30 is unavoidable, then a focused survey for nesting birds shall be conducted by a qualified biologist of all suitable habitat within a 300-foot buffer of the impact area. The survey shall be conducted within the week prior to the initiation of construction.

If no nests, nesting behavior, or brood rearing activities are detected within 300 feet of the impact area, work may commence. However, if nesting birds are detected, the nest locations shall be mapped by the qualified biologist using GPS equipment. The species of the nesting bird and, to the degree feasible, the nesting stage (e.g., incubation of eggs, feeding of young, near fledging) would be documented. The biologist may establish an avoidance buffer around occupied nests if there is a significant potential for “take” of the species or potential for needless destruction of the nest. The buffer would be determined by the qualified biologist based on the species present, surrounding habitat, and existing environmental setting/level of disturbance. No construction or ground-disturbing activities would be conducted within the buffer until the qualified biologist has determined that the nest is no longer being used for breeding or rearing, and has informed the construction supervisor that activities may resume.

If coastal California gnatcatchers are detected, the qualified biologist shall monitor and determine if construction noise levels or motion are potential sources for nest failure, and 300-foot avoidance buffer shall be established accordingly in coordination with the Carlsbad Fish and Wildlife Office (CFWO). Avoidance buffers shall remain in place until the nest is determined either a success or failure by the biological monitor and approved by the CFWO. The frequency of nest monitoring shall be weekly, or as determined by the qualified biologist. If construction activities are delayed by more than 2 weeks, then another pre-disturbance survey shall be conducted.

5.4 Nesting Birds

Direct Impacts

Direct impacts to migratory nesting birds must be avoided to comply with the Migratory Bird Treaty Act and California Fish and Game Code. The project would be limited to developed and disturbed areas, and no removal of trees or other nesting habitat would occur; therefore, direct impacts to nesting birds are not expected.

Indirect Impacts

Nesting birds can be significantly affected by indirect impacts from short-term construction-related noise, resulting in decreased reproductive success or abandonment of an area as nesting habitat. Laguna Coast Wilderness Park and surrounding residences have trees and other shrubs that could provide potential nesting and foraging habitat for a variety of songbirds and raptors in the area. Indirect impacts from construction-related noise may occur to nesting birds if construction occurs during the breeding season and active nests occur within the vicinity of work areas (i.e., February 15 through August 30). With implementation of MM-BIO-1, potential indirect impacts to nesting birds are not anticipated.

5.5 Jurisdictional Waters

Direct Impact

All construction activities would be limited to developed and disturbed areas; therefore, no direct impacts to jurisdictional waters would occur.

Indirect Impact

Indirect impacts would be limited to short-term construction impacts related to construction runoff. All project ground-disturbing activities would be subject to the typical restrictions (e.g., BMPs) and requirements that address erosion and runoff, including those of the federal Clean Water Act, and preparation of a SWPPP. With implementation of these BMPs and permit conditions, potential indirect impacts to jurisdictional waters are not anticipated.

5.6 Regional Conservation Plans

The study area is within the County of Orange Central and Coastal NCCP/HCP area, but not within a designated conservation area (i.e., Reserve). Additionally, the project footprint does not support suitable habitat for listed species, and, therefore, does not have any permit obligations under the California or federal Endangered Species Acts. The proposed project would not conflict with, nor would it prevent implementation of, the conservation objectives of the County of Orange Central and Coastal NCCP/HCP.

6 CONCLUSION

Based on our review of biological resources in the study area, with implementation of MM-BIO-1, no significant impacts to biological resources would occur as a result of the project.

If you have any questions regarding this biological assessment, please do not hesitate to contact me at 949.373.8321 or at rhenry@dudek.com.

Sincerely,

Ryan Henry
Senior Biologist

Att.: Figures 1–4
Attachment A, Species Compendium
Attachment B, Special-Status Species Detected or Potentially Occurring in the Study Area
Attachment C, Coastal California Gnatcatcher Survey Results

7 REFERENCES

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ATTACHMENT A

Species Compendium

ATTACHMENT A
Species Compendium

EUDICOTS

VASCULAR SPECIES

ADOXACEAE—MUSKROOT FAMILY

Sambucus nigra—blue elderberry

ANACARDIACEAE—SUMAC OR CASHEW FAMILY

Rhus integrifolia—lemonade berry
* *Schinus molle*—Peruvian peppertree

ASTERACEAE—SUNFLOWER FAMILY

Ambrosia psilostachya—western ragweed
Artemisia californica—California sagebrush
Baccharis pilularis—coyote brush
Baccharis salicifolia—mulefat
Isocoma menziesii—Menzies's golden bush

BRASSICACEAE—MUSTARD FAMILY

* *Brassica nigra*—black mustard

FABACEAE—LEGUME FAMILY

Acmispon glaber—deer weed

FAGACEAE—OAK FAMILY

Quercus agrifolia—coast live oak
Quercus berberidifolia—scrub oak

LAMIACEAE—MINT FAMILY

Salvia apiana—white sage
Salvia mellifera—black sage

MYRTACEAE—MYRTLE FAMILY

* *Eucalyptus* sp.—no common name

PHRYMACEAE—LOPSEED FAMILY

Diplacus aurantiacus—bush monkeyflower

PLATANACEAE—PLANE TREE, SYCAMORE FAMILY

Platanus racemosa—California sycamores

POLYGONACEAE—BUCKWHEAT FAMILY

Eriogonum fasciculatum—California buckwheat

RHAMNACEAE—BUCKTHORN FAMILY

Ceanothus sp.—no common name

ROSACEAE—ROSE FAMILY

Adenostoma fasciculatum—chamise
Heteromeles arbutifolia—toyon

SALICACEAE—WILLOW FAMILY

Salix gooddingii—black willow

GYMNOSPERMS AND GNETOPHYTES

VASCULAR SPECIES

PINACEAE—PINE FAMILY

Pinus sp.—pine

MONOCOTS

VASCULAR SPECIES

ARECACEAE—PALM FAMILY

* *Syagrus romanzoffiana*—queen palm

* Signifies introduced (non-native) species

BIRD

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—house finch

HUMMINGBIRDS

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna's hummingbird

JAYS, MAGPIES AND CROWS

CORVIDAE—CROWS AND JAYS

Corvus brachyrhynchos—American crow

MOCKINGBIRDS AND THRASHERS

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Toxostoma redivivum—California thrasher

NEW WORLD QUAIL

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail

PIGEONS AND DOVES

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

ROADRUNNERS AND CUCKOOS

CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS

Geococcyx californianus—greater roadrunner

WRENS

TROGLODYTIDAE—WRENS

Thryomanes bewickii—Bewick's wren

WRENTITS

TIMALIIDAE—BABBLERS

Chamaea fasciata—wrentit

MAMMAL

HARES AND RABBITS

LEPORIDAE—HARES AND RABBITS

Sylvilagus bachmani—brush rabbit

SQUIRRELS

SCIURIDAE—SQUIRRELS

Spermophilus (Otospermophilus) beecheyi—California ground squirrel

REPTILE

LIZARDS

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis—western fence lizard

ATTACHMENT B

Special-Status Species Detected or Potentially Occurring in the Study Area

ATTACHMENT C

Coastal California Gnatcatcher Survey Results

ATTACHMENT A

Species Compendium

ATTACHMENT A
Species Compendium

EUDICOTS

VASCULAR SPECIES

ADOXACEAE—MUSKROOT FAMILY

Sambucus nigra—blue elderberry

ANACARDIACEAE—SUMAC OR CASHEW FAMILY

Rhus integrifolia—lemonade berry
* *Schinus molle*—Peruvian peppertree

ASTERACEAE—SUNFLOWER FAMILY

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Artemisia californica—California sagebrush
Baccharis pilularis—coyote brush
Baccharis salicifolia—mulefat
Isocoma menziesii—Menzies's golden bush

BRASSICACEAE—MUSTARD FAMILY

* *Brassica nigra*—black mustard

FABACEAE—LEGUME FAMILY

Acmispon glaber—deer weed

FAGACEAE—OAK FAMILY

Quercus agrifolia—coast live oak
Quercus berberidifolia—scrub oak

LAMIACEAE—MINT FAMILY

Salvia apiana—white sage
Salvia mellifera—black sage

MYRTACEAE—MYRTLE FAMILY

* *Eucalyptus* sp.—no common name

PHRYMACEAE—LOPSEED FAMILY

Diplacus aurantiacus—bush monkeyflower

PLATANACEAE—PLANE TREE, SYCAMORE FAMILY

Platanus racemosa—California sycamores

POLYGONACEAE—BUCKWHEAT FAMILY

Eriogonum fasciculatum—California buckwheat

RHAMNACEAE—BUCKTHORN FAMILY

Ceanothus sp.—no common name

ROSACEAE—ROSE FAMILY

Adenostoma fasciculatum—chamise
Heteromeles arbutifolia—toyon

SALICACEAE—WILLOW FAMILY

Salix gooddingii—black willow

GYMNOSPERMS AND GNETOPHYTES

VASCULAR SPECIES

PINACEAE—PINE FAMILY

Pinus sp.—pine

MONOCOTS

VASCULAR SPECIES

ARECACEAE—PALM FAMILY

* *Syagrus romanzoffiana*—queen palm

* Signifies introduced (non-native) species

BIRD

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS
Psaltriparus minimus—bushtit

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES
Haemorhous mexicanus—house finch

HUMMINGBIRDS

TROCHILIDAE—HUMMINGBIRDS
Calypte anna—Anna's hummingbird

JAYS, MAGPIES AND CROWS

CORVIDAE—CROWS AND JAYS
Corvus brachyrhynchos—American crow

MOCKINGBIRDS AND THRASHERS

MIMIDAE—MOCKINGBIRDS AND THRASHERS
Toxostoma redivivum—California thrasher

NEW WORLD QUAIL

ODONTOPHORIDAE—NEW WORLD QUAIL
Callipepla californica—California quail

PIGEONS AND DOVES

COLUMBIDAE—PIGEONS AND DOVES
Zenaida macroura—mourning dove

ROADRUNNERS AND CUCKOOS

CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS
Geococcyx californianus—greater roadrunner

WRENS

TROGLODYTIDAE—WRENS

Thryomanes bewickii—Bewick's wren

WRENTITS

TIMALIIDAE—BABBLERS

Chamaea fasciata—wrentit

MAMMAL

HARES AND RABBITS

LEPORIDAE—HARES AND RABBITS

Sylvilagus bachmani—brush rabbit

SQUIRRELS

SCIURIDAE—SQUIRRELS

Spermophilus (Otospermophilus) beecheyi—California ground squirrel

REPTILE

LIZARDS

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis—western fence lizard

ATTACHMENT B

Special-Status Species Detected or Potentially Occurring in the Study Area

ATTACHMENT B
Special-Status Species Detected or Potentially Occurring in the Study Area

Special-Status Plant Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/ State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Aphanisma blitoides	aphanisma	None/None/ 1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub; sandy or gravelly/annual herb/Feb–June/0–1000	Not expected to occur on site. No suitable habitat. Moderate potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. The closest known CNDDB occurrence is 4.6 miles southwest of the project area within Emerald Bay.
Atriplex coulteri	Coulter's saltbush	None/None/ 1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub, Valley and foothill grassland; alkaline or clay/perennial herb/Mar–Oct/5–1510	Not expected to occur on site. Site is developed/disturbed. Moderate potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. The closest known CNDDB occurrence is 2.4 miles west of the project area within Laguna Coast Wilderness Park.
Atriplex pacifica	South Coast saltscale	None/None/ 1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub, Playas/annual herb/Mar–Oct/0–460	Not expected to occur on site. No coastal dunes on site. Moderate potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. The closest known CNDDB occurrence is 3.3 miles south of the project area within Laguna Canyon.
Atriplex parishii	Parish's brittlescale	None/None/ 1B.1	Chenopod scrub, Playas, Vernal pools; alkaline/annual herb/June–Oct/80–6235	Not expected to occur on site. No vernal pools on site. Not expected to occur within the 500 foot buffer. No suitable habitat present. The closest known CNDDB occurrence is 3.5 miles south of the project area within Laguna Canyon.
Atriplex serenana var. *davidsonii*	Davidson's saltscale	None/None/ 1B.2	Coastal bluff scrub, Coastal scrub; alkaline/annual herb/Apr–Oct/30–655	Not expected to occur on site. No coastal scrub on site. Moderate potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. The closest known CNDDB occurrence is 3.5 miles south of the project area within Laguna Canyon.
Brodiaea filifolia	thread-leaved brodiaea	FT/SE/1B.1	Chaparral (openings), Cismontane woodland, Coastal scrub, Playas, Valley	Not expected to occur on site. No suitable habitat on site. Low potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation and clay

Special-Status Plant Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/ State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
			and foothill grassland, Vernal pools; often clay/perennial bulbiferous herb/Mar–June/80–3675	soil present; however, no vernal pools on site. The closest known CNDDB occurrence is 3.8 miles south of the project area within Aliso & Woods Canyons Park (CDFW 2018; USFWS 2018).
Calochortus weedii var. *intermedius*	intermediate mariposa lily	None/None/ 1B.2	Chaparral, Coastal scrub, Valley and foothill grassland; rocky, calcareous/perennial bulbiferous herb/May–July/340–2805	Not expected to occur on site. No suitable habitat on site. Moderate potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. The closest known CNDDB occurrence is 0.4 miles west of the project area within Laguna Coast Wilderness Park.
Centromadia parryi ssp. *australis*	southern tarplant	None/None/ 1B.1	Marshes and swamps (margins), Valley and foothill grassland (vernally mesic), Vernal pools/annual herb/May–Nov/0–1575	Not expected to occur on site. No marshes on site. Not expected to occur within the 500 foot buffer. No suitable habitat present.
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	None/None/ 1B.1	Coastal bluff scrub (sandy), Coastal dunes/annual herb/Jan–Aug/0–330	Not expected to occur on site. No suitable vegetation. Not expected to occur within the 500 foot buffer. No suitable habitat present. The closest known CNDDB occurrence is 4.4 miles south of the project area within Main Beach Park, Laguna Beach.
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	None/None/ 1B.2	Chaparral, Coastal scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools; often clay/annual herb/Apr–July/95–5020	Not expected to occur on site. No suitable habitat on site. Low potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation and clay soil present; however, no vernal pools on site. No known occurrences within 5 miles of the project area.
Clinopodium chandleri	San Miguel savory	None/None/ 1B.2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland, Valley and foothill grassland; Rocky, gabbroic or metavolcanic/perenni	Not expected to occur on site. No suitable habitat on site. Low potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. No known occurrences within 5 miles of the project area.

Special-Status Plant Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/ State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
			al shrub/Mar–July/390–3525	
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	None/None/ 1B.2	Chaparral, Cismontane woodland/perennial evergreen shrub/Apr–June/95–2590	Not expected to occur on site. No suitable vegetation on site. Low potential to occur within the 500 foot buffer. There is suitable chaparral vegetation present. No known occurrences within 5 miles of the project area.
Dodecahema leptoceras	slender-horned spineflower	FE/SE/1B.1	Chaparral, Cismontane woodland, Coastal scrub (alluvial fan); sandy/annual herb/Apr–June/655–2495	Not expected to occur on site. Outside of known elevation range. Not expected to occur within the 500 foot buffer. The site is outside of the species' known elevation range.
Dudleya blochmaniae ssp. *blochmaniae*	Blochman's dudleya	None/None/ 1B.1	Coastal bluff scrub, Chaparral, Coastal scrub, Valley and foothill grassland; rocky, often clay or serpentinite/perennial herb/Apr–June/15–1475	Not expected to occur on site. No suitable rocky habitat present. Low potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation and clay soil present. No known occurrences within 5 miles of the project area.
Dudleya cymosa ssp. *ovatifolia*	Santa Monica dudleya	FT/None/ 1B.1	Chaparral, Coastal scrub; volcanic or sedimentary, rocky/perennial herb/Mar–June/490–5495	Not expected to occur on site. No suitable habitat on site. Low potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. No known occurrences within 5 miles of the project area.
Dudleya multicaulis	many-stemmed dudleya	None/None/ 1B.2	Chaparral, Coastal scrub, Valley and foothill grassland; often clay/perennial herb/Apr–July/45–2590	Not expected to occur on site. No coastal scrub on site. Moderate potential to occur within the 500 foot buffer. There is suitable coastal scrub and chaparral vegetation and clay soil present. The closest known CNDDB occurrences are 0.4 miles northwest and southwest of the project area within Laguna Coast Wilderness Park.
Dudleya stolonifera	Laguna Beach dudleya	FT/ST/1B.1	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland; rocky/perennial	Not expected to occur on site. No coastal scrub on site. Moderate potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. The closest known CNDDB occurrence is

Special-Status Plant Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/ State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
			stoloniferous herb/May–July/30–855	1.2 miles southwest of the project area within Laguna Coast Wilderness Park.
Dudleya viscida	sticky dudleya	None/None/ 1B.2	Coastal bluff scrub, Chaparral, Cismontane woodland, Coastal scrub; rocky/perennial herb/May–June/30–1805	Not expected to occur on site. No suitable rocky habitat. Low potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. No known occurrences within 5 miles of the project area.
Eryngium pendletonense	Pendleton button-celery	None/None/ 1B.1	Coastal bluff scrub, Valley and foothill grassland, Vernal pools; clay, vernally mesic/perennial herb/Apr–June(July)/45–360	Not expected to occur on site. No suitable vegetation. Not expected to occur within the 500 foot buffer. No suitable habitat present.
Euphorbia misera	cliff spurge	None/None/ 2B.2	Coastal bluff scrub, Coastal scrub, Mojavean desert scrub; rocky/perennial shrub/Dec–Aug(Oct)/30–1640	Not expected to occur on site. No coastal scrub on site. Low potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. No known occurrences within 5 miles of the project area.
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower	None/None/ 1A	Marshes and swamps (coastal salt and freshwater)/perennial rhizomatous herb/Aug–Oct/30–5005	Presumed extinct in California (CNPS). Not expected to occur within the 500 foot buffer. No suitable habitat present.
Hesperocyparis forbesii	Tecate cypress	None/None/ 1B.1	Closed-cone coniferous forest, Chaparral; clay, gabbroic or metavolcanic/perennial evergreen tree/N.A./260–4920	Not expected to occur on site. No suitable habitat on site. Low potential to occur within the 500 foot buffer. There is suitable chaparral vegetation and clay soil present. No known occurrences within 5 miles of the project area.
Horkelia cuneata var. *puberula*	mesa horkelia	None/None/ 1B.1	Chaparral (maritime), Cismontane woodland, Coastal scrub; sandy or gravelly/perennial herb/Feb–July(Sep)/225–2655	Not expected to occur on site. No suitable habitat on site. Not expected to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present, but the species would have been detected if present. The closest known CNDDB occurrence is 3.5 miles south of the project area within Laguna Canyon.

Special-Status Plant Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/ State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Imperata brevifolia	California satintail	None/None/ 2B.1	Chaparral, Coastal scrub, Mojavean desert scrub, Meadows and seeps (often alkali), Riparian scrub; mesic/perennial rhizomatous herb/Sep–May/0–3985	Not expected to occur on site. No suitable habitat on site. Low potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. No known occurrences within 5 miles of the project area.
Isocoma menziesii var. *decumbens*	decumbent goldenbush	None/None/ 1B.2	Chaparral, Coastal scrub (sandy, often in disturbed areas)/perennial shrub/Apr–Nov/30–445	Not expected to occur on site. No coastal scrub on site. Low potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. No known occurrences within 5 miles of the project area.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None/ 1B.1	Marshes and swamps (coastal salt), Playas, Vernal pools/annual herb/Feb–June/0–4005	Not expected to occur on site. No marshes/vernal pools on site and site is largely disturbed. Not expected to occur within the 500 foot buffer. No suitable habitat present.
Lepechinia cardiophylla	heart-leaved pitcher sage	None/None/ 1B.2	Closed-cone coniferous forest, Chaparral, Cismontane woodland/perennial shrub/Apr–July/1705–4495	Not expected to occur on site. Outside of known elevation range. Not expected to occur within the 500 foot buffer. The site is outside of the species' known elevation range.
Monardella hypoleuca ssp. *intermedia*	intermediate monardella	None/None/ 1B.3	Chaparral, Cismontane woodland, Lower montane coniferous forest (sometimes); Usually understory/perennial rhizomatous herb/Apr–Sep/1310–4100	Not expected to occur on site. No suitable habitat on site. Not expected to occur within the 500 foot buffer. The site is outside of the species' known elevation range.
Monardella hypoleuca ssp. *lanata*	felt-leaved monardella	None/None/ 1B.2	Chaparral, Cismontane woodland/perennial rhizomatous herb/June–Aug/980–5165	Not expected to occur on site. Outside of known elevation range. Not expected to occur within the 500 foot buffer. The site is outside of the species' known elevation range.

Special-Status Plant Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/ State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Monardella macrantha ssp. *hallii*	Hall's monardella	None/None/ 1B.3	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland/perennial rhizomatous herb/June–Oct/2395–7200	Not expected to occur on site. Outside of known elevation range. Not expected to occur within the 500 foot buffer. The site is outside of the species' known elevation range.
Nama stenocarpa	mud nama	None/None/ 2B.2	Marshes and swamps (lake margins, riverbanks)/annual / perennial herb/Jan–July/15–1640	Not expected to occur on site. Site is largely disturbed and no marshes. Not expected to occur within the 500 foot buffer. No suitable habitat present. The closest known CNDDB occurrence is 1.1 miles northwest of the project area within Laguna Coast Wilderness Park.
Nasturtium gambelii	Gambel's water cress	FE/ST/1B.1	Marshes and swamps (freshwater or brackish)/perennial rhizomatous herb/Apr–Oct/15–1085	Not expected to occur on site. Site is largely disturbed and no marshes. Not expected to occur within the 500 foot buffer. No suitable habitat present.
Navarretia prostrata	prostrate vernal pool navarretia	None/None/ 1B.1	Coastal scrub, Meadows and seeps, Valley and foothill grassland (alkaline), Vernal pools; Mesic/annual herb/Apr–July/5–3970	Not expected to occur on site. No seeps on site. Low potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present, however no vernal pools on site. The closest known CNDDB occurrence is 3.5 miles south of the project area within Laguna Canyon.
Nolina cismontana	chaparral nolina	None/None/ 1B.2	Chaparral, Coastal scrub; sandstone or gabbro/perennial evergreen shrub/(Mar)May–July/455–4185	Not expected to occur on site. No suitable habitat on site. Low potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. No known occurrences within 5 miles of the project area.
Pentachaeta aurea ssp. *allenii*	Allen's pentachaeta	None/None/ 1B.1	Coastal scrub (openings), Valley and foothill grassland/annual herb/Mar–June/245–1705	Not expected to occur on site. No coastal scrub on site. Moderate potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. The closest known CNDDB occurrence is 1.0 mile northwest of the project area within Laguna Coast Wilderness Park.

Special-Status Plant Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/ State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Phacelia keckii	Santiago Peak phacelia	None/None/ 1B.3	Closed-cone coniferous forest, Chaparral/annual herb/May–June/1785–5250	Not expected to occur on site. Outside of known elevation range. Not expected to occur within the 500 foot buffer. The site is outside of the species' known elevation range.
Pseudogna-phalium leucocephalum	white rabbit-tobacco	None/None/ 2B.2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland; sandy, gravelly/perennial herb/(July)Aug–Nov(Dec)/0–6890	Not expected to occur on site. No coastal scrub on site. Low potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. No known occurrences within 5 miles of the project area.
Quercus dumosa	Nuttall's scrub oak	None/None/ 1B.1	Closed-cone coniferous forest, Chaparral, Coastal scrub; sandy, clay loam/perennial evergreen shrub/Feb–Apr(May–Aug)/45–1310	Not expected to occur on site. No coastal scrub on site. Not expected to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present, but the species would have been detected if present. The closest known CNDDB occurrence is 4.3 miles west of the project area within Crystal Cove State Park.
Senecio aphanactis	chaparral ragwort	None/None/ 2B.2	Chaparral, Cismontane woodland, Coastal scrub; sometimes alkaline/annual herb/Jan–Apr(May)/45–2625	Not expected to occur on site. No coastal scrub on site. Low potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. No known occurrences within 5 miles of the project area.
Sidalcea neomexicana	salt spring checkerbloom	None/None/ 2B.2	Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Playas; alkaline, mesic/perennial herb/Mar–June/45–5020	Not expected to occur on site. No coastal scrub on site. Low potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present; however, no playas on site. No known occurrences within 5 miles of the project area.
Suaeda esteroa	estuary seablite	None/None/ 1B.2	Marshes and swamps (coastal salt)/perennial herb/(May)July–Oct(Jan)/0–15	Not expected to occur on site. Site is largely disturbed. Not expected to occur within the 500 foot buffer. The site is outside of the species' known elevation range and there is no suitable habitat present.
Symphyotrichum defoliatum	San Bernardino	None/None/ 1B.2	Cismontane woodland, Coastal	Not expected to occur on site. No suitable habitat on site.

Special-Status Plant Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/ State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
	aster		scrub, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps, Valley and foothill grassland (vernally mesic); near ditches, streams, springs/perennial rhizomatous herb/July–Nov/5–6695	Low potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present; however, no marshes or streams on site. No known occurrences within 5 miles of the project area.
Tetracoccus dioicus	Parry's tetracoccus	None/None/ 1B.2	Chaparral, Coastal scrub/perennial deciduous shrub/Apr–May/540–3280	Not expected to occur on site. Outside of known elevation range. Not expected to occur within the 500 foot buffer. The site is outside of the species' known elevation range.
Verbesina dissita	big-leaved crownbeard	FT/ST/1B.1	Chaparral (maritime), Coastal scrub/perennial herb/(Mar)Apr–July/145–675	Not expected to occur on site. No coastal scrub on site. Low potential to occur within the 500 foot buffer. There is limited suitable habitat and the species is only known from a few areas in Laguna Beach. The closest known CNDDB occurrences are 4.8 miles south of the project area within Aliso & Wood Canyons Park.

1 Regulatory Status (CDFW 2018; CNPS 2018).

Federal Designations:
FE: Species listed as endangered by USFWS
FT: Species listed as threatened by USFWS

State Designations:
ST: State threatened
SE: State endangered

San Diego Multiple Species Conservation Program:
Covered: MSCP Covered Species

CRPR:
California Rare Plant Rank (CRPR)
1A: Plants presumed extinct in California
1B: Plants rare, threatened, or endangered in California and elsewhere
2: Plants rare, threatened, or endangered in California, but more common elsewhere
3: Plants about which we need more information–a review list
4: Plants of limited distribution–a watch list
CBR: Considered but Rejected
Threat Ranks**:**
0.1: Seriously threatened in California (high degree/immediacy of threat)
0.2: Fairly threatened in California (moderate degree/immediacy of threat)
0.3: Not very threatened in California (low degree/immediacy of threats or no current threats known)

Special-Status Wildlife Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
			Amphibians	
Anaxyrus californicus	arroyo toad	FE/SSC	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding (typically third order); adjacent stream terraces and uplands for foraging and wintering	Not expected to occur on site. No aquatic areas for breeding grounds on site. Not expected to occur within the 500 foot buffer. No suitable habitat present.
Spea hammondii	western spadefoot	None/SSC	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture	Not expected to occur on site. No aquatic areas for breeding grounds on site. Not expected to occur within the 500 foot buffer. No vernal pools present. The closest known CNDDB occurrences are 2.2 miles northwest and west of the project area within Laguna Coast Wilderness Park.
Taricha torosa (Monterey Co. south only)	California newt	None/SSC	Wet forests, oak forests, chaparral, and rolling grassland	Not expected to occur on site. No aquatic areas for breeding grounds on site. Not expected to occur within the 500 foot buffer. No suitable habitat present.
			Reptiles	
Actinemys marmorata	western pond turtle	None/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not expected to occur on site. No suitable coastal sage scrub present. Not expected to occur within the 500 foot buffer. No suitable habitat present. The closest known CNDDB occurrence is 2.0 miles east of the project area within Aliso Viejo Community Park.
Arizona elegans occidentalis	California glossy snake	None/SSC	Commonly occurs in desert regions throughout southern California. Prefers open sandy areas with scattered brush. Also found in rocky areas.	Not expected to occur on site. No suitable coastal sage scrub present. Moderate potential to occur within the 500 foot buffer. There are suitable sandy areas present. The closest known CNDDB occurrence is 4.9 miles northeast of the project area along El Toro Road.

Special-Status Wildlife Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Aspidoscelis hyperythra	orange-throated whiptail	None/WL	Low-elevation coastal scrub, chaparral, and valley–foothill hardwood	Not expected to occur on site. No suitable coastal sage scrub present. Moderate potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. The closest known CNDDB occurrences are 0.7 miles northwest and southwest of the project area within Laguna Coast Wilderness Park.
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	None/SSC	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	Not expected to occur on site. No suitable coastal sage scrub present. Low potential to occur within the 500 foot buffer. There is suitable chaparral vegetation present. No known occurrences within 5 miles of the project area.
Crotalus ruber	red diamondback rattlesnake	None/SSC	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	Not expected to occur on site. No rocky habitats occur on site. Moderate potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. The closest known CNDDB occurrence is 0.4 miles west of the project area within Laguna Coast Wilderness Park.
Lampropeltis zonata (pulchra)	California mountain kingsnake (San Diego population)	None/WL	Habitat generalist found in habitats including conifer forest, oak–pine woodlands, riparian woodland, chaparral, manzanita, and coastal scrub	Not expected to occur on site. No suitable habitat present on site. Low potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. No known occurrences within 5 miles of the project area.
Phrynosoma blainvillii	Blainville's horned lizard	BLM, FS/SSC	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	Not expected to occur on site. No suitable coastal sage scrub present. Moderate potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. The closest known CNDDB occurrence is 2.6 miles southwest of the project area within Laguna Canyon.

Special-Status Wildlife Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Plestiodon skiltonianus interparietalis	Coronado skink	BLM/WL	Woodlands, grasslands, pine forests, and chaparral; rocky areas near water	Not expected to occur on site. No suitable vegetation on site. Low potential to occur within the 500 foot buffer. There is suitable pine vegetation near water; however, the site is urban and disturbed. No known occurrences within 5 miles of the project area.
Salvadora hexalepis virgultea	coast patch-nosed snake	None/SSC	Brushy or shrubby vegetation; requires small mammal burrows for refuge and overwintering sites	Not expected to occur on site. No suitable vegetation on site. Low potential to occur within the 500 foot buffer. There is suitable shrubby vegetation present. No known occurrences within 5 miles of the project area.
Thamnophis hammondii	two-striped gartersnake	BLM, FS/SSC	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Not expected to occur on site. No aquatic areas for breeding grounds on site. Not expected to occur within the 500 foot buffer. No suitable habitat present.
			Birds	
Accipiter cooperii (nesting)	Cooper's hawk	None/WL	Nests and forages in dense stands of live oak, riparian woodlands, or other woodland habitats often near water	Not expected to nest on site. No suitable woodlands or canyons. Low potential to nest within the 500 foot buffer. There are no dense stands of oak or riparian woodland present. The closest known CNDDB occurrence is 2.9 miles north of the project area north of Lake Forest Drive.
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC, BLM/PSE, SSC/ABC	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture	Not expected to occur on site. No suitable wetlands present on site. Low potential to nest within the 500 foot buffer. The closest known CNDDB occurrence is 1.7 miles northeast of the project area south of Veeh Reservoir.
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	None/WL	Nests and forages in open coastal scrub and chaparral with low cover of scattered scrub interspersed with rocky and grassy patches	Not expected to occur on site. No coastal sage scrub habitat on site. Low potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present;

Special-Status Wildlife Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
				however, there are no grassy patches interspersed. The closest known CNDDB occurrence is 2.4 miles north of the project area south of Lake Forest Drive.
Ammodramus savannarum (nesting)	grasshopper sparrow	None/SSC	Nests and forages in moderately open grassland with tall forbs or scattered shrubs used for perches	Not expected to occur on site. No grassland habitat on site. Not expected to occur within the 500 foot buffer. No suitable habitat present. The closest known CNDDB occurrence is 1.7 miles north of the project area west of Veeh Ranch Park.
Aquila chrysaetos (nesting & wintering)	golden eagle	BCC/CDF,FP, WL	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	Not expected to nest or winter on site. Limited and disturbed vegetation on site with few trees. Not expected to occur within the 500 foot buffer. No suitable habitat present.
Asio otus (nesting)	long-eared owl	None/SSC	Nests in riparian habitat, live oak thickets, other dense stands of trees, edges of coniferous forest; forages in nearby open habitats	Not expected on site. Limited and disturbed vegetation on site with few trees. Low potential to nest within the 500 foot buffer. There are no oak or riparian dense stands present.
Athene cunicularia (burrow sites & some wintering sites)	burrowing owl	BLM, BCC/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Not expected to occur on site. Habitat disturbed/developed on site. Low potential to occur within the 500 foot buffer. There is no open scrub vegetation present. The closest known CNDDB occurrence is 3.0 miles northeast of the project area north of Irvine Planning Area 30.
Buteo regalis (wintering)	ferruginous hawk	BCC/WL	Winters and forages in open, dry country, grasslands, open fields, agriculture	Not expected to occur on site. No suitable vegetation on site. Low potential to occur within the 500 foot buffer. There is no open grassland or fields present. No known occurrences within 5 miles of the project area.

Special-Status Wildlife Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Campylorhynchus brunneicapillus sandiegensis (San Diego & Orange Counties only)	coastal cactus wren	BCC, FS/SSC	Southern cactus scrub patches	Not expected to occur on site. No suitable cactus or succulent scrub habitat. Not expected to occur within the 500 foot buffer. No suitable cactus scrub patches present. The closest known CNDDB occurrence is 0.3 miles west of the project area within Laguna Coast Wilderness Park.
Circus hudsonius (nesting)	northern harrier	None/SSC	Nests in open wetlands (marshy meadows, wet lightly-grazed pastures, old fields, freshwater and brackish marshes); also in drier habitats (grassland and grain fields); forages in grassland, scrubs, rangelands, emergent wetlands, and other open habitats	Not expected to occur on site. No suitable wetlands on site. Not expected to occur within the 500 foot buffer. The site is outside of the species' known geographic range and there is no suitable habitat present.
Coccyzus americanus occidentalis (nesting)	western yellow-billed cuckoo	FT, BCC/SE	Nests in dense, wide riparian woodlands and forest with well-developed understories	Not expected on site. No suitable riparian vegetation present. Low potential to occur within the 500 foot buffer. No suitable dense riparian woodland present.
Coturnicops noveboracensis	yellow rail	BCC/SSC	Nesting requires wet marsh/sedge meadows or coastal marshes with wet soil and shallow, standing water	Not expected on site. No suitable marsh vegetation present. Not expected to occur within the 500 foot buffer. No suitable habitat present.
Elanus leucurus (nesting)	white-tailed kite	None/FP	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands	Not expected on site. No suitable open habitat, wetlands, and riparian vegetation present. Not expected to occur within the 500 foot buffer. No suitable habitat present. The closest known CNDDB occurrence is 0.8 miles north of the project area east of Laguna Woods Village Leisure Course.
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE/SE/ABC	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and	Not expected to occur on site. No riparian habitat on site. Not expected to occur within the

Special-Status Wildlife Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
			shrubland habitats during migration	500 foot buffer. No suitable habitat present. The closest known occurrence is 0.9 miles northwest of the project area within Laguna Coast Wilderness Park was recorded in 1999 (USFWS 2018).
Eremophila alpestris actia	California horned lark	None/WL	Nests and forages in grasslands, disturbed lands, agriculture, and beaches; nests in alpine fell fields of the Sierra Nevada	Not expected to occur on site. No grassland on site. Not expected to occur within the 500 foot buffer. No suitable grassland or agriculture present. The closest known CNDDB occurrence is 1.9 miles north of the project area east of Highway 133.
Icteria virens (nesting)	yellow-breasted chat	None/SSC	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush	Not expected to occur on site. No dense willow thicket on site. Low potential to occur within the 500 foot buffer. No suitable dense riparian woodland present. The closest known CNDDB occurrence is 1.4 miles southwest of the project area within Aliso & Woods Canyons Park.
Laterallus jamaicensis coturniculus	California black rail	BCC/ST, FP/ABC	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are often supplied by canal leakage in Sierra Nevada foothill populations	Not expected to occur on site. No marsh wetland vegetation on site. Not expected to occur within the 500 foot buffer. No suitable tidal marsh present.
Passerculus sandwichensis beldingi	Belding's savannah sparrow	None/SE	Nests and forages in coastal saltmarsh dominated by pickleweed (Salicornia spp.)	Not expected to occur due to no southern coastal saltmarsh on site. Not expected to occur within the 500 foot buffer. No suitable coastal saltmarsh present.
Polioptila californica californica	coastal California gnatcatcher	FT/SSC/ABC	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	Not expected to occur on site. No coastal sage scrub on site. One male was observed singing within coastal sage outside the project impact footprint but inside the 500-foot buffer. Present within the 500 foot buffer. There is suitable coastal sage vegetation present and the species was detected in April and May

Special-Status Wildlife Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
				2018 approximately 270 feet north of the project site (Dudek 2018). The closest known CNDDB occurrence is 0.3 miles west of the project area within Laguna Coast Wilderness Park (CDFW 2018; USFWS 2018).
Rallus obsoletus levipes	Ridgway's rail	FE/SE, FP/ABC	Coastal wetlands, brackish areas, coastal saline emergent wetlands	Not expected. No saltmarsh on site. Not expected to occur within the 500 foot buffer. No suitable habitat present.
Setophaga petechia (nesting)	yellow warbler	BCC/SSC	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	Not expected to occur on site. No riparian, woodland, or chaparral vegetation on site. Low potential to nest within the 500 foot buffer. No suitable riparian and oak woodland vegetation present. The closest known occurrence is 1.2 miles southwest of the project area within Laguna Coast Wilderness Park.
Sternula antillarum browni (nesting colony)	California least tern	FE/SE, FP/ABC	Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flats	Not expected to occur on site. Site is approximately 5 miles from the coast. Not expected to occur within the 500 foot buffer. No suitable habitat present.
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE/ABC	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Not expected to occur on site. No dense willow scrub on site. Low potential to nest within the 500 foot buffer. There are no suitable dense riparian thickets present. The closest known CNDDB occurrence is 0.8 miles northwest of the project area within Laguna Coast Wilderness Park (CDFW 2018; USFWS 2018).
Fishes				
Eucyclogobius newberryi	tidewater goby	FE/SSC/AFS E	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County, to the mouth of the Smith River	Not expected to occur on site. No wetlands on site. Not expected to occur within the 500 foot buffer. No suitable habitat present.

Special-Status Wildlife Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Gila orcuttii	arroyo chub	None/SSC/AFS VU	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths >40 centimeters (16 inches); substrates of sand or mud	Not expected to occur on site. No streams on site. Not expected to occur within the 500 foot buffer. No suitable habitat present.
Oncorhynchus mykiss irideus	southern steelhead - southern California DPS	FE/None/AFS E	Clean, clear, cool, well-oxygenated streams; needs relatively deep pools in migration and gravelly substrate to spawn	Not expected to occur on site. No streams on site. Not expected to occur within the 500 foot buffer. No suitable habitat present.
Rhinichthys osculus ssp. *3*	Santa Ana speckled dace	None/SSC/AFS TH	Headwaters of the Santa Ana and San Gabriel Rivers; may be extirpated from the Los Angeles River system	Not expected to occur on site. No streams on site. Not expected to occur within the 500 foot buffer. No suitable habitat present.
		Mammals		
Antrozous pallidus	pallid bat	None/SSC/WBWG	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees	Not expected to occur on site. No suitable rocky outcrops, cliffs, and crevices. Low potential to occur within the 500 foot buffer. There is suitable shrubland vegetation present; however, no suitable rocky outcrops, cliffs, and crevices present. No known occurrences within 5 miles of the project area.
Chaetodipus californicus femoralis	Dulzura pocket mouse	None/SSC	Open habitat, coastal scrub, chaparral, oak woodland, chamise chaparral, mixed-conifer habitats; disturbance specialist; 0 to 3,000 feet above mean sea level	Not expected to occur on site. No suitable coastal sage scrub habitat on site. Moderate potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. No known occurrences within 5 miles of the project area.
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None/SSC	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon–juniper, and annual grassland	Not expected to occur on site. No suitable coastal sage scrub on site. Moderate potential to occur within the 500 foot buffer. There is suitable coastal scrub vegetation present. No known occurrences within 5 miles of the project area.
Choeronycteris mexicana	Mexican long-tongued	None/SSC/WBWG	Desert and montane riparian, desert succulent scrub,	Not expected to occur on site. No suitable vegetation or roosting

Special-Status Wildlife Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
	bat		desert scrub, and pinyon–juniper woodland; roosts in caves, mines, and buildings	structures/microhabitat. Low potential to occur within the 500 foot buffer. There is no suitable desert vegetation or caves and mines present. No known occurrences within 5 miles of the project area.
Dipodomys stephensi	Stephens' kangaroo rat	FE/ST	Annual and perennial grassland habitats, coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas	Not expected to occur on site. No suitable habitat on site. Low potential to occur within the 500 foot buffer. There is no grassland vegetation present. No known occurrences within 5 miles of the project area.
Eumops perotis californicus	western mastiff bat	None/SSC/WBWG	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels	No suitable roosting structures/microhabitat on site. Low potential to occur within the 500 foot buffer. There are no rocky canyons and cliffs present. The closest known CNDDB occurrence is 1.3 miles southwest of the project area within Aliso & Woods Canyons Park.
Lasiurus blossevillii	western red bat	None/SSC/WBWG	Forest, woodland, riparian, mesquite bosque, and orchards, including fig, apricot, peach, pear, almond, walnut, and orange; roosts in tree canopy	No suitable roosting structures/microhabitat on site. Low potential to occur within the 500 foot buffer. There are no riparian or orchard habitats present. No known occurrences within 5 miles of the project area.
Myotis yumanensis	Yuma myotis	None/None/WBWG	Riparian, arid scrublands and deserts, and forests associated with water (streams, rivers, tinajas); roosts in bridges, buildings, cliff crevices, caves, mines, and trees	Not expected to occur on site. No suitable forests and woodlands on site. Low potential to occur within the 500 foot buffer. There are no bridges, cliffs, or caves present. No known occurrences within 5 miles of the project area.
Neotoma lepida intermedia	San Diego desert woodrat	None/SSC	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Not expected to occur on site. No suitable desert habitats with dense undergrowth present. Low potential to occur within the 500 foot buffer. There is suitable

Special-Status Wildlife Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
				coastal scrub vegetation present; however, there are no rocky areas. No known occurrences within 5 miles of the project area.
Nyctinomops femorosaccus	pocketed free-tailed bat	None/SSC/WBWG	Pinyon–juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oases; roosts in high cliffs or rock outcrops with drop-offs, caverns, and buildings	Not expected to occur on site. No suitable rocky desert habitat. Low potential to occur within the 500 foot buffer. There are no woodlands or desert habitats, or cliffs and rock outcrops present. No known occurrences within 5 miles of the project area.
Nyctinomops macrotis	big free-tailed bat	None/SSC	Rocky areas; roosts in caves, holes in trees, buildings, and crevices on cliffs and rocky outcrops; forages over water	Not expected to occur on site. No suitable rocky habitat. Low potential to occur within the 500 foot buffer. There are no rocky areas present. No known occurrences within 5 miles of the project area.
Onychomys torridus ramona	southern grasshopper mouse	None/SSC	Grassland and sparse coastal scrub	Not expected to occur on site. No suitable grassland and coastal scrub habitat. Low potential to occur within the 500 foot buffer. There is no suitable sparse coastal scrub and grassland vegetation present. No known occurrences within 5 miles of the project area.
Perognathus longimembris pacificus	Pacific pocket mouse	FE/SSC	fine-grained sandy substrates in open coastal strand, coastal dunes, and river alluvium	Not expected to occur on site. Site not located along the immediate coast. Low potential to occur within the 500 foot buffer. There is no open coastal strand, coastal dunes, and river alluvium present. No known occurrences within 5 miles of the project area.
Sorex ornatus salicornicus	southern California saltmarsh shrew	None/SSC	Saltmarsh, saltgrass, dense willow, bulrush	Not expected to occur on site. No saltmarsh on site. Not expected to occur within the 500 foot buffer. No suitable habitat present.
Taxidea taxus	American badger	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub,	Not expected to occur on site. No suitable coastal sage scrub and

Special-Status Wildlife Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
			agriculture, and pastures, especially with friable soils	disturbed habitat on site. Low potential to occur within the 500 foot buffer. There are no suitable open areas present. No known occurrences within 5 miles of the project area.
Invertebrates				
Branchinecta sandiegonensis	San Diego fairy shrimp	FE/None	Vernal pools, non-vegetated ephemeral pools	Not expected to occur on site. No vernal pools on site. Not known to occur in region. Not expected to occur within the 500 foot buffer. No vernal pools present.
Coelus globosus	globose dune beetle	None/None	Inhabitant of coastal sand dune habitat; erratically distributed from Ten Mile Creek in Mendocino County south to Ensenada, Mexico	Not expected to occur on site. No coastal dunes on site. Not expected to occur within the 500 foot buffer. No suitable habitat present.
Danaus plexippus	monarch	None/None	Wind-protected tree groves with nectar sources and nearby water sources	Not expected to occur on site. No suitable habitat present. Low potential to occur within the 500 foot buffer. Eucalyptus trees occur on site; however the project study area is not a known overwintering site. The closest known CNDDB occurrence is 4.7 miles southwest of the project area within in Emerald Bay.
Streptocephalus wootoni	Riverside fairy shrimp	FE/None	Vernal pools, non-vegetated ephemeral pools	Not expected to occur on site. No vernal pools on site. Not known to occur in region. Not expected to occur within the 500 foot buffer. No suitable habitat present.
Tryonia imitator	mimic tryonia (=California brackishwater snail)	None/None	Inhabits coastal lagoons, estuaries, and saltmarshes, from Sonoma County south to San Diego County	Not expected to occur on site. No lagoons on site. Not expected to occur within the 500 foot buffer. No suitable habitat present.

[1] The federal and state status of species is based on the Special Animals List (April 2018) (CDFW 2018).

Federal Designations:

BCC Fish and Wildlife Service: Birds of Conservation Concern
(FD) Federally delisted; monitored for 5 years.
FE Federally listed as Endangered.

FT Federally listed as Threatened.

State Designations:

SSC California Species of Special Concern

P California Department of Fish and Wildlife Protected and Fully Protected Species

(SD) State-delisted.

WL California Department of Fish and Wildlife Watch List

Other:

AFS American Fisheries Society

EN: Endangered

TH: Threatened

VU: Vulnerable

WBWG Western Bat Working Group

L: Species is stable globally but there may be localized conservation concerns.

M: Species warrants closer evaluation, research, and conservation actions

H: Species are imperiled or are at high risk of imperilment

ATTACHMENT C

Coastal California Gnatcatcher Survey Results

DUDEK

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Phase II Recycled Water Distribution System Expansion Project

PRECONSTRUCTION CALIFORNIA GNATCATCHER SURVEY

Survey Date: April 16, 2018

Biologist: Paul Lemons

Job No.: 10774

Client Contact: Dennis Cafferty, El Toro Water District

This report has been prepared to comply with the Phase II Recycled Water Distribution System Expansion Project's State Revolving Fund financing agreement. The agreement requires that "…if construction between February 15 and August 30 (i.e., the gnatcatcher breeding season) is unavoidable, then surveys by a biological monitor will be conducted a minimum of three times on separate days after the initiation of the nesting season to determine the presence of gnatcatcher nest building activities, egg incubation activities, or brood rearing activities. These surveys will be conducted within the week prior to the initiation of construction. One survey will be conducted the day immediately prior to the initiation of construction. If no nests, nesting behavior, or brood rearing activities are detected within 300 feet of the impact area, work may commence. If nesting gnatcatchers are detected, gnatcatcher nest monitoring will be initiated and work will be postponed within 300 feet of the nesting pair(s) until the nest is determined either a success or failure by the biological monitor and approved by Carlsbad Fish and Wildlife Office (CFWO). The biologist must hold a 10(a)(1)(A) permit for the gnatcatcher. At least 7 days prior to initiation of surveys, the applicant will submit to the CFWO in writing, the name(s), and permit number(s) of all biologists that will be employed to survey for the gnatcatcher. Proposed activities will not begin until an authorized biologist has been approved by the CFWO." A summary of the first survey conducted this week is summarized below.

Dudek Biologist Paul Lemons (Federal Permit Number TE051248-6) conducted the first of three focused California gnatcatcher (*Polioptila californica californica*; gnatcatcher) preconstruction surveys within a week of the initiation of pipeline installation along Avenida Sosiega to determine if nests, nesting behavior, or brood rearing activities are occurring within 300 feet of the project footprint. Pipeline installation has occurred through the Laguna Woods community for several months. However, construction along Avenida Sosiega occurs along the urban-wildlland interface with a portion of the Laguna Coast Wilderness Park.

The gnatcatcher survey was performed on-foot by walking meandering transects within all areas of suitable habitat, which included coastal sage scrub and coastal sage sub-associations. An approximate 8-foot high concrete wall and narrow band of ornamental vegetation separates the potential gnatcatcher habitat from Avenida Sosiega and residential area. This survey was conducted on April 16, 2018 from 7:20 am to 10:20 am, winds were between 0 and 5 miles per hour, and temperatures were 62 to 64 degrees Fahrenheit.

One gnatcatcher pair was observed foraging within approximately 140 feet of the project footprint during this survey (see attached map). However, no nests, nesting behavior, or brood rearing activities were detected within 300 feet of the impact area.

Signed: Paul Lemons **Date:** April 16, 2018

Paul Lemons
Biologist

Legend
CAGN pair 04/16/18
CAGN survey area
Vista Del Mando S
San Amadeo
Calle
Via Dicha
Luz Del Sol
Via Portora
Avenida Sosiega W
Avenida Sosiega
Via La Mesa
CAGN pair 04/16/18
Woods End Trail
Ridge Top Trail
El Toro Rd
Google Earth
© 2018 Google
900 ft
N

DUDEK

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Phase II Recycled Water Distribution System Expansion Project

PRECONSTRUCTION CALIFORNIA GNATCATCHER SURVEY

Survey Date:	April 21, 2018
Biologist:	Tricia Wotipka
Job No.:	10774
Client Contact:	Dennis Cafferty, El Toro Water District

This report has been prepared to comply with the Phase II Recycled Water Distribution System Expansion Project's State Revolving Fund financing agreement. The agreement requires that "…if construction between February 15 and August 30 (i.e., the gnatcatcher breeding season) is unavoidable, then surveys by a biological monitor will be conducted a minimum of three times on separate days after the initiation of the nesting season to determine the presence of gnatcatcher nest building activities, egg incubation activities, or brood rearing activities. These surveys will be conducted within the week prior to the initiation of construction. One survey will be conducted the day immediately prior to the initiation of construction. If no nests, nesting behavior, or brood rearing activities are detected within 300 feet of the impact area, work may commence. If nesting gnatcatchers are detected, gnatcatcher nest monitoring will be initiated and work will be postponed within 300 feet of the nesting pair(s) until the nest is determined either a success or failure by the biological monitor and approved by Carlsbad Fish and Wildlife Office (CFWO). The biologist must hold a 10(a)(1)(A) permit for the gnatcatcher. At least 7 days prior to initiation of surveys, the applicant will submit to the CFWO in writing, the name(s), and permit number(s) of all biologists that will be employed to survey for the gnatcatcher. Proposed activities will not begin until an authorized biologist has been approved by the CFWO." A summary of the second survey conducted is summarized below.

Dudek Biologist Tricia Wotipka (Federal Permit Number TE840619-3) conducted the second of three focused California gnatcatcher (*Polioptila californica california*; gnatcatcher) pre-construction surveys within a week initiation of pipeline installation along Avenida Sosiega and Via La Mesa to determine if nests, nesting behavior, or brood rearing activities are occurring within 300 feet of the project footprint. Pipeline installation has occurred through the Laguna Woods community for several months. However, construction along Avenida Sosiega occurs along the urban-wildlland interface with a portion of the Laguna Coast Wilderness Park.

The gnatcatcher survey was performed on-foot by walking meandering transects within all areas of suitable habitat, which included coastal sage scrub and coastal sage sub-associations. An approximate 8-foot high concrete wall and narrow band of ornamental vegetation separates the potential gnatcatcher habitat from Avenida Sosiega and residential area. This survey was conducted on April 21, 2018 from 9:00 am to 11:45 am, winds were calm between 0 and 3 miles per hour, and temperatures were 69 to 74 degrees Fahrenheit.

A gnatcatcher pair was confirmed to be nesting approximately 190 feet southeast from Avenida Sosiega, 205 feet southwest from Via La Mesa, and 260 feet northwest of El Toro Road during this survey. A small cup nest was located in coastal sage scrub vegetation near the northeast corner of an existing detention basin with an incubating male in full breeding plumage. Please see the attached markup for the approximate nest location.

Signed: Tricia Wotipka **Date:** April 21, 2018

Tricia Wotipka
Biologist

Legend
CAGN nest 04/21/18
CAGN survey area
Vista Del Mando S
San Amadeo
Calle
Via Dicha
Luz Del Sol
Via Portora
Avenida Sosiega W
Avenida Sosiega
Via La Mesa
El Toro Rd
Ridge Top Trail
Woods End Trail
CAGN nest 04/21/18
Google Earth
© 2018 Google
900 ft
N

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ENCINITAS, CA 92024
T 800.450.1818
F 760.632.0164

Phase II Recycled Water Distribution System Expansion Project

PRECONSTRUCTION CALIFORNIA GNATCATCHER SURVEY

Survey Date:	April 23, 2018
Biologist:	Tricia Wotipka
Job No.:	10774
Client Contact:	Dennis Cafferty, El Toro Water District

This report has been prepared to comply with the Phase II Recycled Water Distribution System Expansion Project's State Revolving Fund financing agreement. The agreement requires that "…if construction between February 15 and August 30 (i.e., the gnatcatcher breeding season) is unavoidable, then surveys by a biological monitor will be conducted a minimum of three times on separate days after the initiation of the nesting season to determine the presence of gnatcatcher nest building activities, egg incubation activities, or brood rearing activities. These surveys will be conducted within the week prior to the initiation of construction. One survey will be conducted the day immediately prior to the initiation of construction. If no nests, nesting behavior, or brood rearing activities are detected within 300 feet of the impact area, work may commence. If nesting gnatcatchers are detected, gnatcatcher nest monitoring will be initiated and work will be postponed within 300 feet of the nesting pair(s) until the nest is determined either a success or failure by the biological monitor and approved by Carlsbad Fish and Wildlife Office (CFWO). The biologist must hold a 10(a)(1)(A) permit for the gnatcatcher. At least 7 days prior to initiation of surveys, the applicant will submit to the CFWO in writing, the name(s), and permit number(s) of all biologists that will be employed to survey for the gnatcatcher. Proposed activities will not begin until an authorized biologist has been approved by the CFWO." A summary of the third and final survey conducted is summarized below.

Dudek Biologist Tricia Wotipka (Federal Permit Number TE840619-3) conducted the third and final focused California gnatcatcher (*Polioptila californica californica*; gnatcatcher) pre-construction surveys within a week initiation of pipeline installation along Avenida Sosiega to determine if nests, nesting behavior, or brood rearing activities are occurring within 300 feet of the project footprint. Pipeline installation has occurred through the Laguna Woods community for several months. However, construction along Avenida Sosiega occurs along the urban-wildlland interface with a portion of the Laguna Coast Wilderness Park.

The gnatcatcher survey was performed on-foot by walking meandering transects within all areas of suitable habitat, which included coastal sage scrub and coastal sage sub-associations. An approximate 8-foot high concrete wall and narrow band of ornamental vegetation separates the potential gnatcatcher habitat from Avenida Sosiega and residential area. This survey was conducted on April 23, 2018 from 9:00 am to 12:00 pm, winds were calm between 0 and 1 miles per hour, skies were clear, and temperatures ranged from 64 to 72 degrees Fahrenheit.

Ms. Wotipka confirmed the nesting gnatcatcher pair previously identified on April 21, 2018 near the northeast corner of the existing detention basin approximately 190 feet southeast from Avenida Sosiega, 205 feet southwest from Via La Mesa, and 260 feet northwest of El Toro Road. Both the male and female were seen incubating the nest during the survey. The number of eggs in the nest could not be determined as both the male and female were continuously incubating during the survey. No other gnatcatchers were observed in the survey area. Please see the attached markup for the approximate nest location.

Signed: Tricia Wotipka **Date:** April 23, 2018

Tricia Wotipka
Biologist


Legend
CAGN nest 04/21/18
CAGN survey area
Vista Del Mando S
San Amadeo
Calle
Via Dicha
Luz Del Sol
Via Portora
Avenida Sosiega W
Avenida Sosiega
Via La Mesa
El Toro Rd
Ridge Top Trail
Woods End Trail
CAGN nest 04/21/18
Google Earth
© 2018 Google
900 ft
N

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Phase II Recycled Water Distribution System Expansion Project

PRECONSTRUCTION CALIFORNIA GNATCATCHER SURVEY

Survey Date:	May 21, 2018
Biologist:	Tricia Wotipka
Job No.:	10774
Client Contact:	Dennis Cafferty, El Toro Water District

This report has been prepared to comply with the Phase II Recycled Water Distribution System Expansion Project's State Revolving Fund financing agreement. The agreement requires that "…if construction between February 15 and August 30 (i.e., the gnatcatcher breeding season) is unavoidable, then surveys by a biological monitor will be conducted a minimum of three times on separate days after the initiation of the nesting season to determine the presence of gnatcatcher nest building activities, egg incubation activities, or brood rearing activities. These surveys will be conducted within the week prior to the initiation of construction. One survey will be conducted the day immediately prior to the initiation of construction. If no nests, nesting behavior, or brood rearing activities are detected within 300 feet of the impact area, work may commence. If nesting gnatcatchers are detected, gnatcatcher nest monitoring will be initiated and work will be postponed within 300 feet of the nesting pair(s) until the nest is determined either a success or failure by the biological monitor and approved by Carlsbad Fish and Wildlife Office (CFWO). The biologist must hold a 10(a)(1)(A) permit for the gnatcatcher. At least 7 days prior to initiation of surveys, the applicant will submit to the CFWO in writing, the name(s), and permit number(s) of all biologists that will be employed to survey for the gnatcatcher. Proposed activities will not begin until an authorized biologist has been approved by the CFWO." A summary of a survey to determine the nesting status of an existing California gnatcatcher nest is summarized below.

Dudek Biologist Tricia Wotipka (Federal Permit Number TE840619-3) conducted a survey on May 21, 2018 to determine the nesting status of an existing California gnatcatcher (*Polioptila californica californica*; gnatcatcher) nest situated within 300 feet of the project footprint. Pipeline installation has occurred through the Laguna Woods community for several months. However, construction along Avenida Sosiega occurs along the urban-wildlland interface with a portion of the Laguna Coast Wilderness Park.

The survey was conducted on May 21, 2018 from 9:30 am to 10:30 am, winds were calm between 0 and 1 miles per hour, skies were cloudy, and temperatures ranged from 59 to 61 degrees Fahrenheit.

Ms. Wotipka confirmed that the nesting gnatcatcher pair previously identified on April 21 and 23, 2018 near the northeast corner of the existing detention basin approximately 190 feet southeast from Avenida Sosiega, 205 feet southwest from Via La Mesa, and 260 feet northwest of El Toro Road was no longer active as the young had hatched and fledged the nest. The gnatcatcher pair plus two juveniles were observed foraging as a family group on the south side of the existing dirt access easement. The nest was confirmed to be no longer occupied. The survey was cancelled after one hour of survey time due to the onset of light rain. No other gnatcatchers were observed in the survey area during the survey period.

Signed: Tricia Wotipka **Date:** May 21, 2018

Tricia Wotipka
Biologist

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Phase II Recycled Water Distribution System Expansion Project

PRECONSTRUCTION CALIFORNIA GNATCATCHER SURVEY

Survey Date: June 11, 2018

Biologist: Tricia Wotipka

Job No.: 10774

Client Contact: Dennis Cafferty, El Toro Water District

This report has been prepared to comply with the Phase II Recycled Water Distribution System Expansion Project's State Revolving Fund financing agreement. The agreement requires that "…if construction between February 15 and August 30 (i.e., the gnatcatcher breeding season) is unavoidable, then surveys by a biological monitor will be conducted a minimum of three times on separate days after the initiation of the nesting season to determine the presence of gnatcatcher nest building activities, egg incubation activities, or brood rearing activities. These surveys will be conducted within the week prior to the initiation of construction. One survey will be conducted the day immediately prior to the initiation of construction. If no nests, nesting behavior, or brood rearing activities are detected within 300 feet of the impact area, work may commence. If nesting gnatcatchers are detected, gnatcatcher nest monitoring will be initiated and work will be postponed within 300 feet of the nesting pair(s) until the nest is determined either a success or failure by the biological monitor and approved by Carlsbad Fish and Wildlife Office (CFWO). The biologist must hold a 10(a)(1)(A) permit for the gnatcatcher. At least 7 days prior to initiation of surveys, the applicant will submit to the CFWO in writing, the name(s), and permit number(s) of all biologists that will be employed to survey for the gnatcatcher. Proposed activities will not begin until an authorized biologist has been approved by the CFWO."

Dudek Biologist Tricia Wotipka (Federal Permit Number TE840619-3) conducted a single pre-construction survey to determine if California gnatcatcher (*Polioptila californica california*; gnatcatcher) nests, nesting behavior, or brood rearing activities are occurring within 300 feet of the project footprint. Pipeline installation has occurred through the Laguna Woods community for several months. However, construction along Avenida Sosiega occurs along the urban-wildlland interface with a portion of the Laguna Coast Wilderness Park.

The gnatcatcher survey was performed on-foot by walking meandering transects within all accessible areas of suitable habitat, which included coastal sage scrub and coastal sage sub-associations. Areas that were too steep or densely vegetated were evaluated from the existing dirt access easement using 10x42 magnification binoculars. An approximate 8-foot high concrete wall and narrow band of ornamental vegetation separates the potential gnatcatcher habitat from Avenida Sosiega and residential area. This survey was conducted on June 11, 2018 from 9:00 am to 12:00 pm, winds were between 0 and 3 miles per hour, and temperatures ranged from 74 to 78 degrees Fahrenheit.

One gnatcatcher pair and a single breeding (black-capped) male were observed foraging on both the north and south side of the existing dirt acces road within approximately 140 feet of the project footprint during this survey (see attached map). However, no nests, nesting behavior, or brood rearing activities were detected within 300 feet of the impact area.

Signed: Tricia Wotipka **Date:** June 11, 2018

Tricia Wotipka
Biologist

SOURCE: El Toro Water District; NAIP 2016

DUDEK

0 100 200 Feet

FIGURE 1

Study Area - CAGN Field Map

ETWD Phase II

SOURCE: El Toro Water District; NAIP 2016

DUDEK

0 100 200 Feet

FIGURE 1

Study Area - CAGN Field Map

ETWD Phase II

APPENDIX C

Cultural Resources Assessment

CULTURAL RESOURCES INVENTORY REPORT FOR THE OSO LIFT STATION IMPROVEMENTS PROJECT, EL TORO WATER DISTRICT

PREPARED FOR:

EL TORO WATER DISTRICT

24251 Los Alisos Boulevard
Lake Forest, California 92630
Contact: Dennis Cafferty

PREPARED BY:

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Micah Hale, PhD, RPA

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AUGUST 2018

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NATIONAL ARCHAEOLOGICAL DATABASE (NADB) INFORMATION

Authors:	Erica Nicolay, MA, and PhD Micah Hale, PhD, RPA
Firm:	Dudek
Project Proponent:	El Toro Water District, 24251 Los Alisos Boulevard, Lake Forest, California 92630
Report Date:	August 2018
Report Title:	Cultural Resources Study for the El Toro Water District Oso Lift Station Improvements Project, Laguna Woods, Orange County, California
Type of Study:	Cultural Resources Inventory
New Sites:	None
Updated Sites:	None
USGS Quads:	*San Juan Capistrano*, CA 1:24,000; Township 7 South, Range 8 West; Sections 6
Acreage:	Approximately 0.06-acre
Keywords:	survey, reconnaissance, negative results, approximately 0.06-acre, City of Laguna Woods, San Juan Capistrano and Laguna Beach USGS Quadrangles; Township 6 South/ 7 South, Range 8 West; Sections 5, 6, 31, 32

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EXECUTIVE SUMMARY

Dudek was retained by the El Toro Water District (ETWD; District) to conduct a cultural resources study for the proposed El Toro Water District Oso Lift Station Improvement Project (proposed project). The cultural resources study included the following components: (1) a review of CHRIS records search covering the proposed project site plus a 0.25-mile radius conducted in 2015 and 2016 at the SCCIC; (2) a review of the California Native American Heritage Commission's Sacred Lands File; (3) ;a summary of the AB52 outreach with local Native American tribes/groups identified by the NAHC to collect any information they may have concerning cultural resources; (4) a pedestrian survey of the project site for cultural resources; and (5) recommendations. This report meets the format and content requirements of the Archaeological Resource Management Report (ARMR) report format and content guidelines recommended by the California Office of Historic Preservation (OHP 1995).

This study is compliant with local regulations and California Public Resources Code (PRC) Section 5024.1, Sections 21083.2 and 21084.1 of the California Environmental Quality Act (CEQA) (California PRC Section 21000 et. seq.), and Section 15064.5 of the CEQA Guidelines (California Code of Regulations Section 15000 et. seq.). PRC Section 5024.1 requires identification and evaluation of historical resources that may be affected by a proposed project.

Dudek reviewed the results of two California Historical Resources Information System (CHRIS) records searches, which were conducted for the El Toro Phase I Recycled Water project in 2015 at the South Central Coastal Information Center (SCCIC). The 2015 record search was conducted for a project to the northeast of the proposed project site and included a one mile buffer which overlaps with proposed project site.f No previously recorded resources were identified within the project site or within a 0.5 mile buffer of the project site as a result of the search. Dudek, as requested by ETWD, conducted all Native American outreach for this study including contacting the Native American Heritage Commission (NAHC) to request a review of the Sacred Lands File (SLF). Dudek also conducted all Assembly Bill (AB) 52 outreach on behalf of the District. Dudek conducted a reconnaissance level pedestrian survey of the project site on July 17, 2018. No archaeological resources were identified within the project site as a result of the survey.

A review of the records search and available literature did not identify any cultural resources within the proposed project site. The absence of significant cultural resources intersecting the proposed project, the lack of cultural resources in the project vicinity, as well as the disturbed nature of the proposed project site, indicates that there is a low potential for the discovery of archaeological deposits during project implementation. As such, no additional cultural work is recommended for the proposed project beyond the standard protection measures for unanticipated discoveries or archaeological resources and human remains.

1 INTRODUCTION

The El Toro Water District is proposing to improve the Oso Sewage Lift Station (OSLS) located at 25001 El Toro Road within the City of Laguna Woods (City). The improvements would include the demolition of the existing lift station and the installation of a new lift station and associated improvements (i.e., wet well and valve vault, new pumps, a new electrical system, new monitoring equipment, and other components). The footprint of the pump station would expand 10 feet to the north onto land that would be acquired from the City.

1.1 Project Location

The proposed project is located within an existing ETWD service area in the southwestern portion of the City, in Orange County, California (Figure 1). The proposed project is located directly south of the entrance to the Laguna Coast Wilderness Park-Woods End Trail at the intersection of El Toro Road and Aliso Creek Road, approximately 0.5 miles north of California State Route 73 freeway. There are residential subdivisions developed to the north, south, and east of the project site. The area to the west is undeveloped land and is part of the Laguna Coast Wilderness Park. Specifically the proposed project site is in Section 6 of Township 7 South, Range 8 West, as depicted on the attached 1:24,000 scale *San Juan Capistrano* topographic quadrangle map (Figure 2).

1.2 Project Description

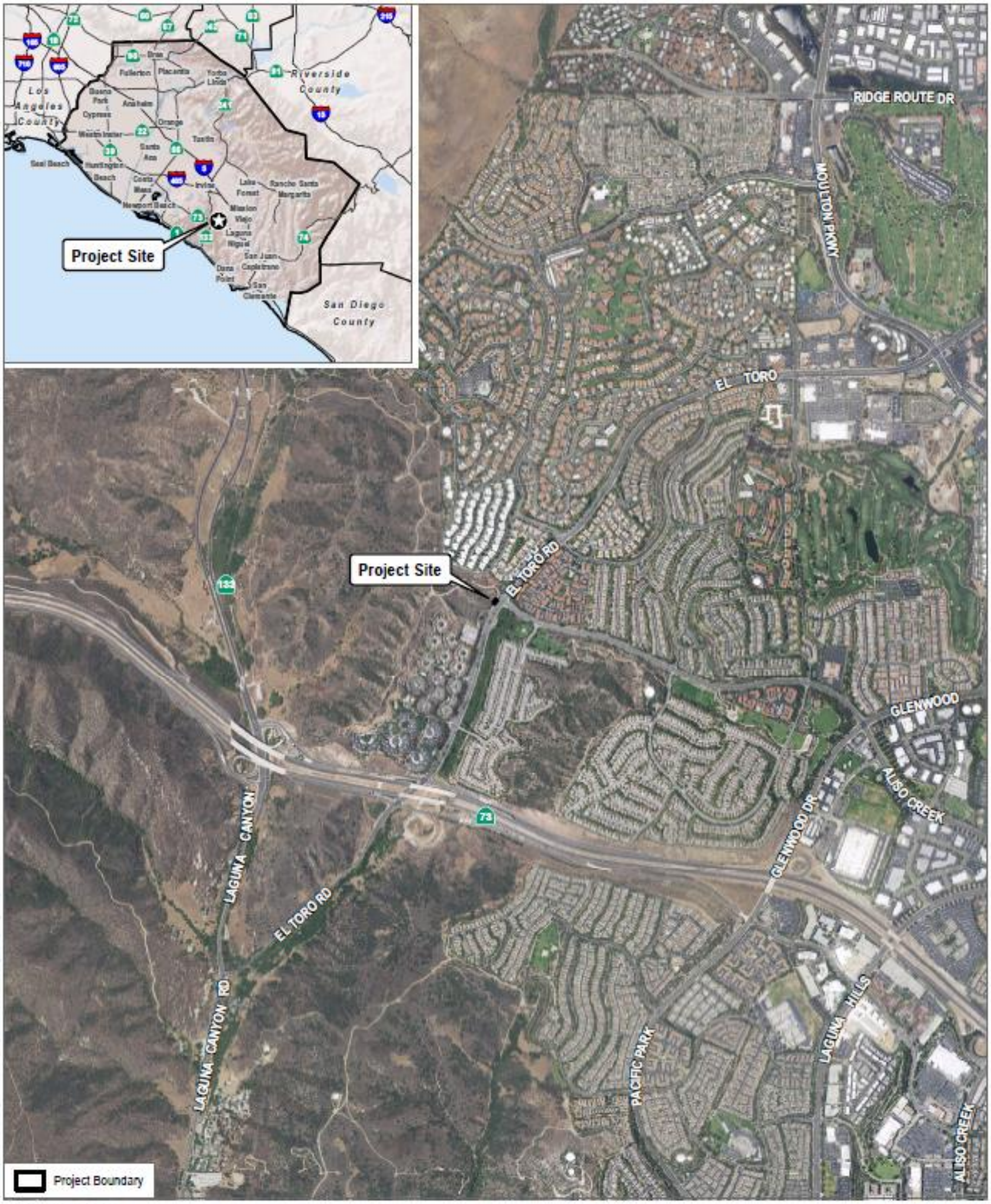
ETWD is proposing to replace the existing OSLS and associated equipment with a new lift station in order to improve the station's reliability and serviceability. The existing pump station is outdated and poses significant maintenance costs for ETWD and is nearing the end of its useful life. The new lift station would consist of a new pre-cast wet well with submersible pumps, a valve vault (including a meter), back-up generator, and an outdoor electrical enclosure. Implementation of the project would require the site to be expanded 10 feet to the north.

1.3 Project Construction

Construction of the proposed new lift station is anticipated to begin in December 2018 and would be completed in spring 2019. Partial demolition and construction would occur in two phases**.** Phase I demolition would involve removal of existing vegetation and wooden fence from the north side of the site; relocating irrigation and the water meter; removing portions of the block wall; and removing the rolling gate, existing generator, and existing manhole (see Figure C-101). Phase 1 construction would involve placement of the new wet well, and installation of the new influent sewer, manhole, electrical features, submersible pumps, discharge piping, and Moulton Niguel Water District (MNWD) overflow pipeline in El Toro Road**.** Once the new pump is in service, the block wall would be rebuilt around the north and east sites of the facility.

Phase II demolition would involve removal of the existing dry pit building and foundation slab, motor control center building, and any mechanical and electrical features inside the existing pump station building (see Figure C-101). Phase II construction would involve the installation of the new generator and base slab, and the completion of any remaining site work.

The use of a dozer, backhoe crane, and or dump trucks would be necessary for project construction. Not all construction equipment would be operating simultaneously. Due to site constraints, staging and worker parking would occur at ETWD's Water Recycling Plant located at 23542 Moulton Parkway, Laguna Woods, California.



SOURCE: USDA 2016

DUDEK 0 1,000 2,000 Feet

FIGURE 1

Project Regional Map

El Toro Water District Oso Lift Station Project

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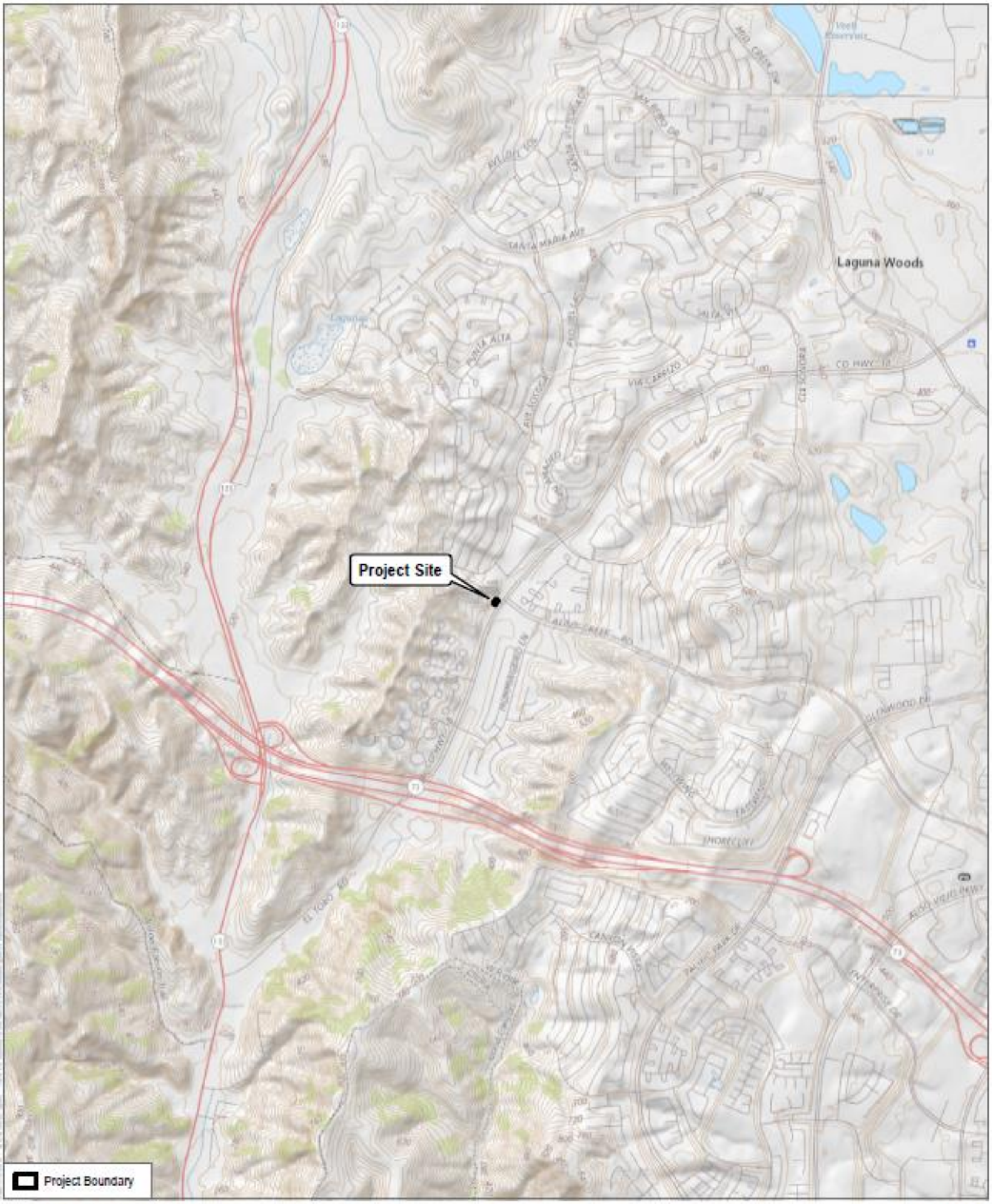

SOURCE: USGS Topo Basemap San Juan Capistrano & Laguna Beach Quadrangles
Township 6S, 7S; Range 8W; Sections 5, 6, 31, 32

DUDEK

FIGURE 2

Project Location Map

El Toro Water District Oso Lift Station Project

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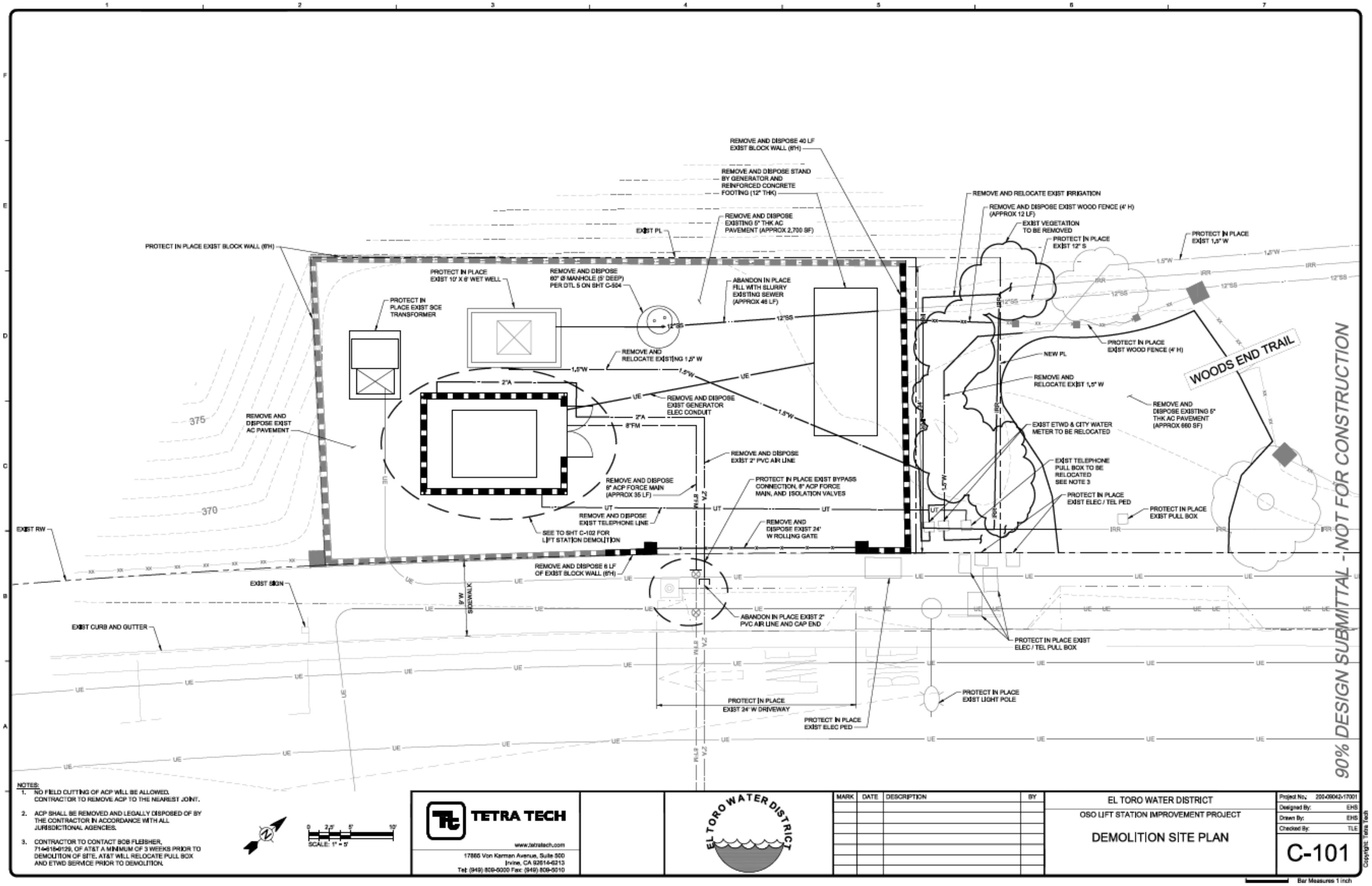
EL TORO WATER DISTRICT
OSO LIFT STATION IMPROVEMENT PROJECT
DEMOLITION SITE PLAN
C-101
TETRA TECH
WOODS END TRAIL
90% DESIGN SUBMITTAL - NOT FOR CONSTRUCTION
NOTES:
1. NO FIELD CUTTING OF ACP WILL BE ALLOWED. CONTRACTOR TO REMOVE ACP TO THE NEAREST JOINT.
2. ACP SHALL BE REMOVED AND LEGALLY DISPOSED OF BY THE CONTRACTOR IN ACCORDANCE WITH ALL JURISDICTIONAL AGENCIES.
3. CONTRACTOR TO CONTACT BOB FLEISHER, 714-616-0129, OF AT&T A MINIMUM OF 3 WEEKS PRIOR TO DEMOLITION OF SITE. AT&T WILL RELOCATE PULL BOX AND ETWD SERVICE PRIOR TO DEMOLITION.

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2 REGULATORY SETTING

2.1 Federal

2.1.1 The National Historic Preservation Act

The National Register of Historic Places (NRHP) is the United States' official list of districts, sites, buildings, structures, and objects worthy of preservation. Overseen by the National Park Service (NPS), under the U.S. Department of the Interior, the NRHP was authorized under the NHPA, as amended (16 U.S.C. 470 et seq.). Its listings encompass all National Historic Landmarks, as well as historic areas administered by NPS.

NRHP guidelines for the evaluation of historic significance were developed to be flexible and to recognize the accomplishments of all who have made significant contributions to the nation's history and heritage. Its criteria are designed to guide state and local governments, federal agencies, and others in evaluating potential entries in the NRHP. For a property to be listed in or determined eligible for listing, it must be demonstrated to possess integrity and to meet at least one of the following criteria:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of persons significant in our past; or

C. That embody 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; or

D. That have yielded, or may be likely to yield, information important in prehistory or history.

Integrity is defined in NRHP guidance, *How to Apply the National Register Criteria,* as "the ability of a property to convey its significance. To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must have integrity" (NPS 1990). NRHP guidance further asserts that properties be completed at least 50 years ago to be considered for eligibility. Properties completed fewer than 50 years before evaluation must be proven to be "exceptionally important" (criteria consideration G) to be considered for listing.

A historic property is defined as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the NRHP criteria" (36 CFR Sections 800.16(i)(1)).

Effects on historic properties under Section 106 of the NHPA are defined in the assessment of adverse effects in 36 CFR Sections 800.5(a)(1):

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

Adverse effects on historic properties are clearly defined and include, but are not limited to:

(i) Physical destruction of or damage to all or part of the property;

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;

(iii) Removal of the property from its historic location;

(iv) Change of the character of the property's use or of physical features within the property's setting that contributes to its historic significance;

(v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance (36 CFR 800.5 (2)).

To comply with Section 106, the criteria of adverse effect are applied to historic properties, if any exist in the Project Area of Potential Effect (APE), pursuant to 36 CFR Sections 800.5(a)(1). If no historic properties are identified in the APE, a finding of "no historic properties affected" will be made for the proposed Project. If there are historic properties in the APE, application of the criteria of adverse effect will result in Project-related findings of either "no adverse effect" or of "adverse effect," as described above. A finding of no adverse effect may be appropriate when the undertaking's effects do not meet the thresholds in criteria of adverse effect 36 CFR Sections 800.5(a)(1), in certain cases when the undertaking is modified to avoid or lessen effects, or if conditions were imposed to ensure review of rehabilitation plans for conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (codified in 36 CFR Part 68).

If adverse effects findings were expected to result from the proposed Project, mitigation would be required, as feasible, and resolution of those adverse effects by consultation may occur to avoid, minimize, or mitigate adverse effects on historic properties pursuant to 36 CFR Part 800.6(a).

2.2 State

2.2.1 The California Register of Historical Resources (California Public Resources Code, Section 5020 et seq.)

In California, the term "historical resource" includes, but is not limited to, "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (California Public Resources Code (PRC), Section 5020.1(j)). In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1(a)). The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP, enumerated below. According to PRC Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

(2) Is associated with the lives of persons important in our past.

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

(4) Has yielded, or may be likely to yield, information important in prehistory or history.

In order to understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see 14 California Code of Regulations [CCR] 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

2.2.2 California Environmental Quality Act

As described further, the following CEQA statutes (PRC Section 21000 et seq.) and CEQA Guidelines (14 CCR 15000 et seq.) are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- PRC Section 21083.2(g) defines "unique archaeological resource."
- PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a) defines "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource"; it also defines the circumstances when a project would materially impair the significance of a historical resource.
- PRC Section 21074(a) defines "tribal cultural resources."
- PRC Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
- PRC Sections 21083.2(b) and 21083.2(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures. Preservation in place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

More specifically, under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (PRC Section 21084.1; 14 CCR 15064.5(b)). If a site is listed or eligible for listing in the CRHR, or included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of PRC Section 5024.1(q)), it is an "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (PRC Section 21084.1; 14 CCR 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (PRC Section 21084.1; 14 CCR 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (14 CCR 15064.5(b)(1); PRC Section 5020.1(q)). In turn, the significance of a historical resource is materially impaired when a project does any of the following:

(1) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or

(2) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

(3) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA (14 CCR 15064.5(b)(2)).

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project area contains any "historical resources," then evaluates whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (PRC Sections 21083.2(a)–(c)).

Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC Section 21083.2(g)).

Impacts on nonunique archaeological resources are generally not considered a significant environmental impact (PRC Section 21083.2(a); 14 CCR 15064.5(c)(4)). However, if a nonunique archaeological resource qualifies as a tribal cultural resource (PRC Sections 21074(c) and 21083.2(h)), further consideration of significant impacts is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in PRC Section 5097.98.

2.2.3 Assembly Bill 52

Assembly Bill 52 of 2014 (AB 52) amended PRC Section 5097.94 and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3.

Consultation with Native Americans

AB 52 formalizes the consultation process between lead agencies and tribal representatives, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project site and/or area. This may include tribes that not federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or EIR.

Tribal Cultural Resources

Section 4 of AB 52 adds Sections 21074 (a) and (b) to the PRC, addressing tribal cultural resources and cultural landscapes. Section 21074 (a) defines tribal cultural resources as one of the following:

1. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
    a. Included or determined to be eligible for inclusion in the California Register of Historical Resources.
    b. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
2. 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Section 1 (a)(9) of AB 52 establishes that "a substantial adverse change to a tribal cultural resource has a significant effect on the environment." Effects on tribal cultural resources should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures "capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource." Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects to tribal cultural resources, the consultation shall include those topics (PRC Section 21080.3.2[a]). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted (PRC Section 21082.3[a]). Information Center." (CEQA Guidelines section 15126.4(b)(3)(D).)

2.2.4 Native American Historic Cultural Sites (California Public Resources Code section 5097 et seq.)

The Native American Historic Resources Protection Act (Public Resources Code section 5097, et seq.) addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the NAHC to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor punishable by up to 1 year in jail to deface or destroy an Indian historic or cultural site that is listed or may be eligible for listing in the CRHR.

2.2.5 California Native American Graves Protection and Repatriation Act

The California Native American Graves Protection and Repatriation Act (California Repatriation Act), enacted in 2001, requires all state agencies and museums that receive state funding and that have possession or control over collections of human remains or cultural items, as defined, to complete an inventory and summary of these remains and items on or before January 1, 2003, with certain exceptions. The California Repatriation Act also provides a process for the identification and repatriation of these items to the appropriate tribes.

2.2.6 California Health and Safety Code Section 7050.5

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. California Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the county coroner has examined the remains (Section 7050.5(b)). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact NAHC within 24 hours (Section 7050.5(c)). NAHC will notify the "most likely descendant." With the permission of the landowner, the most likely descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the most likely descendant by NAHC. The most likely descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

3 SETTING

3.1 Environmental Setting

The existing lift station property (facility) is surrounded on three sides by the Laguna Coast Wilderness (to the north, west, and south). A 6-foot-high cinderblock perimeter wall surrounding the facility separates the facility on three sides from the sloping terrain and vegetation of the wilderness park. The facility's eastern boundary runs parallel to El Toro Road. Beyond the facility's immediate boundaries, land uses surrounding the project site include a mix of developed single-family residential developments and open space associated with the Laguna Coast Wilderness.

3.2 Cultural Setting

3.2.1 Prehistoric Overview (pre 5500 BC-AD 1750)

Evidence for continuous human occupation in the region spans the last 10,000 years. Various attempts to parse out variability in archaeological assemblages over this broad time frame have led to the development of several cultural chronologies; some of these are based on geologic time, most are based on temporal trends in archaeological assemblages, and others are interpretive reconstructions. Each of these reconstructions describes essentially similar trends in assemblage composition in more or less detail. This research employs a common set of generalized terms used to describe chronological trends in assemblage composition: Paleoindian (pre-5500 BC), Archaic (8000 BC–AD 500), Late Prehistoric (AD 500–1750), and Ethnohistoric (post-AD 1750).

Paleoindian (pre-5500 BC)

Evidence for Paleoindian occupation in the region is tenuous; the knowledge of associated cultural pattern(s) is informed by a relatively sparse body of data that has been collected from within an area extending from coastal San Diego through the Mojave Desert and beyond. One of the earliest dated archaeological assemblages in this area (excluding the Channel Islands) derives from SDI-4669/W-12, in La Jolla, San Diego County. A human burial from SDI-4669 was radiocarbon dated to 9,590–9,920 years before present (95.4% probability) (Hector 2006). The burial is part of a larger site complex that contained more than 29 human burials associated with an assemblage that fits the Archaic profile (i.e., large amounts of groundstone, battered cobbles, and expedient flake tools). In contrast, typical Paleoindian assemblages include large stemmed projectile points, high proportions of formal lithic tools, bifacial lithic reduction strategies, and relatively small proportions of groundstone tools. Prime examples of this pattern are sites that were studied by Emma Lou Davis (1978) on China Lake Naval Air Weapons Station near Ridgecrest, California. These sites contained fluted and unfluted stemmed points and large numbers of formal flake tools (e.g., shaped scrapers, blades). Other typical Paleoindian sites include the Komodo site (MNO-679), a multicomponent fluted point site, and MNO-680, a single component Great Basined stemmed point site

(Basgall et al. 2002). At MNO-679 and MNO-680, groundstone tools were rare, while finely made projectile points were common.

Warren et al. (2004) claimed that a biface manufacturing tradition present at the Harris site complex (SDI-149) is representative of typical Paleoindian occupation in the Southern California region that possibly dates between 10,365 and 8200 BC (Warren et al. 2004, p. 26). Termed San Dieguito (Rogers 1945), assemblages at the Harris site, located in the area now occupied by City of Escondido, are qualitatively distinct from most others in the region because the site has large numbers of finely made bifaces (including projectile points), formal flake tools, a biface reduction trajectory, and relatively small amounts of processing tools (Warren 1964, 1968). Despite the unique assemblage composition, the definition of San Dieguito as a separate cultural tradition is debated. Gallegos (1987) suggested that the San Dieguito pattern is simply an inland manifestation of a broader economic pattern. Gallegos' interpretation of San Dieguito has been widely accepted in recent years, in part because of the difficulty in distinguishing San Dieguito components from other assemblage constituents. In other words, it is easier to ignore San Dieguito as a distinct socioeconomic pattern than it is to draw it out of mixed assemblages.

The large number of finished bifaces (i.e., projectile points and non-projectile blades), along with large numbers of formal flake tools at the Harris site complex, is very different than nearly all other assemblages throughout the region, regardless of age. Warren et al. (2004) made this point, tabulating basic assemblage constituents for key early Holocene sites. Producing finely made bifaces and formal flake tools implies that relatively large amounts of time were spent for tool manufacture. Such a strategy contrasts with the expedient flake-based tools and cobble-core reduction strategy that typifies non-San Dieguito Archaic sites. It can be inferred from the uniquely high degree of San Dieguito assemblage formality that the Harris site complex represents a distinct economic strategy from non-San Dieguito assemblages.

If San Dieguito truly represents a distinct socioeconomic strategy from the non-San Dieguito Archaic processing regime, its rarity implies that it was not only short-lived, but that it was not as economically successful as the Archaic strategy. Such a conclusion would fit with the general trends in Southern California deserts, wherein hunting-related tools are replaced by processing tools during the early Holocene (Basgall and Hall 1990).

Archaic (8000 BC–AD 500)

The more than 1500-year overlap between the presumed age of Paleoindian occupations and the Archaic period highlights the difficulty in defining a cultural chronology in the region. If San Dieguito is the only recognized Paleoindian component in the region, then the dominance of hunting tools implies that it derives from Great Basin adaptive strategies and is not necessarily a local adaptation. Warren et al. (2004) admitted as much, citing strong desert connections with San Dieguito. Thus, the Archaic pattern is the earliest local socioeconomic adaptation in the region (Hale 2001, 2009).

The Archaic pattern is relatively easy to define with assemblages that consist primarily of processing tools: millingstones, handstones, battered cobbles, heavy crude scrapers, incipient flake-based tools, and cobble-core reduction. These assemblages occur in all environments across the region, with little variability in tool composition. Low assemblage variability over time and space among Archaic sites has been equated with cultural conservatism (Byrd and Reddy 2002; Warren 1968; Warren et al. 2004). Despite enormous amounts of archaeological work at Archaic sites, little change in assemblage composition occurs until the bow and arrow is adopted at around AD 500, as well as ceramics at approximately the same time (Griset 1996; Hale 2009). Even then, assemblage formality remains low. After the bow is adopted, small arrow points appear in large quantities, and already low amounts of formal flake tools are replaced by increasing amounts of expedient flake tools. Similarly, shaped millingstones and handstones decrease in proportion relative to expedient, unshaped groundstone tools (Hale 2009). Thus, the terminus of the Archaic period is equally as hard to define as its beginning because basic assemblage constituents and patterns of manufacturing investment remain stable, complimented only by the addition of the bow and ceramics.

Late Prehistoric (AD 500–1750)

The period of time following the Archaic and prior to Ethnohistoric times (AD 1750) is commonly referred to as the Late Prehistoric (Rogers 1945; Wallace 1955; Warren et al. 2004). However, several other subdivisions continue to be used to describe various shifts in assemblage composition, including the addition of ceramics and cremation practices. The post-AD 1450 period is called the San Luis Rey Complex (Meighan and True 1977). Rogers (1929) also subdivided the last 1,000 years into the Yuman II and III cultures, based on the distribution of ceramics. Despite these regional complexes, each is defined by the addition of arrow points and ceramics and the widespread use of bedrock mortars. Vagaries in the appearance of the bow and arrow and ceramics make the temporal resolution of the San Luis Rey complex difficult. For this reason, the term Late Prehistoric is well-suited to describe the last 1,500 years of prehistory in the region.

Temporal trends in socioeconomic adaptations during the Late Prehistoric period are poorly understood. This is partly due to the fact that the fundamental Late Prehistoric assemblage is very similar to the Archaic pattern but includes arrow points and large quantities of fine debitage from producing arrow points, ceramics, and cremations. While steatite was commonly the material of choice for vessel production, it was generally replaced near the time of missionization by locally procured clay to produce ceramic vessels. The appearance of mortars and pestles is difficult to place in time because most mortars are on bedrock. Some argue that the Ethnohistoric intensive acorn economy extends as far back as AD 500 (Bean and Shipek 1978). However, there is no substantial evidence that reliance on acorns, and the accompanying use of mortars and pestles, occurred prior to AD 1400. True (1980) argued that acorn processing and ceramic use in the region did not occur until the San Luis Rey pattern emerged after approximately AD 1450.

3.2.2 Ethnohistoric (post-AD 1750)

The history of the Native American communities prior to the mid-1700s has largely been reconstructed through later mission-period and early ethnographic accounts. The first records of the Native American inhabitants of the region come predominantly from European merchants, missionaries, military personnel, and explorers. These brief, and generally peripheral, accounts were prepared with the intent of furthering respective colonial and economic aims and were combined with observations of the landscape. They were not intended to be unbiased accounts regarding the cultural structures and community practices of the newly encountered cultural groups. The establishment of the missions in the region brought more extensive documentation of Native American communities, though these groups did not become the focus of formal and in-depth ethnographic study until the early twentieth century (Bean and Shipek 1978; Boscana 1846; Fages 1937; Geiger and Meighan 1976; Harrington 1934; Laylander 2000; White 1963). The principal intent of these researchers was to record the precontact, culturally specific practices, ideologies, and languages that had survived the destabilizing effects of missionization and colonialism. This research, often understood as "salvage ethnography," was driven by the understanding that traditional knowledge was being lost due to the impacts of modernization and cultural assimilation. Alfred Kroeber applied his "memory culture" approach (Lightfoot 2005, p. 32) by recording languages and oral histories within the region. Ethnographic research by Dubois, Kroeber, Harrington, Spier, and others during the early twentieth century seemed to indicate that traditional cultural practices and beliefs survived among local Native American communities.

It is important to note that even though there were many informants for these early ethnographies who were able to provide information from personal experiences about Native American life before European immigration, a significantly large proportion of these informants were born after 1850; therefore, the documentation of pre-contact, aboriginal culture was being increasingly supplied by individuals born in California after considerable contact with Europeans. This is an important issue to note when examining these ethnographies, since considerable culture change had undoubtedly occurred by 1850 among the Native American survivors of California.

Based on ethnographic information, it is believed that at least 88 different languages were spoken from Baja California Sur to the southern Oregon state border at the time of Spanish contact (Johnson and Lorenz 2006, p. 34). The distribution of recorded Native American languages has been dispersed as a geographic mosaic across California through six primary language families (Golla 2007, p. 71). Victor Golla has contended that one can interpret the amount of variability within specific language groups as being associated with the relative "time depth" of the speaking populations (Golla 2007, p. 80) A large amount of variation within the language of a group represents a greater time depth than a group's language with less internal diversity. One method that he has employed is by drawing comparisons with historically documented changes in Germanic and Romantic language groups. Golla has observed that the "absolute chronology of the internal diversification within a language family" can be correlated with archaeological dates (2007, p. 71). This type of interpretation is modeled on concepts of genetic drift and gene flows that are associated with migration and population isolation in the biological sciences.

The Native American inhabitants of the region would have generally spoken Luiseño-Juaneño (Acjachemen) and Gabrielino (or Tongva) varieties of Takic, which may be assigned to the larger Uto-Aztecan family (Golla 2007, p. 74). Golla has interpreted the amount of internal diversity within these language-speaking communities to reflect a time depth of approximately 2,000 years. Other researchers have contended that Takic may have diverged from Uto-Aztecan ca. 2600 BC–AD 1, which was later followed by the diversification within the Takic speaking tribes, occurring approximately 1500 BC–AD 1000 (Laylander 2010). The Acjachemen and Tongva represent the descendants of local Late Prehistoric populations. They are generally considered to have migrated into the area from the Mojave Desert, possibly displacing the prehistoric ancestors of the Yuman-speaking Kumeyaay (Ipai-Tipai) that lived to the south during Ethnohistoric times. The Luiseño-Juaneño shared boundaries with the Gabrielino and Serrano to the west and northwest, the Cahuilla to the east, the Cupeño to the southeast, and the Kumeyaay to the south (Bean and Shipek 1978; Kroeber 1925). Southern Native American tribal groups of the San Diego and southern Imperial region have traditionally spoken Yuman languages, a subgroup of the Hokan Phylum.

The Uto-Aztecan inhabitants of the region were called Juaneño and Gabrielino by Franciscan friars who established the Missions San Juan Capistrano and San Gabriel Arcángel the traditional territory of these two respective tribes. The project site is east of Aliso Creek, which is considered by Kroeber (1925) to be the ethnographic boundary marker between the Gabrielino (or Tongva) (west of the Aliso Creek) and Juaneño (east of the Aliso Creek). A brief description of both ethnographic groups is provided in the following text.

The Gabrielino may have numbered as many as 5,000 people during their peak in the pre-contact period; however, population estimates are difficult due to the gradual process of missionization (Kroeber 1925). The Gabrielino territory included the Los Angeles Basin, the coast of Aliso Creek in Orange County to the south, and Topanga Canyon in the north, the four southern Channel Islands, and watersheds of the Los Angeles, San Gabriel, and Santa Ana Rivers. At the time of European contact, the Gabrielino were actively involved in trade using shell and beads as currency. The Gabrielino produced pipes, ornaments, cooking implements, inlay work, and basketry. Dwellings were constructed of tule mats on a framework of poles, but size and shape have not been recorded (Kroeber 1925). Basketry and steatite vessels were used rather than ceramics until near the end of the mission period in the nineteenth century (Garcia et Al. 2011).

The Juaneño, or Acjachemen, territory was bounded to the north by Aliso Creek, the east by the crest of the Santa Ana Mountains, the south by San Onofre Creek, and west by the Pacific Ocean (Kroeber 1925:636). Ethnographic, linguistic, and archaeological evidence indicate that Juaneño and Luiseño are one cultural/tribal group. There is no existing record of the Juaneño population during the pre-contact period. Records indicated that approximately 1,300 individuals culturally affiliated with the Juaneño resided at Mission San Juan Capistrano in the year 1800 (Engelhardt 1922). The mission death register shows as many as 4,000 native burials in the mission cemetery (White 1963). It is clear from that arrival of the Spanish decimated Native peoples through disease and changed living conditions (Bean and Shipek 1978).

The tribes of the region were organized into patrilineal clans or bands centered on a chief, composed of 25–30 people (Kroeber 1925), each of which had their own territorial land or range where food and other resources were collected at different locations throughout the year (Sparkman 1908). The title of chief was heritable along family lines. Inter-band conflict was most common over trespassing. Sparkman observed that "when questioned as to when or how the land was divided and subdivided, the Indians say they cannot tell, that their fathers told them that it had always been thus" (1908). Place names were assigned to each territory, often reflecting common animals, plants, physical landmarks, or cosmological elements that were understood as being related to that location. Marriages were generally arranged by parents or guardians. Free and widowed women had the option to choose their partner. Polygamy occurred though was not common, often with a single man marrying a number of sisters and wives. Shamanism was a major component in tribal life. The physical body and its components was thought to be related to the power of an individual, and wastes such as fluids, hair, and nails were discarded with intent. Hair, once cut, was often carefully collected and buried to avoid being affected negatively or controlled by someone who wishes them harm. Some locations and natural resources were of cultural significance. Springs and other water-related features were thought to be related with spirits. These resources, often a component of origin stories, had power that came with a variety of risks and properties to those who became affected. Puberty ceremonies for both boys and girls were complex and rigorous. Mourning ceremonies were similar throughout the region, generally involving cutting of the hair, burning the deceased's clothes a year after death, and redistributing personal items to individuals outside of the immediate tribal group (Sparkman 1908; Kroeber 1925). The center of the Juaneño and Gabrielino religion was *Chinigchinich*, the last of a series of heroic mythological figures. The heroes were originally from the stars and the sagas told of them formed the Juaneño religious beliefs. The most obvious expression of the religion was the *Wankech*, a brush enclosed area where religious observances were performed. The *Wankech* contained an inner enclosure housing a representation of *Chinigchinich*, a coyote skin stuffed with feathers, claws, beaks, and arrows.

The staple food of the Native American inhabitants of this region during the ethnohistoric period was acorns (Sparkman 1908). Of the six or more oak species within this traditional territory, the most desirable of these was the black oak (*Quercus kelloggii*) due to its ease of processing, protein content, and digestibility. Acorns were stored in granaries to be removed and used as needed. The acorns were generally processed into flour using a mortar and pestle. The meal was most commonly leached with hot water and the use of a rush basket; however, there are also accounts of placing meal into excavated sand and gravel pits to allow the water to drain naturally. The acorn was then prepared in a variety of ways, though often with the use of an earthen vessel (Sparkman 1908). Other edible and medicinal plants of common use included wild plums, choke cherries, Christmas berry, gooseberry, elderberry, willow, *Juncus*, buckwheat, lemonade berry, sugar bush, sage scrub, currents, wild grapes, prickly pear, watercress, wild oats and other plants. More arid plants such as *Yucca, Agave*, mesquite, chia, bird-claw fern, *Datura*, yerba santa, *Ephedra*, and cholla were also of common use by some

Juaneño and Gabrielino populations. A number of mammals were commonly eaten. Game animals included black-tailed deer, antelope, rabbits, hares, birds, ground squirrels, woodrats, bears, mountain lions, bobcats, coyotes, and others. In lesser numbers, reptiles and amphibians may have been consumed. Fish and marine resources provided some portion of many tribal communities, though most notably those nearest the coast. Shellfish would have been procured and transported inland from three primary environments, including the sandy open coast, bay and lagoon, and rocky open coast. The availability of these marine resources changed with the rising sea levels, siltation of lagoon and bay environments, changing climatic conditions, and intensity of use by humans and animals.

Areas or regions, identified by known physical landmarks, could be recognized as band-specific territories that might be violently defended. Other areas or resources, such as water sources and other locations that were rich in natural resources, were generally understood as communal land to be shared. The coastal Juaneño and Gabrielino exchanged a number of local goods, such as seafood, coastal plants, and various types of shell, for items including acorns, agave, mesquite beans, gourds, and other more interior plants of use (Luomala 1978). Shellfish would have been procured from three primary environments, including the sandy open coast, bay and lagoon, and rocky open coast. The availability of these marine resources changed with the rising sea levels, siltation of lagoon and bay environments, changing climatic conditions, and intensity of use by humans and animals (Gallegos and Kyle 1988; Pigniolo 2005; Warren 1964). Shellfish from sandy environments included *Donax*, *Saxidomas*, *Tivela*, and others. Rocky coast shellfish dietary contributions consisted of *Pseudochama*, *Megastraea*, *Saxidomus*, *Protothaca*, *Megathura*, *Mytolis*, and others. Lastly, the bay environment would have provided *Argopecten*, *Chione*, *Ostrea*, *Neverita*, *Macoma*, *Tagelus*, and others. While marine resources were obviously consumed, terrestrial animals and other resources likely provided a large portion of sustenance. Game animals consisted of rabbits, hares (*Leporidae*), birds, ground squirrels, woodrats (*Neotoma*), deer, bears, mountain lions (*Puma concolor*), bobcats (*Lynx rufus)*, coyotes (*Canus latrans*), and others. In lesser numbers, reptiles and amphibians may have been consumed.

A number of local plants were used for food and medicine. These were exploited seasonally, and were both traded between regional groups and gathered as a single triblet moved between habitation areas. Some of the more common of these that might have been procured locally, or as higher elevation varieties, would have included buckwheat (*Eriogonum fasciculatum*), *Agave*, *Yucca*, lemonade berry (*Rhus integrifolia*), sugar brush (*Rhus ovata*), sage scrub (*Artemisia californica*), yerba santa (*Eriodictyon*), sage (*Salvia*), *Ephedra*, prickly pear (*Opuntia*), mulefat (*Baccharis salicifolia*), chamise (*Adenostoma fasciculatum*), elderberry (*Sambucus nigra*), oak (*Quercus*), willow (*Salix*), and *Juncus* grass, among many others (Wilken 2012).

3.2.3 The Historic Period (post-AD 1542)

European activity in the region began as early as AD 1542, when Juan Rodríguez Cabrillo landed in San Diego Bay. Sebastián Vizcaíno returned in 1602, and it is possible that there were subsequent contacts that went unrecorded. These brief encounters made the local native people aware of the existence of other cultures that were technologically more complex than their own. Epidemic diseases may also have been introduced into the region at an early date, either by direct contacts with the infrequent European visitors or through waves of diffusion emanating from native peoples farther to the east or south. Father Juan Crespí, a member of the 1769 Spanish Portolà expedition, authored the first written account of interaction between Europeans and the indigenous population in the region that makes up Orange County today. It is possible, but as yet unproven, that the precipitous demographic decline of native peoples had already begun prior to the arrival of Gaspar de Portolá and Junípero Serra in 1769.

Spanish colonial settlement was initiated in 1769, when multiple expeditions arrived in San Diego by land and sea, and then continued northward through the coastal plain toward Monterey. A military presidio and a mission were soon firmly established at San Diego, despite violent resistance to them from a coalition of native communities in 1776. Mission San Juan Capistrano was established this same year, on November 1st. Private ranchos subsequently established by Spanish and Mexican soldiers, as well as other non-natives, appropriated much of the remaining coastal or near-coastal locations (Pourade 1960–1967).

Mexico's separation from the Spanish empire in 1821 and the secularization of the California missions in the 1830s caused further disruptions to native populations. Some former mission neophytes were absorbed into the work forces on the ranchos, while others drifted toward the urban centers at San Diego and Los Angeles or moved to the eastern portions of the county where they were able to join still largely autonomous native communities. United States conquest and annexation, together with the gold rush in Northern California, brought many additional outsiders into the region. Development during the following decades was fitful, undergoing cycles of boom and bust. With rising populations in the nineteenth century throughout the Southern California region, there were increased demands for important commodities such as salt.

Rancho Cañada de Los Alisos included the current project site. This rancho was granted to José Antonio Fernando Serrano in 1842 by the Mexican government and included over 10,000 acres from Trabuco Canyon to the current site of the Golden State Freeway (Garcia et al. 2011). The Serrano family primarily used the area for cattle; however, some farming also occurred. Major droughts from 1860 to 1890 had devastating effects on the ability of ranchers to feed and water cattle throughout Southern California. Due to losses suffered in the cattle industry, the Serrano family sold much of Rancho Cañada de Los Alisos in 1883 to J.S. Slauson, a banker from Los Angeles. The purchased lands were subdivided. In 1884, much of the Rancho was again sold to Dwight Whiting, who further subdivided the Rancho for residential development. The Whiting family sold their remaining holdings in 1959 to V.P. Parker and Associates, who continued to develop the area.

4 BACKGROUND RESEARCH

4.1 Archaeological Records Search

In 2015, a records search of the project site and surrounding 1 mile for the El Toro Water District Phase I Recycled Water Distribution System Expansion Project was conducted by SCCIC staff at the request of Dudek. The project is located to the northwest of the current project site and the mile buffer overlaps with the current project site. The 2015 record search covers the current project site and a 0.5 mile buffer. Because record searches are considered valid for five years, both of these record searches were used for the current proposed project. Both searches included the SCCIC's collection of mapped prehistoric, historical and built-environment resources, Department of Parks and Recreation (DPR) Site Records, technical reports, archival resources, and ethnographic references. Additional consulted sources included the NRHP, California Inventory of Historical Resources/California Register of Historic Resources (CRHR) and listed Office of Historic Preservation (OHP) Archaeological Determinations of Eligibility, California Points of Historical Interest, California Historical Landmarks, and Caltrans Bridge Survey information. The 2015 record search is attached in Appendix A of this report.

4.1.1 Previous Technical Studies

The previous records searches conducted recorded a total of 88 previous cultural resource technical investigations within the general vicinity of the current project site. Of these, eight studies are known to have directly included portions of the current project site (Table 1).

Table 1 Previously Conducted Cultural Resources Studies Within the Project Site

SCCIC Report No.	Title	Author	Company	Year
36	The Archaeological and Paleontological Evaluation of the Sycamore Hills, Laguna Beach, California	Anonymous	Pacific Bioarcheology Laboratory	1976
187	A 57 Acre (+) Parcel of Land Located in the Rossmoor Leisure World Area of the County of Orange (mut 67-69)	Desautels, Roger J.	Scientific Resource Surveys, Inc.	1977
286	Cultural Resources and the High Voltage Transmission Line from San Onofre to Santiago Substation and Black Star Canyon	Bean, Lowell	Cultural Systems Research, Inc.	1976
477	Archaeological Records Search and Field Survey of the Proposed Baywood Townhomes Development Site, City of Laguna Beach, California	Mabry, Theo N.	Archaeological Planning Collaborative	1980

SCCIC Report No.	Title	Author	Company	Year
581	Cultural Resources Data Recovery Program for the 230 kV Transmission Line Rights-of-Way from San Onofre Nuclear Generating Station to Black Star Canyon and Santiago Substation and to Encina and Mission Valley Substations	McCoy, Lesley C., and Kirkish Alex N.	Cultural Systems Research, Inc.	1982
1439	National Register Assessment Program of Cultural Resource of the 230 Kv Transmission Line Rights-of-Way from San Onofre Nuclear Generating Station to Black Star Canyon and Santiago Substation and to Encino and Mission Valley Substation	Maxon, Patrick O.	RMW Paleo Associates, Inc.	1995
3989	Cultural Resources Documentation and Monitoring of Southern California Edison Access Roads During Maintenance by the Orange County Fire Authority, 2010, Orange County, California	Deering, Mark, and Mason, Roger D.	ECORP Consulting, Inc.	2011
4029	Cultural Resources Monitoring of Southern California Edison Access Roads Maintained by Orange County Fire Authority, Orange County, California (JPA E6088-0331; I.O. 305869)	Deering, Mark and Mason, Roger D.	ECORP Consulting, Inc.	2010
4179	Laguna Beach Historic Resources Inventory	Unknown	City of Laguna Beach	2008

4.1.2 Cultural Resources

No cultural resources have been previously identified within the project site; however, three sites have been recorded within the surrounding 0.5-mile of the project site(Confidential Appendix A). The three sites include CA-ORA-000370, CA-ORA-000267, and CA-ORA-001007. CA-ORA-370, recorded and last updated in 1970, consists of a habitation site with at least one observed burial. CA-ORA-267, recorded and last updated in 1966, has been reported to include a shelter and scatter of marine shell. The third site, P-30-001007, is a prehistoric lithic scatter which was originally recorded in 1982. Sites CA-ORA-000267 and CA-ORA-000370 have not been updated in the last 45-55 years (prior to global position softwaretechnology), the mapped boundaries of these sites are likely inaccurate.

4.2 Historic Aerial Review

Dudek consulted historic maps and aerial photographs to understand development of the project site and project vicinity. Topographic maps were available from the following years: 1949, 1957, 1960, 1963, 1965, 1969, 1977, 1981, 2012, and 2015. Aerial images were available from the following years: 1938, 1946, 1952, 1963, 1967, 1972, 1981, 1994, 2002, 2003, 2005, 2009, 2010, 2012, and 2014 (NETR 2018a, 2018b).

On the earliest topographic map available from 1949, there is no development in the project site or in the vicinity. The El Toro Road and an unimproved road running perpendicular to EL Toro Road were shown on the map. The topographic map from 1969 shows that the power line which now runs south of the project site was constructed. By 1977 the residential development to the north of the project site along El Toro Road had been developed. In 1981, the Oso Lift Station had been built and by 2012 the residential developments to the northeast and the south of the project site had been built. Aliso Creek Road had also been built by 2012.

The first aerial photograph from 1938 depicts the project site as an undeveloped area. In 1938 the only development in the area was El Toro Road. In 1952, there were a few unimproved roads to the north of the project site. Several other trails sprouted throughout the general area and can be seen on the 1963 and 1967 aerials. The aerial photograph from 1972 shows the residential development to the north of the project site being developed. The aerial photograph from 1972 also shows thata substation had been built just south of the project site. By 1981, the residential development was completed and by 1994 new residential development to the northeast, and to the south on either side of EL Toro Road had been built. Between 1972 and 1981 the existing ETWD facility was also built, at this time the hiking trail was graded and appeared well maintained. Additionally, the area directly to the north of the ETWD facility, which is part of the proposed expansion, was graded. There appears to have been some changes to the interior of the facility over the years but it has never been expanded.

4.3 Native American Coordination

4.3.1 Sacred Lands File Search and Native American Outreach

On July 17, 2018, Dudek requested a search of the Sacred Lands Files from the NAHC. A response letter was received via email from the NAHC on July 28, 2018, stating that the results of the Sacred Lands File did indicate the presence of Native American cultural resources in the immediate project site and suggested we contact nine Native American groups and individuals who may have knowledge of cultural resources in the project site. Letters were sent to each representative July 30, 2018. No responses have been received to these outreach efforts.

4.3.2 Record of Assembly Bill 52 Consultation

The proposed project is subject to compliance with AB 52 (PRC 21074), which requires consideration of impacts to "tribal cultural resources" as part of the CEQA process, and that the lead agency notify California Native American Tribal representatives (that have requested notification) who are traditionally or culturally affiliated with the geographic area of the proposed project. All NAHC-listed California Native American Tribal representatives were sent letters via certified mail by the District on August 1, 2018 (See Appendix B). The letters contained a project description, outline of AB 52 timing, request for consultation, and contact information for the appropriate lead agency representative. Contacted individuals included Andrew Salas of the Gabrieleño Band of Mission Indians - Kizh Nation, Sandonne Goad of the Gabrielino/Tongva Nation, Anthony Morales of the Gabrielino/Tongva San Gabriel Band of Mission Indians, Sonia Johnston of the Juaneño Band of Mission Indians, Chalres Alvarez of the

Gabrielino/Tongva Tribe, and Teresa Romero, Joyce Perry, and Matias Belardes of the Juaneño Band of Mission Indians Acjachemen Nation.

During consultation for previous projects in this area, Andrew Salas of the Gabrieleño Band of Mission Indians - Kizh Nation indicated this area to be culturally sensitive and has potential to contain unanticipated subsurface cultural deposits and/or human remains. In consideration of this understanding, Mr. Salas requested that a Native American monitor be present during earth-disturbing activities.

On August 3, 2018 ETWD received a request for consultation from Andrew Salas of the Gabrieleño Band of Mission Indians - Kizh Nation. Government to government consultation initiated by the District, acting in good faith and applying a reasonable effort, must be completed in order to assess potential impacts to TCRs. The present report will be updated with the details of the present project's consultation once completed. A record of consultation is included in Confidential Appendix C.

5 METHODS AND RESULTS

5.1 Pedestrian Survey

Dudek archaeologist Erica Nicolay, MA, conducted an intensive-level pedestrian survey of the proposed project site's expansion for the Oso Lift Station on July 16, 2018, using standard archaeological procedures and techniques. All exposed ground surfaces were inspected. All fieldwork was documented using field notes, digital photography, a Global Positioning System (GPS) receiver with sub-meter accuracy, iPad technology with close-scale field maps, and aerial photographs. Location-specific photographs were taken using an Apple 3rd Generation IPAD (IPad) equipped with eight MP resolution and georeferenced PDF maps of the project site. Accuracy of the IPad ranged between 3 meters and 10 meters. Subsurface exposures were opportunistically sought through inspection of erosional and previously excavated areas for indications of developed cultural deposits. All field notes, photographs, and records related to the current study are on file at Dudek's Encinitas, California office. All field practices met the Secretary of Interior's standards and guidelines for a cultural resources inventory.

Accessible portions of the project site include the 10 foot x 35 foot extension to the north of the existing Oso Lift Station, transects of less than 5 meters were walked throughout this area. The existing facility is entirely paved with no exposed ground surface observed. The area to the north of the existing Lift Station is landscaped with some large bushes. Irrigation pipelines were observed to run through the undeveloped portion of the project site north of the existing Lift Station. There is a wooden fence at the eastern border of the undeveloped portion of the project site to the north of the existing Lift Station. East of this fence, the vegetation is extremely dense and is comprised primarily of various types of bushes. No archaeological resources were identified during the survey. Figures 3 through 5 below show the project site.

Figure 4 Overview of Project Site from proposed northern expansion; View facing southwest

Figure 5 Overview of Project Site from proposed northern expansion; View facing southwest

Figure 6 Overview of Project Site – looking into the existing Lift Station; View facing northwest

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6 SUMMARY AND MANAGEMENT RECOMMENDATIONS

6.1 Summary of Findings

No archaeological resources were identified within the project sitea as a result of the CHRIS records search or the pedestrian survey. The majority of the site has already been developed and is currently being used by the El Toro Water District. The only portion of the site with exposed ground surface is the 10 foot area to the north of the existing Lift Station Based on review of historic aerials this section of the project site has been extensively disturbed and was completely graded at one point in history. Additionally, this portion of the site has been disturbed by irrigation lines which are visible within the project site. Due to the absence of archaeological resources within the project site and the disturbed characteristic of the project site, the likelihood of this project unearthing previously unknown archaeological deposits or resources is low. However, it is always possible that intact archaeological deposits are present at subsurface levels. Management recommendations to reduce potential impacts to unanticipated archaeological resources and human remains during maintenance activities are provided in Section 7.2 below.

6.2 Management Recommendations

6.2.1 Unanticipated Discovery of Archaeological Resources

If archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find under CEQA (14 CCR 15064.5(f); California Public Resources Code, Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan and data recovery, may be warranted.

6.2.2 Unanticipated Discovery of Human Remains

In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the County coroner shall be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County coroner has determined, within 2 working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the County coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

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APPENDIX A

CONFIDENTIAL SCCIC Records Search Results

APPENDIX B

CONFIDENTIAL – NAHC Results and Inventory
Tribal Correspondence

APPENDIX C

CONFIDENTIAL – AB 52 Correspondence

APPENDIX D

Geotechnical Exploration Report

GEOTECHNICAL EXPLORATION REPORT
ETWD OSO LIFT STATION IMPROVEMENT PROJECT
CITY OF LAGUNA WOODS, CALIFORNIA

Prepared for:

TETRA TECH, INC.
17885 Von Karman Avenue, Suite 500
Irvine, California 92614

Project No. 11653.001

September 11, 2017

Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

September 11, 2017

Project No. 11653.001

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

Attention: Mr. Tom Epperson, PE

Subject: Geotechnical Exploration Report
ETWD Oso Lift Station Improvement Project
City of Laguna Woods, California

In accordance with your request, Leighton Consulting, Inc. has performed geotechnical exploration and analysis for the proposed Oso Lift Station Improvement Project in the city of Laguna Woods, California. This exploration was performed based on our proposal dated February 14, 2017.

Based on our field exploration, the site is underlain by up to 3 feet of artificial fill, underlain by Quaternary-aged young alluvial deposits and bedrock of the Sespe Formation at a depth of 10½ feet. The artificial fill consisted primarily of clayey sand with varying amounts of gravel. The alluvium consisted of loose to dense clayey sand with gravel, and the bedrock consisted of clayey sandstone. Groundwater was encountered in our boring at a depth of 29 feet below existing grade.

The main geotechnical aspects affecting the site include significant ground shaking during the expected life of the proposed improvements and the presence of hard rock concretions within the bedrock that may be difficult to excavate using conventional heavy construction equipment if excavations greater than 10 feet are planned. This report presents the results of our field exploration, laboratory testing, and geotechnical analyses, and provides our recommendations for the proposed project.

We appreciate the opportunity to work with you on this project. If you have any questions, or if we can be of further service, please contact us at your convenience.

Respectfully submitted,

LEIGHTON CONSULTING, INC.

REGISTERED PROFESSIONAL ENGINEER
DJAN CHANDRA
No. 2376
GEOTECHNICAL
STATE OF CALIFORNIA

Djan Chandra, PE, GE 2376
Senior Principal Engineer

CD/DJC/lr

Distribution: (1) Addressee (PDF via email)

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LIST OF ATTACHMENTS

1.0 INTRODUCTION

1.1 Site Description and Proposed Project

The Oso Lift Station is located southwest of the intersection of El Toro Road and Aliso Creek Road in the city of Laguna Woods, California. The site is approximately 70 feet by 35 feet and enclosed by a masonry wall and a sliding wrought iron gate. Topographically, the site is relatively flat with ascending natural slopes located to the northwest and southwest of the site. Existing improvements at the site include a lift station building, wet well, underground force main and valve, above-ground emergency standby generator and above-ground SCE transformer. The lift station site is shown in Figure 1, *Boring Location Map*.

We understand that the proposed project consists of construction of a new wet well with submersible pumps and motors, new valve and meter vault, new electrical equipment, and replacement of the existing generator. As part of the project, the existing lift station site will be extended by approximately 10 feet to the north and will require construction of a new masonry wall and placement of new asphalt concrete.

1.2 Purpose and Scope of Exploration

The purpose of our geotechnical exploration was to review available information pertinent to the site, collect subsurface information, and develop geotechnical parameters for design and construction of the proposed project. The scope of this exploration included the following tasks:

- *Background Review* – A background review was performed of readily available, relevant geotechnical and geological literature pertinent to the site. References used in preparation of this report are listed in Section 6.0.

- *Pre-Field Exploration Activities* – A site visit was coordinated with El Toro Water District to mark the boring location and evaluate site access for drilling equipment. Underground Service Alert (USA) was notified to locate and mark existing underground utilities prior to our subsurface exploration.

- *Field Exploration* – Our field exploration was performed on July 17, 2017, and consisted of one hollow-stem auger boring (designated as LB-1) drilled to a depth of 30½ feet below existing grade. Approximate location of the boring is shown in Figure 1. The boring was geotechnically logged and sampled using Standard Penetration Test (SPT) and California Ring samplers at selected intervals. The SPT and Ring samplers were driven into the soil with a 140-pound hammer, free falling 30 inches. The number of blows was noted for every 6 inches of sampler penetration. Relatively undisturbed samples were collected from the boring using the Ring sampler. The sampling procedures generally followed ASTM D 1586 and D 3550 for SPT and split-barrel sampling of soil. In addition to driven samples, a representative bulk soil sample was also collected from the boring. Each soil sample collected was described in general conformance with the Unified Soil Classification System (USCS). The samples were sealed, packaged, and transported to our soil laboratory. The soil descriptions and depths are noted on the boring log included in Appendix A, *Geotechnical Boring Log*.

- *Laboratory Tests* – Laboratory tests were performed on selected soil samples obtained during our field investigation. The laboratory testing program was designed to evaluate the physical and engineering characteristics of the onsite soils. Tests performed during this exploration include:

  - Moisture content and dry density (ASTM D 2216 and ASTM D 2937);
  - Sieve Analysis (ASTM D 6913);
  - One-Dimensional Consolidation (ASTM D 2435);
  - Direct Shear (ASTM D 3080); and
  - Corrosivity Suite – pH, Sulfate, Chloride, and Resistivity (California Test Methods 417, 422, and 532/643).

  Results of moisture content and dry density testing are presented on the boring log in Appendix A. Other laboratory test results are presented in Appendix C, *Laboratory Test Results*.

- *Engineering Analysis* - The data obtained from our background review, field exploration, and laboratory testing program were evaluated and analyzed to develop the recommendations for the proposed project.

- *Report Preparation* - The results of the exploration are summarized in this report presenting our findings and recommendations. It should be noted that the recommendations in this report are subject to the limitations presented in Section 5.0.

2.0 FINDINGS

2.1 Subsurface Soil Conditions

Based on our field exploration, the site is underlain by artificial fill, Quaternary-aged young alluvial deposits (Qya), and bedrock of the Sespe formation (Ts).

The artificial fill encountered in our boring is up to 3 feet thick and consisted primarily of clayey sand with varying amounts of gravel. Below the artificial fill, alluvium was encountered to a depth of 10½ feet and consisted of loose to dense clayey sand with gravel.

Bedrock of the Sespe Formation was encountered below the alluvium to the maximum explored depth of 30½ feet below existing grade. The bedrock consisted of very dense clayey sandstone with localized hard and cemented zones. Detailed descriptions of the materials encountered in the boring are presented in Appendix A, *Geotechnical Boring Log*.

2.2 Groundwater

Groundwater was encountered in our boring at a depth of 29 feet below existing grade. The groundwater contour map in the *Seismic Hazard Zone Report for the Laguna Beach 7.5-Minute Quadrangle* (California Geological Survey, 2001) indicates that the historically high groundwater table in the area is on the order of 30 feet below the existing grade.

The groundwater level is expected to fluctuate seasonally. Fluctuations of the groundwater level, localized zones of perched water, and an increase in soil moisture should be anticipated during and following the rainy seasons or period of locally intense rainfall or storm water runoff.

2.3 Soil Corrosivity

In general, soil environments that are detrimental to concrete have high concentrations of soluble sulfates and/or pH values of less than 5.5. Soils with chloride content greater than 500 parts per million (ppm) per California Test 532 are considered corrosive to steel, either in the form of reinforcement protected by concrete cover or plain steel substructures, such as steel pipes. Additionally, soils with a minimum resistivity of less than 1,000 Ohm-cm are considered corrosive to ferrous metal. Based on the laboratory test results, the subsurface soils at the site generally have low soluble sulfate contents and are not considered corrosive to ferrous metal in direct contact with the soils.

2.4 Faulting and Seismicity

Our review of available in-house literature indicates that there are no known active or potentially active faults traversing the site and the site is not located within a State of California designated Alquist-Priolo Earthquake Fault Zone (Bryant and Hart, 2007). There are, however, several known active and potentially active faults that have been mapped in the region that could produce significant ground shaking at the site. The known regional active and potentially active faults that could produce significant ground shaking at the site include the San Joaquin Hills Blind Thrust, Newport-Inglewood, Chino, Palos Verdes, and Elsinore faults.

The intensity of ground shaking at a given location depends primarily upon the earthquake magnitude, the distance from the earthquake source, and the site response characteristics which are dependent upon the subsurface stratigraphy. Peak horizontal ground accelerations are generally used to evaluate the intensity of ground motion. Using the United States Geological Survey (USGS) Seismic Design Maps (USGS, 2013), the peak ground acceleration for the Maximum Considered Earthquake (MCE_G) adjusted for the Site Class effects (PGA_M) is 0.59g. Based on the USGS online unified hazard tool program (USGS, 2017), the modal seismic event is Moment Magnitude (M_W) 6.9 at a distance of 3.1 miles.

2.5 Secondary Seismic Hazards

Secondary seismic hazards in the region could include soil liquefaction and the associated surface manifestation, earthquake-induced landsliding and flooding, seiches, and tsunamis. The potential for seismic hazards at the site is discussed below.

2.5.1 Liquefaction Potential

Liquefaction is the loss of soil strength or stiffness due to buildup of pore-water pressure in the soils during strong ground shaking. Liquefaction is associated primarily with low density, saturated, fine- to medium-grained, cohesionless soils. Effects of severe liquefaction can include sand boils, excessive settlement, bearing capacity failures, and lateral spreading.

Review of the Seismic Hazard Zones Map for the Laguna Beach Quadrangle prepared by California Geological Survey (2001) indicates that the subject site is located within an area that has been identified by the State of California as being potentially susceptible to the occurrence of liquefaction. However, due to the presence of bedrock at a depth of 10½ feet and the absence of shallow groundwater at the site, we anticipate that the liquefaction susceptibility at the site is very low.

2.5.2 Earthquake-Induced Settlement

Seismically-induced settlement consists of dry dynamic settlement (above groundwater) and liquefaction-induced settlement (below groundwater). These settlements occur primarily within loose to medium dense sandy soil due to reduction in volume during, and shortly after, an earthquake event. Due to the presence of relatively shallow bedrock, seismically-induced settlement is anticipated to be minor and is not expected to be of a significant design consideration.

2.5.3 Earthquake-Induced Landslides

Review of the Seismic Hazard Zones Map for the Laguna Beach Quadrangle prepared by California Geological Survey (2001) indicates that the subject site is located next to an area that has been identified by the State of California as being potentially susceptible to earthquake-induced landslides. The ascending slopes to the northwest and southwest of the site may become instable during a strong earthquake.

2.5.4 Earthquake-Induced Flooding

Earthquake-induced flooding can be caused by failure of dams or other water-retaining structures as a result of earthquakes. With regard to the subject site, the potential for earthquake-induced flooding of the site is considered low due to the lack of dams or other water reservoirs in the vicinity of the site.

2.5.5 Seiches and Tsunamis

Seiches are large waves generated in enclosed bodies of water in response to ground shaking. Tsunamis are waves generated in large bodies of water by fault displacement or major ground movement. Based on the absence of an open-air enclosed water body near the site and the inland location of the site, seiche and tsunami risks at the site are considered negligible.

3.0 RECOMMENDATIONS

Presented below are the geotechnical recommendations for design and construction of the project. The recommendations are based upon the exhibited geotechnical engineering properties of the soils and their anticipated response both during and after construction as well as proper field observation and testing during construction. The recommendations are considered minimum and may be superseded by more restrictive requirements of the architect, structural engineer, building code, or governing agencies.

3.1 Site Grading

All site grading should be performed in accordance with the applicable local codes and in accordance with the project specifications that are prepared by the appropriate design professional. As a minimum, the earthwork guidelines in the following sections should be followed.

3.1.1 Site Preparation

Vegetation, debris, and other deleterious materials should be removed and disposed of offsite prior to the commencement of grading operations. Existing underground utilities, including irrigation lines, should be identified prior to the start of grading and abandoned or relocated as necessary. Abandoned utility trenches should be excavated to competent materials and properly backfilled under the observation and testing of the geotechnical engineer.

3.1.2 Overexcavation and Recompaction

Foundation for the proposed structures should be underlain by compacted fill to provide a uniform support and reduce potential for differential settlement. The compacted fill should extend a minimum 2 feet below bottom of the foundation and a minimum 2 feet beyond outside edges of the foundation. Pavement areas, driveway, and concrete flatwork should be underlain by a minimum 1 foot of compacted fill. Local conditions may be encountered which may require additional removals and recompaction. The exact extent of removals can best be determined during grading by the geotechnical engineer when direct observation and evaluation of materials are possible. Prior to placing fill materials, the subgrade should be scarified to a minimum depth of 6 inches, moisture conditioned, and proofrolled. Any soft and/or unsuitable materials encountered at the bottom of the excavations should be removed and replaced with fill material.

3.1.3 Fill Placement and Compaction

The onsite soils to be used as compacted structural fill should be free of organic material or construction debris. Imported fill soils, if any, should be approved by the geotechnical engineer prior to placement as fill. Fill soils should be placed in loose lifts not exceeding 8 inches, moisture-conditioned as necessary to at least two percent above moisture optimum and compacted to a minimum of 90 percent of the maximum dry density as determined by ASTM Test Method D 1557.

3.2 Foundation Design Parameters

Conventional shallow foundations such as continuous and/or spread footings may be used to support the loads of the proposed structures.

3.2.1 Allowable Bearing Capacity

Footings should have a minimum embedment depth of 12 inches and a minimum width of 12 inches. An allowable bearing pressure of 2,000 psf may be used based on the minimum embedment depth and width. The allowable bearing value may be increased by 300 psf per foot increase in depth or width to a maximum allowable bearing pressure of 3,500 psf. The allowable bearing pressures are for the total dead load and frequently applied live loads and may be increased by one third when considering loads of short duration, such as those imposed by wind and seismic forces. The allowable bearing pressures are net values; the weight of the footing may be neglected for design purposes. All continuous footings should be reinforced with top and bottom steel to provide structural continuity and to permit spanning of local irregularities. It is essential that a geotechnical engineer observes footing excavations before reinforcing steel is placed.

The recommended allowable bearing capacity for shallow footings is generally based on a total allowable static settlement of 1 inch. Since settlement is a function of footing size and contact bearing pressure, differential settlement can be expected between adjacent columns or walls where a large differential loading condition exists. The differential settlement should be less than approximately ½ inch, assuming no more than 50 percent variation in dead plus sustained live load between adjacent columns. These settlement estimates should be reviewed by Leighton Consulting when final foundation plans and loads for the proposed structures become available.

3.2.2 Lateral Load Resistance

Resistance to lateral loads will be provided by a combination of friction between the soils and foundation interface and passive pressure acting against the vertical portion of the foundation. A friction coefficient of 0.35 may be used at the soil-concrete interface for calculating the sliding resistance. A passive pressure based on an equivalent fluid pressure of 360 pounds per cubic foot (pcf) may be used for calculating the lateral passive resistance. The lateral passive resistance can be taken into account only if it is ensured that the soils against embedded structures will remain intact with time. The above values do not contain an appreciable factor of safety, so the structural engineer should apply the applicable factors of safety and/or load factors during design.

3.3 Slab-On-Grade

Concrete slabs-on-grade subjected to special loads should be designed by the structural engineer. Where conventional light floor loading conditions exist, the following minimum recommendations for conventional slabs-on-grade should be used. More stringent requirements may be required by local agencies, the structural engineer, the architect, or the CBC.

- A minimum slab thickness of 5 inches. Slab reinforcement should be designed by the structural engineer but as a minimum should consist of No. 3 rebar placed at 24 inches on center in each direction and provided with adequate concrete cover.
- A vapor barrier, 10-mil or thicker, should be placed below slabs where moisture-sensitive floor coverings or equipment is planned. The moisture retarder should be properly sealed at all joints and any penetrations.
- To reduce the potential for excessive cracking, concrete slabs-on-grade should be provided with construction or weakened plane joints at frequent intervals. Joints should be laid out to form approximately square panels.

- The subgrade soils should be wetted prior to placing the vapor barrier, steel, or concrete.

Our experience indicates that use of reinforcement in slabs can generally reduce the potential for drying and shrinkage cracking. Some cracking should be expected as the concrete cures. Minor cracking is considered normal; however, it is often aggravated by a high water/cement ratio, high concrete temperature at the time of placement, small nominal aggregate size, and rapid moisture loss due to hot, dry, and/or windy weather conditions during placement and curing. Cracking due to temperature and moisture fluctuations can also be expected. The use of low slump concrete can reduce the potential for shrinkage cracking.

3.4 Lateral Earth Pressures

The following parameters may be used for design of earth retaining structures backfilled with onsite low expansive soils.

Table 1 - Equivalent Fluid Pressure

Condition	Level Backfill
Active	40 pcf
At-Rest	60 pcf
Passive	360 pcf (Maximum of 4,000 psf)

The above values do not contain an appreciable factor of safety, so the structural engineer should apply the applicable factors of safety and/or load factors during design.

Cantilever walls that are designed to yield at least 0.001H, where H is equal to the wall height, may be designed using the active condition. Rigid walls and walls braced at the top should be designed using the at-rest condition.

Passive pressure is used to compute soil resistance to lateral structural movement. In addition, for sliding resistance, a frictional resistance coefficient of 0.35 may be used at the concrete and soil interface. The lateral passive resistance should be taken into account only if it is ensured that the soils providing passive resistance, embedded against the foundation elements, will remain intact with time.

In addition to the above lateral forces due to retained earth, surcharge due to improvements, such as an adjacent structure or traffic loading, should be considered in the design of the retaining wall. The lateral load resulting from surcharges of large lateral extent in closed proximity to the top of the retaining wall may be analyzed as a uniform lateral pressure of magnitude equal to 33 and 50 percent of the surcharge vertical intensity for the active and at-rest earth pressure conditions, respectively.

Lateral earth pressure design parameters recommended above are based upon drained conditions. Design and construction of the walls will, therefore, require some form of permanent subsurface drainage system behind the wall. If no drainage is provided, hydrostatic pressure should be considered in the wall design.

3.5 Seismic Design Parameters

Strong ground shaking due to seismic activity is anticipated at the site. To reduce the effects of ground shaking produced by regional seismic events, seismic design should be performed in accordance with the applicable building codes. The following data should be considered for seismic analysis of the project based on the 2016 CBC. Additional seismic analyses may be necessary based on structural requirements.

Table 2 - 2016 CBC Seismic Design Parameters

Categorization/Coefficient	Design Value
Site Class	D
Short Period (0.2 sec) Site Coefficient, F_a	1.0
Long Period (1.0 sec) Site Coefficient, F_v	1.5
Design (5% damped) spectral response acceleration parameter at short period, S_{DS}	1.011g
Design (5% damped) spectral response acceleration parameter at a period of 1 sec, S_{D1}	0.556g

3.6 Preliminary Pavement Design

New pavement section for the lift station improvement project may consist of a minimum of 5 inches of full-depth asphalt concrete (AC) if it is anticipated that traffic loading (i.e. maintenance trucks) at the lift station site will remain the same as for the current operations. If higher traffic loading is anticipated, then the new pavement section may consist of a minimum of 5 inches of asphaltic concrete over 4 inches of aggregate base.

All pavement construction should be performed in accordance with the *Standard Specifications for Public Works Construction*. Field inspection and periodic testing, as needed during placement of the base course materials, should be undertaken to ensure that the requirements of the standard specifications are fulfilled. Prior to placement of aggregate base, the subgrade soil should be processed to a minimum depth of 8 inches, moisture-conditioned, as necessary, and recompacted to a minimum of 90 percent relative compaction. If asphalt concrete is placed directly on the subgrade (i.e. full-depth AC), the subgrade soil should then be recompacted to a minimum of 95 percent relative compaction. Localized areas of loose soils may be encountered that require deeper removal and recompaction. The actual extent of the removal depth will be best determined during construction when direct observation of the subgrade soils can be made.

Aggregate base should be moisture conditioned, as necessary, and compacted to a minimum of 95 percent relative compaction.

Aggregate base and asphalt materials should conform to Sections 200-2 and 203, respectively, of the *Standard Specifications for Public Works Construction*. PCC should conform to Section 201 of the *Standard Specifications for Public Works Construction*.

3.7 <u>Cement Type and Corrosion</u>

Based on the results of laboratory testing, concrete structures in contact with the onsite soils are expected to have negligible exposure to water-soluble sulfates in the soils. Common Type II cement may be used for concrete construction onsite and the concrete should be designed in accordance with CBC requirements. Type V cement should be used if the concrete is to be exposed to reclaimed water.

The laboratory testing results indicate that the onsite soils are not considered potentially corrosive to ferrous metals.

3.8 Additional Geotechnical Services

The geotechnical recommendations presented in this report are based on information available at the time the report was prepared and may change as plans are developed. Leighton Consulting should review the foundation and grading plans, when they become available.

Geotechnical observation and testing should be conducted during excavation and all phases of grading operations, including the following stages:

- Upon completion of site clearing;
- During overexcavation and recompaction;
- During fill placement;
- During asphalt concrete and aggregate base placement;
- After foundation excavations and prior to placement of concrete;
- During backfilling of trenches; and
- When any unusual or unexpected geotechnical conditions are encountered.

4.0 CONSTRUCTION CONSIDERATIONS

4.1 Rippability and Oversize Materials

The onsite soils can be excavated with conventional heavy construction equipment in good working condition. Excavations deeper than 10 feet are expected to encounter bedrock. The bedrock is expected to be rippable using conventional earthmoving equipment in good repair. Concretionary zones of sandstone are present onsite and were encountered in our boring. These zones may be difficult to excavate using conventional heavy construction equipment. Oversized material may be generated from these concretionary zones and may require special handling to either: 1) be placed in deeper fills; 2) reduce the size of the rock with breakers or other mechanical equipment; or 3) dispose of these hard cemented beds offsite.

4.2 Trench Backfill

Utility trenches can be backfilled with the onsite material, provided it is free of debris, organic material and oversized material (greater than 6 inches in diameter). Prior to backfilling the trench, pipes should be bedded in and covered with sand that exhibits a Sand Equivalent (SE) of 30 or greater. Due to the presence of clayey soils, the pipe bedding should be mechanically densified with care not to damage the pipe. Backfill material should be placed in loose lifts, moisture conditioned as necessary to achieve moisture content of above optimum, and mechanically compacted using a minimum standard of 90 percent relative compaction (ASTM D1557). The maximum lift thickness should also be determined based on the compaction equipment used in accordance with the latest edition of the *Standard Specifications for Public Works Construction*. Where utility trenches cross underneath building footing, the trenches should be plugged by a minimum of 2 feet of sand/cement slurry to reduce the potential for water intrusion underneath the slab.

4.3 Temporary Excavation and Shoring Design

All temporary excavations should be performed in accordance with project plans, specifications, and all OSHA requirements. Excavations 5 feet or deeper should be laid back or shored in accordance with OSHA requirements before personnel are allowed to enter.

Typical cantilever shoring should be designed using an active earth pressure presented in Table 1. If excavations are braced at the top and at specific design intervals, the active pressure may then be approximated by a rectangular soil pressure distribution with the pressure per foot of width equal to 26H, where H is equal to the depth of the excavation being shored. These lateral earth pressures are for a drained condition. For an undrained condition, hydrostatic pressure should be included.

During construction, the soil conditions should be regularly evaluated to verify that conditions are as anticipated. The contractor should be responsible for providing the “competent person” required by OSHA, standards to evaluate soil conditions. Close coordination between the competent person and the geotechnical engineer should be maintained to facilitate construction while providing safe excavations.

5.0 LIMITATIONS

This report was based solely on data obtained from a limited number of geotechnical exploration, and soil samples and tests. Such information is, by necessity, incomplete. The nature of many sites is such that differing soil or geologic conditions can be present within small distances and under varying climatic conditions. Changes in subsurface conditions can and do occur over time. Therefore, the findings, conclusions, and recommendations presented in this report are only valid if Leighton Consulting, Inc. has the opportunity to observe subsurface conditions during grading and construction, to confirm that our preliminary data are representative for the site. Leighton Consulting, Inc. should also review the construction plans and project specifications, when available, to comment on the geotechnical aspects.

It should be noted that the recommendations in this report are subject to the limitations presented in this section. An information sheet prepared by GBC (Geotechnical Business Council) is also included at the rear of the text. We recommend that all individuals using this report read the limitations along with the attached information sheet.

Our professional services were performed in accordance with the prevailing standard of professional care as practiced by other geotechnical engineers in the area. We do not make any warranty, either expressed or implied. The report may not be used by others or for other projects without the expressed written consent of our client and our firm.

6.0 REFERENCES

American Concrete Institute (ACI), 2011, Building Code Requirements for Structural Concrete (ACI 318-11) and Commentary.

Bryant, W.A., and Hart, E.W., 2007, Fault Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Zones Maps, Department of Conservation, California Geological Survey, Special Publication 42, 2007 Interim Revision.

California Building Standards Commission, 2016, 2016 California Building Code, California Code of Regulations, Title 24, Part 2, Volume 2 of 2, Based on 2012 International Building Code, Effective January 1, 2017.

California Geological Survey, 2000, CD-ROM containing digital images of Official Maps of Alquist-Priolo Earthquake Fault Zones that affect the Southern Region, DMG CD 2000-003 2000.

______, 1998, Revised 2001, Seismic Hazard Zone Report for Laguna Beach Quadrangle, California 7.5-Minute Quadrangles, Seismic Hazard Zone Report No. 013.

______, 1998, State of California Seismic Hazards Zones Map, Laguna Beach Quadrangle, dated April 15, 1998.

_____, 2008, Guidelines for Evaluating and Mitigating Seismic Hazards in California, Special Publication 117A.

United States Geological Survey (USGS), 2017, Earthquake Hazards Program - Unified Hazard Tool, https://earthquake.usgs.gov/hazards/interactive/.

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by*: the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

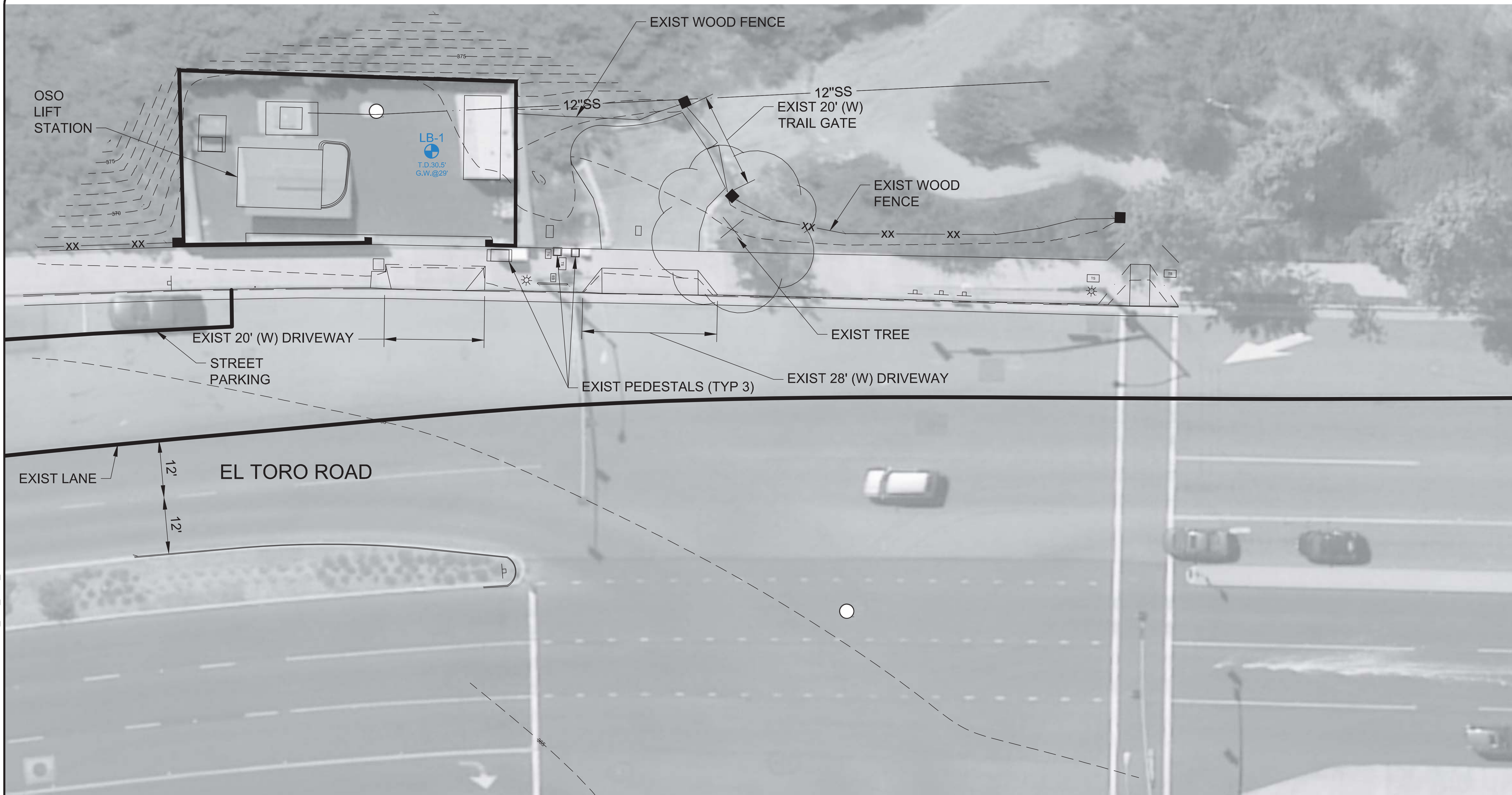
Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

GBC GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@geoprofessional.org www.geoprofessional.org



Base Map Provided by Tetra Tech

Figure 1	BORING LOCATION MAP ETWD Oso Lift Station Improvement Project City of Laguna Woods, California	
Leighton	Proj: 11653.001	Eng/Geol: DJC
	Scale: 1"=20'	Date: August 2017
	Drafted By: BQT / Checked By: BQT	

LEGEND

LB-1
T.D.30.5'
G.W.@29'

Approximate location of hollow-stem auger boring shown with total depth (T.D.) and depth to groundwater (G.W.) in feet.

N

0 10' 20'

SCALE: 1:20_XREF

Bar Measures 1 inch

9/11/2017 4:22:00 PM - V:\DRAFTING\11653\001\CAD\2017-08-24\11653-001_F01_BLM_2017-09-11.DWG - BUU TRAN

APPENDIX A

GEOTECHNICAL BORING LOGS

Leighton

GEOTECHNICAL BORING LOG LB-1

Project No.	11653.001	**Date Drilled**	7-17-17
Project	ETWD Oso Lift Station Improvement Project	**Logged By**	CD
Drilling Co.	2R Drilling, Inc.	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	370'
Location	See Figure 1 - *Boring Location Map*	**Sampled By**	CD

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
370	0								@ Surface: 5 inches of asphalt concrete	
				B-1				SC	**Artificial fill (Af)** @ 0.4': Clayey SAND with Gravel, medium dense, reddish brown, moist, fine to coarse gravel, subrounded to subangular gravel, trace of concrete fragments, fine sand	CR
									Quaternary-aged young alluvial deposits (Qya)	
365	5			R-1	2 2 2	114	16		@ 5': Clayey SAND with Gravel, loose, reddish to yellowish brown, moist, subrounded to subangular gravel	DS, CN
360	10			R-2	12 18 28	128	8		@ 10': dense, fine subangular gravel **Bedrock: Sespe Formation (Ts)** @ 10.5': Clayey SANDSTONE, dense, yellowish brown, moist, localized concretions, fine sand	SA
355	15			R-3	50/5"	113	9		@ 15': very dense, pale yellowish brown to reddish brown, fine sand	SA
350	20			S-4	40 50/5"				@ 20': pale yellowish brown, FeO staining	
									@ 22': very hard drilling	
345	25			S-5	20 50/5"				@ 25': localized concretions	
340	30									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG LB-1

Project No.	11653.001	**Date Drilled**	7-17-17
Project	ETWD Oso Lift Station Improvement Project	**Logged By**	CD
Drilling Co.	2R Drilling, Inc.	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	370'
Location	See Figure 1 - *Boring Location Map*	**Sampled By**	CD

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
									This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.	
340	30			S-6	50/6"				@ 30': Clayey SANDSTONE, hard, yellowish brown, moist, localized concretions, fine sand	
									Total Depth of Boring: 30.5 feet Groundwater encountered at 29 feet at end of drilling. Boring backfilled with soil cuttings and patched with cold mix asphalt concrete upon completion of drilling.	
335	35									
330	40									
325	45									
320	50									
315	55									
310	60									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

APPENDIX B

LABORATORY TEST RESULTS

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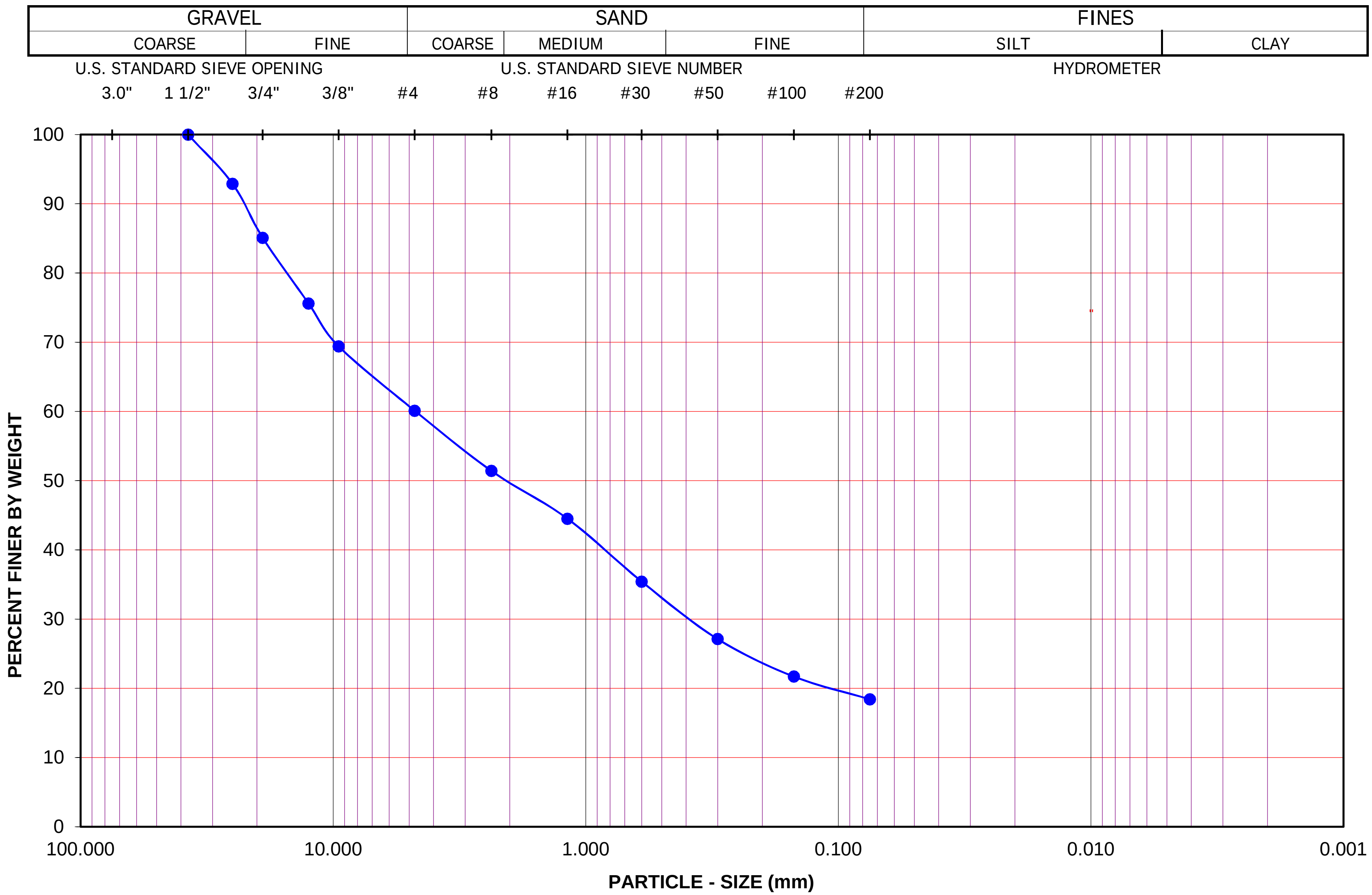


Project Name: Tetra Tech/ETWD Oso Lift Station

Project No.: 11653.001

Boring No.: LB-1 Sample No.: R-2

Depth (feet): 10.0 Soil Type : (SC)g

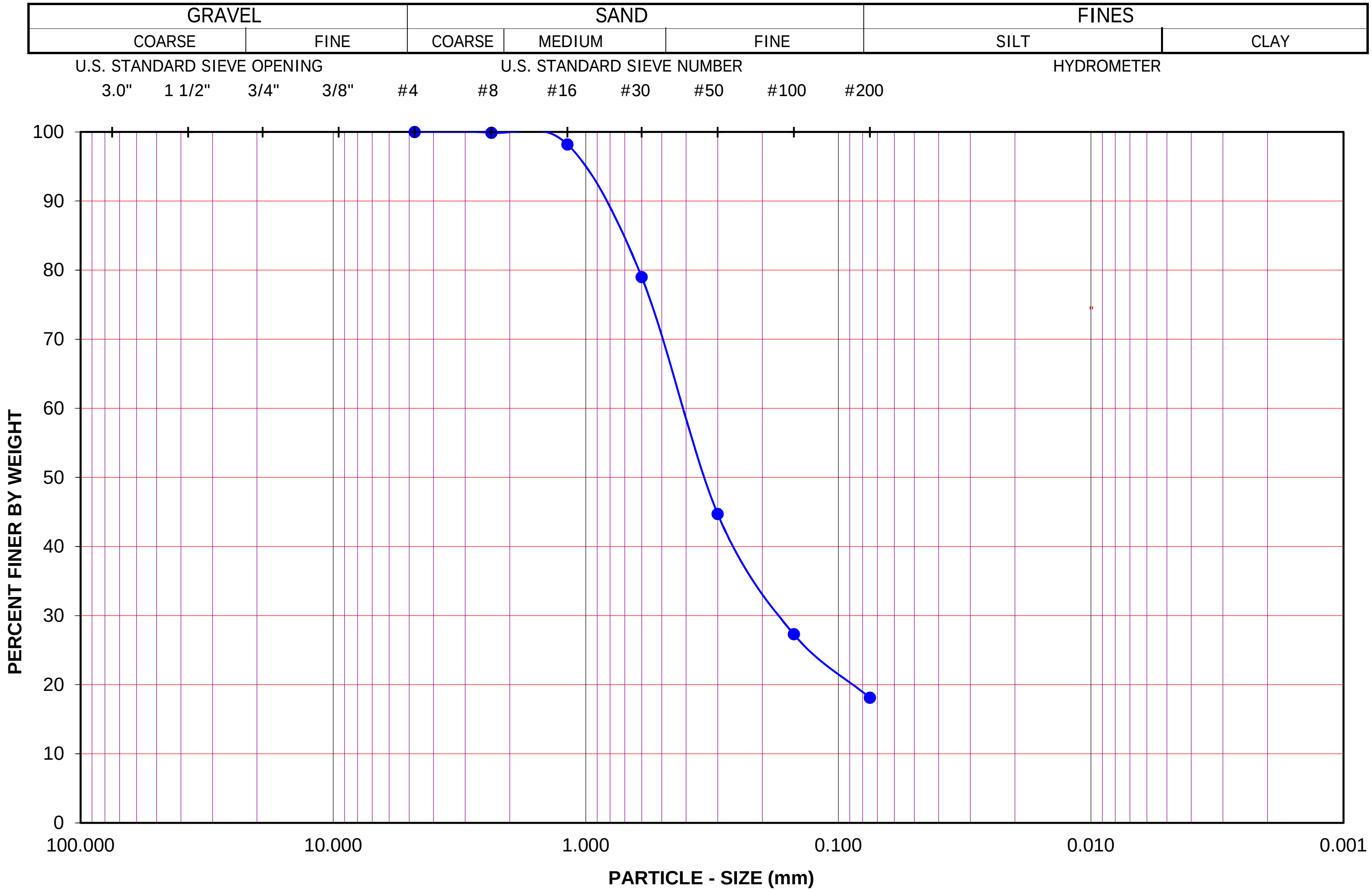
Soil Identification: Yellowish brown clayey sand with gravel (SC)g

Leighton

PARTICLE - SIZE DISTRIBUTION ASTM D 6913

GR:SA:FI : (%) 40 : 42 : 18

Aug-17



Project Name: Tetra Tech/ETWD Oso Lift Station

Project No.: 11653.001

Boring No.: LB-1 | Sample No.: R-3

Depth (feet): 15.0 | Soil Type : SC

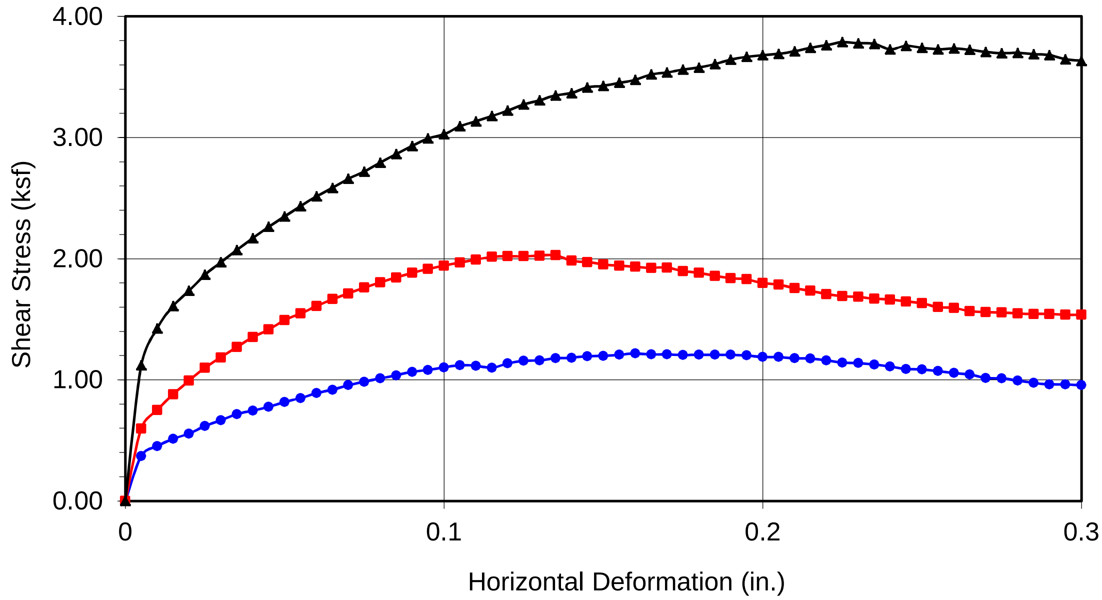
Soil Identification: Yellowish brown clayey sand (SC)

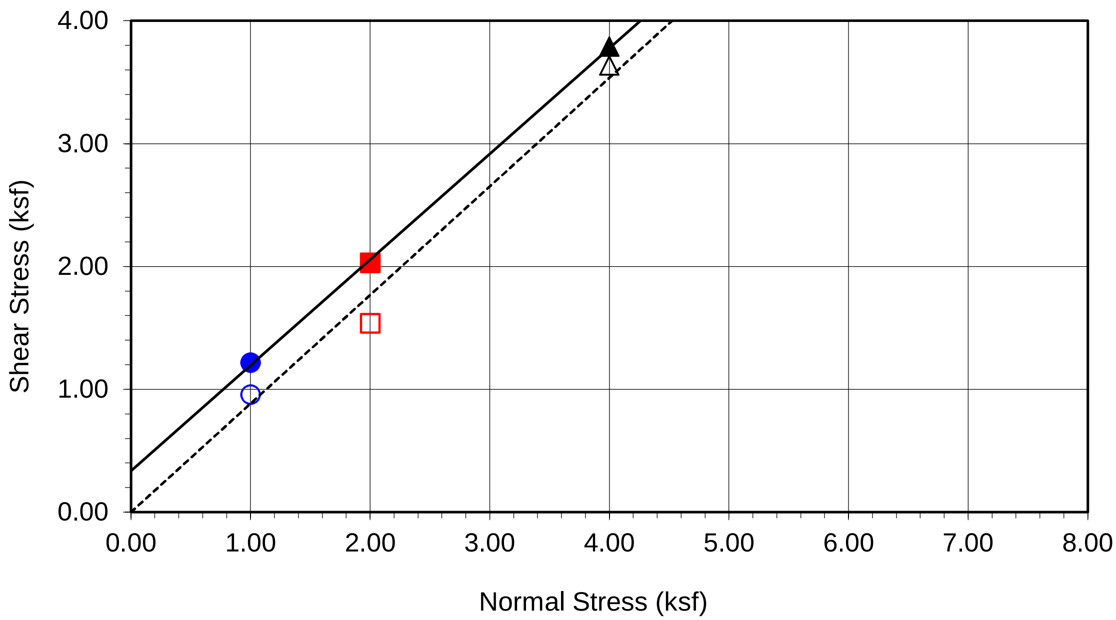
Leighton

PARTICLE - SIZE DISTRIBUTION ASTM D 6913

GR:SA:FI : (%) 0 : 82 : 18

Aug-17





Boring No.	**LB-1**
Sample No.	**R-1**
Depth (ft)	**5**
Sample Type:	Ring
Soil Identification: Brown silty, clayey sand (SC-SM)	

Strength Parameters

	C (psf)	ϕ (^{o})
Peak	337	41
Ultimate	0	41

Normal Stress (kip/ft²)	1.000	2.000	4.000
Peak Shear Stress (kip/ft²)	● 1.217	■ 2.028	▲ 3.788
Shear Stress @ End of Test (ksf)	○ 0.956	□ 1.537	△ 3.634
Deformation Rate (in./min.)	0.0500	0.0500	0.0500
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	16.06	16.06	16.06
Dry Density (pcf)	113.1	113.9	114.3
Saturation (%)	88.5	90.3	91.3
Soil Height Before Shearing (in.)	0.9747	0.9619	0.9496
Final Moisture Content (%)	14.9	14.5	13.8

Leighton

DIRECT SHEAR TEST RESULTS

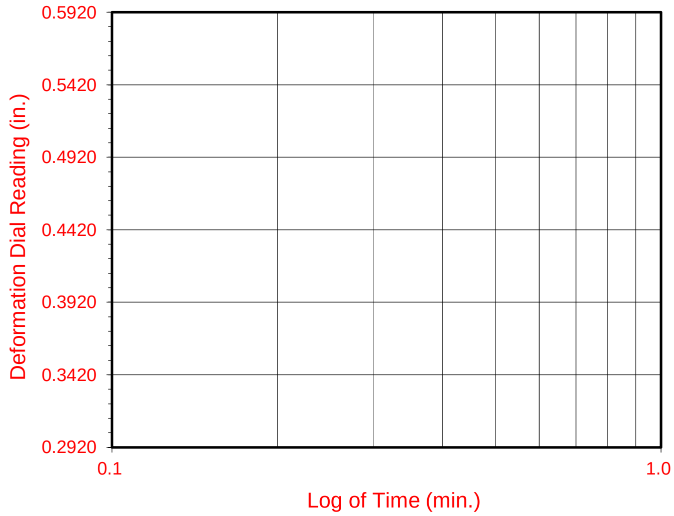
Consolidated Undrained

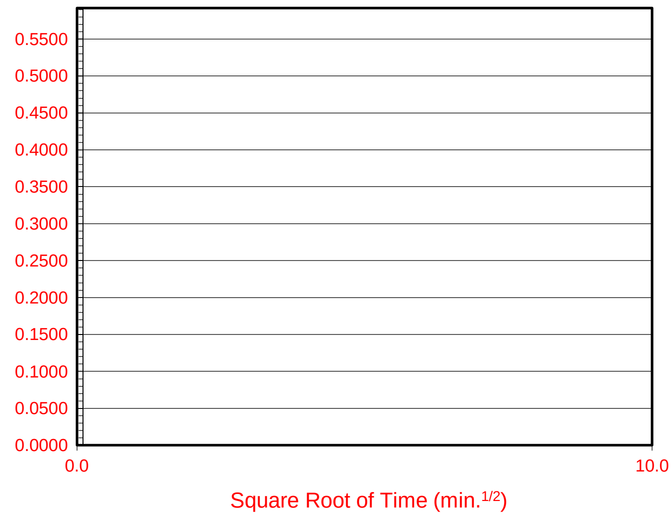
Project No.: 11653.001

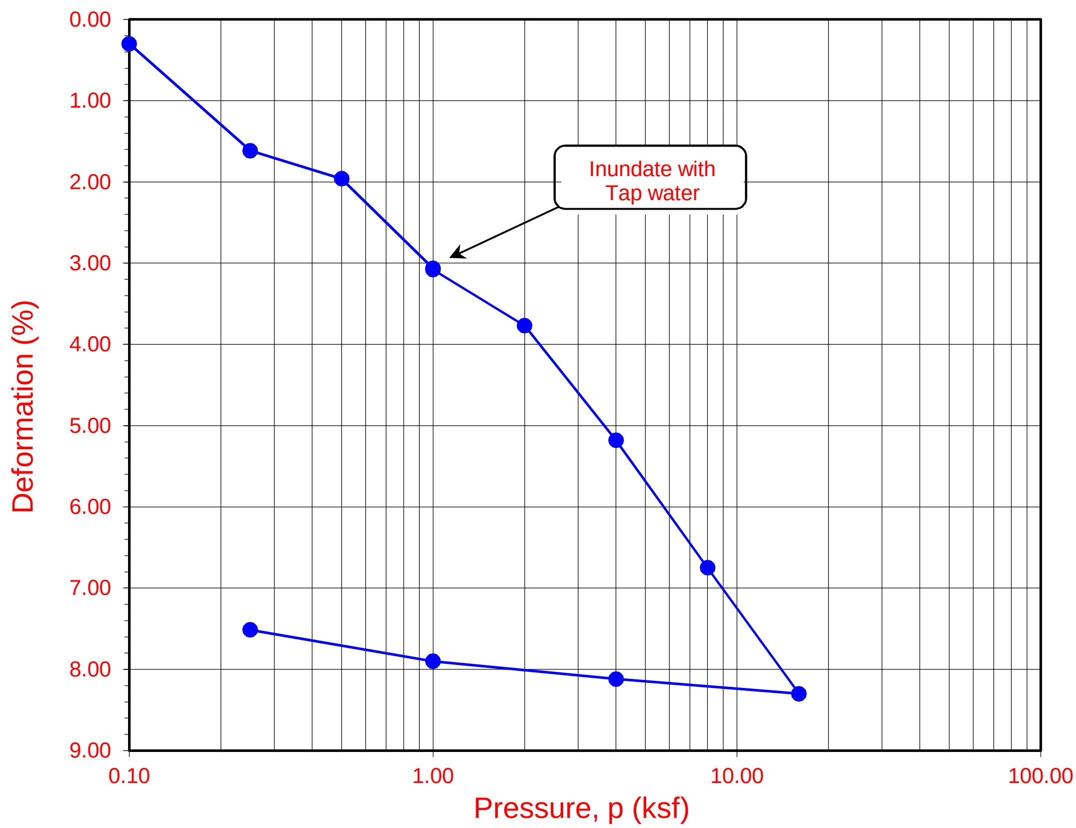
Tetra Tech/ETWD Oso Lift Station

07-17

Time Readings







Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
LB-1	**R-1**	**5.0**	**16.1**	**14.1**	**112.8**	**119.1**	**0.495**	**0.382**	**88**	**91**

Soil Identification: Brown silty, clayey sand (SC-SM)

Leighton	**ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS** **ASTM D 2435**	Project No.: 11653.001 Tetra Tech/ETWD Oso Lift Station 08-17

SOIL RESISTIVITY TEST
DOT CA TEST 643

Leighton

Project Name:	Tetra Tech/ETWD Oso Lift Station	Tested By :	G. Berdy	Date: 07/25/17
Project No. :	11653.001	Data Input By:	J. Ward	Date: 08/05/17
Boring No.:	LB-1	Depth (ft.) :	1-5
Sample No. :	B-1		

Soil Identification:* Brown SC-SM

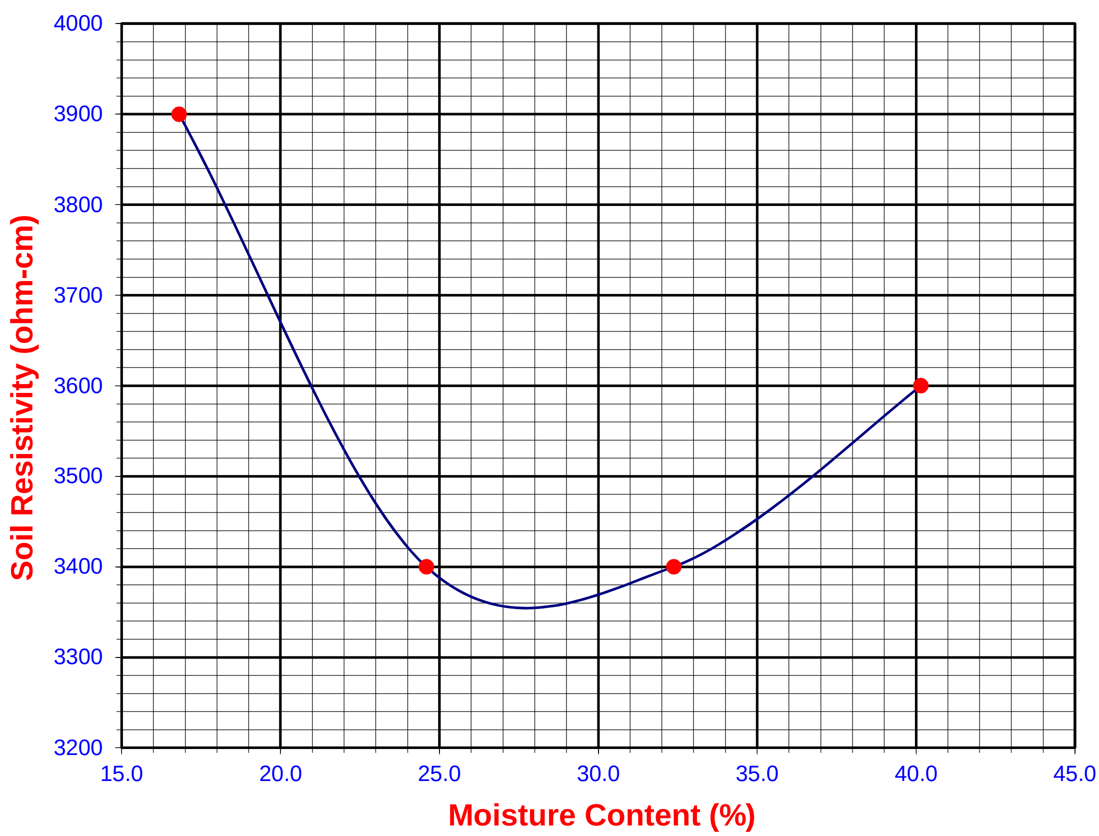
*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	20	16.81	3900	3900
2	30	24.59	3400	3400
3	40	32.37	3400	3400
4	50	40.15	3600	3600
5				

Moisture Content (%) (MCi)	1.24
Wet Wt. of Soil + Cont. (g)	198.92
Dry Wt. of Soil + Cont. (g)	197.16
Wt. of Container (g)	55.72
Container No.	
Initial Soil Wt. (g) (Wt)	130.10
Box Constant	1.000

MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
3350	**27.7**	**50**	**41**	**7.34**	**20.7**



APPENDIX E-1

Field Noise Measurement Data Sheets

FIELD NOISE MEASUREMENT DATA

PROJECT: OSO LIFT STATION　　PROJECT #: 10250
SITE ID: ST 1
SITE ADDRESS:　　OBSERVER(S): MO
START DATE: 7/19/18　　END DATE: 7/19/18
START TIME: 10:10　　END TIME: 10:25

METEOROLOGICAL CONDITIONS
TEMP: 82 F　　HUMIDITY: 65 % R.H.　　WIND: CALM LIGHT MODERATE
WINDSPD: 3-4 MPH　　DIR. N NE S SE S SW W NW　　VARIABLE STEADY GUSTY
SKY: SUNNY CLEAR OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS
MEAS. INSTRUMENT: RION NL-62　　TYPE 1 2　　SERIAL #:
CALIBRATOR: RION NC-74　　SERIAL #:
CALIBRATION CHECK　　PRE-TEST 93.9 dBA SPL　　POST-TEST 93.9 dBA SPL　　WINDSCRN

SETTINGS: A-WTD SLOW FAST FRONTAL RANDOM ANSI OTHER:

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
1	10:10	10:25	59.9	75.0	48.2				

COMMENTS

SOURCE INFO AND TRAFFIC COUNTS
PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: EL TORO RD　　DIST. TO RDWY C/L OR EOP:
TRAFFIC COUNT DURATION: ___ MIN　SPEED　　　___ MIN　SPEED

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB	IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE	COUNT 2 (OR RDWY 2) NB/EB	SB/WB	NB/EB	SB/WB
AUTOS									
MED TRKS									
HVY TRKS									
BUSES									
MOTRCLS									

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY:

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE
OTHER:

DESCRIPTION / SKETCH
TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS: 1
OTHER COMMENTS / SKETCH

DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT: OSO LIFT STATION
PROJECT #: 11250
SITE ID: ST-2
SITE ADDRESS:
OBSERVER(S): MG
START DATE: 7/19/18
END DATE: 7/19/18
START TIME: 10:30
END TIME: 10:45

METEOROLOGICAL CONDITIONS

TEMP 82 F | HUMIDITY 65 % R.H. | WIND CALM LIGHT MODERATE
WINDSPD 3-8 MPH | DIR. N NE S SE S SW W NW | VARIABLE STEADY GUSTY
SKY SUNNY CLEAR OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT ______ TYPE 1 2 SERIAL # ______
CALIBRATOR ______ SERIAL # ______
CALIBRATION CHECK PRE-TEST 93.9 dBA SPL POST-TEST 93.9 dBA SPL WINDSCRN ______

SETTINGS A-WTD SLOW FAST FRONTAL RANDOM ANSI OTHER: ______

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
1	10:30	10:45	64.8	75.6	50.7				

COMMENTS

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE ~~TRAFFIC~~ AIRCRAFT RAIL INDUSTRIAL OTHER: ______
ROADWAY TYPE: E.T. RD / ALISO CREEK RD DIST. TO RDWY C/L OR EOP: ______
TRAFFIC COUNT DURATION: ____ MIN SPEED ____ MIN SPEED

	DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB	IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE		NB/EB	SB/WB	NB/EB	SB/WB
COUNT 1 (OR RDWY 1)	AUTOS						COUNT 2 (OR RDWY 2)				
	MED TRKS										
	HVY TRKS										
	BUSES										
	MOTRCLS										

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY:

OTHER NOISE SOURCES (BACKGROUND): ~~DIST. AIRCRAFT~~ RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE
OTHER: ______

DESCRIPTION / SKETCH

TERRAIN HARD SOFT ~~MIXED~~ FLAT OTHER: ______
PHOTOS ______
OTHER COMMENTS / SKETCH

N

DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT: OSO LIST CA — PROJECT #: 11250
SITE ID: ST-3
SITE ADDRESS: — OBSERVER(S): MB
START DATE: 7/19/18 — END DATE: 7/19/18
START TIME: 10:50 — END TIME: 11:00

METEOROLOGICAL CONDITIONS
TEMP: 83 F — HUMIDITY: 65 % R.H. — WIND: CALM **LIGHT** MODERATE
WINDSPD: 2-3 MPH — DIR. N NE S SE S SW W NW — VARIABLE STEADY GUSTY
SKY: **SUNNY** **CLEAR** OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS
MEAS. INSTRUMENT: — TYPE 1 2 — SERIAL #:
CALIBRATOR: — SERIAL #:
CALIBRATION CHECK: PRE-TEST 93.7 dBA SPL — POST-TEST 94.0 dBA SPL — WINDSCRN:

SETTINGS: **A-WTD** **SLOW** FAST FRONTAL **RANDOM** **ANSI** OTHER:

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
1	10:50	11:05	52.0	59.8	45.4				

COMMENTS:

SOURCE INFO AND TRAFFIC COUNTS
PRIMARY NOISE SOURCE: **TRAFFIC** AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: ALISO CRK RD — DIST. TO RDWY C/L OR EOP:
TRAFFIC COUNT DURATION: ___ MIN SPEED — ___ MIN SPEED

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB	IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE	COUNT 2 (OR RDWY 2) NB/EB	SB/WB	NB/EB	SB/WB
AUTOS									
MED TRKS									
HVY TRKS									
BUSES									
MOTRCLS									

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY:

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS **BIRDS** DIST. INDUSTRIAL
DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) **DISTD GARDENERS/LANDSCAPING NOISE**
OTHER:

DESCRIPTION / SKETCH
TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS:
OTHER COMMENTS / SKETCH

APPENDIX E-2

Construction Noise Modeling Input and Output

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat‹ 8/7/2018
Case Descr ETWD Oso Lift Station - Demolition

---- Receptor #1 ----

		Baselines (dBA)		
Descriptior	Land Use	Daytime	Evening	Night
Residential	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	275	5
Concrete Saw	No	20		89.6	300	5
Crane	No	16		80.6	300	5
Excavator	No	40		80.7	275	5
Generator	No	50		80.6	300	5
Generator	No	50		80.6	350	5
Dump Truck	No	40		76.5	300	5
Front End Loader	No	40		79.1	275	5
Front End Loader	No	40		79.1	325	5

			Results			
	Calculated (dBA)			Noise Limits (dBA)		
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	57.9	53.9	N/A	N/A	N/A	N/A
Concrete Saw	69	62	N/A	N/A	N/A	N/A
Crane	60	52	N/A	N/A	N/A	N/A
Excavator	60.9	56.9	N/A	N/A	N/A	N/A
Generator	60.1	57.1	N/A	N/A	N/A	N/A
Generator	58.7	55.7	N/A	N/A	N/A	N/A
Dump Truck	55.9	51.9	N/A	N/A	N/A	N/A
Front End Loader	59.3	55.3	N/A	N/A	N/A	N/A
Front End Loader	57.9	53.9	N/A	N/A	N/A	N/A
Total	69	66.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Descriptior	Land Use	Daytime	Evening	Night
Residential	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated

Description	Impact Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Compressor (air)	No	40		77.7	310	5
Concrete Saw	No	20		89.6	325	5
Crane	No	16		80.6	320	5
Excavator	No	40		80.7	350	5
Generator	No	50		80.6	325	5
Generator	No	50		80.6	340	5
Dump Truck	No	40		76.5	325	5
Front End Loader	No	40		79.1	310	5
Front End Loader	No	40		79.1	350	5

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	56.8	52.8	N/A	N/A	N/A	N/A
Concrete Saw	68.3	61.3	N/A	N/A	N/A	N/A
Crane	59.4	51.5	N/A	N/A	N/A	N/A
Excavator	58.8	54.8	N/A	N/A	N/A	N/A
Generator	59.4	56.4	N/A	N/A	N/A	N/A
Generator	59	56	N/A	N/A	N/A	N/A
Dump Truck	55.2	51.2	N/A	N/A	N/A	N/A
Front End Loader	58.3	54.3	N/A	N/A	N/A	N/A
Front End Loader	57.2	53.2	N/A	N/A	N/A	N/A
Total	68.3	65.4	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Descriptior	Land Use	Daytime	Evening	Night
Park - Sout	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	550	5
Concrete Saw	No	20		89.6	575	5
Crane	No	16		80.6	550	5
Excavator	No	40		80.7	575	5
Generator	No	50		80.6	565	5
Generator	No	50		80.6	570	5
Dump Truck	No	40		76.5	550	5
Front End Loader	No	40		79.1	575	5
Front End Loader	No	40		79.1	560	5

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	51.8	47.9	N/A	N/A	N/A	N/A
Concrete Saw	63.4	56.4	N/A	N/A	N/A	N/A
Crane	54.7	46.8	N/A	N/A	N/A	N/A
Excavator	54.5	50.5	N/A	N/A	N/A	N/A
Generator	54.6	51.6	N/A	N/A	N/A	N/A
Generator	54.5	51.5	N/A	N/A	N/A	N/A
Dump Truck	50.6	46.6	N/A	N/A	N/A	N/A
Front End Loader	52.9	48.9	N/A	N/A	N/A	N/A
Front End Loader	53.1	49.1	N/A	N/A	N/A	N/A
Total	63.4	60.6	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat‹ 8/7/2018
Case Descr ETWD Oso Lift Station - Site Preparation

---- Receptor #1 ----

		Baselines (dBA)		
Descriptior	Land Use	Daytime	Evening	Night
Residential	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Front End Loader	No	40		79.1	275	5
Front End Loader	No	40		79.1	300	5

			Results			
	Calculated (dBA)			Noise Limits (dBA)		
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Front End Loader	59.3	55.3	N/A	N/A	N/A	N/A
Front End Loader	58.5	54.6	N/A	N/A	N/A	N/A
Total	59.3	58	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Descriptior	Land Use	Daytime	Evening	Night
Residential	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Front End Loader	No	40		79.1	310	5
Front End Loader	No	40		79.1	325	5

			Results			
	Calculated (dBA)			Noise Limits (dBA)		
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Front End Loader	58.3	54.3	N/A	N/A	N/A	N/A
Front End Loader	57.9	53.9	N/A	N/A	N/A	N/A
Total	58.3	57.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Descriptior	Land Use	Daytime	Evening	Night
Park - Sout	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Front End Loader	No	40		79.1	550	5
Front End Loader	No	40		79.1	575	5

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Front End Loader	53.3	49.3	N/A	N/A	N/A	N/A
Front End Loader	52.9	48.9	N/A	N/A	N/A	N/A
Total	53.3	52.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat‹ 8/7/2018
Case Descr ETWD Oso Lift Station - Bldg Const

---- Receptor #1 ----

		Baselines (dBA)		
Descriptior	Land Use	Daytime	Evening	Night
Residential	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	275	5
Concrete Saw	No	20		89.6	300	5
Crane	No	16		80.6	300	5
Excavator	No	40		80.7	275	5
Generator	No	50		80.6	300	5
Generator	No	50		80.6	350	5
Dump Truck	No	40		76.5	300	5
Front End Loader	No	40		79.1	275	5
Front End Loader	No	40		79.1	325	5

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	57.9	53.9	N/A	N/A	N/A	N/A
Concrete Saw	69	62	N/A	N/A	N/A	N/A
Crane	60	52	N/A	N/A	N/A	N/A
Excavator	60.9	56.9	N/A	N/A	N/A	N/A
Generator	60.1	57.1	N/A	N/A	N/A	N/A
Generator	58.7	55.7	N/A	N/A	N/A	N/A
Dump Truck	55.9	51.9	N/A	N/A	N/A	N/A
Front End Loader	59.3	55.3	N/A	N/A	N/A	N/A
Front End Loader	57.9	53.9	N/A	N/A	N/A	N/A
Total	69	66.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Descriptior	Land Use	Daytime	Evening	Night
Residential	Residential	65	60	55

Equipment
Spec Actual Receptor Estimated

Description	Impact Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Compressor (air)	No	40		77.7	310	5
Concrete Saw	No	20		89.6	325	5
Crane	No	16		80.6	320	5
Excavator	No	40		80.7	350	5
Generator	No	50		80.6	325	5
Generator	No	50		80.6	340	5
Dump Truck	No	40		76.5	325	5
Front End Loader	No	40		79.1	310	5
Front End Loader	No	40		79.1	350	5

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	56.8	52.8	N/A	N/A	N/A	N/A
Concrete Saw	68.3	61.3	N/A	N/A	N/A	N/A
Crane	59.4	51.5	N/A	N/A	N/A	N/A
Excavator	58.8	54.8	N/A	N/A	N/A	N/A
Generator	59.4	56.4	N/A	N/A	N/A	N/A
Generator	59	56	N/A	N/A	N/A	N/A
Dump Truck	55.2	51.2	N/A	N/A	N/A	N/A
Front End Loader	58.3	54.3	N/A	N/A	N/A	N/A
Front End Loader	57.2	53.2	N/A	N/A	N/A	N/A
Total	68.3	65.4	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Descriptior	Land Use	Daytime	Evening	Night
Park - Sout	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	550	5
Concrete Saw	No	20		89.6	575	5
Crane	No	16		80.6	550	5
Excavator	No	40		80.7	575	5
Generator	No	50		80.6	565	5
Generator	No	50		80.6	570	5
Dump Truck	No	40		76.5	550	5
Front End Loader	No	40		79.1	575	5
Front End Loader	No	40		79.1	560	5

	Results					
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	51.8	47.9	N/A	N/A	N/A	N/A
Concrete Saw	63.4	56.4	N/A	N/A	N/A	N/A
Crane	54.7	46.8	N/A	N/A	N/A	N/A
Excavator	54.5	50.5	N/A	N/A	N/A	N/A
Generator	54.6	51.6	N/A	N/A	N/A	N/A
Generator	54.5	51.5	N/A	N/A	N/A	N/A
Dump Truck	50.6	46.6	N/A	N/A	N/A	N/A
Front End Loader	52.9	48.9	N/A	N/A	N/A	N/A
Front End Loader	53.1	49.1	N/A	N/A	N/A	N/A
Total	63.4	60.6	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat(8/7/2018
Case Descr ETWD Oso Lift Station - Paving

---- Receptor #1 ----

		Baselines (dBA)		
Descriptior	Land Use	Daytime	Evening	Night
Residential	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
All Other Equipment >	No	50	85		275	5
Flat Bed Truck	No	40		74.3	300	5
Paver	No	50		77.2	300	5
Compactor (ground)	No	20		83.2	275	5

			Results			
	Calculated (dBA)			Noise Limits (dBA)		
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
All Other Equipment >	65.2	62.2	N/A	N/A	N/A	N/A
Flat Bed Truck	53.7	49.7	N/A	N/A	N/A	N/A
Paver	56.7	53.6	N/A	N/A	N/A	N/A
Compactor (ground)	63.4	56.4	N/A	N/A	N/A	N/A
Total	65.2	63.8	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Descriptior	Land Use	Daytime	Evening	Night
Residential	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
All Other Equipment >	No	50	85		310	5
Flat Bed Truck	No	40		74.3	325	5
Paver	No	50		77.2	320	5
Compactor (ground)	No	20		83.2	350	5

			Results			
	Calculated (dBA)			Noise Limits (dBA)		
			Day		Evening	

Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
All Other Equipment >	64.2	61.1	N/A	N/A	N/A	N/A
Flat Bed Truck	53	49	N/A	N/A	N/A	N/A
Paver	56.1	53.1	N/A	N/A	N/A	N/A
Compactor (ground)	61.3	54.3	N/A	N/A	N/A	N/A
Total	64.2	62.7	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Descriptior	Land Use	Daytime	Evening	Night
Park - Sout	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
All Other Equipment >	No	50	85		550	5
Flat Bed Truck	No	40		74.3	575	5
Paver	No	50		77.2	550	5
Compactor (ground)	No	20		83.2	575	5

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
All Other Equipment >	59.2	56.2	N/A	N/A	N/A	N/A
Flat Bed Truck	48	44.1	N/A	N/A	N/A	N/A
Paver	51.4	48.4	N/A	N/A	N/A	N/A
Compactor (ground)	57	50	N/A	N/A	N/A	N/A
Total	59.2	57.8	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.