Initial Study/Mitigated Negative Declaration

North Coast Interceptor Reach 5 Replacement Project

JANUARY 2025

Prepared for:

CITY OF LAGUNA BEACH
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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AB	Assembly Bill
amsl	above mean sea level
AQMP	air quality management plan
ASCE	American Society of Civil Engineers
bgs	below ground surface
BLM	Bureau of Land Management
BMP	best management practice
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CALGreen	California Green Building Standards
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCR	California Code of Regulations
CCRPA	California Cultural Resource Preservation Alliance
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CGS	California Geological Survey
CH_4	methane
cmbs	centimeters below surface
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CTP	Coastal Treatment Plant
dBA	A-weighted decibel
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
ESA	environmentally sensitive area
FEMA	Federal Emergency Management Agency
FFRP	flexible fabric reinforced pipe
FTA	Federal Transit Administration
GHG	greenhouse gas
GSP	Groundwater Sustainability Plan
GWP	global warming potential

Acronym/Abbreviation	Definition
HDD	horizontal directional drilling
HDPE	high-density polyethylene
I	Interstate
in/sec	inches per second
IP	Invertebrate Paleontology
IS	initial study
LACM	Natural History Museum of Los Angeles County
LBCWD	Laguna Beach County Water District
L_{eq}	equivalent continuous sound level
LF	linear feet
LS2	Lift Station 2
LST	localized significance threshold
MND	mitigated negative declaration
MT	metric ton
mya	million years ago
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP/HCP	Natural Community Conservation Plan/Habitat Conservation Plan
NCI	North Coast Interceptor
NF_3	nitrogen trifluoride
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
O_3	ozone
OC Parks	Orange County Parks
OCTA	Orange County Transportation Authority
OCWD	Orange County Water District
$PM_{2.5}$	fine particulate matter
PM_{10}	coarse particulate matter
PPV	peak particle velocity
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SCWD	South Coast Water District
SLF	Sacred Lands File
SO_2	sulfur dioxide
SoCalGas	Southern California Gas Company

Acronym/Abbreviation	Definition
SOCWA	South Orange County Wastewater Authority
SO_x	sulfur oxides
SR	State Route
STP	shovel test pit
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCR	tribal cultural resource
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	vehicle miles traveled
VOC	volatile organic compound
VP	Vertebrate Paleontology
XPI	Extended Phase I

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1 Introduction

1.1 Purpose of this Initial Study

This draft initial study (IS)/mitigated negative declaration (MND) was prepared in accordance with the California Environmental Quality Act (CEQA) to evaluate the potential environmental effects associated with the North Coast Interceptor (NCI) Reach 5 Replacement Project (project), proposed by the City of Laguna Beach (City) and located in the Aliso Canyon area of Laguna Beach. The proposed project involves the replacement of conveyance infrastructure to meet City criteria and operational requirements. A detailed description of the proposed project and its location is provided in Chapter 2, Project Description.

1.2 California Environmental Quality Act Compliance

The City is the lead agency responsible for the preparation of the environmental documentation and for the approval of the project. Based on the findings of this Draft IS, the City 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.).

This IS/MND has been prepared by the City and is in conformance with Section 15070(a) of the CEQA Guidelines (14 CCR 15000 et seq.). The purpose of the MND and the IS Checklist is to determine any potentially significant impacts associated with the project and to incorporate mitigation measures into the project design, as necessary, to reduce or eliminate significant or potentially significant effects. As determined in this IS/MND, there is no substantial evidence, in light of the whole record before the City that the proposed project would have a significant effect on the environment.

1.3 Public Review Process

In accordance with CEQA, this IS/MND has been made available for public review to potentially affected agencies and individuals for a period of 30 days, in accordance with Section 15073 of the CEQA Guidelines. During review of the IS/MND, affected public agencies and the interested public have an opportunity to focus on the document's adequacy in identifying and analyzing the potential environmental impacts and the ways in which the potentially significant effects of the proposed project can be avoided or mitigated.

Notices of the availability of the IS/MND for review and comment as well as the environmental documentation are available for review on the City's website under the CEQA tab at the following address:

https://www.lagunabeachcity.net/government/departments/community-development/planning-zoning/public-notices

Comments on the IS/MND can be sent from January 30, 2025, through February 28, 2025. All comments must be received by 5:00 p.m., February 28, 2025, and should be sent as follows:

Via Email to:

Ulises Escalona
Senior Project Manager
City of Laguna Beach
Public Works Department
uescalona@lagunabeachcity.net

Via Mail to:

City of Laguna Beach
Public Works Department
Attn: Ulises Escalona, Senior Project Manager
505 Forest Avenue
Laguna Beach, California 92651

Following the close of the public comment period, the City will consider this IS/MND and comments thereto in determining whether to approve the proposed project.

Following receipt and evaluation of comments from agencies, organizations, and/or individuals, the City will determine whether any substantial new environmental issues have been raised. If so, further documentation—such as an environmental impact report (EIR) or an expanded IS/MND—may be required. If not, the project and the environmental documentation will be scheduled to be submitted to the City Council for consideration.

2 Project Description

2.1 Project Location

The NCI Reach 5 is part of a pipeline conveyance system that conveys sewer flows from the City of Laguna Beach and the Emerald Bay Community Services District to the South Orange County Wastewater Authority (SOCWA) Coastal Treatment Plant (CTP) in Aliso Canyon. The NCI pipeline is a single pipeline that operates by gravity, a force main, and an inverted siphon that is owned by SOCWA and operated and maintained by the City. The total length of the NCI is 4.3 miles. Figure 2-1, Existing NCI Reaches, shows the extent of the pipeline, which originates in downtown Laguna Beach and terminates at the SOCWA CTP. The subject of this IS/MND is the replacement of the approximately 1-mile-long Reach 5 through Aliso Canyon. The acreage of the alignment is approximately 3 acres.

2.2 Environmental Setting

Reach 5 of the NCI is located under and along Aliso Creek and passes through The Ranch at Laguna Beach (The Ranch) resort and golf course. Reach 5 starts at the intersection of Pacific Coast Highway (Coast Highway) and Country Club Drive, follows Country Club Drive northeast, goes under Aliso Creek, comes out from under Aliso Creek and through The Ranch resort and golf course, follows under the access road to the SOCWA CTP, and ultimately connects into the SOCWA CTP. The pipeline was originally constructed in the 1970s and its potential for failure is high. Figure 2-2 shows the existing NCI Reach 5 pipeline alignment.

2.3 Project Characteristics

The proposed project is the replacement of the existing NCI Reach 5 through Aliso Canyon by a combination of open trench, horizontal directional drilling (HDD) installation,[1] and slip lining,[2] as shown on Figure 2-3, Project Alignment. The goal of the project is to completely replace the existing NCI Reach 5 with new dual parallel pipelines that will provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater to the SOCWA CTP. The primary characteristics of the replacement project include the following:

- Approximately 5,200 linear feet (LF) of dual 18-inch high-density polyethylene (HDPE) pipelines will be installed from Coast Highway to just west of the SOCWA CTP.
- The remaining 900 LF of existing 24-inch NCI pipeline from just west of the SOCWA CTP to the headworks will be rehabilitated using slip lining or flexible fabric reinforced pipe (FFRP).

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[1] HDD is a trenchless construction method used to install underground pipelines, cables, or conduits with minimal surface disruption. The process begins with drilling a small-diameter pilot hole along a carefully designed path using a steerable drill head, guided by real-time tracking systems to maintain accuracy. Once the pilot hole is complete, it is enlarged using a reamer to create a borehole wide enough for the pipeline or conduit. The pre-assembled pipeline is then pulled through the borehole using the drill rig, with drilling fluid (a mixture of water and bentonite) lubricating the process and removing cuttings. HDD is especially valuable for crossing obstacles like rivers, highways, or environmentally sensitive areas, as it avoids the need for open-cut excavation. While efficient and less invasive than traditional methods, HDD requires detailed geotechnical analysis, specialized equipment, and skilled operators to address challenges such as fluid loss and maintaining borehole stability.

[2] Slip lining using a flexible fabric reinforced pipe (FFRP) is the process by which the new pipe is inserted into an existing host pipeline. The new pipe is delivered to the project site in a folded state, pulled into the host pipe via a cable and winch, then inflated with compressed air. The unfolded pipe regains and then retains its round shape. The process of slip lining is a very effective way of replacing on old pipeline without the cost or impacts associated with open cut trenching.

- Between The Ranch's driving range and the back fairway of the golf course, trenchless technology (HDD) will be used to reduce construction activities within The Ranch resort.
- Open trench installation will be used through The Ranch resort's Scout Camp area and along the access road to near the entrance to the SOCWA CTP.
- From outside the SOCWA CTP, the existing NCI pipeline will be used as a conduit to slip line a new HDPE pipeline for approximately 800 feet under Aliso Creek to the existing headworks structure inside the CTP.
- Fast-tracked open trench installation will be used along Country Club Drive between The Ranch's driving range and the entrance of the resort to minimize impact to The Ranch resort's operations.
- Valve vaults will be installed at each end of the project alignment to allow flows to be switched between NCI pipelines.
- The interconnection between the NCI and the South Coast Water District (SCWD) Lift Station 2 (LS2), currently under construction, will be retained for one of the new NCI Reach 5 pipelines.
- The existing NCI Reach 5 pipeline (approximately 5,300 LF) will be filled and abandoned in place.

2.4 Project Construction and Phasing

Below is a detailed description of the project construction along each segment of the NCI Reach 5.

Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)

This westernmost segment of the pipeline is near SCWD's LS2 and construction will be by open trench excavation, as shown on Figure 2-4, Pacific Coast Highway Connection Vault. The proposed trench will be approximately 8 feet wide to accommodate the dual pipelines and will be approximately 10 to 20 feet deep. This area will be reconfigured as part of the LS2 construction, which is a project that will be completed prior to the start of the NCI Reach 5 project. LS2 was originally constructed in 1953 and SCWD is replacing it with a new lift station, as a separate project from the one assessed in this IS/MND. The LS2 project, which is currently under construction, also includes demolition of the old lift station, realignment of Country Club Drive, the replacement of an existing drainage outlet into Aliso Creek, installation of a new odor control scrubber, and an emergency intertie to connect the SCWD pipeline and the City's NCI Reach 5 for secondary conveyance of wastewater flows to the SOCWA CTP in the event of an emergency.

The NCI Reach 5 project will require one of the two new pipelines to connect to the diversion valve located within the existing decomposed granite parking area south of the old LS2 and adjacent to Country Club Drive.

Groundwater within this area is as shallow as 10 feet; therefore, dewatering of groundwater is anticipated to be required during construction of facilities in this area.

SCWD Lift Station 2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)

SCWD's new LS2 includes an intertie system to allow wastewater flows to be conveyed either through SCWD's LS2 force main or through the existing 24-inch NCI Reach 5. The new NCI Reach 5 will connect to the LS2 intertie vault, as shown on Figure 2-5, SCWD Lift Station 2 Intertie Vault and Emergency Interconnections – Western Portion. Only one of the two new NCI Reach 5 pipelines will connect to the intertie vault. The other pipeline will be installed around the vault and will facilitate the phased handling of sewer flows.

The upstream and downstream hot-tap connections into the existing NCI will be removed and replaced with a jointless HDPE fabricated tee. The existing isolation valves may be reused for both locations upstream and downstream of the intertie vault.

Groundwater in this area is as shallow as 10 feet; therefore, dewatering of groundwater is anticipated to be required during construction of facilities in this area.

Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)

Following the LS2 intertie vault and emergency intertie connections, the proposed pipeline alignment will continue east through the existing decomposed granite walking path and surrounding vegetation/landscaping for approximately 250 LF, at which point it will reenter Country Club Drive, as shown on Figure 2-6, SCWD Lift Station 2 Intertie Vault and Emergency Interconnections – Eastern Portion. The alignment will continue northeast within Country Club Drive toward The Ranch's driving range for approximately 850 LF. Trenching within Country Club Drive will require night work between 8:00 p.m. and 5:00 a.m. so that the road can remain open during the day for access to The Ranch. The night work for this segment has been approved by the Public Works Director per the City's Municipal Code (see Appendix E-3). This is the only portion of the project that will require night work. The work for this segment is anticipated to take up to 4 months. Within this section of the alignment, an existing 3-inch gas line owned by the Southern California Gas Company (SoCalGas) and an electrical conduit owned by Frontier are located beneath Country Club Drive, and both utility lines are potentially in conflict with the proposed NCI Reach 5 alignment. If segments of these utilities need to be relocated to accommodate the NCI Reach 5 pipelines, coordination with SoCalGas, Frontier, and The Ranch will be required. There is also an existing 8-inch water pipeline owned by SCWD within this road segment that may need to be shut down and relocated, if in conflict.

HDD Receiving Area (Sta. 28+00)

The HDD receiving area is where the horizontal drilling machine resurfaces and where the pipelines are laid out to be pulled through the tunnel created by the drilling machine. The proposed location for the HDD receiving area is within The Ranch's existing 57 × 40-foot driving range, as shown on Figure 2-7, HDD Receiving Area, Alignment, and Launching Area. This phase of construction will require the driving range to be taken out of service for the duration of the improvements in this area (approximately 16 weeks) and will require the existing trash enclosure and storage container to be temporarily relocated. Temporary construction fencing will be required for this part of construction. At a high point along the alignment, an air-vacuum air-release valve will be required to prevent air accumulation. The HDD method requires that the full pipe string be fused and ready for pullback, meaning that the entire length of pipeline that will be pulled through the tunnel must be laid out on the ground. It is assumed that only one pipe string will be pulled back at a time. The proposed HDD pullback staging area for the two pipelines will be within the shoulder of Country Club Drive. Partial access to The Ranch's parking lot will be retained during this construction phase.

HDD Alignment (Sta. 28+00 to 43+50)

The pipelines from Stations 28+00 through 43+50 will be installed by the HDD method, as shown on Figure 2-7. HDD is a trenchless construction method that uses a guided horizontal drilling machine to create an arc profile through which the pipes are pulled. There are three main stages involved in HDD construction: drilling of a smaller-diameter pilot hole, pilot hole enlargement (reamers), and the pullback installation of the carrier pipes. Enlargement of the pilot hole is expected to be conducted using forward reaming. This approach will force soil spoils and drilling fluid to flow backwards toward the entrance pit (HDD receiving area). The back area of the golf course will be used for the handling of materials, including soil filtering and recycling of drilling fluids.

The pipeline alignment will pass through several parcels outside The Ranch golf course, which will require, at a maximum, a 40-foot-wide utility easement (without vertical access rights).

HDD Launching Area (Sta. 43+50)

The HDD launching area is where the horizontal drilling rig is deployed to begin digging the trenchless tunnel through which the pipes will be pulled, as shown on Figure 2-7. The proposed HDD launching/entrance area is located parallel to the existing access road toward the eastern end of The Ranch's golf course. The large HDD equipment that is required in this area includes the HDD drill rig, drilling fluids recycling equipment, drilling fluids trailer, drill rods trailer and storage, water trucks, and other service trucks. The launch area will be approximately 9,100 square feet (0.2 acres) to allow space for all equipment. Due to the location of the work, the drilled hole size, the overall horizontal length proposed, and the two separate drilling efforts, the HDD contractor will likely choose to filter, clarify, and recycle drilling fluid.

The working area will be fenced for the duration of HDD installation. The Ranch golf course is expected to remain open during construction of this segment.

Open Trench Through Scout Camp (Sta. 43+50 to 52+50)

Following construction of the HDD segment, the pipeline construction will return to open trench excavation just east of the HDD launching area through The Ranch's Scout Camp, as shown on Figure 2-8, Open Trench Through Scout Camp, which will require temporary closure of a portion of the Scout Camp. Access to the Scout Camp will be entirely blocked for a short period of time while the pipeline is being installed across the access driveway. This trenching will likely require the removal of some existing trees. After pipeline installation, the existing vegetation/landscaping and decomposed granite walking path with handrails will be replaced in kind.

Open Trench Along Access Road (Sta. 52+50 to 60+00)

The new pipelines will be installed in this area via open trench within the narrow, approximately 12-foot-wide, existing access road between The Ranch golf course and Aliso Canyon Road, as shown on Figure 2-9, Open Trench Along Access Road. An air-vacuum air-release valve is required at the high point along the access road. The SCWD 20-inch-diameter force main follows this same route, with the pipeline located in the northern shoulder of the road. A newly installed Southern California Edison (SCE) double-stacked 5-inch conduit was installed in February 2023 within the access road. As part of the installation, the contractor was provided guidance for locating the conduits outside the proposed trench width of the NCI Reach 5 alignment. An existing 3-inch gas line owned by SoCalGas remains within the access road. Prior to construction of NCI Reach 5, this gas line will either be relocated or abandoned by SOCWA.

Isolation Valve Vault near SOCWA CTP Access Bridge (Sta. 60+00 to 61+70)

A precast concrete valve vault will be constructed in the undeveloped area west of the SOCWA CTP access bridge, as shown on Figure 2-10, Isolation Valve Vault near SOCWA CTP Access Bridge. The proposed valve vault will house both pipelines so each one can be accessed and isolated for maintenance. Isolation valves will be installed on each pipeline within the vault to provide complete redundancy between the pipes. Downstream of the valve vault, one of the new pipelines will bend 45° to connect with the other pipeline using a wye fitting. Once the pipelines are connected, the manifold will bend 90° toward the existing NCI pipeline where a connection will be made. Access to the SOCWA CTP will be maintained throughout construction. The property is owned by the County of Orange (OC Parks), so a temporary construction easement and permanent access easement will be required throughout this area of the project site. Access to the SOCWA CTP will be maintained throughout construction.

Slip Lining of Existing NCI Reach 5 (Sta. 61+70 to 70+56)

The final section of the NCI Reach 5 project between the isolation valve and the SOCWA CTP will involve rehabilitation of the existing NCI Reach 5 pipeline using an interior slip line. This final section of the NCI crosses under Aliso Creek adjacent to the existing SOCWA CTP, as shown on Figure 2-11, Slip Lining of NCI Reach 5.

The product proposed for slip lining is FFRP. FFRP is a flexible fabric-reinforced polyethylene liner that is delivered to the project site in a folded state, pulled into the host pipe via a cable and winch, then inflated with compressed air.

The maximum recommended pull length is 2,200 LF for a Bullet Liner and 8,200 LF for a Primus Liner. Therefore, two separate segments of slip lining may be needed due to the 90° angle the existing NCI makes turning south toward the SOCWA CTP and under Aliso Creek. The first segment is approximately 700 feet long and spans from the proposed launch point to the NCI connection point west of the SOCWA CTP access bridge. The second segment is approximately 200 feet long and will span from the proposed launch point to the termination point proposed outside the SOCWA CTP. A maximum of three pits may be required to accomplish the lining: one launching pit between Aliso Canyon Road and Aliso Creek and two termination pits, one west of the SOCWA CTP access bridge and the other one just outside the SOCWA CTP headworks building. The termination pits will be approximately 20 feet long by 10 feet wide and the launching pit will be slightly larger, at 15 feet long by 15 feet wide.

A temporary aboveground sewer bypass will be required to isolate the section of the existing NCI pipeline that will be slip lined. The proposed temporary sewer highline will start above grade from the upstream connection point west of the SOCWA CTP access bridge and travel toward the access bridge, where it will be routed underneath the bridge and then on top of the bridge (eastern shoulder) and over Aliso Creek into the SOCWA CTP. The bypass line will then continue along the narrow access road on the northwest side of the plant, where it will reach the termination point for the downstream segment of slip lining, as shown on Figure 2-11. To accomplish the bypass connections, a combination of line stop valves and hot-tap connections will be required. The property is owned by OC Parks, so a temporary construction easement will be required throughout this area of the project site. Access to the SOCWA CTP will be maintained throughout construction.

Abandonment of Existing NCI Reach 5 (Sta 12+50 to 61+70)

Following construction, testing, and operation of the new NCI Reach 5 pipeline, the existing 24-inch NCI Reach 5 pipeline (approximately 5,300 LF) will be abandoned in place. The abandonment will consist of injecting the pipe with controlled low-strength material (CLSM) under pressure. The intent of the abandonment is to seal the pipe to mitigate the potential for it to convey groundwater or form sink holes above the pipe.

Construction Schedule

The overall construction schedule anticipates a construction period of 17 months, beginning in fall 2026 and ending in spring 2028.

2.5 Project Approvals

Anticipated approvals for the proposed project include the following:

- City of Laguna Beach
  - Project approval and adoption of the IS/MND
- Orange County Transportation Authority (OCTA)
  - Easement/access
- Orange County Parks (OC Parks)
  - Easement/access
- South Coast Water District (SCWD)
  - Interconnection with LS2 force main
- South Orange County Wastewater Authority (SOCWA)
  - Easement/access
  - Interconnection to SOCWA CTP
  - Co-applicant on Coastal Development Permit
  - Role as responsible agency under CEQA
  - Removal or replacement of 3-inch gas pipeline in plant access road with a smaller pipeline
- California Coastal Commission
  - Coastal Development Permit that is required for projects in the coastal zone
- Regional Water Quality Control Board (RWQCB) – San Diego
  - 401 Water Quality Certification
  - Stormwater pollution prevention plan (SWPPP)
- California Department of Fish and Wildlife (CDFW)
  - 1600 Streambed Alteration Agreement for any alteration (including temporary construction/clearing of river or stream adjacent habitat)
- U.S. Army Corps of Engineers – Los Angeles District
  - Nationwide Permit for discharges of fill into waters of the United States (for work within and across Aliso Creek)
- Department of Drinking Water
  - Waiver if the installed pipelines cannot maintain separation requirements from existing potable water pipelines (a waiver requires the use of mitigation measures to further aid in prevention of contamination of water facilities; in this case, the mitigation measure will be use of HDPE pipe, which is jointless)
- California Department of Transportation (Caltrans)
  - Encroachment permit for access to/from Coast Highway
- Utility Providers
  - Crossing/relocation of various existing underground utilities
- Private Property (Assessor's Parcel Number 056-240-12)
  - Acquisition of an easement

3 Initial Study Checklist

1. **Project title:**

North Coast Interceptor Reach 5 Replacement Project

2. **Lead agency name and address:**

City of Laguna Beach
505 Forest Avenue
Laguna Beach, California 92651

3. **Contact person and phone number:**

Ulises Escalona
505 Forest Avenue
Laguna Beach, California 92651
949.497.0792

4. **Project location:**

North Coast Interceptor Reach 5 starts at the intersection of Coast Highway and Country Club Drive in Laguna Beach, follows Country Club Drive northeast, then goes under Aliso Creek, comes out from under Aliso Creek through The Ranch resort and golf course, follows under the access road to the SOCWA CTP, and ultimately connects into the SOCWA CTP.

5. **Project sponsor's name and address:**

Same as above.

6. **General plan designation:**

City of Laguna Beach: Public Recreation and Parks, Commercial/Tourist Corridor, Open Space
County of Orange: Open Space Reserve

7. **Zoning:**

City of Laguna Beach: Recreation (REC), Commercial Hotel–Motel Zone (CHM), Open Space/Conservation Zone (OS/C)
County of Orange: Open Space

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):**

See Chapter 2, Project Description.

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

   The project site is proximate to The Ranch resort and golf course and is located along Aliso Creek and within Aliso Canyon. The project alignment terminates at the SOCWA CTP.

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

    See Section 2.5, Project Approvals.

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

    Yes; refer to Section 3.18, Tribal Cultural Resources, for 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
☐ Biological Resources
☐ Geology and Soils
☐ Hydrology and Water Quality
☐ Noise
☐ Recreation
☐ Utilities and Service Systems
☐ Agriculture and Forestry Resources
☐ Cultural Resources
☐ Greenhouse Gas Emissions
☐ Land Use and Planning
☐ Population and Housing
☐ Transportation
☐ Wildfire
☐ Air Quality
☐ Energy
☐ Hazards and Hazardous Materials
☐ Mineral Resources
☐ Public Services
☐ Tribal Cultural Resources
☐ 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.

Ulises Escalona

Ulises Escalona, Senior Project Manager

1/28/25

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 would 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.
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

3.1 Aesthetics

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
I.	**AESTHETICS** – Except as provided in Public Resources Code Section 21099, 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)	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

As stated in Section 2.2, Environmental Setting, Reach 5 of the NCI is located under and along Aliso Creek and passes through The Ranch resort and golf course. NCI Reach 5 starts near the intersection of Coast Highway and Country Club Drive and generally follows Country Club Drive to the northeast through a narrow and rugged canyon landscape featuring a passive park; single-family residences; water facilities, including a fenced storage yard and low-profile (i.e., single-story) buildings used for SCWD vehicle maintenance and vehicles; and The Ranch resort and golf course. The proposed alignment first traverses mountainous terrain, then follows the golf course and eventually an access road to the SOCWA CTP, at the end of which the alignment ultimately connects into the SOCWA CTP. Figure 2-2 shows the existing NCI Reach 5 pipeline alignment and surrounding uses.

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

Less Than Significant Impact. There are no formal scenic vistas identified as such by the City in its General Plan; however, the Open Space and Conservation Elements note in a general sense that panoramic vistas are available from the City's hillsides (City of Laguna Beach 2005a). In addition, the General Plan identifies the San Joaquin Hills as a defining feature of Laguna Beach and are identified by the City as scenic features.

The project alignment is within a scenic area of the coastal San Joaquin Hills and is generally adjacent to Aliso Creek. The westernmost portion of the alignment is located approximately 130 feet east of Coast Highway and more than 400 feet from the ocean. While segments of the project alignment are partially located along Aliso Creek and within a narrow canyon bordered by steep hillsides, public visibility to the project area is generally limited to the western portion (i.e., the short portion located to the west of The Ranch). East of this location, the alignment runs through a densely vegetated hillside and developed and undeveloped lands in Aliso Canyon that are primarily visible from private ridgetop residential properties and users of The Ranch golf course. Public visibility from the City's hillsides is limited to ridgeline trails located nearly 2,000 feet to the south, including the Seaview Park Trail and the Aliso Peak Trail.

As proposed, the project's potential impacts on scenic vistas would be minor and temporary. Temporary construction activities may be visible from ridgeline trails; however, visibility to activities occurring along the project alignment would normally be blocked from view by tall intervening vegetation lining the trail corridors. In addition to blocked views from ridgeline trails, construction activities would result in temporary visual change because activities would last for approximately 17 months. Additionally, construction would occur in phases, so visual impacts would not occur along the whole alignment for the entire construction period. Once construction is complete, the project would not impact scenic resources or views from scenic vistas such as nearby ridgeline trails because all project elements would be located underground or within existing facilities. Further, any cleared vegetation along the alignment would be replaced, and ultimately (i.e., once replaced vegetation matures), the alignment would mostly replicate existing visual conditions. In addition, because project elements would be located underground or within existing facilities located along the ground plane, project elements would neither block nor substantially interrupt available views from nearby ridgelines (or hillside trails). Lastly, large stretches of the alignment would be constructed via HDD or slip lining (which entail trenchless construction installation and/or use of existing installed pipeline for pipeline replacement) and would have minimal visual impacts (including impacts on views from elevated public vantage points) aside from the launching and receiving locations.

Because construction impacts would be temporary and construction activities would be mostly blocked from public view by intervening ridgeline-adjacent vegetation and terrain and would not impact the entire alignment for the duration of the construction period, temporary impacts to scenic vistas would be less than significant. During operations, surface impacts associated with open trenching and HDD or slip lining would be addressed via replacement of removed vegetation and the return of affected launching and receiving locations to existing conditions. Linear areas of disturbance along the alignment would also have limited visibility from elevated ridgeline trails and would neither block nor substantially interrupt available views from trails. Thus, operational impacts on scenic vistas would be less than significant.

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

Less Than Significant Impact. Coast Highway, which is west of the western end of the project alignment, is listed as an eligible state scenic highway (Caltrans 2024). From the highway and near the project site (particularly near the Coast Highway span of Aliso Creek near Aliso Beach), views of the beach and ocean to the west and the San Joaquin Hills to the east are available to passing motorists. Available views to the western portion of the project alignment area are experienced over an approximately 350-foot segment of the road (and views to the alignment are mostly blocked by intervening park and creek-adjacent trees/vegetation). Because construction activities would occur to the east of Coast Highway, construction would not impact available views from the highway to the west toward Aliso Beach and the Pacific Ocean.

The first phase of construction (Coast Highway Connection Vault [Sta. 10+00 to 13+00]), which would be constructed by open trench, would be partially visible to viewers looking east from Coast Highway toward Country Club Drive (views to the connection vault area would be partially blocked by existing creek vegetation between Coast Highway and the connection vault area). During open trench excavation, a linear trench (approximately 8 feet in width and approximately 10 to 20 feet deep) would be excavated to accommodate dual pipelines. Based on a desktop review of the alignment and views from Coast Highway in this location, project activities would be mostly blocked from the view of Coast Highway motorists by intervening vegetation along the north and south banks of Aliso Creek. Views to excavation activities would be of very short duration, and affected resources at this location include the existing paved surface of Country Club Drive, the adjacent wall, and some native vegetation (shrubs). Due to the brief duration of the available view and because vegetation would be replaced following the end of construction activities at this location, temporary and long-term impacts to scenic resources associated with the first phase of construction would be less than significant.

Subsequent phases of construction, including activities near the Scout Camp, would have little to no visibility from Coast Highway due to the screening effect of intervening vegetation, terrain, and development. As previously stated, project construction and operations would have no impact on beach and ocean views west of Coast Highway because of the distance to the construction site, which is inland along Aliso Creek and not near the beach, which is across Coast Highway from the project site and would be obstructed from view by Coast Highway. Therefore, due to the temporary nature of visual impacts within an eligible state scenic highway, impacts would be less than significant.

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

Less Than Significant Impact. The project includes natural hillsides but is considered an urbanized area because the population of Laguna Beach meets the definition of an urbanized area established pursuant to California Public Resources Code Section 21071. Specifically, an “urbanized area” is defined as follows:

- An incorporated city that meets either of the following criteria:
  - Has a population of at least 100,000 persons.
  - Has a population of less than 100,000 persons if the population of that city and not more than two contiguous incorporated cities combined equals at least 100,000 persons.

According to the California Department of Finance, the City had an estimated population of 22,449 as of January 1, 2024, and the contiguous Cities of Laguna Niguel and Dana Point had estimated January 1, 2024, populations of 64,291 persons and 32,596 persons, respectively (California Department of Finance 2024). Therefore, the population of Laguna Beach does not meet the definition of an urbanized area on its own; however, combined with the populations of Laguna Niguel and Dana Point (combined population is 119,336 persons), Laguna Beach’s population meets the urbanized area definition provided in California Public Resources Code Section 21071.

The Landscape and Scenic Highways Element of the City's General Plan includes a variety of policies that regulate scenic quality in the City, including specific policies related to protection of scenic highways; protection of the City's landforms, including ridgelines, hillsides, and canyons (Policy 1.3); and promotion of undergrounding of utilities (Policy 3.5) (City of Laguna Beach 2018). The City's Open Space Conservation Element also contains policies related to the protection of visual/view resources, including the following:

- Policy 7-A: Preserve to the maximum extent feasible the quality of public views from the hillsides and along the city's shoreline.
- Policy 7-K: Preserve as much as possible the natural character of the landscape (including coastal bluffs, hillsides and ridge lines) by requiring proposed development plans to preserve and enhance scenic and conservation values to the maximum extent possible, to minimize impacts on soil mantle, vegetation cover, water resources, physiographic features, erosion problems, and require recontouring and replanting where natural landscape has been disturbed.

As previously described, public views to the project area are generally limited to the western portion (i.e., the short portion located to the west of The Ranch). East of this location, the alignment runs through a densely vegetated hillside and developed and undeveloped lands in Aliso Canyon that are primarily visible from private ridgetop residential properties and users of The Ranch golf course. Public visibility from the City's hillsides is limited to ridgeline trails located nearly 2,000 feet to the south, including the Seaview Park Trail and the Aliso Peak Trail.

As proposed, the project's potential impacts on the City's landforms, public views, and existing visual character would be minor and mostly temporary. Temporary construction activities may be visible from ridgeline trails and from a short segment of Coast Highway; however, visibility to activities occurring along the project alignment would normally be blocked from view by tall intervening vegetation lining the trail corridors and Aliso Creek. In addition to blocked views from ridgeline trails and Coast Highway, construction activities would result in temporary visual change because activities would progress in a linear fashion over an approximately 17-month period. Further, construction would occur in phases, and as such, visual impacts would not occur along the whole alignment at the same time (they would not persist in any one location for all 17 months of construction). Once construction is complete, the project would not impact existing terrain, views, or visual character because the alignment would be located underground or within existing facilities. Further, any cleared vegetation along the alignment would be replaced, and ultimately (i.e., once replaced vegetation matures), the alignment would mostly replicate existing visual conditions.

Because construction impacts would be temporary and views of construction activities would be mostly blocked from public view by intervening ridgeline-adjacent vegetation and terrain and would not impact the entire alignment for the duration of the construction period, temporary impacts to landforms, views, and visual character would be less than significant. During operations, surface impacts associated with open trenching and HDD or slip lining would be addressed via replacement of removed vegetation and the return of affected launching and receiving locations to existing conditions. Thus, operational impacts on landforms, views, and visual character would be less than significant. The proposed project would have less than significant impacts related to a conflict with applicable zoning or regulations governing scenic quality (including relevant policies of the General Plan).

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

Less Than Significant Impact with Mitigation Incorporated. Project construction would adhere to the City's construction activity noise regulations (Section 7.25.080), which limit construction to the City permitted hours of 7:30 a.m. to 6:00 p.m. on weekdays, with construction prohibited on weekends and holidays except for the open cut trenching work along Country Club Lane toward The Ranch's driving range from STA 19+50 to STA 26+00, which must occur at nighttime (8:00 p.m. to 5:00 a.m.) because daytime work would shut down the operations of The Ranch. Nighttime construction of the project would only occur during this segment of the project, and project construction for this segment would require lighting. In order to mitigate the effects of night lighting, Mitigation Measure (MM) AES-1 (Nighttime Construction) would be required (see Mitigation Measures subsection at the end of this section).

During construction, vehicles and equipment would have limited public visibility, and vehicles and equipment are composed of materials that are commonplace in the existing visual environment (and would not create an atypical or substantial source of potential glare). Therefore, project construction would not create a new source of substantial light or glare and impacts would be less than significant. As stated in Sections 3.1(a) and 3.1(c), after construction, all project elements would be located underground or within existing facilities and would not create a new source of light or glare. Project elements would not require the installation of temporary or permanent lighting sources. Therefore, the proposed project would have no impact related to light and glare.

Mitigation Measures

MM-AES-1 Nighttime Construction. All mobile/temporary sources of lighting used during nighttime construction shall be hooded, fully shielded, and aimed downward to minimize the potential for light trespass onto surrounding properties, occurrences of skyglow, and excessive glare received on surrounding properties.

3.2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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 Dept. 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))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

a) 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. The project site is designated as Urban and Built-Up Land per the Farmland Mapping and Monitoring Program of the California Resources Agency (CDOC 2024a). Additionally, the project would not involve the conversion of land to new uses. Therefore, the proposed project would have no impact related to the conversion of Farmland to non-agricultural uses.

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

No Impact. Agriculture is not a permitted use under any of the City zoning designations within the project site (City of Laguna Beach Code of Ordinances, Title 25). Agriculture is a permitted use subject to the approval of a Site Development Permit under the County of Orange (County) Open Space zoning designation (County of Orange Codified Ordinance, Title 7, Division 9). However, no agricultural uses are occurring on any portion of the project site, including the portion under County jurisdiction. Additionally, the project does not involve the conversion of land to new uses and would not preclude future agricultural uses after construction is complete. Lastly, the project site is not under a Williamson Act contract (CDOC 2024b). Therefore, the proposed project would have no impact related to a conflict with zoning for agricultural uses or a Williamson Act contract.

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 does not contain any forest land. The portion of the project site in the City is zoned Recreation, Commercial Hotel-Motel Zone, or Open Space/Conservation Zone (City of Laguna Beach 2024a), and the portion of the project site on unincorporated County land is zoned Open Space (County of Orange 2016). Forestry is not a permitted use in any of these zoning designations. Additionally, the project would not involve the conversion of land to new uses. Therefore, the proposed project would have no impact related to a conflict with the zoning, nor would it cause the rezoning of forestland or timberland.

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

No Impact. As described in Section 3.2(c), the project site is within an urban area that is not zoned for forestry uses and the project would not involve the conversion of land to new uses. Therefore, the proposed project would have no impact on forest land.

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. As described in Sections 3.2(a) through 3.2(d), the project would not involve the conversion of land to new uses and the project site does not contain any Farmland or forest land. Therefore, the proposed project would have no impact related to the conversion of Farmland to non-agricultural uses or the conversion of forest land to non-forest land.

3.3 Air Quality

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

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

Less Than Significant Impact. The project area 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 the South Coast Air Quality Management District (SCAQMD).

SCAQMD administers the 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 2022 AQMP (SCAQMD 2022) was adopted by the SCAQMD Governing Board in December 2022. The SCAQMD 2022 AQMP was developed to address the attainment of the 2015 national 8-hour ozone (O_3) ambient air quality standard (70 parts per billion) for the SCAB and Coachella Valley. The 2022 AQMP provides actions, strategies, and steps needed to reduce air pollutant emissions and meet the O_3 standard by 2037 (SCAQMD 2022).

The purpose of a consistency finding with regard to the 2022 AQMP is to determine if a project is consistent with the assumptions and objectives of the 2022 AQMP and if it would interfere with the region's ability to comply with federal and state air quality standards. 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 1993):

- **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 in Section 3.3(b). Detailed results of this analysis are included in Appendix A, Air Quality and Greenhouse Gas Emissions Report. As presented in Section 3.3(b), the project would not generate construction criteria air pollutant emissions that exceed SCAQMD's thresholds, and the project would therefore be consistent with Criterion No. 1.

The second criterion, regarding the potential of the project 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 obstructing implementation of, the AQMP if the growth in socioeconomic factors is consistent with the underlying regional plans used to develop the AQMP (SCAQMD 1993). SCAQMD primarily uses demographic growth forecasts for various socioeconomic categories (e.g., population, housing, and employment by industry) developed by the Southern California Association of Governments (SCAG) for its 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (SCAG 2020). SCAQMD uses this document, which is based on general plans for cities and counties in the SCAB, to develop the AQMP emissions inventory (SCAQMD 2022). Although the more recent SCAG 2024 RTP/SCS was approved in April 2024, this project uses the 2020 RTP/SCS as a reference for air quality impact analysis because it provides consistency with the relevant AQMP from 2022. The SCAG RTP/SCS and associated Regional Growth Forecast are generally consistent with the local plans; therefore, the 2022 AQMP is generally consistent with local government plans.

The project's goal is to replace the existing NCI Reach 5 pipeline with new dual parallel pipelines that provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater to the SOCWA CTP. Therefore, the project would be consistent with the existing zoning of the project site and does not propose a change in land use designation. In addition, because the project is not anticipated to result in residential population growth or generate an increase in employment that would conflict with existing employment-population projections, it would not conflict with or exceed the assumptions in the 2022 AQMP. Accordingly, the project is consistent with the SCAG RTP/SCS forecasts used in development of the SCAQMD AQMP.

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 2022 AQMP would be less than significant.

b) 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?

Less Than Significant Impact. Air pollution is largely a cumulative impact. The non-attainment 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 to determine whether a project's individual emissions would have a cumulatively considerable contribution to 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 2003a).

A quantitative analysis was conducted to determine whether the project might result in emissions of criteria air pollutants that may cause exceedances of the NAAQS or CAAQS or cumulatively contribute to existing non-attainment of ambient air quality standards. Criteria air pollutants include 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 (coarse particulate matter, or PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns (fine particulate matter, or $PM_{2.5}$), and lead. Pollutants that are evaluated herein include volatile organic compounds (VOCs) and oxides of nitrogen (NO_x), which includes NO_2, 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,[3] the SCAB is designated as a non-attainment area for federal and state O_3 and $PM_{2.5}$ standards (CARB 2022a). The SCAB is also designated as a non-attainment area for state PM_{10} standards; however, it is designated as an attainment area for federal PM_{10} standards. The SCAB is designated as an attainment area for federal and state CO and NO_2 standards, as well as for state SO_2 standards.

The project would result in emissions of criteria air pollutants for which the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) 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 Significance Thresholds, as revised in March 2023, set 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 3.3-1 lists the revised SCAQMD Air Quality Significance Thresholds (SCAQMD 2023).

Table 3.3-1. South Coast Air Quality Management District Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	Construction (Pounds per Day)	Operation (Pounds per Day)
VOCs	75	55
NO_x	100	55
CO	550	550
SO_x	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55
Lead[a]	3	3

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[3] An area is designated as in attainment when it is in compliance with the NAAQS and/or the CAAQS. These standards 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 are set by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB), respectively. Attainment = meets the standards; attainment/maintenance = achieves the standards after a non-attainment designation; non-attainment = does not meet the standards.

Table 3.3-1. South Coast Air Quality Management District Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds	
TACs and Odor Thresholds	
TACs[b]	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 2023.

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; TAC = toxic air contaminant; SCAQMD = South Coast Air Quality Management District.

Greenhouse gas (GHG) emissions thresholds for industrial projects, as added in the March 2015 revision to the SCAQMD Air Quality Significance Thresholds, were not include included in this table because they are addressed in the GHG emissions analysis (Section 3.8) and not the air quality analysis.

[a] The phase-out of leaded gasoline started in 1976. Because 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.

[b] TACs include carcinogens and noncarcinogens.

The project would result in a cumulatively considerable net increase for O_3, which is a non-attainment pollutant, if the project's construction or operational emissions would exceed the SCAQMD VOC or NO_x thresholds shown in Table 3.3-1. These emission-based thresholds for O_3 precursors are intended to serve as a surrogate for an O_3 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 (i.e., VOCs and NO_x) on O_3 levels in ambient air cannot be determined through air quality models or other quantitative methods.

The California Emissions Estimator Model (CalEEMod) Version 2022.1.1.29 was used to estimate emissions from construction of the project.[4] After completion of project construction, no routine operational activities are anticipated that would be a source of emissions. As such, no operational emissions modeling is required. The following discussion quantitatively evaluates project-generated construction emissions and impacts that would result from implementation of the project and qualitatively evaluates operational emissions.

Construction Emissions

Construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (e.g., off-road construction equipment and soil disturbance) and off-site sources (e.g., vendor trucks, haul trucks, and worker vehicle trips). Specifically, entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Internal combustion engines used by construction equipment, haul trucks, vendor trucks (i.e., delivery trucks), and worker vehicles would result in emissions of VOCs, NO_x, CO, PM_{10}, and $PM_{2.5}$. 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.

Emissions from the construction phases of the project were estimated using project-specific information and CalEEMod default values when project-specific information was not available. For the purpose of

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[4] CalEEMod is a statewide computer model developed in cooperation with air districts throughout the state to quantify criteria air pollutant emissions associated with construction and operational activities from a variety of land use projects, including warehouses (CAPCOA 2022).

conservatively estimating project emissions, construction was modeled beginning in fall 2026 and concluding in spring 2028,[5] lasting approximately 17 months. The analysis contained herein is based on the following schedule assumptions (duration of phases is approximate):

- Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00): 50 days
- SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50): 20 days
- Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00): 90 days
- HDD Receiving Area (Sta. 28+00): 10 days
- HDD Alignment (Sta. 28+00 to 43+50): 100 days
- HDD Launching Area (Sta. 43+50): 10 days
- Open Trench Through Scout Camp (Sta. 43+50 to 52+50): 25 days
- Open Trench Along Access Road (Sta. 52+50 to 60+00): 15 days
- Isolation Valve Vault (Sta. 60+00 to 61+70): 30 days
- Slip Lining of Existing NCI Reach 5 (Sta. 61+70 to 70+56): 20 days
- Abandonment of Existing NCI Reach 5 (Sta. 12+50 to 61+70): 5 days

Construction modeling assumptions for equipment and vehicles are provided in Table 3.3-2. Equipment mix and horsepower were based on project-specific information and CalEEMod default values, including equipment load factor. For the analysis, it was generally assumed that heavy-duty construction equipment would be operating at the site 5 days per week.

Table 3.3-2. Construction Scenario Assumptions

	One-Way Vehicle Trips			Equipment		
Construction Phase	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Daily Haul Truck Trips	Equipment Type	Quantity	Usage Hours
Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)	10	8	4	Generator sets	1	8
				Pumps	1	8
				Tractors/loaders/backhoes	1	8
				Trenchers	1	8
SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)	10	8	26	Generator sets	1	8
				Pumps	1	8
				Tractors/loaders/backhoes	1	8
				Trenchers	1	8
Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)	10	8	10	Generator sets	1	8
				Rough-terrain forklifts	1	8
				Tractors/loaders/backhoes	1	8

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[5] The analysis assumes a construction start date of October 2026, which represents the earliest date construction would initiate. Assuming the earliest start date for construction represents the worst-case scenario for criteria air pollutant and greenhouse gas (GHG) emissions, because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks and fleet turnover resulting in replacing older equipment and vehicles in later years.

Table 3.3-2. Construction Scenario Assumptions

	One-Way Vehicle Trips			Equipment		
Construction Phase	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Daily Haul Truck Trips	Equipment Type	Quantity	Usage Hours
				Trenchers	1	8
HDD Receiving Area (Sta. 28+00)	14	8	2	Generator sets	1	8
				Excavators	1	8
				Pumps	1	8
				Rough-terrain forklifts	1	8
				Welders	1	8
HDD Alignment (Sta. 28+00 to 43+50)	24	8	4	N/A	N/A	N/A
HDD Launching Area (Sta. 43+50)	10	8	2	Bore/drill rigs	1	8
				Generator sets	1	8
				Pumps	1	8
				Rough-terrain forklifts	1	8
Open Trench Through Scout Camp (Sta. 43+50 to 52+50)	10	8	12	Generator sets	1	8
				Rough-terrain forklifts	1	8
				Tractors/loaders/backhoes	1	8
				Trenchers	1	8
Open Trench Along Access Road (Sta. 52+50 to 60+00)	10	8	16	Generator sets	1	8
				Rough-terrain forklifts	1	8
				Tractors/loaders/backhoes	1	8
				Trenchers	1	8
Isolation Valve Vault (Sta. 60+00 to 61+70)	10	8	2	Generator sets	1	8
				Rough-terrain forklifts	1	8
				Tractors/loaders/backhoes	1	8
				Trenchers	1	8
Slip Lining of Existing NCI Reach 5 (Sta. 61+70 to 70+56)	16	8	2	Excavators	2	8
				Generator sets	1	8
				Pumps	1	8
				Rough-terrain forklifts	1	8
				Tractors/loaders/backhoes	1	8
Abandonment of Existing NCI Reach 5 (Sta. 12+50 to 61+70)	8	8	0	Pumps	2	8
				Rough-terrain forklifts	1	8

Notes: SCWD = South Coast Water District; LS2 = Lift Station 2; HDD = horizontal directional drilling; NCI = North Coast Interceptor; N/A = not applicable.
See Appendix A for detailed assumptions.

Emissions generated during construction of the project are subject to SCAQMD rules and regulations. Rule 403, Fugitive Dust, requires the implementation of measures to control the emission of visible fugitive/

nuisance dust, such as wetting soils that would be disturbed. It was assumed that the active sites would be watered at least twice daily in compliance with SCAQMD Rule 403 (SCAQMD 2005).

Construction activities resulting from potential future projects developed under project implementation would result in the temporary addition of pollutants to the local airshed caused by on-site sources (e.g., off-road construction equipment, soil disturbance) and off-site sources (e.g., vendor trucks, haul trucks, and worker vehicle trips). Specifically, entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Internal combustion engines used by construction equipment, haul trucks, vendor trucks (i.e., delivery trucks), and worker vehicles would result in emissions of VOCs, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$. 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, such emissions levels can only be estimated, with a corresponding uncertainty in precise ambient air quality impacts.

Table 3.3-3 shows the estimated maximum daily construction emissions associated with the construction phases of the project.

Table 3.3-3. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Year	Pounds per Day					
Summer						
2027	0.55	5.16	6.99	0.02	0.52	0.23
Winter						
2026	0.52	6.19	5.82	0.02	0.84	0.34
2027	0.50	6.04	7.14	0.02	0.83	0.33
2028	0.57	5.55	7.91	0.02	0.62	0.25
Maximum	***0.57***	***6.19***	***7.91***	***0.02***	***0.84***	***0.34***
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Appendix A.
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.
These estimates reflect control of fugitive dust required by SCAQMD Rule 403.

As shown in Table 3.3-3, daily construction emissions would not exceed the SCAQMD significance thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$, and short-term construction impacts would be less than significant. The project would not result in a cumulatively considerable increase in emissions of non-attainment pollutants, and impacts would be less than significant during construction.

Operational Emissions

Once project construction is complete, the pipeline would continue providing sewer water conveyance services for the City. Similar to existing conditions, staff would only visit the pipeline conveyance system in the event of an emergency; however, no net increase in operational activities associated with the project would occur (e.g., no routine daily equipment operation, vehicle trips, or energy use would be required).

Because the proposed project would not result in a net increase in long-term operational activities, no potential air quality impacts associated with operational air pollutant emissions would occur.

Summary

Based on the previous considerations, the proposed project would not result in a cumulatively considerable increase in emissions of non-attainment pollutants, and cumulative impacts would be less than significant.

Health Effects of Criteria Air Pollutants

The following discussion is provided to connect the project's potential air quality impacts to potential health consequences. The potential health effects associated with project-generated criteria air pollutant emissions are included as additional information in Section 3.3(b) and do not require a separate significance conclusion.

Construction of the project would generate criteria air pollutant emissions; however, estimated construction emissions would not exceed the SCAQMD mass-emission daily thresholds as shown in Table 3.3-3. As previously discussed, the SCAB has been designated as a federal non-attainment area for O_3 and $PM_{2.5}$ and a state non-attainment area for O_3, PM_{10}, and $PM_{2.5}$.

Health effects associated with O_3 include respiratory symptoms, worsening of lung disease leading to premature death, and damage to lung tissue (CARB 2024). VOCs and NO_x are precursors to O_3, for which the SCAB is designated as non-attainment with respect to the NAAQS and CAAQS. The contribution of VOCs and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the SCAB due to O_3 precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions to occur. However, the potential for exacerbating excessive O_3 concentrations would also depend on the time of year that the VOC emissions would occur because exceedances of the O_3 ambient air quality standards tend to occur between April and October, when solar radiation is highest. The holistic effect of a single project's emissions of O_3 precursors is speculative because of the lack of quantitative methods to assess this impact. Because construction of the project would not result in O_3 precursor emissions (i.e., VOCs or NO_x) that would exceed the SCAQMD thresholds, as shown in Table 3.3-3, the project is not anticipated to substantially contribute to regional O_3 concentrations and their associated health impacts.

Health effects associated with NO_x include lung irritation and enhanced allergic responses (CARB 2024). Construction of the project would not generate NO_x emissions that would exceed the SCAQMD mass daily thresholds; therefore, construction of the project is not anticipated to contribute to exceedances of the NAAQS and CAAQS for NO_2 or contribute to associated health effects. In addition, the SCAB is designated as in attainment of the NAAQS and CAAQS for NO_2, and the existing NO_2 concentrations in the area are well below the NAAQS and CAAQS standards.

Health effects associated with CO include chest pain in patients with heart disease, headache, light-headedness, and reduced mental alertness (CARB 2024). CO tends to be a localized impact associated with congested intersections. CO hotspots will be discussed in Section 3.3(c) as a less than significant impact. Thus, the proposed project's CO emissions would not contribute to the health effects associated with this pollutant.

Health effects associated with PM_{10} and $PM_{2.5}$ include premature death and hospitalization, primarily for worsening of respiratory disease (CARB 2024). As with O_3 and NO_x, and as shown in Table 3.3-3, the project would not generate emissions of PM_{10} or $PM_{2.5}$ that would exceed SCAQMD's thresholds. Accordingly, the proposed project's PM_{10} and $PM_{2.5}$ emissions are not expected to cause an increase in related health effects for these pollutants.

In summary, the proposed project would not result in any potentially significant contribution to local or 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.

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

Less Than Significant Impact. The project would not expose sensitive receptors to substantial pollutant concentrations, as evaluated below.

Sensitive Receptors

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, older people, and people with cardiovascular and chronic respiratory diseases. According to SCAQMD, sensitive receptors include residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993). The nearest sensitive-receptor land uses are residences located approximately 50 feet west of the project site boundary.

Localized Significance Thresholds

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 project activities. The impacts were analyzed using methods consistent with those in SCAQMD's Final LST Methodology (SCAQMD 2009). The project is located within Source-Receptor Area 20 (Central Orange County Coastal). This analysis applies the SCAQMD LST values for a 1-acre site within Source-Receptor Area 20 with a receptor distance of 25 meters (82 feet), which is the shortest available distance provided in SCAQMD's methodology.

Project construction activities would result in temporary sources of on-site criteria air pollutant emissions associated with off-road equipment exhaust and fugitive dust generation. According to the Final LST 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 the project are not expected to cause substantial air quality impacts to sensitive receptors along off-site roadways because emissions would be relatively brief in nature and would cease once the vehicles have passed through the main streets. On-site emissions from mobile trips were limited to 0.25 miles of estimated on-site activity in the LST analysis. The maximum daily on-site emissions generated by construction of the project in each construction year are presented in Table 3.3-4 and compared to the SCAQMD LSTs for Source-Receptor Area 20 to determine whether project-generated on-site emissions would result in potential LST impacts.

Table 3.3-4. Construction Localized Significance Threshold Analysis

Time of Year	NO_2	CO	PM_{10}	$PM_{2.5}$
	Pounds per Day (On Site)			
Summer				
2027	4.69	6.25	0.13	0.12
Winter				
2026	4.17	4.71	0.15	0.13
2027	4.41	6.33	0.14	0.12
2028	5.15	7.27	0.15	0.13
Maximum	*5.15*	*7.27*	*0.15*	*0.13*
SCAQMD LST Criteria[a]	*92*	*647*	*4*	*3*
Threshold Exceeded?	**No**	**No**	**No**	**No**

Source: SCAQMD 2009; Appendix A.

Notes: NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold.

Represents maximum emissions from summer and winter.

[a] LSTs are shown for a 1-acre disturbed area, corresponding to a distance to a sensitive receptor of 25 meters in Source-Receptor Area 20 (Central Orange County Coastal).

As shown in Table 3.3-4, proposed construction activities would not generate emissions greater than the site-specific LSTs for NO_2, CO, $PM_{10,}$ and $PM_{2.5}$. Thus, impacts would be less than significant.

Carbon Monoxide 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.” The transport of CO is extremely limited, as it disperses rapidly with distance from the source. However, under certain extreme meteorological conditions, 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. As discussed in Section 3.17, Transportation, the project would result in a temporary, short-term increase in traffic during construction. During operation, the project would not result in new employees and would result in fewer maintenance trips compared to the existing pipeline, thereby reducing CO emissions compared to the existing scenario.

At the time that the SCAQMD Handbook (SCAQMD 1993) was published, the SCAB was designated as non-attainment under the CAAQS and NAAQS for CO. In 2007, the SCAQMD was designated in attainment for CO under both the CAAQS and NAAQS as a result of the steady decline in CO concentrations in the SCAB due to turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities. SCAQMD conducted CO modeling for the 2003 AQMP (SCAQMD 2003b) for the four worst-case intersections in the SCAB.[6]

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[6] SCAQMD’s CO hotspot modeling guidance has not changed since 2003.

The 2003 AQMP projected 8-hour CO concentrations at the four most congested intersections in the SCAB for 1997 and from 2002 through 2005. From 2002 through 2005, the maximum 8-hour CO concentration was 3.8 parts per million at the Sunset Boulevard and Highland Avenue intersection (in 2002) and the maximum 8-hour CO concentration was 3.4 parts per million at the Wilshire Boulevard and Veteran Avenue intersection (also in 2002).

At the time the 2003 AQMP was prepared, the intersection of Wilshire Boulevard and Veteran Avenue was the most congested intersection in the SCAB, with an average daily traffic volume of about 100,000 vehicles per day. Accordingly, CO concentrations at congested intersections would not exceed the 1-hour or 8-hour CO CAAQS unless projected daily traffic was more than 100,000 vehicles per day. Because the project is not anticipated to increase daily traffic volumes at any study intersection to more than 100,000 vehicles per day, a CO hotspot is not anticipated to occur.

Based on these considerations, the 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 3.17, which demonstrates that traffic impacts would be less than significant or less than significant with mitigation incorporated. 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 the 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 project site are the single-family residences located approximately 50 feet west of the project site.

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) noncarcinogenic effects. The greatest potential for TAC emissions during construction would be diesel particulate matter (DPM) emissions from heavy equipment operations and use of heavy-duty trucks. DPM emissions may cause carcinogenic and/or chronic health effects.

State law has established the framework for California’s TAC identification and control program, which is generally more stringent than the federal program and is aimed at TACs that are a problem in California. The state has formally identified more than 200 substances as TACs, including the federal hazardous air pollutants (HAPs), and has adopted appropriate control measures for sources of these TACs. The following measures are required by state law to reduce DPM emissions:

- Fleet owners of mobile construction equipment are subject to the CARB Regulation for In-Use Off-Road Diesel Vehicles (13 CCR 2449), the purpose of which is to reduce DPM and criteria pollutant emissions from in-use (existing) off-road diesel-fueled vehicles.

- All commercial diesel vehicles are subject to Title 13, Section 2485 of the California Code of Regulations (CCR), limiting engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to 5 minutes; electric auxiliary power units should be used whenever possible.

Exhaust PM_{10} is typically used as a surrogate for DPM, and as shown in Table 3.3-3, which presents total PM_{10} from fugitive dust and exhaust, project-generated construction PM_{10} emissions are anticipated to be minimal and well below the SCAQMD threshold. Furthermore, as shown in Table 3.3-4, the maximum on-site PM_{10} emissions from fugitive dust and exhaust would be minimal and well below the site-specific LST. The duration of proposed construction activities (approximately 17 months) would constitute only a small percentage of the total long-term exposure period and would not result in exposure of proximate sensitive receptors to substantial TACs. DPM emissions during construction from off-road equipment and on-site heavy-duty trucks would not be concentrated in one area of the site; instead, they would be spread over the entirety of the site. Emissions would be temporary and would cease once construction is complete. Therefore, the proposed project would not expose sensitive receptors to substantial quantities of TACs during construction. Impacts would be less than significant.

No residual TAC emissions and corresponding cancer health risk are anticipated after construction, and no long-term sources of TAC emissions are anticipated during operation of the project. CARB has published the Air Quality and Land Use Handbook: A Community Health Perspective, which identifies certain types of facilities or sources that may emit substantial quantities of TACs and therefore could conflict with sensitive land uses, such as “schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities” (CARB 2005). The Air Quality and Land Use Handbook is a guide for siting of new sensitive land uses, and CARB recommends that sensitive receptors not be located downwind of or close to such sources to avoid potential health hazards. The enumerated facilities or sources include the following: high-traffic freeways and roads, distribution centers, railyards, ports, refineries, chrome plating facilities, dry cleaners, and large gas-dispensing facilities. The project would not include any of the above-listed land uses associated with generation of TAC emissions. For the reasons previously described, the proposed project would not result in substantial exposure of sensitive receptors to TACs in the vicinity of the project site, and impacts would be less than significant.

Valley Fever

Coccidioidomycosis, more commonly known as “valley fever,” is an infection caused by inhalation of the spores of the *Coccidioides immitis* fungus, which grows in the soils of the southwestern United States. Orange County is not considered a highly endemic county (“highly endemic” meaning more than 20 cases annually of valley fever per 100,000 people) based on the incidence rates reported through 2021. The latest report from the California Department of Public Health indicates that Orange County had 297 cases in 2022, or 9.4 cases per 100,000 people (CDPH 2022). Even if the fungus is present at the site, construction activities may not result in increased incidence of valley fever. Valley fever spores can be released when filaments are disturbed by earthmoving activities, although receptors must be exposed to and inhale the spores to be at increased risk of developing valley fever, and exposure to valley fever does not guarantee that an individual will become ill.

To reduce fugitive dust from the project and minimize adverse air quality impacts, the project would employ dust control measures in accordance with SCAQMD Rules 401 and 403, which limit the amount of fugitive dust generated during construction. These requirements are consistent with California Department of

Public Health recommendations for the implementation of dust control measures, including regular application of water during soil-disturbance activities, to reduce exposure to valley fever by minimizing the potential that the fungal spores become airborne (CDPH 2013). Further, regulations designed to minimize exposure to valley fever hazards are included in Title 8 of the California Code of Regulations and these would be complied with during the project's construction phase (California Department of Industrial Relations 2017).

In summary, the proposed project would not result in a significant impact attributable to valley fever exposure based on its geographic location and compliance with applicable regulatory standards and dust control measures, which will serve to minimize the release of and exposure to fungal spores. Therefore, impacts associated with valley fever exposure for sensitive receptors would be less than significant.

d) ***Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?***

Less Than Significant Impact. The proposed project would result in emissions, including criteria air pollutant and TAC emissions; however, those are addressed in Sections 3.3(b) and 3.3(c). Accordingly, the evaluation of other emissions is focused on the potential for the project to generate odors. The occurrence and severity of potential odor impacts depend on numerous factors: the nature, frequency, and intensity of the source; the wind speed and direction; and the sensitivity of the receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the project. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application. Such odors would disperse rapidly from the project site and would generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be less than significant.

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding facilities (SCAQMD 1993). The project entails the replacement of a pipeline and would not create any new sources of odors during operation. Therefore, project operations would result in less than significant odor impacts.

3.4 Biological Resources

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

The following analysis relies on a biological resources assessment conducted by Dudek biologists Tommy Molioo and Kim Narel in March 2024. This assessment included a review of the latest available relevant literature, published research, maps, soil data, data on biological baselines, special-status habitats, and species distribution to determine those resources that have the potential to occur within the 3.02-acre project site and surrounding 100-foot buffer (the study area; 32.4 acres). Dudek searched the CDFW California Natural Diversity Database (CDFW 2024a–2024d), the California Native Plant Society's Rare Plant Inventory (CNPS 2024), and occurrence data from the U.S. Fish and Wildlife Service (USFWS) (USFWS 2024a) to identify special-status biological resources from the region. The California Natural Diversity Database and California Native Plant Society database were searched based on the U.S. Geological Survey 7.5-minute topographic quadrangle map for San Juan Capistrano, where the study area is located, as well as the surrounding seven U.S. Geological Survey 7.5-minute quadrangle maps (i.e., Laguna Beach, Cañada Gobernadora, Dana Point, San Clemente, Tustin, El Toro, and Santiago Peak). Potential and/or historic drainages and aquatic features were investigated based on a review of U.S. Geological Survey topographic maps (1:24,000 scale), aerial photographs, the National Wetland Inventory database (USFWS 2024b), and the Natural Resource Conservation Service's Web Soil Survey (USDA 2024).

Following the desktop analysis, a field assessment was conducted to characterize the environmental conditions, vegetation communities/land covers, and any plants or wildlife (including their habitats) that could be impacted during project implementation. During the field survey, vegetation communities and land covers were catalogued and confirmed based on existing site conditions. Vegetation communities were mapped according to the CDFW List of Vegetation Alliances and Associations (or Natural Communities List; CDFW 2024c), which is based on A Manual of California Vegetation, Second Edition (Sawyer et al. 2009). Land covers not included in the List of Vegetation Alliances and Associations followed the Orange County Habitat Classification System (Gray and Bramlet 1992). Dudek compiled a general inventory of plant and wildlife species detected by sight, calls, tracks, scat, or other field indicators, and made a determination concerning the potential for special-status species to occur within the study area. Additionally, Dudek conducted a preliminary investigation of the extent and distribution of jurisdictional waters of the United States regulated by the U.S. Army Corps of Engineers, jurisdictional waters of the state regulated by the RWQCB, and CDFW-jurisdictional streambed and associated riparian habitat.

The study area is generally located in southern Laguna Beach, within Aliso Canyon and adjacent to Aliso Creek. The study area encompasses approximately 1.5 miles of Reach 5 of the NCI that is located under and along Aliso Creek and passes through The Ranch resort and golf course. Reach 5 of the NCI originates at the intersection of Coast Highway and Country Club Drive, follows Country Club Drive northeast, then goes under Aliso Creek, and comes out from under Aliso Creek and through The Ranch resort and golf course, following under the access road to the SOCWA CTP, and ultimately connects into the SOCWA CTP. The study area is bounded by Coast Highway to the west and occurs within Aliso Canyon. Undeveloped lands surrounding the study area are associated with Aliso and Wood Canyons Wilderness Park. Elevations on the study area range from approximately sea level to 50 feet above mean sea level (amsl). The study area contains a mix of developed and undeveloped lands, including native upland coastal sage scrubs as well as riparian habitat associated with Aliso Creek.

A total of 54 native wildlife species were recorded within the study area during the biological surveys, which included coastal scrub and urban-adapted species. Of the 54 wildlife species recorded, 50 were birds. Limited mammals and reptiles were observed, and no amphibian or aquatic species were detected in the study area. However, Aliso Creek provides habitat for a number of aquatic and semi-aquatic species that were not observed during the surveys. The species observed during the surveys typically occur in natural settings on the periphery of urban and developed areas. Additionally, nine native vegetation communities, four non-native communities, and five land covers were identified within the study area.

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 Wildlife or U.S. Fish and Wildlife Service?

Special-Status Plants

Less Than Significant Impact with Mitigation Incorporated. Dudek conducted focused rare plant surveys during the appropriate blooming period for 39 rare plants determined to have a moderate to high potential to occur in the study area. Two special-status plant species were observed within the study area during the focused rare plant surveys conducted for the project, Nuttall's scrub oak (*Quercus dumosa*) and cliff malacothrix (*Malacothrix saxatilis* var. *saxatilis*). Nuttall's scrub oak is listed as a California Rare Plant Rank (CRPR) 1B.1 species (a plant that is rare, threatened, or endangered in California and elsewhere and for which more than 80% of the occurrences are threatened or under a high degree of threat) that occurs in the eastern portion of the project site, north of the paved access road. A single individual and a small stand of this species were observed and mapped on Figures 3.4-1a through 3.4-1c, Biological Resources Maps. The small stand of scrub oak occurs immediately adjacent to the paved access road and may be impacted during trenching to install the new pipeline. If project activities cannot avoid impacting the existing Nuttall's scrub oaks, project impacts to this species could be considered significant if multiple individuals are damaged or removed. Implementation of MM-BIO-1 (Special-Status Plant Surveys; see the Mitigation Measures subsection at the end of this section for full text of all measures), would reduce potential impacts to a less than significant level.

Several individuals of cliff malacothrix, which is listed as a CRPR 4.2, were found in the western portion of the project site, primarily north of Country Club Road. Cliff malacothrix is not considered sensitive under CEQA, because only CRPR list 1A through 3 species are afforded additional protection under CEQA. Therefore, potential project impacts related to trenching and installation of the new pipeline would not result in a significant impact to this species. Additionally, one local interest species was detected within the project site: yerba mansa (*Anemopsis californica*). Yerba mansa is not afforded additional protection under CEQA as a special-status species; however, potential impacts to this species would be addressed through project compliance with local policies and ordinances. No other special-status or locally rare plant species were observed on the project site or in the study area.

Special-Status Wildlife Species

Less Than Significant Impact with Mitigation Incorporated. Based on a desktop review of available literature and databases, as well as a biological reconnaissance of the study area, it was determined that 29 special-status species have at a least a moderate to high potential to occur within the study area based on suitable habitat present and recorded observations in the vicinity. The complete results of the potential to occur evaluation for each of the 29 special-status wildlife species are included in Appendix B, Biological Resources Letter Report, of this document. The special-status species with a moderate to high potential to occur are included in Table 3.4-1.

Table 3.4-1. Special-Status Wildlife Species with a Moderate to High Potential to Occur

Scientific Name	Common Name	Status (Federal/State)	Potential to Occur
Amphibians			
Spea hammondii	western spadefoot	None/SSC	Moderate
Reptiles			
Anniella stebbinsi	Southern California legless lizard	None/SSC	Moderate
Arizona elegans occidentalis	California glossy snake	None/SSC	Moderate
Aspidoscelis hyperythra	orange-throated whiptail	None/WL	High

Table 3.4-1. Special-Status Wildlife Species with a Moderate to High Potential to Occur

Scientific Name	Common Name	Status (Federal/State)	Potential to Occur
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	None/SSC	High
Crotalus ruber	red diamondback rattlesnake	None/SSC	Moderate
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC	Moderate
Plestiodon skiltonianus interparietalis	Coronado skink	None/WL	Moderate
Salvadora hexalepis virgultea	coast patch-nosed snake	None/SSC	Moderate
Thamnophis hammondii	two-striped gartersnake	None/SSC	Moderate
Actinemys marmorata	southwestern pond turtle	FPT/SSC	Moderate
Birds			
Accipiter cooperii	Cooper's hawk	None/WL	Present (observed during focused surveys)
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	None/WL	Moderate
Asio otus (nesting)	long-eared owl	None/SSC	Moderate
Elanus leucurus (nesting)	white-tailed kite	None/FP	High
Icteria virens (nesting)	yellow-breasted chat	None/SSC	Present (observed during focused surveys)
Pandion haliaetus (nesting)	osprey	BCC/WL	High
Polioptila californica californica	coastal California gnatcatcher	FT/SSC	High (focused surveys determined this species is not present)
Riparia riparia (nesting)	bank swallow	None/ST	High
Setophaga petechia (nesting)	yellow warbler	None/SSC	Present (observed during focused surveys)
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE	High (focused surveys determined this species is not present)
Fishes			
Eucyclogobius newberryi	tidewater goby	FE/None	High
Mammals			
Antrozous pallidus	pallid bat	None/SSC	Moderate
Eumops perotis californicus	western mastiff bat	None/SSC	Moderate
Neotoma lepida intermedia	San Diego desert woodrat	None/SSC	Moderate

Table 3.4-1. Special-Status Wildlife Species with a Moderate to High Potential to Occur

Scientific Name	Common Name	Status (Federal/State)	Potential to Occur
Nyctinomops macrotis	big free-tailed bat	None/SSC	Moderate
Lasiurus frantzii	western red bat	None/SSC	Moderate
Invertebrates			
Bombus crotchii	Crotch's bumble bee	None/SCE	High

Status Designations
Federal:
FE: federally listed as endangered
FT: federally listed as threatened
FPT: federally proposed for listing as threatened
BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern
State:
SSC: California species of special concern
FP: California fully protected species
WL: California Watch List species
SE: state listed as endangered
ST: state listed as threatened
SCE: state candidate for listing as endangered

Three special-status species were observed in the survey area during the biological reconnaissance and focused surveys: one CDFW Watch List species (Cooper's hawk [*Accipiter cooperii*]) and two species listed as CDFW species of special concern (SSC) (yellow-breasted chat [*Icteria virens*] and yellow warbler [*Setophaga petechia*]).

Focused surveys for least Bell's vireo (*Vireo bellii pusillus*) and coastal California gnatcatcher (*Polioptila californica californica*) were conducted in suitable habitats on the study area following protocol guidelines. The results of these focused surveys were negative (i.e., no least Bell's vireo or coastal California gnatcatcher were detected). As such, least Bell's vireo and coastal California gnatcatcher are considered absent from the project site and surrounding study area.

Coastal California Gnatcatcher

The coastal California gnatcatcher is federally listed as threatened and is a California SSC. It is closely associated with coastal sage scrub habitat and typically occurs below 950 feet amsl and on slopes less than 40% (Atwood 1990), but coastal California gnatcatcher have also been observed at elevations greater than 2,000 feet amsl. The species is primarily threatened by loss, degradation, and fragmentation of coastal sage scrub habitat and is also impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism (Braden et al. 1997).

Suitable nesting and foraging habitat for this species occurs throughout the coastal sage scrub habitat on site, specifically within the vegetation communities that include California sagebrush in the study area. No coastal California gnatcatchers or nests were detected during the focused surveys for this species or during other biological surveys conducted on site for the project. As such, coastal California gnatcatcher is considered absent from the project site and survey results are considered valid for up to 2 years. Therefore, project-related impacts to this species are unlikely to occur. However, due to the continued presence of suitable habitat for this species, the potential for this species to move onto the site cannot be completely ruled out. Therefore, if construction activities commence in the breeding season of February 15 through

July 15, 2027, the continued presence/absence of the species will need to be confirmed prior to start of construction. Potential project-related impacts to this species would be considered significant if found on the project site.

Implementation of MM-BIO-2 (Coastal California Gnatcatcher and Least Bell's Vireo Avoidance) would reduce potential impacts to a less than significant level.

Least Bell's Vireo

The least Bell's vireo is federally and state listed as endangered. It nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams, as well as in adjacent shrubland late in the nesting season. Nesting habitats in cismontane and coastal areas include willow (*Salix* sp.) riparian scrub, mulefat scrub, and cottonwood (*Populus fremontii*). In the coastal portions of its Southern California range, it occurs in lower areas of canyons, typically below 2,000 feet amsl.

Portions of Aliso Creek on the project site contain suitable riparian willow thickets associated with the intermittent stream that can provide nesting habitat for this species. Focused surveys consisting of eight survey passes from April to July were conducted, spaced at least 10 days apart. The results of the focused surveys were negative for least Bell's vireo (i.e., least Bell's vireo was not detected). As such, this species is considered absent from the project site. Therefore, if construction activities commence in the breeding season of April 1 through July 31, 2027, the continued presence/absence of the species will need to be confirmed prior to the start of construction. Potential project-related indirect impacts to this species would be considered significant if found on the project site.

Implementation of MM-BIO-2 (Coastal California Gnatcatcher and Least Bell's Vireo Avoidance) would reduce potential impacts to a less than significant level.

Southwestern Willow Flycatcher

The southwestern willow flycatcher (*Empidonax traillii extimus*) is federally and state listed as endangered. It nests and breeds in dense riparian habitats with flowing surface water present. Vegetation characteristics of southwestern willow flycatcher breeding habitat generally include dense tree or shrub cover that is ≥3 meters (10 feet) tall (with or without a higher overstory layer), dense twig structure, and high levels of live green foliage (Sogge et al. 2010). Southwestern willow flycatchers build nests made of shredded bark, cattail tufts, and grasses, usually in the fork of a willow growing near water, and lay eggs from early June to July.

Portions of Aliso Creek contain willow thickets and associated riparian habitat. However, these riparian areas are relatively narrow (approximately 100 to 200 feet wide) and are surrounded by upland scrub habitat within an incised drainage system. The reach of Aliso Creek within the majority of the project site also occurs within The Ranch golf course and resort, which is subject to regular disturbances from recreational and resort activities and ongoing maintenance. Additionally, although recorded occurrences of southwestern willow flycatcher have been recorded within 10 miles of the project site, there are no known occurrences within Aliso Canyon or Aliso Creek. Therefore, the potential for this species to occur on site is low and focused surveys were not conducted. The project is not anticipated to result in a significant impact to this species.

Crotch's Bumble Bee

The Crotch's bumble bee (*Bombus crotchii*) is found in open grassland and scrub habitats. It is able to persist in semi-natural habitats surrounded by intensely modified landscapes. This species is restricted to a very limited climatic range that is much hotter and drier than most bumble bees thrive in. It uses a wide array of flowers; food plants include *Asclepias*, *Chaenactis*, *Lupinus*, *Medicago*, *Phacelia*, and *Salvia* (Williams et al. 2014).

This species may forage for nectar on the *Salvia* species (*Salvia mellifera*) and other floral resources within the suitable coastal sage scrub throughout the study area. Crotch's bumble bee is a state candidate for listing and as such is afforded protection by the California Endangered Species Act equivalent to a threatened listing. Hymenoptera (bees) and Lepidoptera (butterflies) were observed on site during the biological surveys, and suitable floral nectar resources and scrub habitat capable of supporting these species can persist year-round on site; as such, the possibility of the presence of Crotch's bumble bee within the study area cannot be discounted. Although not observed on site during the biological surveys, Crotch's bumble bee has a high potential to occur on the project site and could be directly impacted during open trenching and construction of the slip lining pit that occurs within and immediately adjacent to suitable habitat for this species. Therefore, if the species is found on site prior to the start of construction, potential project impacts could occur that would be considered significant absent mitigation.

Implementation of MM-BIO-3 (Crotch's Bumble Bee Surveys) would reduce potential impacts to a less than significant level.

Tidewater Goby

On February 4, 1994, the tidewater goby (*Eucyclogobius newberryi*) was federally listed as endangered under the federal Endangered Species Act throughout the species' range. Tidewater goby is a small fish species that is restricted to estuaries and lagoons along California's coast. Tidewater goby favor locations with salinities of less than 10 parts per thousand (Swift et al. 1989) and that have both open water and emergent or submerged vegetation. Tidewater goby feed on aquatic insects and small crustaceans, with adults feeding primarily at dawn and dusk and juveniles feeding throughout the day. Spawning peaks during in the spring, April or May, in central California (Swift et al. 1989), with some spawning also taking place into the summer months.

Potentially suitable habitat for tidewater goby occurs in the lower portions of Aliso Creek near its confluence with the Pacific Ocean, where salinity levels may be suitable to support this species. While the existing Reach 5 of the NCI occurs within Aliso Creek, the project would not result in any direct or indirect impacts to the creek, because the existing Reach 5 within Aliso Creek will be capped and abandoned in place and the new pipeline will be trenched and bored underground, primarily within existing developed areas of The Ranch's golf course and resort facilities. No project impacts would occur to the aquatic habitat suitable for supporting this species on the project site; therefore, no direct or indirect impact to this species would occur.

Species of Special Concern

Three special-status birds were observed on the project site: one CDFW Watch List species (Cooper's hawk) and two CDFW SSCs (yellow-breasted chat and yellow warbler). For these three species, as well as the remaining special-status species (SSC or Watch List species) with a moderate or high potential to occur on the project site (and that are not federally or state listed as endangered or threatened), potential project-related impacts may occur during the general avian breeding season. Potential project-related impacts may also occur if these SSC or Watch List species are found on the project site prior to construction. Any aquatic-dependent special-status species with a potential to occur on the project site within Aliso Creek would not be directly impacted, because the project would avoid impacts to aquatic habitat. The project would occur partially within (0.04 acres) and immediately adjacent to riparian and native habitats that could provide suitable habitat for special-status avian, reptile, and mammal species that could nest, find shelter, or forage within the native habitats on site. Therefore, species such as Southern California legless lizard (*Anniella stebbinsi*) and pallid bat (*Antrozous pallidus*) (among others) may be directly or indirectly impacted if project activities commence within or adjacent to native habitat areas during the general avian nesting season (February through August) or the bat maternity roosting season (March through August). These impacts may be considered significant if the impact results in the greater population of the species dropping below self-sustaining levels. Due to the limited amount of suitable habitat impacted (0.04 acres), the greater population of the SSC and Watch List species present on the project site or determined to have a moderate to high potential to occur would not be affected by project implementation. Regardless, implementation of MM-BIO-4 (Special-Status Wildlife Species Avoidance) and MM-BIO-5 (Worker Environmental Awareness Program [WEAP] Training) will reduce potential impacts to a less than significant level.

Nesting Birds

The project site contains suitable nesting habitat for a number of resident and migratory species protected by the Migratory Bird Treaty Act and California Fish and Game Code Section 3500, particularly those identified during the various wildlife surveys on site. Although the majority of the project will be limited to working in existing developed areas or to boring below native habitat areas, the project alignment occurs immediately adjacent to and within suitable nesting habitat that could be directly or indirectly impacted if construction activities occur during the general nesting season of February through August. Project activities that result in the direct or indirect take of an active nest would be considered significant. Implementation of MM-BIO-6 (Nesting Bird Avoidance) would reduce potential impacts to nesting birds to a less than significant level.

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 Wildlife or U.S. Fish and Wildlife Service?

Less Than Significant Impact. A total of 18 vegetation communities and/or land cover types were identified within the study area. Specifically, 9 natural vegetation communities, 4 non-native vegetation communities, and 5 land covers were identified within the study area. Vegetation communities are mapped according to A Manual of California Vegetation (Sawyer et al. 2009), a hierarchal classification system that organizes communities by alliance and their association subclasses. The acreages of these vegetation communities and land covers on the project site, along with their potential impacts, are presented in Table 3.4-2, and their spatial distributions are illustrated on Figure 3.4-1a through 3.4-1c. The proposed project will result in permanent impacts related to trenching for installation of the new pipeline and launch pits for the slip line in the eastern portion of the project site.

Table 3.4-2. Impacts to Vegetation Communities and Land Covers (Acres)

Vegetation Community or Land Cover	Alliance	Association	Project Site	Permanent Project Impacts	Temporary Project Impacts	Total Impacts
Natural Vegetation Communities						
Chamise chaparral	*Adenostoma fasciculatum* shrubland alliance	*Adenostoma fasciculatum* association	0.0	0.0	0.0	0.0
Arroyo willow thickets[a]	*Salix lasiolepis* shrubland alliance	*Salix lasiolepis* association	0.0	0.0	0.0	0.0
		Salix lasiolepis–Baccharis salicifolia association	0.0	0.0	0.0	0.0
California sagebrush–(purple sage) scrub	*Artemisia californica*–(*Salvia leucophylla*) shrubland alliance	*Artemisia californica* association	0.0	0.00	0.0	0.0
		N/A	0.0	0.0	0.0	0.0
Coyote brush scrub	*Baccharis pilularis* shrubland alliance	*Baccharis pilularis–Artemisia californica* association	0.18	0.05	0.13	0.18
California brittle bush–ashy buckwheat scrub	*Encelia californica–Eriogonum cinereum* shrubland alliance	*Encelia californica–Artemisia californica–Salvia mellifera–Baccharis pilularis* association	0.16	0.0	0.16	0.16
Lemonade berry scrub	*Rhus integrifolia* shrubland alliance	N/A	0.0	0.0	0.0	0.0
Sandbar willow thickets	*Salix exigua* shrubland alliance	*Salix exigua* association	0.0	0.0	0.0	0.0
		Natural vegetation communities subtotal	*0.34*	*0.05*	*0.29*	*0.34*
Non-Native Vegetation Communities						
Common and giant reed marshes	*Phragmites australis–Arundo donax* herbaceous semi-natural alliance	*Arundo donax* association	0.19	0.19	0.0	0.19
		N/A	0.0	0.0	0.0	0.0

Table 3.4-2. Impacts to Vegetation Communities and Land Covers (Acres)

Vegetation Community or Land Cover	Alliance	Association	Project Site	Permanent Project Impacts	Temporary Project Impacts	Total Impacts
Wild oats and annual brome grasslands	*Avena* spp.–*Bromus* spp. herbaceous semi-natural alliance	*Bromus diandrus* association	0.07	<0.01	0.07	0.07
Eucalyptus–tree of heaven–black locust groves	*Eucalyptus* spp. –*Ailanthus altissima*–*Robinia pseudoacacia* woodland semi-natural alliance	*Eucalyptus (globulus, camaldulensis)* association	0.01	0.0	0.01	0.01
		Non-native vegetation communities subtotal	*0.27*	*<0.1*	*0.27*	*0.27*
Land Cover Types						
Intermittent stream/creek	N/A	N/A	0.0	0.0	0.0	0.0
Unvegetated wash and river bottom	N/A	N/A	0.0	0.0	0.0	0.0
Disturbed habitat	N/A	N/A	0.56	0.02	0.54	0.56
Ornamental plantings	N/A	N/A	0.85	0.0	0.85	0.85
Urban/developed	N/A	N/A	0.99	0.0	0.99	0.99
		Land covers subtotal	*2.40*	*0.02*	*2.38*	*2.40*
		Total[b]	**3.02**	**0.07**	**2.95**	**3.02**

Notes: N/A = not applicable.

[a] Sensitive natural community.

[b] Totals may not sum precisely due to rounding.

As currently designed, the proposed project would result in a total of approximately 3.02 acres of impacts to native and non-native vegetation communities and land cover types, consisting of approximately 2.95 acres of temporary impacts, and approximately 0.07 acres of permanent impacts. Permanent impacts to non-native vegetation communities and land cover types (beyond aquatic land covers) are not considered significant and do not require mitigation. Project-related impacts to native vegetation communities consist of approximately 0.05 acres of permanent impacts and approximately 0.29 acres of temporary impacts. Temporary impacts to vegetation communities will be addressed through preparation and implementation of a revegetation plan and appropriate revegetation of the impacted areas.

The approximately 0.05 acres of permanent impacts to native vegetation communities would consist of impacts to coyote brush–California sagebrush scrub. This upland native vegetation community is not considered sensitive by CDFW, nor is it regionally or locally protected unless it provides occupied habitat for listed species. Focused surveys for listed species such as coastal California gnatcatcher and least Bell's vireo determined that these species were absent from the site; therefore, this vegetation community is not considered sensitive, and project-related permanent impacts are not considered significant and do not require mitigation. Additionally, temporary impacts to approximately 0.29 acres of coyote brush scrub and California brittlebush–California sagebrush–black sage–coyote brush scrub are not considered significant and do not require mitigation; however, these areas would be revegetated post construction. No project impacts to riparian or sensitive vegetation communities would occur. As such, the project would result in a less than significant impact to sensitive and riparian vegetation communities.

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

Less Than Significant Impact. The proposed project is designed to abandon in place the existing Reach 5 of the NCI and construct a new pipeline through open trenching, HDD, and slip lining. Although portions of the proposed pipeline would be constructed in an open trench immediately adjacent to riparian habitat within Aliso Creek, no direct impacts would occur to Aliso Creek or to any other wetlands or potentially jurisdictional areas. The open trenching would primarily occur within existing paved access roads, and the boring and slip lining would occur underground to avoid impacts at grade. However, the proposed project would be constructed immediately adjacent to Aliso Creek and may therefore result in potential indirect impacts during the construction phase of the project related to drainage, toxins, and spillage, which would be considered significant. However, best management practices (BMPs) implemented during construction as part of the required SWPPP would reduce the potential for indirect impacts to occur. These BMPs and SWPPP are a requirement of the general municipal separate storm sewer system (MS4) construction project and would be implemented by the project’s construction team. Some of the BMPs include appropriate storage and handling of construction equipment and materials, silt fences installed along the limits of the construction work, stockpile containment, construction of temporary sedimentation basins, and limitations on work periods during storm events to minimize the potential of pollutants entering Aliso Creek and nearby coastal waters. All equipment, labor, materials, tools, and incidentals necessary for dewatering for construction will be provided such that all underground and below-grade work is performed or installed in dry excavations. Dewatering or discharging contaminated groundwater or soils via surface erosion is strictly prohibited. In addition, if groundwater is high, dewatering systems will intercept and remove water from surrounding strata and prevent its entry into the excavation. The proposed project will result in an improved wastewater infrastructure system for NCI Reach 5 that is anticipated to have fewer emergencies and fewer sewer system overflows, improving water quality. Therefore, the project would have a less than significant impact on jurisdictional waters and wetlands.

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?***

Less Than Significant Impact. The study area occurs within Aliso Canyon, which contains Aliso Creek. These features provide opportunities for wildlife movement from the foothills in the northeast toward the Pacific Ocean to the southwest. Aliso Canyon functions as a corridor for wildlife movement in the region and functions as a linkage for a variety of wildlife moving through the Laguna Coast Wilderness, which is surrounded by suburban development. The portions of the study area that contain the limits of Aliso Creek provide opportunities for fish, reptile, amphibian, and mammal species to move through the study area. However, the primarily developed portions of the project site occur within existing golf course facilities that contain paved access roads, regularly maintained grass sod, and frequent disturbance from recreational and resort activities. This ongoing disturbance reduces the potential for wildlife species to frequently move through the project site, although medium-sized mammals such as coyote (*Canis latrans*) may traverse portions of the site.

Although the reach of Aliso Creek and its associated riparian habitat within the study area function as a wildlife corridor and linkage, the majority of the project site occurs outside the boundaries of Aliso Creek or any native riparian habitat or scrub vegetation on the surrounding slopes. Additionally, the portions of the project alignment that occur within native scrub habitat would be bored underground, avoiding any surface-level impact to existing habitat. Therefore, the majority of available land suitable for functioning as a wildlife movement corridor or linkage occurs outside the project site limits. Moreover, the construction and operational requirements of the project would be relatively minimal, because the project would consist of constructing a new pipeline underground, with no surface-level buildings or structures associated with the project, thereby limiting the potential for the project to create a physical barrier or alteration to the land that could prevent the movement of wildlife in the future. There would be some minor disturbance to wildlife movement during the construction phase from increased human activity that may hinder local dispersal; however, this disturbance would be limited and temporary. Wildlife movement within Aliso Canyon and Aliso Creek is constrained by existing development and human activity along the portion within The Ranch golf course. However, there are opportunities for wildlife movement immediately adjacent to the project site along the undeveloped portions of Aliso Canyon surrounding the project site, which are more suitable for dispersal compared with the project site. In addition, construction activities are generally limited to daytime hours, when wildlife movement is more limited. Therefore, the project would result in a less than significant impact to wildlife corridors or linkages.

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. Policies and guidance for resource planning in the City are provided by the Open Space and Conservation Elements of the City's General Plan (City of Laguna Beach 2005a), which also serves as the City's certified Local Coastal Program pursuant to the 1976 California Coastal Act.

The environmentally sensitive areas (ESAs) are defined as follows (City of Laguna Beach 2005a):

- **Very High Value Habitats:** These include the habitats of endangered, rare or locally unique native plant species. Also included are areas of southern oak woodland and natural (not irrigation augmented) springs and seeps. Among the very high value habitats inventoried are areas of significant rock outcrop exposures, because of the assemblages of sensitive plant species that often occupy such settings.
- **High Value Habitats:** These are extensive areas dominated by indigenous plant communities, which possess good species diversity. They are often, but not always, linked to extensive open space areas, within or outside of the city, by traversable open space corridors. Their faunal carrying capacity is good to excellent; many areas are utilized as bedding and foraging sites by mule deer, or possess large resident populations of birds or native small mammals.

The project site is located in the Coastal Zone in Laguna Beach and the City is seeking a Coastal Development Permit from the California Coastal Commission. According to the City's Open Space and Conservation Elements, Lower Aliso Creek and the south-facing slope of Aliso Canyon are considered very-high value-and high-value habitats, which meet the definition of ESAs as defined by the City. The study area borders Aliso and Wood Canyons Wilderness Park and is located within Aliso Canyon, which are areas of significant habitat and resource value that function as ecological units within the City. Furthermore, Aliso Creek is mapped as a stream on the City's Major Watersheds and Drainage Course Map and includes riparian habitat that qualifies as an ESA.

Section 8H of the City's Open Space and Conservation Elements states that very-high-value habitats shall be preserved and high-value habitat shall be preserved to the greatest extent possible, and that mitigation measures for immediately adjacent areas shall also be required.

As currently designed, the project would result in a total of approximately 0.34 acres of temporary and permanent impacts to native vegetation communities. The majority of those impacts would occur on coyote brush–California sagebrush scrub (0.05 acres of permanent impacts and 0.15 acres of temporary impacts, totaling 0.18 acres) in the eastern portion of the project site, which is not considered high- or very-high-value habitat and does not meet the definition of an ESA. Additionally, temporary impacts to 0.16 acres of California brittlebush–California sagebrush–black sage–coyote brush scrub would occur on the western portion of the project site. This vegetation community occurs adjacent to existing development and is disturbed, with ruderal vegetation in the herbaceous layer. Additionally, these coastal sage scrub communities that would be impacted are absent of any listed species, thereby reducing the quality of the habitat value potential for ESA. Therefore, project-related impacts to a total of approximately 0.05 acres of unoccupied coyote brush–California sagebrush scrub would be less than significant. The proposed project would result in a less than significant impact to local policies or ordinances by avoiding impacts to very-high-value and high-value ESA habitat within Aliso Canyon and Aliso Creek.

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?

Less Than Significant Impact. The project site is within the boundaries of the Orange County Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP), specifically within the Central and Coastal Subregion (Central–Coastal). Therefore, the project is required to demonstrate consistency with the goals and objectives of the NCCP/HCP as it pertains to biological resources. Because the City of Laguna Beach is in an enrollment agreement with the Orange County Central–Coastal NCCP/HCP, it is required to evaluate the potential impacts of the proposed project to NCCP/HCP covered species and resources. Take authorization of covered species is granted for this project through the City's enrollment agreement to the Orange County Central–Coastal NCCP/HCP, and any impacts to covered sensitive natural communities would be covered, if consistent with allowed uses within the Open Space Reserve. Impacts to covered species and associated habitats would be covered under the terms of the USFWS Section 10(a)(1)(B) permit and CDFW Management Authorization granted to the local government with jurisdiction over the proposed activity for Participating Landowners. Impacts to species or sensitive communities not covered under the Orange County Central–Coastal NCCP/HCP would be considered significant and would require additional approvals pursuant to the federal Endangered Species Act, California Endangered Species Act, and Natural Community Conservation Planning Act.

The project site provides suitable habitat for Orange County Central–Coastal NCCP/HCP covered species including coyote, red-shouldered hawk (*Buteo lineatus*), prairie falcon (*Falco mexicanus*), least Bell's vireo, coastal California gnatcatcher, and Coulter's matilija poppy (*Romneya coulteri*). Although these species could occur on site, none of the species were observed during general and focused biological surveys. Additionally, specific covered habitats within the project site include chaparral, riparian, and coastal sage scrub vegetation communities (California sagebrush, coyote brush scrub). Project impacts to coastal sage scrub vegetation communities would be minimal, totaling 0.05 acres, and limited to areas adjacent to previous disturbance. There would be no project impacts to riparian or chaparral vegetation communities on site. Although the project would result in permanent impacts to covered scrub habitat within the Orange County Central–Coastal NCCP/HCP Reserve, these impacts are small in size (approximately 0.05 acres), do not provide habitat for listed species, and occur adjacent to existing disturbed areas; therefore, they are not expected to adversely affect the habitat functions of the Reserve.

Construction of the proposed project would result in approximately 0.05 acres of direct impacts to coastal sage scrub communities covered by the Orange County Central–Coastal NCCP/HCP that provide suitable habitat for NCCP/HCP covered species, specifically coastal California gnatcatcher. Coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher (also an NCCP/HCP covered species) were not observed on site during focused surveys; therefore, these covered species are considered absent from the project site and no direct or indirect impacts would occur. Therefore, the proposed project would minimize impacts to covered species and covered habitat to the greatest extent possible and would be consistent with the goals and objectives of the NCCP/HCP.

No other NCCP/HCP covered biological resources would be directly impacted by the project and because the City is in an enrollment agreement with the Orange County Central–Coastal NCCP/HCP, the proposed project would have a less than significant impact on Habitat Conservation Plans.

Mitigation Measures

MM-BIO-1 Special-Status Plant Surveys. Prior to the start of project activities, a qualified botanist shall conduct a survey to map and flag the location of any Nuttall's scrub oaks, to verify previously identified locations and map any additional locations, if any. The mapped locations will be flagged for avoidance during construction, to the extent feasible. If project activities require trimming or removal of any scrub oaks, a biological monitor must be on site during construction to ensure that scrub oak trimming, removal, and/or construction over scrub oak root systems do not result in mortality of more than five scrub oaks. The loss of up to five scrub oak individuals would be less than significant, given that this would represent a de minimis portion (estimated at less than 1%) of the overall population. In the event construction is expected to result in removal/mortality of more than five individual scrub oaks, a Restoration Plan shall be prepared to salvage and relocate the Nuttall's scrub oaks to be impacted to the extent feasible. The Restoration Plan will describe the methods of salvage (if feasible) and proposed location for relocation and/or restoration with appropriate local nursery (genetic stock from Southern California) that will be conserved in perpetuity. The Restoration Plan will include success criteria that ensure that a minimum 2:1 ratio (restored to impacted) of scrub oak individuals be established and healthy without supplemental irrigation for at least 2 years.

MM-BIO-2 Coastal California Gnatcatcher and Least Bell's Vireo Avoidance. If project activities are delayed until the combined breeding season for these species (from February 15 through July 31, 2027), additional focused surveys for coastal California gnatcatcher and least Bell's vireo shall be conducted by a qualified biologist within the appropriate season to determine the presence/absence of either species prior to the start of construction. Because the project site occurs within the Orange County Central and Coastal Region Natural Community Conservation Plan/Habitat Conservation Plan and the City is in an enrollment agreement to this plan, potential project-related take of either species would be authorized, with conditions for least Bell's vireo as a conditionally covered species, such as clearing outside of the nesting season and minimizing excessive noise during the nesting season.

MM-BIO-3 Crotch's Bumble Bee Surveys. Nesting surveys shall occur if ground-disturbing activities are scheduled to occur during the queen flight season through the colony active period (February 1 through August 31). Potential nesting sites should be surveyed for active Crotch's bumble bee colonies either through observations of queens searching for nesting sites or by looking for concentrated Crotch's bumble bee activity entering and exiting a given area. Surveys may occur between 1 hour after sunrise and 2 hours before sunset. Surveys shall not be conducted during wet conditions (e.g., foggy, raining, or drizzling) and surveyors shall wait at least 1 hour following rain. Optimal surveys are conducted when there are sunny to partly sunny skies and temperatures between 65°F and 90°F, and winds less than 8 mph. Surveys may be conducted outside these weather parameters if other bees or butterflies are observed flying.

Potential nesting sites investigated by colony founding queens should be GPS marked if the queen exhibits signs of interest in the potential site (e.g., she does not emerge from the site within a few minutes and then continue to nest search). Potential nesting sites identified during the queen nest searching phase shall be evaluated later during the colony active period to determine whether an active colony has been established, Potential nest sites on the project site will be observed for up to 5 minutes during the colony active period to monitor for Crotch's bumble bees entering or exiting. If a nest site is confirmed to be occupied by Crotch's bumble bees, the location's GPS coordinates shall be recorded; however, no flagging or visual marking of the nest location will occur until just prior to and during construction.

If Crotch's bumble bee is not detected during the pre-construction surveys, no further action or mitigation is required. If Crotch's bumble bee is detected, the City, in consultation with a qualified entomologist, will develop a Crotch's Bumble Bee Avoidance Plan to fully avoid direct and indirect impacts to this species. The avoidance plan will include nesting surveys, adaptive management, and success criteria. If take cannot be avoided, then an Incidental Take Permit from the California Department of Fish and Wildlife (CDFW) and subsequent mitigation would be required to reduce the impact to a less than significant level.

If required, mitigation for direct impacts to Crotch's bumble bee shall be fulfilled through compensatory mitigation at a minimum 1:1 nesting habitat replacement of equal or better functions and values to those impacted by the project. Mitigation shall be accomplished either through off-site conservation or through a CDFW-approved mitigation bank. If mitigation is not purchased through a mitigation bank, and lands are conserved separately, a cost estimate shall be prepared to estimate the initial startup costs and ongoing annual costs of management activities for the management of the conservation easement area(s) in perpetuity. The funding source shall be in the form of an endowment to help the qualified natural lands management entity that is ultimately selected to hold the conservation easement(s). The endowment amount shall be established following the completion of a project-specific Property Analysis Record to calculate the costs of in-perpetuity land management. The Property Analysis Record shall take into account all management activities to fulfill the requirements of the conservation easement(s), which are currently in review and development.

MM-BIO-4 Special-Status Wildlife Species Avoidance. Construction activities shall avoid the combined general bird nesting season and bat maternity roosting season (February through August) to reduce and minimize potential impacts to state-listed and federally listed special-status species. In the event the nesting and maternity season cannot be avoided, a pre-construction survey shall be conducted within 10 days prior to the start of project activities to determine the presence/absence of any special-status wildlife species within and immediately adjacent to the project site. If any special-status wildlife species are found during the survey, additional avoidance and minimization measures shall be required. Specifically, a qualified biological monitor, as determined by the City of Laguna Beach, shall be on site during construction activities to ensure that no impacts to special-status wildlife occur, either by moving wildlife out of harm's way, halting construction activities, or coordinating with the wildlife agencies for relocation, if needed. Any relocation activities would occur outside the nesting or maternity roosting season to reduce impacts to special-status wildlife.

MM-BIO-5 Worker Environmental Awareness Program (WEAP) Training. Prior to the start of project activities, a pre-construction meeting shall be required that includes a training session for project personnel by a biological monitor. The training shall include (1) a description of the species of concern and their habitats; (2) the general provisions of the applicable regulations pertaining to biological resources, including the Endangered Species Act and the Clean Water Act; (3) the need to adhere to the provisions of the Endangered Species Act, the Clean Water Act, and other applicable regulations; (4) the penalties associated with violating the provisions of the Endangered Species Act, Clean Water Act, and other applicable regulations; (5) the general measures that are being implemented to conserve the species of concern as they relate to the project; and (6) the access routes to and from disturbance area boundaries within which the project activities must be accomplished. Additionally, the training shall include the measures and mitigation requirements for the applicable resources. Copies of the mitigation measures and any required permits from the resource agencies shall be made available to construction personnel. The training shall be provided in alternate languages, as needed. If any special-status species are observed, the biological monitor or on-site construction manager will be immediately notified to determine the appropriate avoidance and minimization measures for the species during construction activities, including moving the wildlife out of harm's way, halting construction activities, or coordinating with the wildlife agencies for relocation, if needed.

MM-BIO-6 Nesting Bird Avoidance. To reduce any potential indirect impact to nesting birds, project construction should commence outside of the general avian nesting season (from February through August). If construction activities cannot avoid the nesting season, then a pre-construction survey shall be conducted by a trained biologist to determine the presence/absence of any nesting birds within the project site and 500-foot buffer around the site. If an active nest is found, a suitable buffer based on the species sensitivity and proximity to the area of disturbance shall be placed around the nest for the duration of the nesting period. Construction may continue within this buffer only at the discretion of a monitoring biologist. The buffer can be removed when the nest is no longer active due to natural causes, as determined by a trained biologist.

3.5 Cultural Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
V. **CULTURAL RESOURCES** – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

The evaluation of potential impacts on cultural resources is based on a Phase I Cultural Resources Inventory and Extended Phase I (XPI) Subsurface Testing Report prepared for the Project by Dudek in 2024 (Appendix C). The inventory and XPI subsurface testing effort included a California Historical Resources Information System database records search conducted at the South Central Coastal Information Center (SCCIC), a search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF), archival research, a cultural resources pedestrian survey of the project site, the recordation of two newly identified resources adjacent to the project site, and subsurface testing within areas proposed for ground disturbance.

Records Search

The SCCIC records search included a review of all previously recorded investigations and cultural resources within a 1-mile radius of the project site. Overall, the records search indicates that 20 cultural resources have been previously recorded within 1 mile of the project site, 3 of which are directly adjacent to but outside the project site. These resources include 2 prehistoric shell midden deposits (P-30-000009 and P-30-000074) and 1 prehistoric rock shelter with an associated sparse shell scatter (P-30-000583). All 3 resources have been recommended eligible for listing on the California Register of Historical Resources (CRHR) under Criterion 4: Has yielded, or may be likely to yield, information important in prehistory or history.

Native American Heritage Commission Sacred Lands File Search

A review of the NAHC SLF was requested on March 15, 2024, for the project site and a 1-mile radius. The SLF consists of a database of known Native American resources. These resources may not be included in the SCCIC database. NAHC replied via email on April 4, 2024, stating that the SLF search was completed with positive results. Positive results indicate the presence of Native American resources within 1 mile of the project site, and not necessarily directly within the project site.

Joyce Perry, Cultural Resource Director of the Juaneño Band of Mission Indians Acjachemen Nation–Belardes, was included as a recipient in the NAHC response email. Ms. Perry followed up with an email to Dudek dated June 26, 2024, asking for additional information on the proposed undertaking. This response was forwarded to the City upon receipt.

Review of Historic Maps and Aerial Photographs

The Bureau of Land Management (BLM) General Land Office records, historical topographic maps, and historic aerial photographs were reviewed to understand the development of the project site and surrounding areas over time. The project site was first recorded within Lot Number 39 of the Niguel Rancho by James R. Hardenbergh of BLM in 1873. The BLM plat image shows the project site within a largely undeveloped area adjacent to Aliso Creek (BLM 2024).

Historic topographic maps (historic topos) of the project site are available for the years of 1901 to 1983 (USGS 2024). The first historic topo from 1901 shows an established roadway (along the current alignment of Country Club Drive) traversing on an east-to-west axis parallel to the historic course of Aliso Creek, and another roadway (along the current alignment of Coast Highway) running north to south along the coast. There are no observable changes to the project site until 1947, when two structures appear at the current location of The Ranch's Scout Camp. By 1968 a complex of structures labeled "Laguna Beach Country Club" (in the same location as The Ranch resort) appear, as do several structures labeled "Sewage Disposal" (in the current location of the SOCWA CTP). There are no substantial observable changes in the historic depiction of the project site and surrounding areas from 1968 until the last available historic topo from 1983 (USGS 2024).

Historic aerial photographs (historic aerials) of the project site are available from 1938 to 2022 and provide more detail on the historic development of the region through time (NETR 2024). The first available historic aerial from 1938 shows the project site within Aliso Canyon. There appears to be a roadway running adjacent to the creek and through the project site (along the same alignment as the current Country Club Drive) and several small plots of irrigated farmland situated along the northern and southern banks of the creek. Surrounding the project site and along the bluffs of Aliso Canyon are several emerging residential communities that continue to grow in size and extent throughout the middle and late twentieth century. By 1952, there is evidence of slopeside grading and ground clearance throughout the extent of the project site (in anticipation of the golf course), and some structure development toward the central portion of the project site and within the current footprint of The Ranch resort structures. At this time, it appears that portions of Aliso Creek were diverted to the south, and areas of the canyon were backfilled with imported soils. Development at The Ranch resort site continues through 1972. The SOCWA CTP first appears in the 1963 historic aerial and continues to grow in size and extent through 1985. There are no substantial observable changes to the project site and surroundings areas from 1985 until the last available historic aerial from 2022 (NETR 2024).

Overall, this historic topo and aerial imagery review indicates that the project site was utilized in part as agricultural land as far back as 1938. Additionally, there is evidence to indicate that the project site was subject to other ground disturbances associated with roadway development, canyon and creekbed backfill, and the construction of The Ranch resort and golf course (and their precursors) and the SOCWA CTP. Additionally, this review identified several historic-era structures that exist within Aliso Canyon and are adjacent to but not contained within the project site, as well as a historic-era roadway alignment currently known as Country Club Drive.

Review of Geotechnical Evaluations

A geotechnical evaluation in support of the project was conducted by Ninyo & Moore in 2023 (Appendix D to this IS/MND). Subsurface exploration consisted of the drilling, logging, and sampling of two rock core borings using a truck-mounted drill rig to a depth of 120 feet below the ground surface (bgs) using an 8-inch-diameter hollow-stem auger and later an HQ3 wireline coring system. One boring sample was taken from within the parking lot of The Ranch resort (Boring B-1) adjacent to the HDD receiving area, and the other within the golf course adjacent to the northern hillside of the project site where the HDD alignment is proposed (Boring B-2) (Appendix D). Previous geotechnical evaluations (2018) that follow the same general alignment as the project site included three additional borings. Boring AB-2 was taken from the intersection of Country Club Drive and The Ranch resort access road, Boring AB-4 was taken from within the golf course fairway and the HDD alignment, and Boring AB-5 was taken from the golf course fairway and within the open trench alignment. All 2018 borings reached a final depth of 21.5 feet bgs (Ninyo & Moore 2018).

Overall, materials encountered during subsurface explorations consisted of undocumented fill, alluvium, and bedrock materials of the San Onofre Breccia and Topanga Formation. Imported, undocumented fill was encountered in four of the five borings to a depth of approximately 3.5 to 5 feet bgs. Fill generally consisted of silty sand and poorly graded sand, and firm and lean clay with variable amounts of gravel. Alluvium was encountered at all boring locations and reached a depth of approximately 16 feet to 62.5 feet bgs. Alluvium generally consisted of moist sand with clay inclusions and variable amounts of gravel. Bedrock of the Breccia Formation was encountered at 65.5 feet bgs in Boring B-1, and the Topanga Formation was encountered at 16 feet bgs in Boring B-2 and persisted until termination at 120 feet bgs (Ninyo & Moore 2018; Appendix D). Overall, the project site is underlain by alluvial deposits of varying degrees of depth. In general, deposits of this nature have a moderate potential to contain subsurface cultural deposits.

Pedestrian Survey

Dudek archaeologists conducted an intensive-level cultural resources pedestrian survey of the project site on March 12, 2024. All survey work was conducted using standard archaeological procedures and techniques consistent with the Secretary of the Interior's Standards and Guidelines for Archaeology. When possible, 15-meter (50-foot) interval survey transects were conducted, oriented in a cardinal direction (north, south, east, or west).

The project site is largely disturbed, consisting predominantly of Country Club Drive and adjacent areas, as well as The Ranch resort facilities, golf course, golf cart path, and the SOCWA-managed land and CTP access road. The pedestrian survey included all portions of the proposed NCI Reach 5 wastewater pipeline alignment and adjacent staging areas, with the exception of portions of the HDD alignment through the northern hillside of Aliso Canyon, where disturbances are proposed beneath soil depths with the potential to support the presence of cultural resources.

Overall, the crew attempted to revisit previously recorded prehistoric archaeological resources P-30-000009, P-30-000074, and P-30-0000583, and recorded two newly identified prehistoric archaeological resources: NCI-RB-S-001 (rock shelter complex with associated prehistoric shell scatter) and NCI-RB-S-002 (small rock shelter with associated prehistoric shell scatter).

Cultural materials were not identified at P-30-000009 (shell midden deposit); this resource has likely either been mismapped or destroyed. Cultural materials were not identified at P-30-000074 (shell midden deposit); much of the once exposed bluff is now encased within a concrete retaining wall and marked private property. P-30-000583 (rock shelter with associated shell scatter) is located on the southern bluff of Aliso Canyon and the mouth of the rock shelter is visible with the naked eye from The Ranch resort property, although the majority of the resource is obscured by dense vegetation. Attempts to climb up to the rock shelter were terminated due to safety concerns associated with the steepness of the terrain leading up to the resource. Due to its location along a steep hillside, the condition of this resource is assumed to be good and not impacted by anthropogenic (human-caused) disturbances.

NCI-RB-S-001, a prehistoric rock shelter complex consisting of three rock shelters, was newly recorded and is located along the northern bluff of Aliso Canyon. Due to the steepness of the terrain, only one of the three rock shelters was inspected during the pedestrian survey. One volcanic ground stone fragment and faunal remains consisting of California mussel (*Mytilus californianus*) were observed within the rock shelter during the 2024 pedestrian survey.

NCI-RB-S-002, a prehistoric rock shelter and shell scatter, was newly recorded and is located directly adjacent to Country Club Drive. Faunal remains consisting of California mussel and possibly native oyster (*Ostrea* sp.) were identified within the rock shelter. The rock shelter appears to have been used in modern times as an area for campfires and is covered in modern debris and various invasive species of grass and other non-native vegetation. Adjacent to the rock shelter are several in-ground utilities boxes and small pockets of road base.

Extended Phase I Subsurface Testing

An XPI investigation was conducted by Dudek archaeologists on May 7 and 8, 2024, to identify the presence/absence of subsurface resources, visually gauge the subsurface soil conditions, and assess the potential for significant archaeological deposits to be present or otherwise persist within the project site. Testing efforts were contained within two locations adjacent to the newly recorded resources NCI-RB-S-001 (Location 1) and NCI-RB-S-002 (Location 2).

At Location 1, three shovel test pits (STPs) were excavated adjacent to NCI-RB-S-001. Subsurface disturbances in this area include evidence of non-native imported soils (fill), tree roots, and modern debris found to a depth of 40 centimeters below surface (cmbs) (or 16 inches bgs). At Location 2, four STPs were excavated adjacent to NCI-RB-S-002. Subsurface disturbances within this area include utilities and irrigation lines, tree roots and other detritus, and modern debris found to a depth of 40 cmbs.

Fill soils were most clearly observed at Location 1 and within STPs 1, 2, and 3 to a depth of approximately 100 cmbs (40 inches bgs). Disturbed soils, indicated by their color and content of clay, were most clearly observed at Location 2 and especially within STP 4, where dispersed faunal invertebrate remains were encountered in all levels to a depth of 100 cmbs. Although culturally modified and/or imported marine shell was identified in many of the STP levels at Location 2, it was found within otherwise highly disturbed contexts and secondary deposits. Native soils were observed at Location 1 within STP 3 starting at a depth of 120 cmbs (47 inches bgs), and at Location 2 within STP 4 starting at a depth of 85 cmbs (33 inches bgs). Overall, results indicate that most of the soils observed within the portions of the site that were subject to this XPI testing effort included fill and disturbed soils, with some evidence to indicate that native undisturbed soils underlie the fill/disturbed soils starting at a depth of 120 cmbs at Location 1 and 85 cmbs at Location 2.

a) ***Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?***

No Impact. As defined by the CEQA Guidelines (14 CCR 15000 et seq.), a "historical resource" is considered to be a resource that is listed in or eligible for listing in the National Register of Historic Places or CRHR, has been identified as significant in a historical resource survey, or is listed on a local register of historical resources. 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" (California Public Resources Code Section 21084.1; 14 CCR 15064.5[b]). If a site is listed or eligible for listing in the CRHR, included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of California Public Resources Code Section 5024.1[q]), it is a historical resource and is presumed to be historically or culturally significant for the purposes of CEQA (California Public Resources Code Section 21084.1; 14 CCR 15064.5[a]).

A review of historical topographic maps and aerial photographs indicates that the project site was utilized in part as agricultural land as far back as 1938. Additionally, there is evidence to indicate that the project site was subject to other ground disturbances associated with roadway development, canyon and creekbed backfill, and the construction of The Ranch resort and golf course (and their precursors) and the SOCWA TCP. Several historic-era structures also exist within Aliso Canyon and are adjacent to but not contained within the project site, as is a historic-era roadway alignment currently known as Country Club Drive.

The SCCIC records search identified no previously recorded cultural resources within the project area, although three cultural resources, P-30-000009 (prehistoric shell midden), P-30-000074 (prehistoric shell midden), P-30-000583 (prehistoric rock shelter and shell scatter) were recorded as adjacent to the project site and were previously recommended as eligible for listing in the CRHR under Criterion 4. An NAHC SLF search was also conducted for the project site, and results were positive for Native American cultural resources within the search area (the project area and a surrounding 1-mile radius), although NAHC did not provide details on what the resource(s) are or where they are located. The pedestrian survey of the project site did not identify cultural materials associated with P-30-000009 or P-30-000074. P-30-0000583, although intact, is located above the canyon floor and a distance away from the project site. Two newly recorded cultural resources were identified during the pedestrian survey (NCI-RB-S-001 and NCI-RB-S-002) and are located near the project site. The project would avoid direct adverse effects to P-30-000009, P-30-000074, P-30-000583, and NCI-RB-S-001. NCI-RB-S-002 was recorded as directly adjacent to the open trench alignment of the project site along Country Club Drive. Subsurface investigations in this area were limited to the roadway shoulder and outside the area of direct physical effect for this portion of the project site, because the pipeline alignment is proposed within the roadway and is currently covered in asphalt hardscape. Although subsurface investigations identified the presence of cultural material within many of the STP levels at this location, it was found within otherwise highly disturbed contexts and secondary deposits.

Because no historical resources were identified within the project site during Dudek's Phase I Cultural Resources Inventory and XPI subsurface testing effort in support of the project, the proposed project would not cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5. No impact would occur as a result of project implementation.

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

Less Than Significant Impact with Mitigation Incorporated. As discussed in Section 3.5(a), the SCCIC records search, archival research, and pedestrian survey did not identify any prehistoric or historic-era archaeological resources within the project area; however, five prehistoric archaeological resources (P-30-000009, P-30-000074, P-30-000583, NCI-RB-S-001, and NCI-RB-S-002) were recorded adjacent to the project site. In addition, the results of the NAHC SLF search were positive for Native American cultural resources within 1 mile of the project site.

The results of the inventory and XPI testing effort indicate that while the broader area was likely used by prehistoric Native American people, as indicated by the presence of faunal material and marine shell, the portions of the project site subject to investigation are highly disturbed and composed predominantly of fill soils in secondary contexts, which are not suited to supporting the presence of intact archaeological deposits.

These results generally corroborate the archival review of the project site, which included an investigation of the project site's geotechnical findings, as well as a review of historic topos and aerial photos. These results also indicate that large portions of the project site were subject to grading efforts associated with the backfilling of the historic creekbed during the development of Aliso Canyon in the 1950s.

Although no known archaeological resources are located within the project site, regardless of subsurface conditions, the area is archaeologically sensitive. Based on the presence of significant archaeological resources adjacent to the project site and in consideration of the broader pattern of prehistoric use within Aliso Canyon and the San Joaquin Hills area, there is a moderate potential for the inadvertent discovery of subsurface archaeological resources during project implementation.

If unknown archaeological resources possessing the characteristics outlined in CEQA as significant exist and are inadvertently encountered during implementation (i.e., construction) of the project, there is potential for a substantial adverse change in the significance of an archaeological resource to occur. Therefore, this would result in a potentially significant impact regarding a substantial adverse change in the significance of an unknown archaeological resource pursuant to CEQA Guidelines Section 15064.5. As such, mitigation measures are required to address impacts related to the inadvertent discovery of archaeological resources during construction. MM-CUL-1 (Worker's Environmental Awareness Training; see the Mitigation Measures subsection at the end of this section for full text of mitigation measures) requires the implementation of cultural resources sensitivity training for construction crews prior to initiation of ground-disturbing activities for the project. MM-CUL-2 (Cultural Resources Monitoring and Inadvertent Discovery Protocols) requires archaeological monitoring during initial ground-disturbing activities and sets forth requirements for the treatment of inadvertently discovered archaeological resources until a qualified archaeologist can assess and evaluate the discovery pursuant to CEQA. With implementation of MM-CUL-1 and MM-CUL-2, potentially significant impacts to unknown archaeological resources would be reduced to less than significant with mitigation incorporated.

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

Less Than Significant Impact with Mitigation Incorporated. No prehistoric or historic-era burials, including those interred outside of formal cemeteries, were identified within the project site as a result of the SCCIC records search, NAHC SLF search, archival research, pedestrian survey, or subsurface testing. Based on the nature of the construction activities proposed for the project (primarily open trenching within highly disturbed contexts), the likelihood of disturbing human remains is low. However, the possibility of encountering human remains within the project site exists. In the event that human remains are inadvertently encountered during project construction activities, impacts to these resources would be potentially significant.

Thus, mitigation is required to address impacts related to the inadvertent discovery of human remains, as outlined in MM-CUL-3 (Treatment of Human Remains). Adherence to this measure will ensure that impacts to human remains resulting from project implementation would be less than significant with mitigation incorporated.

Mitigation Measures

MM-CUL-1 Worker's Environmental Awareness Training. Prior to the initiation of ground-disturbing work, construction crews shall be made aware of the potential to encounter cultural resources and the requirement for cultural monitors to be present during these activities. This may occur as part of a Worker Environmental Awareness Program. Topics addressed will include definitions and characteristics of cultural resources, regulatory requirements and penalties for intentionally disturbing cultural resources, and protocols to be taken in the event of an inadvertent discovery.

MM-CUL-2 Cultural Resources Monitoring and Inadvertent Discovery Protocols. A monitoring plan shall be prepared by an archaeological principal investigator meeting the Secretary of the Interior's Standards and implemented upon approval by the City. An archaeological monitor shall be present during all initial ground-disturbing activities for the project. Archaeological monitoring may be adjusted (increase, decreased, or discontinued) at the recommendation of the archaeological principal investigator and based on inspection of exposed cultural material and the observed potential for soils to contain intact cultural deposits or otherwise significant archaeological material. The archaeological monitor shall be provided a copy of the project-specific cultural resources inventory report and its pertinent appendices (included as Appendix C to the project Initial Study/Mitigated Negative Declaration) to inform their monitoring efforts. The archaeological monitor shall have the authority to temporarily halt work to inspect areas for potential cultural material or deposits.

In the event that unanticipated archaeological deposits or features are exposed during construction activities, all construction work occurring within 50 feet of the find shall immediately stop until the archaeological principal investigator is provided access to the project site and can assess the significance of the find and determine whether additional study is warranted. The work exclusion buffer may be adjusted as appropriate to allow work to feasibly continue at the recommendation of the archaeological principal investigator. Should it be required, temporary flagging shall be installed around the resource to avoid any disturbance from construction equipment. The potential for avoidance should be the primary consideration of this initial process. The significance of the find shall be assessed as outlined by the California Environmental Quality Act (CEQA) (14 CCR 15064.5[f]; California Public Resources Code Section 21082). If the archaeological principal investigator observes the discovery to be potentially significant under CEQA, additional efforts, such as the preparation of an archaeological treatment plan, testing, and/or data recovery, are warranted prior to allowing construction to proceed in this area.

Daily monitoring logs shall be completed by the on-site archaeological monitor. Within 60 days following completion of construction, the archaeological principal investigator shall provide an archaeological monitoring report to the City. This report shall include the results of the cultural monitoring program (even if negative), including a summary of any findings or evaluation/data recovery efforts, and supporting documentation that demonstrates that all mitigation measures defined in the environmental document were appropriately met. Appendices shall include archaeological monitoring logs and documentation relating to any newly identified or updated cultural resources. This report shall be submitted to the South Central Coastal Information Center once considered final.

MM-CUL-3 Treatment of Human Remains. In accordance with Section 7050.5 of the California Health and Safety Code, if potential human remains are found, the Orange County Coroner (County Coroner) shall be immediately notified of the discovery. The County Coroner shall provide a determination within 48 hours of notification. No further excavation or disturbance of the identified material, or any area reasonably suspected to overlie additional remains, shall occur until a determination has been made regarding if the find is human in origin. If the County Coroner determines that the remains are, or are believed to be, Native American, the Coroner shall notify the Native American Heritage Commission (NAHC) within 24 hours. In accordance with California Public Resources Code Section 5097.98, NAHC must immediately notify those persons it believes to be the most likely descendant of the deceased Native American. The most likely descendant shall then recommend to the lead agency their preferred treatment of the remains and associated grave goods.

3.6 Energy

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

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

Less Than Significant Impact. The electricity and petroleum used for construction of the project would be temporary and would have a negligible contribution to the project's overall energy consumption. The project is not anticipated to consume natural gas during construction. In addition, the project would not have routine operational activities that would result in an increase in activity and associated energy consumption compared to existing conditions.

Construction

Electricity

Temporary electric power for as-needed lighting and electronic equipment (such as computers inside temporary construction trailers) would be provided by SCE. The electricity used for such activities would be temporary and would have a negligible contribution to the project's overall energy consumption.

Natural Gas

Natural gas is not anticipated to be required during construction of the project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed below in the Petroleum subsection. Any minor amounts of natural gas that may be consumed as a result of project construction would have a negligible contribution to the project's overall energy consumption.

Petroleum

Heavy-duty construction equipment associated with construction activities is assumed to use diesel fuel. Construction workers would travel to and from the project site throughout the duration of construction. It is assumed in this analysis that construction workers would travel to and from the site in gasoline-powered passenger vehicles.

Heavy-duty construction equipment of various types would be used during each phase of project construction. Appendix A, Air Quality and Greenhouse Gas Emissions Report, lists the assumed equipment usage for each phase of construction.

Fuel consumption from construction equipment was estimated by converting the total carbon dioxide (CO_2) emissions from each construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Construction is estimated to occur in 2026, 2027, and 2028 based on the construction phasing schedule. The conversion factor for gasoline is 8.78 kilograms per metric ton (MT) CO_2 per gallon, and the conversion factor for diesel is 10.21 kilograms per MT CO_2 per gallon (The Climate Registry 2024). The estimated diesel fuel usage from construction is shown in Table 3.6-1.

Table 3.6-1. Total Project Construction Petroleum Demand

Construction Year	Off-Road Equipment (Diesel)	Haul Trucks (Diesel)	Vendor Trucks (Diesel)	Worker Vehicles (Gasoline)	Total
	Gallons				
2026	1,605	834	588	344	3,372
2027	6,545	6,527	2,846	2,572	18,491
2028	2,602	527	643	444	4,216
				Total Petroleum	**26,079**

Source: Appendix A.

In summary, construction of the project is anticipated to consume 3,360 gallons of gasoline and 22,719 gallons of diesel, for a total of 26,079 gallons of petroleum over the course of 17 months.[7] Project construction would represent a single-event petroleum demand and would not require ongoing or permanent commitment of petroleum resources for this purpose. The project will be subject to CARB's In-Use Off-Road Diesel Vehicle Regulation, which applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulation (1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; (2) requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; (3) restricts the adding of older vehicles into fleets starting on January 1, 2014; and (4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). The fleet must either show that its fleet average index was less than or equal to the calculated fleet average target rate, or that the fleet has met the Best Achievable Control Technology requirements. Furthermore, vehicles would use less petroleum due to advances in fuel economy over time. Overall, the project would not involve characteristics that require equipment that would be less energy efficient than at

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[7] For context, according to the U.S. Energy Information Administration, California consumed approximately 15 million gallons of petroleum among all sectors in 2022 (EIA 2023). Project construction would represent approximately 0.2% of the annual petroleum consumption.

comparable construction sites in the region or state. Impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during construction would be less than significant.

Operation

The project would not have routine operational activities that would result in an increase in activity and associated electricity, natural gas, or petroleum consumption compared to existing conditions. This is a pressurized pipeline that does not require routine maintenance.

Impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during operation would be less than significant.

Summary

The project is anticipated to use minimal or no natural gas and electricity during construction. The project would use petroleum during construction. However, the use of petroleum during construction would be short term. Therefore, impacts to energy resources during construction would be less than significant.

The project would not increase energy consumption during operation compared to existing conditions. Furthermore, it is not feasible to implement on-site renewable energy systems due to project site constraints. Therefore, impacts to energy resources during operation would be less than significant.

Implementation of the proposed project would increase the demand for petroleum in the region during construction. However, because the project would increase energy consumption only during construction, which is short term, the project would be consistent with current regulations and policies, and the project would not be wasteful or inefficient and would not result in unnecessary energy resource consumption. Therefore, impacts would be less than significant.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less Than Significant Impact. The project proposes to replace a pipeline and does not involve the construction of a building. Therefore, the project would not be subject to the California Building Energy Efficiency Standards (24 CCR, Part 6) or California Green Building Standards (CALGreen; 24 CCR, Part 11). On this basis, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Various existing local plans would reduce energy use in the region, including the project, such as SCAG's 2024–2050 RTP/SCS and CARB's Scoping Plan (CARB 2022b). The goals related to renewable energy or energy efficiency in SCAG's RTP/SCS and CARB's Scoping Plan are focused on operation rather than temporary construction. Because the project is a pipeline replacement that would not increase energy consumption during operation, the project would not impede the goals of these plans. Furthermore, approval of the project itself would not change these regulations and would not provide any goals, policies, or programs that would conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, impacts would be less than significant.

3.7 Geology and Soils

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

The following analysis is based in part on the geotechnical evaluation for the project site prepared by Ninyo & Moore in August 2023. This report is included as Appendix D of this IS/MND.

The project site is located in the Peninsular Ranges Geomorphic Province of Southern California. The province is characterized by northwest-to-southeast-trending mountain ranges and valleys and similarly trending strike–slip faults associated with the boundary between the North American and Pacific tectonic plates. In general, the mountain ranges are underlain by Jurassic-age metavolcanic and metasedimentary rocks and Cretaceous-age igneous rocks of the Southern California Batholith. The project site is underlain by undocumented fill; alluvium, consisting of loose to dense sand, silt, clay, and gravel; slopewash, consisting of silty sand with gravel and cobbles; landslide deposits, consisting of displaced sandstone and conglomerate; San Onofre Breccia bedrock, consisting of sandstone with gravel breccia; and Topanga Formation bedrock, consisting of sandstone and siltstone.

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

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

Less Than Significant Impact. The Alquist–Priolo Earthquake Fault Zoning Act (Alquist–Priolo Act) requires the delineation of zones along active faults in California. The purpose of the Alquist–Priolo Act is to regulate development and prohibit construction on or near active fault traces to reduce hazards associated with fault rupture. State of California Earthquake Fault Zones (previously Alquist–Priolo Earthquake Fault Zones) are the regulatory zones that include surface traces of active faults. As defined by the California Geological Survey (CGS), active faults are faults that have ruptured within approximately the last 11,700 years, or within Holocene time. Potentially active faults are those that show evidence of movement during Quaternary time, or within approximately the last 1.6 million years. Inactive faults are faults that have not ruptured in the last approximately 1.6 million years (CGS 2018).

The project site is not located within a State of California Earthquake Fault Zone. The nearest mapped active fault to the project site is the Newport–Inglewood Fault, located approximately 2.2 miles southwest of the site. The Laguna Canyon Fault and one unnamed fault are mapped as crossing through the alignment; however, due to heavy vegetation in the area, visible signs of the faults were not observed on the surface during a geologic reconnaissance. These faults are not considered to be active as defined by CGS. However, historical movement of the subsurface materials has occurred within these fault zones. A boring drilled near the mapped trace of the Laguna Canyon Fault did not encounter a clay fault gouge zone or the intense fractures and shearing that would be expected in a fault zone. However, the geotechnical report recommends that sharp transitions between different geologic units across the fault zone, as well as intensely fractured bedrock, should be anticipated where the HDD alignment crosses the fault zone (Appendix D).

Project design and construction would be completed in accordance with the seismic design considerations of the project-specific geotechnical report, thus minimizing any fault-related impacts. Although historical movement has occurred along the Laguna Canyon Fault and an unnamed fault that traverse the project alignment, project construction and operation would not result in activation of an earthquake fault. Therefore, the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault. Impacts would be less than significant.

ii) Strong seismic ground shaking?

Less Than Significant Impact. Laguna Beach, along with all of Southern California, is subject to strong ground shaking because it is located in a seismically active region. Active faults of most concern to the City's planning area are the Newport–Inglewood, San Joaquin Hills Blind Thrust, Palos Verdes, Coronado Bank, Glen Ivy, Temecula, Whittier, Chino, Puente Hills Blind Thrust, and San Andreas Faults. The closer to the earthquake source (epicenter), the stronger the shaking will be. Seismic shaking is of particular concern for the City due to the proximity to active faults that can generate significant earthquakes. The Laguna Beach Local Hazard Mitigation Plan identifies a 1% to 25% probability of a magnitude 6.7 or greater event to occur along numerous faults within Southern California in the next 30 years. The highest probability (25%) is projected for the San Andreas Fault, located approximately 52 miles from the City. The closest active fault (Newport–Inglewood Fault) is approximately 2 miles from the City and is estimated to have a 1% probability of generating a magnitude 6.7 earthquake or greater in the next 30 years (City of Laguna Beach 2021a).

Considering the proximity of the project site to active faults capable of producing a maximum moment magnitude of 6.0 or more, the project area has a high potential for experiencing strong ground motion. The 2022 California Building Code specifies that the risk-targeted maximum considered earthquake ground motion response accelerations be used to evaluate seismic loads for design of buildings and other structures. In accordance with Chapter 20 of the American Society of Civil Engineers (ASCE) Publication 7-16 (2016) for the Minimum Design Loads and Associated Criteria for Buildings and Other Structures, the project site classification is Site Class C. In accordance with ASCE 7-16, the mapped maximum considered earthquake ground motion response accelerations were determined using the 2023 Applied Technology Council seismic design tool (ATC 2023). The maximum considered earthquake ground motion response accelerations incorporate a target risk for structural collapse equivalent to 1% in 50 years. Project design and construction would be completed in accordance with the seismic design considerations of the project-specific geotechnical report (Appendix D), thus minimizing any seismic-related impacts. In addition, project construction and operation would not result in activation of an earthquake fault and associated ground shaking. Therefore, the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. Impacts would be less than significant.

iii) Seismic-related ground failure, including liquefaction?

Less Than Significant Impact. Based on geologic mapping by CGS, the relatively flat-lying areas of Aliso Canyon underlain by alluvium are potentially susceptible to seismically induced liquefaction. The portions of the pipeline alignment underlain by bedrock are not susceptible to liquefaction. Seismically induced liquefaction in the alluvial canyon bottom could result in pipeline damage. Based on the project-specific geotechnical investigation, the liquefaction-induced dynamic settlement along the proposed pipeline route within Aliso Canyon was estimated to be approximately 4.5 inches at the ground surface. In addition, differential settlement could occur near the contacts between the liquefiable alluvium and the non-liquefiable bedrock. Remedial technologies to reduce pipeline damage from liquefaction may include flexible pipeline materials or flexible joints (Appendix D). Regardless of potential pipeline damage as a result of liquefaction, project construction and operation would not result in activation of an earthquake fault and associated liquefaction. Therefore, the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction. Impacts would be less than significant.

iv) Landslides?

Less Than Significant Impact. Steep slopes are present along Aliso Canyon and there is a potential for slope failure along the pipeline alignment. Based on geologic mapping by CGS, most of the alignment is mapped in or is downslope from areas considered susceptible to seismically induced landslides. Landslides may be induced by strong vibratory motion produced by earthquakes. Several relatively large landslides have been mapped along Aliso Canyon and indications of landslides were observed during a geologic reconnaissance for the project-specific geotechnical report. Remedial technologies to reduce pipeline damage from landslides may include flexible pipeline materials or flexible joints. Landslides are not anticipated to be a design consideration during HDD construction and operations, as it is anticipated that the pipeline would be installed beneath the depth of the landslides (Appendix D).

Temporary vertical slopes would be constructed during trenching for pipeline construction. Based on the limited working area and the presence of shallow groundwater, temporary excavations are not expected to remain stable during construction. In the absence of adequate support, trench and pit sidewalls could fail. However, in accordance with the recommendations of the project geotechnical report, temporary shoring would be designed and installed to support the excavation sidewalls and to reduce the potential for settlement of the adjacent roadway and existing utilities. It is anticipated that a slide rail (beam and plate) shoring system, trench shield, or sheet piles and bracings would be utilized for the project. In addition, shoring would be required for the HDD launching and receiving pits. Excavations and shoring would conform to Occupational Safety and Health Administration (OSHA) standards (Appendix D). With implementation of the recommendations of the project-specific geotechnical report, the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. Impacts would be less than significant.

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

Less Than Significant Impact. Pipeline construction would include open trench construction, HDD, and slip lining. Open trench construction would result in temporary disturbance of soils in the vicinity of the excavation, as well as temporary stockpiling of soils pending backfill or off-site soil disposal. HDD would include excavations of open pits at the launching and receiving ends of the HDD pipeline corridor. Soils would be temporarily stockpiled pending pit backfill or off-site soil disposal. The back area of the golf course would be used for the handling of materials, including soil filtering and recycling of drilling fluids. Equipment staging and operating areas would be created at the launching and receiving ends of the HDD reach. Subsurface valve vaults would also be installed at both ends of the pipeline reach, resulting in temporary soil disturbance and temporary stockpiling of soils. HDD pullback staging areas would be created within the shoulder of Country Club Drive, causing temporary soil disturbance. In addition, three pits would be excavated in association with interior slip line installation adjacent to the existing SOCWA CTP. The existing NCI Reach 5 pipeline would be abandoned in place by injecting controlled low-strength material (CLSM) under pressure, resulting in no additional ground disturbance.

In the absence of proper soil management, project construction could result in wind and water erosion and associated sediment transport into the adjacent Aliso Creek. Construction-related activities that primarily result in sediment releases are related to exposing previously stabilized soils to potential mobilization by rainfall/runoff and wind. Erosion and sedimentation can affect water quality and interfere with photosynthesis, oxygen exchange, and the respiration, growth, and reproduction of aquatic species. Additionally, other pollutants, such as nutrients, trace metals, and hydrocarbons, can attach to sediment and be transported downstream, which could contribute to degradation of water quality. However, because project construction would involve ground disturbance in excess of 1 acre, construction would be completed in accordance with the requirements outlined in the National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit (2022-0057-DWQ), effective September 8, 2022 (NPDES Construction General Permit), which includes the development of a stormwater pollution prevention plan (SWPPP). The SWPPP would identify potential water quality pollutants (including erosion-induced sedimentation), identify minimum BMPs to prevent off-site sedimentation, and develop a construction site monitoring plan for the project. BMPs would include silt fences installed along limits of work and the project construction site, stockpile containment (e.g., Visqueen, fiber rolls, gravel bags), exposed soil stabilization structures (e.g., fiber matrix on slopes and construction access stabilization mechanisms), construction of temporary sedimentation basins, limitations on work periods during storm events, and street sweeping. Based on implementation of the above practices, the proposed project would not result in substantial soil erosion or the loss of topsoil and impacts 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 with Mitigation Incorporated. As described in Sections 3.7(a)(ii) and 3.7(a)(iii), although the project would be susceptible to strong seismically induced ground shaking and liquefaction, project design and construction would be completed in compliance with the 2022 California Building Code, which mandates that project design and construction occur in accordance with the recommendations of a project-specific geotechnical report. Lateral spreading was not identified as a potential issue in the project geotechnical report. The proposed pipeline design and construction techniques would be subject to review and plan approval by the City Building Division. In addition, constructing the proposed pipeline within a liquefaction-prone area would not, in and of itself, increase liquefaction risks to surrounding uses. As described in Section 3.7(a)(iv), although landslides are present on slopes along the pipeline corridor, remedial technologies to reduce pipeline damage from landslides would be employed for open trench sections and the HDD sections would be constructed at depths below the landslides (Appendix D).

The project geotechnical report anticipates that settlement of the ground surface would occur behind the shoring walls during excavation. The amount of settlement depends heavily on the type of shoring system, the contractor's workmanship, and soil conditions. It is anticipated that vibrations from the driving of beams and/or sheet piles may cause settlement and possible impact to structures within distances of up to approximately 50 feet from the shoring operation. Ground settlement could occur during installation of the shoring system, excavation for the access pits, construction vibrations, dewatering, and removal of the support system (Appendix D). Impacts would be potentially significant but mitigable with implementation of MM-GEO-1 (Ground Settlement Prevention) (for full text of MM-GEO-1, see the Mitigation Measures subsection at the end of this section). Therefore, impacts would be less than significant with mitigation incorporated.

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

Less Than Significant Impact. The project geotechnical report (Appendix D) did not evaluate on-site soils for expansion potential. The surface and subsurface exploration completed during the geotechnical investigation encountered undocumented fill, alluvium, slopewash, landslide deposits, and bedrock materials of the San Onofre Breccia and Topanga Formation. The undocumented fill consisted of silty sand, poorly graded sand, firm lean clay, and variable amounts of gravel. The alluvium consisted of silty sand, clayey sand, poorly graded sand with silt, poorly graded sand, sandy silt, lean clay, and variable amounts of gravel. The slopewash deposits consisted of silty sand with gravel and cobbles. The landslide deposits consisted of sandstone with interbedded layers of conglomeratic sandstone. The San Onofre Breccia consisted of coarse-grained sandstone and breccia, with interbedded claystone at depths of 110 to 120 feet bgs. The Topanga Formation consisted of fine- to coarse-grained sandstone and siltstone. Sediments that would potentially be susceptible to expansion would be the clay-rich sediments, rather than the sandy materials. In general, the sediments along the pipeline alignment are sandy and would likely not be prone to expansion. Regardless, project design and construction would be completed in compliance with the 2022 California Building Code (superseding Table 18-1-B of the Uniform Building Code) pertaining to expansive soils, such that any potential impacts resulting from expansive soil would be minimized. Therefore, the proposed project would not create substantial direct or indirect risks to life or property and impacts 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. The project involves replacement of a sewer line, which would be used for disposal of wastewater by the City. It does not involve the construction or operation of septic tanks or alternative wastewater systems. Portable toilets would be used for wastewater disposal during construction activities. Therefore, no impacts would occur.

f) ***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 project site is located within the Peninsular Ranges Geomorphic Province. This province is characterized by a series of ranges separated by northwest-trending valleys that are subparallel to faults branching from the San Andreas Fault (CGS 2002). According to surficial geological mapping by Morton and Miller (2006) and Langenheim et al. (2006) at a 1:100,000 scale and the geological time scale of Cohen et al. (2023), the project site is underlain by Late Pleistocene to Holocene (129,000 years ago to recent) Young Quaternary deposits (map unit Qy/Qya), Late Holocene (<4,200 years ago) landslide deposits (map unit Qyls), and the Middle Miocene (15.97 million years ago [mya] to 11.63 mya) San Onofre Breccia (map unit Tsob). Late to Early Pleistocene (11,700 years ago to 2.58 mya) Old Quaternary deposits (map unit Qo) have been mapped nearby and adjacent to the project site and the Middle Miocene Topanga Group (Formation) (map unit Tt) has been found to underlie the Young Quaternary deposits at depth according to geotechnical borings conducted by Ninyo & Moore (Appendix D; Ninyo & Moore 2016). Holocene and Late Pleistocene young alluvial deposits consist of slightly to moderately consolidated silt, sand, and gravel deposits. The San Onofre Breccia generally consists of marine sedimentary layers of green, greenish-gray, gray, brown, and white, massive to well-bedded, mostly well-indurated breccia with interbedded conglomerate, sandstone, siltstone, and mudstone. The unit contains the gastropod *Turritella ocoyana*. The Topanga Group generally consists of marine sandstone, silt, and shale, and also contains the gastropod *T. ocoyana*. Old Quaternary deposits are compositionally similar to Young Quaternary deposits but sediments may be more consolidated (Morton and Miller 2006).

Several geotechnical evaluations have been conducted either within or close to the project site. The following findings apply only to the boreholes either within or close to the current proposed project site:

- **2023:** Ninyo & Moore conducted a geotechnical evaluation for the project site (Appendix D). Boreholes (B-1 and B-2) indicated fill to a depth of 4 and 5 feet bgs respectively; Quaternary alluvium to a depth of 60 and 16 feet bgs; the San Onofre Breccia from 60 to 120 feet bgs in B-1; and the Topanga Formation from 16 to 120 feet bgs in B-2. B-1 lies just southeast of Marker 28 of the project alignment, and B-2 lies east of the golf course.
- **2018:** Ninyo & Moore reported on findings from several boreholes. B-1 (just north of approximate project marker 13) and B-2 (just south of approximate project marker 20) recorded fill down to 7 and 3.5 feet bgs, and alluvium down to 21.5 feet bgs. Boreholes B-4 and B-5, located approximately at markers 43.5 and 47 of the project alignment, recorded alluvium down to 21.5 feet bgs. B-6, at approximate project marker 52.5, recorded alluvium down to 10 feet and then a landslide deposit from 10 to 21.5 feet bgs.
- **2016:** Ninyo & Moore reported on one borehole (B-1) within Lift Station 2 (LS2), which recorded fill to 5 ft bgs, alluvium from 5 to 40 feet bgs, and the San Onofre Breccia from 40 to 50 feet bgs. This borehole lies just north of marker 15 of the project alignment.
- **2008:** Mactec bored two holes (MB-5 and MB-6) that recorded alluvium down to 15 and 27 feet bgs respectively; landslide deposits from 15 to 46 feet bgs and 27 to 52 feet bgs; the Topanga Formation 46 to 91 feet bgs in MB-5; and the San Onofre Breccia from 52 to 151 feet bgs in MB-6 (Appendix D).

Dudek requested a paleontological records search from the Natural History Museum of Los Angeles County (LACM) on February 21, 2024, and the results were received on February 25, 2024. LACM reported no fossil localities from within the project site, but fossils have been recorded from the same or similar nearby sediments. Localities from the Topanga Formation are as follows: LACM IP (Invertebrate Paleontology) 5835, on the east side of Aliso Creek 1 mile inland, produced numerous mollusk and brachiopod fossils from the surface. LACM VP (Vertebrate Paleontology) 3222, located 2 miles north of South Laguna, west of Aliso Creek, yielded a marine mammal (Desmostylia) at the surface. Another Desmostylian marine mammal was found (LACM VP 4007) at the head of Rim Rock Canyon, and numerous invertebrate fossils were found in the sea cliffs near Cheney's Point (LACM IP 24374). One locality (LACM IP 6997) on the south slope of a ridge adjacent to the Laguna Ridge Trail produced numerous invertebrate fossils from the San Onofre Breccia.

A literature search of Jefferson (2012) lists one early Late Pleistocene or early Holocene-age locality (radiometric date of approximately 17,150 years ago) that includes *Homo sapiens* fossils from Laguna Beach from the W.H. Wilson private collection.

The Holocene to Late Pleistocene young alluvial deposits/alluvium, aged less than 11,700 years ago, have been shown to produce very few fossil resources due to the young age, and therefore have low paleontological resource sensitivity or potential on the surface and at shallow depths below the surface. However, the sensitivity increases to high sensitivity at depth, where older sedimentary geological units that have the potential to produce paleontological resources may be encountered. The Middle Miocene Topanga Formation and Pleistocene Older Quaternary deposits have high paleontological resource sensitivity or potential, and the Middle Miocene San Onofre Breccia has moderate paleontological resource sensitivity or potential.

A pedestrian survey along the western portion of the project site was conducted by Dudek paleontologist/archaeologist David Alexander on March 12, 2024. Several exposures of San Onofre Breccia and Topanga Formation outcrops were photographed and inspected for fossils, but no paleontological resources were encountered.

No paleontological resources were identified within the project alignment as a result of the institutional records search or desktop geological and paleontological review. In addition, the project alignment is not anticipated to be underlain by unique geologic features. Areas of the project site underlain by Holocene to Late Pleistocene Young Quaternary deposits and Late Holocene landslide deposits have low paleontological resource sensitivity or potential on the surface and at shallow depths below the surface that increases to high with depth, where older sedimentary geological units with the potential to contain fossils, may be encountered. The Pleistocene Old Quaternary deposits that likely underlie the Holocene to Late Pleistocene Young Quaternary deposits within the project site have high paleontological resource sensitivity or potential. The Middle Miocene San Onofre Breccia has moderate paleontological resource sensitivity or potential, and the Middle Miocene Topanga Formation has high paleontological resource sensitivity or potential. If intact paleontological resources are located on site, ground-disturbing activities associated with construction of the proposed project, such as grading during site preparation, trenching for utilities, and large-diameter (2 feet or greater) augering, have the potential to destroy a unique paleontological resource or site. As such, the project site is considered to be potentially sensitive for paleontological resources, and without mitigation, the potential damage to paleontological resources during construction of the project would be a potentially significant impact. Given the age of the underlying sediments, the project site is highly sensitive for supporting paleontological resources below the depth of fill and Holocene surficial alluvial sediments. However, upon implementation of MM-GEO-2 (Paleontological Resources Impact Mitigation Program) impacts would be reduced to below a level of significance (see full text of MM-GEO-2 in the Mitigation Measures subsection). Impacts of the proposed project would be less than significant with mitigation incorporated during construction.

Mitigation Measures

MM-GEO-1 Ground Settlement Prevention. In accordance with recommendations of the project-specific geotechnical report (included as Appendix D to the project Initial Study/Mitigated Negative Declaration), the project shall be designed such that either the access pits are located more than 50 feet away from existing structures, or if that is not feasible, structures/improvements in the vicinity of the planned shoring installation shall be reviewed with regard to foundation support and tolerance to settlement. To reduce the potential for distress to adjacent structures, the shoring system shall be designed to limit the ground settlement behind the shoring system to 0.5 inches or less. Possible causes of settlement that shall be addressed include settlement during installation of the shoring system, excavation for the access pits, construction vibrations, dewatering, and removal of the support system. If access pits will be located within 50 feet of adjacent structures, based on site-specific conditions, a qualified and experienced engineer shall determine whether a ground vibration and monitoring plan shall be implemented prior to construction. Structures are not present along the majority of the proposed pipeline alignment. The locations where ground vibration monitoring at access pits may be appropriate include the existing pump station, near the intersection of Village Lane and the private road for The Ranch at Laguna Beach, and at the South Orange County Wastewater Authority's Coastal Treatment Plant. Based on site-specific conditions, the shoring installation and vibration monitoring plan, if needed, shall be evaluated carefully by the contractor prior to construction. Ground vibration and settlement monitoring shall be performed during construction, as appropriate. The contractor shall retain a qualified and experienced engineer to design the shoring system and make modifications, as appropriate.

MM-GEO-2 Paleontological Resources Impact Mitigation Program. Prior to commencement of any grading activity on site, the applicant shall retain a qualified paleontologist per the Society of Vertebrate Paleontology (SVP) 2010 Guidelines. The paleontologist shall prepare a Paleontological Resources Mitigation Program for the project. The Paleontological Resources Mitigation Program shall be consistent with the SVP 2010 Guidelines and should outline requirements for pre-construction meeting attendance and worker environmental awareness training; where monitoring is required within the project site based on construction plans and/or geotechnical reports; procedures for adequate paleontological monitoring and discoveries treatment; and paleontological methods (including sediment sampling for microvertebrate fossils), reporting, and collections management. The qualified paleontologist shall attend the pre-construction meeting and a qualified paleontological monitor shall be on site during all rough grading and other significant ground-disturbing activities (including augering) in previously undisturbed, fine-grained Pleistocene alluvial deposits or older deposits with high paleontological resource sensitivity or potential. In the event that paleontological resources (e.g., fossils) are unearthed during grading or other ground-disturbing activities, the paleontological monitor will temporarily halt and/or divert construction activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot-radius buffer. Once documentation and collection of the find is completed, the monitor will remove the rope and allow activities to recommence in the area of the find. Costs for laboratory work and curation at a local museum are the responsibility of the City.

With implementation of MM-GEO-1 and MM-GEO-2, potentially significant impacts related to ground settlement and paleontological resources would be reduced to less than significant.

3.8 Greenhouse Gas Emissions

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

a) ***Would the project 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 (e.g., temperature, precipitation, or wind patterns) lasting for an extended time (i.e., 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 buildup 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 greenhouse gases (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 CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3) (see also 14 CCR 15364.5).[8] The three GHGs evaluated herein are CO_2, CH_4, and N_2O, because these gases would be emitted during project construction.

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 2022.1, this GHG emissions analysis assumed the GWP for CH_4 is 25 (i.e., emissions of 1 MT CH_4 are equivalent to emissions of 25 MT CO_2), and the GWP for N_2O is 298, based on the Intergovernmental Panel on Climate Change's Fourth Assessment Report (IPCC 2007).

As discussed in Section 3.3, Air Quality, of this IS/MND, the project site is located within SCAQMD's jurisdictional boundaries. 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 (Interim GHG Significance Threshold; SCAQMD 2008a). 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 thresholds guidance document was not adopted or approved by the Governing Board. However, in December 2008 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 (SCAQMD 2008b).

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

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[8] 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.

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 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.

Tier 2 Consider whether or not the 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 (SP) per year (MT CO_2e/SP/year) for project level analyses and 6.6 MT CO_2e/SP/year for plan level analyses. The 2035 efficiency targets are 3.0 MT CO_2e/SP/year for project level analyses and 4.1 MT CO_2e/SP/year 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.

Because the project is a pipeline replacement project, this analysis applies the SCAQMD Option 2 screening threshold of 3,000 MT CO_2e per year for non-industrial projects for Tier 3.

Construction Emissions

Construction of the proposed project would result in GHG emissions that would be primarily associated with the use of off-road construction equipment, on-road haul and vendor trucks, and worker vehicles. The SCAQMD Interim GHG Significance Threshold (SCAQMD 2008a) recommends that "construction emissions be amortized over a 30-year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies." Thus, the total construction GHG emissions were calculated, amortized over 30 years, and added to the total operational emissions for comparison with the GHG significance threshold of 3,000 MT CO_2e per year. However, it is anticipated that there will be no increase in GHG emissions during operation of the project because no maintenance of the pipeline is necessary. The determination of significance, therefore, is based on the amortized construction emissions.

CalEEMod was used to calculate the annual GHG emissions based on the construction scenario described in Section 3.3. Construction of the project is anticipated to commence in fall 2026, lasting a total of 17 months and reaching completion in spring 2028. On-site sources of GHG emissions include off-road equipment and off-site sources include haul trucks, vendor trucks, and worker vehicles. Table 3.8-1 presents construction GHG emissions for the project from on-site and off-site emission sources.

Table 3.8-1. Estimated Annual Construction Greenhouse Gas Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2026	33.94	0.00	0.00	34.73
2027	185.11	0.01	0.02	190.27
2028	42.37	0.00	0.00	43.07
			Total	*268.07*
			Amortized Emissions (Over 30 Years)	**8.94**

Source: Appendix A.
Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.

As shown in Table 3.8-1, the estimated total GHG emissions during construction of the project would be approximately 268 MT CO_2e. Estimated project-generated construction emissions amortized over 30 years would be approximately 9 MT CO_2e per year. As with project-generated construction criteria air pollutant emissions, GHG emissions generated during construction of the proposed project would be short term in nature, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions.

Operational Emissions

Because there would be no maintenance or operational trips associated with the project, there would be no increase in GHG emissions associated with operation of the project; the evaluation of significance is based on the amortized construction emissions.

Summary

The project's annual GHG emissions of 9 MT CO_2e per year as a result of amortized construction emissions would not exceed the SCAQMD recommended threshold of 3,000 MT CO_2e per year. Impacts would be less than significant.

b) ***Would the project generate conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?***

Less Than Significant Impact. The project's potential to conflict with state reduction targets, CARB's 2017 and 2022 Scoping Plans, and SCAG's Connect SoCal 2024 is analyzed in this discussion.

Potential to Conflict with State Reduction Targets and CARB Scoping Plans

The California State Legislature passed AB 32, the Global Warming Solutions Act of 2006, to provide initial direction to limit California's GHG emissions to 1990 levels by 2020 and initiate the state's long-range climate objectives. Since the passage of AB 32, the state has adopted GHG emissions reduction targets for future years beyond the initial 2020 horizon year. For the proposed project, the relevant GHG emissions reduction targets include those established by Senate Bill (SB) 32 and AB 1279, which require GHG emissions be reduced to 40% below 1990 levels by 2030, and 85% below 1990 levels by 2045, respectively. In addition, AB 1279 requires the state to achieve net zero GHG emissions by no later than 2045 and achieve and maintain net negative GHG emissions thereafter.

As defined by AB 32, CARB is required to develop a Scoping Plan that provides the framework for actions to achieve the state's GHG emission targets. The Scoping Plan is required to be updated every 5 years and requires CARB and other state agencies to adopt regulations and initiatives that will reduce GHG emissions statewide. The first Scoping Plan was adopted in 2008 and was updated in 2014, 2017, and most recently in 2022. Although the Scoping Plan is not directly applicable to specific projects, nor is it intended to be used as the sole basis for project-level evaluations, it is the official framework for the measures and regulations that will be implemented to reduce California's GHG emissions in alignment with the adopted targets. Therefore, a project would be found to not conflict with the statutes if it would meet the Scoping Plan policies and would not impede attainment of the goals therein.

CARB's 2017 Climate Change Scoping Plan update was the first to address the state's strategy for achieving the 2030 GHG reduction target set forth in SB 32 (CARB 2017), and the most recent CARB 2022 Scoping Plan for Achieving Carbon Neutrality update outlines the state's plan to reduce emissions and achieve carbon neutrality by 2045 in alignment with AB 1279 and assesses the progress the state is making toward the 2030 SB 32 target (CARB 2022b). As such, given that SB 32 and AB 1279 are the relevant GHG emission targets, the 2017 and 2022 Scoping Plan updates that outline the strategy to achieve those targets are the most applicable to the proposed project.

The 2017 Scoping Plan included measures to promote renewable energy and energy efficiency (including the mandates of SB 350), increase the stringency of the Low Carbon Fuel Standard, implement measures identified in the Mobile Source and Freight Strategies and measures identified in the proposed Short-Lived Climate Pollutant Plan, and increase the stringency of SB 375 targets. The 2022 Scoping Plan builds upon and accelerates programs currently in place, including moving to zero-emission transportation; phasing out use of fossil gas for heating homes and buildings; reducing high GWP chemicals and refrigerants; providing communities with sustainable options for walking, biking, and public transit; and displacing fossil-fuel-fired electrical generation through use of renewable energy alternatives (e.g., solar arrays and wind turbines) (CARB 2022b). Many of the measures and programs included in the Scoping Plan would result in the reduction of project-related GHG emissions with no action required at the project level, including GHG emission reductions through increased energy efficiency and renewable energy production (SB 350), reduction in carbon intensity of transportation fuels (Low Carbon Fuel Standard), and the accelerated efficiency and electrification of the statewide vehicle fleet (Mobile Source Strategy).

Regarding vehicle miles traveled (VMT) reduction efforts, the proposed project would result in vehicle trips only during the construction period; therefore, it would not be a long-term source of VMT. In addition, maintenance activities associated with the project are expected to result in fewer trips compared to the existing pipeline because fewer repair activities would be required with the new equipment. As such, there would be a slight decrease in the total VMT associated with the project. Further, the passenger vehicles and heavy-duty trucks used during project construction would comply with various California vehicle-related regulations, as applicable, including Advanced Clean Cars, Low Carbon Fuel Standard, Heavy-Duty GHG standards for New Vehicles and Engines, and Medium- and Heavy-Duty GHG standards. As such, by resulting in a VMT reduction in the region the proposed project would not conflict with the 2017 and 2022 Scoping Plan Update's goals.

The 2045 carbon neutrality goal requires CARB to expand proposed actions in the 2022 Scoping Plan to include those that capture and store carbon in addition to those that reduce only anthropogenic sources of GHG emissions. However, the 2022 Scoping Plan emphasizes that reliance on carbon sequestration in the state's natural and working lands will not be sufficient to address residual GHG emissions and that achieving carbon neutrality will require research, development, and deployment of additional methods to capture atmospheric GHG emissions (e.g., mechanical direct air capture). Given that the specific path to carbon neutrality will require development of technologies and programs that are not currently known or available, the project's role in supporting the statewide goal would be speculative and cannot be wholly identified at this time.

Overall, the proposed project would comply will all regulations adopted in furtherance of the Scoping Plan to the extent applicable and required by law. As mentioned above, several Scoping Plan measures would result in reductions of project-related GHG emissions with no action required at the project level, including those related to energy efficiency, vehicles, and construction equipment. In addition, as identified previously, the project would result in a slight reduction in regional VMT due to fewer maintenance trips. As demonstrated, the proposed project would not conflict with CARB's 2017 or 2022 Scoping Plan updates or with the state's ability to achieve the 2030 and 2045 GHG reduction and carbon neutrality goals.

Potential to Conflict with the SCAG 2024–2050 RTP/SCS (Connect SoCal 2024)

The following policies and strategies are intended to be supportive of implementing the 2024–2050 RTP/SCS and reducing GHGs: Sustainable Development, Air Quality, Clean Transportation, Natural and Agricultural Lands Preservation, and Climate Resilience. The strategies that pertain to sustainable development and clean transportation would not apply to the proposed project. The project's potential to conflict with the applicable strategies is presented below.

- **Air Quality.** The 2024–2050 RTP/SCS identifies air quality as an environmental strategy because the transportation sector is the predominant source of criteria air pollutant emissions in the region. The 2024–2050 RTP/SCS states that a comprehensive and coordinated regional solution with integrated land use and transportation planning from all levels of governments will be required to achieve the needed emission reductions (SCAG 2024). The project would increase emissions only during construction and would not be a significant source of criteria air pollutant emissions. Therefore, the proposed project would not conflict with this strategy.
- **Clean Transportation.** The 2024–2050 RTP/SCS identifies provision of electric vehicle (EV) charging infrastructure, adoption of zero-emission vehicles, and promotion of clean transit as ways to reduce GHG emissions from mobile sources. The project would adhere to all regulatory requirements regarding clean transportation during construction and operation. The proposed project would not conflict with this strategy.
- **Natural and Agricultural Lands Preservation.** The 2024–2050 RTP/SCS promotes the conservation and restoration of natural and agricultural lands through several policies, such as quantifying the carbon sequestration potential of natural and agricultural lands and prioritization of sensitive habitat and wildlife corridors for permanent protection. The proposed project would not convert natural and working lands or interfere with this strategy.
- **Climate Resilience.** The 2024–2050 RTP/SCS promotes regional coordination and solutions for effective emergency response for climate-related hazards. Additionally, in the category of climate resilience, SCAG has established the following policies: prioritize the most vulnerable populations and communities subject to climate hazards; support local and regional climate and hazard planning; support nature-based solutions to increase regional resilience; promote sustainable water use planning; and support an integrated planning approach to help jurisdictions meet housing needs in a drier environment. While the proposed project does not directly pertain to these

regional coordination efforts for climate resilience, the project would not interfere with this strategy. The proposed project will result in an improved wastewater infrastructure system for NCI Reach 5 that is anticipated to have fewer emergencies and fewer sewer system overflows, thereby improving water quality.

Based on the analysis above, the proposed project would be consistent with Connect SoCal 2024.

Summary

As shown in this discussion, the project would not conflict with CARB's 2017 or 2022 Scoping Plan updates or the state's ability to achieve the 2030 and 2045 GHG reduction and carbon neutrality goals, or with SCAG's Connect SoCal 2024. Therefore, impacts related to project consistency with an applicable GHG reduction plan would be less than significant.

3.9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. 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 or excessive noise for people residing or working in the project area?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☒	☐	☐

Existing Conditions

As discussed in Chapter 2, Project Description, of this IS/MND, the existing Reach 5 of the NCI is located under and along Aliso Creek and passes through The Ranch resort and golf course. Reach 5 starts at the intersection of Coast Highway and Country Club Drive, follows Country Club Drive northeast, then goes under Aliso Creek, comes out from under Aliso Creek through The Ranch resort and golf course, follows under the access road to the SOCWA CTP, and ultimately connects into the SOCWA CTP. NCI Reach 5 is adjoined by residences at the west end of the alignment and the resort/golf course along the center of the alignment and joins the SOCWA Coastal Treatment Plant at the east end of the alignment. The proposed project alignment breaks from the existing alignment to the west of the existing residential development and proceeds eastward to the north of the residential development within undeveloped open space. It generally realigns with the existing alignment farther east.

Historical Uses

The existing NCI was constructed in the 1970s. Based on historic aerial photographs and topographic maps, the proposed project alignment has been adjoined by residential development to the south and west since at least 1938, residential development to the north since at least 1948, and resort/golf course uses to the south since at least 1969 (NETR 2024). Construction of the SOCWA CTP began between 1963, and in its current configuration the SOCWA CTP has been in place since approximately 1985. The location of the proposed project alignment has consisted of vacant, open land from at least 1938 to the present day. Further details of the proposed project alignment’s historical information are discussed in Section 3.5, Cultural Resources, of this IS/MND.

Hazardous Material Sites

California Government Code Section 65962.5 requires the California Environmental Protection Agency (CalEPA) to develop a list of hazardous waste, leaking underground storage tank, and solid waste disposal sites, as well as sites/facilities with current orders/correction actions from SWRCB or DTSC (“Cortese List”), that is updated at least annually. Although CalEPA no longer maintains a single Cortese List, CalEPA uses the following databases and lists to meet the requirements of Government Code Section 65962.5:

- List of Hazardous Waste and Substances sites from the California Department of Toxic Substances Control (DTSC) EnviroStor database
- List of Leaking Underground Storage Tank Sites from the State Water Resources Control Board (SWRCB) GeoTracker database

- List of solid waste disposal sites identified by SWRCB or RWQCB with waste constituents above hazardous waste levels outside the waste management unit
- List of active Cease and Desist Orders and Cleanup and Abatement Orders from SWRCB
- List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the California Health and Safety Code, identified by DTSC

A search of the above-listed online databases was conducted to identify Cortese List sites on or adjoining the proposed project alignment, or those which could potentially impact the proposed alignment, based on level of contamination, proximity, and other environmental conditions. No Cortese List sites were identified on or adjoining the proposed project alignment (CalEPA 2024a).

In addition to Cortese List sites, Dudek reviewed other online databases that provide environmental information on release and cleanup cases in the State of California. Although these databases are not included in the Cortese List, they may provide additional information regarding potential environmental contamination on the proposed project site. Table 3.9-1 provides a summary of the databases searched.

Table 3.9-1. Online Database Listings

Database	Details
California Environmental Protection Agency (CalEPA) Regulated Site Portal https://siteportal.calepa.ca.gov/nsite/	The CalEPA Regulated Site Portal is a website that combines data about environmentally regulated sites and facilities in California into a single, searchable database and interactive map. Data sources include California Environmental Reporting System (CERS), EnviroStor, GeoTracker, California Integrated Water Quality System (CIWQS), and Toxics Release Inventory (TRI).
Department of Toxic Substance Control (DTSC) EnviroStor https://www.envirostor.dtsc.ca.gov/	DTSC's data management system for tracking cleanup, permitting, enforcement, and investigation efforts at hazardous waste facilities and sites with known contamination or sites where there may be reasons for further investigation.
State Water Resources Control Board (SWRCB) GeoTracker http://geotracker.waterboards.ca.gov/	SWRCB's data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. GeoTracker contains records for sites that require cleanup, various unregulated projects, and permitted facilities. Sites include Leaking Underground Storage Tanks, Department of Defense, Cleanup Program, Irrigated Lands, Oil and Gas Production, Permitted Underground Storage Tanks, and Land Disposal Sites.
California Department of Resources Recycling and Recovery Solid Waste Information System (SWIS) https://www2.calrecycle.ca.gov/SolidWaste/Site/Search	The SWIS database contains information on solid waste facilities, operations, and disposal sites throughout California.
Pipeline and Hazardous Material Safety Administration (PHMSA) National Pipeline Mapping System https://www.npms.phmsa.dot.gov/	The National Pipeline Mapping System Public Map Viewer is a web-based application designed to assist the public with displaying and querying data related to gas transmission and hazardous liquid pipelines, liquefied natural gas plants, and breakout tanks

Table 3.9-1. Online Database Listings

Database	Details
	under the jurisdiction of the Department of Transportation's PHMSA.
California Geologic Energy Management (CalGEM) Well Finder https://www.conservation.ca.gov/calgem/Pages/WellFinder.aspx	The CalGEM Well Finder is a web-based application that plots reported locations and other information for oil and gas wells and other types of related facilities across California.

Three sites that adjoin the project site, including the SOCWA CTP, were identified in the CalEPA Regulated Site Portal (CalEPA 2024b). The other two sites are the Aliso Creek 2017 Emergency Storm Repairs and the Lift Station 2 (LS2) Replacement Project. These listings are administrative in nature, and represent stormwater permits (LS2 Replacement Project), fill and dredge permits (Aliso Creek 2017 Emergency Storm Repairs), and authorized hazardous material use and storage (SOCWA CTP). Hazardous materials reported at the SOCWA CTP include sodium hypochlorite ($NaClO$), sodium hydroxide ($NaOH$), sodium bisulfite ($NaHSO_3$) 5%–27%, propane, Pretreat Plus Y2K, oxygen, ferric chloride ($FeCl_3$), diesel, Clarifloc WE-1659 polymer, citric acid, and acetylene (C_2H_2), all of which are used for operation of the water treatment plant.

No additional findings were identified on or adjoining the project site. One plugged dry oil and gas hole was identified approximately 0.50 miles east of the project site (CalGEM 2024). One active natural gas transmission pipeline, operated by SoCalGas, was identified adjoining the project site to the west (PHMSA 2024).

Schools

No schools were identified within 0.25 miles of the project site (GreenInfo Network 2024).

Airports

John Wayne Airport is approximately 12.7 miles northwest of the project site. No airports are located within 2 miles of the project site. The project site is not located within the Orange County Airport Land Use Commission Land Use Plan for the John Wayne Airport (Orange County ALUC 2008).

Fire Hazards and Emergency Response

As stated in the City General Plan's Safety Element and defined by the California Department of Forestry and Fire Protection (CAL FIRE), all the canyon and hillside areas in the City and some coastal terrace areas are classified within the Very High Fire Hazard Severity Zone (VHFHSZ), which is the highest wildfire risk classification designated by CAL FIRE. The project site is in a VHFHSZ (City of Laguna Beach 2021a). The project site falls within the response jurisdiction of the Laguna Beach Fire Department for wildfire hazards and emergency response. Laguna Beach Fire Department's nearest fire station, Fire Station 4, is at 31646 2nd Avenue, approximately 0.8 miles south of the project site (City of Laguna Beach 2024b).

The Laguna Beach Fire and Police Departments ensure that the City's emergency access routes, emergency contact lists, and public information regarding designated facilities and routes are regularly reviewed to ensure that up-to-date information is available to the City and the public in the event of an emergency.

For hazardous materials response, Orange County Environmental Health is the designated Certified Unified Program Agency (CUPA) for Orange County, including the project site. Orange County Environmental Health is responsible for emergency response related to 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. Hazardous materials that may be used during construction activities would be stored at the site in appropriate containers in an enclosed and secured location, such as portable outdoor hazardous materials storage cabinets equipped with secondary containment to prevent contact with rainwater. The use, storage, transport, and disposal of hazardous materials used in construction of the project would be completed in accordance with federal, state, and county regulations. Construction of the project is not anticipated to produce, use, store, transport, or dispose of extremely hazardous substances (i.e., those governed pursuant to 40 CFR, Chapter 355). Safety data sheets for all applicable materials present on site would be made readily available to on-site personnel.

Throughout construction, any waste materials would be sorted on site and transported to appropriate waste management facilities. Non-hazardous construction materials that cannot be reused or recycled would likely be disposed of at municipal or county landfills. Hazardous waste and electronic waste would be transported to a hazardous waste handling facility (e.g., electronic-waste recycling). Adherence to these practices would ensure that impacts during construction would be less than significant.

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. As noted in Section 3.9(a), construction of the project may involve the use of small amounts of hazardous materials, such as fuels and greases to fuel and service construction equipment. Improper handling and storage of these hazardous materials could result in accidental release if not managed appropriately. The small quantities of chemicals to be stored at the project site during construction would be stored in appropriate containers, in an enclosed and secured location, such as portable outdoor hazardous materials storage cabinets equipped with secondary containment to prevent contact with rainwater. Because there are no documented or otherwise known or suspected releases of hazardous materials at the project site, there is no potential for releases from contaminated media (soil, soil vapor, groundwater) due to excavation activities. With adherence to local laws, rules, and regulations regarding handling of hazardous materials, impacts would be less than significant.

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?***

No Impact. No schools are located within 0.25 miles of the project site. As such, no impact to schools would occur.

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 project site is not included on any list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5. As such, no impact would occur associated with creation of a hazard to the public or the environment.

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

No Impact. The project site is not located within an airport land use plan, nor is the project site located within 2 miles of a public airport or public use airport. The closest airport to the project site is John Wayne Airport, which is approximately 12.7 miles to the northwest of the site. Thus, the proposed project would not result in a safety hazard or excessive noise for people residing or working in the project area, and no impact would occur.

f) 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. The City has adopted a local hazard mitigation plan and an evacuation plan. The City's updated local hazard mitigation plan was approved by the Federal Emergency Management Agency (FEMA) and adopted by the Laguna Beach City Council in December of 2023 (City of Laguna Beach 2023). As stated in the City General Plan's Safety Element, as part of the City's preparedness initiatives, an evacuation analysis has been prepared that identifies the routes used for evacuation purposes (City of Laguna Beach 2021a). Also, as indicated in the City's Wildfire Egress Study, which was prepared to examine anticipated traffic conditions and evacuation times associated with various rates of evacuation responses and alternative management strategies that could be used in response to them for the Emergency Management Zones (EMZs) within the City, Coast Highway (State Route [SR] 1) and Country Club Drive are designated as evacuation routes (City of Laguna Beach 2021b).

The project site is in an established, developed area with sufficient access for emergency service providers. Regional access to the site is provided via Coast Highway, located southwest of the project site. Local access to the project site is provided via Country Club Drive. Construction would involve temporary work in Country Club Drive, which would require closing portions of the travel lanes. However, no full road closures in the public right-of-way or driveway closures are anticipated that would impact adopted emergency access or response plans. As discussed in Section 3.17, Transportation, of this IS/MND, as part of the Construction Traffic Control Plan (MM-TRA-1), the contractor would follow standard construction practices and ensure that adequate on-site circulation and access is always maintained for all users, including coordinating with local emergency response providers (local police, fire, and medical dispatch) regarding proposed construction activities. Operation of the project would not require changes to the existing off-site circulation on City roads. See Section 3.17, Transportation, for the full language of MM-TRA-1. As such, the proposed project would have a less than significant impact with mitigation incorporated related to the impairing the implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan.

g) ***Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?***

Less Than Significant Impact with Mitigation Incorporated. The project site is in Aliso Canyon, which has steep slopes that are capable of influencing wildfire behavior by funneling or channeling winds in canyons, chutes, or chimney topographic features. The project site is within a VHFHSZ in a State Responsibility Area (CAL FIRE 2024) and is susceptible to extreme fire weather, such as Santa Ana wind events. Vegetation in Aliso Canyon includes native vegetation communities including chaparral and riparian species that may carry wildfire and contribute to the existing wildfire hazard at the project site.

The proposed project involves the replacement of an underground pipeline within Aliso Canyon, in a hilly, vegetated area. Construction would involve the temporary deployment of construction personnel to the project site and the possible use of combustion-engine-powered equipment, which has the potential to produce sparks that could ignite a fire. During construction, the project would be required to comply with construction and vegetation clearance regulations, such as Chapter 33 of the California Building Code, Safeguards During Construction. Further, the incorporation of MM-FIRE-1 (Construction Fire Prevention Plan) would reduce potential impacts related to exacerbating wildfire risks. See Section 3.20, Wildfire, for the full text of MM-FIRE-1. With the incorporation of MM-FIRE-1, impacts associated with exacerbating wildfire risks during project construction would be reduced to less than significant with mitigation incorporated.

During operation, the proposed pipelines would be underground, the project would not result in increased on-site employees, and the project would not involve the operation of any mechanical equipment with the potential to produce sparks. As such, the risks associated with a wildland fire during operations would be less than significant.

Mitigation Measures

See Section 3.17, Transportation, for full text of the following mitigation measure, which would reduce impacts related to impairing the implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan:

MM-TRA-1 (Construction Traffic Control Plan)

See Section 3.20, Wildfire, for full text of the following mitigation measure, which would reduce impacts related to exacerbating wildfire risks during project construction:

MM-FIRE-1 (Construction Fire Prevention Plan)

3.10 Hydrology and Water Quality

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

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact with Mitigation Incorporated. As discussed in Section 3.7(b) of Section 3.7, Geology and Soils, project construction activities, such as trenching and HDD, would result in disturbance of soils on the project site. Construction site runoff from these activities could contain soil particles and sediments. Dust from the construction site, in addition to spills or leaks from heavy equipment and machinery, staging areas, and access roads, could also enter runoff and water bodies, including the adjacent Aliso Creek. Typical pollutants could include petroleum products and heavy metals from equipment, as well as products such as paints, solvents, and cleaning agents, which could contain hazardous constituents. Sediment from erosion of trench/pit/HDD spoil piles, leaks or spills from equipment, or inadvertent releases of construction materials could result in water quality degradation if runoff containing the sediment entered Aliso Creek in sufficient quantities to exceed water quality objectives. The existing NCI Reach 5 pipe would be abandoned in place by injecting controlled low-strength material (CLSM) under pressure, resulting in no additional ground disturbance.

Because project construction would involve ground disturbance in excess of 1 acre, grading and construction would be completed in accordance with the requirements outlined in the NPDES Construction General Permit, which includes the development of a SWPPP. The SWPPP would identify potential water quality pollutants, identify minimum BMPs to prevent water quality impacts to Aliso Creek, and develop a construction site monitoring plan for the project. BMPs would include silt fences installed along the limits of work and the project construction site, stockpile containment (e.g., Visqueen, fiber rolls, gravel bags), exposed soil stabilization structures (e.g., fiber matrix on slopes and construction access stabilization mechanisms), construction of temporary sedimentation basins, limitations on work periods during storm events, and street sweeping.

The SWPPP must contain a visual monitoring program, a chemical monitoring program for non-visible pollutants to be implemented if there is a failure of BMPs, and a sediment-monitoring plan. Routine inspection of all BMPs is required under the provisions of the NPDES Construction General Permit. Surface water pollution prevention would prevent seepage of contaminants into the underlying groundwater. A copy of the applicable SWPPP would be kept at the construction site and the City would inspect runoff during construction, in accordance with the City Clean Water Compliance Program and the City portion of the South Orange County Water Quality Improvement Plan. Development of the latter plan was required in compliance with the San Diego Region – Orange County Municipal Storm Water Permit (Order No. R9-2013-0001, as amended by Order No. R9-2015-0001, effective February 11, 2015), which includes the City of Laguna Beach. Implementation of the SWPPP would minimize the potential for runoff of pollutants into Aliso Creek.

Non-stormwater discharges during construction would include periodic application of water for dust control purposes. Because dust control is necessary during windy and dry periods to prevent wind erosion and dust plumes, water would be applied in sufficient quantities to wet the soil but not so excessively as to produce runoff from the construction site. Water applied for dust control would either quickly evaporate or locally infiltrate into shallow surface soils. These requirements are routine in SWPPPs and other construction contract documents, which typically state that water would only be applied in a manner that does not generate runoff. Therefore, water applied for dust control would not result in appreciable effects on groundwater or surface water features and thus would not cause or contribute to exceedances of water quality objectives contained in the San Diego RWQCB Water Quality Control Plan (San Diego RWQCB 2021).

Based on the project geotechnical report (Appendix D), groundwater is present at depths of 6 to 10 feet bgs and historically has been present as shallow as 5 feet bgs. As a result, dewatering would be required during construction to perform work in a dry condition in trenches and open pits. In the absence of proper monitoring, dewatering could result in adverse impacts to Aliso Creek during discharge of groundwater. However, dewatering would be completed in compliance with a NPDES permit from the San Diego RWQCB. The dewatering permit would require that the discharge is absent of pollutants in quantities that would threaten to cause pollution or nuisance, including but not limited to avoidance of known soil and groundwater contamination. Dewatering discharge would be required to cease if a single sample concentration exceeds numeric action levels (Construction General Permit, Attachment J – Dewatering Requirements).

During HDD installation, drilling fluids, consisting of a slurry of bentonite clay and water, are used to lubricate the borehole and return rock cuttings to the surface. These drilling fluids can sometimes be unintentionally released to the ground surface or substantially lost into the surrounding soils and bedrock. If not properly contained, inadvertent releases of drilling fluids to the ground surface, termed “frac-outs,” could adversely impact the water quality of nearby drainages and the adjacent Aliso Creek. Frac-outs occur most commonly near the entry and exit points of the HDD borehole. While drilling fluid is nontoxic and nonhazardous, releases of drilling muds into water bodies can affect fish and invertebrates. Therefore, water quality impacts related to HDD would be less than significant with implementation of MM-HYD-1 (Frac-Out Contingency Plan; for full text of MM-HYD-1, see the Mitigation Measures subsection at the end of this section).

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

Less Than Significant Impact. The project site does not overlie an established groundwater basin, as determined by the California Department of Water Resources (DWR), and is therefore not subject to management under a Groundwater Sustainability Plan (GSP), per the Sustainable Groundwater Management Act (DWR 2024). As discussed in Section 3.10(a), groundwater is present at depths of 6 to 10 feet bgs and historically has been present as shallow as 5 feet bgs, indicating that a shallow aquifer underlies Aliso Cayon. As a result, dewatering would be required during construction to allow work to be performed in a dry condition in trenches and open pits. The amount of groundwater extracted during construction would be nominal in comparison to the amount of shallow groundwater in storage beneath Aliso Creek. In addition, the extracted groundwater would be discharged into Aliso Creek, thus allowing for recharge into the shallow aquifer beneath Aliso Creek.

Water would be required for dust suppression during construction activities. Water would be provided by the Laguna Beach County Water District (LBCWD), which derives its water from a combination of groundwater supplies from the Orange County Groundwater Basin (of the Lower Santa Ana River Basin) and imported water from the Colorado River or from Northern California. The City groundwater wells within the Orange County Groundwater Basin are managed by the Orange County Water District (OCWD). This basin is not adjudicated but is closely managed. Deliveries of water from OCWD to the LBCWD began in 2016 as an alternative local source to reduce reliance on imported water (LBCWD 2021, 2024).

The OC Water Basin is designated by DWR as a medium-priority basin, which requires OCWD to form a Groundwater Sustainability Agency and adopt a GSP or to submit an alternative to a GSP. On January 1, 2017, OCWD, the City of La Habra, and Irvine Ranch Water District submitted the Basin 8-1 Alternative Plan to DWR. Elements to be included in GSPs, as described in the California Water Code (Sections 10727.2, 10727.4, and 10727.6), have been incorporated into the Basin 8-1 Alternative Plan. Prior to the Basin 8-1 Alternative Plan, OCWD provided five groundwater management plans. The first plan was published in 1989 and its last was published in 2015. The Basin 8-1 Alternative Plan is designed to be functionally equivalent to a GSP and will be updated every 5 years per Sustainable Groundwater Management Act requirements. The Basin 8-1 Alternative Plan demonstrates that the basin has operated within its sustainable yield over a period of at least 10 years (LBCWD 2021). The project water demand for dust suppression would be limited to the duration of construction. Water would not be required for project operations. Based on the sustainable status of the Orange County Groundwater Basin, project construction and operation would not substantially decrease groundwater supplies such that the project may impede sustainable groundwater management of a groundwater basin. Impacts would be less than significant.

Project construction would not result in an increase in impervious surfaces. Portions of the pipeline alignment that are currently paved, such as along Country Club Road and the access road to the SOCWA CTP, would be repaved following construction, and portions of the realignment that are currently unpaved would remain unpaved. Therefore, project construction and operation would not interfere with groundwater recharge such that the project may impede sustainable groundwater management of a groundwater basin. Impacts would be less than significant.

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 or through the addition of impervious surfaces, in a manner which would:

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

Less Than Significant Impact. As discussed in Section 3.10(b), project construction would not result in an increase in impervious surfaces. Portions of the pipeline alignment that are currently paved, such as along Country Club Road and the access road to the SOCWA, would be repaved following construction, and portions of the realignment that are currently unpaved would remain unpaved. In addition, drainage patterns would not be altered as a result of the project, because the existing topography and drainage conditions would be restored after construction. As a result, stormwater runoff would not increase and result in substantial erosion or siltation on site or in the adjacent Aliso Creek. Impacts would be less than significant.

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

Less Than Significant Impact. As discussed in Section 3.10(c)(i), project construction would not result in an increase in impervious surfaces. The existing topography and drainage conditions would be restored after construction. Therefore, stormwater runoff would not substantially increase the amount of surface runoff in a manner that would result in flooding on site or in the adjacent Aliso Creek. Impacts would be less than significant.

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

Less Than Significant Impact with Mitigation Incorporated. As discussed in Sections 3.10(c)(i) and 3.10(c)(ii), project construction would not result in an increase in impervious surfaces. The existing topography and drainage conditions would be restored after construction. Therefore, stormwater runoff would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems. In addition, as discussed in Section 3.10(a), implementation of a SWPPP would minimize the potential for runoff of pollutants into Aliso Creek. However, water quality impacts related to frac-outs could occur during HDD. Impacts would be less than significant with implementation of MM-HYD-1 (Frac-Out Contingency Plan; see Mitigation Measures subsection).

iv) Impede or redirect flood flows?

No Impact. Portions of the proposed pipeline alignment along Country Club Drive (Stations 10+00 to 20+00), the golf course access road (Stations 41+00 to 50+00, 59+00 to 64+00), and the final section of the NCI where it would cross under Aliso Creek adjacent to the existing SOCWA CTP (Stations 68+50 to 70+00) are within a 100-year Special Flood Hazard Area with base flood elevations (Zone AE) (FEMA 2024). However, all components of the project, including pipeline segments and vaults, would be constructed below ground and would not protrude into the floodplain. Therefore, the proposed project would not impede or redirect flood flows and no impact would occur.

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

No Impact. The proposed pipeline would not be located adjacent to an enclosed body of water potentially subject to seiches. A portion of the proposed pipeline alignment (Stations 10+00 to 18+00) is immediately adjacent to a tsunami runup zone (CGS 2024). In addition, as discussed in Section 3.10(c)(iv), portions of the project alignment are located within a FEMA Special Flood Hazard Area. However, all components of the project, including pipeline segments and vaults, would be constructed below ground and would not risk release of pollutants during a flood or tsunami; therefore, no impact would occur.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact. As previously noted, the proposed project would be required to comply with requirements of the NPDES Construction General Permit, including preparation and implementation of a SWPPP to control runoff from construction work areas. The SWPPP must include BMPs to address transport of sediment and construction-related pollutants to Aliso Creek. BMPs would include physical barriers to prevent erosion and sedimentation, construction of sedimentation basins, limitations on work periods during storm events, use of infiltration swales, protection of stockpiled materials, and a variety of other measures and would substantially reduce the potential for impacts to surface water quality occurring during construction. Implementation of these BMPs would ensure that the project is consistent with the water quality objectives of the San Diego RWQCB Water Quality Control Plan (San Diego RWQCB 2021).

As discussed in Section 3.10(b), the Basin 8-1 Alternative Plan demonstrates that the Orange County Groundwater Basin, which is a source of water supply for the City, has operated within its sustainable yield over a period of at least 10 years. The project water demand for dust suppression would be limited to the duration of construction. Water would not be required for project operations. Based on the sustainable status of the Orange County Groundwater Basin, the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan and no impact would occur.

Mitigation Measures

MM-HYD-1 Frac-Out Contingency Plan. Prior to construction, a frac-out contingency plan shall be completed and include measures for training, monitoring, worst-case scenario evaluation, equipment and materials, agency notification and prevention, containment, cleanup, and disposal of released drilling muds. Preventive pre-construction measures shall include determining the most appropriate horizontal directional drilling (HDD) depth and mud mixture, based on the preliminary geotechnical investigation (included as Appendix D to the project Initial Study/Mitigated Negative Declaration). In addition, drilling pressures shall be closely monitored to avoid drilling pressures exceeding pressures required to penetrate the rock formation. Monitoring by a minimum of two monitors (located both upstream and downstream) shall occur throughout drilling operations to ensure swift response in the event of a frac-out, while containment shall be accomplished through construction of temporary berms/dikes and use of silt fences, straw bales, absorbent pads, straw wattles, and plastic sheeting. Cleanup shall be accomplished with plastic pails, shovels, portable pumps, and vacuum trucks. The frac-out contingency plan shall be submitted to the City of Laguna Beach for review and approval.

With implementation of MM-HYD-1, water quality impacts related to HDD would be less than significant.

3.11 Land Use and Planning

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

a) Would the project physically divide an established community?

No Impact. The proposed project involves replacement of a segment of an existing municipal sewer pipeline. Access to some existing facilities, including the driving range and the Scout Camp at The Ranch, would be temporarily impacted during portions of the construction period. However, after construction, the project would be located entirely underground or within existing facilities and would not create a physical division of an existing community such as what could occur with the development of a freeway or large linear infrastructure. The project would also not result in a removal of an existing means of access, such as a road or bridge, that would impede mobility with an existing community and other areas. Therefore, the project would not physically divide an established community, and no impact would occur.

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

No Impact. The portion of the project site within the jurisdiction of the City has land use designations of Public Recreation and Parks, Commercial/Tourist Corridor, or Open Space and the portion under County jurisdiction has a land use designation of Open Space Reserve (County of Orange 2015). The proposed project is a sewer infrastructure improvement project and would not involve any changes to land use. The project would comply with applicable City and County ordinances governing construction, such as noise restrictions, restrictions on construction hours, and construction traffic management procedures. Therefore, the proposed project would have no impact related to conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

3.12 Mineral Resources

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

a) 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. As discussed in Section 3.11(a), the project site is in an urbanized area and is surrounded by residential and commercial uses, which would preclude mineral extraction activities. Therefore, the project would not result in a loss of availability of a known mineral resource of value to the region or the residents of the state, 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. The portion of the project site under County jurisdiction is not in an area identified as a mineral resource area (County of Orange 2013). Additionally, as discussed in Section 3.11(a), the project site is in an urbanized area and is surrounded by residential and commercial uses, which would preclude mineral extraction activities. Therefore, the proposed project would not result in the loss of availability of a locally important mineral resource recovery site, and no impact would occur.

3.13 Noise

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

Regulatory Setting

City of Laguna Beach Municipal Code

The City's Municipal Code Noise Ordinance, Chapter 7.25, Noise, is intended to control unnecessary, excessive, and annoying sounds from sources on one property to receivers on another. This is achieved by setting limits that cannot be exceeded at adjacent properties (City of Laguna Beach 2005b). Regulation of noise generated on public roadways or resulting from rail transit or other interstate commerce is preempted by federal and state law.

Section 7.25.040, Exterior Noise Standards, of the City's Municipal Code specifies a noise level of 60 A-weighted decibels (dBA; adjusted for human hearing) equivalent continuous sound level (L_{eq}) during daytime hours (7:00 a.m. to 10:00 p.m.), and 50 dBA L_{eq} during nighttime hours (10:00 p.m. to 7:00 a.m.) in the Specific Plan Area, Noise Zone I (City of Laguna Beach 2005b). The nearest residences to the project site (located to the north of the project site) are zoned as R1–Residential.

Construction noise is addressed in Section 7.25.080 of the City's Municipal Code, which states the following (City of Laguna Beach 2005b):

A. Weekdays. No person, while engaged in construction, remodeling, digging, grading, demolition or any other related building activity, shall operate any tool, equipment or machine in a manner which produces loud noise that disturbs a person of normal sensitivity who works or resides in the vicinity, or a peace or code enforcement officer, on any weekday except between the hours of seven-thirty a.m. and six p.m.

B. Weekends and Holidays. No person, while engaged in construction, remodeling, grading, demolition or other related building activity, shall operate any tool, equipment or machine in a manner which produces loud noise that disturbs a person of normal sensitivity who works or resides in the vicinity, or a peace or code enforcement officer, on any weekend day or any federal holiday.

C. No landowner, construction company owner, contractor, subcontractor, or employer shall permit or allow any person or persons working under their direction and control to operate any tool, equipment or machine in violation of the provisions of this section.

D. Exceptions.

(1) The provisions of this section shall not apply to emergency construction work performed by a private party when authorized by the director of community development, building official or their designee.

(2) The maintenance, repair or improvement of any public work or facility by public employees, by any person or persons acting pursuant to a public works contract, or by any person or persons performing such work or pursuant to the direction of, or on behalf of, any public agency; provided, however, this exception shall not apply to the city of Laguna Beach, or its employees, contractors or agents, unless:

(a) The city manager or a department director determines that the maintenance, repair or Improvement is immediately necessary to maintain public services;

(b) The maintenance, repair or improvement is of a nature that cannot feasibly be conducted during normal business hours; or

(c) The city council has approved project specifications, contract provisions, or an environmental document that specifically authorizes construction during hours of the day which would otherwise be prohibited pursuant to this section.

(3) Any construction that complies with the noise limits specified in Section 7.25.040 of this chapter.

(4) Construction activities for certain public benefit nonprofit art organizations, specifically the Sawdust Festival, Art-A-Fair and the Laguna Art Museum, shall be permitted between the hours of seven-thirty a.m. and ten p.m. Monday through Friday, seven-thirty a.m. and eight p.m. on Saturday and Sunday.

Existing Sound Environment

Background sound levels in the project vicinity are primarily generated from traffic on the major arterial roadways in the project area, primarily Coast Highway and Country Club Drive. Other sound sources include distant gardening, rustling leaves, distant conversations, and birdsong.

Sound measurements were conducted using a Rion-NL 52 model sound-level meter equipped with a windscreen-protected, 0.5-inch-diameter pre-polarized condenser microphone with pre-amplifier. The sound-level meter meets the current American National Standards Institute (ANSI) standard for a Type 2 (General 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.

Based on sound level measurements conducted on February 22, 2024, typical sound levels in the project area ranged from approximately 45 dBA L_{eq} at ST4 to 63 dBA L_{eq} at ST3. Table 3.13-1 displays time and sound level data for each measurement location. Figure 3.13-1 shows the sound measurement locations. See Appendix E, Noise Data, for photographs of the sound monitoring locations.

Table 3.13-1. Background Sound Measurement Data Summary

Site	Description	Date/Time	Sound Level Data (dBA)		
			L_{eq}	L_{90}	L_{10}
ST1	In front of the residence at 31087 Aliso Circle	02/22/2024 12:42 p.m.–12:57 p.m.	53	49	54
ST2	Along Country Club Drive west of the resorts	02/22/2024 12:16 p.m.–12:31 p.m.	53	42	58
ST3	Inside The Ranch at Laguna Beach at the western edge of the putting green	02/22/2024 11:11 a.m.–11:26 a.m.	63	41	65
ST4	On the main road of the golf course between hole 4 and hole 5	02/22/2024 11:38 a.m.–11:56 a.m.	45	41	46
ST5	To the right of the gate of the apartment complex at 21999 Wesley Drive	02/22/2024 1:03 p.m.–1:18 p.m.	48	42	51

Source: Appendix E.
Notes: dBA = A-weighted decibels; L_{eq} = equivalent continuous sound level (time-averaged sound level); L_{90} = sound level exceeded 90% of the time, or 13.5 minutes out of 15 minutes; L_{10} = sound level exceeded 10% of the time, or 1.5 minutes out of 15 minutes.

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

Short-Term Construction Impacts

Less Than Significant Impact with Mitigation Incorporated. Construction of the project would involve installation of the pipeline using open trench as well as HDD installation techniques. Construction activities would largely be limited to the City's allowable construction hours and days (i.e., between 7:30 a.m. and 6:00 p.m. Monday through Friday). However, per a January 3, 2025, letter prepared by the City's Director of Public Works and Utilities, as provided in Appendix E3 to this IS/MND, open cut trenching work is proposed to occur during nighttime hours (8:00 p.m. to 5:00 a.m.) to avoid daytime operational shutdown of The Ranch resort. Although overall construction of the pipeline is anticipated to take approximately 17 months, construction of the new pipelines would move along the alignment, with approximately 20 to 65 feet of pipeline being constructed in a day, depending on the construction technique. Construction equipment and duration by sequential segment progress is presented in Table 3.13-2.

Table 3.13-2. Construction Equipment and Duration by Segment

Construction Segment	Duration	Anticipated Construction Equipment
Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)	10 weeks	Excavator, backhoe, pump, generator
SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)	4 weeks	Excavator, backhoe, pump, generator
Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)	18 weeks	Excavator, backhoe, Gradall (rough-terrain forklift), generator
HDD Receiving Area (Sta. 28+00)	2 weeks	Excavator, welding machine, pump, Gradall, generator
HDD Alignment (Sta. 28+00 to 43+50)	20 weeks	No major equipment

Table 3.13-2. Construction Equipment and Duration by Segment

Construction Segment	Duration	Anticipated Construction Equipment
HDD Launching Area (Sta. 43+50)	2 weeks	Horizontal drill, Gradall, pump, generator
Open Trench through Scout Camp (Sta. 43+50 to 52+50)	5 weeks	Excavator, backhoe, Gradall, generator
Open Trench along Access Road (Sta. 52+50 to 60+00)	3 weeks	Excavator, backhoe, Gradall, generator
Isolation Valve Vault (Sta. 60+00 to 61+70)	6 weeks	Excavator, backhoe, Gradall, generator
Slip Lining of Existing NCI Reach 5 (Sta. 61+70 to 70+56)	4 weeks	Excavator, backhoe, pump, generator, Gradall
Abandonment of Existing NCI Reach 5 (Sta. 12+50 to 61+70)	1 week	Pumps (2), Gradall

Notes: SCWD; South Coast Water District; LS2 = Lift Station 2; HDD = horizontal directional drilling; NCI = North Coast Interceptor.

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. The typical maximum noise levels for various pieces of construction equipment at a distance of 50 feet are presented in Table 3.13-3. Note that the equipment noise levels presented in Table 3.13-3 are maximum noise level (L_{max}) values. Typically, construction equipment operates in alternating cycles of full power and low power, producing average noise levels less than the maximum noise emission level. The average sound level of construction activity also depends on the amount of time that the equipment operates and the intensity of the construction activities during that time.

Table 3.13-3 Construction Equipment Noise Levels

Equipment Type	Typical Maximum Noise Level (L_{max} dBA) at 50 Feet
Backhoe	78
Excavator	81
Rough-terrain forklift (Gradall)	83
Generator	72
Horizontal bore hydraulic jack	80
Pump	77
Welding machine	73

Source: FHWA 2006.
Note: L_{max} = maximum recorded noise level; dBA = A-weighted decibel.

Table 3.13-3 shows that the maximum noise levels at 50 feet for typical equipment expected on this type of project could reach as high as 83 dBA; however, the hourly energy-equivalent (L_{eq}) noise levels would vary and would be lower. Construction noise in a well-defined area typically attenuates (decreases) at approximately 6 decibels (dB) per doubling of traversed distance toward a receiver position.

The project would be adjacent to residential, recreational, and transient (resort hotel) uses. Off-site residential land uses exist in the immediate vicinity of the project site, with the nearest residential land uses located approximately 50 feet to the north of the project alignment. Guest-inhabited resort hotel uses are located as close as approximately 30 feet to the south of the project alignment. With the sound sources identified in Table 3.13-2, a predictive analysis was performed with a Microsoft Excel–based noise prediction technique emulating the Federal Highway Administration Roadway Construction Noise Model (FHWA 2006) and using its reference equipment noise level data shown in Table 3.13-3. Input variables include the equipment type (e.g., backhoe, excavator, pump), the number of equipment pieces, the acoustical usage factor (AUF) for each piece of equipment (i.e., percentage of time that equipment actually works under full load conditions and exhibits L_{max} noise emission magnitudes), number of hours during which the on-site equipment is active, and the distance from the sensitive receptor. Aggregate construction equipment noise exposure levels for each studied project alignment segment listed in Table 3.13-2 were predicted at the nearest exterior sound-sensitive land uses (i.e., residences or other spaces, such as resort restaurants) based on the distance between the closest project construction activity along the studied alignment and these receptor positions. The results of this predictive analysis, without the effects of mitigation measures, are summarized in Table 3.13-4. Refer to Appendix E for the construction noise modeling inputs and results.

Table 3.13-4. Construction Noise Model Results Summary

Construction Segment	Construction Noise at Representative Residential Distance of 50 feet (L_{eq} dBA)
Pacific Coast Highway Connection Vault	80
SCWD LS2 Intertie Vault and Emergency Interconnections	69
Open Trench to HDD Receiving Area	86
HDD Receiving Area	60
HDD Alignment	No major equipment (all subsurface)
HDD Launching Area	56
Open Trench Through Scout Camp	79
Open Trench Along Access Road	66
Isolation Valve Vault	53
Slip Lining of Existing NCI Reach 5	54
Abandonment of Existing NCI Reach 5	70

Source: Appendix E.
Note: L_{eq} = equivalent sound level over a given period; dBA = A-weighted decibel; SCWD = South Coast Water District; LS2 = Lift Station 2; HDD = horizontal directional drilling; NCI = North Coast Interceptor.

As presented in Table 3.13-4, the noise levels are predicted to range from approximately 53 dBA L_{eq} to 86 dBA L_{eq}. The highest noise levels at noise-sensitive land uses are predicted to occur during use of rough-terrain forklifts (a.k.a. Gradalls) and the horizontal bore drill.

Pursuant to the City's Municipal Code, Section 7.25.080, noise from construction activity is not subject to the operational noise standards in Section 7.25.040, provided that the stated conditions are met—primarily, the condition that construction does not take place between 6:00 p.m. and 7:30 a.m. Monday through Friday and does not take place on weekends or holidays (City of Laguna Beach 2005b). Although noise from construction would be exempt from the City's noise standard during the specified hours, to be consistent with CEQA expectations regarding "applicable standards of other agencies," the City has previously adopted quantified construction noise thresholds per Federal Transit Administration (FTA) guidance, which recommends 80 dBA 8-hour L_{eq} at the exterior of a residence during daytime hours, and 70 dBA 8-hour L_{eq} during nighttime hours (City of Laguna Beach 2021c; FTA 2018).

The significance of the magnitude of an ambient noise level increase resulting from project construction activity is inherently evaluated by application of these recommended FTA standards, because they assume there is some pre-existing outdoor ambient sound level (such as the measured samples appearing in Table 3.13-1) to which project construction noise would add and result in a future noise level. Much like the City's expected 10 dB difference between daytime and nighttime exterior noise thresholds for post-construction operational activities, the FTA guidance similarly expects nighttime construction noise (70 dBA 8-hour L_{eq}) to be 10 dB more stringent than the daytime threshold (80 dBA 8-hour L_{eq}). Therefore, these FTA fixed-value construction noise limits account for typical ambient noise levels associated with each studied receptor location, such that an outdoor ambient noise level increase that exceeds these limits would be considered a substantial increase above ambient noise levels and therefore a significant impact.

Table 3.13-4 indicates that with the exception of the Open Trench to HDD Receiving Area segment, all listed project construction activities would be compliant with the FTA daytime threshold of 80 dBA 8-hour L_{eq} and would result in double-digit increases of the existing outdoor ambient sound level when compared with the daytime samples appearing in Table 3.13-1. However, because the City's night work letter (Appendix E3) indicates that construction for this Open Trench to HDD Receiving Area would take place at night, the FTA's more stringent 70 dBA standard would apply. Therefore, nighttime construction on this segment would necessitate implementation of MM-NOI-1 (Construction Noise Reduction). All other project construction segments would occur only during daytime hours, and as predicted are not expected to need mitigation to yield less than significant noise impacts.

Refer to the Mitigation Measures subsection of this section for the full text of MM-NOI-1, which in summary includes installation of a temporary, movable sound barrier that when properly placed between the construction activity and the receptor location of concern would block construction noise sufficiently to attenuate sound levels to a level compliant with the FTA nighttime construction noise threshold. Appendix E2 includes a worksheet that highlights the application of MM-NOI-1 in this circumstance. Therefore, with the incorporation of mitigation, short-term construction impacts would be less than significant.

Long-Term Operational Impacts

No Impact. Once project demolition and construction are complete, operational activity would be limited to emergency repair work, which would typically be short in duration and unlikely to include large noise-generating construction equipment. Regular equipment operation or vehicle trips would not be required. Runoff from the project would drain by means of gravity only, and no pumps or other equipment would be required to convey stormwater. Therefore, no long-term operational impacts would occur associated with exposure of persons to or generation of noise levels in excess of standards.

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

Less Than Significant Impact. Construction and demolition activity can result in varying degrees of ground vibration and groundborne noise at local receptors, depending on the equipment and methods used, distance to the affected structures, and soil type. Groundborne vibration information related to construction/heavy equipment activities has been collected by Caltrans.

The major concern with construction (or demolition) vibration is related to building damage risk. Caltrans indicates that transient vibrations (such as from demolition activity) of approximately 0.035 inches per second (in/sec) peak particle velocity (PPV) may be characterized as barely perceptible, and vibration levels of 0.24 in/sec PPV may be characterized as distinctly perceptible (Caltrans 2020). Caltrans establishes structural damage thresholds of 0.25 in/sec PPV for historic and old buildings, 0.3 in/sec PPV for older residential structures, and 0.5 in/sec PPV for new residential and modern commercial/industrial structures (Caltrans 2020). The applicable threshold for project-attributed construction and demolition vibration would be 0.3 in/sec PPV at the closest residences and 0.5 in/sec PPV at the closest commercial building.

Groundborne vibration is typically attenuated over relatively short distances. Typical heavier pieces of construction equipment, such as large bulldozers, would have a PPV of approximately 0.089 in/sec at a reference distance of 25 feet (Caltrans 2020). At the nearest existing noise- and vibration-sensitive buildings (resort hotel uses located as close as approximately 30 feet to operating construction equipment) and with respect to anticipated construction equipment as shown in Table 3.13-2, the estimated PPV value using the Caltrans recommended vibration propagation expression (Caltrans 2020) would be approximately 0.073 in/sec or less during periods of heavy construction. This vibration level would be greater than the threshold of “barely perceptible” of 0.035 in/sec but less than the threshold for “distinctly perceptible” of 0.24 in/sec and much less than the previously mentioned structural damage thresholds (Caltrans 2020).

Structures in the vicinity of the project site would be exposed to vibration levels that may be perceptible when construction is adjacent to structures. However, construction and demolition vibration would not exceed the Caltrans structural damage thresholds (0.5 in/sec PPV for non-residential buildings and 0.3 in/sec PPV for residential buildings) and would not result in structural building damage. Therefore, impacts associated with groundborne vibration would be less than significant.

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

No Impact. There are no private airstrips in the project vicinity. The nearest airport is John Wayne Airport, which is approximately 12.7 miles to the northwest of the project site. Therefore, the project would not expose people residing or working in the project area to excessive noise levels associated with airstrips or airports. No impacts would occur.

Mitigation Measures

MM-NOI-1 Construction Noise Reduction. The following mitigation shall be implemented during construction of the project:

- During construction, the construction contractor shall ensure that all internal combustion engines on construction equipment and trucks are fitted with properly maintained mufflers.
- During construction activities, the project contractors shall be responsible for requiring the proper maintenance and tuning of all construction equipment to minimize noise emissions.
- Stockpiling and vehicle staging areas shall be located as far away as possible from occupied residences and the resort hotel guest accommodations and shall be screened from these uses by a noise-attenuating barrier.
- All stationary construction equipment (e.g., air compressor, generators, impact wrenches) shall be operated as far away from residential uses as possible and, to the extent practical, shall be

shielded with temporary sound-attenuating barriers, aprons, shrouds, or comparably performing means that do not impact equipment performance or access.

- To the extent feasible, haul routes for removing excavated materials or delivery of aggregate materials from the site shall be designed to avoid residential areas and areas occupied by noise-sensitive receptors (e.g., hospitals, schools, and convalescent homes).
- Idling equipment shall be turned off when not in use for periods longer than 5 minutes.
- If feasible, the following types of construction equipment shall be used:
  - Electrical equipment instead of diesel-powered equipment
  - Hydraulic tools instead of pneumatic tools
  - Electric welders powered by remote generators
- During construction for the Open Trench to HDD Receiving Area segment, which is to occur at night and per City allowance in a letter dated January 3, 2025, a temporary sound-attenuating barrier (e.g., suspended acoustical blanket) having the following characteristics shall be installed:
  - A minimum sound transmission class (STC) rating of 25
  - A minimum height of 10 feet from bottom edge (at grade) to top height
  - Sufficient total length, comprising adjoining panels or sheets with no airgaps at points of fastening or contact, parallel with and extending a minimum of twice the project alignment segment to be worked on a particular night (e.g., if 60 feet of progress is expected, the barrier shall be 120 feet long, or 60 feet in each direction from the average activity midpoint along the alignment segment)

  As work on this segment progresses, portions of the temporary barrier or the entire temporary barrier shall be relocated, as needed, to ensure that the direct sound path between this construction activity and the closest off-site noise-sensitive receptor(s) is blocked. To accommodate installation, relocation, and/or removal of these temporary barriers to facilitate this nighttime construction work and not impede daytime resort operations (e.g., usage of Country Club Lane), actual on-site construction activity is not expected to exceed 6 hours per night, which will enable the aggregate 8-hour L_{eq} noise level to comply with the Federal Transit Authority's 70 dBA guidance threshold.
- Residences within 300 feet of work sites shall be notified of the construction schedule in writing at least 72 hours prior to construction. The contractor shall designate a noise disturbance point of contact who shall be responsible for responding to complaints regarding construction noise. The point of contact shall determine the cause of the complaint and ensure that reasonable measures are implemented to correct the problem. A contact number for the noise disturbance point of contact shall be conspicuously placed on construction site fences and written into the construction notification schedule sent to nearby residences.
- The use of mobile heavy construction equipment with alternative backup beeper alarm systems, which continue to provide the necessary safety warnings but reduce the impacts of these sounds on the surrounding community, shall be considered. Examples of such systems include variable-loudness or ambient-adjusted backup beepers and white-noise reversing alarms.

3.14 Population and Housing

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

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

No Impact. The proposed project involves replacement of a segment of an existing municipal sewer pipeline with the goal of providing redundancy and the ability to maintain a reliable and safe conveyance of existing wastewater flows to the SOCWA CTP. It would not generate the need for additional permanent workers. Due to the temporary nature of the construction period and the availability of workers in the local or regional area, construction personnel are not expected to relocate to the project area and cause population growth. Therefore, the project would have no impact related to inducing unplanned population growth.

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

No Impact. The proposed project involves replacement of a segment of an existing municipal sewer pipeline. It would not displace any existing people or housing and no impact would occur.

3.15 Public Services

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES – Would the project:				
a) 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?	☐	☐	☐	☒

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?

No Impact. Fire protection for the project site is provided by the Laguna Beach Fire Department. There are four fire stations within Laguna Beach (City of Laguna Beach 2024b). Fire Station 4, at 31646 Second Avenue, which is approximately 0.8 miles from the project site, is the nearest fire station to the project site. The need for new or altered fire facilities is typically associated with an increase in population. As described in Section 3.14, Population and Housing, the proposed project would not increase population in the project area. Service to the project site by Laguna Beach Fire Department occurs under existing conditions and project implementation is not anticipated to increase calls for service or alter response times or other performance objectives that would result in the need for new or substantially altered Laguna Beach Fire Department facilities. As such, the proposed project would not generate a requirement for additional fire protection services. No impact would occur.

Police protection?

No Impact. Law enforcement services for the project site are provided by the Laguna Beach Police Department, located at 505 Forest Avenue, approximately 1.5 miles from the project site. Similar to fire protection services, the need for new or altered police protection facilities is typically associated with an increase in population. The Laguna Beach Police Department currently provides services to the project site under existing conditions. No new housing or businesses would be constructed as part of the project, nor would the project directly or indirectly induce population growth in the area. Therefore, the proposed project is not anticipated to increase calls for service or alter response times or other performance objectives that would result in the need for new or substantially altered law enforcement facilities. The project would not require the need for new or physically altered police facilities in order to maintain acceptable service ratios, response times or other performance objectives. As such, no impact would occur.

Schools?

No Impact. The project would not lead directly or indirectly to substantial population growth such that new or physically altered school facilities would be required. No impact would occur.

Parks?

No Impact. No feature of the project would directly generate a demand for parks, nor would the project lead directly or indirectly to substantial population growth such that new or physically altered park facilities would be required. No impact would occur.

Other public facilities?

No Impact. The project would involve replacement of a segment of an existing municipal sewer pipeline. No new housing or businesses would be constructed as part of the project, nor would the project directly or indirectly induce population growth in the area such that new or physically altered public facilities would be required to adequately provide services. No impact would occur.

3.16 Recreation

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. 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?	☐	☐	☐	☒

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?

No Impact. The proposed project involves replacement of a segment of an existing municipal sewer pipeline with the goal of providing redundancy and the ability to maintain a reliable and safe conveyance of existing wastewater flows to the SOCWA CTP. It would not directly or indirectly induce population growth such that the use of existing neighborhood or regional parks or other recreational facilities would increase. Therefore, the project would have no impact on the use of existing parks or recreational facilities.

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

No Impact. The proposed project involves replacement of a segment of an existing municipal sewer pipeline. It does not include recreational facilities or require construction or expansion of recreational facilities that might have an adverse physical effect on the environment. No feature of the project would directly generate a demand for parks, nor would the project lead directly or indirectly to substantial population growth such that the construction or expansion of recreational facilities would be required. No impact would occur.

3.17 Transportation

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

This section evaluates the potential transportation-related impacts of the proposed project, including the potential for the project to conflict with a program, plan, ordinance, or policy addressing the circulation system; substantially increase hazards; or result in inadequate emergency access. The section also analyzes the potential impacts of the project based on CEQA Guidelines Section 15064.3(b), which focuses on VMT for determining the significance of transportation impacts. Pursuant to SB 743, the focus of transportation analysis has changed from LOS, or vehicle delay, to VMT. The City does not currently have VMT analysis guidelines; therefore, for the purposes of this section, the Governor's Office of Planning and Research Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018) was used.

Regulatory Setting

Laguna Beach General Plan Transportation, Circulation and Growth Management Element

The Transportation, Circulation and Growth Management Element (Element) is based on a set of circulation-related goals that reflect and are designed to support the City-wide objectives of the General Plan. The Element acknowledges the constraints of existing conditions but is sensitive to anticipated regional needs in the future. The Element addresses local thoroughfares, transportation routes, and traffic flow; neighborhoods; growth management; public and regional transportation systems; parking; truck circulation, transportation demand management, and alternative transportation; safety; health and environmental hazards; scenic highways; and utilities (City of Laguna Beach 1999). The following general policies were considered in the analysis:

Policy 2I: Promote a local circulation system which serves the community and provides linkages to neighborhoods and regional transit facilities.

Policy 2P: Require proposals for major road improvements, alterations, or major public works projects in Laguna Canyon to provide sufficient information on environmental impacts and on design and construction alternatives to enable the City to evaluate the conformance with all applicable general plan policies. Ensure that any project is at least environmentally damaging alternative and is approved only is sized, sited and designed in a manner that will not degree environmentally sensitive areas, scenic resources, significant natural landforms, parks or recreation areas.

Policy 3B: Encourage street design and traffic levels that are sympathetic to the health, safety and social needs of individual neighborhoods.

Policy 4K: Establish appropriate transportation control measures which implement the Regional Mobility Plan, the Air Quality Management Plan and the Congestion Management Plan goals of reducing vehicle trips, increasing average vehicle occupancy, and reducing vehicle miles traveled.

Policy 5A: Provide safe and efficient intra-city public transportation for residents and visitors of Laguna Beach by maintaining the local transit system.

Policy 9C: Support and coordinate the development and maintenance of bikeways in conjunction with the County of Orange Master Plan of Countywide Bikeways to assure that local bicycle routes will be compatible with routes of neighboring jurisdictions. In particular, these bikeways include Route 67 through Laguna Laurel Regional Park, Route 71 along Laguna Canyon Road, Route 75 along El Toro Road and Route 25 along Pacific Coast Highway. Bikeway Route 78, along Aliso Creek, should be encouraged provided impacts to the Ben Brown's golf course are mitigated.[9]

Policy 10A: Improve and maintain the transportation system to further enhance adequate emergency access to all developed areas.

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[9] The former Ben Brown's golf course occupied the same footprint where the current The Ranch at Laguna Beach resort and golf course is located.

OCTA Bikeways Strategy Report

The District 5 Bikeways Strategy was developed as part of OCTA's regional bikeway planning process, which involves OCTA, local jurisdictions, and public stakeholders. There are two phases of the regional bikeways planning process. Phase I is the bikeways strategy, which identifies the regional backbone bikeways corridors that connect to major activity centers. In Phase 2, the top-ranking corridors are studied in more detail with the development of a feasibility study, which provides planning-level design recommendations to the local jurisdictions (OCTA 2015). The Bikeways Strategy Report identifies approximately 20 miles of Coast Highway, from the southern Newport Beach city boundary to the southern San Juan Capistrano city limit, as a regional bike corridor, and recommends numerous bicycle improvements along the corridor. The report also identifies an approximately 20-mile regional bike corridor along Aliso Creek, which includes most of the existing Aliso Creek bikeway. The corridor extends from Santiago Canyon Road in Modjeska Canyon at approximately Bolero Lookout Road, to El Toro Road at Ridgeline Road, continuing along the Class I Aliso Creek multi-use path parallel to El Toro Road to Coast Highway (OCTA 2015). Most of the bicycle corridor infrastructure has been constructed, with the exception of the segment between the existing SOCWA CTP and Coast Highway near the project site.

Transit, Bicycle, and Pedestrian Facilities

Public transportation in the City is provided by Laguna Beach Transit and OCTA. Figure 3.17-1, Existing Transit Facilities, shows the bus routes that provide service in the study area.

Laguna Beach Transit provides free year-round trolley service for visitors and residents. Trolleys run specific routes along Coast Highway, into Laguna Canyon, and as far south as Dana Point. The Coastal Route runs on Coast Highway between North Laguna/Heisler Park, downtown, South Laguna/Mission Hospital, and the Ritz Carlton Hotel in Dana Point, with a frequency of every 20 to 30 minutes. The trolley operates from 7:30 a.m. to 6:00 p.m., Monday through Thursday, from 7:30 a.m. to 10:00 p.m. on Friday, from 9:00 a.m. to 10:00 p.m. on Saturday, and from 9:00 a.m. to 7:00 p.m. on Sunday.

OCTA operates Route 1 via Coast Highway, providing service between Long Beach and San Clemente. The route operates Monday through Friday from approximately 4:30 a.m. to 11:00 p.m. and on the weekends and holidays from approximately 5:20 a.m. to 9:30 p.m. (OCTA 2024). The nearest bus stop to the project site is on Coast Highway and Aliso Way, approximately 400 feet south of Country Club Drive.

Caltrans classifies Coast Highway as a Class III bike route (signed route only, with no dedicated bicycle lane striping), and as previously noted, the Coast Highway corridor is also identified as a regional bike corridor in the OCTA Bikeways Strategy Report. The existing Aliso Creek bike trail (a Class I multi-use trail) terminates at the existing SOCWA CTP near the site and is also identified as a regional bike corridor in the OCTA Bikeways Strategy Report.

The City of Laguna Beach is well served by sidewalks in the downtown area. However, Coast Highway has numerous gaps and variations in sidewalk widths ranging anywhere from no sidewalk to nearly 20 feet in width. Notable areas along Coast Highway with little to no sidewalk facilities include the segments between the northwest City limits to Ledroit Street and Aliso Beach to the southeast City limits. Near the project site, a sidewalk is provided on both sides of Coast Highway along the bridge over Aliso Creek and along the frontage of the Aliso Beach parking lots. There is also a pedestrian path on the south side of Country Club Drive that provides visitors of The Ranch access to Coast Highway and a pedestrian tunnel under Coast Highway along Aliso Creek that provides pedestrian access to/from the east and west side of Coast Highway.

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

Less Than Significant Impact with Mitigation Incorporated. The proposed project would not conflict with applicable programs, plans, ordinances, or policies addressing the circulation system, as presented in the Regulatory Setting section above. This includes the City's General Plan Transportation, Circulation and Growth Management Element (City of Laguna Beach 1999), the OCTA Bikeways Strategy Report (OCTA 2015), and the existing and proposed roadway, pedestrian, bicycle, and transit facilities and services in the study area.

The proposed project consists of the replacement of the existing NCI Reach 5 through Aliso Canyon by a combination of open trench, HDD installation, and slip lining. The goal of the project is to completely replace the existing NCI Reach 5 with new dual parallel pipelines that provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater to the SOCWA CTP.

Reach 5 of the NCI is located under and along Aliso Creek and passes through The Ranch resort and golf course. Reach 5 starts at the intersection of Coast Highway and Country Club Drive, follows Country Club Drive northeast, then goes under Aliso Creek, comes out from under Aliso Creek through The Ranch resort and golf course, follows under the access road to the SOCWA CTP, and ultimately connects into the SOCWA CTP.

Construction

The project would result in a temporary, short-term increase in traffic during construction. This includes construction workers arriving to and from the project site and the delivery of large construction equipment and hauling trips to the site as needed.

Construction is anticipated to occur over a period of 17 months, beginning in fall 2026 and ending in spring 2028. The construction phases would occur sequentially, thereby minimizing the number of daily workers and trucks as there would be no overlap in phases. As shown in Table 3.17-1, the peak number of construction trips would occur during Phase 2: SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50). This phase would last approximately 1 month and generate up to 10 daily worker trips, 8 daily vendor truck trips, and 26 daily haul truck trips. Haul trips would be spread evenly throughout the 8-hour workday, resulting in approximately 3 trips per hour.

Table 3.17-1. Construction Schedule and Average Daily Traffic

				Total Average Daily Construction Trips		
No.	Phase	Start Date	End Date	Daily Worker Trips	Daily Vendor Truck Trips	Daily Haul Truck Trips
1	Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)	10/19/2026	12/25/2026	10	8	4
2	SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)	12/28/2026	01/22/2027	10	8	26

Table 3.17-1. Construction Schedule and Average Daily Traffic

No.	Phase	Start Date	End Date	Total Average Daily Construction Trips		
				Daily Worker Trips	Daily Vendor Truck Trips	Daily Haul Truck Trips
3	Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)	01/25/2027	5/28/2027	10	8	10
4	HDD Receiving Area (Sta. 28+00)	5/31/2027	06/11/2027	14	8	2
5	HDD Alignment (Sta. 28+00 to 43+50)	6/14/2027	10/29/2027	24	8	4
6	HDD Launching Area (Sta. 43+50)	11/01/2027	11/12/2027	10	8	2
7	Open Trench Through Scout Camp (Sta. 43+50 to 52+50)	11/15/2027	12/17/2027	10	8	12
8	Open Trench Along Access Road (Sta. 52+50 to 60+00)	12/20/2027	01/07/2028	10	8	16
9	Isolation Valve Vault (Sta. 60+00 to 61+70)	01/10/2028	02/18/2028	10	8	2
10	Slip Lining of Existing NCI Reach 5 (Sta. 61+70 to 70+56)	02/20/2027	03/19/2027	16	8	2
11	Abandonment of Existing NCI Reach 5 (Sta. 12+50 to 61+70)	03/20/2028	03/24/2028	8	8	0

Notes: SCWD = South Coast Water District; LS2 = Lift Station 2; HDD = horizontal directional drilling; NCI = North Coast Interceptor.

It is anticipated that excavated material would be hauled to the Sunset Environmental Transfer Station located in Irvine, approximately 20 miles northeast of the project site. Truck travel would potentially occur on regional and local roads within the Cities of Laguna Beach and Irvine. Within Laguna Beach, it is anticipated that trucks would travel northbound on Coast Highway, turn right on Mountain Drive (eastbound), turn left on Glenneyre Street (northbound), and turn right on Forest Avenue (northbound) to SR-133 (Laguna Canyon Road) (eastbound). Continuing on eastbound SR-133, trucks would then enter the City of Irvine, continue east on SR-133 to northbound Interstate 405 (I-405), turn right onto Jamboree Road (eastbound), turn right on Barranca Parkway (southbound), and turn left (eastbound) on Construction Circle to the Sunset Environmental Transfer Station. Exact haul routes will be determined in consultation with the City and the construction contractor. Due to the nominal and temporary increase in construction traffic (approximately three haul trips per hour), any effect on the operations of roadways or the overall circulation system along these roads would be minimal.

Temporary equipment staging and construction trailers would be established within The Ranch's existing golf course, with no additional off-site staging anticipated to be needed. Trenching within Country Club Drive would require temporary closure of the road to vehicle traffic. A fast-track open trench installation method would be used in this area to minimize disruption to The Ranch resort's operations. No full road closures are anticipated. Construction would also result in the temporary closure of the existing decomposed granite walking path and surrounding vegetation/landscaping for approximately 250 linear feet (LF) where the path reenters Country Club Drive and a temporary closure of a portion of the Scout Camp. Access to the Scout Camp would be entirely blocked for a short period while the pipeline is being installed across the access driveway.

To minimize potential impacts during construction, the project would implement MM-TRA-1 (Construction Traffic Control Plan; for full text of MM-TRA-1, see the Mitigation Measures subsection at the end of this section), which would require preparation of a Construction Traffic Control Plan by the contractor and its approval by the City Engineer. The Construction Traffic Control Plan would include measures such as identifying the proposed truck routes, minimizing and/or avoiding truck travel during peak hours, using flaggers for potential lane closures on Country Club Drive, and other measures. All lane closures would be performed pursuant to the Construction Traffic Control Plan. With implementation of the Construction Traffic Control Plan, the potential impact to local access would be minimized and there would be no changes that would affect the safety and accessibility of the transportation system. Potential impacts beyond the area of construction would be minimal. No lane closures would be required and as previously described, any effect on the operations of roadways or the overall circulation system beyond the project site would be minimal. Furthermore, the only cumulative project in the study area is the SCWD LS2, which will be completed before the NCI Reach 5 project begins.

The nearest bus stop to the site is on Coast Highway and Aliso Way, approximately 400 feet south of Country Club Drive. There is a pedestrian path located on the south side of Country Club Drive that provides access to Coast Highway. Coast Highway is also classified as a Class III bike route and regional bikeway corridor and the Aliso Creek bike trail (a Class I multi-use trail) currently ends at the existing SOCWA CTP. These facilities would remain open during construction, and the temporary and minimal increase in construction-related traffic would not interfere with existing public transit, bicycle, or pedestrian facilities. Impacts would be less than significant.

With implementation of MM-TRA-1, construction of the proposed project would not conflict with a program, plan, ordinance, or policy related to the circulation system, including roadways, transit, bicycle, and pedestrian facilities. Therefore, with the implementation of mitigation, the project would result in less than significant impacts to the existing circulation system.

Operations

The implementation of the project would not result in new employees. Maintenance activities associated with the project are expected to result in fewer trips compared to the existing pipeline because fewer repair activities would be required with the new equipment. With no new employees and no additional maintenance trips, the project would result in less than significant impacts to the existing circulation system.

The project would not include site improvements that would extend into the public right-of-way or interfere with the existing roadway network or public transit, bicycle, or pedestrian facilities, nor would it impede the construction of new or the expansion of existing facilities in the future. Bicyclist and pedestrian safety would be maintained at existing levels in the area. The project would also not severely delay, impact, or reduce the service level of transit in the area. Therefore, the proposed project would not conflict with the circulation policies in the City's General Plan Transportation, Circulation and Growth Management Element or the Bikeways Strategy Report. Impacts would be less than significant.

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

Less Than Significant Impact. CEQA Guidelines Section 15064.3(b) focuses on VMT for determining the significance of transportation impacts. It is further divided into four subdivisions: (1) land use projects, (2) transportation projects, (3) qualitative analysis, and (4) methodology. The Updated CEQA Guidelines state that "generally, vehicle miles traveled (VMT) is the most appropriate measure of transportation impacts," and define VMT as "the amount and distance of automobile travel attributable to a project." "Automobile" refers to on-road passenger vehicles, specifically cars and light trucks. The Governor's Office of Planning and Research has clarified in its Technical Advisory (OPR 2018) that heavy-duty truck VMT is not required to be included in the estimation of a project's VMT.

Construction

The project is not a land use or transportation project, nor would the project result in a major expansion of an existing land use. Therefore, neither Section 15064.3(b)(1) nor Section 15064.3(b)(2) of the CEQA Guidelines apply. Instead, the project would be categorized under Section 15064.3(b)(3), suitable for qualitative analysis and not subject to a quantitative threshold.

The project would involve construction that would generate temporary construction-related traffic for approximately 17months. Even though worker and vendor trips would generate VMT, once construction is completed the construction-related traffic would cease and traffic would return to pre-construction conditions. Measures to reduce the VMT generated by workers and trucks are limited, and there are no thresholds or significance criteria for temporary, construction-related VMT. The increase in VMT associated with construction of the project is expected to be temporary and would therefore not cause a significant VMT impact.

Operations

Once construction is complete, project operations are anticipated to entail minimal and infrequent maintenance activities performed by City staff. Therefore, the project would have a less than significant impact on VMT and would not conflict or be inconsistent with CEQA Guidelines Sections 15064.3(b)(1) and 15064.3(b)(3).

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

Construction

Less Than Significant Impact with Mitigation Incorporated. Local access (ingress and egress) for construction-related traffic (workers and trucks) to the project site would be from Coast Highway to Country Club Drive. To reach the Sunset Environmental Transfer Station, truck travel could also potentially occur on Mountain Drive, Glenneyre Street, Forest Avenue, and SR-133 in the City of Laguna Beach and I-405, Jamboree Road, Barranca Parkway, and Construction Circle in the City of Irvine. Exact haul routes will be determined in consultation with the City of Laguna Beach and the construction contractor. Transportation permits from Caltrans and the City would be required. The project would not introduce uses (types of vehicles) that are incompatible with existing uses already served by the area's road system.

Construction would also require temporary work in Country Club Drive, and portions of traffic lanes would be closed. No full road closures are anticipated. The project would implement a Construction Traffic Control Plan (MM-TRA-1) to be prepared by the contractor and approved by the City Engineer. All lane closures would be performed pursuant to the Construction Traffic Control Plan. With implementation of the Construction Traffic Control Plan, the potential impacts to Coast Highway and Country Club Drive would be minimized and there would be no changes that would affect the safety and accessibility of the transportation system. Therefore, impacts associated with hazardous design features or incompatible land uses would be less than significant with mitigation incorporated.

Operations

Less Than Significant Impact. There would be no changes to the existing off-site circulation on City roads. Therefore, the project would not substantially increase hazards due to a roadway design feature or introduce incompatible uses. Impacts would be less than significant.

d) Would the project result in inadequate emergency access?

Construction

Less Than Significant Impact with Mitigation Incorporated. The project site is in an established, developed area with sufficient access for emergency service providers. Construction would require temporary work in Country Club Drive, which would require closing portions of the travel lanes. However, no full road closures in the public right-of-way or driveway closures are anticipated that would impact adopted emergency access or response plans. As part of MM-TRA-1 (Construction Traffic Control Plan), the contractor would follow standard construction practices and ensure that adequate on-site circulation and access is always maintained for all users, including coordinating with local emergency response providers (local police, fire, and medical dispatch) regarding proposed construction activities. As such, the proposed project would have a less than significant impact related to emergency access with mitigation incorporated.

Operations

Less Than Significant Impact. As previously discussed, the project site is in an established, developed area with sufficient access for emergency service providers. There would be no changes to the existing off-site circulation on City roads. Therefore, no impacts to emergency access would occur.

Mitigation Measures

MM-TRA-1 Construction Traffic Control Plan. Prior to construction of the project, the contractor shall prepare, and the City Engineer shall approve, a detailed Construction Traffic Control Plan. The Construction Traffic Control Plan shall include, but not be limited to, the following:

- Advance, bilingual notification of adjacent property owners and occupants of upcoming construction activities, including durations and daily hours of operation
- Prohibition of construction worker or equipment parking on adjacent streets
- Prohibition of haul truck staging on any streets adjacent to the project, unless specifically approved as a condition of an approved haul route
- Containment of construction activity within the project site boundaries
- Implementation of safety precautions for pedestrians and bicyclists through such measures as alternate routing and protection barriers
- Scheduling of construction-related deliveries, haul trips, etc., to occur outside the commuter peak hours to the extent feasible
- Spacing of trucks so as to discourage a convoy effect

- Maintenance of a log, available on the job site at all times, documenting the dates of hauling and the number of trips (i.e., trucks) per day
- Identification of a construction manager and provision of a telephone number for any inquiries or complaints from residents regarding construction activities posted at the site readily visible to any interested party during site preparation, grading, and construction

3.18 Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES				
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 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	☐	☒	☐	☐
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 § 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

The evaluation of potential impacts on tribal cultural resources (TCRs) is based on the findings resulting from tribal consultation conducted by the City, as the lead agency, as well as the findings of Section 3.5, Cultural Resources, in this IS/MND. Background research conducted to inform this analysis includes a California Historical Resources Information System database records search conducted at the South Central Coastal Information Center (SCCIC), a search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF), archival research, a cultural resources pedestrian survey of the project site, subsurface testing in areas proposed for ground disturbance, and the results of formal tribal consultation completed by the City pursuant to AB 52.

Native American Heritage Commission Sacred Lands File Search

Dudek requested an NAHC search of the SLF for the project site and a 1-mile radius on March 15, 2024. The NAHC replied via email on April 4, 2024, stating that the SLF search was completed with positive results. Positive results indicate the presence of Native American cultural resources within 1 mile of the project site, and not necessarily directly within the project site.

Joyce Perry, Cultural Resource Director of the Juaneño Band of Mission Indians Acjachemen Nation–Belardes (Acjachemen Nation–Belardes) was included as a recipient to the NAHC response email on April 4, 2024. Ms. Perry followed up in an email to Dudek dated June 26, 2024, asking for additional information on the proposed undertaking. This response was forwarded to the City upon receipt.

Assembly Bill 52

AB 52 of 2014 amended California Public Resources Code Section 5097.94 and added California Public Resources Code Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 established that TCRs must be considered under CEQA and provided for additional Native American consultation requirements for the lead agency. California Public Resources Code Section 21074 describes a TCR as a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American tribe. A TCR may be defined as a resource that is:

- On the CRHR or a local historic register
- Eligible for the CRHR or a local historic register
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in California Public Resources Code Section 5024.1(c)

AB 52 formalizes the lead agency–tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project area, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, MND, or EIR by contacting those tribal groups who have previously provided formal written request for notification of projects under the agency's jurisdiction.

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 TCRs should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the California Public Resources Code, 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 TCRs, the consultation shall include those topics (California Public Resources Code Section 21080.3.2[a]). Finally, the environmental document on which the tribal consultation is focused, as well as the mitigation monitoring and reporting program (where applicable) developed in consideration of information provided by tribes during the formal consultation process, shall include any mitigation measures that are adopted (California Public Resources Code Section 21082.3[a]).

Assembly Bill 52 Consultation

The project is subject to compliance with AB 52 (California Public Resources Code Section 21074), which requires consideration of impacts to TCRs 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 project. As lead agency, the City sent notification letters pursuant to AB 52 via U.S. Postal Service certified mailing on April 1, 2024, to 14 tribal representatives listed on the City's Native American Contact

List. The notification letters contained a project description, a project location map, outline of AB 52 timing, an invitation to consult, and contact information for the appropriate lead agency representative. Table 3.18-1 summarizes the results of the AB 52 consultation efforts for the project thus far.

Table 3.18-1. Assembly Bill 52 Native American Tribal Outreach Results

Native American Tribal Representatives	Consultation Record
Andrew Salas, Chairperson Gabrieleño Band of Mission Indians–Kizh Nation (Kizh Nation)	**April 16, 2024** Email from Mr. Salas to the City acknowledging receipt of AB 52 notification letter for the project and requesting consultation. Mr. Salas also noted that the project site is located within what Kizh Nation consider their ancestral tribal territory. **April 24, 2024** Email from the City to Mr. Salas acknowledging receipt of Mr. Salas's request for consultation on the project. The City additionally proposed AB 52 consultation by virtual meeting or over email and at the discretion of Mr. Salas. The City also requested that Mr. Salas provide additional information regarding any TCRs that may be affected by the project. **May 9, 2024** Email from Mr. Salas to the City agreeing to consultation via email and notifying the City that additional information on TCRs will be provided via email in 2 weeks. **May 17, 2024** Email from Mr. Salas to the City requesting location of the project site. **May 20, 2024** Email from the City to Mr. Salas providing coordinates and map figure of the project site. **May 30, 2024** Email from Mr. Salas to the City requesting a KMZ file of the project's proposed areas of ground disturbance. **June 20, 2024** Email from the City to Mr. Salas providing KMZ file of the project's proposed areas of ground disturbance. **June 26, 2024** Email from Mr. Salas to the City providing a series of Kizh Nation–proposed TCR mitigation measures for the project, as well as information on TCRs in the region of the project site (but not directly within the project site). **October 21, 2024** Email from the City to Mr. Salas providing the City's proposed TCR mitigation measures for the project. **October 23, 2024** Email from Mr. Salas to the City recommending revisions to the City's proposed TCR mitigation measures.

Table 3.18-1. Assembly Bill 52 Native American Tribal Outreach Results

Native American Tribal Representatives	Consultation Record
	October 24, 2024 Email from the City to Mr. Salas thanking him for his input and concluding consultation.
Christina Swindall Martinez, Secretary Kizh Nation	Please see consultation efforts between the City and the Kizh Nation above.
Anthony Morales, Chairperson Gabrieleño–Tongva San Gabriel Band of Mission Indians	No response has been received to date.
Sandonne Goad, Chairperson Gabrieleño–Tongva Nation	No response has been received to date.
Robert Dorame, Chairperson Gabrieleño Tongva Indians of California Tribal Council	No response has been received to date.
Christina Conley, Cultural Resource Director Gabrieleño Tongva Indians of California Tribal Council	No response has been received to date.
Charles Alvarez, Chairperson Gabrieleño–Tongva Tribe	No response has been received to date.
Sam Dunlap, Cultural Resource Director Gabrieleño–Tongva Tribe	No response has been received to date.
Sonia Johnston, Chairperson Juaneño Band of Mission Indians	No response has been received to date.
Joyce Perry, Cultural Resource Director Acjachemen Nation–Belardes	**June 26, 2024** Email from Ms. Perry to Dudek acknowledging receipt of positive SLF search results and requesting additional project details. **August 19, 2024** Email from the City to Ms. Perry providing project details and requesting that Ms. Perry provide additional information regarding any TCRs that may be affected by the project. **October 21, 2024** Email from the City to Ms. Perry providing the City's proposed TCR mitigation measures for the project. **November 18, 2024** Email from the City to Ms. Perry concluding consultation.
Heidi Lucero, Chairperson, Tribal Historic Preservation Officer Juaneño Band of Mission Indians Acjachemen Nation–Romero	No response has been received to date.
Joseph Ontiveros, Tribal Historic Preservation Officer Soboba Band of Luiseño Indians	No response has been received to date.
Jessica Valdez, Cultural Resource Specialist Soboba Band of Luiseño Indians	No response has been received to date.

Table 3.18-1. Assembly Bill 52 Native American Tribal Outreach Results

Native American Tribal Representatives	Consultation Record
Patricia Martz, President California Cultural Resource Preservation Alliance (CCRPA)	**April 27, 2024** Email from Ms. Martz to the City acknowledging receipt of AB 52 notification letter for the project and requesting that a qualified archaeological and culturally related Native American monitor be present to monitor construction in areas where prior ground disturbance has not been extensive. **April 30, 2024** Email from the City to Ms. Martz indicating that the City will be including archaeological and Native American monitoring as mitigation measures for the project. The City also requested that Ms. Martz provide additional information regarding any TCRs that may be affected by the project. **October 21, 2024** Email from the City to Ms. Martz providing the City's proposed TCR mitigation measures for the project. **November 18, 2024** Email from the City to Ms. Martz concluding consultation.

Notes: AB = Assembly Bill; TCR = tribal cultural resource; KMZ = keyhole markup zip file (saved Google Earth session file); SLF = Sacred Lands File.

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 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)?***

Less Than Significant Impact with Mitigation Incorporated*.* The SCCIC records search identified twenty previously recorded cultural resources located within 1 mile of the project site, three of which are adjacent to but outside the project site. These three resources consist of two prehistoric shell midden deposits (P-30-000009 and P-30-000074) and one prehistoric rock shelter with an associated sparse shell scatter (P-30-000583). All three of these resources have been recommended eligible for listing in the CRHR under Criterion 4. An NAHC SLF search was also requested for the project, and results were positive for Native American cultural resources within 1 mile of the project site. Although the NAHC SLF search results are positive, it is important to note that the SLF file is maintained at a public land survey system section level, meaning that positive results are respective of a general area covering approximately 1 square mile (640 acres), rather than the exact area of study; therefore, a positive result does not necessarily equate to the existence of resources within the specific area occupied by the project site.

During the cultural resources pedestrian survey, an additional two resources of Native American origin were identified as adjacent to the project site. NCI-RB-S-001 is characterized as a rock shelter complex with an associated prehistoric shell scatter, and NCI-RB-S-002 is characterized as a small rock shelter with an associated prehistoric shell scatter. Due to the results of the pedestrian survey and in order to assess subsurface conditions within the project site, subsurface testing was conducted adjacent to the recorded locations of NCI-RB-S-001 and NCI-RB-S-002. Overall, results indicate that the portions of the project site subject to investigation were predominantly composed of fill soils and other highly disturbed soils and secondary deposits.

As a result of the City's AB 52 notification efforts, three tribal entities expressed interest in the project: Acjachemen Nation–Belardes, Kizh Nation, and California Cultural Resource Preservation Alliance (CCRPA). Kizh Nation requested consultation pursuant to AB 52.

Following an initial response to project notification, Acjachemen Nation–Belardes did not respond to subsequent follow-up attempts intended to solicit information regarding any TCRs that may be affected by the project nor provided input regarding the City's proposed TCR mitigation measures for the project. Based on communications to date, it is understood that Ms. Perry, acting on behalf of Acjachemen Nation–Belardes, does not desire to consult further on the project. Consultation with Acjachemen Nation–Belardes pursuant to AB 52 was concluded by the City on November 18, 2024.

Kiz Nation responded to project notification with a request to consult further. Through a series of emails in lieu of an in-person or virtual meeting, Ms. Salas, on behalf of Kizh Nation, indicated that the project is proposed within an area that contains Kizh Nation village sites and village use areas. No accompanying details were provided pertaining to the significance-defining characteristics of these identified resources or supporting the presence of specific, geographically defined TCRs that could be affected by project-related construction or operation. As noted previously, no known cultural resources of Native American origin or association have been identified in areas that would be affected by the project. While the City acknowledges that the landscape surrounding the project was traditionally used by indigenous peoples, no substantial evidence was presented demonstrating that the project has the potential for affecting TCRs, as defined by California Public Resources Code Section 21074(a). The City, after a good faith and reasonable effort to come to an agreement regarding the language used in the TCR mitigation measures for the project, concluded consultation with Kizh Nation on November 18, 2024.

Following an initial response to project notification, CCRPA did not respond to subsequent follow-up attempts intended to elicit information regarding any TCRs that may be affected by the project nor provided input regarding the City's proposed TCR mitigation measures for the project. Based on communications to date, it is understood that Ms. Martz, acting on behalf of CCRPA, does not desire to consult further on the project. Consultation with CCRPA pursuant to AB 52 was concluded by the City on November 18, 2024.

Although several cultural resources of Native American origin have been recorded in proximity to the project site, no previously recorded cultural resources of Native American origin listed on the CRHR or local register were identified within the project site as a result of the SCCIC records search, cultural resources pedestrian survey, or subsurface testing effort. Additionally, no TCRs were identified within the project site as a result of AB 52 consultation between the City and Kizh Nation.

In acknowledgment of information provided through consultation and in an effort to protect unknown TCRs, the City has developed the following mitigation measures to address potential impacts related to the inadvertent discovery of TCRs during construction. MM-TCR-1 requires the retention of a Native American monitor prior to the commencement of initial ground disturbing activities. MM-TCR-2 sets forth a treatment protocol for the unanticipated discovery of TCR objects (non-funerary/non-ceremonial). MM-TCR-3 sets forth a treatment protocol for the unanticipated discovery of human remains and associated funerary or ceremonial objects. The full text of these mitigation measures is provided in the Mitigation Measures subsection at the end of this section.

With implementation of MM-TCR-1 through MM-TCR-3, potentially significant impacts to unknown TCRs would be reduced to less than significant with mitigation incorporated.

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 § 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.***

Less Than Significant Impact with Mitigation Incorporated. Under AB 52, TCRs are defined as resources that the lead agency determines to be a TCR with a substantial burden of evidence. To date, no known TCRs have been identified through consultation that would be impacted by the project. However, the unanticipated discovery of unknown TCRs during project construction is a possibility. The implementation of MM-TCR-1 through MM-TCR-3 would ensure the proper treatment of unknown TCRs in the event of an unanticipated discovery and would reduce impacts from the proposed project to less than significant with mitigation incorporated.

Mitigation Measures

MM-TCR-1 Retention of a Native American Monitor Prior to Ground-Disturbing Activities. The City of Laguna Beach (City) shall retain a Native American monitor from interested consulting tribes (Tribes) prior to the commencement of initial ground-disturbing activities for the project. Ground-disturbing activities shall include, but are not limited to, demolition, pavement removal, potholing, augering, grubbing, tree removal, boring, grading, excavation, drilling, and trenching. The Native American monitor will complete daily monitoring logs that will provide descriptions of the relevant ground-disturbing activities; the type of construction activities performed; locations of ground-disturbing activities; soil types; culturally related materials; and any other facts, conditions, and discovered tribal cultural resources (TCRs), including but not limited to Native American cultural and historical artifacts, remains, places of significance, etc., (collectively referred to as TCRs), as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs will be provided to the City upon written request to the Tribes.

MM-TCR-2 Unanticipated Discovery Protocol for Tribal Cultural Resource Objects (Non-Funerary/Non-Ceremonial). In the event that unanticipated tribal cultural resources (TCRs) are exposed during construction activities, all construction work occurring within 50 feet of the find shall immediately stop until the discovery has been fully assessed by the Native American monitor(s) from the consulting tribes (Tribes). The work exclusion buffer may be adjusted as appropriate to allow work to feasibly continue at the recommendation of the Native American monitor(s). Should it be required, temporary flagging shall be installed around the TCR in order to avoid any disturbances from construction equipment. The Tribes will recover and retain all discovered TCRs in the form and/or manner the Tribes deem appropriate, in the Tribes' sole discretion, and for any purpose including for educational, cultural, and/or historic purposes.

MM-TCR-3 Unanticipated Discovery Protocol for Human Remains and Associated Funerary or Ceremonial Objects. Native American human remains are defined in California Public Resources

Code Section 5097.98(d)(1) as an inhumation or cremation, in any state of decomposition or skeletal completeness. Funerary objects, called "associated grave goods" in California Public Resources Code Section 5097.98, are also to be treated according to this statute.

If Native American human remains and/or associated grave goods are discovered or recognized on the project site, California Public Resources Code Section 5097.9 and California Health and Safety Code Section 7050.5 shall be followed. Human remains and/or associated grave goods shall be treated alike per California Public Resources Code Sections 5097.98(d)(1) and 5097.98(d)(2). Preservation in place (i.e., avoidance) is the preferred manner of treatment for discovered human remains and/or associated grave goods. Any discovery of human remains and/or associated grave goods shall be kept confidential to prevent further disturbance.

3.19 Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Require or result in the relocation or construction of new or expanded water, waste water treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☒	☐	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the waste water 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?	☐	☐	☐	☒
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

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

Less Than Significant Impact with Mitigation Incorporated. The proposed project consists of the replacement of a wastewater pipeline, the impacts of which are assessed throughout this IS/MND. All impacts related to the implementation of the project are less than significant or can be made less than significant with mitigation (MM-BIO-1 through MM-BIO-6, MM-CUL-1 through MM-CUL-3, MM-GEO-1 and MM-GEO-2, MM-HYD-1, MM-NOI-1, MM-TRA-1, MM-TCR-1 through MM-TCR-3, and MM-FIRE-1; see the Mitigation Measures subsection at the end of this section for locations of the full text of these mitigation measures in this IS/MND).

As it relates to other utilities that would be impacted by the proposed project, the replacement of the NCI Reach 5 pipeline would not introduce any new residential, commercial, or industrial land uses that could generate population or employment growth. The proposed project would not increase the occupancy capacity of the existing or new residences served by the SOCWA CTP. Thus, the proposed project would not create any increased demand for water supply, wastewater collection and treatment, or telecommunication facilities. In addition, the proposed project would not require construction or expansion of stormwater drainage infrastructure (see Section 3.10, Hydrology and Water Quality, for more information pertaining to stormwater) or an increase in electrical power demand.

With respect to construction, the proposed pipeline would be located within Country Club Drive for approximately 850 LF southwest of The Ranch's driving range. Within this section of the alignment, an existing 3-inch gas line owned by SoCalGas and an electrical conduit owned by Frontier are located beneath the roadway. Both of these utilities are potentially in conflict with the proposed NCI Reach 5 alignment. If segments of these utilities need to be relocated to accommodate the NCI Reach 5 pipelines, coordination with SoCalGas, Frontier, and The Ranch would be required. There is also an existing 8-inch water pipeline owned by SCWD within this road segment that may need to be shut down and relocated if in conflict.

In addition, existing utilities are present within the approximately 12-foot-wide existing access road between The Ranch's golf course and Aliso Canyon Road. In February 2023 a new SCE double-stacked 5-inch conduit was installed within the access road. As part of the installation, the contractor was provided guidance for locating the conduits outside the proposed trench width of the NCI Reach 5 alignment. An existing 3-inch gas line owned by SoCalGas remains within the access road. Prior to construction of NCI Reach 5, this gas line was going to either be relocated or abandoned by SOCWA.

As discussed throughout this document, construction impacts of the proposed project, which includes required utility relocations, would be minimized through implementation of the mitigation measures listed above. See Sections 3.4, Biological Resources; 3.5, Cultural Resources; 3.7, Geology and Soils; 3.10, Hydrology and Water Quality; 3.14, Noise; 3.17, Transportation; 3.18 Tribal Cultural Resources; and 3.20, Wildfire for the full text of these mitigation measures. Therefore, the proposed project, including relocation or abandonment of existing utilities within Country Club Road and the access road between The Ranch's golf course and Aliso Canyon Road, would have less than significant impacts with mitigation incorporated.

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

Less Than Significant Impact. As discussed in Section 3.19(a), the proposed project would not introduce any new land uses that could generate population or employment growth or increase commercial or recreational activities within the community. The project would provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater to the SOCWA CTP. The proposed project would not introduce any new residential, commercial, or industrial land uses that could generate population or employment growth. The proposed project would not increase the occupancy capacity of the existing or new residences served by the SOCWA CTP. Therefore, the proposed project would not create any increase in demand for water supplies during project operations.

As discussed in Section 3.10(b), water would be required for dust suppression during construction activities. Water would be provided by the Laguna Beach County Water District (LBCWD), which derives its water from a combination of groundwater supplies from the Orange County Groundwater Basin (of the Lower Santa Ana River Basin) and imported water from the Colorado River or from Northern California. The City groundwater wells within the Orange County Groundwater Basin are managed by OCWD. This basin is not adjudicated but is closely managed. Deliveries of water from OCWD to the LBCWD began in 2016 as an alternative local source to reduce reliance on imported water (LBCWD 2021, 2024).

The OC Water Basin is designated by DWR as a medium-priority basin, which requires OCWD to form a Groundwater Sustainability Agency and adopt a GSP or to submit an alternative to a GSP. On January 1, 2017, OCWD, the City of La Habra, and Irvine Ranch Water District submitted the Basin 8-1 Alternative Plan to DWR. Elements to be included in GSPs, as described in the California Water Code (Sections 10727.2, 10727.4, and 10727.6), have been incorporated into the Basin 8-1 Alternative Plan. Prior to the Basin 8-1 Alternative Plan, OCWD provided five groundwater management plans. The first plan was published in 1989 and the last was published in 2015. The Basin 8-1 Alternative Plan is designed to be functionally equivalent to a GSP and will be updated every 5 years per Sustainable Groundwater Management Act requirements. The Basin 8-1 Alternative Plan demonstrates that the basin has operated within its sustainable yield over a period of at least 10 years (LBCWD 2021).

Imported water is provided to the LBCWD by Metropolitan Water District of Southern California (Metropolitan), through the Municipal Water District of Orange County. Metropolitan’s water supply originates from two principal sources: the Colorado River via the Colorado River Aqueduct and the Feather River Watershed/Lake Oroville in Northern California, through the State Water Project, which travels through the Sacramento River/San Joaquin River Delta. Imported water purchased by LBCWD is treated at Metropolitan’s Diemer Water Treatment Plant in Yorba Linda (LBCWD 2021).

As part of the 2020 LBCWD Urban Water Management Plan (LBCWD 2021), constraints on water sources and expected water service reliability for a normal year, a single dry year, and 5 consecutive dry years, projected for 2025 through 2045, were analyzed to determine the reliability of LBCWD’s water supplies. A drought risk assessment was performed based on the assumption that the 5 driest consecutive years on record for the water supplier will occur over the next 5 years. This hydrologic sequence reflects the availability of Metropolitan supplies during the 1988 to 1992 drought. Water demands were compared to supply availability. Based on this assessment, the imported water supply was 100% reliable during the previous two multiple-year droughts and can compensate for reduced local surface water supplies or reduced groundwater pumping. Metropolitan has stated that its supplies will be fully reliable during the next multiple-year drought under most, if not all, conditions. This includes Metropolitan's emergency supplies, which have been accessed in the past and are a part of the supply portfolio. In addition, LBCWD has adopted a Water Shortage Contingency Plan as a separate, stand-alone document. It addresses a newly required Annual Assessment, six mandatory shortage levels with response actions for each level, and many other shortage considerations, such as communications, compliance, enforcement, legal authorities, financial consequences, monitoring and reporting, and refinement procedures.

Based on the availability of water supplies at the LBCWD, sufficient water supplies are available to serve the project. Impacts would be less than significant.

c) Would the project result in a determination by the waste water 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. As discussed in Section 3.19(a), the proposed project would not introduce any new land uses that could generate population or employment growth or increase commercial or recreational activities within the community. The project would provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater to the SOCWA CTP. The proposed project would not introduce any new residential, commercial, or industrial land uses that could generate population or employment growth. The proposed project would not increase the occupancy capacity of the existing residences or develop new residences served by the SOCWA CTP. As a result, the proposed project would not create any increase in demand for wastewater treatment. No impacts would occur.

d) Would the project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact. Based on the nature of the proposed project and the fact that no residential, commercial, or other land use typically associated with the generation of substantial quantities of solid waste would occur, the project is expected to produce only a nominal amount of refuse over its lifespan. Any solid waste generated during either construction or operation of the project that cannot be otherwise diverted and reused/recycled would be transported by a permitted waste hauler in Orange County.

Regional municipal waste landfills in Orange County include the Prima Deshecha Landfill, Frank R. Bowerman Landfill, and Olinda Alpha Landfill. The Olinda Alpha Landfill has a maximum permitted capacity of 148,800,000 cubic yards, a remaining capacity of 17,500,000 cubic yards, and a cease operation date of December 31, 2036 (CalRecycle 2024a). The Prima Deshecha Landfill has a maximum permitted capacity of 172,100,000 cubic yards, a remaining capacity of 128,800,000 cubic yards, and a cease operation date of December 31, 2102 (CalRecycle 2024b). The Frank R. Bowerman Landfill has a maximum permitted capacity of 266,000,000 cubic yards, a remaining capacity of 205,000,000 cubic yards, and a cease operation date of December 31, 2053 (CalRecycle 2024c).

Based on the available capacity of these Orange County landfills, it is anticipated that ample landfill capacity is available to dispose of project construction and operation waste. CALGreen has set recycling requirements for construction and demolition (C&D) projects. CALGreen requires the recycling and/or salvaging for reuse a minimum of 65% of the nonhazardous construction and demolition project waste. Project solid waste disposal would comply with the CALGreen provisions and City Code 7.19 (Construction and Demolition Requirements), whichever is more stringent (City of Laguna Beach 2024c).

Based on available landfill space and compliance with state and City regulations, the proposed project would not generate construction and operation solid waste in excess of state or local standards or in excess of the capacity of local infrastructure, nor would it otherwise impair the attainment of solid waste reduction goals. Impacts would be less than significant.

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact. As discussed in Section 3.19(d), the proposed project could generate some solid waste in construction and a nominal amount of solid waste during operations. Any waste may be transported to Olinda Alpha Landfill, Frank R. Bowerman Landfill, and Prima Deshecha Landfill. However, the state and the City have construction and demolition requirements, including requiring all covered projects to dispose of 65% of their materials through recycling instead of utilizing landfills. Thus, the proposed project would have no impact related to compliance with solid waste disposal regulations.

Mitigation Measures

See Section 3.4, Biological Resources, for full text of the following mitigation measures, which would reduce impacts related to utilities and service systems:

- MM-BIO-1 (Special-Status Plant Surveys)
- MM-BIO-2 (Coastal California Gnatcatcher and Least Bell's Vireo Avoidance)
- MM-BIO-3 (Crotch's Bumble Bee Surveys)
- MM-BIO-4 (Special-Status Wildlife Species Avoidance)
- MM-BIO-5 (Worker Environmental Awareness Program [WEAP] Training)
- MM-BIO-6 (Nesting Bird Avoidance)

See Section 3.5, Cultural Resources, for full text of the following mitigation measures, which would reduce impacts related to utilities and service systems:

- MM-CUL-1 (Worker's Environmental Awareness Training)
- MM-CUL-2 (Cultural Resources Monitoring and Inadvertent Discovery Protocols)
- MM-CUL-3 (Treatment of Human Remains)

See Section 3.7, Geology and Soils, for full text of the following mitigation measures, which would reduce impacts related to utilities and service systems:

- MM-GEO-1 (Ground Settlement Prevention)
- MM-GEO-2 (Paleontological Resources Impact Mitigation Program)

See Section 3.10, Hydrology and Water Quality, for full text of the following mitigation measure, which would reduce impacts related to utilities and service systems:

- MM-HYD-1 (Frac-Out Contingency Plan)

See Section 3.13, Noise, for full text of the following mitigation measure, which would reduce impacts related to utilities and service systems:

- MM-NOI-1 (Construction Noise Reduction)

See Section 3.17, Transportation, for full text of the following mitigation measure, which would reduce impacts related to utilities and service systems:

- MM-TRA-1 (Construction Traffic Control Plan)

See Section 3.18, Tribal Cultural Resources, for full text of the following mitigation measures, which would reduce impacts related to utilities and service systems:

- MM-TCR-1 (Retention of a Native American Monitor Prior to Ground-Disturbing Activities)
- MM-TCR-2 (Unanticipated Discovery Protocol for Tribal Cultural Resource Objects [Non-Funerary/Non-Ceremonial])
- MM-TCR-3 (Unanticipated Discovery Protocol for Human Remains and Associated Funerary or Ceremonial Objects)

See Section 3.20: Wildfire, for full text of the following mitigation measure, which would reduce impacts related to utilities and service systems:

- MM-FIRE-1 (Construction Fire Prevention Plan)

3.20 Wildfire

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. WILDFIRE – If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☒	☐	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☒	☐	☐

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

The project site is located within a VHFHSZ and the area most recently burned in 2022.

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

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

Less Than Significant Impact with Mitigation Incorporated. As discussed in Section 3.9, Hazards and Hazardous Materials, the City has adopted a local hazard mitigation plan and an evacuation plan. The City's updated local hazard mitigation plan was approved by FEMA and adopted by the Laguna Beach City Council in December of 2023 (City of Laguna Beach 2023). As stated in the City's General Plan Safety Element, as part of the City's preparedness initiatives, an Evacuation Analysis has been prepared that identifies the routes used for evacuation purposes (City of Laguna Beach 2021a). Also, as indicated in the City's Wildfire Egress Study, which was prepared to examine anticipated traffic conditions and evacuation times associated with various rates of evacuation responses and alternative management strategies that could be used in response to them for the Emergency Management Zones (EMZs) within the City, Coast Highway and Country Club Drive are designated as evacuation routes (City of Laguna Beach 2021b).

The project site is in an established, developed area with sufficient access for emergency service providers. Regional access to the site is provided via Coast Highway, located southwest of the project site. Local access to the project site is provided via Country Club Drive. Construction would entail temporary work in Country Club Drive, which would require closing portions of the travel lanes. Given that Country Club Drive is a designated evacuation route in the City's Wildfire Egress Study, closing portions of the travel lanes during construction could impair the use of Country Club Drive during an evacuation and result in a potentially significant impact to an existing evacuation plan; however, no full road closures in the public right-of-way or driveway closures are anticipated that would impact adopted emergency access or response plans. As discussed in Section 3.17, Transportation, as part of the Construction Traffic Control Plan (MM-TRA-1), the contractor would follow standard construction practices and ensure that adequate on-site circulation and access is always maintained for all users, including coordinating with local emergency response providers (local police, fire, and medical dispatch) regarding proposed construction activities. Operation of the project would not require changes to the existing off-site circulation on City roads. As such, the project would have a less than significant impact with mitigation incorporated related to impairing an adopted emergency response plan or emergency evacuation plan.

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

Less Than Significant Impact with Mitigation Incorporated. The project site is in Aliso Canyon, which has steep slopes that are capable of influencing wildfire behavior by funneling or channeling winds in canyons, chutes, or chimney topographic features. Laguna Beach has a mediterranean climate with an average high temperature of 78°F, with historically recorded maximum temperatures reaching over 100°F. The monthly maximum average rainfall is 2.9 inches. Annual average wind speeds range from 5.5 miles per hour to 7.3 miles per hour (WeatherSpark 2024). The project site is within a VHFHSZ in a State Responsibility Area (CAL FIRE 2024), as shown on Figure 3.20-1, Fire Hazard Severity Zones, and is susceptible to extreme fire weather, such as Santa Ana wind events. Vegetation in Aliso Canyon includes native and non-native vegetation communities that may carry wildfire and contribute to the existing wildfire hazard at the project site. Native vegetation communities include chamise chaparral, arroyo willow thickets, sandbar willow thickets, coyote brush scrub, California brittle bush–ashy buckwheat scrub, lemonade berry scrub, and California sagebrush scrub. Non-native vegetation communities found on the project site include common and giant reed marshes, wild oats and annual brome grasslands, and eucalyptus tree groves.

According to available data from CAL FIRE in the Fire and Resource Assessment Program (FRAP) database (CAL FIRE 2023),[10] 18 fires have been recorded since 1955 within 5 miles of the project site. These fires range from approximately 14 acres to 14,337 acres (1993 Laguna Fire), and the average fire size is approximately 281 acres (not including the 1993 Laguna Fire or fires smaller than 10 acres). The Laguna Beach Fire Department may have data regarding smaller fires (less than 10 acres) that have occurred on site that have not been included herein. Table 3.20-1 summarizes the fire history for the area within 5 miles of the project site, and the data is shown on Figure 3.20-2, Wildfire History.

Table 3.20-1. Fire History Within 5 Miles of the NCI Reach 5 Project Site

Fire Year	Fire Name	Interval (Years)	Total Area Burned (Acres)
1955	Jack	6	1,606.5
1961	Outside Origin No. 6	18	339.2
1979	Niguel	0	135.8
1979	Ortega	0	302.4
1979	Laguna (Boat)	11	534.6
1990	Monarch	3	101.4
1993	Laguna Fire	1	14,337.8
1994	Ridge Line	3	706.4
1997	El Moro	5	90.7
2002	Laguna	0	83.3
2002	Avery	13	129.8

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[10] This data set is based on polygon geographic information system (GIS) data from CAL FIRE's FRAP, which includes data from CAL FIRE, U.S. Forest Service Region 5, BLM, National Park Service, Contract Counties, and other agencies. The data set is a comprehensive fire perimeter GIS layer for public and private lands throughout the state and covers fires 10 acres and greater between 1878 and 2023.

Table 3.20-1. Fire History Within 5 Miles of the NCI Reach 5 Project Site

Fire Year	Fire Name	Interval (Years)	Total Area Burned (Acres)
2015	Unnamed	1	14.1
2016	Laguna	0	46.3
2016	San Juan	0	70.3
2016	Trabuco	2	97.3
2018	Aliso	4	175.7
2022	Emerald	0	154.6
2022	Coastal	—	202.1

Source: CAL FIRE 2023.

Based on an analysis of the fire history data set—specifically, the years in which the fires burned—the average interval between wildfires within 5 miles of the project site was calculated to be approximately 4 years, with intervals ranging between 0 (multiple fires in the same year) to 18 years. Based on the analysis, it is expected that there will be wildland fires within 5 miles of the project site at least every 18 years and on average, every 4 years, as observed in the fire history record. Based on fire history, wildfire risk for the project site is associated primarily with a Santa Ana wind–driven wildfire, although a fire approaching from the west during more typical onshore weather patterns is possible. The proximity of the project site to large expanses of surrounding open space and its location in Aliso Canyon has the potential to funnel Santa Ana winds, thereby increasing local wind speeds and increasing wildfire hazard in the project vicinity.

The proposed project involves the replacement of an underground pipeline within Aliso Canyon, in a hilly, vegetated area. Materials used would be nonflammable and the proposed project would not entail the construction of habitable structures. The proposed pipeline would be underground. Construction would involve the temporary deployment of construction personnel to the project site and the possible use of combustion engine–powered equipment, which has the potential to produce sparks that could ignite a fire, the spread of which could result in pollution concentrations and uncontrolled spread of wildfire and could result in a potentially significant impact related to exacerbating wildfire risk. During construction, the project would be required to comply with construction and vegetation clearance regulations, such as Chapter 33 of the California Building Code, Safeguards During Construction. Further, the incorporation of MM-FIRE-1 (Construction Fire Prevention Plan) would reduce potential impacts related to exacerbating wildfire risks (see the Mitigation Measures subsection at the end of this section for the full text of MM-FIRE-1).

With the incorporation of MM-FIRE-1, impacts associated with exacerbating wildfire risks during project construction would be reduced to less than significant with mitigation incorporated.

During operation, the proposed pipelines would be underground, the project would not result in increased on-site employees, and the project would not involve the operation of any mechanical equipment with the potential to produce sparks. As such, impacts associated with pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire during operations would be less than significant.

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

Less Than Significant Impact with Mitigation Incorporated. The proposed project would involve installation and maintenance of infrastructure (underground pipeline) within, or close to, VHFHSZs, but would not include installation or maintenance of roads, fuel breaks, emergency water sources, power lines, utilities, or other associated infrastructure. Upon completion of construction, the proposed pipelines would be located entirely underground and would not exacerbate fire risk.

As discussed in Section 3.20(b), construction of the project would involve the use of combustion-engine construction equipment, which could temporarily exacerbate fire risk. However, adherence to regulatory requirements and implementation of MM-FIRE-1 during construction would reduce such impacts to less than significant with mitigation incorporated. Also as discussed in Section 3.20(b), operation of the project would not result in increased fire risk. All temporary or ongoing impacts to the environment have been addressed and mitigated throughout this IS/MND. Therefore, impacts related to exacerbated fire risk during operation would be less than significant.

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

Less Than Significant Impact. As discussed in Section 3.7, Geology and Soils, steep slopes are present along Aliso Canyon and there is a potential for slope failure along the pipeline alignment. Based on geologic mapping by CGS, the majority of the alignment is mapped in or is downslope from areas considered susceptible to seismically induced landslides. Several relatively large landslides have been mapped along Aliso Canyon and indications of landslides were observed during a geologic reconnaissance for the project-specific geotechnical report, although the pipeline would be installed below the depth of the landslides (Appendix D).

During trenching for pipeline construction, trench and pit sidewalls could fail. However, in accordance with recommendations of the project geotechnical report, temporary shoring would be designed and installed to support the excavation sidewalls and to reduce the potential for settlement of the adjacent roadway and existing utilities. With implementation of the recommendations of the project-specific geotechnical report, the project would not expose people or structures to significant risks of landslides.

As discussed in Section 3.7, pipeline construction would result in temporary disturbance of soils in the vicinity of the excavation, as well as temporary stockpiling of soils pending backfill or off-site soil disposal. Project construction could result in wind and water erosion and associated sediment transport into the adjacent Aliso Creek. However, because construction would adhere to a SWPPP, the project would not result in substantial soil erosion or the loss of topsoil and impacts would be less than significant.

Further, as discussed in Section 3.10, Hydrology and Water Quality, project construction would not result in an increase in impervious surfaces and drainage patterns would not be altered as a result of the project. The existing topography and drainage conditions would be restored after construction. Therefore, the project would not increase the amount of surface or stormwater runoff.

Accordingly, runoff water would not exceed the capacity of existing or planned stormwater drainage systems, and would not result in flooding, substantial erosion, or siltation on the project site or in the adjacent Aliso Creek.

Portions of the proposed pipeline alignment are within a 100-year Special Flood Hazard Area with base flood elevations (Zone AE) (FEMA 2024), but all components of the project would be constructed below ground and would not protrude into the floodplain. Therefore, the proposed project would not impede or redirect flood flows.

As discussed in Section 3.20(b), Figure 3.20-2 shows that there have been 18 fires within a 5-mile radius of the project site, with the 2022 Coastal Fire close to where the project alignment terminates in Aliso Canyon. Wildfires may result in soils becoming hydrophobic (water repellent) due to the burning of the accumulated organic matter in soil. The water repellency may increase risk of mudflows and landslides (Movasat and Tomac 2020). The historical fires close to the project site may contribute to an existing risk of post-fire slope instability. Over time, vegetation regrowth aids in restabilizing soils.

For the reasons discussed above, and because there would be no habitable structures or permanent employees on the project site, the project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes, and impacts would be less than significant.

Mitigation Measures

MM-FIRE-1 **Construction Fire Prevention Plan.** The City of Laguna Beach shall prepare and implement a Construction Fire Prevention Plan (Plan) to ensure the safety of workers and the public during construction of the proposed project. The applicant must submit the Plan to the Laguna Beach Fire Department for review and approval prior to construction. The Plan shall include, but not be limited to, the following elements:

- Procedures shall be provided for minimizing potential ignition, including vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, and hot work restrictions.
- Work restrictions shall be provided for implementation during Red Flag Warnings and High to Extreme Fire Danger days.
- All internal combustion engines used at the proposed project site shall be equipped with spark arrestors. Spark arrestors shall be in good working order.
- Fire rules shall be posted and visible all to employees at the contractor’s field office and in other common areas.
- Equipment parking areas and small stationary engine sites shall be cleared of all flammable materials.
- Smoking shall be prohibited in all vegetated areas and within 50 feet of combustible materials storage and shall be limited to paved areas or areas cleared of all vegetation.
- During construction, fire extinguishers and fire-fighting equipment sufficient to extinguish small fires shall be available on site and all construction vehicles shall be equipped with a fire extinguisher.

- All construction workers visiting the project site shall receive training on fire prevention procedures, the proper use of fire-fighting equipment, and procedures to be followed in the event of a fire.
- Fires ignited on site shall be immediately reported to the Laguna Beach Fire Department.
- The engineering, procurement, and construction contract(s) for the proposed project shall provide reference to or clearly state the requirements of this mitigation measure.

See Section 3.17, Transportation, for the full text of the following mitigation measure, which would also reduce wildfire-related impacts:

- MM-TRA-1 (Construction Traffic Control Plan)

3.21 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
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?	☐	☒	☐	☐

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

Less Than Significant Impact with Mitigation Incorporated. Potential impacts related to sensitive and special-status habitat, wildlife species, and plant species are discussed in Section 3.4, Biological Resources. As discussed in Section 3.4, all potentially significant impacts to biological resources would be reduced to a level below significance with incorporation of mitigation measures. The proposed project would not substantially degrade the quality of the environment or impact fish or wildlife species or plant communities. As discussed in Section 3.5, Cultural Resources, potential impacts to cultural resources would be reduced to a level below significance with incorporation of mitigation measures. In addition, as discussed in Section 3.18, the proposed project would not result in significant impacts to TCRs. The proposed project would not eliminate important examples of the major periods of California history or prehistory. Overall, impacts would be less than significant with incorporation of mitigation measures.

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.)***

Less Than Significant Impact with Mitigation Incorporated. As indicated in the analysis presented throughout this IS/MND, the proposed project would not result in significant and unavoidable impacts in any issue area. With the incorporation of mitigation identified herein and included in the Mitigation Monitoring and Reporting Program (Appendix F), the project's impacts would be reduced to less than significant levels and would not considerably contribute to cumulative impacts in the greater project region. In addition, other related projects would presumably be bound by their applicable lead agency to (1) comply with all applicable federal, state, and local regulatory requirements and (2) incorporate all feasible mitigation measures, consistent with CEQA, to further ensure that their potentially cumulative impacts would be reduced to less than significant levels.

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

Less Than Significant Impact with Mitigation Incorporated. The potential for adverse direct or indirect impacts to human beings was considered throughout this IS/MND. Based on this evaluation, there is no substantial evidence that construction or operation of the project with the proposed mitigation measures incorporated would result in a substantial adverse effect on human beings. Impacts would be less than significant with mitigation incorporation.

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4 References and Preparers

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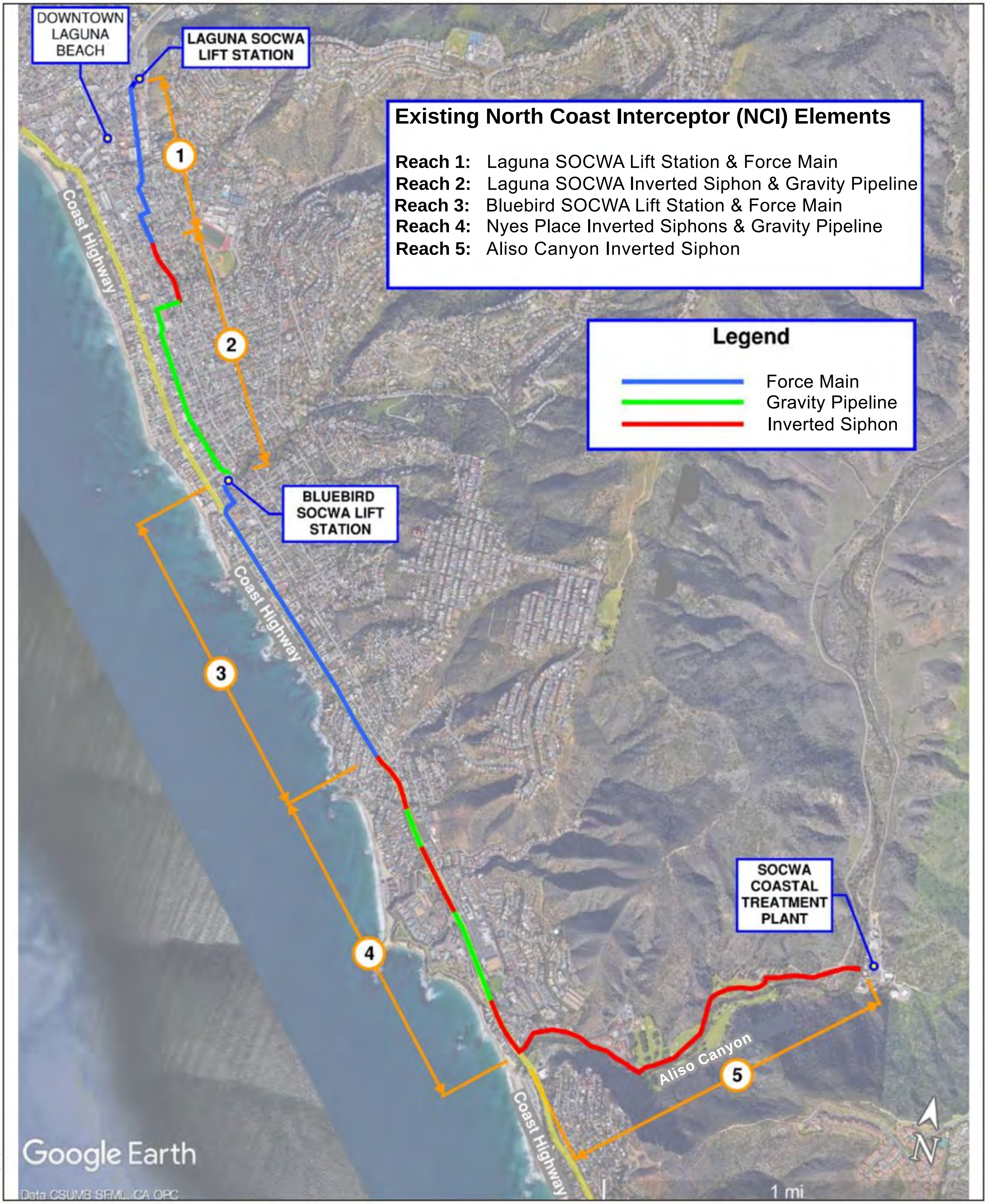

SOURCE: Dudek 2024

FIGURE 2-1

Existing NCI Reaches

North Coast Interceptor Reach 5 Replacement Project IS/MND

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SOURCE: Dudek 2024

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FIGURE 2-2

Reach 5 Existing Alignment

North Coast Interceptor Reach 5 Replacement Project IS/MND

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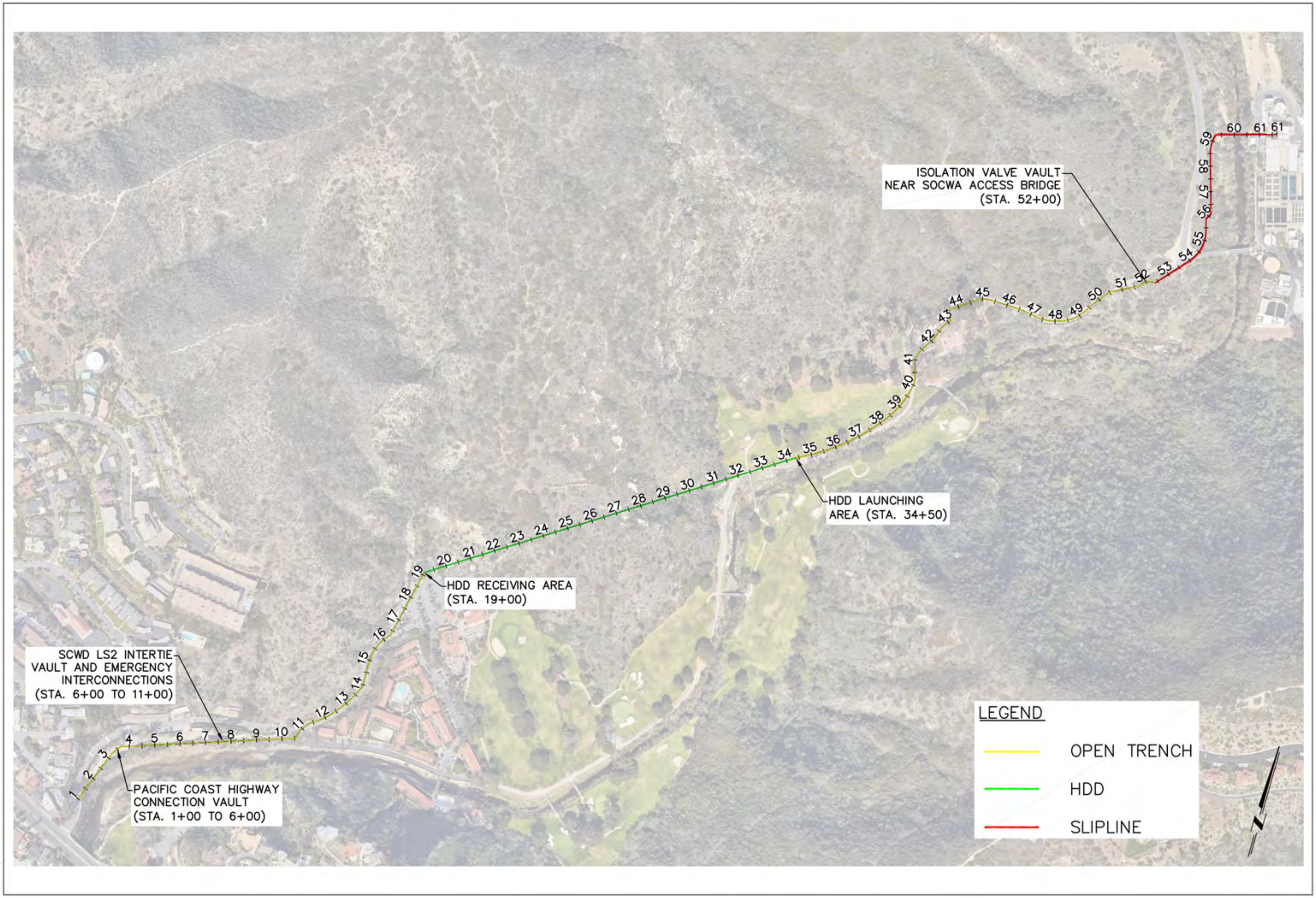

SOURCE: Dudek 2024

FIGURE 2-3

Project Alignment

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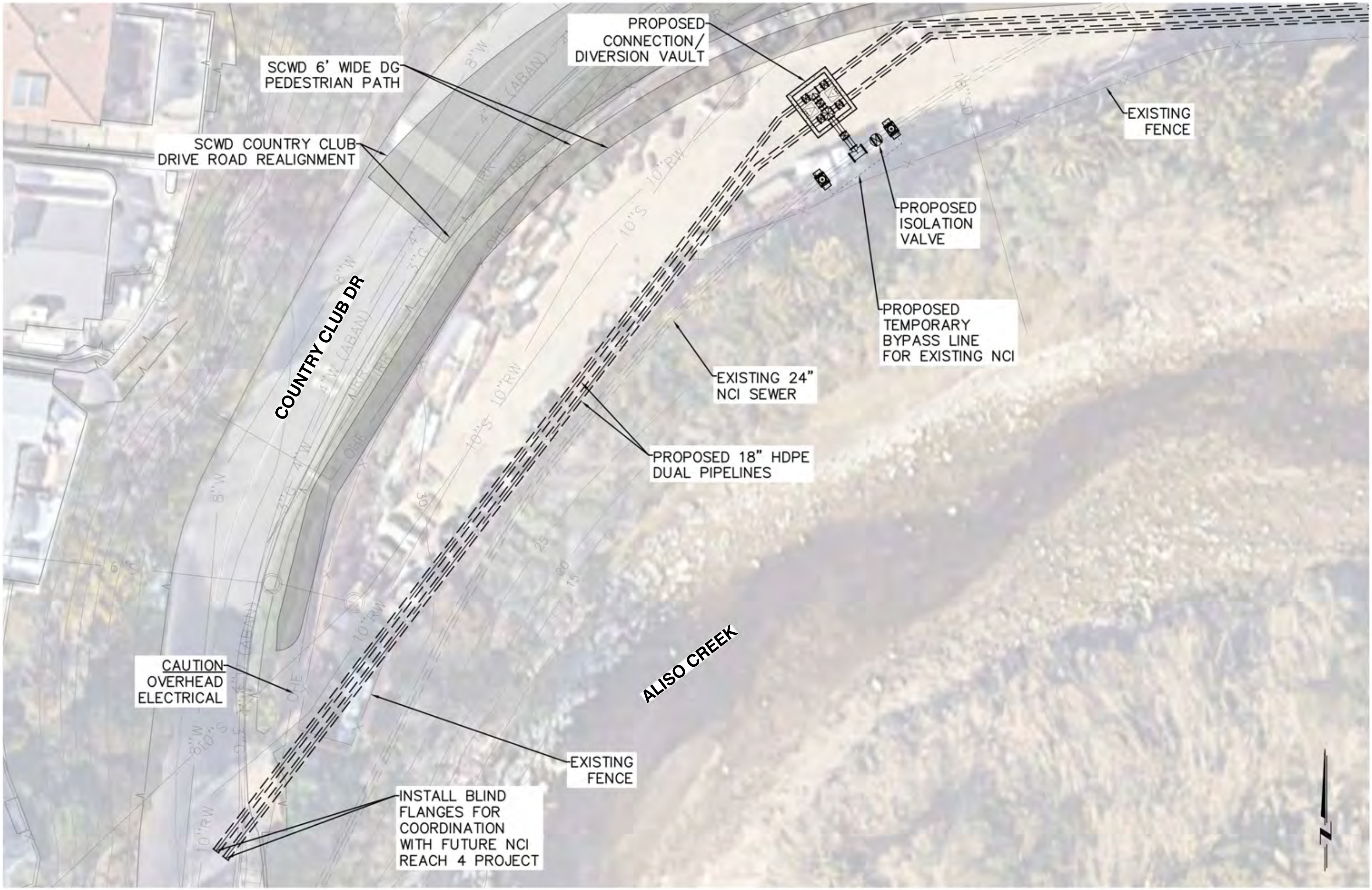

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SOURCE: Dudek 2024

FIGURE 2-4

Pacific Coast Highway Connection Vault

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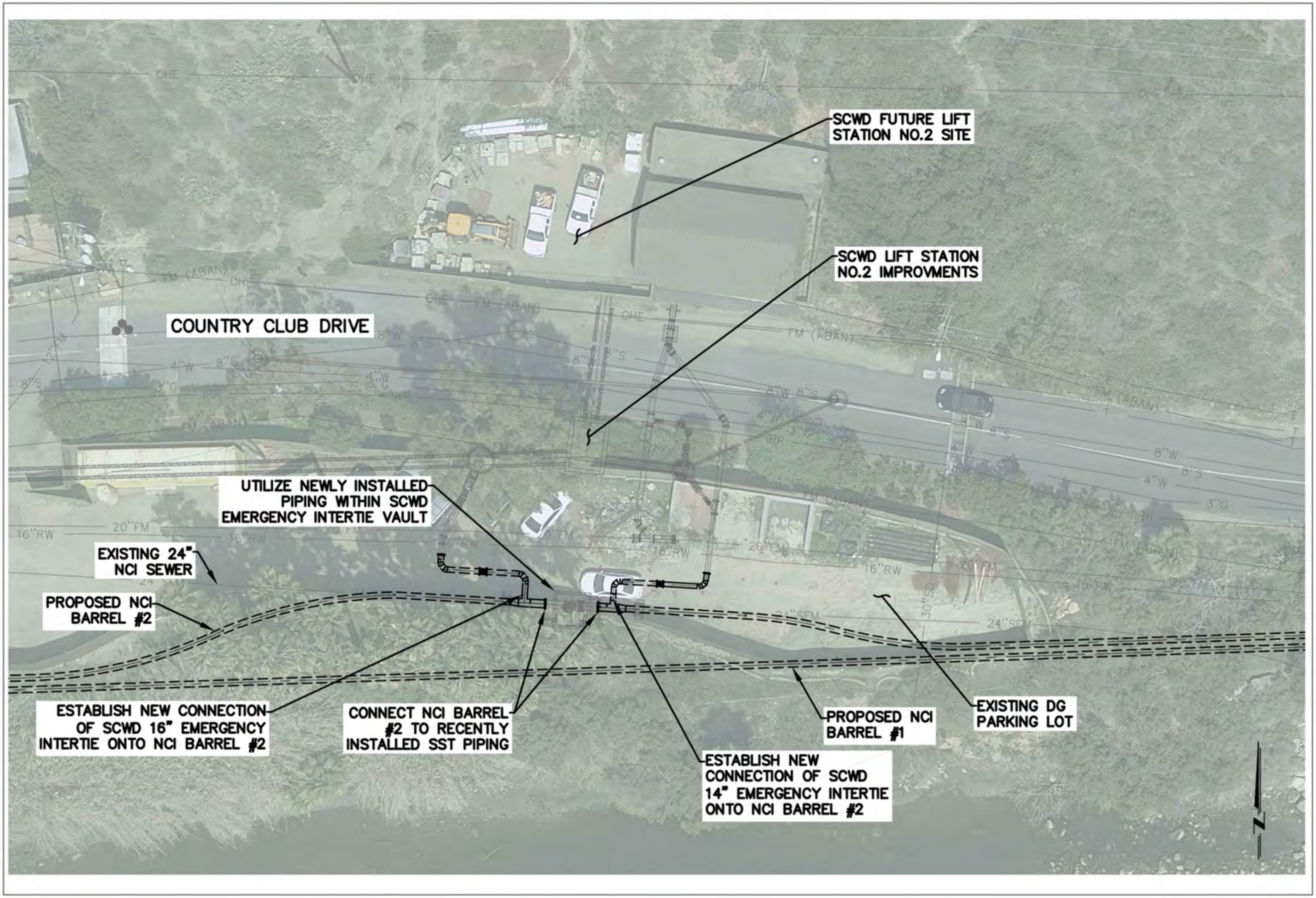

SOURCE: Dudek 2024

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FIGURE 2-5

SCWD Lift Station 2 Intertie Vault and Emergency Interconnections - Western Portion

North Coast Interceptor Reach 5 Replacement Project IS/MND

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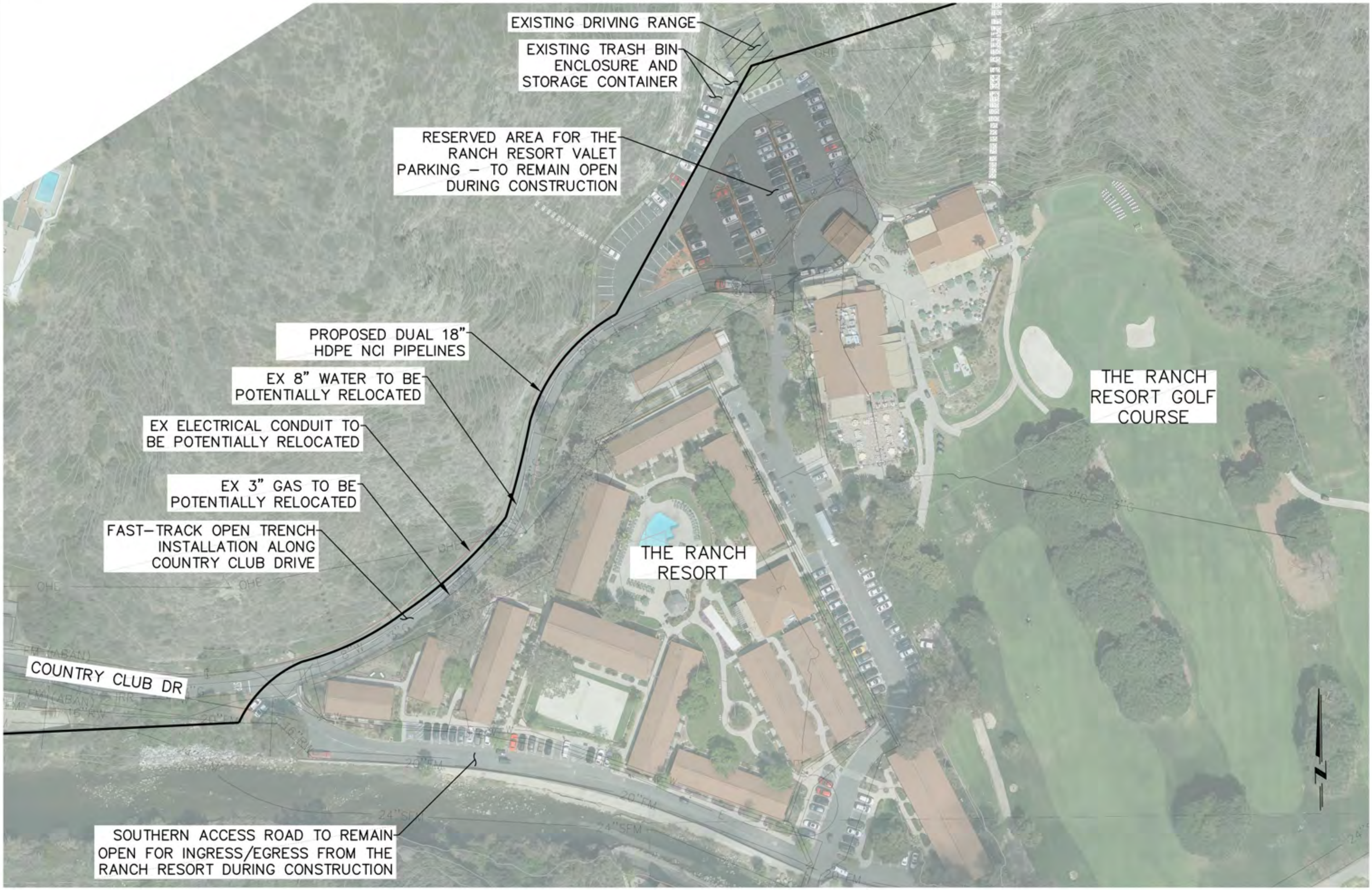

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SOURCE: Dudek 2024

FIGURE 2-6

SCWD Lift Station 2 Intertie Vault and Emergency Interconnections– Eastern Portion

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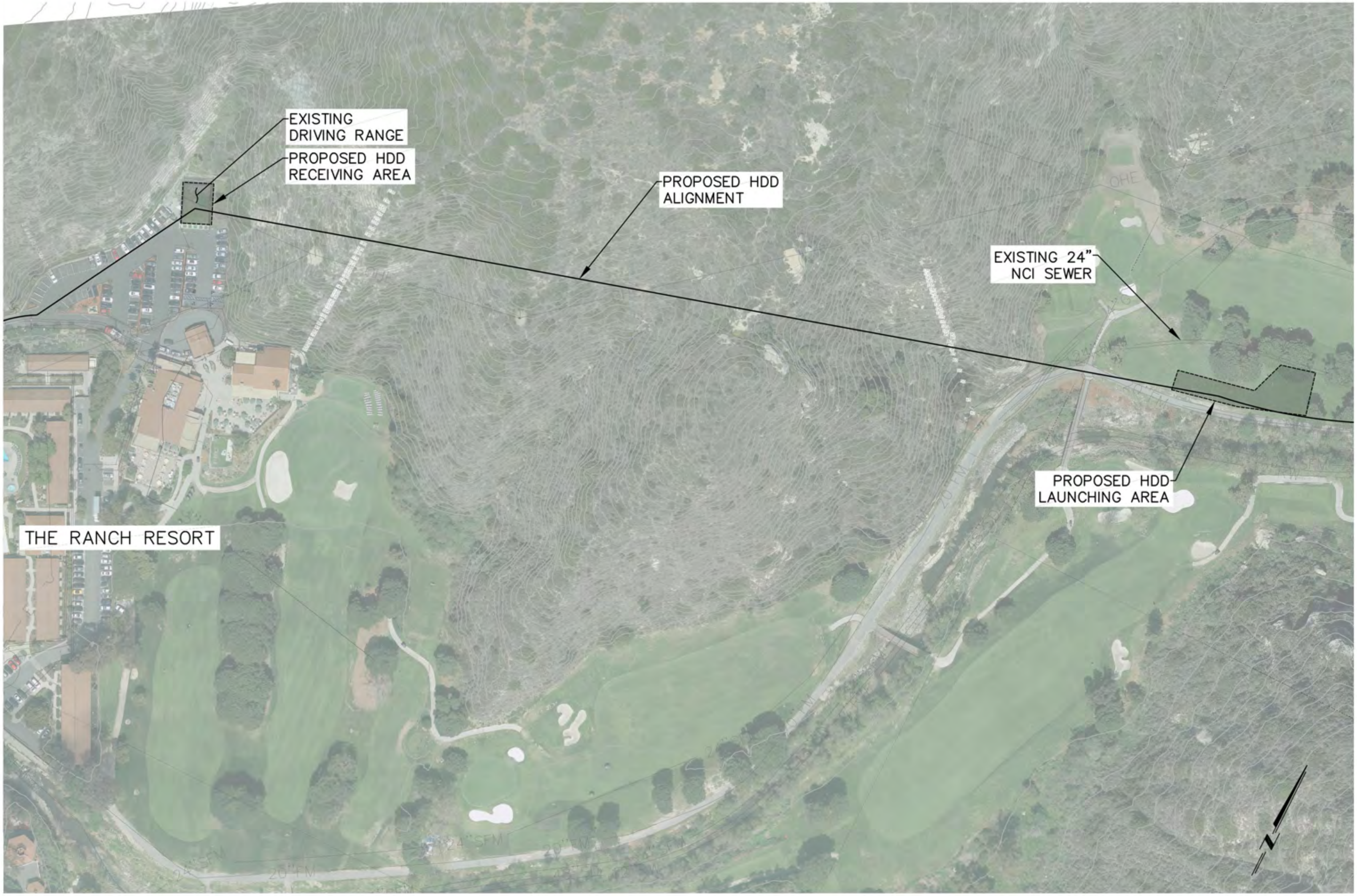

SOURCE: Dudek 2024

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FIGURE 2-7

HDD Receiving Area, Alignment and Launching Area

North Coast Interceptor Reach 5 Replacement Project IS/MND

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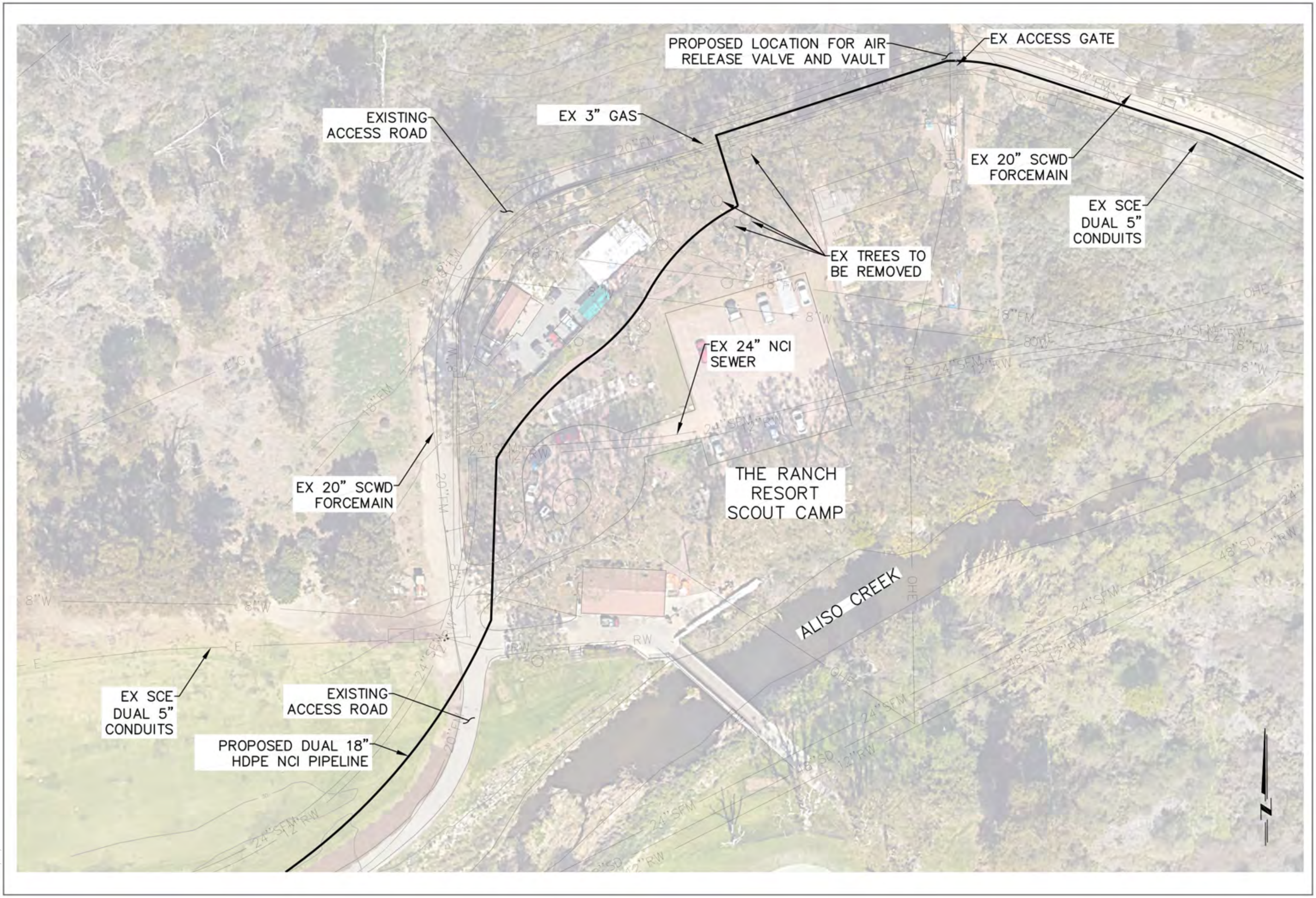

SOURCE: Dudek 2024

FIGURE 2-8

Open Trench Through Scout Camp

North Coast Interceptor Reach 5 Replacement Project IS/MND

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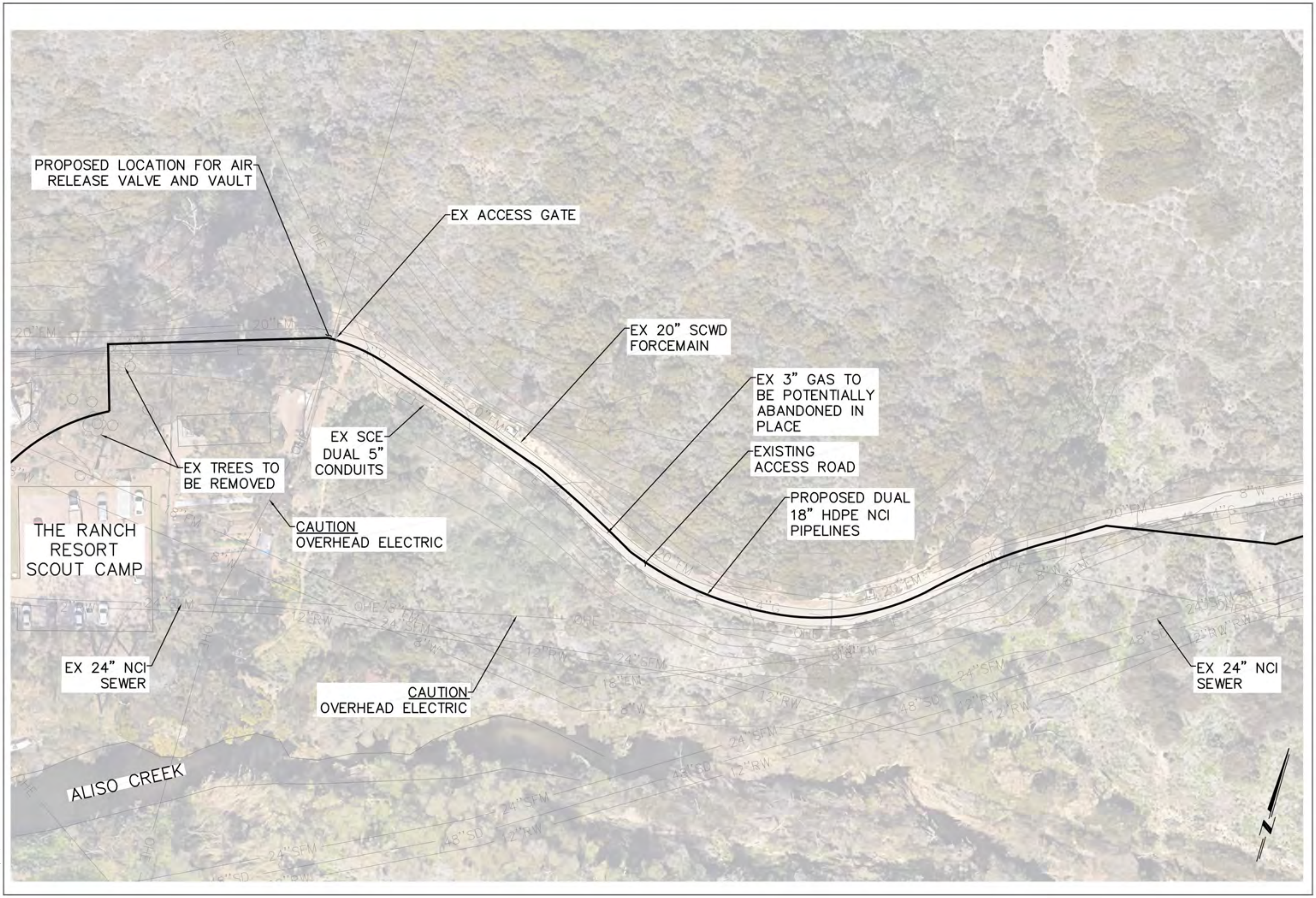

SOURCE: Dudek 2024

FIGURE 2-9

Open Trench Along Access Road

North Coast Interceptor Reach 5 Replacement Project IS/MND

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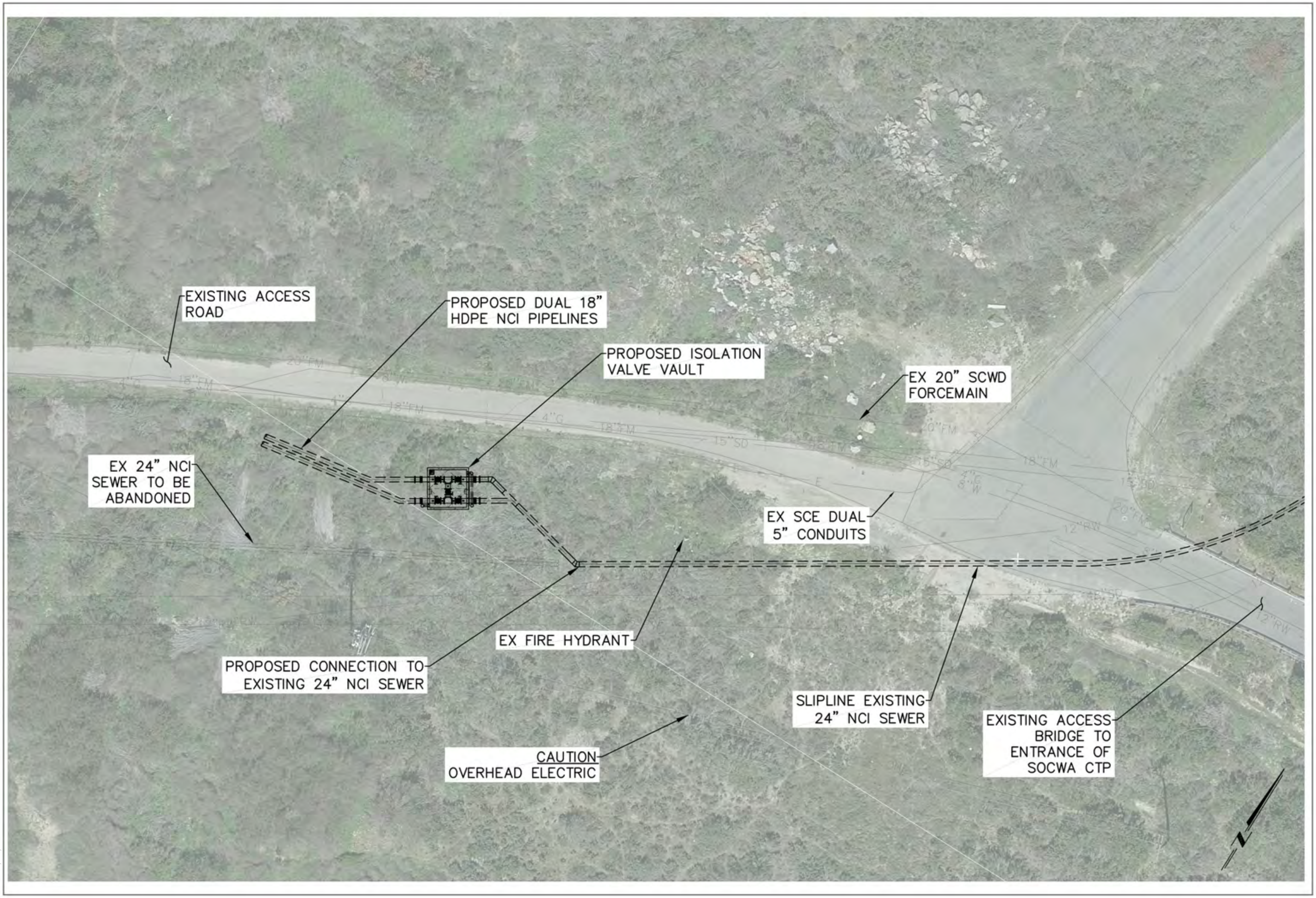

SOURCE: Dudek 2024

FIGURE 2-10

Isolation Valve Vault Near SOCWA CTP Access Bridge

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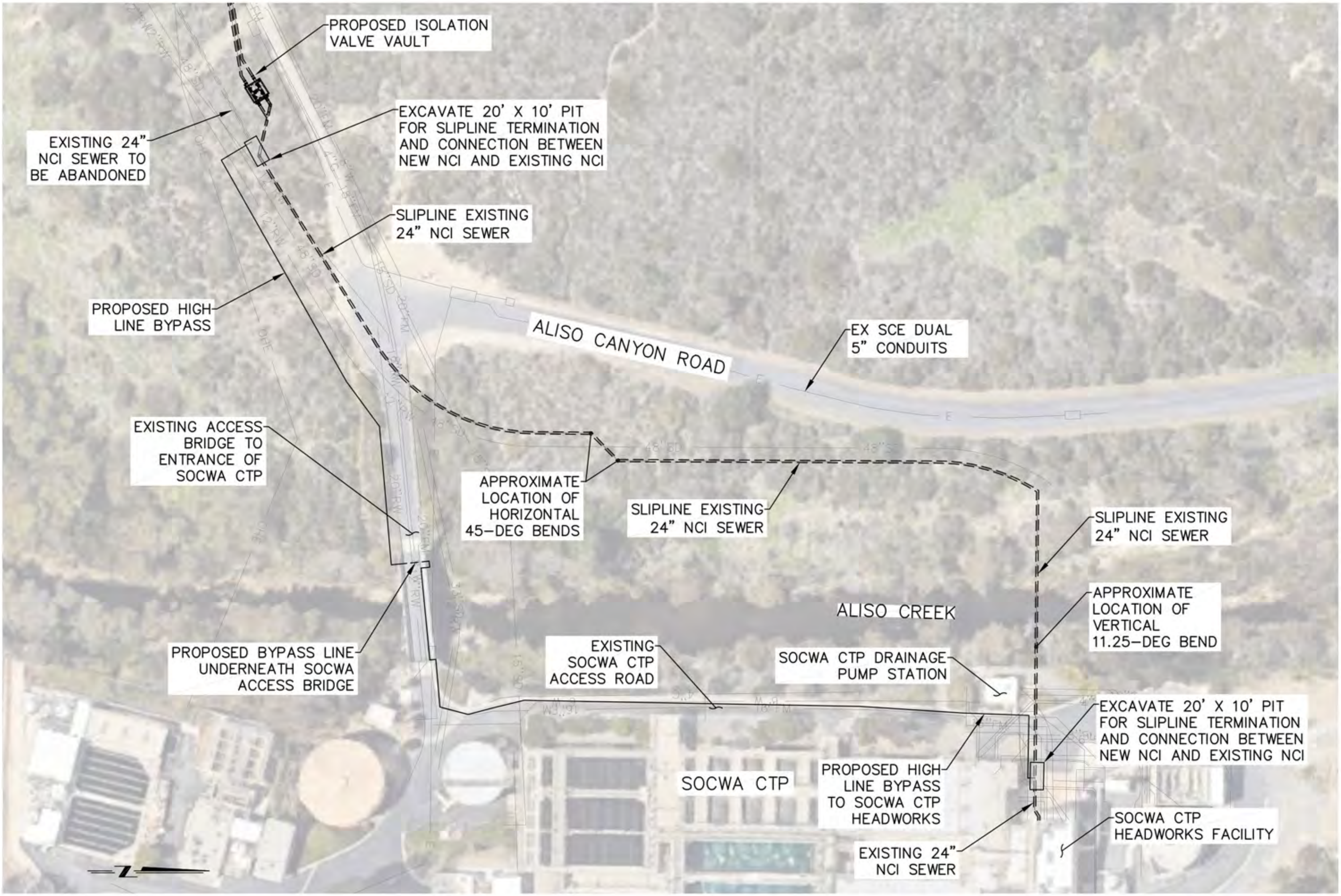

SOURCE: Dudek 2024

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FIGURE 2-11

Slip Lining of NCI Reach 5

North Coast Interceptor Reach 5 Replacement Project IS/MND

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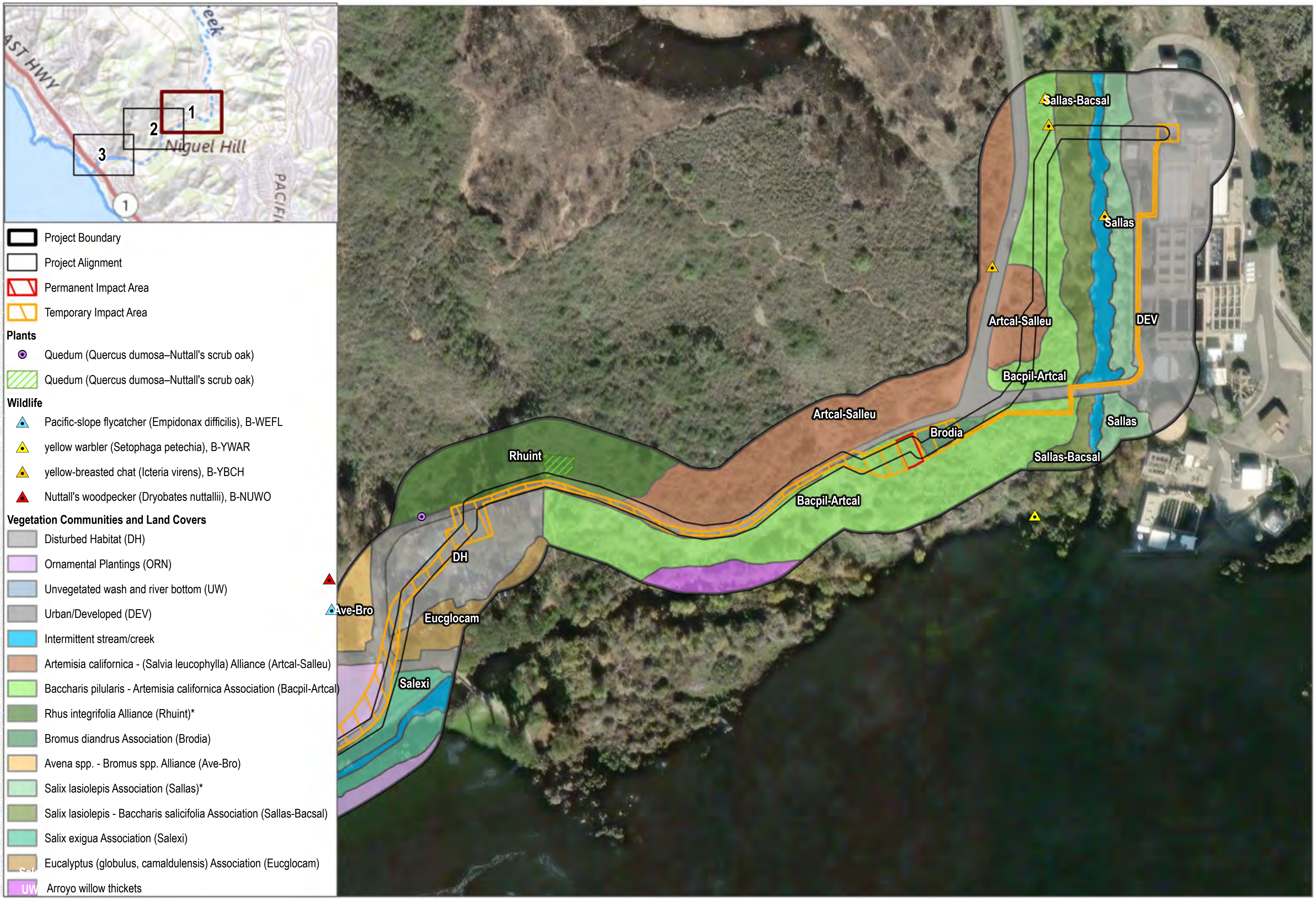

SOURCE: Esri Imagery Accessed 2024

DUDEK

FIGURE 3.4-1a

Biological Resources Map

Laguna Beach NCI Reach 5

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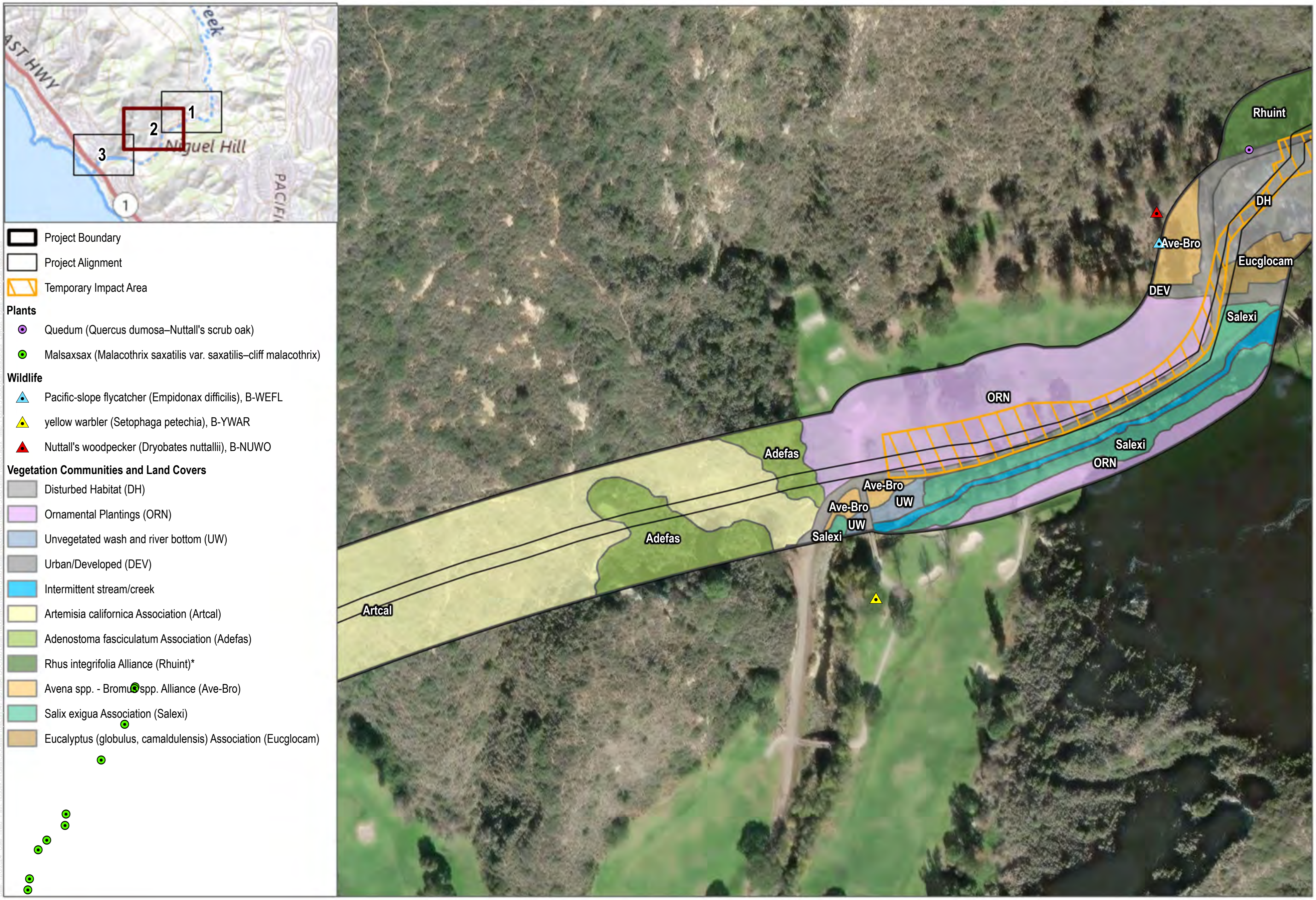

SOURCE: Esri Imagery Accessed 2024

FIGURE 3.4-1b

Biological Resources Map

Laguna Beach NCI Reach 5

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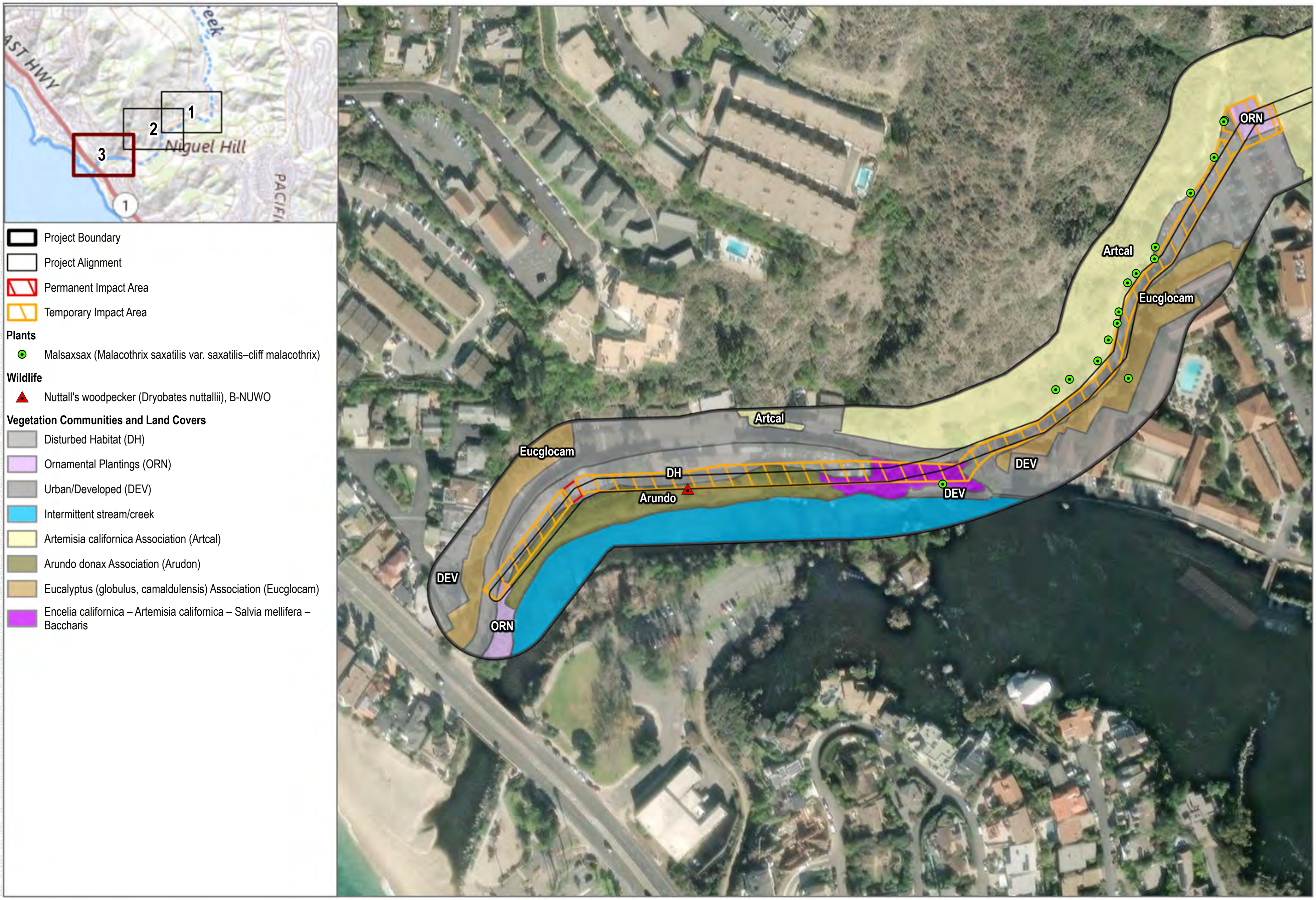

SOURCE: Esri Imagery Accessed 2024

0 115 230
Feet

FIGURE 3.4-1c

Biological Resources Map

Laguna Beach NCI Reach 5

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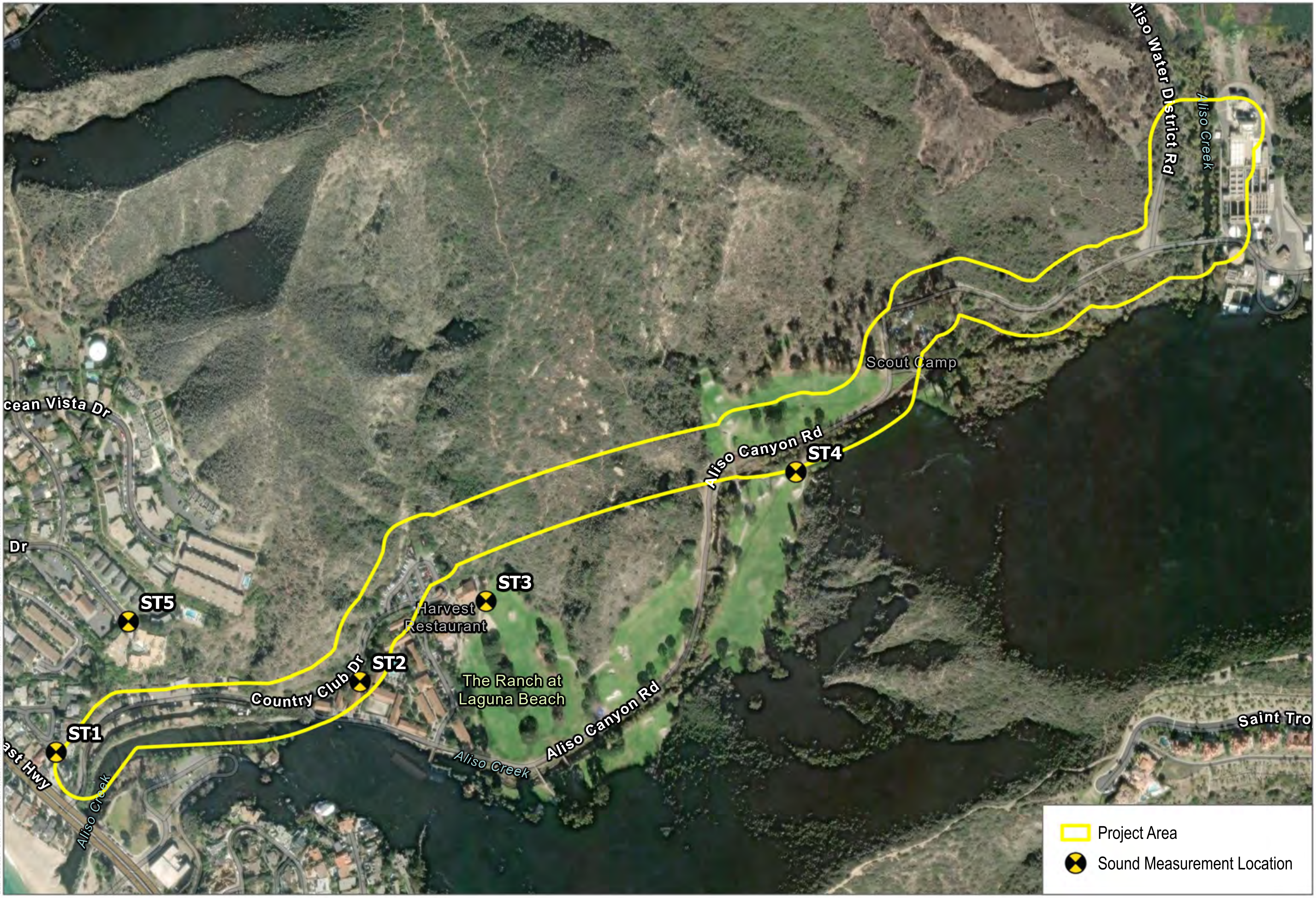

SOURCE: Esri Imagery Accessed 2024; OpenStreetMaps 2019

DUDEK

FIGURE 3.13-1

Sound Measurement Locations

North Coast Interceptor Reach 5 Replacement Project MND

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SOURCE: Dudek 2024

FIGURE 3.17-1

Existing Transit Facilities

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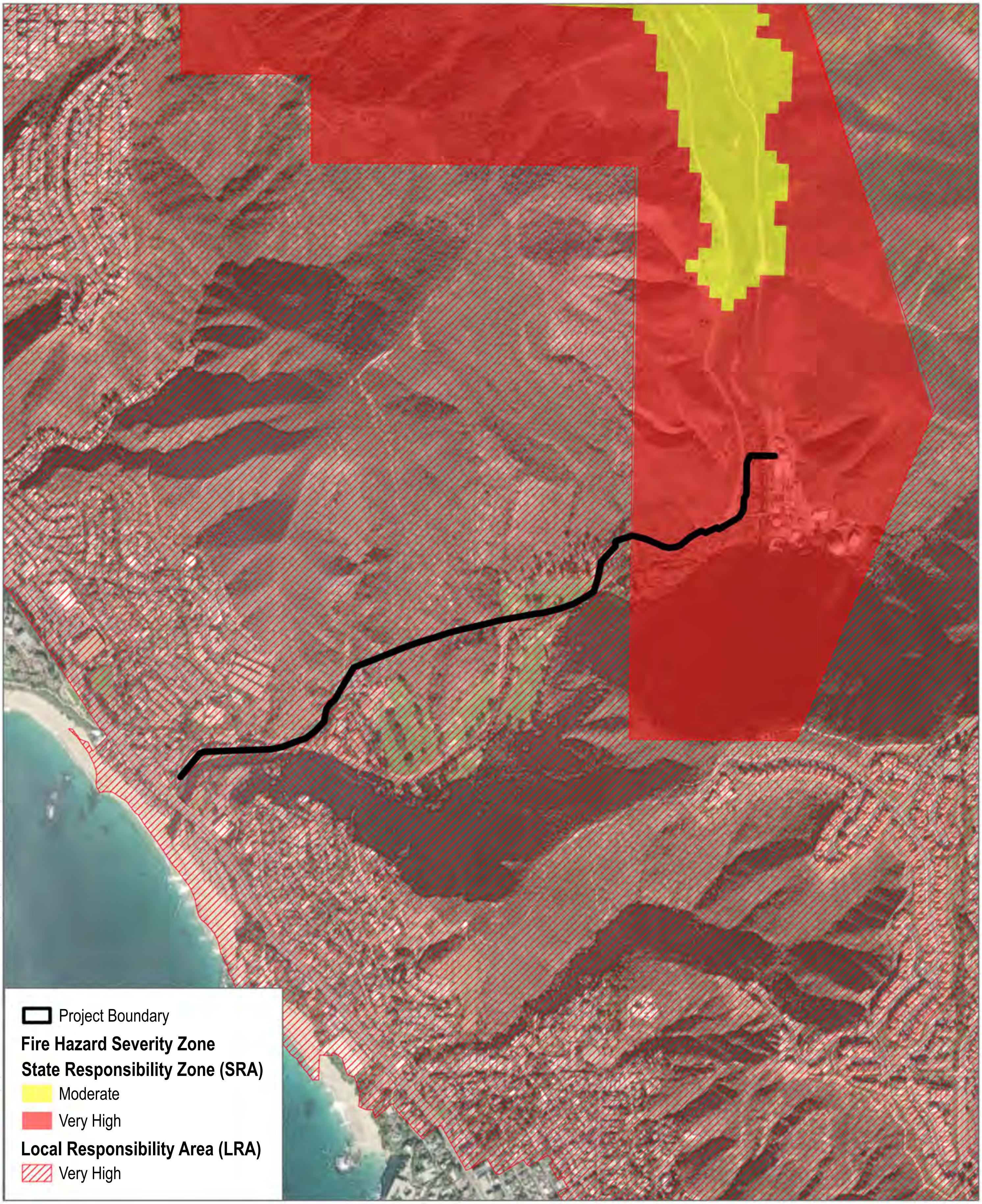

Date: 9/24/2024 User: nreid Path: Z:\Projects\j1471901\MAPDOC\Fire\NCI Reach 5 Fire\NCI Reach 5 Fire.aprx Map: Figure 1 FHSZ Layout: DRAFT Figure 1 FHSZ

SOURCE: Esri Imagery Accessed 2024; CAL FIRE 2023/24

FIGURE 3.20-1

Fire Hazard Severity Zones

North Coast Interceptor Reach 5 Replacement Project MND

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SOURCE: Esri Imagery Accessed 2024; CAL FIRE 2023/24

Date: 9/24/2024 User: nreid Path: Z:\Projects\j1471901\MAPDOC\Fire\NCI Reach 5 Fire\NCI Reach 5 Fire.aprx Map: Fig 2 Fire History Layout: Figure 2 Fire History

FIGURE 3.20-2

Wildfire History

North Coast Interceptor Reach 5 Replacement Project MND

DUDEK

0 4,000 8,000
Feet

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Appendix A

Air Quality and Greenhouse Gas Emissions Report

Laguna Beach NCI Reach 5 Pipeline Replacement Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Laguna Beach NCI Reach 5 Pipeline Replacement
Construction Start Date	12/1/2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	0.80
Location	33.51445804333602, -117.74458416422104
County	Orange
City	Laguna Beach
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	6014
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	29.0	1000sqft	0.66	0.00	9,600	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.69	0.55	5.16	6.99	0.02	0.14	0.45	0.52	0.13	0.11	0.23	—	2,006	2,006	0.10	0.15	2.27	2,057
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.78	0.57	6.19	7.91	0.02	0.17	0.67	0.84	0.16	0.18	0.34	—	2,841	2,841	0.18	0.33	0.12	2,943
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.32	0.23	2.48	3.32	0.01	0.06	0.30	0.36	0.06	0.08	0.13	—	1,118	1,118	0.06	0.10	0.71	1,149
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.06	0.04	0.45	0.61	< 0.005	0.01	0.06	0.07	0.01	0.01	0.02	—	185	185	0.01	0.02	0.12	190

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.69	0.55	5.16	6.99	0.02	0.14	0.45	0.52	0.13	0.11	0.23	—	2,006	2,006	0.10	0.15	2.27	2,057

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.78	0.52	6.19	5.82	0.02	0.17	0.67	0.84	0.16	0.18	0.34	—	2,841	2,841	0.18	0.33	0.12	2,943
2027	0.74	0.50	6.04	7.14	0.02	0.15	0.67	0.83	0.14	0.18	0.33	—	2,799	2,799	0.18	0.33	0.11	2,901
2028	0.71	0.57	5.55	7.91	0.02	0.14	0.49	0.62	0.13	0.13	0.25	—	2,371	2,371	0.13	0.21	0.07	2,438
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.09	0.07	0.64	0.74	< 0.005	0.02	0.04	0.06	0.02	0.01	0.03	—	205	205	0.01	0.01	0.11	210
2027	0.32	0.23	2.48	3.32	0.01	0.06	0.30	0.36	0.06	0.08	0.13	—	1,118	1,118	0.06	0.10	0.71	1,149
2028	0.10	0.08	0.78	1.12	< 0.005	0.02	0.05	0.07	0.02	0.01	0.03	—	256	256	0.01	0.01	0.09	260
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.02	0.01	0.12	0.13	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.01	—	33.9	33.9	< 0.005	< 0.005	0.02	34.7
2027	0.06	0.04	0.45	0.61	< 0.005	0.01	0.06	0.07	0.01	0.01	0.02	—	185	185	0.01	0.02	0.12	190
2028	0.02	0.01	0.14	0.21	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.01	—	42.4	42.4	< 0.005	< 0.005	0.02	43.1

3. Construction Emissions Details

3.1. Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00) (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	3.69	4.29	0.01	0.14	—	0.14	0.13	—	0.13	—	683	683	0.03	0.01	—	686

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.51	0.59	< 0.005	0.02	—	0.02	0.02	—	0.02	—	93.6	93.6	< 0.005	< 0.005	—	93.9
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.5	15.5	< 0.005	< 0.005	—	15.5
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.45	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	124	124	< 0.005	< 0.005	0.01	125

Vendor	0.02	< 0.005	0.27	0.13	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	251	251	0.01	0.04	0.02	262
Hauling	0.03	< 0.005	0.34	0.15	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	274	274	0.02	0.04	0.01	288
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.2	17.2	< 0.005	< 0.005	0.03	17.4
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.4	34.4	< 0.005	< 0.005	0.04	35.9
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	37.6	37.6	< 0.005	0.01	0.03	39.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.85	2.85	< 0.005	< 0.005	< 0.005	2.89
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.69	5.69	< 0.005	< 0.005	0.01	5.94
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.22	6.22	< 0.005	< 0.005	0.01	6.53

3.3. SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50) (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	3.69	4.29	0.01	0.14	—	0.14	0.13	—	0.13	—	683	683	0.03	0.01	—	686
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.35	5.35	< 0.005	< 0.005	—	5.37
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.89	0.89	< 0.005	< 0.005	—	0.89
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.45	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	124	124	< 0.005	< 0.005	0.01	125
Vendor	0.02	< 0.005	0.27	0.13	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	251	251	0.01	0.04	0.02	262
Hauling	0.17	0.03	2.20	0.95	0.01	0.02	0.47	0.49	0.02	0.13	0.15	—	1,782	1,782	0.13	0.28	0.09	1,870
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.98	0.98	< 0.005	< 0.005	< 0.005	1.00

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.96	1.96	< 0.005	< 0.005	< 0.005	2.05
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.9	13.9	< 0.005	< 0.005	0.01	14.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.16	0.16	< 0.005	< 0.005	< 0.005	0.16
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.33	0.33	< 0.005	< 0.005	< 0.005	0.34
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.31	2.31	< 0.005	< 0.005	< 0.005	2.42

3.5. SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50) (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.44	3.61	4.27	0.01	0.13	—	0.13	0.12	—	0.12	—	683	683	0.03	0.01	—	686
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	29.4	29.4	< 0.005	< 0.005	—	29.5

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.87	4.87	< 0.005	< 0.005	—	4.89
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.43	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	122	122	< 0.005	< 0.005	0.01	123
Vendor	0.02	< 0.005	0.26	0.12	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	246	246	0.01	0.03	0.02	257
Hauling	0.16	0.02	2.14	0.93	0.01	0.02	0.47	0.49	0.02	0.13	0.15	—	1,748	1,748	0.13	0.28	0.09	1,835
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.32	5.32	< 0.005	< 0.005	0.01	5.39
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.6	10.6	< 0.005	< 0.005	0.01	11.1
Hauling	0.01	< 0.005	0.09	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	75.2	75.2	0.01	0.01	0.06	79.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.88	0.88	< 0.005	< 0.005	< 0.005	0.89

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.76	1.76	< 0.005	< 0.005	< 0.005	1.83
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.5	12.5	< 0.005	< 0.005	0.01	13.1

3.7. Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00) (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	4.09	6.02	0.01	0.13	—	0.13	0.12	—	0.12	—	960	960	0.04	0.01	—	963
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	4.09	6.02	0.01	0.13	—	0.13	0.12	—	0.12	—	960	960	0.04	0.01	—	963
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.13	0.11	1.01	1.48	< 0.005	0.03	—	0.03	0.03	—	0.03	—	237	237	0.01	< 0.005	—	237
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.18	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	39.2	39.2	< 0.005	< 0.005	—	39.3
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.49	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	128	128	< 0.005	< 0.005	0.41	130
Vendor	0.02	0.01	0.25	0.12	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	246	246	0.01	0.03	0.59	257
Hauling	0.06	0.01	0.79	0.35	< 0.005	0.01	0.18	0.19	0.01	0.05	0.06	—	672	672	0.05	0.11	1.28	707
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.43	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	122	122	< 0.005	< 0.005	0.01	123
Vendor	0.02	< 0.005	0.26	0.12	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	246	246	0.01	0.03	0.02	257
Hauling	0.06	0.01	0.82	0.36	< 0.005	0.01	0.18	0.19	0.01	0.05	0.06	—	672	672	0.05	0.11	0.03	706
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	30.5	30.5	< 0.005	< 0.005	0.04	30.9

Vendor	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	60.7	60.7	< 0.005	0.01	0.06	63.3
Hauling	0.02	< 0.005	0.20	0.09	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	166	166	0.01	0.03	0.14	174
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.04	5.04	< 0.005	< 0.005	0.01	5.11
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.1	10.1	< 0.005	< 0.005	0.01	10.5
Hauling	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.4	27.4	< 0.005	< 0.005	0.02	28.8

3.9. HDD Receiving Area (Sta. 28+00) (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61	0.51	4.58	5.77	0.01	0.13	—	0.13	0.12	—	0.12	—	893	893	0.04	0.01	—	896
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.13	0.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	24.5	24.5	< 0.005	< 0.005	—	24.5

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.05	4.05	< 0.005	< 0.005	—	4.06
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.69	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	179	179	< 0.005	0.01	0.57	182
Vendor	0.02	0.01	0.25	0.12	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	246	246	0.01	0.03	0.59	257
Hauling	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	134	134	0.01	0.02	0.26	141
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.74	4.74	< 0.005	< 0.005	0.01	4.80
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.75	6.75	< 0.005	< 0.005	0.01	7.04
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.68	3.68	< 0.005	< 0.005	< 0.005	3.87
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.78	0.78	< 0.005	< 0.005	< 0.005	0.79

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.12	1.12	< 0.005	< 0.005	< 0.005	1.17
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.61	0.61	< 0.005	< 0.005	< 0.005	0.64

3.11. HDD Alignment (Sta. 28+00 to 43+50) (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	1.19	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	307	307	< 0.005	0.01	0.97	312
Vendor	0.02	0.01	0.25	0.12	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	246	246	0.01	0.03	0.59	257
Hauling	0.03	< 0.005	0.32	0.14	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	269	269	0.02	0.04	0.51	283
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	1.02	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	292	292	< 0.005	0.01	0.03	296
Vendor	0.02	< 0.005	0.26	0.12	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	246	246	0.01	0.03	0.02	257
Hauling	0.02	< 0.005	0.33	0.14	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	269	269	0.02	0.04	0.01	282
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.29	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	81.2	81.2	< 0.005	< 0.005	0.12	82.3
Vendor	0.01	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.5	67.5	< 0.005	0.01	0.07	70.4
Hauling	0.01	< 0.005	0.09	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	73.7	73.7	0.01	0.01	0.06	77.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	13.4	13.4	< 0.005	< 0.005	0.02	13.6
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.2	11.2	< 0.005	< 0.005	0.01	11.7
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.2	12.2	< 0.005	< 0.005	0.01	12.8

3.13. HDD Launching Area (Sta. 43+50) (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	0.35	3.66	5.52	0.01	0.10	—	0.10	0.10	—	0.10	—	927	927	0.04	0.01	—	930
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	25.4	25.4	< 0.005	< 0.005	—	25.5
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.20	4.20	< 0.005	< 0.005	—	4.22

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.43	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	122	122	< 0.005	< 0.005	0.01	123
Vendor	0.02	< 0.005	0.26	0.12	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	246	246	0.01	0.03	0.02	257
Hauling	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	134	134	0.01	0.02	0.01	141
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.38	3.38	< 0.005	< 0.005	< 0.005	3.43
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.75	6.75	< 0.005	< 0.005	0.01	7.04
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.68	3.68	< 0.005	< 0.005	< 0.005	3.87
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.56	0.56	< 0.005	< 0.005	< 0.005	0.57
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.12	1.12	< 0.005	< 0.005	< 0.005	1.17
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.61	0.61	< 0.005	< 0.005	< 0.005	0.64

3.15. Open Trench through Scout Camp (Sta. 43+50 to 52+50) (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	4.09	6.02	0.01	0.13	—	0.13	0.12	—	0.12	—	960	960	0.04	0.01	—	963
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.28	0.41	< 0.005	0.01	—	0.01	0.01	—	0.01	—	65.7	65.7	< 0.005	< 0.005	—	66.0
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.9	10.9	< 0.005	< 0.005	—	10.9
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.43	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	122	122	< 0.005	< 0.005	0.01	123
Vendor	0.02	< 0.005	0.26	0.12	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	246	246	0.01	0.03	0.02	257
Hauling	0.07	0.01	0.99	0.43	0.01	0.01	0.22	0.23	0.01	0.06	0.07	—	807	807	0.06	0.13	0.04	847
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.46	8.46	< 0.005	< 0.005	0.01	8.57
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	16.9	16.9	< 0.005	< 0.005	0.02	17.6
Hauling	0.01	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	55.2	55.2	< 0.005	0.01	0.05	58.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.40	1.40	< 0.005	< 0.005	< 0.005	1.42
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.79	2.79	< 0.005	< 0.005	< 0.005	2.91
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.15	9.15	< 0.005	< 0.005	0.01	9.61

3.17. Open Trench along Access Road (Sta. 52+50 to 60+00) (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.52	0.44	4.09	6.02	0.01	0.13	—	0.13	0.12	—	0.12	—	960	960	0.04	0.01	—	963
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.5	22.5	< 0.005	< 0.005	—	22.6
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.73	3.73	< 0.005	< 0.005	—	3.74
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.43	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	122	122	< 0.005	< 0.005	0.01	123
Vendor	0.02	< 0.005	0.26	0.12	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	246	246	0.01	0.03	0.02	257
Hauling	0.10	0.02	1.32	0.57	0.01	0.01	0.29	0.30	0.01	0.08	0.10	—	1,076	1,076	0.08	0.17	0.05	1,129
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.90	2.90	< 0.005	< 0.005	< 0.005	2.94
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.78	5.78	< 0.005	< 0.005	0.01	6.03
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.3	25.3	< 0.005	< 0.005	0.02	26.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.49
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.96	0.96	< 0.005	< 0.005	< 0.005	1.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.18	4.18	< 0.005	< 0.005	< 0.005	4.39

3.19. Open Trench along Access Road (Sta. 52+50 to 60+00) (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	0.42	4.01	6.02	0.01	0.12	—	0.12	0.11	—	0.11	—	960	960	0.04	0.01	—	963

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.1	13.1	< 0.005	< 0.005	—	13.2
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.18	2.18	< 0.005	< 0.005	—	2.18
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.40	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	120	120	< 0.005	< 0.005	0.01	121

Vendor	0.02	< 0.005	0.25	0.12	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	241	241	0.01	0.03	0.01	251
Hauling	0.10	0.02	1.27	0.56	0.01	0.01	0.29	0.30	0.01	0.08	0.10	—	1,051	1,051	0.08	0.17	0.05	1,102
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.66	1.66	< 0.005	< 0.005	< 0.005	1.68
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.30	3.30	< 0.005	< 0.005	< 0.005	3.44
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.4	14.4	< 0.005	< 0.005	0.01	15.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.28	0.28	< 0.005	< 0.005	< 0.005	0.28
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.57
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.38	2.38	< 0.005	< 0.005	< 0.005	2.50

3.21. Isolation Valve Vault (Sta. 60+00 to 61+70) (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	0.42	4.01	6.02	0.01	0.12	—	0.12	0.11	—	0.11	—	960	960	0.04	0.01	—	963
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.33	0.49	< 0.005	0.01	—	0.01	0.01	—	0.01	—	78.9	78.9	< 0.005	< 0.005	—	79.2
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.1	13.1	< 0.005	< 0.005	—	13.1
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.40	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	120	120	< 0.005	< 0.005	0.01	121
Vendor	0.02	< 0.005	0.25	0.12	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	241	241	0.01	0.03	0.01	251
Hauling	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	131	131	0.01	0.02	0.01	138
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.97	9.97	< 0.005	< 0.005	0.01	10.1

Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	19.8	19.8	< 0.005	< 0.005	0.02	20.6
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.8	10.8	< 0.005	< 0.005	0.01	11.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.65	1.65	< 0.005	< 0.005	< 0.005	1.67
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.27	3.27	< 0.005	< 0.005	< 0.005	3.42
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.79	1.79	< 0.005	< 0.005	< 0.005	1.88

3.23. Slip Lining of Existing NCI (Sta. 61+70 to 70+56) (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.63	0.52	5.03	7.07	0.01	0.14	—	0.14	0.13	—	0.13	—	1,117	1,117	0.05	0.01	—	1,121
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.28	0.39	< 0.005	0.01	—	0.01	0.01	—	0.01	—	61.2	61.2	< 0.005	< 0.005	—	61.4

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.1	10.1	< 0.005	< 0.005	—	10.2
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.05	0.64	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	191	191	< 0.005	0.01	0.02	194
Vendor	0.02	< 0.005	0.25	0.12	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	241	241	0.01	0.03	0.01	251
Hauling	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	131	131	0.01	0.02	0.01	138
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.6	10.6	< 0.005	< 0.005	0.01	10.8
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.2	13.2	< 0.005	< 0.005	0.01	13.8
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.20	7.20	< 0.005	< 0.005	0.01	7.55
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.76	1.76	< 0.005	< 0.005	< 0.005	1.78

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.18	2.18	< 0.005	< 0.005	< 0.005	2.28
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.19	1.19	< 0.005	< 0.005	< 0.005	1.25

3.25. Abandonment of Existing NCI (Sta. 12+50 to 61+70) (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	2.29	3.03	0.01	0.07	—	0.07	0.06	—	0.06	—	521	521	0.02	< 0.005	—	523
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.14	7.14	< 0.005	< 0.005	—	7.16
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.18	1.18	< 0.005	< 0.005	—	1.19
Onsite truck	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	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.32	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	95.7	95.7	< 0.005	< 0.005	0.01	96.9
Vendor	0.02	< 0.005	0.25	0.12	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	241	241	0.01	0.03	0.01	251
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.33	1.33	< 0.005	< 0.005	< 0.005	1.35
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.30	3.30	< 0.005	< 0.005	< 0.005	3.44
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.22	0.22	< 0.005	< 0.005	< 0.005	0.22
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.57
Hauling	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	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)	Trenching	10/19/2026	12/25/2026	5.00	50.0	—
SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)	Trenching	12/28/2026	1/22/2027	5.00	20.0	—
Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)	Trenching	1/25/2027	5/28/2027	5.00	90.0	—
HDD Receiving Area (Sta. 28+00)	Trenching	5/31/2027	6/11/2027	5.00	10.0	—
HDD Alignment (Sta. 28+00 to 43+50)	Trenching	6/14/2027	10/29/2027	5.00	100	—
HDD Launching Area (Sta. 43+50)	Trenching	11/1/2027	11/12/2027	5.00	10.0	—
Open Trench through Scout Camp (Sta. 43+50 to 52+50)	Trenching	11/15/2027	12/17/2027	5.00	25.0	—
Open Trench along Access Road (Sta. 52+50 to 60+00)	Trenching	12/20/2027	1/7/2028	5.00	15.0	—
Isolation Valve Vault (Sta. 60+00 to 61+70)	Trenching	1/10/2028	2/18/2028	5.00	30.0	—
Slip Lining of Existing NCI (Sta. 61+70 to 70+56)	Trenching	2/21/2028	3/17/2028	5.00	20.0	—
Abandonment of Existing NCI (Sta. 12+50 to 61+70)	Trenching	3/20/2028	3/24/2028	5.00	5.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)	Trenchers	Diesel	Average	1.00	8.00	40.0	0.50
Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)	Trenchers	Diesel	Average	1.00	8.00	40.0	0.50
SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)	Trenchers	Diesel	Average	1.00	8.00	40.0	0.50
Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40
Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
HDD Receiving Area (Sta. 28+00)	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
HDD Receiving Area (Sta. 28+00)	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40
HDD Receiving Area (Sta. 28+00)	Welders	Diesel	Average	1.00	8.00	46.0	0.45
HDD Receiving Area (Sta. 28+00)	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
HDD Receiving Area (Sta. 28+00)	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
HDD Launching Area (Sta. 43+50)	Bore/Drill Rigs	Diesel	Average	1.00	8.00	83.0	0.50
HDD Launching Area (Sta. 43+50)	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40
HDD Launching Area (Sta. 43+50)	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
HDD Launching Area (Sta. 43+50)	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Open Trench through Scout Camp (Sta. 43+50 to 52+50)	Trenchers	Diesel	Average	1.00	8.00	40.0	0.50
Open Trench through Scout Camp (Sta. 43+50 to 52+50)	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Open Trench through Scout Camp (Sta. 43+50 to 52+50)	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40
Open Trench through Scout Camp (Sta. 43+50 to 52+50)	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74

Open Trench along Access Road (Sta. 52+50 to 60+00)	Trenchers	Diesel	Average	1.00	8.00	40.0	0.50
Open Trench along Access Road (Sta. 52+50 to 60+00)	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Open Trench along Access Road (Sta. 52+50 to 60+00)	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40
Open Trench along Access Road (Sta. 52+50 to 60+00)	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Isolation Valve Vault (Sta. 60+00 to 61+70)	Trenchers	Diesel	Average	1.00	8.00	40.0	0.50
Isolation Valve Vault (Sta. 60+00 to 61+70)	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Isolation Valve Vault (Sta. 60+00 to 61+70)	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40
Isolation Valve Vault (Sta. 60+00 to 61+70)	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Slip Lining of Existing NCI (Sta. 61+70 to 70+56)	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Slip Lining of Existing NCI (Sta. 61+70 to 70+56)	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
Slip Lining of Existing NCI (Sta. 61+70 to 70+56)	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Slip Lining of Existing NCI (Sta. 61+70 to 70+56)	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40
Slip Lining of Existing NCI (Sta. 61+70 to 70+56)	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74

Abandonment of Existing NCI (Sta. 12+50 to 61+70)	Pumps	Diesel	Average	2.00	8.00	11.0	0.74
Abandonment of Existing NCI (Sta. 12+50 to 61+70)	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)	—	—	—	—
Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)	Worker	10.0	18.5	LDA,LDT1,LDT2
Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)	Vendor	8.00	10.2	HHDT,MHDT
Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)	Hauling	4.00	20.0	HHDT
Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)	Onsite truck	—	—	HHDT
SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)	—	—	—	—
SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)	Worker	10.0	18.5	LDA,LDT1,LDT2
SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)	Vendor	8.00	10.2	HHDT,MHDT
SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)	Hauling	26.0	20.0	HHDT

SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)	Onsite truck	—	—	HHDT
Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)	—	—	—	—
Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)	Worker	10.0	18.5	LDA,LDT1,LDT2
Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)	Vendor	8.00	10.2	HHDT,MHDT
Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)	Hauling	10.0	20.0	HHDT
Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)	Onsite truck	—	—	HHDT
HDD Receiving Area (Sta. 28+00)	—	—	—	—
HDD Receiving Area (Sta. 28+00)	Worker	14.0	18.5	LDA,LDT1,LDT2
HDD Receiving Area (Sta. 28+00)	Vendor	8.00	10.2	HHDT,MHDT
HDD Receiving Area (Sta. 28+00)	Hauling	2.00	20.0	HHDT
HDD Receiving Area (Sta. 28+00)	Onsite truck	—	—	HHDT
HDD Alignment (Sta. 28+00 to 43+50)	—	—	—	—
HDD Alignment (Sta. 28+00 to 43+50)	Worker	24.0	18.5	LDA,LDT1,LDT2
HDD Alignment (Sta. 28+00 to 43+50)	Vendor	8.00	10.2	HHDT,MHDT
HDD Alignment (Sta. 28+00 to 43+50)	Hauling	4.00	20.0	HHDT
HDD Alignment (Sta. 28+00 to 43+50)	Onsite truck	—	—	HHDT
HDD Launching Area (Sta. 43+50)	—	—	—	—
HDD Launching Area (Sta. 43+50)	Worker	10.0	18.5	LDA,LDT1,LDT2
HDD Launching Area (Sta. 43+50)	Vendor	8.00	10.2	HHDT,MHDT
HDD Launching Area (Sta. 43+50)	Hauling	2.00	20.0	HHDT
HDD Launching Area (Sta. 43+50)	Onsite truck	—	—	HHDT

Open Trench through Scout Camp (Sta. 43+50 to 52+50)	—	—	—	—
Open Trench through Scout Camp (Sta. 43+50 to 52+50)	Worker	10.0	18.5	LDA,LDT1,LDT2
Open Trench through Scout Camp (Sta. 43+50 to 52+50)	Vendor	8.00	10.2	HHDT,MHDT
Open Trench through Scout Camp (Sta. 43+50 to 52+50)	Hauling	12.0	20.0	HHDT
Open Trench through Scout Camp (Sta. 43+50 to 52+50)	Onsite truck	—	—	HHDT
Open Trench along Access Road (Sta. 52+50 to 60+00)	—	—	—	—
Open Trench along Access Road (Sta. 52+50 to 60+00)	Worker	10.0	18.5	LDA,LDT1,LDT2
Open Trench along Access Road (Sta. 52+50 to 60+00)	Vendor	8.00	10.2	HHDT,MHDT
Open Trench along Access Road (Sta. 52+50 to 60+00)	Hauling	16.0	20.0	HHDT
Open Trench along Access Road (Sta. 52+50 to 60+00)	Onsite truck	—	—	HHDT
Isolation Valve Vault (Sta. 60+00 to 61+70)	—	—	—	—
Isolation Valve Vault (Sta. 60+00 to 61+70)	Worker	10.0	18.5	LDA,LDT1,LDT2
Isolation Valve Vault (Sta. 60+00 to 61+70)	Vendor	8.00	10.2	HHDT,MHDT
Isolation Valve Vault (Sta. 60+00 to 61+70)	Hauling	2.00	20.0	HHDT
Isolation Valve Vault (Sta. 60+00 to 61+70)	Onsite truck	—	—	HHDT
Slip Lining of Existing NCI (Sta. 61+70 to 70+56)	—	—	—	—
Slip Lining of Existing NCI (Sta. 61+70 to 70+56)	Worker	16.0	18.5	LDA,LDT1,LDT2

Slip Lining of Existing NCI (Sta. 61+70 to 70+56)	Vendor	8.00	10.2	HHDT,MHDT
Slip Lining of Existing NCI (Sta. 61+70 to 70+56)	Hauling	2.00	20.0	HHDT
Slip Lining of Existing NCI (Sta. 61+70 to 70+56)	Onsite truck	—	—	HHDT
Abandonment of Existing NCI (Sta. 12+50 to 61+70)	—	—	—	—
Abandonment of Existing NCI (Sta. 12+50 to 61+70)	Worker	8.00	18.5	LDA,LDT1,LDT2
Abandonment of Existing NCI (Sta. 12+50 to 61+70)	Vendor	8.00	10.2	HHDT,MHDT
Abandonment of Existing NCI (Sta. 12+50 to 61+70)	Hauling	0.00	20.0	HHDT
Abandonment of Existing NCI (Sta. 12+50 to 61+70)	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)

Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)	—	1,070	0.00	0.00	—
SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)	—	1,925	0.00	0.00	—
Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)	—	2,020	0.00	0.00	—
HDD Receiving Area (Sta. 28+00)	—	100	0.00	0.00	—
HDD Alignment (Sta. 28+00 to 43+50)	—	1,375	0.00	0.00	—
HDD Launching Area (Sta. 43+50)	—	100	0.00	0.00	—
Open Trench through Scout Camp (Sta. 43+50 to 52+50)	—	2,214	0.00	0.00	—
Open Trench along Access Road (Sta. 52+50 to 60+00)	—	1,780	0.00	0.00	—
Isolation Valve Vault (Sta. 60+00 to 61+70)	—	179	0.00	0.00	—
Slip Lining of Existing NCI (Sta. 61+70 to 70+56)	—	156	0.00	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Light Industry	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	532	0.03	< 0.005
2027	0.00	532	0.03	< 0.005
2028	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	8.07	annual days of extreme heat
Extreme Precipitation	4.10	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	10.5	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	63.3
AQ-PM	42.4
AQ-DPM	16.2
Drinking Water	32.0

Lead Risk Housing	29.7
Pesticides	0.00
Toxic Releases	46.1
Traffic	69.1
Effect Indicators	—
CleanUp Sites	37.6
Groundwater	63.4
Haz Waste Facilities/Generators	35.6
Impaired Water Bodies	83.0
Solid Waste	80.0
Sensitive Population	—
Asthma	8.24
Cardio-vascular	3.71
Low Birth Weights	2.31
Socioeconomic Factor Indicators	—
Education	8.42
Housing	23.8
Linguistic	8.49
Poverty	14.5
Unemployment	63.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	90.59412293
Employed	93.50699346
Median HI	84.60156551

Education	—
Bachelor's or higher	90.33748236
High school enrollment	100
Preschool enrollment	1.873476197
Transportation	—
Auto Access	77.83908636
Active commuting	69.72924419
Social	—
2-parent households	80.82894906
Voting	65.9822918
Neighborhood	—
Alcohol availability	75.43949698
Park access	81.35506224
Retail density	63.45438214
Supermarket access	41.53727704
Tree canopy	81.48338252
Housing	—
Homeownership	75.69613756
Housing habitability	92.87822405
Low-inc homeowner severe housing cost burden	45.7590145
Low-inc renter severe housing cost burden	96.93314513
Uncrowded housing	88.2586937
Health Outcomes	—
Insured adults	72.20582574
Arthritis	0.0
Asthma ER Admissions	89.5
High Blood Pressure	0.0
Cancer (excluding skin)	0.0

Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	73.2
Cognitively Disabled	88.7
Physically Disabled	83.0
Heart Attack ER Admissions	94.0
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	54.8
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	98.9
SLR Inundation Area	70.2
Children	82.0
Elderly	5.1
English Speaking	68.1
Foreign-born	24.0
Outdoor Workers	71.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	88.6

Traffic Density	68.9
Traffic Access	23.0
Other Indices	—
Hardship	2.7
Other Decision Support	—
2016 Voting	85.2

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	9.00
Healthy Places Index Score for Project Location (b)	86.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Pipeline replacement project. Square footage represents area of open trench construction (3,620 LF x 8' trench). No building.

Construction: Construction Phases	Construction schedule provided by applicant/engineers.
Construction: Off-Road Equipment	Equipment provided by applicant/engineers.
Construction: Dust From Material Movement	Material quantities provided by applicant/engineers. Watering twice per day in compliance with SCAQMD Rule 403.
Construction: Trips and VMT	Trips from applicant/engineers. Rounded all # of trips up to nearest even integer. Assumed 4 vendor trucks (8 roundtrips) in all phases.

Appendix B

Biological Resources Letter Report

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T 949.450.2525

January 10, 2025 14719

City of Laguna Beach
Ulises Escalona, Senior Project Manager
505 Forest Avenue
Laguna Beach, California 92651

Subject: Biological Resources Letter Report for the North Coast Interceptor Reach 5 Replacement Project, Laguna Beach, California

Dear Ulises Escalona:

This report presents the findings of a general biological resources assessment and focused species surveys conducted by Dudek for the North Coast Interceptor (NCI) Reach 5 Project (project) in the City of Laguna Beach (City), Orange County, California. This biological letter report documents the existing biological resources on the project site and assesses the potential biological impacts and regulatory implications associated with replacement of the existing NCI, which comprises the approximately 3.02-acre project site and 100-foot buffer (study area; 32.4 acres). This report also discusses survey methods and results; special-status biological resources present or potentially present; the relationship of the project to regional conservation planning efforts; an analysis of proposed project impacts; and recommended avoidance and minimization measures. Submittal of this report is intended to satisfy documentation according to the City's Biological Report Requirements (City of Laguna Beach 2006).

1 Project Location

The NCI is part of a pipeline conveyance system that conveys sewer flows from the City and the Emerald Bay Community Services District to the South Orange County Wastewater Authority (SOCWA) Coastal Treatment Plant (CTP) in Aliso Canyon. The total length of the NCI is 4.3 miles.

Reach 5 of the NCI is located under and along Aliso Creek and passes through The Ranch at Laguna Beach (The Ranch) resort and golf course. Reach 5 starts at the intersection of Pacific Coast Highway and Country Club Drive, follows Country Club Drive northeast, then goes under Aliso Creek, comes out from under Aliso Creek through The Ranch, follows under the access road to the SOCWA CTP, and ultimately connects into the SOCWA CTP within Aliso Canyon. Figure 1, Project Location, shows the extent of the Reach 5 pipeline, which originates in downtown Laguna Beach and terminates at the SOCWA CTP (all figures included in Attachment A).

The study area for this report occurs immediately east of the Pacific Coast Highway, and approximately 0.05 miles east of the Pacific Ocean. The study area occurs within the southern portion of Sections 00, 5, and 6 of Township 8 South, Range 8 West, and Section 32 of Township 7 South, Range 8 West on the Laguna Beach and San Juan Capistrano U.S. Geological Survey 7.5-minute quadrangles (Figure 2, Local Topographic).

2 Project Purpose and Description

The NCI pipeline is a single pipeline constructed in the 1970s that operates by gravity, a force main, and inverted siphon, which is owned by SOCWA and operated and maintained by the City. The purpose of this project is to replace the existing portion of the NCI currently submerged within the center of Aliso Creek (Reach 5). Following several sanitary sewer overflows, the City conducted a risk assessment and prioritized NCI Reach 5 as most critical for immediate replacement, which extends from the Pacific Coast Highway to the SOCWA CTP.

The proposed project consists of the replacement of the existing NCI Reach 5 through Aliso Canyon by a combination of open trench, horizontal directional drill (HDD) installation, and slip lining. The goal of the project is to completely replace the existing NCI Reach 5 with new dual parallel pipelines that provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater to the SOCWA CTP. The primary characteristics of the replacement project include the following:

- Approximately 5,200 linear feet (LF) of dual 18-inch high-density polyethylene (HDPE) pipelines will be installed from the Pacific Coast Highway to just west of the SOCWA CTP.
- The remaining 900 LF of existing 24-inch NCI pipeline from just west of the SOCWA CTP to the headworks will be rehabilitated using slip lining or flexible fabric reinforced polyethylene pipe.
- Between The Ranch's driving range and the back fairway of the golf course, trenchless technology (horizontal directional drilling or HDD) will be used to reduce construction activities within The Ranch resort.
- Open trench installation will be used through The Ranch's Scout Camp area and along the access road to near the entrance to the SOCWA CTP.
- From outside the SOCWA CTP, the existing NCI pipeline will be used as a conduit to slip line a new HDPE pipeline for approximately 800 feet under Aliso Creek to the existing headworks structure inside the plant.
- Fast-tracked open trench installation will be used along Country Club Drive between The Ranch's driving range and the entrance of the resort to minimize impact to The Ranch operations.
- Valve vaults will be installed at each end of the project to allow flows to be switched between NCI pipelines.
- The interconnection between the NCI and the South Coast Water District Lift Station 2, currently under construction, will be retained for one of the new NCI Reach 5 pipelines.
- The existing NCI pipeline (approximately 5,300 LF) will be abandoned and filled in place.
- A revegetation plan will be prepared and implemented to address temporary impacts to vegetated areas from project implementation.

3 Methods

To evaluate the natural resources found or potentially occurring within the study area, literature searches and database reviews were conducted by Dudek. The California Department of Fish and Wildlife (CDFW) Natural Diversity Database (CDFW 2025a) and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2025a) were reviewed to identify special-status biological resources present or potentially present for the Laguna Beach and San Juan Capistrano U.S. Geological Survey 7.5-minute quadrangles on which the project site is located, and the six surrounding quadrangles (San Clemente, Santiago Peak, Tustin, El Toro, Cañada

Gobernadora, and Dana Point). Potentially occurring special-status biological resources were also compiled from the CDFW Special Animals List; Special Vascular Plants, Bryophytes, and Lichens List; State and Federally Listed Endangered and Threatened Animals of California; State and Federally Listed Endangered, Threatened, and Rare Plants of California; and RareFind database (CDFW 2025a, 2025b, 2025c, 2025d). For purposes of this report, special-status biological resources are defined as follows:

- Special-status plant species include:
    - Species designated as either rare, threatened, or endangered by CDFW or the U.S. Fish and Wildlife Service (USFWS) and protected under either the California Endangered Species Act (CESA) (California Fish and Game Code Section 2050 et seq.) or the federal Endangered Species Act (FESA) (16 USC 1531 et seq.).
    - Species that are candidate species being considered or proposed for listing under FESA or CESA.
    - Species that are included on the CDFW Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2025a), or species with a California Rare Plant Rank (CRPR) of 1 or 2 in the CNPS Inventory of Rare and Endangered Plants of California (CNPS 2025a).
- Special-status wildlife species include:
    - Species designated as either rare, threatened, or endangered by CDFW or USFWS and protected under either CESA (California Fish and Game Code Section 2050 et seq.) or FESA (16 USC 1531 et seq.).
    - Species that are candidate species being considered or proposed for listing under FESA or CESA.
    - Species that are included on the CDFW Special Animals List (CDFW 2025b).
- Special-status vegetation communities are those designated as sensitive by CDFW or those that provide habitat for special-status species.

Following the literature review, Dudek Biologists Kimberly Narel and Tommy Molioo conducted a general biological survey on March 22, 2024. All native and naturalized plant species encountered in the study area were identified and recorded. Latin and common names for plant species with a CRPR (formerly CNPS List) follow the CNPS Inventory of Rare and Endangered Plants (CNPS 2025a). For plant species without a CRPR, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2025), and common names follow the U.S. Department of Agriculture Natural Resources Conservation Service Plants Database (USDA 2025a). Vegetation community classifications follow the second edition of A Manual of California Vegetation (Sawyer et al. 2009). Latin and common names of animals follow Crother (2017) for reptiles and amphibians, American Ornithologists' Union (AOU 2018) for birds, Wilson and Reeder (2005) for mammals, the North American Butterfly Association (NABA 2024) for butterflies, and Moyle (2002) for fish.

The potential for special-status plant and wildlife species to occur in the study area was evaluated based on the vegetation communities and soils present, as well as elevation, known range, and habitat requirements. Vegetation communities and land covers on site were mapped digitally in the field using ArcGIS software.

In addition, focused rare plant surveys, coastal California gnatcatcher (*Polioptila californica californica*) and least Bell's vireo (*Vireo bellii pusillus*) surveys were conducted following approved protocol guidelines due to the presence of suitable native habitats on site. Digital vegetation mapping and other biological resources were then overlayed onto a topographic map of the project site. Due to the project's avoidance of Aliso Creek and abandoning in place of the existing Reach 5, a formal aquatic resources jurisdictional delineation was not conducted on the study area.

The survey conditions, field personnel, survey type, and survey dates for the biological surveys conducted are included in Table 1.

Table 1. Biological Surveys Conducted in the Study Area

Date	Biologist	Survey Type	Times	Weather Conditions
Vegetation Mapping/Field Reconnaissance and Rare Plants				
3/22/2024	Tommy Molioo, Kimberly Narel	Field Reconnaissance and Vegetation Mapping	10:15–13:30	60°F–67°F; 25%–1% cc; 1–3 mph winds
5/16/2024	Shana Carey	Rare Plant Survey Pass 1	12:00–17:15	61°F–65°F, 90%–100% cc; 1–4 mph winds
6/25/2024	Shana Carey, Erin Bergman	Rare Plant Survey Pass 2	13:30–16:15	74°F–75°F; 0% cc; 1–7 mph winds
Focused Coastal California Gnatcatcher Surveys				
5/10/2024	Tommy Molioo	CAGN Pass 1	10:30–12:00	67°F–68°F; 20% cc; 1–4 mph winds
5/17/2024	Tommy Molioo	CAGN Pass 2	09:00–10:40	60°F–61°F; 100% cc; 1–2 mph winds
5/24/2024	Tommy Molioo	CAGN Pass 3	08:30–10:30	60°F–62°F; 100% cc; 1–4 mph winds
6/7/2024	Tommy Molioo	CAGN Pass 4	08:00–09:40	61°F–63°F; 50% cc; 1–3 mph wind
6/21/2024	Tommy Molioo	CAGN Pass 5	10:15–12:00	70°F–72°F; 60% cc; 1–2 mph winds
6/28/2024	Tommy Molioo	CAGN Pass 6	10:00–11:30	73°F–74°F; 0% cc; 1–2 mph winds
Focused Least Bell's Vireo Surveys				
5/6/2024	Valerie Goodwin	LBVI Pass 1	09:00–11:00	61°F–63°F, 0%–10% cc; 0–3 mph winds
5/21/2024	Valerie Goodwin	LBVI Pass 2	08:00–11:00	58°F–61°F, 70%–100% cc; 0–5 mph winds
6/3/2024	Max Murray	LBVI Pass 3	06:45–08:45	58°F–62°F, 100% cc; 0–5 mph winds
6/14/2024	Eilleen Salas	LBVI Pass 4	08:27–10:07	63°F–66°F; 20%–100% cc; 0–2 mph winds
6/28/2024	Tommy Molioo	LBVI Pass 5	10:00–11:00	73°F; 0% cc; 1–2 mph winds
7/8/2024	Kimberly Narel	LBVI Pass 6	08:00–11:00	70°F; 100% cc; 1–3 mph winds
7/19/2024	Kimberly Narel	LBVI Pass 7	09:00–11:00	71°F–74°F; 50%–100% cc; 1–3 mph winds
7/31/2024	Eilleen Salas	LBVI Pass 8	07:25–09:49	60°F–69°F; 50%–80% cc; 0–3 mph winds

Notes: LBVI = least Bell's vireo; CAGN = coastal California gnatcatcher; °F= degrees Fahrenheit; cc = cloud cover.

4 Results

4.1 Site Description

The study area is located under and along Aliso Creek and passes through The Ranch resort and golf course. Reach 5 starts at the intersection of the Pacific Coast Highway and Country Club Drive, follows Country Club Drive northeast, then goes under Aliso Creek, comes out from under Aliso Creek and through The Ranch, follows under the access road to the SOCWA CTP, and ultimately connects into the SOCWA CTP. The study area is bounded by the Pacific Coast Highway to the west and occurs within Aliso Canyon; undeveloped lands surrounding the study area are associated with Aliso and Wood Canyons Wilderness Park. Elevations on the study area range from approximately sea level to 50 feet above mean sea level (amsl). The study area contains a mix of developed and undeveloped lands including native upland coastal sage scrubs, as well as riparian habitat associated with Aliso Creek. Representative photographs of the study area are included in Attachment B, Photo Log.

4.2 Soils

According to the Natural Resources Conservation Service Web Soil Survey, a total of nine soil types are mapped within the study area (Figure 3, Soils): beaches, Botella clay loam, Capistrano sandy loam, Cieneba–rock outcrop complex, Modjeska gravelly loam, riverwash, Soper gravelly loam, Sorrento loam, and tidal flats (USDA 2025b). A description of each soil series is provided below.

Beach series comprises very shallow and shallow, well-drained, moderately permeable soils that formed in residuum from hard, very fine grained, metamorphic sandstone. These sloping to steep soils are on sandstone hills and in valleys, ranging in slope from 1% to about 70%. This series is considered a hydric soil (USDA 2025b).

Botella series consists of very deep, well-drained soils with low to high runoff and moderately slow permeability that formed in alluvial material derived from sedimentary rocks. They are found in valley bottoms and on alluvial fans with slopes from 0% to 15%.

Capistrano series consists of very deep, well-drained soils with slow to medium runoff and moderately rapid permeability that formed in alluvium from sedimentary or granitic sources. Capistrano soils are on alluvial fans and floodplains in small valleys at elevations of 25 to 2,500 feet amsl with slopes between 0% and 15%.

Cieneba series consists of very shallow and shallow, somewhat excessively drained soils that formed in material weathered from granitic rock. They are on hills and mountains and have slopes of 9% to 85%. This soil series has low to high runoff and moderately rapid permeability in the soil, with much slower in the weathered bedrock.

Modjeska series are deep, well-drained soils with slow to medium runoff and moderate permeability that formed in mixed alluvium, on terraces in the Coastal plain of Southern California. These soils are nearly level to strongly sloping at elevations from 200 to 1,500 feet amsl.

Riverwash consists of very deep alluvial material in stream channels that are frequently flooded. Materials are erratically deposited and stratified layers of sand, gravel, and cobbles. The Riverwash series is highly dynamic and can change with each flooding even. This soil series is subject to constant erosion and deposition during flooding events. Riverwash is considered a hydric soil (USDA 2025b).

Rock Outcrop consists of exposed rock surfaces that occur in landscapes with thin soils over bedrock. Rock outcrop is generally composed of cliffs and talus formed in residuum and colluvium from igneous and metamorphic rocks, with rapid to slow runoff potential.

Soper series consists of moderately deep, well-drained soils formed within material weathered from conglomerate and sandstone with moderately slow permeability. They occur on hills and uplands with a slope of 15% to 50% at elevations of 100 to 2,500 feet amsl.

Sorrento series consists of very deep, well-drained soils that formed in alluvium mostly from sedimentary rocks, on alluvial fans and stabilized floodplains with slopes of 0% to 15%.

Tidal flats are areas where sediments from river runoff, or inflow from tides, deposit mud or sand. This is considered a hydric soil (USDA 2025b).

4.3 Vegetation Communities and Land Covers

A total of nine natural vegetation communities, four non-native vegetation communities, and five land cover types were identified within the study area. The acreages of these vegetation communities and land covers are presented in Table 2, and their spatial distributions are illustrated on Figure 4, Vegetation Communities and Land Cover. Descriptions of these vegetation communities and land cover types are provided following Table 2.

Table 2. Vegetation Communities and Land Covers Within the Study Area

Vegetation Community or Land Cover	CDFW Alliance	CDFW Association	Project Site[a] (Acres)	100-Foot Study Area Buffer[b] (Acres)
Natural Vegetation Communities				
Chamise chaparral	*Adenostoma fasciculatum* shrubland	*Adenostoma fasciculatum*	0.0	1.11
Arroyo willow thickets[a]	*Salix lasiolepis* shrubland	*Salix lasiolepis*	0.0	0.67
		Salix lasiolepis–*Baccharis salicifolia*	0.0	0.81
California sagebrush–purple sage scrub	*Artemisia californica*–*Salvia leucophylla* shrubland	*Artemisia californica*	0.0	7.61
		N/A	0.0	2.17
Coyote brush scrub	*Baccharis pilularis* shrubland	*Baccharis pilularis*–*Artemesia californica*	0.18	3.12
California brittle bush–ashy buckwheat scrub	*Encelia californica*–*Eriogonum cinereum* shrubland	*Encelia californica*–*Artemisia californica* –*Salvia mellifera* -*Baccharis pilularis*	0.16	0.13

Table 2. Vegetation Communities and Land Covers Within the Study Area

Vegetation Community or Land Cover	CDFW Alliance	CDFW Association	Project Site[a] (Acres)	100-Foot Study Area Buffer[b] (Acres)
Lemonade berry scrub[c]	*Rhus integrifolia* shrubland	N/A	0.0	1.20
Sandbar willow thickets	*Salix exigua* shrubland	*Salix exigua*	<0.01	1.41
		Natural Vegetation Communities Subtotal	*0.34*	*18.2*
Non-Native Vegetation Communities				
Common and giant reed marshes	*Phragmites australis*–*Arundo donax* herbaceous semi-natural	*Arundo donax*	0.19	0.56
Wild oats and annual brome grasslands	*Avena* spp.–*Bromus* spp. herbaceous semi-natural	N/A	0.0	0.37
		Bromus diandrus	0.07	0.03
Eucalyptus–tree of heaven–black locust groves	*Eucalyptus* spp.–*Ailanthus altissima*–*Robinia pseudoacacia* woodland semi-natural	*Eucalyptus (globulus, camaldulensis)*	0.01	1.34
		Non-Native Vegetation Communities Subtotal	*0.27*	*2.30*
Land Cover Types				
Intermittent stream/ creek	N/A	N/A	0.0	2.15
Unvegetated wash/river bottom	N/A	N/A	0.0	0.13
Disturbed habitat	N/A	N/A	0.56	1.31
Ornamental plantings	N/A	N/A	0.85	2.39
Urban/developed	N/A	N/A	0.99	5.94
		Land Cover Types Subtotal	*2.4*	*11.9*
		Total[d]	**3.01**	**32.4**

Notes: CDFW = California Department of Fish and Wildlife; N/A = not applicable.

[a] Referred to as “Project Alignment” in Figures 1–6.

[b] Referred to as “Project Boundary” in Figures 1–6.

[c] Considered a sensitive natural community by CDFW (2023).

[d] Totals may not sum precisely due to rounding.

4.3.1 Natural Vegetation Communities

Chamise Chaparral *(Adenostoma fasciculatum* Shrubland Alliance)

The chamise chaparral alliance includes chamise as the dominant species in the shrub canopy and can include manzanitas (*Arctostaphylos* spp.), ceanothus (*Ceanothus* spp.), bush monkeyflower (*Diplacus aurantiacus*), California yerba santa (*Eriodictyon californicum*), California buckwheat (*Eriogonum fasciculatum*), chaparral yucca (*Hesperoyucca whipplei*), toyon (*Heteromeles arbutifolia*), Inland scrub oak (*Quercus berberidifolia*), interior live oak (*Quercus wislizeni*), white sage (*Salvia apiana*), purple sage (*Salvia leucophylla*), black sage (*Salvia mellifera*), and poison oak (*Toxicodendron diversilobum*) (CNPS 2025b). This community can be found widely throughout the state, commonly in areas with shallow soils over colluvium or bedrock (CNPS 2025b). One association within the alliance, *Adenostoma fasciculatum* association, was identified near the center of the study area on south-facing slopes where the new alignment will bore underground.

Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance)

The arroyo willow thickets alliance includes arroyo willow as the dominant or co-dominant tree in the canopy. The alliance has an open to continuous tree canopy less than 65 feet (20 meters) in height with an open to intermittent shrub canopy and a variable ground layer (Sawyer et al. 2009). Species associated with the alliance include white alder (*Alnus rhombifolia*), coyote brush (*Baccharis pilularis*), mulefat (*Baccharis salicifolia*), California sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii*), blue elderberry (*Sambucus mexicana*), and other willows (Sawyer et al. 2009). Two associations within the alliance, *Salix lasiolepis* association and *Salix lasiolepis–Baccharis salicifolia* association, were identified within the northeastern extent of the study area along the east and west bank of Aliso Creek. Arroyo willow thickets are considered a sensitive natural community by CDFW.

California Sagebrush–Purple Sage Scrub (*Artemisia californica–Salvia leucophylla* Shrubland Alliance)

The California sagebrush–purple sage scrub alliance includes California sagebrush (*Artemisia californica*) or purple sage as dominant or co-dominant species in the shrub canopy. This alliance has a continuous or intermittent shrub canopy less than 7 feet (2 meters) in height with a variable, sometimes grassy ground layer. Species associated with the alliance include chamise (*Adenostoma fasciculatum*), coyote brush, bladderpod (*Peritoma arborea*), bush monkeyflower, California brittle bush (*Encelia californica*), narrowleaf goldenbush (*Ericameria linearifolia*), California buckwheat, chaparral yucca, Menzies' goldenbush (*Isocoma menziesii*), deerweed (*Acmispon glaber*), laurel sumac (*Malosma laurina*), coast prickly pear (*Opuntia littoralis*), hollyleaf redberry (*Rhamnus ilicifolia*), lemonade berry (*Rhus integrifolia*), sugar sumac (*Rhus ovata*), white sage, black sage, and poison oak. These communities typically occur on steep slopes or rarely flooded terraces along streams in alluvial- or colluvial-derived soils (CNPS 20252b). One association within the alliance, *Artemisia californica–Salvia leucophylla* association, was identified in the eastern portion of the study area in uplands north of Aliso Creek and west of the SOCWA CTP.

Coyote Brush Scrub (*Baccharis pilularis* Shrubland Alliance)

The coyote brush scrub alliance includes coyote brush, California coffee berry (*Frangula californica*), and/or coastal silk tassel (*Garrya elliptica*) as the dominant or co-dominant shrub in the canopy. Coyote brush scrub has a variable shrub canopy less than 3 meters (10 feet) in height with a variable herbaceous layer (CNPS 2025b). Some species associated with the coyote brush scrub alliance include California sagebrush, bush monkeyflower, California buckwheat, deerweed, white sage, purple sage, and poison oak (CNPS 2025b). One association within the alliance, *Baccharis pilularis–Artemisia californica* association, was identified in the eastern portion of the study area in undeveloped uplands north of Aliso Creek and west of the SOCWA CTP.

California Brittle Bush–Ashy Buckwheat Scrub (*Encelia californica–Eriogonum cinereum* Shrubland Alliance)

The California brittle bush–ashy buckwheat scrub alliance includes California brittle bush (*Encelia californica*) and/or ashy buckwheat (*Eriogonum cinereum*) as dominant or co-dominant shrubs in an intermittent to continuous shrub layer less than 2 meters (7 feet) in height (CNPS 2025b). Species associated with this alliance include California sagebrush, California buckwheat, chaparral yucca, Menzies' goldenbush, deerweed, Mendocino bushmallow (*Malacothamnus fasciculatus* var. *fasciculatus*), laurel sumac, black sage, and other common coastal sage scrub species. Emergent trees may be present, including Southern California black walnut (*Juglans californica*) or coast live oak (*Quercus agrifolia*).

The California brittle bush–ashy buckwheat scrub alliance is ranked by CDFW (2023) as a G3S3 alliance. This ranking indicates that globally and within California the alliance is considered vulnerable to extirpation or extinction (CDFW 2023; NatureServe 2025). Therefore, this alliance is considered a sensitive natural community by CDFW.

One association within the California brittle bush–ashy buckwheat scrub alliance was identified on site: *Encelia californica* association. The western portion of the study area supports California brittle bush, mulefat, and coyote brush in the shrub canopy with non-native invasive castor bean in the herbaceous understory. This vegetation community is moderately disturbed by the immediately adjacent human activity associated with The Ranch golf course. This association and all others in the alliance are ranked as sensitive by CDFW (2023).

Lemonade Berry Scrub (*Rhus integrifolia* Shrubland Alliance)

The lemonade berry scrub alliance occurs where lemonade berry is dominant or co-dominant in the shrub canopy, with California sagebrush, California brittle brush, and other shrub species (CDFW 2023; CNPS 2025b). This alliance is ranked by the CDFW (2023) as a G3S3 alliance. This ranking indicates that globally and within California the alliance is considered vulnerable to extirpation or extinction (CDFW 2023; NatureServe 2025). Therefore, this alliance is considered a sensitive natural community by CDFW. The lemonade berry alliance occurs in the center of the study area, in undeveloped uplands surrounding The Ranch golf course.

Sandbar Willow Thickets (*Salix exigua* Shrubland Alliance)

The sandbar willow thickets alliance includes sandbar willow (*Salix exigua*) as the dominant or co-dominant shrub in the canopy. Sandbar willow thickets have an intermittent to continuous shrub canopy less than 7 meters (23 feet) in height with a variable ground layer. Throughout California, the sandbar willow thicket alliance occurs in floodplains, depositions along rivers and streams, and at springs (CNPS 2025b). The sandbar willow thickets alliance inhabits almost the entire coast of California and extends east to the Sierra Nevada Mountains at elevations below 8,860 feet (2,700 meters) amsl. One association within the alliance, *Salix exigua* association, was identified in the center of the study area along the banks of Aliso Creek.

4.3.2 Non-Native Vegetation Communities

Common and Giant Reed Marshes (*Phragmites australis – Arundo donax* Herbaceous Semi-Natural Alliance)

The common and giant reed marshes semi-natural alliance includes giant reed (*Arundo donax*) or common reed (*Phragmites australis*) as dominant or co-dominant species in the herbaceous layer. Per alliance membership rules, common reed must make up at least 2% of the absolute cover of vegetation and generally at least 50% (sometimes 30%) of the relative cover in the herbaceous layer; giant reed must make up more than 60% of the relative cover in the herbaceous and shrub layers. Communities within this alliance typically have a continuous herbaceous layer under 8 meters (26 feet) in height. Other characteristic species include western ragweed (*Ambrosia psilostachya*), yerba mansa (*Anemopsis californica*), salt grass (*Distichlis spicata*), Baltic rush (*Juncus balticus* ssp. *ater*), perennial pepper weed (*Lepidium latifolium*), hardstem bulrush (*Schoenoplectus acutus*), American bulrush (*Schoenoplectus americanus*), California bulrush (*Schoenoplectus californicus*), cattails (*Typha* spp.), and cocklebur (*Xanthium strumarium*). Common and giant reed marshes occur in riparian areas, along low-gradient streams and ditches, semi-permanently flooded and slightly brackish marshes, and water impoundments under 1,600 meters (5,249 feet) amsl. Emergent riparian-associated shrubs and trees may be present but at low cover (CNPS 2025b). One association within the alliance, *Arundo donax* association, was identified in the western portion of the study area along the northern bank of Aliso Creek.

Wild Oats and Annual Brome Grasslands (*Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance)

The wild oats and annual brome grasslands alliance has slender oat (*Avena barbata*), wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), soft brome (*Bromus hordeaceus*), and/or mouse barley (*Hordeum murinum*) as dominant or co-dominant species with other non-natives in the herbaceous layer. These communities occur in all topographic settings in foothills, waste places, rangelands, and openings in woodlands (CNPS 2025b). Wild oats and annual brome grasslands were identified in the center of the study area north of The Ranch golf course, as well as along paths within The Ranch golf course.

Eucalyptus – Tree of Heaven – Black Locust Groves (*Eucalyptus* spp. – *Ailanthus altissima – Robinia pseudoacacia* Woodland Semi-Natural Alliance)

The eucalyptus–tree of heaven–black locust groves alliance includes tree of heaven (*Ailanthus altissima*), eucalyptus trees, or black locust (*Robinia pseudoacacia*) as the dominant or co-dominant species in the tree canopy. Per alliance membership rules, any of these species must make up more than 80% of the relative cover in the tree canopy. Communities within this alliance can have an open to continuous shrub canopy less than 60 meters (197 feet) in height with a sparse to intermittent herbaceous layer. Eucalyptus–tree of heaven–black locust groves occur at elevations under 1,900 meters (6,234 feet) amsl on human-altered landscapes, where these trees have been planted as ornamental vegetation, groves for harvest, and windbreaks or where they have naturalized on uplands and bottomlands adjacent to stream courses, lakes, or levees (CNPS 2025b). One association in the alliance, *Eucalyptus* (*globulus, camaldulensis*) association, was identified within the study area bordering the dirt staff parking lot/plant nursery in the center of the study area, as well as in the western portion of the study area bordering surrounding residential development and development associated with The Ranch golf course.

4.3.3 Land Cover Types

Intermittent Stream/Creek

Intermittent stream/creek mapping unit is not a vegetation community recognized by CNPS's Manual of California Vegetation but is described in the Orange County Habitat Classification System by Gray and Bramlet (1992). This land cover is described as a watercourse that can support a variety of riverine systems from ephemeral soft bottom to intermittent hard-bottom creeks and streams. This land cover describes Aliso Creek, a natural riverine system, in the study area.

Unvegetated Wash/River Bottom

Unvegetated wash and river bottom is recognized by CNPS's Manual of California Vegetation, distinguished by largely unvegetated sands and gravels in the active centers of wash features with vegetation of less than 5% cover. A portion of Aliso Creek in the study area is characterized as unvegetated wash/river bottom.

Disturbed Habitat

Although not recognized by the Manual of California Vegetation, Online Edition (CNPS 2025b) or the Natural Communities List (CDFW 2023), disturbed habitat is described in the Draft Vegetation Communities of San Diego County (Oberbauer et al. 2008). Disturbed habitat is described as areas generally lacking vegetation due to high levels of existing or historical human disturbance and are no longer recognizable as a native or naturalized vegetation association. Areas mapped as disturbed habitat may include unpaved roads, trails, and graded areas (Oberbauer et al. 2008). Vegetation in these areas, if present at all, is usually sparse and dominated by non-native weedy herbaceous species (Oberbauer et al. 2008). Areas mapped as disturbed habitat include the temporary construction laydown yard (for another project) located on the western portion of the study area, as well as a dirt staff parking lot and plant nursery associated with The Ranch located in the center of the study area.

Ornamental Plantings

The parks and ornamental plantings mapping unit is not a vegetation community recognized by the CNPS's Manual of California Vegetation (Sawyer et al. 2009) but is described in Gray and Bramlet (1992). This land cover consists of various introduced trees and shrubs, as well as turf grass, greenbelts, parks, and landscaping. Ornamental plantings occur on the western portion of the study area at the entrance to The Ranch golf course, consisting of maintained *Bougainvillea* and other exotic flowering plants including bird of paradise and cultivated rose. The maintained golf course within The Ranch located in the center of the study area, which supports stands of mature non-native pines, is also mapped as ornamental plantings.

Urban/Developed

Urban/developed land refers to areas that have been constructed upon or disturbed so severely that native vegetation is no longer supported (Holland 1986). Developed land includes areas with permanent or semi-permanent structures, pavement or hardscape, landscaped areas, and areas with a large amount of debris or other materials (Holland 1986). Developed areas are generally graded and compacted, sometimes covered with gravel road base or built, and have little to no vegetation present.

The urban/developed areas mapped within the study area consist of the public asphalt-paved access road (Country Club Drive) and development associated with The Ranch golf course.

4.4 Floral Diversity

A total of 115 species of vascular plants were recorded within the study area, consisting of 56 native (49%) and 59 non-native (51%) species. Plant species observed on site are listed in Attachment C, Species Compendium.

4.5 Wildlife

A total of 56 native wildlife species were recorded within the study area during the biological surveys, which included coastal scrub and urban-adapted species. Of the 56 species recorded, 51 were avian species. Mammals, reptiles, and birds were observed; one non-native amphibious species (American bullfrog [*Lithobates catesbeianus*]) was detected on the study area (Attachment C).

The moderate detection of native wildlife reflects the upland coastal sage scrubs and mature riparian habitats that are conducive for avian foraging activity in the study area. Multiple raptors, coastal birds, and coastal sage scrub–adapted birds were detected. As such, the native vegetation within the project site and surrounding study area could support nesting birds.

4.6 Special-Status Plant Species

A total of 87 special-status plant species were reported in the CDFW, USFWS, and CNPS databases as occurring, or identified as potentially occurring according to the City's biological inventory (Marsh 1993), in the vicinity of the study area. For each species listed, a determination is made regarding the potential for the species to occur on site based on information gathered during the field reconnaissance, including the location of the site, habitats present, current site conditions, and past and present land use. The complete results of this potential to occur evaluation for special-status plants are included as Attachment D of this document.

There are several endangered, rare, distributionally restricted species, or species of local interest known to occur in Aliso Canyon, including Maidenhair fern (*Adiantum jordanii*), yerba mansa, San Diego mountain mahogany (*Cercocarpus minutiflorus*), bush rue (*Cneoridium dumosum*), ladies' fingers dudleya (*Dudleya edulis*), Laguna beach dudleya (*Dudleya stolonifera*), foliolose lichens (*Hyogymnia mollis, Neibla cerruchoides Parmotrema hypoleucinum*), basket rush (*juncus textilis*), crustose lichen (*Pertusaria flavicunda*), and Engelmann oak (*Quercus engelmannii*) (City of Laguna Beach 2006).

Based on species ranges, vegetation communities/land covers, and soils present within the study area, 39 special-status plant species were determined to have a moderate or high potential to occur. As such, focused rare plant surveys were conducted to facilitate identification of special-status species. One spring pass and one summer pass were conducted in order to conduct the surveys during the appropriate blooming periods for all target species.

Two special-status plant species were observed within the study area during the focused rare plant surveys conducted for the project: Nuttall's scrub oak (*Quercus dumosa*) and cliff malacothrix (*Malacothrix saxatilis* var. *saxatilis*). Nuttall's scrub oak is listed as a CRPR 1B.1 species that occurs in the eastern portion of the project site, north of the paved access road. A single individual, as well as a small stand of this species, was observed and mapped on Figure 5, Biological Resources Map. The individual scrub oak occurs immediately adjacent to the paved access road and may be impacted during trenching to install the new pipeline.

Several individuals of cliff malacothrix, which is listed as CRPR 4.2, were found in the western portion of the project site, primarily north of Country Club Road. Cliff malacothrix is not considered sensitive under the California Environmental Quality Act (CEQA) as only CRPR 1A through 3 species are afforded additional protection under CEQA. Additionally, one local interest species was detected within the project site: yerba mansa. Project compliance with local policies and ordinances would be required. No other special-status or locally rare plant species were observed on the project site or study area.

4.7 Special-Status Wildlife Species

A total of 69 special-status wildlife species were reported in the CDFW and USFWS databases as occurring in the vicinity of the study area. For each species listed, a determination was made regarding the potential use of the site based on information gathered during the field reconnaissance, known habitat preferences, and knowledge of their relative distributions in the area. The complete results of this potential to occur evaluation for special-status wildlife are included as Attachment E of this document.

The review determined that 29 special-status species have at least a moderate to high potential to occur within the study area based on suitable habitat present and recorded observations in the vicinity of the study area, as listed in Table 3.

Table 3. Special-Status Wildlife with a Moderate to High Potential to Occur

Scientific Name	Common Name	Status (Federal/State)	Potential to Occur
Amphibians			
Spea hammondii	western spadefoot	None/SSC	Moderate
Reptiles			
Anniella stebbinsi	Southern California legless lizard	None/SSC	Moderate
Arizona elegans occidentalis	California glossy snake	None/SSC	Moderate
Aspidoscelis hyperythra	orange-throated whiptail	None/WL	High
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	None/SSC	High
Crotalus ruber	red diamondback rattlesnake	None/SSC	Moderate
Phrynosoma blainvillii	Blainville’s horned lizard	None/SSC	Moderate
Plestiodon skiltonianus interparietalis	Coronado skink	None/WL	Moderate
Salvadora hexalepis virgultea	coast patch-nosed snake	None/SSC	Moderate
Thamnophis hammondii	two-striped gartersnake	None/SSC	Moderate

Table 3. Special-Status Wildlife with a Moderate to High Potential to Occur

Scientific Name	Common Name	Status (Federal/State)	Potential to Occur
Actinemys marmorata	southwestern pond turtle	FPT/SSC	Moderate
Birds			
Accipiter cooperii	Cooper's hawk	None/WL	Present (observed during focused surveys)
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	None/WL	Moderate
Asio otus (nesting)	long-eared owl	None/SSC	Moderate
Elanus leucurus (nesting)	white-tailed kite	None/FP	High
Icteria virens (nesting)	yellow-breasted chat	None/SSC	Present (observed during focused surveys)
Pandion haliaetus (nesting)	osprey	BCC/WL	High
Polioptila californica californica	coastal California gnatcatcher	FT/SSC	High (focused surveys determined this species is not present)
Riparia riparia (nesting)	bank swallow	None/ST	High
Setophaga petechia (nesting)	yellow warbler	None/SSC	Present (observed during focused surveys)
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE	High (focused surveys determined this species is not present)
Fishes			
Eucyclogobius newberryi	tidewater goby	FE/None	High
Mammals			
Antrozous pallidus	pallid bat	None/SSC	Moderate
Eumops perotis californicus	western mastiff bat	None/SSC	Moderate
Neotoma lepida intermedia	San Diego desert woodrat	None/SSC	Moderate
Nyctinomops macrotis	big free-tailed bat	None/SSC	Moderate
Lasiurus frantzii	western red bat	None/SSC	Moderate
Invertebrates			
Bombus crotchii	Crotch's bumble bee	None/SCE	High

Status Designations
Federal:
BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern
FE: Federally listed as endangered
FPT: Federally proposed for listing as threatened
FT: Federally listed as threatened
State:
FP: California Fully Protected species
SE: State listed as endangered

SCE: State candidate for listing as endangered
SSC: California Species of Special Concern
ST: State listed as threatened
WL: California Watch List species

There are several endangered, threatened, distributionally restricted species, and wildlife species of local interest that are known to occur within Aliso Canyon, including coastal cactus wren (*Campylorhynchus brunneicapillus couesi*), coastal California gnatcatcher, loggerhead shrike (*Lanis ludovicianus*), and longtail weasel (*Mustela frenata*) (City of Laguna Beach 2006).

Three special-status birds were observed in the study area—one CDFW Watch List Species: Cooper's hawk (*Accipiter cooperii*); and two CDFW Species of Special Concern: yellow-breasted chat (*Icteria virens*) and yellow warbler (*Setophaga petechia*).

Focused surveys for least Bell's vireo and coastal California gnatcatcher were conducted in suitable habitats on the study area following protocol guidelines. The results of these focused surveys were negative. As such, least Bell's vireo and coastal California gnatcatcher area considered absent from the study area.

Coastal California Gnatcatcher

The coastal California gnatcatcher is federally listed as threatened and is a California Species of Special Concern. It is closely associated with coastal sage scrub habitat and typically occurs below 950 feet elevation and on slopes less than 40% (Atwood 1990), but coastal California gnatcatcher have also been observed at elevations greater than 2,000 feet. The species is primarily threatened by loss, degradation, and fragmentation of coastal sage scrub habitat, and is also impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism (Braden et al. 1997).

Suitable nesting and foraging habitat for this species occurs throughout the coastal sage scrub habitat, specifically within the vegetation communities that include California sagebrush within the study area. No coastal California gnatcatchers were detected during the focused surveys for this species or other biological surveys conducted on site for the project. As such, coastal California gnatcatcher is considered absent from the project site.

Least Bell's Vireo

The least Bell's vireo is federally and state listed as endangered. It nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams, as well as adjacent shrubland late in the nesting season. Nesting habitats in cismontane and coastal areas include willow (*Salix*) riparian scrub, mulefat scrub, and cottonwood (*Populus fremontii*). In the coastal portions of its Southern California range, it occurs in lower areas of canyons, typically below 2,000 feet amsl.

Aliso Creek on the project site contains suitable riparian willow thickets associated with the intermittent stream that can provide nesting habitat for this species. Focused surveys consisting of eight survey passes from April to July were conducted, spaced at least 10 days apart. The results of the focused surveys were negative for least Bell's vireo. As such, this species is considered absent from the project site.

Crotch's Bumble Bee

The Crotch's bumble bee (*Bombus crotchii*) is found in open grassland and scrub habitats. It is able to persist in semi-natural habitats surrounded by intensely modified landscapes. This species is restricted to a very limited climatic range that is much hotter and drier than most bumble bees thrive in. It uses a wide array of flowers; food plants include *Asclepias, Chaenactis, Lupinus, Medicago, Phacelia,* and *Salvia* (Williams et al. 2014).

This species may forage for nectar on the *Salvia* species (*Salvia mellifera*) and other floral resources within the suitable coastal sage scrub throughout the study area. Crotch's bumble bee is a state candidate for listing and, as such, is afforded protection by CESA equivalent to a threatened listing. *Hymenoptera* (bees) and *Lepidoptera* (butterflies) were observed on site during the biological surveys, and suitable floral nectar resources and scrub habitat capable of supporting these species can persist year-round on site; as such, their presence within the study area cannot be discounted. Although not observed on site during the biological surveys, Crotch's bumble bee has a high potential to occur within the study area.

Southwestern Willow Flycatcher

The southwestern willow flycatcher (*Empidonax traillii extimus*) is federally and state listed as endangered. It nests and breeds in dense riparian habitats with flowing surface water present. Vegetation characteristics of southwestern willow flycatcher breeding habitat generally include dense tree or shrub cover that is ≥3 meters (10 feet) tall (with or without a higher overstory layer), dense twig structure, and high levels of live green foliage (USGS 2010). Southwestern willow flycatchers build nests made of shredded bark, cattail tufts, and grasses, usually in the fork of a willow growing near water, and lay eggs from early June to July.

Portions of Aliso Creek contain willow thickets and associated riparian habitat. However, these riparian areas are relatively narrow (approximately 100 to 200 feet wide) and surrounded by upland scrub habitat within an incised drainage system. The reach of Aliso Creek within the majority of the project site also occurs within The Ranch golf course and resort that is subject to regular disturbances from recreational and resort activities, and ongoing maintenance. Additionally, while recorded occurrences of southwestern willow flycatcher have been recorded within 10 miles of the project site, there are no known occurrences within Aliso Canyon or Aliso Creek. Therefore, the potential for this species to occur on site is low and focused surveys were not conducted.

Tidewater Goby

On February 4, 1994, the tidewater goby (*Eucyclogobius newberryi*) was federally listed as endangered under FESA throughout the species' range. Tidewater goby is a small fish species that is restricted to estuaries and lagoons along California's coast. Within the study area, tidewater goby is known to occur in a number of locations within the Humboldt Bay, as well as the Elk River (USFWS 2007). Tidewater goby favor locations with salinities less than 10 parts per thousand (Swift et al. 1989) and that have both open water and emergent or submerged vegetation. Tidewater goby feed on aquatic insects and small crustaceans, with adults feeding primarily at dawn and dusk and juveniles feeding throughout the day. Spawning peaks during in the spring, April or May in central California (Swift et al. 1989), with some spawning also taking place into the summer months.

Potentially suitable habitat for tidewater goby occurs within the lower portions of Aliso Creek near its confluence with the Pacific Ocean where salinity levels may be suitable to support this species. While the existing Reach 5 of the NCI occurs within Aliso Creek, the project will entail abandoning it in place, and the new pipeline will be constructed entirely outside the creek's limits.

4.8 Jurisdictional Waters and Significant Drainage Courses

According to the National Wetlands Inventory (USFWS 2025), Aliso Creek is a mapped "blue line" intermittent stream with associated riparian habitat that directly connects to the Pacific Ocean at Aliso Creek Beach. As such, Aliso Creek is likely under the jurisdiction of the U.S. Army Corps of Engineers due to relatively intermittent to permanent flows, and direct downstream connectivity to a traditional navigable water. Additionally, Aliso Creek is likely subject to jurisdiction of the California Water Quality Control Board San Diego Region, as well as CDFW due to the evidence of regular flows and the presence of riparian habitat. There are no other drainage features or tributaries to Aliso Creek within the study area.

4.9 Regional Resource Planning Context

Policies and guidance for resource planning in the City are provided by the City's Open Space/Conservation Element of the General Plan (City of Laguna Beach 2006), which also serves as the City's certified Local Coastal Program pursuant to the 1976 California Coastal Act.

The environmentally sensitive areas (ESAs) are defined as follows (City of Laguna Beach 2006):

> **Very High Value Habitats:** These include the habitats of endangered, rare or locally unique native plant species. Also included are areas of southern oak woodland and natural (not irrigation augmented) springs and seeps. Among the very high value habitats inventoried are areas of significant rock outcrop exposures, because of the assemblages of sensitive plant species that often occupy such settings.
>
> **High Value Habitats:** These are extensive areas dominated by indigenous plant communities, which possess good species diversity. They are often, but not always, linked to extensive open space areas, within or outside of the city, by traversable open space corridors. Their faunal carrying capacity is good to excellent; many areas are utilized as bedding and foraging sites by mule deer, or possess large resident populations of birds or native small mammals.

The project site is located in the Coastal Zone in Laguna Beach and the project is seeking a Coastal Development Permit from the California Coastal Commission. According to the City's Open Space/Conservation Element of the General Plan, Lower Aliso Creek and the south-facing slope of Aliso Canyon are considered very high value and high value habitats that meet the definition of ESAs, as defined by the City. The study area borders Aliso Canyon and Woods Wilderness Area and is located within Aliso Canyon, which are areas of significant habitat and resource value that function as ecological units within the City. Furthermore, Aliso Creek is mapped as a stream on the City's Major Watersheds and Drainage Course Map and includes riparian habitat that qualifies as an ESA.

Section 8H of the City's Open Space Conservation Element states that very high value habitats shall be preserved and high value habitat shall be preserved to the greatest extent possible; and mitigation measures for immediately adjacent areas shall also be required. The project alignment occurs entirely outside of Aliso Creek and any encroachment into native habitats will be minimal. In particular, for riparian vegetation associated with Aliso Creek, the applicant will be required to implement avoidance and minimization efforts. Additionally, the portion of the project alignment that does occur on the south-facing slope of Aliso Canyon within high value habitat would be bored underground, avoiding any potential surface-level impact to vegetation communities on the canyon slopes. Only small portions of the project will encroach into native habitat that could be considered high value, and these areas are located immediately adjacent to existing disturbance in the western and eastern portions of the project site, outside the limits of Aliso Creek.

The project is also within the Orange County Central and Coastal Natural Communities Conservation Plan/Habitat Conservation Plan (Central-Coastal NCCP/HCP). The eastern portion of the project area, outside the golf course area, is within the Central-Coastal NCCP/HCP Reserve. The City is not a participating landowner under the Central-Coastal NCCP/HCP but has the ability to cover impacts to listed species as a non-participating landowner. Based on focused surveys conducted for the project, the project area does not currently support listed species and therefore species take is not likely required for this project.

4.10 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.

The study area occurs within Aliso Canyon, which contains Aliso Creek. These features provide opportunities for wildlife movement from the foothills to the northeast toward the Pacific Ocean to the southwest. Aliso Canyon is considered a corridor for wildlife movement in the region, and functions as a corridor for a variety of wildlife moving through the Laguna Coast Wilderness. The portions of the study area that contain the limits of Aliso Creek provide opportunities for species such as fish and mammal species to move through the study area. However, the primarily developed portions of the project site occur within existing golf course facilities that contain paved access roads, grass sod, and frequent disturbance from recreational and resort activities. This ongoing disturbance reduces the potential for wildlife species to frequently move through the project site, although medium-sized mammals such as coyote may traverse portions of the site.

The reach of Aliso Creek within the study area, and its associated riparian habitat, primarily occurs to the west and south of the proposed project site. Therefore, the majority of available land suitable for functioning as a wildlife movement corridor or linkage occurs outside of the project site limits.

5 Impacts

This section presents the methods of analysis, thresholds of significance, and impact analysis for the proposed project.

5.1 Methods of Analysis

Impacts to sensitive vegetation communities, special-status plant and wildlife species, and jurisdictional waters (including wetlands) must be quantified and analyzed to determine whether such impacts are significant under CEQA. CEQA Guidelines Section 15064(b) states that an ironclad definition of "significant" effect is not possible because the significance of an activity may vary with the setting. Appendix G of the CEQA Guidelines, however, does provide "examples of consequences which may be deemed to be a significant effect on the environment" (14 CCR 15064[e]). These effects include substantial effects on rare or endangered species of animal or plant or the habitat of the species. CEQA Guidelines Section 15065(a) is also helpful in defining whether a project may have a significant effect on the environment.

Direct permanent impacts refer to the absolute and permanent physical loss of a biological resource (natural vegetation community, plant or wildlife species and its habitat, etc.) due to clearing, grading, and/or development associated with implementation of the proposed project. Direct temporary impacts refer to a temporal loss of a biological resource due to clearing and grading activities during construction.

The evaluation of whether an impact to a particular biological resource is significant must consider both the resource itself and the role of that resource in a regional context. Substantial impacts are those that contribute to, or result in, permanent loss of an important resource, such as a population of a rare plant or animal. Impacts may be important locally because they result in an adverse alteration of existing site conditions but considered not significant because they do not contribute substantially to the permanent loss of that resource regionally. The severity of an impact is the primary determinant of whether that impact can be mitigated to a less-than-significant level.

5.2 Thresholds of Significance

The City uses the questions in Appendix G of the CEQA Guidelines as the thresholds of significance for projects requiring environmental review under CEQA (14 CCR 15000 et seq.). Therefore, according to Appendix G, a significant impact would occur if development of the project:

Impact BIO-1	Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS
Impact BIO-2	Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS
Impact BIO-3	Has a substantial adverse effect on state or federally protected wetlands (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means
Impact BIO-4	Interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedes the use of native wildlife nursery sites
Impact BIO-5	Conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
Impact BIO-6	Conflicts with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan

5.3 Impact Analysis

5.3.1 Impact BIO-1: Special-Status Plants and Wildlife

Special-Status Plants

Dudek conducted focused rare plant surveys during the appropriate blooming period for 39 rare plants determined to have a moderate to high potential to occur on the study area (Attachment C). Two special-status plant species were observed within the study area during the focused rare plant surveys conducted for the project: Nuttall's scrub oak and cliff malacothrix. Nuttall's scrub oak is listed as a CRPR 1B.1 species that occurs in the eastern portion of the project site, north of the paved access road. A single individual, as well as a small stand of this species, was observed and mapped on Figure 5. The individual scrub oak occurs immediately adjacent to the paved access road and may be impacted during trenching to install the new pipeline. Therefore, potential project impacts to this species would be considered significant. Implementation of Mitigation Measure (MM) BIO-1 will reduce potential impacts to a less-than-significant level. All mitigation measures are provided in full in Section 5.4, Mitigation Measures, of this report.

Several individuals of cliff malacothrix, which is listed as CRPR 4.2, were found in the western portion of the project site, primarily north of Country Club Road. Cliff malacothrix is not considered sensitive under CEQA as only CRPR 1A through 3 species are afforded additional protection under CEQA. Therefore, potential project impacts related to trenching and installation of the new pipeline will not result in a significant impact to this species. Additionally, one local interest species was detected within the project site: yerba mansa. Yerba mansa is not afforded additional protection under CEQA as a special-status species; however, potential impacts to this species will be addressed through project compliance with local policies and ordinances. No other special-status or locally rare plant species were observed on the project site or study area.

Special-Status Wildlife

Suitable nesting and foraging habitat for coastal California gnatcatcher occurs throughout the coastal sage scrub habitat, specifically within the vegetation communities that include California sagebrush within the study area. No coastal California gnatcatchers were detected during the focused surveys for this species or other biological surveys conducted on site for the project. As such, coastal California gnatcatcher is considered absent from the project site. Therefore, project-related impacts to this species are unlikely to occur. However, due to the continued presence of suitable habitat for this species, the potential for this species to move on to the site cannot be completely ruled out. Therefore, if construction activities occur during the nesting season for this species the project may result in potential indirect impacts to nesting coastal California gnatcatchers if they move onto the site. Potential project-related impacts to this species would be considered significant.

Implementation of MM-BIO-2 would reduce potential impacts to a less-than-significant level.

Portions of Aliso Creek on the project site contain suitable riparian willow thickets associated with the intermittent stream that can provide nesting habitat for least Bell's vireo. Focused surveys consisting of eight survey passes from April to July were conducted, spaced at least 10 days apart. The results of the focused surveys were negative for least Bell's vireo. As such, this species is considered absent from the project site. Therefore, project-related impacts to this species are unlikely to occur. However, due to the continued presence of suitable habitat for this species, the potential for this species to move on to the site cannot be completely ruled out. Therefore, if construction activities occur during the nesting season for this species the project may result in potential indirect impacts to nesting vireos through excessive noise and disturbance, if they move onto the site. Potential project-related indirect impacts to this species would be considered significant.

Implementation of MM-BIO-2 would reduce potential impacts to a less-than-significant level.

Portions of Aliso Creek contain willow thickets and associated riparian habitat, which could provide suitable habitat for southwestern willow flycatcher. However, these riparian areas are relatively narrow (approximately 100 to 200 feet wide) and surrounded by upland scrub habitat within an incised drainage system. The reach of Aliso Creek within the majority of the project site also occurs within The Ranch golf course and resort that is subject to regular disturbances from recreational and resort activities, and ongoing maintenance. Additionally, while recorded occurrences of southwestern willow flycatcher have been recorded within 10 miles of the project site, there are no known occurrences within Aliso Canyon or Aliso Creek. Therefore, the potential for this species to occur on site is low and focused surveys were not conducted. The project is not anticipated to result in a significant impact to this species.

Crotch's bumble bee may forage for nectar on the *Salvia* species (*Salvia mellifera*) and other floral resources within the suitable coastal sage scrub throughout the study area. Crotch's bumble bee is a state candidate for listing and, as such, is afforded protection by CESA equivalent to a threatened listing. *Hymenoptera* (bees) and *Lepidoptera* (butterflies) were observed on site during the biological surveys, and suitable floral nectar resources and scrub habitat capable of supporting these species can persist year-round on site; as such, their presence within the study area cannot be discounted. Although not observed on site during the biological surveys, Crotch's bumble bee has a high potential to occur within the project site and could be directly impacted during open trenching and construction of the slip lining pit that occurs within and immediately adjacent to suitable habitat for this species. Therefore, if found on site prior to the start of construction, potential project impacts could occur that would be considered significant.

Implementation of MM-BIO-3 would reduce potential impacts to a less-than-significant level.

Potentially suitable habitat for tidewater goby occurs within the lower portions of Aliso Creek near its confluence with the Pacific Ocean where salinity levels may be suitable to support this species. While the existing Reach 5 of the NCI occurs within Aliso Creek, the project will not result in any direct or indirect impacts to the Creek. The existing Reach 5 will be capped and abandoned in place, and the new pipeline will be trenched and bored underground primarily within existing developed areas of The Ranch golf course and resort facilities. No project impacts will occur to suitable habitat for this species and therefore, there will be no direct or indirect impact to this species.

For the remaining special-status species (California Species of Special Concern or Watch List species) with a moderate or high potential to occur on the project site, that are not federally or state listed as endangered or threatened, potential project-related impacts may occur during the general avian breeding season, or if these reptile or mammal species are found on the project site prior to construction. Any potential aquatic dependent special-status species with a potential to occur on the project site will not be directly impacted as the project will predominantly avoid impacts to aquatic or riparian habitats. The project would occur partially within (0.04 acres) and immediately adjacent to riparian and native habitats that could provide suitable habitat for special-status avian, reptile, and mammal species that could nest, find shelter, or forage within the native habitats on site. Therefore, species such as Southern California legless lizard (*Anniella stebbinsi*), yellow-breasted chat, and pallid bat

(*Antrozous pallidus*) (among others) may be directly or indirectly impacted if project activities commence within or adjacent to native habitat areas during the general avian nesting season (February through August) or bat maternity roosting season (March through August). These impacts may be considered significant if the impact results in the greater population of the species to drop below self-sustaining levels. Implementation of MM-BIO-4 and MM-BIO-5 will reduce potential impacts to a less-than-significant level.

The project site contains suitable nesting habitat for a number of resident and migratory species protected by the Migratory Bird Treaty Act and California Fish and Game Code Section 3500, particularly those identified during the various wildlife surveys on site. While the majority of the project will be limited to existing developed areas or boring below native habitat areas, the project alignment occurs immediately adjacent to and within suitable nesting habitat that could be directly or indirectly impacted if construction activities occur during the general nesting season of February through August. Project activities that result in the direct or indirect take of an active nest would be considered significant. Implementation of MM-BIO-6 would reduce potential impacts to nesting birds to a less-than-significant level.

Project implementation of MM-BIO-1 through MM-BIO-6 would reduce project-related impacts to special-status plant and wildlife species to less than significant with mitigation.

5.3.2 Impact BIO-2: Riparian or Sensitive Vegetation Communities

A total of 18 vegetation communities and/or land cover types were identified within the study area. Specifically, nine natural vegetation community associations, four non-native vegetation community associations, and five land covers were mapped. The acreages of these vegetation communities and land covers are presented in Table 4, and their spatial distributions are illustrated on Figure 4. Vegetation communities are mapped according to CDFW's A Manual of California Vegetation, 2nd edition, a hierarchal classification system that organizes communities by alliance and their association subclasses. The proposed project will result in permanent impacts related to trenching for installation of the new pipeline and launch pits for the slip line in the eastern portion of the site (Figure 6, Impacts).

Table 4. Impacts to Vegetation Communities and Land Covers Within the Project Site (Acres)

Vegetation Community or Land Cover	Alliance	Association	Project Site	Permanent Project Impacts	Temporary Project Impacts	Total Impact
Natural Vegetation Communities						
Chamise chaparral	*Adenostoma fasciculatum* shrubland alliance	*Adenostoma fasciculatum* association	0.0	0.0	0.0	0.0
Arroyo willow thickets[a]	*Salix lasiolepis* shrubland alliance	*Salix lasiolepis* association	0.0	0.0	0.0	0.0
		Salix lasiolepis–Baccharis salicifolia association	0.0	0.0	0.0	0.0

Table 4. Impacts to Vegetation Communities and Land Covers Within the Project Site (Acres)

Vegetation Community or Land Cover	Alliance	Association	Project Site	Permanent Project Impacts	Temporary Project Impacts	Total Impact
California sagebrush–(purple sage) scrub	*Artemesia californica*–(*Salvia leucophylla*) shrubland alliance	*Artemesia californica* association	0.0	0.0	0.0	0.0
		N/A	0.0	0.0	0.0	0.0
Coyote brush scrub	*Baccharis pilularis* shrubland alliance	*Baccharis pilularis–Artemisia californica* association	0.18	0.05	0.13	0.18
California brittle bush–ashy buckwheat scrub	*Encelia californica–Eriogonum cinereum* shrubland alliance	*Encelia californica–Artemisia californica – Salvia mellifera - Baccharis pilularis* association	0.16	0.0	0.16	0.16
Lemonade berry scrub	*Rhus integrifolia* shrubland alliance	N/A	0.0	0.0	0.0	0.0
Sandbar willow thickets	*Salix exigua* shrubland alliance	*Salix exigua* association	0.0	0.0	0.0	0.0
Natural Vegetation Communities Subtotal			*0.34*	*0.05*	*0.29*	*0.34*
Non-Native Vegetation Communities						
Common and giant reed marshes	*Phragmites australis–Arundo donax* herbaceous semi-natural alliance	*Arundo donax* association	0.19	0.0	0.19	0.19
Wild oats and annual brome grasslands	*Avena* spp.–*Bromus* spp. herbaceous semi-natural alliance	N/A	0.0	0.0	0.0	0.0
		Bromus diandrus association	0.07	<0.01	0.07	0.07
Eucalyptus–tree of heaven–black locust groves	*Eucalyptus* spp.–*Ailanthus altissima–Robinia pseudoacacia* woodland semi-natural alliance	*Eucalyptus (globulus, camaldulensis)* association	0.01	0.0	0.01	0.01
Non-Native Vegetation Communities Subtotal			*0.27*	*<0.01*	*0.27*	*0.27*

Table 4. Impacts to Vegetation Communities and Land Covers Within the Project Site (Acres)

Vegetation Community or Land Cover	Alliance	Association	Project Site	Permanent Project Impacts	Temporary Project Impacts	Total Impact
Land Cover Types						
Intermittent stream/creek	N/A	N/A	0.0	0.0	0.0	0.0
Unvegetated wash and river bottom	N/A	N/A	0.0	0.0	0.0	0.0
Disturbed habitat	N/A	N/A	0.56	0.02	0.54	0.56
Ornamental plantings	N/A	N/A	0.85	0.0	0.85	0.85
Urban/ developed	N/A	N/A	0.99	0.0	0.99	0.99
		Land Cover Types Subtotal	*2.40*	*0.02*	*2.38*	*2.40*
		Total[a]	**3.02**	**0.07**	**2.95**	**3.02**

Notes: N/A = not applicable.

[a] Totals may not sum precisely due to rounding

As currently designed, the proposed project will result in a total of approximately 3.02 acres of impacts to native and non-native vegetation communities and land cover types, consisting of approximately 2.95 acres of temporary impacts, and approximately 0.07 acres of permanent impacts. Permanent impacts to non-native vegetation communities and land cover types (beyond aquatic covers) are not considered significant and do not require mitigation. Project-related impacts to native vegetation communities consist of approximately 0.05 acres of permanent impacts and approximately 0.29 acres of temporary impacts. Temporary impacts to vegetation communities will be addressed through preparation and implementation of a revegetation plan by appropriately revegetating the impacted areas.

The approximately 0.05 acres of permanent impacts to native vegetation communities would consist of impacts to coyote brush – California sagebrush scrub. This upland native vegetation community is not considered sensitive by CDFW nor is it regionally or locally protected without providing occupied habitat for listed species. Focused surveys for listed species including coastal California gnatcatcher and least Bell's vireo determined these species were absent from the project site; therefore, the coyote brush – California sagebrush scrub is not considered sensitive, and project-related permanent impacts to this vegetation community are not considered significant and do not require mitigation. Additionally, temporary impacts to approximately 0.29 acres of coyote brush scrub and California brittle bush – California sagebrush - black sage – coyote brush scrub are not considered significant and do not require mitigation; however, these areas shall be revegetated post construction. There are no project impacts to riparian or sensitive vegetation communities. As such, the project will result in no significant impact to sensitive and riparian vegetation communities.

5.3.3 Impact BIO-3: State or Federally Protected Wetlands

The proposed project is designed to abandon in place the existing Reach 5 of the NCI and construct a new pipeline through open trenching, directional boring, and slip lining. While portions of the proposed pipeline will be constructed in an open trench immediately adjacent to riparian habitat within Aliso Creek, there will be no direct impact to Aliso Creek or any other wetlands or potentially jurisdictional area. The open trenching will primarily occur within existing paved access roads, and the boring and slip lining will occur underground to avoid impacts at grade. However, the proposed project will be constructed immediately adjacent to Aliso Creek and may result in potential indirect impacts during the construction phase of the project related to drainage, toxins, and spillage, which would be considered significant. However, best management practices implemented during construction as part of the required stormwater pollution prevention plan will reduce the potential for indirect impacts to occur. These best management practices and stormwater pollution prevention plan are a requirement of the general municipal separate storm sewer system construction project and will be implemented by the project’s construction team. Therefore, the project will have a less-than-significant impact on jurisdictional waters and wetlands.

5.3.4 Impact BIO-4: Wildlife Movement

While the reach of Aliso Creek within the study area, and its associated riparian habitat, function as a wildlife corridor and linkage, the majority of the project site occurs outside of the boundaries of Aliso Creek or any native riparian habitat or scrub vegetation on the surrounding slopes. Additionally, portions of the project alignment that occur within native scrub habitat will be bored underground to avoid surface-level impact to existing habitat. Most of the available land suitable for functioning as a wildlife movement corridor or linkage occurs outside of the project site limits. Moreover, the construction and operational requirements of the project are relatively minimal as the project consists of constructing a new pipeline underground with no surface level buildings or structures associated with the project, thereby limiting the potential for the project to create a physical barrier or alteration to the land that could prevent the movement of wildlife in the future. There will be some minor disturbance to wildlife movement during the construction phase; however, this disturbance will be limited and temporary. Therefore, the project will result in a less-than-significant impact to wildlife corridors or linkages.

5.3.5 Impact BIO-5: Local Policies and Ordinances

As currently designed, the project will result in a total of approximately 0.34 acres of impacts to native vegetation communities (Table 4). The majority of those impacts will occur to coyote brush – California sagebrush scrub (0.05 acres of permanent impacts and 0.13 acres of temporary impacts totaling 0.18 acres) in the eastern portion of the project site, which is not considered high or very high value habitat and does not meet the definition of an ESA. Additionally, temporary impacts to 0.16 acres of California brittle bush – California sagebrush – black sage – coyote brush scrub would occur on the western portion of the site. This vegetation community occurs adjacent to existing development and is disturbed with ruderal vegetation in the herbaceous layer. Additionally, these coastal sage scrub communities are absent of any listed species, thereby reducing the quality of the habitat value potential for an ESA. As such, the natural vegetation communities impacted by the project are not considered very high or high value habitat and do not meet the definition of an ESA. Finally, temporary impacts to native vegetation communities will be revegetated appropriately through preparation and implementation of a revegetation plan. Therefore, project-related permanent impacts to a total of approximately 0.05 acres of unoccupied coyote brush – California sagebrush scrub would not be significant; as such, the project would result in a less-than-significant impact to local policies or ordinances by avoiding impacts to very high value and high value habitat within Aliso Canyon and Aliso Creek.

5.3.6 Impact BIO-6: Habitat Conservation Plan

Construction of the proposed project will result in approximately 0.05 acres of direct impacts to coastal sage scrub communities covered by the Central-Coastal NCCP/HCP that provide suitable habitat for NCCP/HCP covered species observed on site, specifically coastal California gnatcatcher. Coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher (all Central-Coastal NCCP/HCP covered species) were not observed on site during focused surveys; therefore, these covered species are considered absent from the project site, and no direct or indirect impacts (i.e., listed species take) would occur.

The project site provides suitable habitat for Central-Coastal NCCP/HCP covered species including coyote (*Canis latrans*), red-shouldered hawk (*Buteo lineatus*), prairie falcon (*Falco mexicanus*), least Bell's vireo, coastal California gnatcatcher, and Coulter's matilija poppy (*Romneya coulteri*). Although these species could occur on site, none of the species were observed during general and focused biological surveys. Additionally, specific covered habitats within the project site include chaparral, riparian, and coastal sage scrub vegetation communities (California sagebrush, coyote brush scrub). Permanent project impacts to coastal sage scrub vegetation communities would be minimal and limited to areas adjacent to previous disturbance, totaling 0.05 acres. There are no project impacts to riparian or chaparral vegetation communities on site.

No other Central-Coastal NCCP/HCP covered biological resources will be directly impacted by the project. Based on the absence of covered species, species take is not required and therefore mitigation under the Central-Coastal NCCP/HCP is not required. While the project will result in permanent impacts within the Central-Coastal NCCP/HCP Reserve, these impacts are small in size (approximately 0.05 acres) and occur adjacent to existing disturbed areas; as such, the impacts are not expected to adversely affect the habitat functions of the reserve and the project will therefore have a less-than-significant impact on habitat conservation plans.

5.4 Mitigation Measures

MM-BIO-1 Special-Status Plant Surveys. Prior to the start of project activities, a qualified botanist will conduct a survey to map and flag the location of any Nuttall's scrub oaks, to verify previously identified locations and map any additional locations, if any. The mapped locations will be flagged for avoidance during construction. If project activities may encroach into the drip line of these scrub oaks, a biological monitor must be on site during construction to ensure the scrub oak and its root system are not impacted by working with the construction team to maintain these oaks in place by adjusting the proposed trench line around the oaks, if possible. In the event they cannot be avoided, a Relocation Plan will be prepared to salvage and relocate the proposed Nuttall's scrub oaks to be impacted. The Relocation Plan will describe the methods of salvage and proposed location for relocation that will be conserved in perpetuity.

MM-BIO-2 Coastal California Gnatcatcher and Least Bell's Vireo Avoidance. Project activities shall avoid construction within or immediately adjacent to suitable habitat for coastal California gnatcatcher and least Bell's vireo during the combined nesting season (February through July) for these two state and federally listed species. In the event project activities cannot avoid the combined nesting season, a pre-construction clearance survey shall be conducted by a qualified and permitted biologist within three days prior to the start of project activities. If either gnatcatcher or vireo are found on site, additional avoidance measures would be required. Since the project site occurs within the Orange County Natural Community Conservation Plan/Habitat Conservation Plan and the City of Laguna Beach is a signatory to the plan, potential project-related take of either species would be authorized, with conditions for least Bell's vireo as a conditionally covered species.

MM-BIO-3 Crotch's Bumble Bee Surveys. Nesting surveys shall occur if ground-disturbing activities are scheduled to occur during the queen flight season through the colony active period (February 1 through August 31). Potential nesting sites should be surveyed for active Crotch's bumble bee colonies either through observations of queens searching for nesting sites or by looking for concentrated bumble bee activity entering and exiting a given area. Surveys may occur between 1 hour after sunrise and 2 hours before sunset. Surveys shall not be conducted during wet conditions (e.g., foggy, raining, or drizzling) and surveyors shall wait at least 1 hour following rain. Optimal surveys are conducted when there are sunny to partly sunny skies and temperatures between 65°F and 90°F, and winds less than 8 mph. Surveys may be conducted outside these weather parameters if other bees or butterflies are observed flying.

Potential nesting sites investigated by colony founding queens should be GPS marked if the queen exhibits signs of interest in the potential site (e.g., she doesn't emerge from the site within a few minutes and then continues to nest search). Potential nesting sites identified during the queen nest searching phase shall be evaluated later during the Colony Active Period to determine whether an active colony has been established. Potential nest sites on the project site will be observed for up to 5 minutes during the Colony Active Period to monitor for Crotch's bumble bees entering or exiting. If a nest site is confirmed to be occupied by Crotch's bumble bees, the location GPS coordinates will be recorded; however, no flagging or visual marking of the nest location will occur until just prior to and during construction.

If Crotch's bumble bee is not detected during the pre-construction surveys, no further action or mitigation is required. If Crotch's bumble bee is detected, the City of Laguna Beach, in consultation with a qualified entomologist, will develop a Crotch's Bumble Bee Avoidance Plan to fully avoid direct and indirect impacts to this species. The avoidance plan will include nesting surveys, adaptive management, and success criteria. If take cannot be avoided, then an Incidental Take Permit from the California Department of Fish and Wildlife and subsequent mitigation would be required to reduce the impact to a less-than-significant level.

If required, mitigation for direct impacts to Crotch's bumble bee shall be fulfilled through compensatory mitigation at a minimum 1:1 nesting habitat replacement of equal or better functions and values to those impacted by the project. Mitigation shall be accomplished either through off-site conservation or through a California Department of Fish and Wildlife–approved mitigation bank. If mitigation is not purchased through a mitigation bank, and lands are conserved separately, a cost estimate shall be prepared to estimate the initial start-up costs and ongoing annual costs of management activities for the management of the conservation easement area(s) in perpetuity. The funding source shall be in the form of an endowment to help the qualified natural lands management entity that is ultimately selected to hold the conservation easement(s). The endowment amount shall be established following the completion of a project-specific Property Analysis Record to calculate the costs of in-perpetuity land management. The Property Analysis Record shall take into account all management activities to fulfill the requirements of the conservation easement(s), which are currently in review and development.

MM-BIO-4 Special-Status Wildlife Species Avoidance. Construction activities shall avoid the combined general avian nesting season and bat maternity roosting season (February through August) to reduce and minimize potential impacts to non-state and federally listed special-status species. In the event the nesting and maternity season cannot be avoided, a pre-construction survey shall be conducted within 10 days prior to the start of project activities to determine the presence/absence of any special-status wildlife species within and immediately adjacent to the project site. If any special-status wildlife species are found during the survey, additional avoidance and minimization measures shall be required. A monitor may also be required during construction to ensure no impacts to special-status species occur through moving them out of harm's way, halting construction activities, or coordination with the wildlife agencies for relocation, if needed. Any relocation activities would occur outside of the nesting or maternity roosting season.

MM-BIO-5 Worker Environmental Awareness Program (WEAP) Training. Prior to the start of project activities, a pre-construction meeting shall be required that includes a training session for project personnel by a biological monitor. The training shall include (1) a description of the species of concern and their habitats; (2) the general provisions of the applicable regulations pertaining to biological resources, including the Endangered Species Act and the Clean Water Act; (3) the need to adhere to the provisions of the Endangered Species Act, the Clean Water Act, and other applicable regulations; (4) the penalties associated with violating the provisions of the Endangered Species Act, Clean Water Act, and other applicable regulations; (5) the general measures that are being implemented to conserve the species of concern as they relate to the project; and (6) the access routes to and from disturbance area boundaries within which the project activities must be accomplished. Additionally, the training shall include the measures and mitigation requirements for the applicable resources. Copies of the mitigation measures and any required permits from the resource agencies shall be made available to construction personnel. The training shall be provided in alternate languages, as needed.

MM-BIO-6 Nesting Bird Avoidance. In order to reduce any potential indirect impact to nesting birds, project construction should commence outside of the general avian nesting season from February through August. If construction activities cannot avoid the nesting season, then a pre-construction survey shall be conducted by a trained biologist to determine the presence/absence of any nesting birds within the project site and 500-foot buffer around the site. If an active nest is found, a suitable buffer based on the species sensitivity and proximity to the area of disturbance shall be placed around the nest for the duration of the nesting period. Construction may continue within this buffer only at the discretion of a monitoring biologist. The buffer can be removed when the nest is no longer active, as determined by a trained biologist.

6 Conclusion

Impacts to biological resources would be less than significant with implementation of MM-BIO-1 through MM-BIO-6, as prescribed in Section 5.3 and provided in full in Section 5.4. Dudek would be pleased to provide scopes of work for these proposed mitigation measures prior to project implementation.

No impacts to state or federally protected wetlands would occur as a result of project implementation. Additionally, project implementation would not conflict with any local policies, ordinances, or adopted habitat conservation plans.

Sincerely,

Tommy Molioo

Tommy Molioo
Senior Biologist

Att.: *A – Figures*
B – Photo Log
C – Species Compendium
D – Plant PTO Table
E – Wildlife PTO Table
cc: *Rachel Struglia, Dudek*

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Attachment A

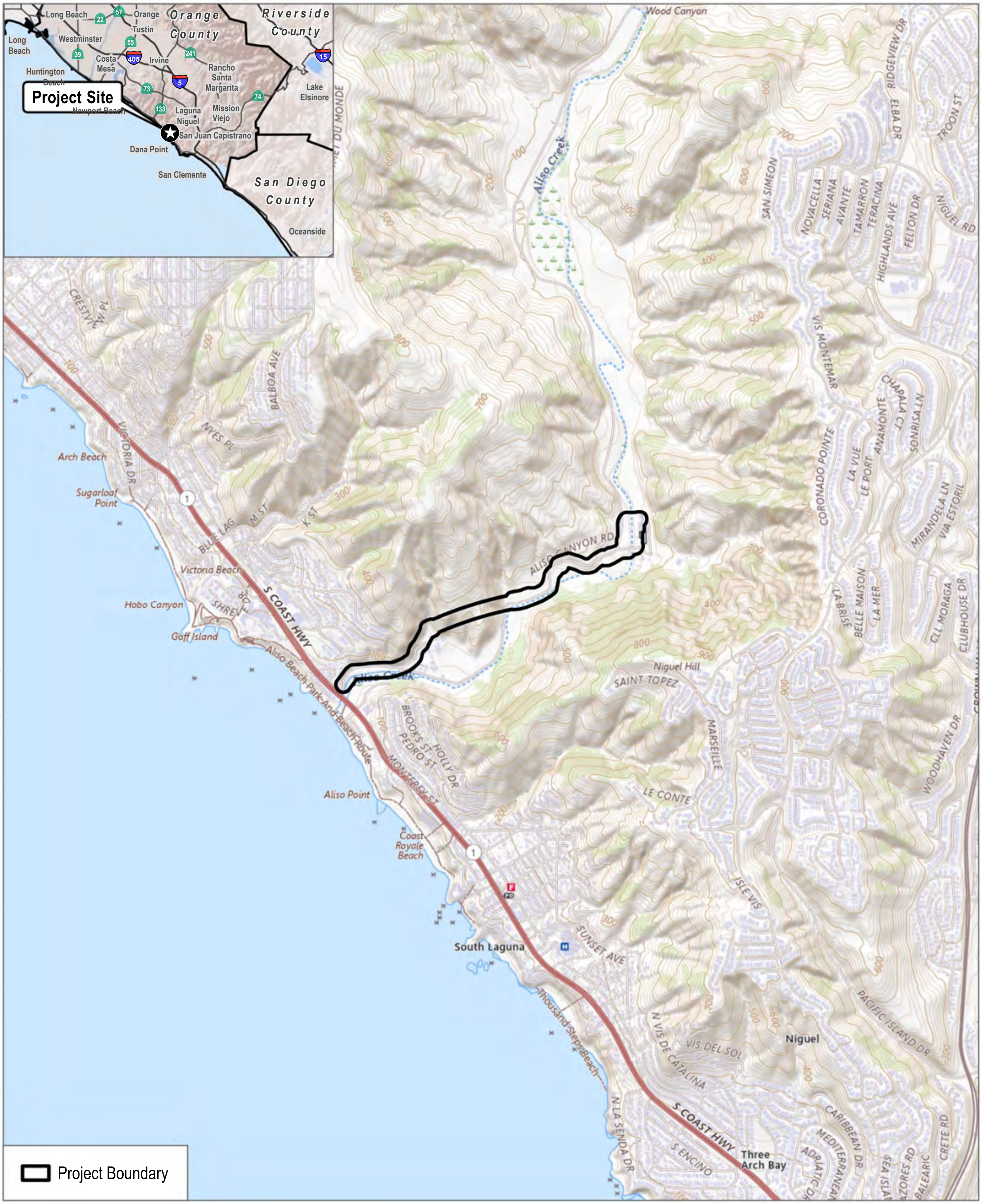
Figures

SOURCE:

FIGURE 1

Project Location

Laguna Beach NCI Reach 5



SOURCE: USGS National Map 2024

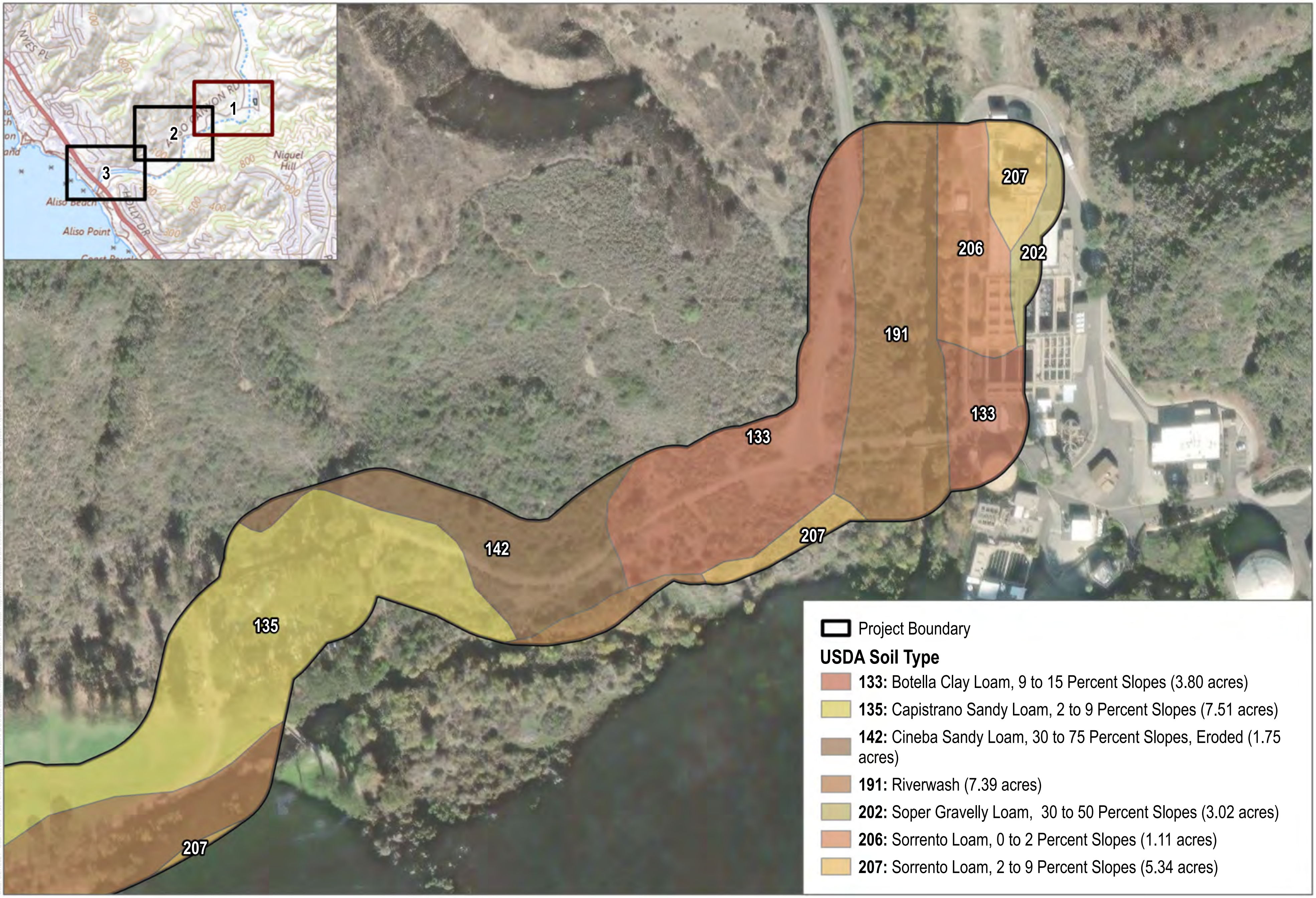
FIGURE 2

Local Topographic

Laguna Beach NCI Reach 5

DUDEK

0 1,000 2,000 Feet



SOURCE: ESRI Imagery Accessed 2024

DUDEK

0 115 230 Feet

FIGURE 3-1

Soils

Laguna Beach NCI Reach 5

SOURCE: ESRI Imagery Accessed 2024

DUDEK

0 115 230 Feet

FIGURE 3-2

Soils

Laguna Beach NCI Reach 5

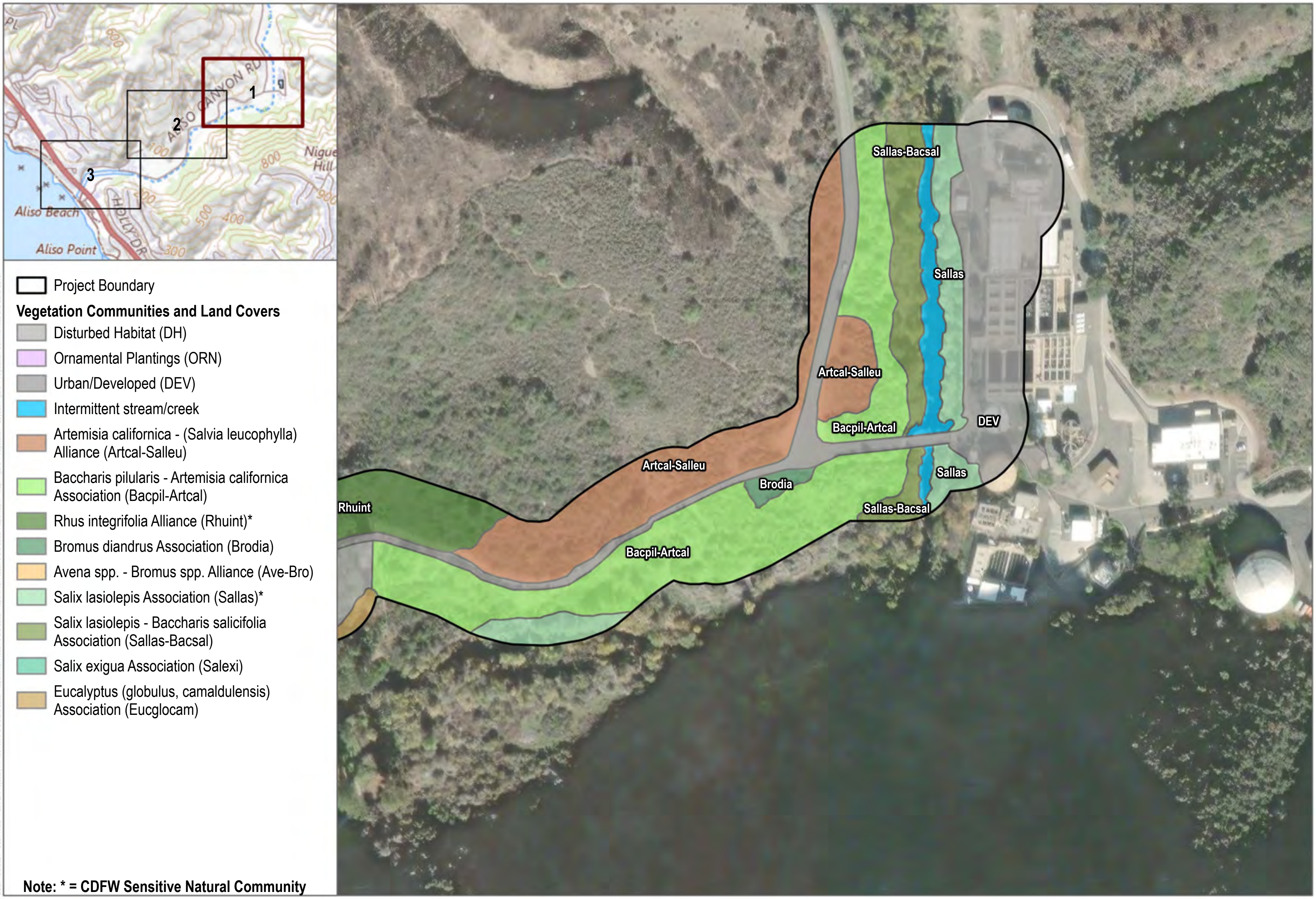
SOURCE: ESRI Imagery Accessed 2024

DUDEK

FIGURE 3-3

Soils

Laguna Beach NCI Reach 5

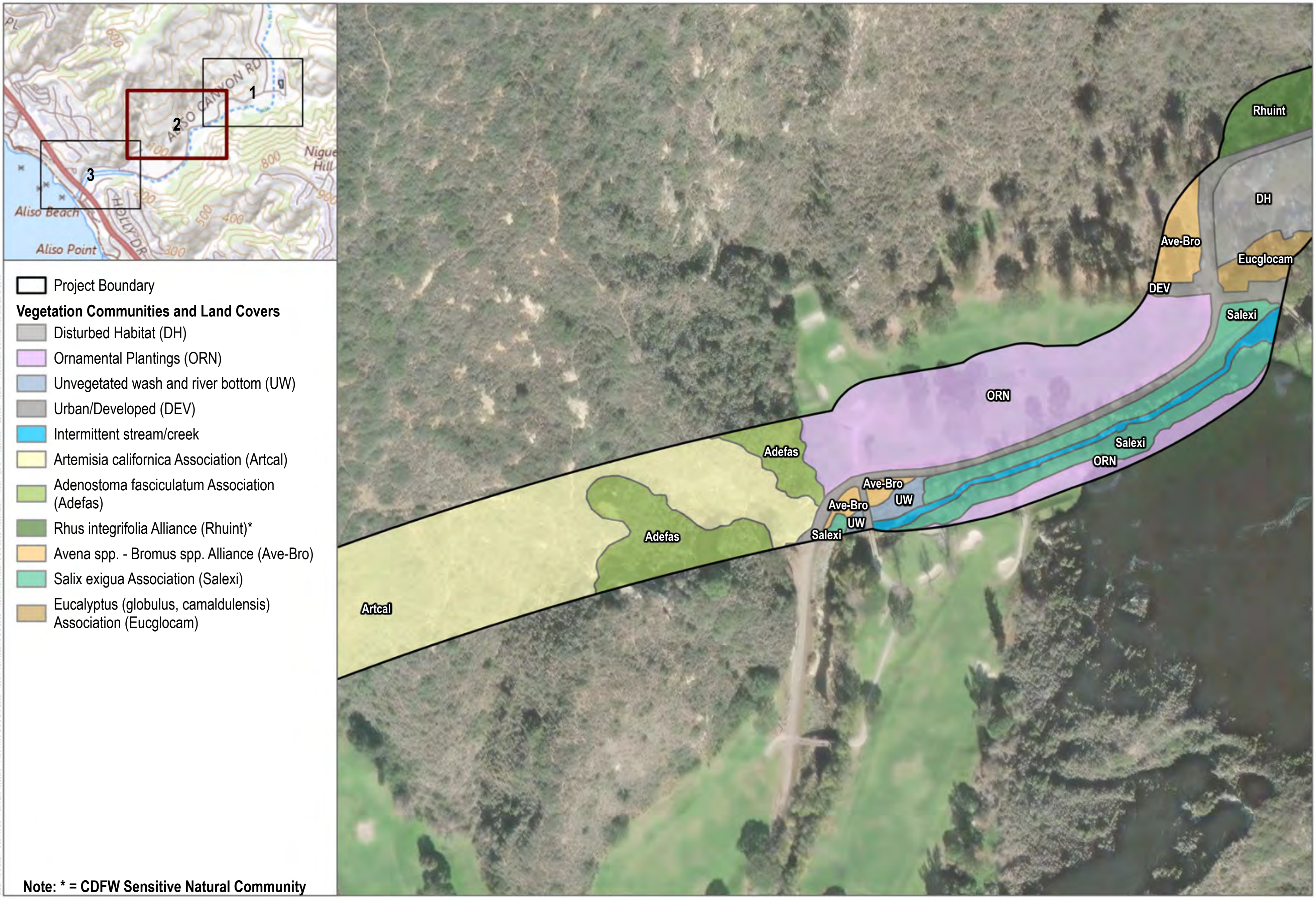


SOURCE: ESRI Imagery Accessed 2024

FIGURE 4-1

Vegetation Communities and Land Cover

Laguna Beach NCI Reach 5

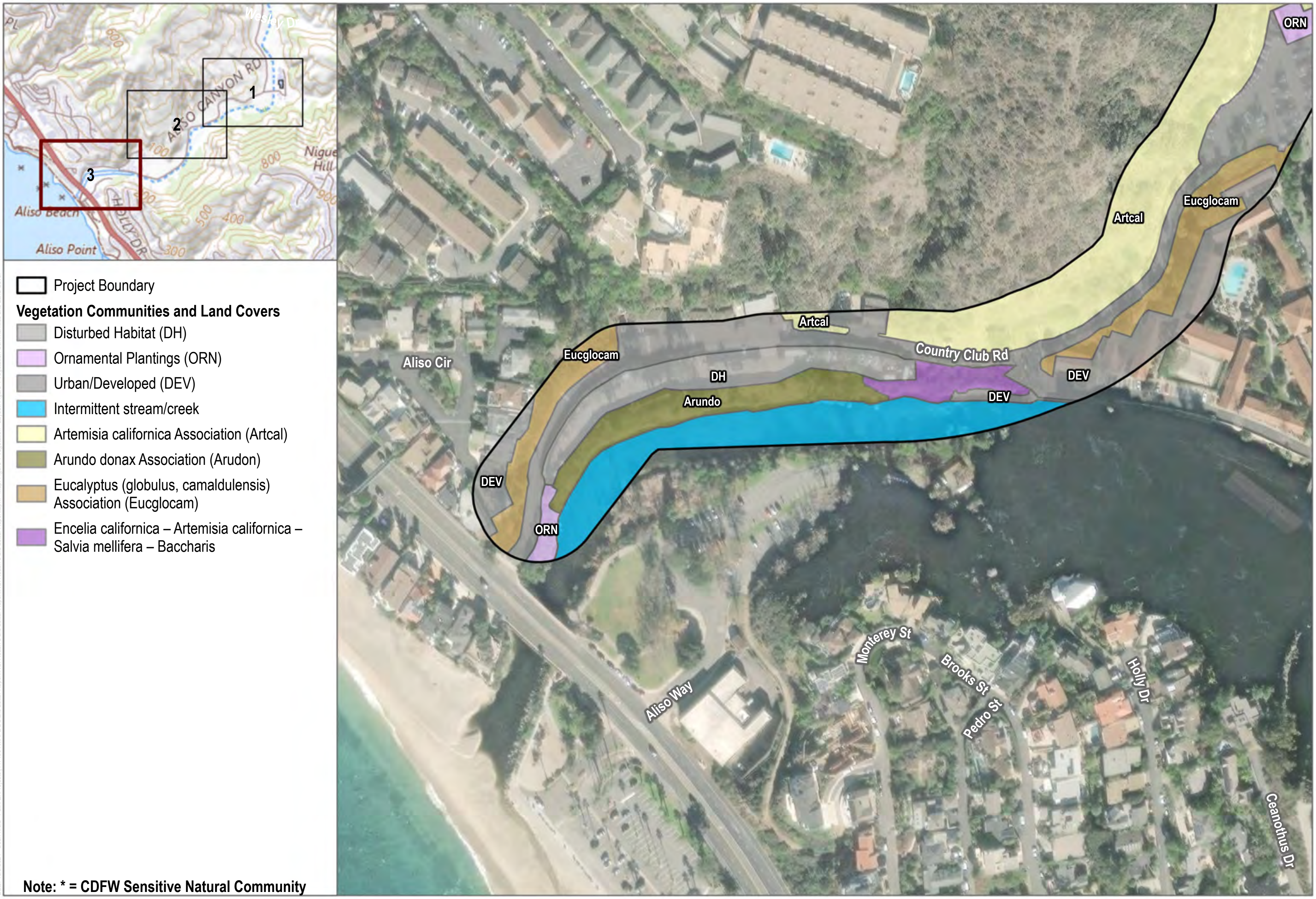


SOURCE: ESRI Imagery Accessed 2024

FIGURE 4-2

Vegetation Communities and Land Cover

Laguna Beach NCI Reach 5



Note: * = CDFW Sensitive Natural Community

SOURCE: ESRI Imagery Accessed 2024

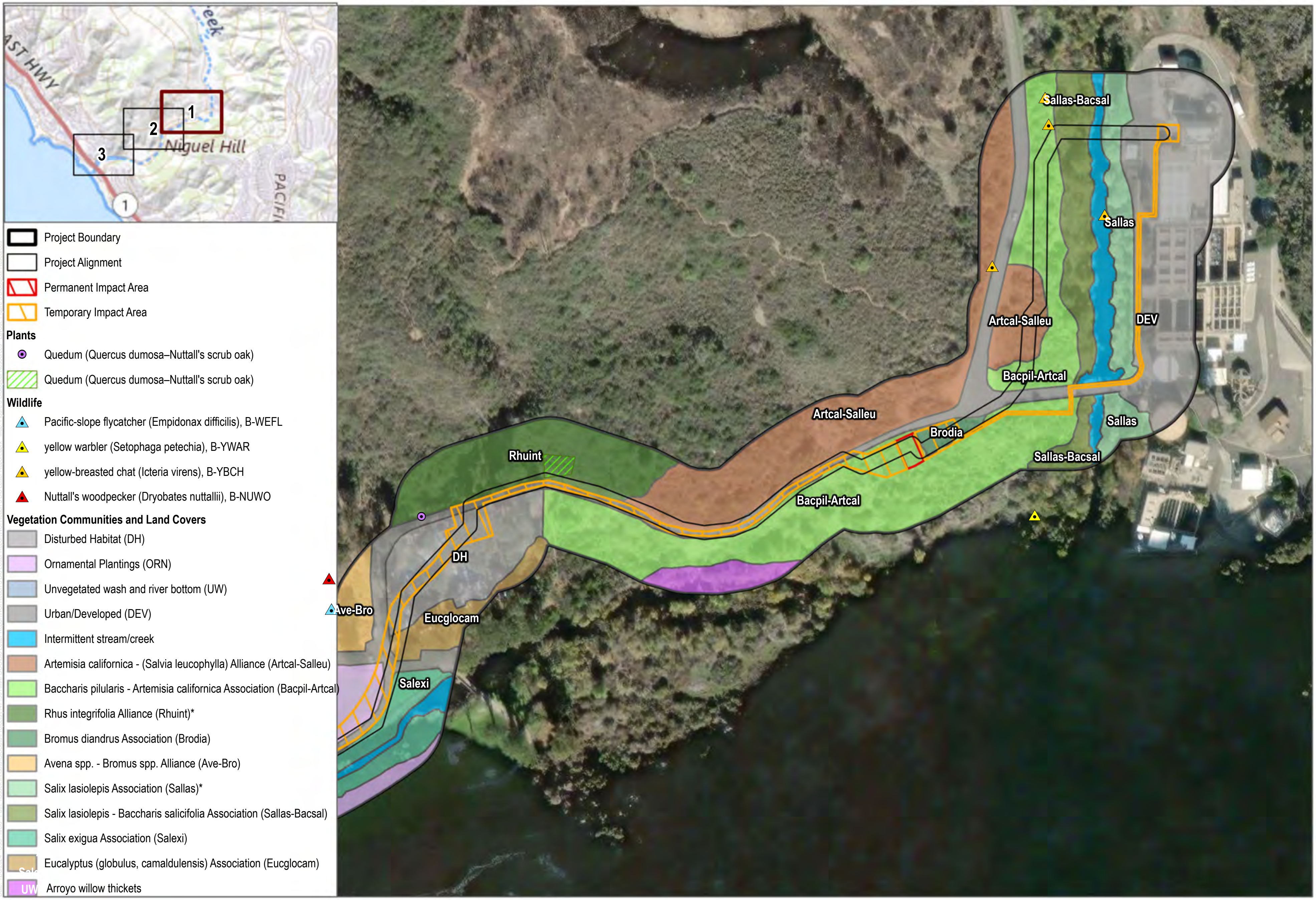
DUDEK

0 115 230 Feet

FIGURE 4-3

Vegetation Communities and Land Cover

Laguna Beach NCI Reach 5



SOURCE: Esri Imagery Accessed 2024

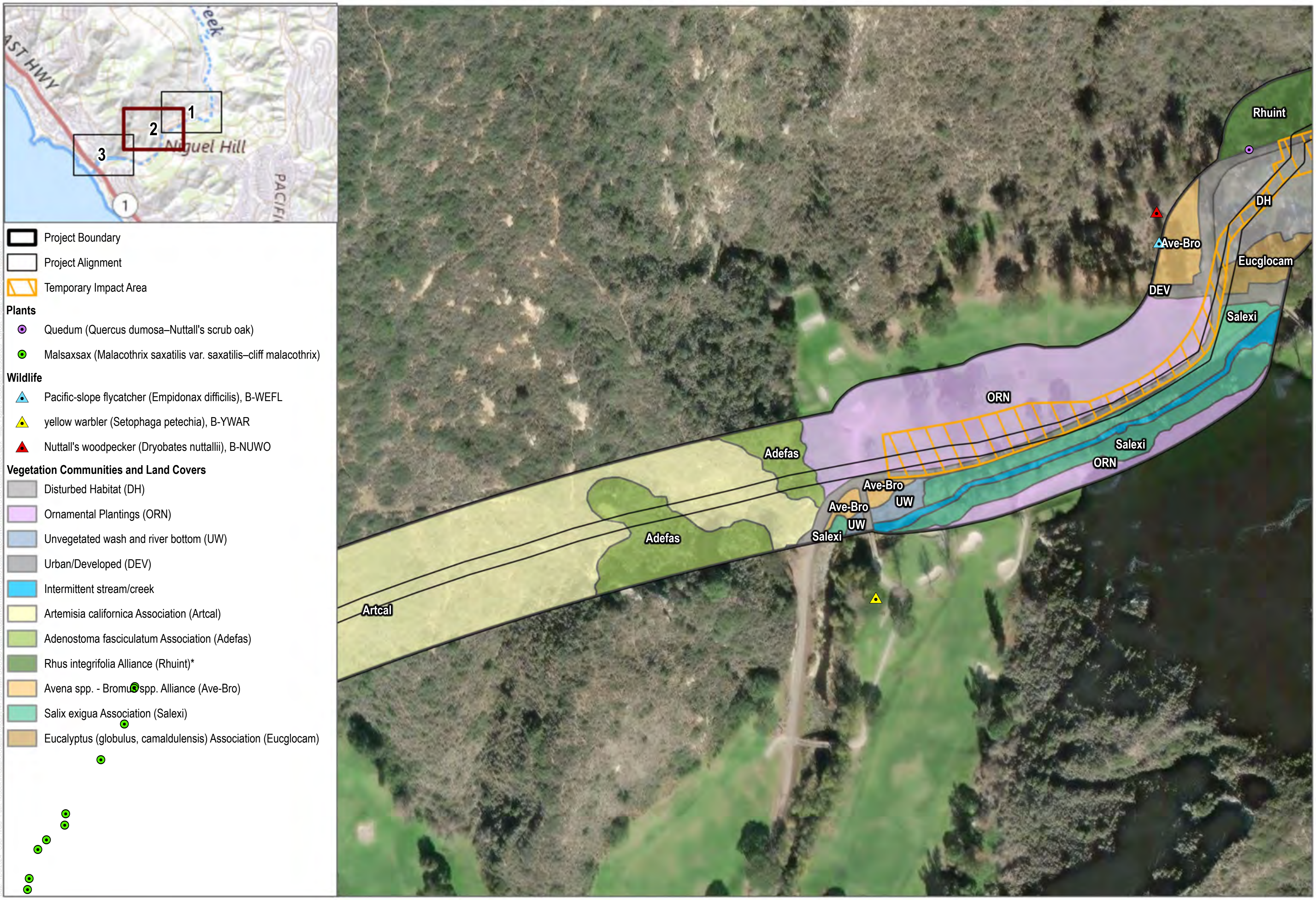
DUDEK

0 115 230 Feet

FIGURE 5-1

Biological Resources Map

Laguna Beach NCI Reach 5

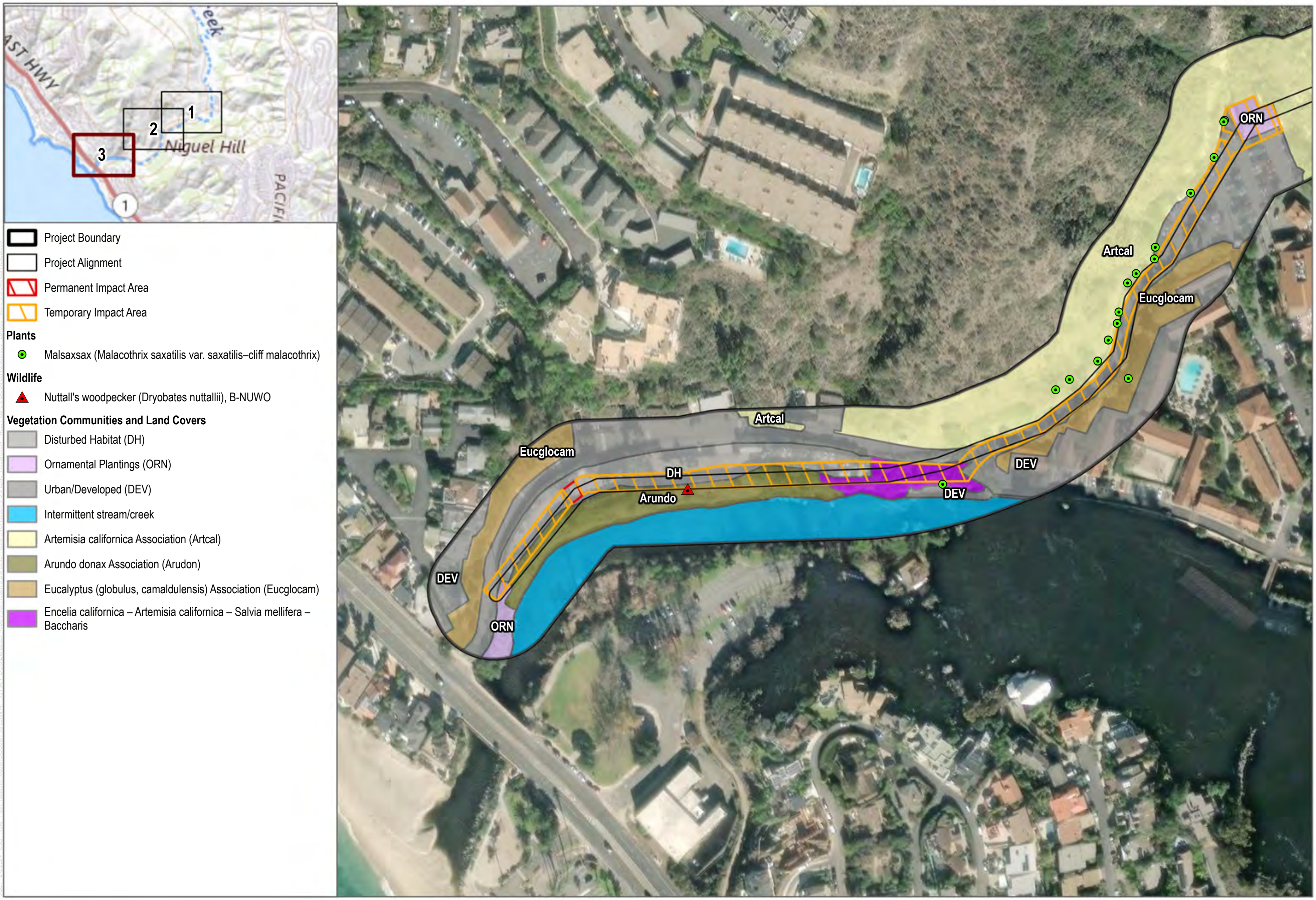


SOURCE: Esri Imagery Accessed 2024

FIGURE 5-2

Biological Resources Map

Laguna Beach NCI Reach 5



SOURCE: Esri Imagery Accessed 2024

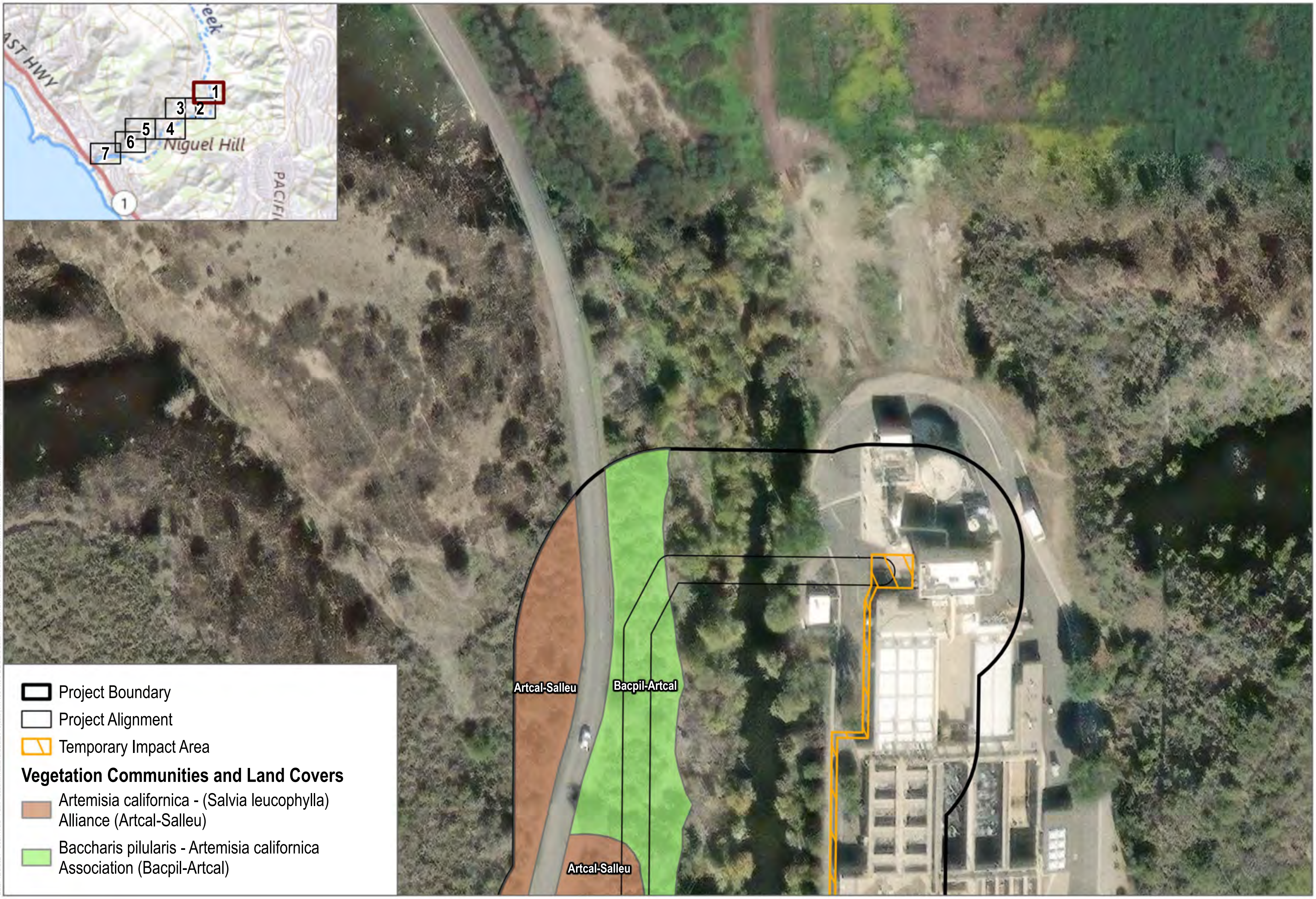
DUDEK

0 115 230 Feet

FIGURE 5-3

Biological Resources Map

Laguna Beach NCI Reach 5

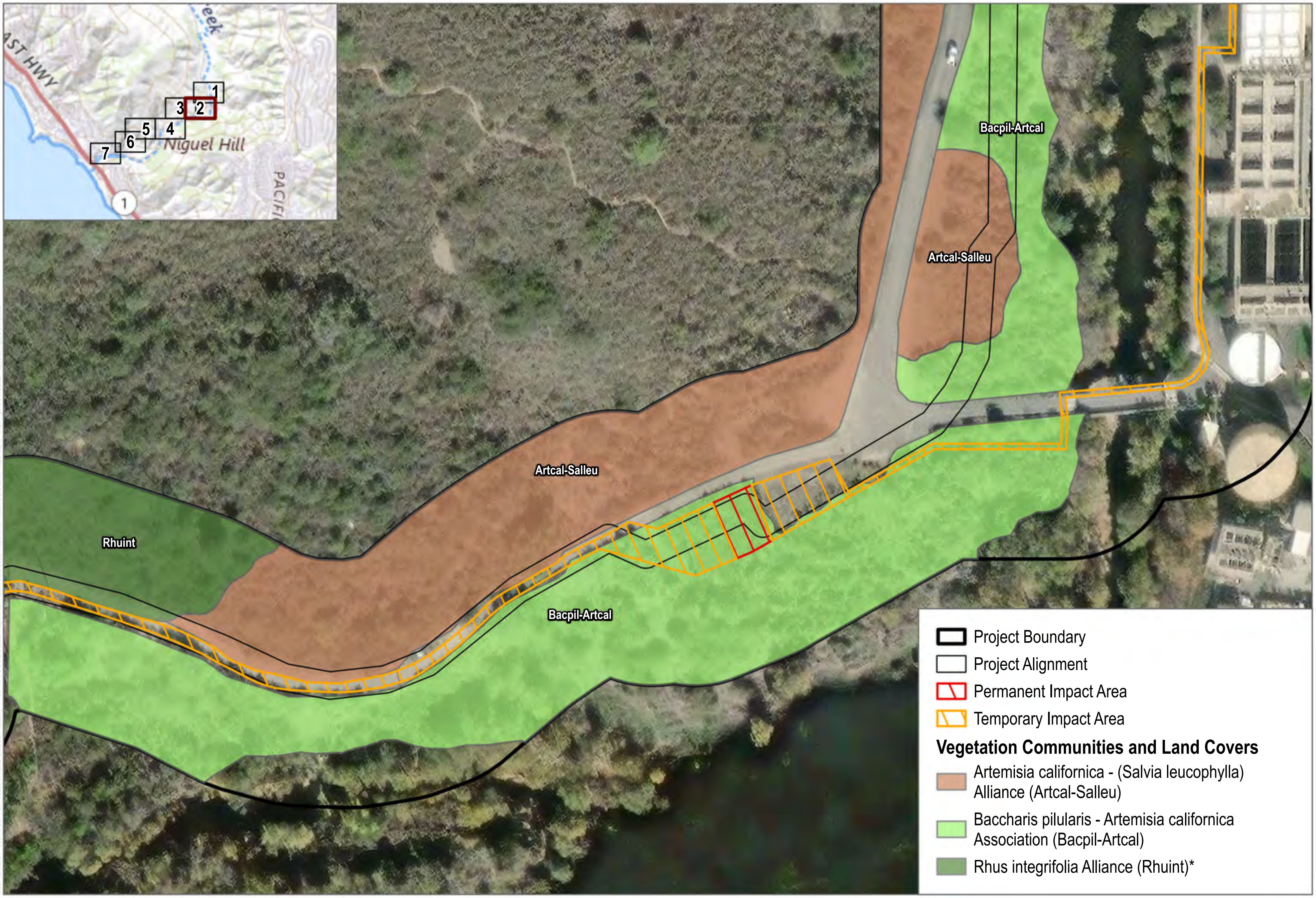


SOURCE: Esri Imagery Accessed 2024

FIGURE 6-1

Impacts

Laguna Beach NCI Reach 5



SOURCE: Esri Imagery Accessed 2024

DUDEK

FIGURE 6-2

Impacts

Laguna Beach NCI Reach 5

SOURCE: Esri Imagery Accessed 2024

FIGURE 6-3

Impacts

Laguna Beach NCI Reach 5

SOURCE: Esri Imagery Accessed 2024

FIGURE 6-4

Impacts

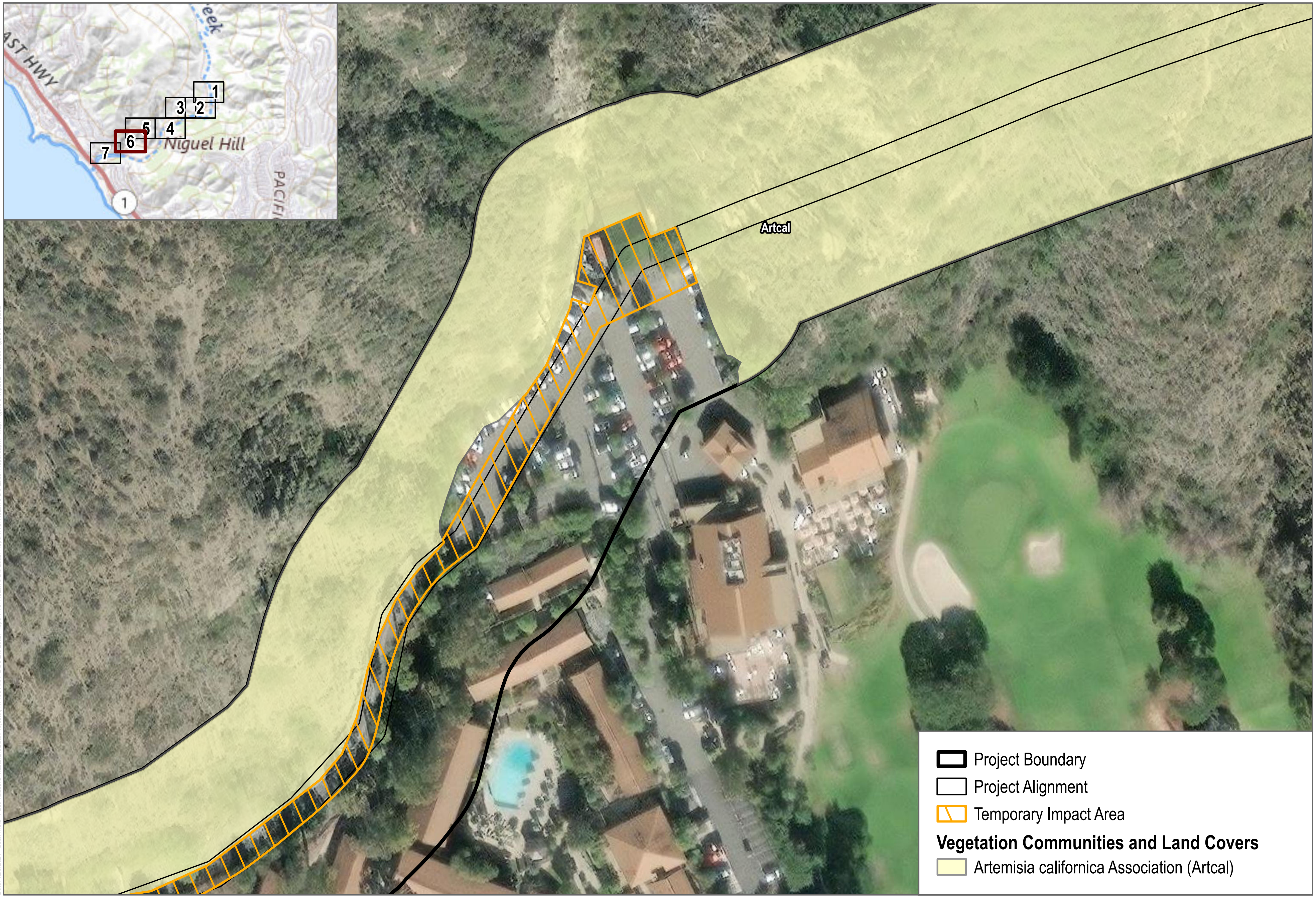
Laguna Beach NCI Reach 5

SOURCE: Esri Imagery Accessed 2024

FIGURE 6-5

Impacts

Laguna Beach NCI Reach 5



SOURCE: Esri Imagery Accessed 2024

FIGURE 6-6

Impacts

Laguna Beach NCI Reach 5

DUDEK

SOURCE: Esri Imagery Accessed 2024

FIGURE 6-7

Impacts

Laguna Beach NCI Reach 5

Attachment B

Photo Log

Photo 1. Representative view of riparian habitat within survey area. Photo facing north. March 22, 2024.

Photo 2. Representative view of coastal California gnatcatcher habitat within survey area. Photo facing west. March 22, 2024.

Photo 3. Representative view of Aliso Creek within survey area. Photo facing northeast. March 22, 2024.

Photo 4. Representative view of coastal California gnatcatcher habitat within survey area. Photo facing northwest. March 22, 2024.

Attachment C

Species Compendium

Plant Species

Angiosperms (Dicots)

AIZOACEAE – STONE PLANTS

* *Carpobrotus edulis* – ice plant
* *Mesembryanthemum crystallinum* – common iceplant
* *Tetragonia tetragonioides* – New Zealand spinach

AMARANTHACEAE – AMARANTH FAMILY

* *Amaranthus blitum* – purple amaranth

ANACARDIACEAE – CASHEW FAMILY

Malosma laurina – laurel sumac
Rhus integrifolia – lemonade berry
Rhus ovata – sugarbush
* *Schinus molle* – Brazilian pepper tree
Toxicodendron diversilobum – poison oak

APIACEAE – CARROT FAMILY

* *Conium maculatum* – poison hemlock
* *Foeniculum vulgare* – fennel

APOCYNACEAE – DOGBANE FAMILY

* *Carissa macrocarpa* – natal plun
* *Nerium oleander* – oleander

ASTERACEAE – SUNFLOWER FAMILY

Ambrosia psilostachya – western ragweed
Artemisia californica – California sagebrush
Artemisia douglasiana – Douglas' sagewort
Baccharis pilularis – coyote brush
Baccharis salicifolia – mulefat
* *Carduus pycnocephalus* – Italian plumeless thistle
* *Carduus tenuiflorus* – winged plumeless thistle
* *Centaurea melitensis* – Maltese star-thistle
* *Cirsium vulgare* – bull thistle
* *Cynara cardunculus* – artichoke thistle, cardoon
Deinandra fasciculata – clustered tarweed
Encelia californica – California brittlebush
* *Erigeron bonariensis* – asthmaweed

Erigeron canadensis – Canada horseweed
Eriophyllum confertiflorum – golden yarrow
* *Glebionis coronaria* – garland daisy
Hazardia squarrosa – sawtooth golden bush
* *Helminthotheca echioides* – bristly oxtongue
* *Heterotheca grandiflora* – telegraphweed
Isocoma menziesii – coastal goldenbush
Isocoma menziesii var. *veronioides* – Menzies' goldenbush
* *Lactuca serriola* – prickly lettuce
Malacothrix saxatilis var. *saxatilis* – cliff malacothrix
* *Oncosiphon piluliferum* – stinknet
Pseudognaphalium biolettii – two-color rabbit-tobacco
Pseudognaphalium californicum – ladies' tobacco
* *Pulicaria paludosa* – Spanish false fleabane
* *Sonchus asper* – spiny sowthistle
* *Sonchus oleraceus* – common sowthistle

BETULACEAE – BIRCH FAMILY

Alnus rhombifolia – white alder

BORAGINACEAE – BORAGE FAMILY

* *Echium candicans* – pride of Madeira
Heliotropium curassavicum – salt heliotrope

BRASSICACEAE – CRUCIFER FAMILY

* *Brassica nigra* – black mustard
* *Hirschfeldia incana* – shortpod mustard
Lepidium lasiocarpum – shaggyfruit pepperweed
Nasturtium officinale – watercress
* *Raphanus sativa* – cultivated radish
* *Sisymbrium altissimum* – tall tumblemustard
* *Sisymbrium irio* – London rocket

CACTACEAE – CACTUS FAMILY

Cylindropuntia prolifera – coastal cholla
Opuntia littoralis – coast prickly pear

CARYOPHYLLACEAE – PINK FAMILY

* *Spergularia bocconi* – Boccone's sandspurry

CHENOPODIACAE – GOOSEFOOT FAMILY

Atriplex lentiformis – big leaf saltbush

∗ *Atriplex semibaccata* – Australian saltbush

Chenopodium glaucum – no common name

∗ *Chenopodium murale* – nettleleaf goosefoot

∗ *Salsola tragus* – prickly Russian thistle

CLEOMACEAE – CLEOME FAMILY

Peritoma arborea – bladderpod

CONVOLVULACEAE – MORNING-GLORY FAMILY

Calystegia macrostegia ssp. *arida* – island false bindweed

Calystegia macrostegia – island false bindweed

Convolvulus simulans – small-flowered morning-glory

CRASSULACEAE – STONECROP FAMILY

∗ *Crassula ovata* – jade plant

Dudleya lanceolata – lanceleaf liveforever

Dudleya pulverulenta – chalk dudleya

CUCURBITACEAE – CUCURBIT FAMILY

Marah macrocarpa – chilicothe

EUPHORBIACEAE – SPURGE FAMILY

∗ *Euphorbia peplus* – petty spurge

∗ *Euphorbia serpens* – matted sandmat

∗ *Ricinus communis* – castor bean

FABACEAE – LEGUME FAMILY

∗ *Acacia cyclops* – coastal wattle

∗ *Acacia longifolia* – Sydney golden wattle

∗ *Acacia pycnantha* – golden wattle

Acmispon glaber – deerweed

∗ *Dipogon lignosus* – Cape sweet-pea

∗ *Melilotus albus* – yellow sweetclover

∗ *Melilotus indicus* – annual yellow sweetclover

GERANIACEAE – GERANIUM FAMILY

∗ *Erodium botrys* – longbeak stork’s bill

∗ *Erodium cicutarium* – redstem stork’s bill

GROSSULARIACEAE – GOOSEBERRY FAMILY

Ribes speciosum – fuchsiaflower gooseberry

HYDROPHYLLACEAE – WATERLEAF FAMILY

Phacelia ramosissima – branching phacelia

HYPERICACEAE – ST. JOHN'S WORT FAMILY

Hypericum anagalloides – tinker's penny

LAMIACEAE – MINT FAMILY

* *Lamium amplexicaule* – henbit dead-nettle

Salvia mellifera – black sage

* *Marrubium vulgare* – white horehound

MALVACEAE – MALLOW FAMILY

Malacothamnus fasciculatus – bush mallow

* *Malva parviflora* – cheeseweed

Malvella leprosa – alkali mallow

MONTIACEAE – MONTIA FAMILY

Calyptridium monandrum – common pussypaws

MORACEAE – MULBERRY FAMILY

* *Ficus carica* – edible fig

MYRSINACEAE – MYRSINE FAMILY

* *Lysimachia arvensis* – scarlet pimpernel

MYRTACEAE – MYRTLE FAMILY

* *Eucalyptus camaldulensis* – red gum

OLEACEAE – OLIVE FAMILY

* *Olea europaea* – olive

ONAGRACEAE – EVENING PRIMROSE FAMILY

Oenothera elata ssp. *hirsutissima* – Hooker's evening primrose

OXALIDACEAE – WOOD SORRELS

* *Oxalis pes-capre* – Bermuda buttercup

PAPAVERACEAE – POPPY FAMILY

Romneya trichocalyx – bristly Matilija poppy

PHRYMACAE – LOPSEED FAMILY

Diplacus longiflorus – southern bush monkeyflower

Diplacus puniceus – red bush monkeyflower

Erythranthe guttata – seep monkey flower

PLANTAGINACEAE – PLANTAIN FAMILY

* *Kickxia elatine* – sharpleaf cancerwort

* *Plantago lanceolata* – narrowleaf plantain

PLATANACEAE – PLANE TREE, SYCAMORE FAMILY

Platanus racemosa – California sycamore

PLUMBAGINACEAE – LEADWORT FAMILY

* *Limonium perezii* – Perez's sea lavender

* *Plumbago auriculata* – Cape leadwort

POLYGONACEAE- BUCKWHEAT FAMILY

Eriogonum fasciculatum – California buckwheat

* *Rumex crispus* – curly dock

PRIMULACEAE – PRIMROSE FAMILY

* *Anagallis arvensis* – scarlet pimpernel

RHAMNACEAE – BUCKTHORN FAMILY

Rhamnus crocea – redberry buckthorn

Rhamnus ilicifolia – hollyleaf redberry

ROSACEAE – ROSE FAMILY

Heteromeles arbutifolia – toyon

Rosa californica – California rose

RUBIACEAE – MADDER FAMILY

Galium angustifolium – narrowleaf bedstraw

SALICACEAE – WILLOW FAMILY

Populus fremontii – Fremont cottonwood

Salix exigua – sandbar willow

Salix gooddingii – Goodding's black willow

Salix laevigata – red willow

Salix lasiolepis – arroyo willow

SCROPHULARIACEAE – FIGWORT FAMILY

Scrophularia californica – California figwort

SOLANACEAE – NIGHTSHADE FAMILY

Datura wrightii – sacred thorn-apple

* *Nicotiana glauca* – tree tobacco

Solanum americanum – white nightshade, common nightshade

Solanum douglasii – greenspot nightshade
Solanum umbelliferum – bluewitch nightshade
Solanum xanti – Purple nightshade

TROPAEOLACEAE – NASTURTIUM FAMILY

* *Tropaeolum majus* – nasturtium

URTICACEAE – NETTLE FAMILY

Urtica dioica – stinging nettle

VERBENACEAE – VERVAIN FAMILY

* *Lantana camara* – lantana

VIBURNACEAE – MUSKROOT FAMILY

Sambucus mexicana – blue elderberry

VITACEAE – GRAPE FAMILY

Vitis girdiana – desert wild grape

Angiosperms (Monocots)

ARECACEAE – PALM FAMILY

* *Phoenix dactylifera* – date palm
* *Washingtonia robusta* – Washington fan palm

ASPARAGACEAE – ASPARAGUS FAMILY

* *Asparagus asparagoides* – African asparagus fern

ASPHODELACEAE – ASPHODEL FAMILY

* *Asphodelus fistulosus* – onionweed

CYPERACEAE – SEDGE FAMILY

Schoenoplectus acutus – hardstem bulrush
Schoenoplectus californicus – California bulrush

IRIDACEAE – IRIS FAMILY

Sisyrinchium bellum – western blue-eyed grass

POACEAE – GRASS FAMILY

* *Arundo donax* – giant reed
* *Avena barbata* – slender wild oat
* *Brachypodium distachyon* – purple false brome
* *Bromus diandrus* – ripgut brome

* *Bromus hordeaceus* – soft chess
* *Bromus madritensis* – compact brome
* *Bromus rubens* – red brome
* *Cortaderia jubata* – purple pampass grass
* *Cortaderia selloana* – pampass grass
* *Cynodon dactylon* – Bermudagrass
* *Ehrharta erecta* – panic veldtgrass
* *Elymus elymoides* – squirreltail
Elymus glaucus – blue wildrye
* *Festuca myuros* – rat-tail fescue
* *Festuca perennis* – perennial rye grass
* *Hordeum murinum* – wall barley
* *Lamarckia aurea* – goldentop grass
* *Pennisetum setaceum* – fountain grass
* *Phleum pratense* – timothy
* *Poa annua* – annual blue grass
* *Polypogon monspeliensis* – annual rabbitsfoot grass
* *Polypogon viridis* – beardless rabbitsfoot grass
* *Stipa miliacea* – no common name

SAURURACEAE – LIZARD TAIL FAMILY

Anemopsis californica – yerba mansa

TYPHACEAE – CATTAILS

Typha latifolia – broadleaf cattail

* signifies introduced (non-native) species

Wildlife Species

Birds

ACCIPITRIDAE – HAWKS, KITES, EAGLES, AND ALLIES

Accipiter cooperii – Cooper's hawk

Buteo jamaicensis – red-tailed hawk

Buteo lineatus – red-shouldered hawk

AEGITHALIDAE – LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus – bushtit

ANATIDIDAE – DUCKS AND GEESE

Anas platyrhynchos – mallard

ARDEIDAE – HERONS

Ardea herodias – great blue heron

CARDINALIDAE – CARDINALS AND ALLIES

Pheucticus melanocephalus – black-headed grosbeak

COLUMBIDAE – PIGEONS AND DOVES

Zenaida macroura – mourning dove

CORVIDAE – CROWS AND JAYS

Aphelocoma californica – California scrub-jay

Corvus brachyrhynchos – American crow

Corvus corax – common raven

FRINGILLIDAE – FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus – house finch

Spinus psaltria – lesser goldfinch

Spinus tristis – American goldfinch

HIRUNDINIDAE – SWALLOWS

Petrochelidon pyrrhonota – cliff swallow

Stelgidopteryx serripennis – northern rough-winged swallow

ICTERIDAE – BLACKBIRDS

Icterus bullockii – Bullock's oriole

Icterus cucullatus – hooded oriole

Icteria virens – yellow-breasted chat

Molothrus ater – brown-headed cowbird

LARIDAE – GULLS

Larus occidentalis – western gull

MIMIDAE – MOCKINGBIRDS AND THRASHERS

Mimus polyglottos – northern mockingbird

Toxostoma redivivum – California thrasher

ODONTOPHORIDAE – NEW WORLD QUAIL

Callipepla californica – California quail

PARULIDAE – WOOD-WARBLERS

Cardellina pusilla – Wilson's warbler

Geothlypis trichas – common yellowthroat

Leiothlypis celata – orange-crowned warbler

Setophaga coronata – yellow-rumped warbler

Setophaga petechia – yellow warbler

PASSERELLIDAE – NEW WORLD SPARROWS

Chondestes grammacus – lark sparrow

Junco hyemalis – dark-eyed junco

Melospiza melodia – song sparrow

Melozone crissalis – California towhee

Pipilo maculatus – spotted towhee

PICIDAE – WOODPECKERS

Dryobates pubescens – downy woodpecker

Picoides nuttallii – Nuttall's woodpecker

PTILIOGONATIDAE – SILKLY FLYCATCHERS

Phainopeopla nitens – Phainopeopla

SYLVIIDAE – SYLVIID WARBLERS

Chamaea fasciata – wrentit

TROCHILIDAE – HUMMINGBIRDS

Calypte anna – Anna's hummingbird

Selasphorus rufus – rufous hummingbird

Selasphorus sasin – Allen's hummingbird

TROGLODYTIDAE – WRENS

Troglodytes aedon – house wren

Thryomanes bewickii – Bewick's wren

TURDIDAE – THRUSHES

Sialia currucoides – mountain bluebird

Sialia mexicana – western bluebird

Turdus migratorius – American robin

TYRANNIDAE – TYRANT FLYCATCHERS

Empidonax difficilis – western flycatcher

Myiarchus cinerascens – ash-throated flycatcher

Sayornis nigricans – black phoebe

Sayornis saya – Say's phoebe

Tyrannus vociferans – Cassin's kingbird

Mammals

CANIDAE – DOGS

Canis latrans – coyote

LEPORIDAE – HARES AND RABBITS

Sylvilagus audubonii – desert cottontail

Sylvilagus bachmani – brush rabbit

SCIURIDAE – SQUIRRELS

Otospermophilus beecheyi – California ground squirrel

Reptiles

PHRYNOSOMATIDAE – NORTH AMERICAN SPINY LIZARDS

Uta stansburiana – common side-blotched lizard

RANIDAE – TRUE FROGS

Lithobates catesbeianus – American bullfrog

Attachment D

Plant PTO Table

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Abronia maritima	red sand-verbena	None/None/4.2	Coastal dunes/perennial herb/Feb–Nov/0–330	Not expected to occur. No suitable vegetation present.
Abronia villosa var. *aurita*	chaparral sand-verbena	None/None/1B.1	Chaparral, Coastal scrub, Desert dunes; Sandy/annual herb/ (Jan)Mar–Sep/245–5,250	Not expected to occur. The site is outside of the species' known elevation range.
Allium marvinii	Yucaipa onion	None/None/1B.2	Chaparral (clay, openings)/perennial bulbiferous herb/Apr–May/ 2,495–3,495	Not expected to occur. The site is outside of the species' known elevation range.
Aphanisma blitoides	aphanisma	None/None/1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub; Gravelly (sometimes), Sandy (sometimes)/annual herb/Feb–June/5–1,000	Moderate potential to occur. Coastal scrub, gravelly and sandy substrates present. Nearest occurrence record is historic (1932), located 1 mile northwest of the site.
Artemisia palmeri	San Diego sagewort	None/None/4.2	Chaparral, Coastal scrub, Riparian forest, Riparian scrub, Riparian woodland; Mesic, Sandy/perennial deciduous shrub/ (Feb)May–Sep/15–3,000	Moderate potential to occur. Coastal scrub, chaparral, riparian woodland, and mesic habitat present with sandy substrate.
Asplenium vespertinum	western spleenwort	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub; Rocky/perennial rhizomatous herb/Feb–June/590–3,280	Not expected to occur. The site is outside of the species' known elevation range.
Astragalus brauntonii	Braunton's milk-vetch	FE/None/1B.1	Chaparral, Coastal scrub, Valley and foothill grassland; Burned areas (sometimes), Carbonate, Disturbed areas (sometimes), Sandstone (usually)/perennial herb/Jan–Aug/15–2,100	Moderate potential to occur. Chaparral, coastal scrub, disturbed areas present. However, lacks carbonate, burned areas, and sandstone.
Astragalus hornii var. *hornii*	Horn's milk-vetch	None/None/1B.1	Meadows and seeps, Playas; Alkaline, Lake Margins/annual herb /May–Oct/195–2,790	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Atriplex coulteri	Coulter's saltbush	None/None/1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub, Valley and foothill grassland; Alkaline (sometimes), Clay (sometimes) /perennial herb/Mar–Oct/10–1,510	Moderate potential to occur. Coastal scrub present. Lacks alkaline substrate, but clay loam is present.
Atriplex pacifica	south coast saltscale	None/None/1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub, Playas/ annual herb/Mar–Oct/0–460	Moderate potential to occur. Coastal scrub present.
Atriplex parishii	Parish's brittlescale	None/None/1B.1	Chenopod scrub, Playas, Vernal pools; Alkaline/annual herb/ June–Oct/80–6,235	Not expected to occur. No suitable vegetation present.
Atriplex serenana var. *davidsonii*	Davidson's saltscale	None/None/1B.2	Coastal bluff scrub, Coastal scrub; Alkaline/annual herb/Apr–Oct/ 35–655	Moderate potential to occur. Coastal scrub present, but no alkaline substrate on site.
Brodiaea filifolia	thread-leaved brodiaea	FT/SE/1B.1	Chaparral (openings), Cismontane woodland, Coastal scrub, Playas, Valley and foothill grassland, Vernal pools; Clay (often)/perennial bulbiferous herb/Mar–June/80–3,675	Low potential to occur. No vernal pools present; however, coastal scrub and grassland, with clay soils are on site.
Calochortus catalinae	Catalina mariposa lily	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/perennial bulbiferous herb/(Feb)Mar–June/50–2,295	Moderate potential to occur. Chaparral, coastal scrub, and grassland present.
Calochortus plummerae	Plummer's mariposa-lily	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland; Granitic, Rocky/perennial bulbiferous herb/May–July/330–5,580	Not expected to occur. The site is outside of the species' known elevation range.
Calochortus weedii var. *intermedius*	intermediate mariposa-lily	None/None/1B.2	Chaparral, Coastal scrub, Valley and foothill grassland; Rocky/ perennial bulbiferous herb/May–July/345–2,805	Not expected to occur. The site is outside of the species' known elevation range.
Camissoniopsis lewisii	Lewis' evening-primrose	None/None/3	Cismontane woodland, Coastal bluff scrub, Coastal dunes, Coastal scrub, Valley and foothill grassland; Clay (sometimes), Sandy (sometimes)/annual herb/Mar–May(June)/0–985	Moderate potential to occur. Coastal scrub, and grassland present with sandy and clay substrates.
Caulanthus simulans	Payson's jewelflower	None/None/4.2	Chaparral, Coastal scrub; Granitic, Sandy/annual herb/ (Feb)Mar–May(June)/295–7,220	Not expected to occur. The site is outside of the species' known elevation range.
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/0–1,575	Not expected to occur. No suitable marsh, vernally mesic grassland, or vernal pools 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. No suitable vegetation present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	FE/SE/1B.2	Coastal dunes, Marshes and swamps (coastal salt)/annual herb (hemiparasitic)/May–Oct(Nov)/0–100	Not expected to occur. No suitable vegetation present.
Chorizanthe leptotheca	Peninsular spineflower	None/None/4.2	Chaparral, Coastal scrub, Lower montane coniferous forest; Granitic/annual herb/May–Aug/985–6,235	Not expected to occur. The site is outside of the species' known elevation range.
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	None/None/1B.2	Chaparral, Coastal scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools; Clay (often)/annual herb/Apr–July/ 100–5,020	Moderate potential to occur. Grassland, chaparral, and coastal scrub present, with clay soils, but lacks vernal pools.
Cistanthe maritima	seaside cistanthe	None/None/4.2	Coastal bluff scrub, Coastal scrub, Valley and foothill grassland; Sandy/annual herb/(Feb)Mar–June(Aug)/15–985	Moderate potential to occur. Grassland and coastal scrub present with sandy soils.
Clinopodium chandleri	San Miguel savory	None/None/1B.2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland, Valley and foothill grassland; Gabbroic (sometimes), Rocky (sometimes)/perennial shrub/Mar–July/395–3,525	Not expected to occur. The site is outside of the species' known elevation range.
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	None/None/1B.2	Chaparral, Cismontane woodland/perennial evergreen shrub/ Apr–June/100–2,590	High potential to occur. Chaparral and woodland present. Nearby occurrence records (2005) approximately 0.5 miles north of the site. Multiple historic and recent occurrences within 1 mile.
Convolvulus simulans	small-flowered morning-glory	None/None/4.2	Chaparral (openings), Coastal scrub, Valley and foothill grassland; Clay, Seeps, Serpentinite/annual herb/Mar–July/100–2,430	Moderate potential to occur. Coastal scrub and grassland present with clay soils; lacks serpentinite substrate or seeps.
Deinandra paniculata	paniculate tarplant	None/None/4.2	Coastal scrub, Valley and foothill grassland, Vernal pools; Sandy (sometimes), Vernally Mesic (usually)/annual herb/(Mar)Apr–Nov/ 80–3,085	Moderate potential to occur. Coastal scrub, grassland, and sandy substrate present, although no vernal pools or vernally mesic habitat on site.
Dichondra occidentalis	western dichondra	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/perennial rhizomatous herb/(Jan)Mar–July/165–1,640	Not expected to occur. The site is outside of the species' known elevation range.
Diplacus clevelandii	Cleveland's bush monkeyflower	None/None/4.2	Chaparral, Cismontane woodland, Lower montane coniferous forest; Disturbed areas (often), Gabbroic, Openings, Rocky/ perennial rhizomatous herb/Apr–July/1,475–6,560	Not expected to occur. The site is outside of the species' known elevation range.
Dudleya blochmaniae ssp. *blochmaniae*	Blochman's dudleya	None/None/1B.1	Chaparral, Coastal bluff scrub, Coastal scrub, Valley and foothill grassland; Clay (often), Rocky, Serpentinite/perennial herb/ Apr–June/15–1,475	Moderate potential to occur. Chaparral, coastal scrub, and grassland present. Clay and rocky substrate present, but lacking serpentinite soils.
Dudleya cymosa ssp. *ovatifolia*	Santa Monica dudleya	FT/None/1B.1	Chaparral, Coastal scrub; Rocky, Volcanic (sometimes)/perennial herb/Mar–June/490–5,495	Not expected to occur. The site is outside of the species' known elevation range.
Dudleya multicaulis	many-stemmed dudleya	None/None/1B.2	Chaparral, Coastal scrub, Valley and foothill grassland; Clay (often)/ perennial herb/Apr–July/50–2,590	High potential to occur. Grassland, coastal scrub, and chaparral present. Aliso Creek/beach occurrence records on site are historic (1990). Clay substrate present.
Dudleya stolonifera	Laguna Beach dudleya	FT/ST/1B.1	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland; Rocky/perennial stoloniferous herb/May–July/35–855	High potential to occur. Chaparral, coastal scrub, and grassland present. On-site occurrences in Aliso Canyon and Creek from 2020. Rocky substrate present.
Dudleya viscida	sticky dudleya	None/None/1B.2	Chaparral, Cismontane woodland, Coastal bluff scrub, Coastal scrub; Rocky/perennial herb/May–June/35–1,805	Moderate potential to occur. Chaparral, coastal scrub, and rocky substrate present.
Eleocharis parvula	small spikerush	None/None/4.3	Marshes and swamps/perennial herb/(Apr)June–Aug(Sep)/ 5–9,910	Not expected to occur. No suitable vegetation present.
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE/SE/1B.1	Coastal scrub, Valley and foothill grassland, Vernal pools; Mesic/ annual/perennial herb/Apr–June/65–2,035	Low potential to occur. Coastal scrub and grassland present but lacks vernal pools.
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)/50–360	Low potential to occur. Grassland and clay substrate present but lacks vernal pools.
Erythranthe diffusa	Palomar monkeyflower	None/None/4.3	Chaparral, Lower montane coniferous forest; Gravelly (sometimes), Sandy (sometimes)/annual herb/Apr–June/4,005–6,005	Not expected to occur. The site is outside of the species' known elevation range.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Euphorbia misera	cliff spurge	None/None/2B.2	Coastal bluff scrub, Coastal scrub, Mojavean desert scrub; Rocky/ perennial shrub/(Oct)Dec–Aug/35–1,640	Moderate potential to occur. Coastal scrub and rocky substrate present. Nearest occurrence record is historic (1999) 0.25 mile south of Aliso Creek/Canyon.
Harpagonella palmeri	Palmer's grapplinghook	None/None/4.2	Chaparral, Coastal scrub, Valley and foothill grassland; Clay, Openings/annual herb/Mar–May/65–3,135	Moderate potential to occur. Chaparral and woodland present. Nearby occurrence records are historic (1984) approximately 0.5 miles south of the site.
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower	None/None/1A	Marshes and swamps (freshwater, coastal salt)/perennial rhizomatous herb/Aug–Oct/35–5,005	Not expected to occur. No suitable marshes or swamps present.
Hesperocyparis forbesii	Tecate cypress	None/None/1B.1	Chaparral, Closed-cone coniferous forest; Clay, Gabbroic (sometimes)/perennial evergreen tree/N.A./260–4,920	Not expected to occur. The site is outside of the species' known elevation range.
Holocarpha virgata ssp. *elongata*	graceful tarplant	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/annual herb/May–Nov/195–3,610	Not expected to occur. The site is outside of the species' known elevation range.
Hordeum intercedens	vernal barley	None/None/3.2	Coastal dunes, Coastal scrub, Valley and foothill grassland (depressions, saline flats), Vernal pools/annual herb/Mar–June/ 15–3,280	Low potential to occur. Coastal scrub is present, but lacks vernal pools.
Horkelia cuneata var. *puberula*	mesa horkelia	None/None/1B.1	Chaparral (maritime), Cismontane woodland, Coastal scrub; Gravelly (sometimes), Sandy (sometimes)/perennial herb/ Feb–July(Sep)/230–2,660	Not expected to occur. The site is outside of the species' known elevation range.
Imperata brevifolia	California satintail	None/None/2B.1	Chaparral, Coastal scrub, Meadows and seeps (often alkali), Mojavean desert scrub, Riparian scrub; Mesic/perennial rhizomatous herb/Sep–May/0–3,985	Moderate potential to occur. Riparian scrub, chaparral, and coastal scrub present.
Isocoma menziesii var. *decumbens*	decumbent goldenbush	None/None/1B.2	Chaparral, Coastal scrub (often disturbed areas, sandy)/perennial shrub/Apr–Nov/35–820	High potential to occur. Chaparral and coastal scrub present with sandy substrate. Nearest occurrence record is 0.5 miles northwest of the site, from 2018.
Juglans californica	Southern California black walnut	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland/perennial deciduous tree/Mar–Aug/165–2,955	Not expected to occur. The site is outside of the species' known elevation range.
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	None/None/4.2	Coastal dunes (mesic), Coastal scrub, Marshes and swamps (coastal salt), Meadows and seeps (alkaline seeps)/perennial rhizomatous herb/(Mar)May–June/10–2,955	Moderate potential to occur. Coastal scrub present.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None/1B.1	Marshes and swamps (coastal salt), Playas, Vernal pools/annual herb/Feb–June/5–4,005	Not expected to occur. No suitable vegetation present.
Lepechinia cardiophylla	heart-leaved pitcher sage	None/None/1B.2	Chaparral, Cismontane woodland, Closed-cone coniferous forest/ perennial shrub/Apr–July/1,705–4,495	Not expected to occur. The site is outside of the species' known elevation range.
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/None/4.3	Chaparral, Coastal scrub/annual herb/Jan–July/5–2,905	Moderate potential to occur. Chaparral and coastal scrub present.
Lessingia hololeuca	woolly-headed lessingia	None/None/3	Broadleafed upland forest, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland; Clay, Serpentinite/ annual herb/June–Oct/50–1,000	Moderate potential to occur. Coastal scrub and grassland present with clay soils, but lacking serpentinite.
Lilium humboldtii ssp. *ocellatum*	ocellated Humboldt lily	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Riparian woodland; Openings/perennial bulbiferous herb/Mar–July(Aug)/100–5,905	Moderate potential to occur. Coastal scrub, chaparral, and riparian woodland present.
Lycium brevipes var. *hassei*	Santa Catalina Island desert-thorn	None/None/3.1	Coastal bluff scrub, Coastal scrub/perennial deciduous shrub/ June(Aug)/215–985	Not expected to occur. The site is outside of the species' known elevation range.
Lycium californicum	California box-thorn	None/None/4.2	Coastal bluff scrub, Coastal scrub/perennial shrub/Mar–Aug(Dec)/ 15–490	Moderate potential to occur. Coastal scrub present.
Malacothrix saxatilis var. *saxatilis*	cliff malacothrix	None/None/4.2	Coastal bluff scrub, Coastal scrub/perennial rhizomatous herb/ Mar–Sep/10–655	Moderate potential to occur. Coastal scrub present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Microseris douglasii ssp. *platycarpha*	small-flowered microseris	None/None/4.2	Cismontane woodland, Coastal scrub, Valley and foothill grassland, Vernal pools; Clay/annual herb/Mar–May/50–3,510	Moderate potential to occur. Grassland and coastal scrub present as well as clay soils, but lacks vernal pools.
Monardella hypoleuca ssp. *intermedia*	intermediate monardella	None/None/1B.3	Chaparral, Cismontane woodland, Lower montane coniferous forest (sometimes)/perennial rhizomatous herb/Apr–Sep/1,310–4,100	Not expected to occur. The site is outside of the species' known elevation range.
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/2,395–7,200	Not expected to occur. The site is outside of the species' known elevation range.
Myosurus minimus ssp. *apus*	little mousetail	None/None/3.1	Valley and foothill grassland, Vernal pools (alkaline)/annual herb/ Mar–June/65–2,100	Low potential to occur. Grassland is present but does not support vernal pools or alkaline substrate.
Nama stenocarpa	mud nama	None/None/2B.2	Marshes and swamps (lake margins, riverbanks)/annual/ perennial herb/Jan–July/15–1,640	Not expected to occur. No suitable marshes or swamps present.
Nasturtium gambelii	Gambel's water cress	FE/ST/1B.1	Marshes and swamps (brackish, freshwater)/perennial rhizomatous herb/Apr–Oct/15–1,085	Not expected to occur. No suitable habitat present.
Navarretia prostrata	prostrate vernal pool navarretia	None/None/1B.2	Coastal scrub, Meadows and seeps, Valley and foothill grassland (alkaline), Vernal pools; Mesic/annual herb/Apr–July/10–3,970	Low potential to occur. Coastal scrub present but lacks vernal pools or alkali grasslands
Nemacaulis denudata var. *denudata*	coast woolly-heads	None/None/1B.2	Coastal dunes/annual herb/Apr–Sep/0–330	Not expected to occur. No suitable vegetation present.
Nolina cismontana	chaparral nolina	None/None/1B.2	Chaparral, Coastal scrub; Gabbroic (sometimes), Sandstone (sometimes)/perennial evergreen shrub/(Mar)May–July/ 460–4,185	Not expected to occur. The site is outside of the species' known elevation range.
Orcuttia californica	California Orcutt grass	FE/SE/1B.1	Vernal pools/annual herb/Apr–Aug/50–2,165	Not expected to occur. No suitable habitat present.
Pentachaeta aurea ssp. allenii	Allen's pentachaeta	None/None/1B.1	Coastal scrub (openings), Valley and foothill grassland/annual herb/Mar–June/245–1,705	Not expected to occur. The site is outside of the species' known elevation range.
Pentachaeta aurea ssp. *aurea*	golden-rayed pentachaeta	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Riparian woodland, Valley and foothill grassland/ annual herb/Mar–July/260–6,070	Not expected to occur. The site is outside of the species' known elevation range.
Phacelia hubbyi	Hubby's phacelia	None/None/4.2	Chaparral, Coastal scrub, Valley and foothill grassland; Gravelly, Rocky, Talus/annual herb/Apr–July/0–3,280	Moderate potential to occur. Chaparral, coastal scrub, and grassland present. Gravelly and rocky substrates on site.
Phacelia keckii	Santiago Peak phacelia	None/None/1B.3	Chaparral, Closed-cone coniferous forest/annual herb/May–July/ 1,790–5,250	Not expected to occur. The site is outside of the species' known elevation range.
Phacelia ramosissima var. *austrolitoralis*	south coast branching phacelia	None/None/3.2	Chaparral, Coastal dunes, Coastal scrub, Marshes and swamps (coastal salt); Rocky (sometimes), Sandy/perennial herb/ Mar–Aug/15–985	Moderate potential to occur. Chaparral and coastal scrub present with suitable substrate.
Piperia cooperi	chaparral rein orchid	None/None/4.2	Chaparral, Cismontane woodland, Valley and foothill grassland/ perennial herb/Mar–June/50–5,200	Moderate potential to occur. Chaparral and grassland present.
Piperia leptopetala	narrow-petaled rein orchid	None/None/4.3	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest/perennial herb/May–July/1,245–7,300	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Pseudognaphalium leucocephalum	white rabbit-tobacco	None/None/2B.2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland; Gravelly, Sandy/perennial herb/(July)Aug–Nov(Dec)/ 0–6,890	High potential to occur. Chaparral, coastal scrub, and riparian woodland present with suitable substrates.
Quercus dumosa	Nuttall's scrub oak	None/None/1B.1	Chaparral, Closed-cone coniferous forest, Coastal scrub; Clay, Loam, Sandy/perennial evergreen shrub/Feb–Apr(May–Aug)/ 50–1,310	High potential to occur. Chaparral, coastal scrub and suitable substrate present. Nearest occurrence record is historic (1982) in Aliso Canyon, 0.6 miles northeast of the site.
Rhinotropis cornuta var. *fishiae*	Fish's milkwort	None/None/4.3	Chaparral, Cismontane woodland, Riparian woodland/perennial deciduous shrub/May–Aug/330–3,280	Not expected to occur. The site is outside of the species' known elevation range.
Romneya coulteri	Coulter's matilija poppy	None/None/4.2	Chaparral, Coastal scrub; Burned areas (often)/perennial rhizomatous herb/Mar–July(Aug)/65–3,935	Moderate potential to occur. Chaparral and coastal scrub present but lacks burned areas.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Selaginella cinerascens	ashy spike-moss	None/None/4.1	Chaparral, Coastal scrub/perennial rhizomatous herb/N.A./ 65–2,100	Moderate potential to occur. Suitable vegetation present.
Senecio aphanactis	chaparral ragwort	None/None/2B.2	Chaparral, Cismontane woodland, Coastal scrub; Alkaline (sometimes)/annual herb/Jan–Apr(May)/50–2,625	Moderate potential to occur. Chaparral and coastal scrub present but lacks alkaline substrate.
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/50–5,020	Moderate potential to occur. Chaparral, coastal scrub, and mesic habitat present.
Suaeda esteroa	estuary seablite	None/None/1B.2	Marshes and swamps (coastal salt)/perennial herb/ (Jan–May)July–Oct/0–15	Not expected to occur. No suitable vegetation present.
Suaeda taxifolia	woolly seablite	None/None/4.2	Coastal bluff scrub, Coastal dunes, Marshes and swamps (coastal margins)/perennial evergreen shrub/Jan–Dec/0–165	Not expected to occur. No suitable vegetation present.
Symphyotrichum defoliatum	San Bernardino aster	None/None/1B.2	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Marshes and swamps, Meadows and seeps, Valley and foothill grassland (vernally mesic); Streambanks/perennial rhizomatous herb/July–Nov/5–6,695	Moderate potential to occur. Aliso Creek bank may provide suitable habitat.
Verbesina dissita	big-leaved crownbeard	FT/ST/1B.1	Chaparral (maritime), Coastal scrub/perennial herb/(Mar)Apr–July/ 150–675	High potential to occur. Chaparral and coastal scrub present. Multiple on-site occurrences in Aliso Canyon and Creek from 2016.
Viguiera laciniata	San Diego County viguiera	None/None/4.3	Chaparral, Coastal scrub/perennial shrub/Feb–June(Aug)/ 195–2,460	Not expected to occur. The site is outside of the species' known elevation range.

Status Legend
Federal
FE: Federally listed as endangered
FT: Federally listed as threatened
State
SE: State listed as endangered
ST: State listed as threatened
CRPR: California Rare Plant Rank
1A: Plants presumed extirpated in California and either rare or extinct elsewhere
1B: Plants rare, threatened, or endangered in California and elsewhere
2A: Plants presumed extirpated in California, but common elsewhere
2B: Plants rare, threatened, or endangered in California, but more common elsewhere
3: Plants about which more information is needed – A Review List
4: Plants of Limited Distribution – A Watch List
Threat Rank
0.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2 – Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
0.3 – Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

Attachment E

Wildlife PTO Table

Row Labels	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. Not known to occur in Aliso Creek or Laguna Beach.
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	Moderate potential to occur. Ephemeral wetlands, chaparral, woodland, and grassland present. Nearest occurrence record is 0.25 miles south of Aliso Creek, but is historic (1967).
Taricha torosa (Monterey Co. south only)	California newt	None/SSC	Wet forests, oak forests, chaparral, and rolling grassland	Not expected to occur. No suitable vegetation present.
Reptiles				
Anniella stebbinsi	southern California legless lizard	None/SSC	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and moist sandy or loose, loamy soils	Moderate potential to occur. Riparian woodland, chaparral, and scrub present. Sandy washes and stream terraces with sycamores and cottonwoods, leaf litter present.
Arizona elegans occidentalis	California glossy snake	None/SSC	Arid scrub, rocky washes, grasslands, chaparral, open areas with loose soil	Moderate potential to occur. Chaparral and open areas present.
Aspidoscelis hyperythra	orange-throated whiptail	None/WL	Low-elevation coastal scrub, chaparral, and valley–foothill hardwood	High potential to occur. Low elevation coastal scrub and chaparral present. On-site occurrence records from 1990.
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	None/SSC	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas	High potential to occur. Chaparral and riparian areas present. Occurrence records immediately north of canyon treatment plant from 2001.
Crotalus ruber	red diamondback rattlesnake	None/SSC	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	Moderate potential to occur. Coastal scrub, chaparral, and cultivated areas present.
Phrynosoma blainvillii	Blainville's horned lizard	None/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	Moderate potential to occur. Aliso Canyon supports coastal scrub and chaparral. Aliso Creek supports riparian habitat.
Plestiodon skiltonianus interparietalis	Coronado skink	None/WL	Woodlands, grasslands, pine forests, and chaparral; rocky areas near water	Moderate potential to occur. Riparian woodland and chaparral present. Aliso Canyon and Creek provide suitable habitat.
Salvadora hexalepis virgultea	coast patch-nosed snake	None/SSC	Brushy or shrubby vegetation; requires small mammal burrows for refuge and overwintering sites	Moderate potential to occur. Vegetation present and along coast; Aliso Canyon provides suitable habitat.
Thamnophis hammondii	two-striped gartersnake	None/SSC	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Moderate potential to occur. Aliso Creek is suitable habitat.
Actinemys marmorata	southwestern pond turtle	FPT/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	High potential to occur. Known occurrence records in Aliso Creek from 2001.

Row Labels	Common Name	Status (Federal/ State)	Habitat	Potential to Occur
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	High potential to occur. Riparian woodlands along Aliso Creek are foraging and nesting habitat.
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC/SSC, ST	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture	Low potential to occur. Not expected to nest due to lack of nesting habitat; however, grasslands and woodlands present could provide foraging opportunities.
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	Moderate potential to occur. Coastal scrub and chaparral with grassy patches present. Nearest occurrence record is within Aliso Canyon north of treatment plant site, from 2001.
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. No suitable vegetation present.
Aquila chrysaetos (nesting and wintering)	golden eagle	None/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 occur. No suitable wintering or nesting 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	Moderate potential to occur. Riparian habitat and dense stands of trees present along Aliso Creek.
Athene cunicularia (burrow sites and some wintering sites)	burrowing owl	BCC/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Not expected to occur. Although open scrub and grassland are present, grassland is maintained golf course and open scrub is heavily sloped.
Buteo regalis (wintering)	ferruginous hawk	None/WL	Winters and forages in open, dry country, grasslands, open fields, agriculture	Not expected to occur. No wintering or foraging habitat present.
Campylorhynchus brunneicapillus sandiegensis (San Diego and Orange Counties only)	coastal cactus wren	None/SSC	Southern cactus scrub patches	Low potential to occur; coastal sage scrub and chaparral in Aliso Canyon may support cactus scrub patches.
Charadrius nivosus nivosus (nesting)	western snowy plover	FT, BCC/SSC	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds	Not expected to occur. No suitable nesting or foraging habitat present
Circus hudsonius (nesting)	northern harrier	BCC/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	Low potential to occur. Not expected to nest due to lack of nesting habitat; however, grasslands present could provide foraging opportunities.
Coccyzus americanus occidentalis (nesting)	western yellow-billed cuckoo	FT/SE	Nests in dense, wide riparian woodlands and forest with well-developed understories	Low potential to occur. May nest and forage in Aliso Creek although it is not necessarily wide.
Coturnicops noveboracensis	yellow rail	BCC/SSC	Nesting requires wet marsh/sedge meadows or coastal marshes with wet soil and shallow, standing water	Not expected to occur. No suitable nesting or foraging habitat present.
Elanus leucurus (nesting)	white-tailed kite	None/FP	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in	High potential to occur. Suitable nesting and foraging habitat in Aliso Creek.

Row Labels	Common Name	Status (Federal/ State)	Habitat	Potential to Occur
			grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands	
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE/SE	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	High potential to occur. Suitable nesting and foraging habitat in Aliso Creek.
Eremophila alpestris actia	California horned lark	None/WL	This subspecies of horned lark occurs on the state's southern and central coastal slope and in the San Joaquin Valley. Nests and forages in grasslands, disturbed lands, agriculture, and beaches.	Low potential to occur. May nest and forage in grassland on site.
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	High potential to occur. Suitable nesting and foraging habitat in Aliso Creek.
Laterallus jamaicensis coturniculus	California black rail	None/FP, ST	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. No nesting or foraging habitat present.
Pandion haliaetus (nesting)	osprey	BCC/WL	Large waters (lakes, reservoirs, rivers) supporting fish; usually near forest habitats, but widely observed along the coast	High potential to occur. Coastal woodland present.
Passerculus sandwichensis beldingi	Belding's savannah sparrow	BCC/SE	Nests and forages in coastal saltmarsh dominated by pickleweed (*Salicornia* spp.)	Not expected to occur. No suitable nesting or foraging habitat present.
Polioptila californica californica	coastal California gnatcatcher	FT/SSC	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	High potential to occur. Suitable sloped coastal sage scrub present. On-site occurrence records from 2018.
Rallus obsoletus levipes	Ridgway's rail	FE/FP, SE	Coastal wetlands, brackish areas, coastal saline emergent wetlands	Not expected to occur. No suitable nesting or foraging habitat present.
Riparia riparia (nesting)	bank swallow	None/ST	Nests in riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration	High potential to occur. Suitable nesting and foraging habitat in Aliso Creek.
Setophaga petechia (nesting)	yellow warbler	None/SSC	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	High potential to occur. Suitable nesting and foraging habitat in Aliso Creek.
Sternula antillarum browni (nesting colony)	California least tern	FE/FP, SE	Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flats	Not expected to occur. No nesting or foraging habitat present.
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE	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	High potential to occur. Suitable nesting and foraging habitat in Aliso Creek.
Fishes				
Eucyclogobius newberryi	tidewater goby	FE/None	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County, to the mouth of the Smith River	High potential to occur. Known to occur in Aliso Creek; records from 1996.
Gila orcuttii	arroyo chub	None/SSC	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at	Not expected to occur. Not known in Aliso Creek.

Row Labels	Common Name	Status (Federal/ State)	Habitat	Potential to Occur
			depths >40 centimeters (16 inches); substrates of sand or mud	
Oncorhynchus mykiss irideus pop. 10	southern steelhead - southern California DPS	FE/SCE	Clean, clear, cool, well-oxygenated streams; needs relatively deep pools in migration and gravelly substrate to spawn	Not expected to occur; although suitable habitat occurs in Aliso Creek, occurrence records indicate this species is extirpated from the creek as of the 2000s.
Rhinichthys osculus ssp. 8	Santa Ana speckled dace	None/SSC	Headwaters of the Santa Ana and San Gabriel Rivers; may be extirpated from the Los Angeles River system	Not expected to occur. Not known in Aliso Creek.
Mammals				
Aeorestes cinereus	northern hoary bat	None/None	Forest, woodland riparian, and wetland habitats; also juniper scrub, riparian forest, and desert scrub in arid areas; roosts in tree foliage and sometimes cavities, such as woodpecker holes	Not special-status. Moderate potential to occur. Woodland riparian habitat along Aliso Creek is suitable for roosting and foraging.
Antrozous pallidus	pallid bat	None/SSC	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees	Moderate potential to occur. Suitable roosting and foraging habitat present in Aliso Canyon and Creek.
Chaetodipus californicus femoralis	Dulzura pocket mouse	None/None	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; although coastal scrub and chaparral are present, occurrence records are historic (1932) and in Dana Point.
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None/None	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon–juniper, and annual grassland	Not expected to occur. Not known in Orange County.
Choeronycteris mexicana	Mexican long-tongued bat	None/SSC	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon–juniper woodland; roosts in caves, mines, and buildings	Low potential to occur. May forage in riparian woodland but unlikely to roost in study area due to lack of suitable habitat.
Dipodomys stephensi	Stephens' kangaroo rat	FT/ST	Annual and perennial grassland habitats, coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas	Not expected to occur. Not known in Orange County.
Eumops perotis californicus	western mastiff bat	None/SSC	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	Moderate potential to occur. Chaparral, coastal scrub within Aliso Canyon can provide roosting and foraging habitat. Known occurrence records within 5 miles of the site.
Myotis yumanensis	Yuma myotis	None/None	Riparian, arid scrublands and deserts, and forests associated with water (streams, rivers, tinajas); roosts in bridges, buildings, cliff crevices, caves, mines, and trees	Not special status. High potential to occur. Riparian woodlands along Aliso creek can provide roosting and foraging habitat. Known occurrence records within 5 miles of the site from 1997.
Neotoma lepida intermedia	San Diego desert woodrat	None/SSC	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Moderate potential to occur. Coastal scrub, chaparral, and rocky areas in Aliso Canyon can provide suitable habitat. Nearest occurrence record is from 2002, in Dana Point headlands.
Nyctinomops femorosaccus	pocketed free-tailed bat	None/SSC	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. No roosting or foraging habitat present.

Row Labels	Common Name	Status (Federal/ State)	Habitat	Potential to Occur
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	Moderate potential to occur. May forage and roost within Aliso Creek riparian woodland. No occurrence records within 5 miles of the site.
Onychomys torridus ramona	southern grasshopper mouse	None/SSC	Grassland and sparse coastal scrub	Not expected to occur. Coastal sage scrub is dense and grassland is cultivated on site.
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. Only known in Dana Point headlands. No suitable habitat present.
Puma concolor	mountain lion - Southern California/Central Coast ESU	None/SC	Scrubs, chaparral, riparian, woodland, and forest; rests in rocky areas and on cliffs and ledges that provide cover; most abundant in riparian areas and brushy stages of most habitats throughout California, except deserts	Not expected to occur. Aliso Canyon is not known to support mountain lion. Nearest mountain lion population is Santa Ana Mountains, separated by development.
Sorex ornatus salicornicus	southern California saltmarsh shrew	None/SSC	Saltmarsh, saltgrass, dense willow, bulrush	Not expected to occur. No suitable vegetation present.
Taxidea taxus	American badger	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Low potential to occur. Coastal scrub present; very few recent occurrences in Orange County. No occurrence records within 5 miles.
Lasiurus frantzii	western red bat	None/SSC	Forest, woodland, riparian, mesquite bosque, and orchards, including fig, apricot, peach, pear, almond, walnut, and orange; roosts in tree canopy	Moderate potential to occur. Riparian woodland in Aliso Creek can support foraging and roosting habitat.
Invertebrates				
Bombus crotchii	Crotch bumble bee	None/SCE	Open grassland and scrub communities supporting suitable floral resources.	High potential to occur. American and Pennsylvanian bombus known to occur in the vicinity. Coastal sage scrub and chaparral provide suitable floral nectar resources.
Branchinecta sandiegonensis	San Diego fairy shrimp	FE/None	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. No suitable vernal pools or ephemeral pools present.
Cicindela hirticollis gravida	sandy beach tiger beetle	None/None	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico	Not expected to occur. No beach habitat 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. No suitable vegetation present.
Panoquina errans	wandering skipper	None/None	Saltmarsh	Not expected to occur. No suitable vegetation present.
Streptocephalus woottoni	Riverside fairy shrimp	FE/None	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. No suitable ephemeral pools or vernal pools 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. No suitable vegetation or aquatic habitat present.

Row Labels	Common Name	Status (Federal/ State)	Habitat	Potential to Occur
Cicindela latesignata	western beach tiger beetle	None/None	Mudflats and beaches in coastal Southern California	Not expected to occur. No suitable beach or mudflat habitat present.
Danaus plexippus plexippus pop. 1	monarch - California overwintering population	FC/None	Wind-protected tree groves with nectar sources and nearby water sources	Low potential to occur. Coastal sage scrub and chaparral provide nectar resources and site is coastal; however, Aliso Canyon is not a known monarch overwintering location.

Status Legend
Federal
BCC: USFWS—Birds of Conservation Concern
FC: Candidate for federal listing as threatened or endangered
FE: Federally listed as endangered
FPT: Federally proposed for listing as threatened
FT: Federally listed as threatened
State
FP: CDFW Fully Protected species
SCE: State candidate for listing as endangered
SE: State listed as endangered
SSC: California Species of Special Concern
ST: State listed as threatened
WL: CDFW Watch List species

Appendix C

Cultural Resources Inventory

Cultural Resources Inventory and Extended Phase I Subsurface Testing Report

North Coast Inceptor Reach 5 Replacement Project, City Of Laguna Beach, California

SEPTEMBER 2024

Prepared for:

CITY OF LAGUNA BEACH

Prepared by:

DUDEK

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Printed on 30% post-consumer recycled material.

National Archaeological Database (NADB) Information

Authors:	Roshanne Bakhtiary, MA and Adam Giacinto, MA, RPA
Firm:	Dudek
Project Proponent:	City of Laguna Beach
Report Date:	September 2024
Report Title:	Cultural Resources Inventory and Extended Phase I Subsurface Testing Report for the North Coast Inceptor Reach 5 Replacement Project, City of Laguna Beach, California
Type of Study:	Phase I Cultural Resources Inventory and Extended Phase I Subsurface Testing
Resources:	P-30-000009, P-30-000074, P-30-000583, NCI-RB-S-001, and NCI-RB-S-002
USGS Quads:	Laguna Beach and San Juan Capistrano, California 1:24,000; T 7S, R 8W, Sections 31 and 32, and; T 8S, R 8W, Section 06
Acreage:	3.47 acres
Keywords:	Laguna Beach USGS 7.5-Minute Quadrangle; San Juan Capistrano USGS 7.5-Minute Quadrangle; City of Laguna Beach; Pedestrian Survey; Extend Phase I Subsurface Testing; P-30-000009; P-30-000074; P-30-000583; NCI-RB-S-001; NCI-RB-S-002

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APPENDICES

Acronyms and Abbreviations

Acronym or Abbreviation	Definition
AB	Assembly Bill
amsl	Above mean sea level
API	Area of Potential Impacts
CCRPA	California Cultural Resource Preservation Alliance
CEQA	California Environmental Quality Act
CHRIS	California Historical Resources Information System
City	City of Laguna Beach
cm	Centimeters
cmbs	Centimeters below surface
CRHR	California Register of Historical Resources
CTP	Coastal Treatment Plant
DPR	California Department of Parks and Recreation
FFRP	Flexible fabric reinforced polyethylene
GPS	Global Positioning System
HDD	Horizontal Directional Drilling
HDPE	High density polyethylene
LF	Linear Feet
LS2	Lift Station No. 2
MLD	Most Likely Descendant
NAHC	Native American Heritage Commission
NCI	North Coast Inceptor
NRHP	National Register of Historic Places
PRC	Public Resources Code
Project	North Coast Inceptor Reach 5 Project
Project API	Project Area of Potential Impacts
Ranch Resort	The Ranch at Laguna Beach Resort
SCWD	South Coast Water District
SCCIC	South Central Coastal Information Center
SOCWA	South Orange County Wastewater Authority
STP	Shovel Test Pit
USGS	United States Geological Survey
XPI	Extended Phase I Subsurface Testing

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Management Summary

This report presents the results of Dudek's cultural resources inventory and extended Phase I (XPI) subsurface testing efforts for the North Coast Inceptor (NCI) Reach 5 Replacement Project (Project), located in the City of Laguna Beach, California. The Project is located within Sections 31 and 32 of Township 7 South and Range 8 West, and Section 6 of Township 8 South and Range 8 West of the *Laguna Beach* and *San Juan Capistrano, California* USGS 7.5 Minute Series Quadrangles (Figure 1, Project Location). The Project proposes the replacement of the existing NCI Reach 5 wastewater pipeline through Aliso Creek Canyon by a combination of open trench, horizontal directional drilling, and slip lining.

The City of Laguna Beach (City) is the Lead Agency responsible for compliance with the California Environmental Quality Act (CEQA). In accordance with CEQA and local regulations, Dudek performed a Phase I cultural resources inventory and an extended Phase I subsurface testing effort that included a records search, an archival information and literature review, correspondence with the Native American Heritage Commission (NAHC), a cultural resources pedestrian survey of the Project Area of Potential Impacts (API), the recordation of two newly identified resources adjacent to the proposed Project, and subsurface testing within areas proposed for ground disturbance.

Dudek conducted a California Historical Resources Information System (CHRIS) records search of the Project API and surrounding one-mile radius at the South Central Coastal Information Center (SCCIC). The records search identified 20 previously recorded cultural resources located within one mile of the proposed Project API, three (3) of which are directly adjacent to, but ultimately outside of the API. These resources include two prehistoric shell midden deposits (P-30-000009 and P-30-000074) and one prehistoric rock shelter with an associated sparse shell scatter (P-30-000583). All three resources have been recommended eligible for listing on the California Register of Historical Resources (CRHR) under Criterion 4. A Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search was also requested for the proposed Project, and results were positive for Native American cultural resources within one mile of the Project API. The South Coast Water District (SCWD) Lift Station No. 2 (LS2) Replacement Project, located directly west of the proposed Project, was underway at the time of preparation of Dudek's present investigation. Existing environmental documents, management strategies, and ongoing cultural resources monitoring findings in support of this project were also made accessible to Dudek for review.

Two Dudek archaeologists conducted a reconnaissance-level pedestrian survey of the Project API on March 12, 2024. Attempts to locate P-30-000009, P-30-000074, and P-30-0000583 during the pedestrian survey failed to identify any cultural materials within or adjacent to their previously recorded locations. The crew additionally recorded two newly identified prehistoric archaeological resources NCI-RB-S-001 (rock shelter complex with shell scatter) and NCI-RB-S-002 (rock shelter complex with shell scatter) located adjacent to the Project API.

Due to the results of the pedestrian survey and in order to assess subsurface conditions within the Project API, Dudek conducted an XPI subsurface testing effort adjacent to the recorded locations of NCI-RB-S-001 (Location 1) and NCI-RB-S-002 (Location 2) on May 7 and 8, 2024. Overall, the results of this testing effort indicate that the portions of the API subject to investigation were predominantly comprised of fill soils and other highly disturbed soils and secondary deposits.

Dudek's investigation, supplemented by reviews of historic topographic maps and aerial photographs, geotechnical findings, and the results of the adjacent LS2 Replacement Project, collectively confirm that large portions of the API have been disturbed through previous earth-moving activities. The most substantial past grading efforts were associated with the backfilling of the historic creek bed during the construction of The Ranch at Laguna Beach Resort in the 1950s.

Based on the presence of significant archaeological resources adjacent to the Project API, and in consideration of the broader pattern of prehistoric use within Aliso Creek Canyon and the San Joaquin Hills area, there is a moderate potential for the inadvertent discovery of subsurface archaeological resources during Project implementation. Dudek recommends archaeological and Tribal monitoring during initial ground disturbing activities for the Project. If disturbed sediments (e.g., fill) or other sediments and formations are identified that do not have the potential to contain significant archaeological resources as defined by CEQA, then monitoring may be reduced or terminated. The requirement for Tribal monitoring, while recommended, shall be determined by the lead agency in consultation with the traditionally culturally affiliated tribes with geographic ties to the Project API. Management recommendations to reduce potential impacts to unanticipated archaeological resources and human remains during construction activities are provided in the Summary and Management Recommendations section of this report.

1 Introduction

Dudek conducted a cultural resources inventory and extended Phase I (XPI) subsurface testing effort for the North Coast Inceptor Reach 5 Replacement Project (Project or proposed Project), located in the City of Laguna Beach, California. The City of Laguna Beach (City) is the Lead Agency responsible for compliance with the California Environmental Quality Act (CEQA). In accordance with CEQA and local regulations, Dudek performed a Phase I cultural resources inventory and an XPI subsurface testing effort that included a records search, an archival information and literature review, correspondence with the Native American Heritage Commission, a cultural resources pedestrian survey, the recordation of two newly identified resources adjacent to the proposed Project, and subsurface testing within areas proposed for ground disturbance.

1.1 Project Location

The proposed Project is located within Sections 31 and 32 of Township 7 South and Range 8 West, and Section 6 of Township 8 South and Range 8 West of the *Laguna Beach* and *San Juan Capistrano, California* USGS 7.5 Minute Series Quadrangles (Figure 1). The North Coast Interceptor (NCI) is part of a pipeline conveyance system that conveys sewer flows from the City of Laguna Beach and the Emerald Bay Community Services District to the South Orange County Wastewater Authority (SOCWA) Coastal Treatment Plant (CTP) in Aliso Creek Canyon through the Ranch at Laguna Beach Resort (Ranch Resort). The Project involves the replacement of the NCI Reach 5 wastewater pipeline, which starts at the intersection of Coast Highway and County Club Drive, and runs on a northeast axis through Aliso Creek Canyon, terminating at the SOCWA CTP (Figure 2). The total length of the NCI is 4.3 miles, and the total length of the proposed NCI Reach 5 wastewater pipeline replacement is 1.42 miles.

1.2 Project Description

The NCI Reach 5 wastewater pipeline is a single pipeline that operates by gravity, a force main, and inverted siphon which is owned by SOCWA and operated and maintained by the City of Laguna Beach.

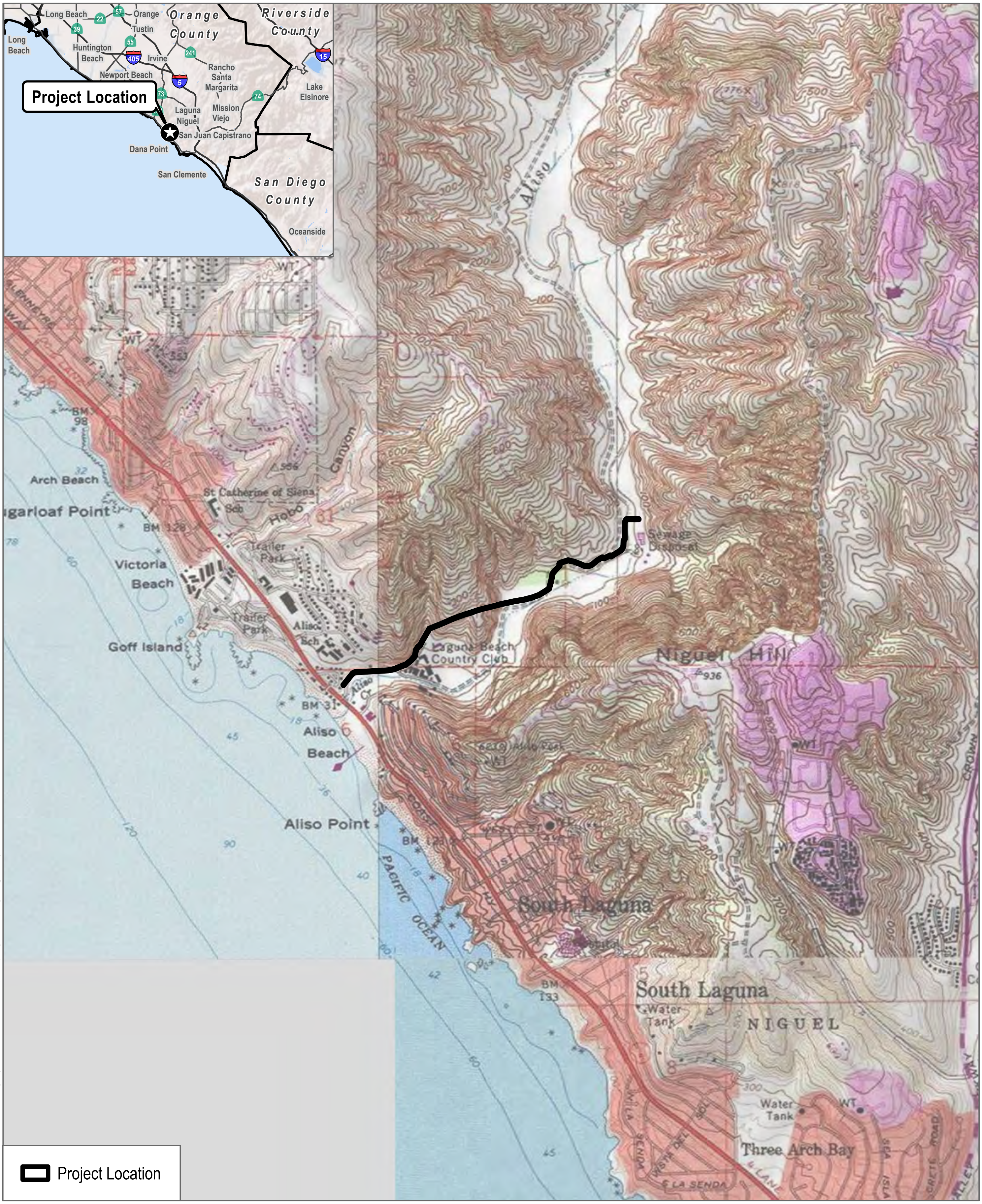
The Project proposes the replacement of the existing NCI Reach 5 wastewater pipeline through Aliso Creek Canyon by a combination of open trench, horizontal directional drilling (HDD), and sliplining. The goal of the Project is to completely replace the existing NCI Reach 5 wastewater pipeline with new dual parallel pipelines that provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater to the SOCWA CTP. The primary characteristics of the replacement Project include the following:

- Installation of approximately 5,200 linear feet (LF) of dual 18-inch-high density polyethylene (HDPE) pipelines from Coast Highway to just west of the SOCWA CTP.
- Rehabilitation of the remaining 900 LF of existing 24” NCI pipeline from just west of the SOCWA CTP to the headworks using slip lining or flexible fabric reinforced polyethylene (FFRP) pipe.
- Between The Ranch Resort driving range and the back fairway of the golf course, trenchless technology (horizontal directional drilling or HDD) will be used to reduce construction activities within the Ranch Resort.

- Open trench installation through The Ranch Resort's "Scout Camp" area and along the access road to near the entrance to the SOCWA CTP.
- From outside the SOCWA CTP the existing NCI pipeline will be used as a conduct to slipline a new HDPE pipeline for approximately 800 feet, under the Aliso Creek to the existing Headworks structure inside the plant.
- Fast-tracked open trench installation along Country Club Drive between The Ranch Resort's driving range and the entrance of the resort to minimize impact to The Ranch Resort operations.
- Valve vaults will be installed at each end of the project to allow flows to be switched between NCI pipelines.
- The interconnection between the NCI and the SCWD Lift Station 2 (LS2), currently under construction, will be retained for one of the new NCI Reach 5 wastewater pipelines.
- Abandonment of the existing NCI pipeline (approximately 5,300 LF).

1.3 Area of Potential Impacts for Cultural Resources

The Area of Potential Impacts (API) for cultural resources includes the Project construction footprint and the area of direct physical effect for the Project with an added 12.5-foot buffer, consisting of a total area of 3.47-acres as delineated in Figure 2. The vertical underground extent of the API is anticipated to vary from 5 to 12 feet below current ground surface and would involve open trenching and excavation for valve vault placement. Ground disturbances within portions of the Project API that involve HDD will be limited to bedrock tunnelling; HDD is expected to incur no ground surface disturbances with the exception of launching and receiving areas.



SOURCE: USGS 7.5' Series

FIGURE 1

Project Location

NCI Reach 5 Replacement Project

DUDEK

N

0 1,000 2,000 Feet

0 280 560 Meters

Date: 8/7/2024 User: kholmes Path: Z:\Projects\j1471901\MAPDOC\NCI Reach 5.aprx Map: Project Location Layout: Figure 1 Project Location Portrait

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Date: 8/22/2024 User: kholmes Path: Z:\Projects\j1471901\MAPDOC\NCI Reach 5.aprx Map: API Map Layout: Figure 2 -Project API

SOURCE: World Imagery 2022

DUDEK

FIGURE 2

Project API

NCI Reach 5 Replacement Project

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2 Regulatory Setting

The following section provides a summary of the applicable state and local-level regulations, policies, and guidelines relating to the proper management of cultural resources.

2.1 State Level Regulations

California Environmental Quality Act

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 cemetery.
- 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 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]).

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 (14 CCR 15064.5[b][2]):

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 of Historical Resources [CRHR]; 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.

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site 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 would be 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]).

PRC 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 (PRC Section 21083.2[g]):

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.

Impacts on non-unique archaeological resources are generally not considered a significant environmental impact (PRC Section 21083.2[a]; 14 CCR 15064.5[c][4]). However, if a non-unique 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. These procedures are detailed in PRC Section 5097.98.

California Register of Historical Resources

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" (PRC Section 5020.1[j]). In 1992, the California legislature established the 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 in the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the National Register of Historic Place (NRHP), enumerated as follows: According to California Public Resources Code (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.

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 (14 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 state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

Native American Historical Cultural Sites (California Public Resources Code Section 5097 et. Seq.)

State law 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 Native American Heritage Commission (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.

California Native American Graves Protection and Repatriation Act

The California Native American Graves Protection and Repatriation Act (California Repatriation Act), enacted in 2001, required 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.

California State Assembly Bill 52

Assembly Bill (AB) 52 of 2014 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. AB 52 established that tribal cultural resources must be considered under CEQA and also provided for additional Native American consultation requirements for the lead agency. Section 21074 describes a tribal cultural resource as a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American tribe and that is either:

- On or determined to be eligible for the California Register of Historical Resources or a local historic register; or

- 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.

AB 52 formalizes the lead agency–tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project site, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report.

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]).

California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98

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, the procedures are detailed in California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98.

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. 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 (California Health and Safety Code 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 the California NAHC within 24 hours (California Health and Safety Code Section 7050.5[c]). In accordance with California Public Resources Code Section 5097.98(a), the NAHC will notify the Most Likely Descendant (MLD). With the permission of the landowner, the MLD may inspect the site of discovery. Within 48 hours of being granted access to the site, the MLD may recommend means of treatment or disposition, with appropriate dignity, of the human remains and associated grave goods.

Guidelines for Determining Significance

According to CEQA (Section 15064.5b), a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. CEQA defines a substantial adverse change:

> Substantial adverse change in the significance of an historical resource 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.

The significance of an historical resource is materially impaired when a project:

- 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 CRHR; or
- 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 Public Resources Code or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, 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
- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA.

Section 15064.5(c) of CEQA applies to effects on archaeological sites and contains the following additional provisions regarding archaeological sites:

- When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource, as defined in subsection (a).
- If a lead agency determines that the archaeological site is a historical resource, it shall refer to the provisions of Section 21084.1 of the Public Resources Code, and this section, Section 15126.4 of the Guidelines, and the limits contained in Section 21083.2 of the Public Resources Code do not apply.
- If an archaeological site does not meet the criteria defined in subsection (a), but does meet the definition of a unique archaeological resource in Section 21083.2 of the Public Resources Code, the site shall be treated in accordance with the provisions of Section 21083.2. The time and cost limitations described in Public Resources Code Section 21083.2 (c–f) do not apply to surveys and site evaluation activities intended to determine whether the project location contains unique archaeological resources.
- If an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment. It shall be sufficient that both the resource and the effect on it are noted in the Initial Study or Environmental Impact Report (EIR), if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.

Section 15064.5 (d) and (e) contain additional provisions regarding human remains. Regarding Native American human remains, paragraph (d) provides:

- When an initial study identifies the existence of, or the probable likelihood of, Native American human remains within the project, a lead agency shall work with the appropriate Native Americans as identified by the Native American Heritage Commission as provided in Public Resources Code SS5097.98. The applicant may develop an agreement for treating or disposing of, with appropriate dignity, the human remains and

> any items associated with Native American burials with the appropriate Native Americans as identified by the Native American Heritage Commission. Action implementing such an agreement is exempt from:
>
> 4. The general prohibition on disinterring, disturbing, or removing human remains from any location other than a dedicated cemetery (Health and Safety Code Section 7050.5); and
> 5. The requirement of CEQA and the Coastal Act.

Under CEQA, an EIR is required to evaluate any impacts on unique archaeological resources (PRC Section 21083.2). A “unique archaeological resource” is defined as (PRC Section 21083.2(g)):

> [A]n 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.

An impact to a non-unique archaeological resource is not considered a significant environmental impact and such non-unique resources need not be further addressed in the EIR (Public Resources Code Section 21083.2(a); CEQA Guidelines Section 15064.5(c)(4)).

As stated above, CEQA contains rules for mitigation of “unique archeological resources.” For example (PRC Section 21083.2(b)(1)-(4)), “[i]f it can be demonstrated that a project will cause damage to a unique archeological resource, the lead agency may require reasonable efforts to be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. Examples of that treatment, in no order of preference, may include, but are not limited to, any of the following:”

1. “Planning construction to avoid archeological sites.”
2. “Deeding archeological sites into permanent conservation easements.”
3. “Capping or covering archeological sites with a layer of soil before building on the sites.”
4. “Planning parks, greenspace, or other open space to incorporate archeological sites.”

PRC Section 21083.2(d) states that “[e]xcavation as mitigation shall be restricted to those parts of the unique archeological resource that would be damaged or destroyed by the project. Excavation as mitigation shall not be required for a unique archeological resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the resource, if this determination is documented in the environmental impact report.”

The rules for mitigating impacts to archeological resources to qualify as “historic resources” are slightly different. According to CEQA Guidelines Section 15126.4(b), “[p]ublic agencies should, whenever feasible, seek to avoid damaging effects on any historic resource of an archeological nature. The following factors shall be considered and discussed in an EIR for a project involving such an archeological site:

A. Preservation in place is the preferred manner of mitigating impacts to archeological sites. Preservation in place maintains the relationship between artifacts and the archeological context. Preservation may also avoid conflict with religious or cultural values of groups associated with the site.

B. Preservation in place may be accomplished by, but is not limited to, the following:

   1. Planning construction to avoid archeological sites;
   2. Incorporation of sites within parks, greenspace, or other open space;
   3. Covering the archeological sites with a layer of chemically stable soil before building tennis courts, parking lots, or similar facilities on the site [; and]
   4. Deeding the site into a permanent conservation easement.

Thus, although Section 21083.2 of the Public Resources Code, in addressing “unique archeological sites,” provides for specific mitigation options “in no order of preference,” CEQA Guidelines Section 15126.4(b), in addressing “historical resources of an archeological nature,” provides that “[p]reservation in place is the preferred manner of mitigating impacts to archeological sites.”

Under CEQA, “[w]hen data recovery through excavation is the only feasible mitigation,” the lead agency may cause to be prepared and adopt a “data recovery plan,” prior to any excavation being undertaken. The data recovery plan must make “provision for adequately recovering the scientifically consequential information from and about the historic resource” (CEQA Guidelines Section 15126.4(b)(3)(C)). The data recovery plan also “must be deposited with the California Historical Resources Regional Information Center” (CEQA Guidelines Section 15126.4(b)(3)(C)). Further, “[i]f an artifact must be removed during project excavation or testing, curation may be an appropriate mitigation” (CEQA Guidelines Section 15126.4(b)(3)(C)).

However, “[d]ata recovery shall not be required for an historical resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archeological or historic resource, provided that determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center” (CEQA Guidelines Section 15126.4(b)(3)(D)).

2.2 Local Level Regulations

Laguna Beach General Plan

The Open Space/Conservation Element of the Laguna Beach General Plan, adopted in 1995, details the City's plan for the protection and preservation of its archaeological and paleontological resources. The City's policies relating to archaeological resources are outlined below (City of Laguna Beach 1995).

Topic 12: Archaeology/Paleontology

Policy 12-A. Promote the conservation of land having archaeological and/or paleontological important, for its value to scientific research to better understand the cultural history of Laguna Beach and environs.

Policy 12-B. Develop a program which systematically inventories, records and preserves significant cultural resources in the community, in accordance with the guidelines in the City's Local Coastal Plan.

Policy 12-C. Development adjacent to a place, structure or feature found to be of historical significance shall be designed so that the uses permitted and the architectural design will protect the visual setting of the historical site.

Policy 12-D. Preserve cultural/scientific sites, including geologically unique formations having archaeological significance.

3 Setting and Context

3.1 Environmental Setting

The proposed Project is located within Aliso Creek Canyon of the San Joaquin Hills, a low mountain range of the Peninsular Ranges System that extends from Newport Beach in northwest Orange County to San Juan Capistrano in southeast Orange County. Located in the City of Laguna Beach, the general Project area is characterized by a predominantly Mediterranean climate, typified by mild, dry summers and foggy, wet winters. Elevation throughout the Project API ranges from approximately 15 to 75 feet above mean sea level (amsl). The westernmost portion of the API begins near the mouth of Aliso Creek as it flows into the Pacific Ocean then heads east through the center of County Club Drive as it approaches the Ranch Resort facilities. The pipeline alignment then runs through the northern hillside of the Canyon via HDD, before exiting within the golf course fairway and running along the Ranch Resort's golf cart path. The alignment continues through the Ranch Resort's "Scout Camp" area before it enters SOCWA-managed property and terminates at the CTP. The entire Project runs relatively adjacent to the course of Aliso Creek, with a small portion of the API proposed as a slipline within existing infrastructure below Aliso Creek and into the existing Headworks structure inside the CTP.

3.2 Cultural Context

Please note that the present cultural context is compiled from the results of previous archaeological studies, research papers, ethnographic documentation and other archival research. It is intended to provide a baseline context for major archaeological and ethnographic themes discussed in this report. This context is not intended to be inclusive of all available information nor be representative of contemporary Native American values. Considerations of Native American heritage and cultural values should be informed by traditionally culturally affiliated Native American tribes, through the process of Tribal engagement and consultation.

The following sections have had a strong contribution from previous cultural contexts prepared by Micah Hale, PhD, RPA. 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.

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 Luiseño-Juaneño (Acjachemen) and Gabrielino (or 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 area 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 (S*alvia*), *Ephedra*, prickly pear (*Opuntia*), mulefat (*Baccharis salicifolia*), chamise (*Adenostoma fasciculatum*), elderberry (*Sambucus nigra*), oak (*Quercu*s), willow (Salix), and *Juncus* grass, among many others (Wilken 2012).

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.

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4 Archival Research

This section presents the results of the South Central Coastal Information Center (SCCIC) records search, the historic topographic and aerial imagery review, a review of the geotechnical report for the Project, correspondence with the NAHC, and a review of documentation in support of the SCWD LS2 Replacement Project.

4.1 Records Search

Dudek archaeologist Makayla Murillo conducted a records search of the California Historical Resources Information System (CHRIS) on February 28, 2024 at the SCCIC located on the campus of the California State University, Fullerton, in Fullerton, California. The records search encompassed the entire proposed Project API and a one-mile search radius. The purpose of the records search is to identify any previously recorded cultural resources that may be located in or adjacent to the API and to identify previous studies in the Project vicinity. In addition to a review of previously prepared site records and reports, the records search also included a review of historical maps of the Project API, ethnographies, the NRHP, the CRHR, the California Historic Property Data File, and the lists of California State Historical Landmarks, California Points of Historical Interest, and Archaeological Determinations of Eligibility.

Previously Conducted Cultural Resources Studies

The SCCIC records search identified 65 previous cultural resources studies that have been conducted within one mile of the proposed Project. Of the 65 studies, 9 intersect or are directly adjacent to the proposed Project (Table 1). These include four survey/inventory reports, a regional study, a management plan, a National Register of Historic Places nomination proposal, an inventory and evaluation report, and an extended Phase I investigation. Approximately 75% of the Project API has been subject to past cultural resources investigations, though the majority of the studies that overlap with significant portions of the API are regional and thus coarse grained in nature, and do not meet The Secretary of the Interior's Standards and Guidelines for a cultural resources inventory. See Appendix A for the complete SCCIC records search results and associated documentation, and below Table 1 for a summary on the reports relevant to the currently proposed Project.

Table 1. Previous Cultural Resource Studies that Intersect the Project API

Report ID	Year	Author	Title
OR-00431	1979	Archaeological Resources Management Corporation	Aliso Viejo Cultural/Scientific Resources Management Plan
OR-00580	1977	Anonymous	The Aliso Creek Watershed, Orange County, California a Proposal for Creating an Archaeological District for the National Register of Historic Places and a Suggested Research and Study Design
OR-00705	1973	Anonymous	A Final Report on the Scientific Resources Survey for Moulton Ranch
OR-00938	1988	Bissell, Ronald M.	Status of Cultural Resources in the Wood Canyon Area, Southern Orange County, California
OR-01140	1991	Demcak, Carol R.	Cultural Resources Assessment for Moulton Niguel Water District (MNWD) Reclaimed Water

Table 1. Previous Cultural Resource Studies that Intersect the Project API

Report ID	Year	Author	Title
			Distribution Facilities Project, South Orange County, California
OR-01926	1977	Ezell, Paul H. and Richard L. Carrico	Archaeological Survey Report of Aliso Water Management Agency Project Committees 7, 11-A and 15
OR-03296	2006	O'Neil, Stephen, Christopher Corey, and Nancy E. Sikes	Cultural Resources Inventory and Evaluation for the Proposed Aliso Creek Inn and Golf Course Project, City of Laguna Beach, Orange County, California
OR-04179	2008	Unknown	Laguna Beach Historic Resources Inventory
OR-04305	2012	Victorino, Ken and David Stone	Extended Phase I Archaeological Investigations, SOCWA Export Sludge Force Main, Aliso and Wood Canyons Park, Laguna Niguel, Orange County

OR-01926

OR-01926 (*Archaeological Survey Report of Aliso Water Management Agency Project Committees 7, 11-A and 15*) drafted by Ezell and Carrico in 1977, presents the results of the archaeological resources inventory and evaluation efforts conducted in support of the Aliso Water Management Project Committees 7, 11-A, and 15. This study included a records search, an archival information and literature review, an intensive-level pedestrian survey of the project area, and significance evaluations for the 13 identified archaeological resources that were found to overlap with the project. Of relevance to the currently proposed Project, field efforts included attempts to reidentify P-30-000009 (noted as destroyed), P-30-000074 (noted as extant but far diminished in size due to adjacent development), and P-30-000583 (noted as extant and largely inaccessible). Overall, this study argued for the inclusion of all 13 resources in the NRHP, individually and as part of a larger archaeological district or cultural landscape (including P-30-000009, P-30-000074 and P-30-000583). Inventory efforts as part of this study overlap with the eastern half of currently proposed Project API. Mitigation for potential impacts by way of monitoring and avoidance were also proposed in this study (Ezell and Carrico 1977).

OR-03296

OR-03296 (*Cultural Resources Inventory and Evaluation for the Proposed Aliso Creek Inn and Golf Course Project, City of Laguna Beach, Orange County, California*) drafted by O'Neil et al. in 2006, details the results of the cultural resources inventory and evaluation efforts conducted in support of the Aliso Creek Inn and Golf Course Project. This study included a records search, an archival information and literature review, an intensive-level pedestrian survey of the project area, and a significance evaluation for P-30-000583. Two resources relevant to the currently proposed Project were revisited during the field efforts for this study. Crews were unable to reidentify P-30-000009, while P-30-000583 was reidentified and found to be in good condition. Overall, O'Neil et al. recommended P-30-000583 as eligible for listing on the NRHP and CRHR under Criterion D/4, and archaeological resources monitoring to be conducted for all ground disturbance within native soils in the Aliso Creek floodplain and drainage system. Inventory efforts as part of this study overlap with the majority of the central portion of currently proposed Project API (O'Neil et al. 2006).

Previously Recorded Cultural Resources

The SCCIC records search identified 20 previously recorded cultural resources located within one mile of the proposed Project API, three (3) of which are directly adjacent to, but ultimately outside of the API (Table 2). These resources include two prehistoric shell midden deposits (P-30-000009 and P-30-000074) and one prehistoric rock shelter with an associated sparse shell scatter (P-30-000583). All three resources have been recommended eligible for listing on the CRHR under Criterion 4. See Appendix A for the complete SCCIC records search results, documentation, and California Department of Parks and Recreation (DPR) cultural resources site records, and below Table 2 for a discussion on the resources described above.

Table 2. Previously Recorded Cultural Resources within One Mile of the Project API

Primary Number	Trinomial	Age	Type	Description	Eligibility for CRHR
Directly Adjacent to Project API					
P-30-000009	CA-ORA-000009	Prehistoric	Site	Shell midden deposit	Recommended eligible under Criterion 4
P-30-000074	CA-ORA-000074	Prehistoric	Site	Shell midden deposit	Recommended eligible under Criterion 4
P-30-000583	CA-ORA-000583	Prehistoric	Site	Rock shelter with shell scatter	Recommended eligible under Criterion 4
Outside Project API					
P-30-000008	CA-ORA-000008	Prehistoric	Site	Village site with shell midden deposit and burials	Not evaluated
P-30-000393	CA-ORA-000393	Prehistoric	Site	Lithic and groundstone scatter	Not evaluated
P-30-000395	CA-ORA-000395	Prehistoric	Site	Shell midden deposit	Not evaluated
P-30-000396	CA-ORA-000396	Prehistoric	Site	Shell midden deposit	Not evaluated
P-30-000398	CA-ORA-000398	Prehistoric	Site	Shell midden deposit	Not evaluated
P-30-000436	CA-ORA-000436	Prehistoric	Site	Lithic and groundstone scatter	Not evaluated
P-30-000437	CA-ORA-000437	Prehistoric	Site	Lithic and groundstone scatter	Not evaluated
P-30-000505	CA-ORA-000505	Prehistoric	Site	Lithic scatter and midden deposit	Not evaluated
P-30-000539	CA-ORA-000539	Prehistoric	Isolate	Groundstone	Not evaluated
P-30-000597	CA-ORA-000597	Prehistoric	Site	Shell midden deposit	Not evaluated
P-30-000812	CA-ORA-000812	Prehistoric	Site	Rock shelter complex with shell scatter	Not evaluated
P-30-000813	CA-ORA-000813	Prehistoric	Site	Lithic and shell scatter	Not evaluated

Table 2. Previously Recorded Cultural Resources within One Mile of the Project API

Primary Number	Trinomial	Age	Type	Description	Eligibility for CRHR
P-30-000814	CA-ORA-000814	Prehistoric	Site	Lithic and groundstone scatter	Not evaluated
P-30-000842	CA-ORA-000842	Prehistoric	Site	Shell midden deposit with lithic scatter	Not evaluated
P-30-160186	-	Historic-era	District	Residential District	Not evaluated
P-30-176779	CA-ORA-176779	Historic-era	Bridge	Aliso Creek Bridge	Recommended eligible under Criterion 1
P-30-177513	-	Historic-era	Site	SCWD Beach Inceptor Sewer and Tunnel	Not evaluated

P-30-000009

P-30-000009 was first recorded in 1949 by J.R. Briggs as a prehistoric shell midden deposit, and later updated in 1966 by P.G. Chase as a shell midden deposit containing lithic and groundstone material. This resource was recorded as existing across Aliso Creek and south from the currently proposed Project API and within The Ranch Resort golf course. Several attempts to locate P-30-000009 throughout the years (Ezell and Carrico 1977 and O'Neil et al. 2006) have failed to identify any cultural material within and adjacent to the previously recorded location of this resource. Past cultural resources investigations of the area suggest that this resource was likely destroyed during the development of the golf course, though it is possible that intact cultural material exists beneath the current ground surface. Ezell and Carrico recommended P-30-000009 as eligible for inclusion in the NRHP in 1977, though they could not reidentify the resource during their inventory efforts. There is no evidence to indicate that any subsurface testing has been conducted within the previously recorded location of this resource to date (Briggs 1949).

P-30-000074

P-30-000074 was first recorded in 1949 by Hal and J. Ebergart as a prehistoric shell midden deposit measuring 30 feet by 50 feet (approximately 9 meters by 15 meters) and existing atop a bluff undercut by Coast Highway. At time of recordation, it was suggested that the majority of this resource was destroyed during roadway development and the development of a pedestrian overpass connecting the inland bluff to the oceanside of Coast Highway. P-30-000074 was revisited by Ivan Strudwick of LSA Associates, Inc. in 2018 in support of a Caltrans history property survey. At time of survey in 2018, no cultural materials were observed within the previously recorded location of P-30-000074. Much of the once exposed bluff, it was noted, is now covered in vegetation and held up by a concrete retaining wall. This resource lies directly adjacent to the westernmost portion of the currently proposed Project API but does not overlap with it (Ebergart and Ebergart 1949).

P-30-000583

P-30-000583 was first recorded by N. Leonard in 1975 and is characterized as a 20-foot wide by 10-foot high (approximately 6-meter wide by 3-meter high) rock shelter with an associated prehistoric shell scatter consisting of *Mytilus sp.* and *Tegula sp*. The rock shelter sits approximately 100 feet above the Aliso Creek floodplain and at time of recordation was covered in dense vegetation and, thus, difficult to access. Subsequent studies (Ezell and Carrico 1977 and O'Neil et al. 2006) in the Aliso Creek Canyon indicate that this resource remains largely intact but difficult to access (Leonard 1975).

4.2 Review of Historic Maps and Aerial Photographs

In addition to the SCCIC records search, Dudek conducted an online review of Bureau of Land Management (BLM) General Land Office Records, historical topographic maps, and historic aerial photographs to understand the development of the Project API and surrounding areas over time. The Project API was first recorded within Lot Number 39 of the Niguel Rancho by James R. Hardenbergh of the BLM in 1873. The BLM plat image shows the Project API within a largely undeveloped area adjacent to Aliso Creek (BLM 2024).

Historic topographic maps (historic topos) of the Project API are available for the years of 1901 to 1983 (USGS 2024). The first historic topo from 1901 shows an established roadway (along the current alignment of Country Club Drive) traversing on an east to west axis parallel to the historic course of Aliso Creek, and another roadway (along the current alignment of Coast Highway), running north to south along the coast. There are no observable changes to the API until 1947, when two structures appear where the Ranch Resort's "Scout Camp" currently resides. By 1968 a complex of structures labeled "Laguna Beach Country Club" (The Ranch Resort) appear, as do several structures labeled "Sewage Disposal" (SOCWA CTP). There are no substantial observable changes in the historic depiction of the API and surrounding areas from 1968 until the last available historic topo from 1983 (USGS 2024)

Historic aerial photographs (historic aerials) of the Project API are available from 1938 to 2022 and provide more detail on the historic development of the region through time (NETR 2024). The first available historic aerial from 1938 shows the Project API within Aliso Creek Canyon. There appears to be a roadway running adjacent to the Creek and through the API (Country Club Drive), and several small plots of irrigated farmland situated along the northern and southern banks of the Creek. Surrounding the API and along the bluffs of the Canyon are several emerging residential communities that continue to grow in size and extent throughout the middle and late-twentieth century. By 1952, there is evidence of slopeside grading and ground clearance throughout the extent of the API (in anticipation of the golf course), and some structure development towards the central portion of the API and within the current footprint of the Ranch Resort structures. At this time, it appears that portions of Aliso Creek were diverted to the south, and areas of the Canyon backfilled with imported soils. The Ranch Resort continues to grow in size and extent through 1972. The SOCWA CTP first appears in the 1963 historic aerial and continues to grow in size and extent through 1985. There are no substantial observable changes to the API and surroundings areas from 1985 until the last available historic aerial from 2022 (NETR 2024).

Overall, this historic topo and aerial imagery review indicates that the Project API was utilized in part as agricultural land as far back as 1938. Additionally, there is evidence to indicate that the API was subject to other ground disturbances associated with roadway development, canyon and creek bed backfill, and the construction of the Ranch Resort and golf course and the SOCWA TCP. Additionally, this review identified several historic-era structures that exist within the Canyon and are adjacent to but not contained within the API, as is there an historic-era roadway alignment currently known as Country Club Drive.

4.3 NAHC Correspondence

Dudek contacted the NAHC on March 15, 2024, and requested a review of their Sacred Lands File (SLF) for the proposed Project API and one-mile radius. The SLF consists of a database of known Native American resources. These resources may not be included in the SCCIC database. The NAHC replied via email on April 4, 2024, stating that the SLF search was completed with positive results. Positive results indicate the presence of Native American resources within one-mile of the API, and not necessarily directly within the API. The email also included a list of 20 Native American individuals and/or tribal organizations that should be contacted for more information on potential tribal sensitivities regarding the currently proposed Project. To note, Joyce Perry, Cultural Resource Director of the Juaneño Band of Mission Indians Acjachemen Nation – Belardes was included as a recipient to the NAHC response email. Ms. Perry followed-up in an email to Dudek dated June 26, 2024, asking for additional information on the proposed undertaking. This response was forwarded to the City upon receipt. To date, Dudek has not sent outreach letters to any of the entities identified by NAHC. See Appendix B for complete documentation of NAHC correspondence and SLF search results.

4.4 Assembly Bill (AB) 52 Consultation

The Project is subject to compliance with AB 52 (California Public Resources Code [PRC], Section 21074), which establishes that impacts to tribal cultural resources must be considered under CEQA. The AB 52 process also requires the lead agency notify Native American individuals and/or tribal organizations that have requested notification, of the Projects proposed in their traditionally or culturally affiliated geographic areas. As lead agency, the City sent notification letters pursuant to AB 52 on April 1, 2024 to 14 Tribal representatives listed on the City's Native American Contact List. To date, two responses has been received. In an email to the City dated April 16, 2024, Andrew Salas, Chairperson of the Gabrieleño Band of Mission Indians – Kizh Nation, stated that the proposed Project is within Gabrieleño Ancestral Tribal Territory, and requested consultation on the Project pursuant to AB 52. An additional response, received by the City via email on April 27, 2024 by Patricia Martz, President of the California Cultural Resource Preservation Alliance (CCRPA), recommended that a qualified archaeologist and culturally related Native American be present to monitor construction in areas where ground disturbance has not been extensive. Consultation between both parties and the lead agency is currently ongoing. See Appendix C for documentation regarding the AB 52 process thus far.

4.5 Review of Geotechnical Evaluations

A geotechnical evaluation in support of the proposed Project was conducted by Ninyo and Moore in 2023. Subsurface exploration consisted of the drilling, logging, and sampling of two rock core borings using a truck-mounted drill rig to a depth of 120 feet below the ground surface using an 8-inch diameter hollow-stem auger and later a HQ3 wireline coring system. One boring sample was taken from within the parking lot of the Ranch Resort (B-1) adjacent to the HDD receiving area, and the other within the golf course adjacent to the northern hillside of the Project where the HDD alignment is proposed (B-2) (Ninyo and Moore 2023). Previous geotechnical evaluations (2018) that follow the same general alignment as the proposed Project included three additional borings of interest to this study. Boring AB-2 was taken from the intersection of Country Club Drive and the Ranch Resort access road, AB-4 was taken from within the golf course fairway and the HDD alignment, and AB-5 was taken from the golf course fairway and within the open trench alignment. All 2018 borings reached a final depth of 21.5 feet (Ninyo and Moore 2018).

Overall, materials encountered during subsurface explorations consisted undocumented fill, alluvium, and bedrock materials of the San Onofre Breccia and Topanga formation. Imported, undocumented fill was encountered in four of the five borings to depth of approximately 3.5 to 5 feet below ground surface. Fill generally consisted of silty sand and poorly graded sand, and firm and lean clay with variable amounts of gravel. Alluvium was encountered at all boring locations and reached a depth of approximately 16 feet to 62.5 feet below ground surface. Alluvium generally consisted of moist sand with clay inclusions and variable amounts of gravel. Bedrock of the Breccia formation was encountered at 65.5 feet in boring B-1, and the Topanga formation was encountered at 16 feet in boring B-2 and persisted until termination at 120 feet below ground surface. Overall, the Project API is underlain by alluvial deposits of varying degrees of depth. In general, deposits of this nature have a moderate potential to contain subsurface cultural deposits. See Table 3 for more information on each boring sample of relevance to this study.

Table 3. Summary of Subsurface Boring Results

Boring Number	0-5 ft	5-20 ft	20-40 ft	40-60 ft	60-120 ft
B-1*	0-4 ft: Fill Soils	4-62.5 ft: Native Soils			62.5-120 ft: Bedrock
B-2*	0-5 ft: Fill Soils	5 ft-16 ft: Native Soils	16-120 ft: Bedrock		
AB-2**	0-3.5 ft: Fill Soils	3.5-21.5 ft: Native Soils			
AB-4**	0-4.5 ft: Fill Soils	4.5-21.5 ft: Native Soils			
AB-5**	0-21.5 ft: Native Soils				

*Ninyo and Moore 2023; **Ninyo and Moore 2018

4.6 Review of Documents in Support of the SCWD Lift Station No. 2 Replacement Project

In addition to a review of relevant archival information and literature in support of the currently proposed Project, Dudek conducted a review of documentation prepared for the SCWD LS2 Replacement Project. The LS2 Replacement Project involves the replacement of SCWD's LS2 located within Aliso Creek Canyon and directly adjacent to the western reaches of the currently proposed Project. Dudek reviewed the CEQA document prepared for the project as well as the existing monitoring logs prepared in support of the CEQA compliance phase of the project. The CEQA document includes mitigation measures that require the presence of archaeological and Native American monitors on-site during ground disturbing activities. Overall, findings as part of the construction phases of the project indicate that, while unanticipated prehistoric archaeological materials have been identified during ground disturbance for the project, many of the discoveries were identified within highly disturbed contexts and secondary deposits (redeposited soils). Additionally, the majority of these discoveries consist of invertebrate faunal remains (*Mytilus sp.*, *Tegula sp.*, and *Haliotis sp.*) that are commonly found within prehistoric archaeological contexts throughout coastal California and have little additional data potential after identification and recordation. For more information pertaining to this project, contact the lead agency responsible for compliance with CEQA, SCWD, for direct information regarding ongoing efforts and documentation pertaining to the LS2 Replacement

Project. Much of the above-discussed information was provided in draft form and, as such, is both confidential and lacks formal documentation suitable for public circulation.

5 Field Investigations

Field investigations in support of the proposed Project included a reconnaissance-level pedestrian survey of the Project API as well as an XPI subsurface testing effort. The testing effort was conducted in order to assess subsurface conditions within the API, and the potential for the API to support intact subsurface cultural resources.

5.1 Methods

Dudek archaeologists Roshanne Bakhtiary and David Alexander conducted a reconnaissance-level pedestrian survey of the Project API on March 12, 2024. Standard archaeological procedures and techniques consistent with the Secretary of the Interior's Standards and Guidelines for a cultural resources inventory were employed during the survey. When possible, 15-meter interval survey transects were conducted and oriented in cardinal direction. Where visible, the ground surface was examined for prehistoric artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock, imported marine shell), soil discoloration that might indicate the presence of a cultural midden, soil depressions, features indicative of the current or former presence of structures or buildings (e.g., standing exterior walls, post holes, foundations), and historic artifacts (e.g., metal, glass, ceramics, building materials). Ground disturbances such as rodent/reptile burrows, cut banks, and drainages were also visually inspected for exposed subsurface materials.

The Project API is largely disturbed, consisting predominately of Country Club Drive and adjacent areas, as well as the Ranch Resort facilities, golf course, golf cart path, and the SOCWA-managed land and CTP access road. A small portion of the API along Country Club Drive and within the golf course was subject to an intensive-level pedestrian survey (10% of API), while a reconnaissance-level pedestrian survey was conducted for the remainder of the API (90%). The pedestrian survey included all portions of the proposed NCI Reach 5 wastewater pipeline alignment and adjacent staging areas, with the exception of portions of the HDD alignment through the northern hillside of the Canyon where disturbances are proposed beneath soil depths with potential to support the presence of cultural resources. Overall, the crew attempted to reidentify previously recorded prehistoric archaeological resources P-30-000009, P-30-000074, and P-30-0000583, and recorded two newly identified prehistoric archaeological resources NCI-RB-S-001 (rock shelter complex with shell scatter) and NCI-RB-S-002 (rock shelter complex with associated shell scatter) during this survey effort. All cultural resources revisited or otherwise identified were recorded on California Department of Parks and Recreation 523 Series (DPR) forms, as required by Office of Historic Preservation (OHP) standards and guidelines. See Appendix D for all DPR forms prepared in support of this Project, as well as a Cultural Resources Overview Map depicting the locations of all the cultural resources discussed herein.

In order to assess subsurface conditions within the Project API, and the potential for the API to support intact subsurface cultural resources, Dudek conducted an XPI subsurface testing effort adjacent to the recorded locations of NCI-RB-S-001 (Location 1) and NCI-RB-S-002 (Location 2) and within the API. Dudek archaeologists Roshanne Bakhtiary and David Alexander conducted this additional field effort on May 7 and 8, 2024. A total of seven (7) Shovel Test Pits (STPs) measuring 50 (N/S) x 25 (E/W) centimeters (cm) were hand excavated in 20 cm increments to maximum depth of 60 cm below ground surface (cmbs). Once STP terminal depth was reached, 8 cm wide hollow-stem augers were then placed inside the floors of the STPs and excavated to a maximum depth of 144 cmbs. All excavated matrix was screened through 1/8-in (3-mm) mesh and sediment profiles from STPs were recorded and photographed where appropriate.

All fieldwork was documented using field notes and an Apple iPad equipped with ESRI Field Maps. Location-specific photographs were taken using an eighth-generation Apple iPad equipped with an eight (8) mega-pixel (MP) 1080p resolution camera and georeferenced PDF maps of the Project API. All field notes, photographs, and records related to the current study are on file at Dudek's Mission Viejo, California office.

5.2 Results

5.2.1 Pedestrian Survey

Ground visibility throughout the Project API was poor (0-10%) and largely obscured by hardscape (predominantly asphalt and concrete), grass turf, vegetation and some temporary structures associated with the Lift Station No. 2 Replacement Project (Exhibit 1). Vegetation throughout the western half of the API included non-native landscaping plants, grass turf, and non-native trees. Vegetation throughout the eastern half of the API and particularly along the SOCWA CTP access road included various species of native plants, castor bean (*Ricinus sp.*), several species of invasive grasses, and *Acacia sp.* (Exhibit 2). Exposed soils consisted of light brown silty sands, and exposed bedrock formations were of Breccia and Topanga.

Overall, Dudek attempted to reidentify three previously recorded resources (P-30-000009, P-30-000074, and P-30-000583) and recorded two newly identified resources (NCI-RB-S-001 and NCI-RB-S-002) adjacent to the Project API during this pedestrian survey. All five resources are discussed in detail below.

Exhibit 1. Overview of Project API along Country Club Drive, view facing east.

Exhibit 2. Overview of Project API along SOCWA CTP access road, view facing northeast.

5.2.1.1 Previously Recorded Resources

P-30-000009

P-30-000009 was originally recorded as a shell midden deposit located within Aliso Creek Canyon and south of the historic course of Aliso Creek. Its previously recorded location overlaps with the southwestern reaches of the Ranch Resort golf course. Attempts to locate this resource during the 2024 pedestrian survey failed to identify any cultural materials within or adjacent to its previously recorded location. This resource has likely been mis-mapped or destroyed.

P-30-000074

P-30-000074 was originally recorded as a shell midden deposit located on the eastern cut banks of Coast Highway, just north of Country Club Drive and directly adjacent to the northernmost portion of the Project API. Attempts to locate this resource during the 2024 pedestrian survey failed to identify any cultural materials within or adjacent to its previously recorded location, though much of the once exposed bluff is now encased within a concrete retaining wall and marked private property.

P-30-000583

P-30-000583 was recorded as a large rock shelter with an associated shell scatter that is located on the southern bluff of Aliso Creek Canyon and sits approximately 100 feet above the Canyon floor. The mouth of the rock shelter is visible with the naked eye from the Ranch Resort property, though the majority of the resource is obscured by dense vegetation. Attempts to climb up to the rock shelter were terminated due to safety concerns associated with the steepness of the terrain leading up to the resource. Due to its location along a steep hillside, the condition of this resource is assumed to be good and not impacted by anthropogenic disturbances.

5.2.1.2 Newly Identified Resources

NCI-RB-S-001

NCI-RB-S-001 is located along the northern bluff of Aliso Creek Canyon and sits approximately 30 feet from the Canyon floor. This resource is visible from the Ranch Resort property and sites atop the underground HDD alignment section of the proposed Project. This resource consists of a prehistoric rock shelter complex (3) with an associated shell scatter of unknown depth. Due to the steepness of the terrain, only one of the three rock shelters was inspected during this pedestrian survey. This rock shelter measures approximately 8 meters wide by 3 meters in height and 3 meters in depth. Soils within the rock shelter are characterized as dark brown silty sands with large pockets of colluvium (rock fall) originating and eroding from the shelter overhang. Faunal remains identified within the rock shelter consist of California mussel (*Mytilus californianus*). Vegetation around and within NCI-RB-S-001 included wild grape (*Vitis sp.*), wild tobacco (*Nicotiana sp.*), and various invasives species of grass. One groundstone fragment was also identified within the rock shelter during the 2024 pedestrian survey. This grounstone fragment is volcanic in origin and is approximately 10 cm (long) by 6 cm (wide) by 6 cm (thick) and appeared to have a single grinding surface with no discernable shoulder or use wear pattern. No other cultural materials were identified within this general area during the pedestrian survey.

NCI-RB-S-002

NCI-RB-S-002 is located directly adjacent to the northern side of Country Club Drive, next to the Ranch Resort driveway that leads to the parking lot where the HDD receiving area is proposed. This resource consists of a small prehistoric rock shelter with an associated shell scatter. The rock shelter measures approximately 8 meters in width by 1.2 meters in height and 4.5 meters in depth. Soils within the rock shelter are characterized as dark brown silty sands with large pockets of Breccia colluvium (rock fall) originating and eroding from the shelter overhang. Faunal remains identified within the rock shelter consist of California mussel (*Mytilus californianus*) and possibly native oyster (*Ostrea sp.*). The rock shelter appears to have been used in modern times as an area for campfires and is covered in modern debris and various invasive species of grass and other non-native vegetation. Adjacent to the rock shelter are several in-ground utilities boxes and some small pockets of road base. No other cultural materials were identified within this general area during the pedestrian survey.

5.2.2 Subsurface Extended Phase I Testing

The results of the subsurface XPI testing were documented on standard forms that include provenience information, sediment description, terminal depth, and general observations. The intent of XPI investigation was to identify the presence/absence of subsurface resources, visually gauge the condition of subsurface soil conditions, and to assess the potential for significant archaeological deposits to be present or otherwise persist. Testing efforts were contained within two locations adjacent to the newly recorded resources NCI-RB-S-001 (Location 1) and NCI-RB-S-002 (Location 2). See Appendix E for complete in-field documentation and STP forms.

Location 1

Since NCI-RB-S-001 is adjacent to, but not within the Project API (due to the undergrounding nature of the HDD alignment), three STPs were hand excavated adjacent to the resource and contained in the golf course fairway within the proposed open trench alignment (STP 1), the HDD launching area (STP 2) and the HDD alignment (STP 3) (Exhibit 3). Subsurface disturbances within this area include evidence of non-native imported soils (fill), tree roots, and modern debris found to a depth of 40 cmbs. Results of these excavations are provided in Table 4.

Table 4. Extended Phase I Testing Results – Location 1

STP ID	Depth (cmbs)	Results	Artifacts Recovered	Integrity/Condition	Soil Description
STP 1	0-20	Negative	None	Fill/Disturbed	Moderately compacted light brown/grey sand
	20-40	Negative	None	Fill/Disturbed	Moderately compacted light brown/grey sand with clay inclusions
	40-60	Negative	None	Fill/Disturbed	Moderately compacted light brown/grey silty sand with clay inclusions
	60-80 AUGER	Negative	None	Fill/Disturbed	Moderately compacted light brown/grey silty clay with fine sand
	80-100 AUGER	Negative	None	Fill/Disturbed	Moderately compacted light brown/grey silty clay with fine sand
	100-108 AUGER	Positive	3 pinniped vertebral fragments (MNE=1)*	Fill/Disturbed**	Moderately compacted light brown/yellow sandy clay
STP 2	0-20	Negative	None	Fill/Disturbed	Moderately compacted light brown/grey silty sand
	20-40	Negative	None	Fill/Disturbed	Moderately compacted light brown silty sand with clay inclusions
	40-60	Negative	None	Fill/Disturbed	Moderately compacted brown silty sand with large dark brown clay inclusions
	60-80 AUGER	Negative	None	Fill/Disturbed	Moderately compacted brown silty sand with large dark brown clay inclusions

Table 4. Extended Phase I Testing Results – Location 1

STP ID	Depth (cmbs)	Results	Artifacts Recovered	Integrity/Condition	Soil Description
	80-100 AUGER	Negative	None	Fill/Disturbed	Moderately compacted dark brown silty clay
	100-130 AUGER	Negative	None	Fill/Disturbed	Moderately compacted dark brown silty clay
STP 3	0-20	Negative	None	Fill/Disturbed	Loosely compacted brown silty sand
	20-40	Negative	None	Fill/Disturbed	Loosely compacted brown silty sand with clay inclusions
	40-60	Positive	1 faunal invertebrate fragment (*Mytilus sp.*)	Fill/Disturbed***	Moderately compacted dark brown silty clay
	60-80 AUGER	Negative	None	Fill/Disturbed	Moderately compacted dark brown silty clay
	80-100 AUGER	Negative	None	Fill/Disturbed	Moderately compacted dark brown silty clay
	100-120 AUGER	Negative	None	Fill/Disturbed	Moderately compacted dark brown sandy clay
	120-140 AUGER	Negative	None	Native/Intact	Highly compacted very dark brown clay with sand and angular gravel
	140-144 AUGER	Negative	None	Native/Intact	Highly compacted brown sand with rounded cobbles

*Minimum Number of Elements

*** Faunal bone likely relocated as a result of previous construction from surrounding resources, to be redeposited at this location. Cultural modification not observed, however, likely cultural in origin.*

****Faunal shell likely relocated as a result of colluvial processes from the upslope rock shelter or as a result of previous construction, to be redeposited at this location.*

Location 2

An additional four STPs were hand excavated along County Club Drive and adjacent to NCI-RB-S-002. Since asphalt covers the majority of the Project API in this area, STPs were placed on the shoulder of the roadway and in areas of otherwise exposed ground surface (Exhibit 4). Subsurface disturbances within this area include utilities and irrigation lines, tree roots and other detritus, and modern debris found to a depth of 40 cmbs. Results of these excavations are provided in Table 5.

Table 5. Extended Phase I Testing Results – Location 2

STP ID	Depth (cmbs)	Results	Artifacts Recovered	Integrity/Condition	Soil Description
STP 1	0-20	Positive	~10 faunal invertebrate fragments (*Mytilus sp.*)	Fill/Disturbed*	Moderately compacted light brown/grey silty sand with angular cobbles
	20-40	Negative	None	Fill/Disturbed	Moderately compacted brown/grey silty sand with angular cobbles
	40-65	Negative	None	Fill/Disturbed	Moderately compacted brown silty sand
STP 2	0-20	Positive	1 faunal invertebrate fragment (*Mytilus sp.*)	Fill/Disturbed*	Moderately compacted light brown/grey silty sand with angular cobbles
	20-27	Negative	None	Fill/Disturbed	Moderately compacted light brown/grey silt sand with angular cobbles
	27-44 AUGER	Negative	None	Fill/Disturbed	Moderately compacted light brown/yellow silty sand with road base (50% of matrix)
	44-60 AUGER	Negative	None	Fill/Disturbed	Moderately compacted yellow/brown silty sand with sub-angular cobbles
	60-70 AGUER	Positive	1 faunal invertebrate fragment (*Mytilus sp.*)	Fill/Disturbed*	Loosely compacted brown silty sand with subangular cobbles
STP 3	0-20	Positive	2 faunal invertebrate fragments (*Mytilus sp.*)	Fill/Disturbed*	Loosely compacted brown silty sand with high content of loam
	20-40	Positive	~ 20 faunal invertebrate fragments (*Mytilus sp.*)	Fill/Disturbed*	Loosely compacted light brown silty sand
	40-60	Positive	~ 10 faunal invertebrate fragments (*Mytilus sp.*)	Fill/Disturbed*	Moderately compacted light brown silty sand
	60-85 AUGER	Negative	None	Fill/Disturbed	Moderately compacted light brown silty sand
	85-100 AUGER	Negative	None	Fill/Disturbed	Moderately compacted light brown silty sand

Table 5. Extended Phase I Testing Results – Location 2

STP ID	Depth (cmbs)	Results	Artifacts Recovered	Integrity/Condition	Soil Description
	100-110 AUGER	Negative	None	Fill/Disturbed	Moderately compacted light brown silty sand
STP 4	0-20	Positive	5 faunal invertebrate fragments (*Mytilus sp.*)	Fill/Disturbed*	Moderately compacted brown silty sand
	20-40	Positive	5 faunal invertebrate fragments (*Mytilus sp.*)	Fill/Disturbed*	Moderately compacted brown silty sand
	40-60 AUGER	Positive	~ 10 faunal invertebrate fragments (*Mytilus sp.*)	Fill/Disturbed*	Moderately compacted brown silty sand with road base (50% of matrix)
	60-85 AUGER	Positive	2 faunal invertebrate fragments (*Mytilus sp.*)	Fill/Disturbed*	Moderately compacted brown silty sand
	85-100 AUGER	Positive	5 faunal invertebrate fragments (*Mytilus sp.*)	Native/Intact	Moderately compacted dark brown/black silty sand with high content of loam

**Faunal shell likely relocated as a result of colluvial processes from the upslope rock shelter or as a result of previous construction, to be redeposited at this location.*

In general, documented soils were observed to consist of the following:

- Fill: Fill souls are represented by moderately compacted light brown, brown, grey, and yellow silty sands with variable amounts of clay inclusions. Cobbles, gravel, and road base were also observed within fill soils, as was modern debris and several utilities and irrigation lines.

- Disturbed Soils: Disturbed soils are represented by moderately compacted light brown, brown and dark brown silty sands with variable amounts of clay inclusions. Faunal invertebrate and vertebrate remains were also observed within these disturbed soils, as were dispersed charcoal fragments, gravel, and road base.

- Native Soils: Undisturbed/intact native soils are present below the fill and disturbed soils. These soils consist of moderately to highly compacted brown and dark brown silty sands and clays with variable amounts of rounded cobbles.

Fills soils were most clearly observed at Location 1 and within STPs 1, 2, and 3 to a depth of approximately 100 cmbs. Disturbed soils, indicated by their color and content of clay, were most clearly observed at Location 2 and especially within STP 4, where dispersed faunal invertebrate remains were encountered in all levels to a depth of 100 cmbs. Although culturally modified and/or imported marine shell was identified in many of the STP levels at

Location 2, they were found within otherwise highly disturbed contexts and secondary deposits. As previously discussed, the areas has been subject to substantial grading and landscape modifications, as well as utility work, for more than a half Century. Native soils were observed at Location 1 within STP 3 starting at a depth of 120 cmbs, and Location 2 within STP 4 starting at a depth of 85 cmbs. Overall, results indicate that the majority of the soils observed within the portions of the Project API that were subject to this XPI testing effort included fill and disturbed soils, with some evidence to indicate that native undisturbed soils are underlain starting at a depth of 120 cmbs at Location 1, and 85 cmbs at Location 2.

Exhibit 3. Overview of subsurface testing Location 1, view facing northeast.

Exhibit 4. Overview of subsurface testing Location 2, view facing northwest.

6 Summary and Management Recommendations

Dudek's cultural resources inventory and XPI subsurface testing efforts in support of the NCI Reach 5 Replacement Project suggests there is a moderate potential for the inadvertent discovery of intact subsurface cultural resources during Project implementation. Dudek conducted a records search of the Project API and surrounding one-mile radius at the SCCIC. The records search identified 20 previously recorded cultural resources located within one mile of the proposed Project API, three (3) of which are directly adjacent to, but ultimately outside of the API. These resources include two prehistoric shell midden deposits (P-30-000009 and P-30-000074) and one prehistoric rock shelter with an associated sparse shell scatter (P-30-000583). All three resources have been recommended eligible for listing on the California Register of Historical Resources under Criterion 4, for their potential to contribute important data both locally and regionally. A Native American Heritage Commission (NAHC) Sacred Lands File search was also requested for the proposed Project, and results were positive for Native American cultural resources within one mile of the Project API.

Two Dudek archaeologists conducted a reconnaissance-level pedestrian survey of the Project API on March 12, 2024. Attempts to locate P-30-000009, P-30-000074, and P-30-0000583 during the pedestrian survey failed to identify any cultural materials within or adjacent to their previously recorded locations. The crew additionally recorded two newly identified prehistoric archaeological resources NCI-RB-S-001 (rock shelter complex with shell scatter) and NCI-RB-S-002 (rock shelter complex with shell scatter) located adjacent to the Project API.

Due to the results of the pedestrian survey and in order to assess subsurface conditions within the Project API, Dudek conducted an XPI subsurface testing effort within the API, in areas adjacent to the recorded locations of NCI-RB-S-001 (Location 1) and NCI-RB-S-002 (Location 2). Overall, the results of this testing effort indicate that while the broader area was likely of use by prehistoric Native American people, as indicated by the presence of imported faunal material and marine shell, the portions of the API subject to investigation were predominantly comprised of fill soils and other highly disturbed soils. These soils represent secondary contexts, which are not suited to support the presence of intact archaeological deposits. These results generally corroborate the results of Dudek's archival review of the Project, which included an investigation of the Project's geotechnical findings, as well as a review of historic topographic maps and aerial photographs that indicate large portions of the API were subject to grading efforts associated with the backfilling of the historic creek bed during the construction of The Ranch at Laguna Beach Resort in the 1950s. Further, these findings are consistent with patterns that are being documented as part of the SOWCA LS2 Replacement Project, located directly west of the proposed Project.

Regardless of subsurface conditions, the area is potentially archaeologically sensitive. Based on the presence of significant archaeological resources adjacent to the Project API, and in consideration of the broader pattern of prehistoric use within Aliso Creek Canyon and the San Joaquin Hills area, there is a moderate potential for the inadvertent discovery of subsurface archaeological resources during Project implementation.

6.1 Assessment of Effects and Recommendations

According to CEQA, a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect (adverse effect) on the environment and the cultural resource itself. A substantial adverse change in the significance of a historical resource (CRHR eligible resource) would be constituted by physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired.

A total of five (5) prehistoric archaeological resources have been identified as existing adjacent to the NCI Reach 5 Replacement Project API (P-30-000009, P-30-000074, P-30-000583, NCI-RB-S-001 and NCI-RB-S-002). Attempts to locate prehistoric archaeological resources P-30-000009 and P-30-000074 failed to identify any cultural material within their previously recorded locations. Although both are in close proximity to the Project API, there is evidence to indicate the majority of their deposits have been destroyed or otherwise compromised by the development of the Ranch Resort golf course, and Coast Highway, respectively. P-30-0000583, while intact, is located above the Canyon floor and a distance away from the Project API. Additionally, newly recorded resource NCI-RB-S-001, while closer to the Project API, is located above the HDD alignment and within the northern hillside of the Project API. As currently designed, the proposed Project will avoid direct adverse effects to P-30-000009, P-30-000074, P-30-000583 and NCI-RB-S-001.

NCI-RB-S-002 was recorded as directly adjacent to the open trench alignment of the Project API along Country Club Drive. Subsurface investigations in this area were limited to the roadway shoulder and outside the area of direct physical effect for this portion of the Project, as the pipeline alignment is proposed within the roadway and currently covered in asphalt hardscape. Although subsurface investigations identified the presence of cultural material within many of the STP levels at this location, they were found within otherwise highly disturbed contexts and secondary deposits.

Additionally, geotechnical investigations and XPI subsurface testing efforts in support of the Project indicate that the majority of the areas investigated are underlain by fill soils to approximately 4-5 feet (1.2-1.5 meters) below ground surface, and after that, by native alluvial deposits of varying degrees of disturbance. In one STP, undisturbed native soils were encountered at a depth of approximately 4 feet (1.2 meters) below ground surface. Since the vertical depth of ground disturbance for the proposed Project is anticipated to reach a maximum of 12 feet (3.7 meters) as currently designed, construction excavation is likely to encounter undisturbed native soils. Given these factors, archaeological and Tribal monitoring is recommended for initial ground disturbance in order to assess and monitor the Project's potential to encounter intact subsurface cultural deposits.

Compliance with Mitigation Measures **MM-CUL-1**, **MM-CUL-2, and MM-CUL-3** outlined below, would reduce potential impacts to unanticipated archaeological resources and human remains during project implementation.

MM-CUL-1 Worker's Environmental Awareness Training. Prior to the initiation of ground-disturbing work, construction crews shall be made aware of the potential to encounter cultural resources and the requirement for cultural monitors to be present during these activities. This may occur as part of a Worker Environmental Awareness Program. Topics addressed should include definitions and characteristics of cultural resources, regulatory requirements and penalties for intentionally disturbing cultural resources, and protocols to be taken in the event of an inadvertent discovery.

MM-CUL-2 Cultural Resources Monitoring and Inadvertent Discovery Protocols. A monitoring plan should be prepared by an archaeological principal investigator, meeting the Secretary of the Interior's Standards, and implemented upon approval by the City. It is also recommended that an archaeological monitor be present during all initial ground-disturbing activities for the Project.

Archaeological monitoring may be adjusted (increase, decreased, or discontinued) at the recommendation of the archaeological principal investigator and based on inspection of exposed cultural material and the observed potential for soils to contain intact cultural deposits or otherwise significant archaeological material. The archaeological monitor shall be provided a copy of this technical report and its pertinent appendices to inform their monitoring efforts. The archaeological monitor shall have the authority to temporarily halt work to inspect areas for potential cultural material or deposits. The requirement for Tribal monitoring, while recommended, shall be determined by the lead agency in consultation with the traditionally culturally affiliated tribes with geographic ties to the Project area.

In the event that unanticipated archaeological deposits or features are exposed during construction activities, all construction work occurring within 50 feet of the find shall immediately stop until the archaeological principal investigator is provided access to the Project site and can assess the significance of the find and determine whether or not additional study is warranted. The work exclusion buffer may be adjusted as appropriate to allow work to feasibly continue at the recommendation of the archaeological principal investigator. Should it be required, temporary flagging shall be installed around this resource in order to avoid any disturbances from construction equipment. The potential for avoidance should be the primary consideration of this initial process. Significance of the find shall be assessed as outlined by CEQA (14 CCR 15064.5[f]; PRC Section 21082). If the archaeological principal investigator observes the discovery to be potentially significant under CEQA, additional efforts, such as the preparation of an archaeological treatment plan, testing, and/or data recovery, may be warranted prior to allowing construction to proceed in this area.

Daily monitoring logs shall be completed by the on-site archaeological monitor. Within 60 days following completion of construction, the archaeological principal investigator shall provide an archaeological monitoring report to the City. This report shall include the results of the cultural monitoring program (even if negative), including a summary of any findings or evaluation/data recovery efforts, and supporting documentation that demonstrates all mitigation measures defined in the environmental document were appropriately met. Appendices shall include archaeological monitoring logs and documentation relating to any newly identified or updated cultural resources. This report shall be submitted to the SCCIC once considered final.

While recommended, the requirement to include a Native American Monitor should be determined by the City, having reviewed cultural resources technical findings, through government-to-government consultation with the traditionally culturally affiliated tribes with geographic ties to the Project area and in review of the present report findings. If appropriate, Tribal Cultural Resources, as a separate resource category under CEQA, should be subject to separate management strategies, while taking into account and working in tandem with the present cultural resources mitigation.

MM-CUL-3 **Human Remains.** In accordance with Section 7050.5 of the California Health and Safety Code, if potential human remains are found, the Orange County Coroner (County Coroner) shall be immediately notified of the discovery. The County Coroner shall provide a determination within 48 hours of notification. No further excavation or disturbance of the identified material, or any area reasonably suspected to overlie additional remains, shall occur until a determination has been made regarding if the find is human in origin. If the County Coroner determines that the remains are, or are believed to be, Native American, the Coroner shall notify the NAHC within 24 hours. In accordance with PRC Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendent from the deceased Native American. The most likely descendent shall then recommend to the lead agency their preferred treatment of the remains and associated grave goods.

7 References

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

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Confidential Appendix A

South Central Coastal Information Center Records Search Results

Appendix B

NAHC Correspondence

Roshanne Bakhtiary

From: Roshanne Bakhtiary
Sent: Friday, March 15, 2024 4:12 PM
To: NAHC@NAHC
Subject: NAHC SLF Search Request DUDEK 14719
Attachments: DUDEK PN 14719_NAHC SLF Request.pdf

Dear NAHC,

Please find attached to this email the NAHC Sacred Lands File Search request with project location map for the Noth Coast Receptor (NCI) Reach 5 Project (Dudek #14719) located in the City of Laguna Beach, Orange County, California. Dudek is requesting an NAHC Sacred Lands File Search for any sacred sites, tribal cultural resources, and other places of Native American community value that may fall within a one-mile radius of the proposed project location.

Please let me know if you have any questions regarding this project. You can email the results to me at: rbakhtiary@dudek.com.

Thank you,

Roshanne Bakhtiary
Archaeologist
DUDEK

O: 949 373 8307 **C:** 760 557 0998
dudek.com

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: North Coast Interceptor (NCI) Reach 5 Project (PN # 14719)

County: Orange County

USGS Quadrangle Name: San Juan Capistrano, Laguna Beach, and Dana Point

Township: 7S, 8S **Range:** 8W, 9W **Section(s):** 4, 5, 6, 28, 29, 30, 31, 32, 33, and 36

Company/Firm/Agency: Dudek

Street Address: 605 Third Street

City: Encinitas **Zip:** 92024

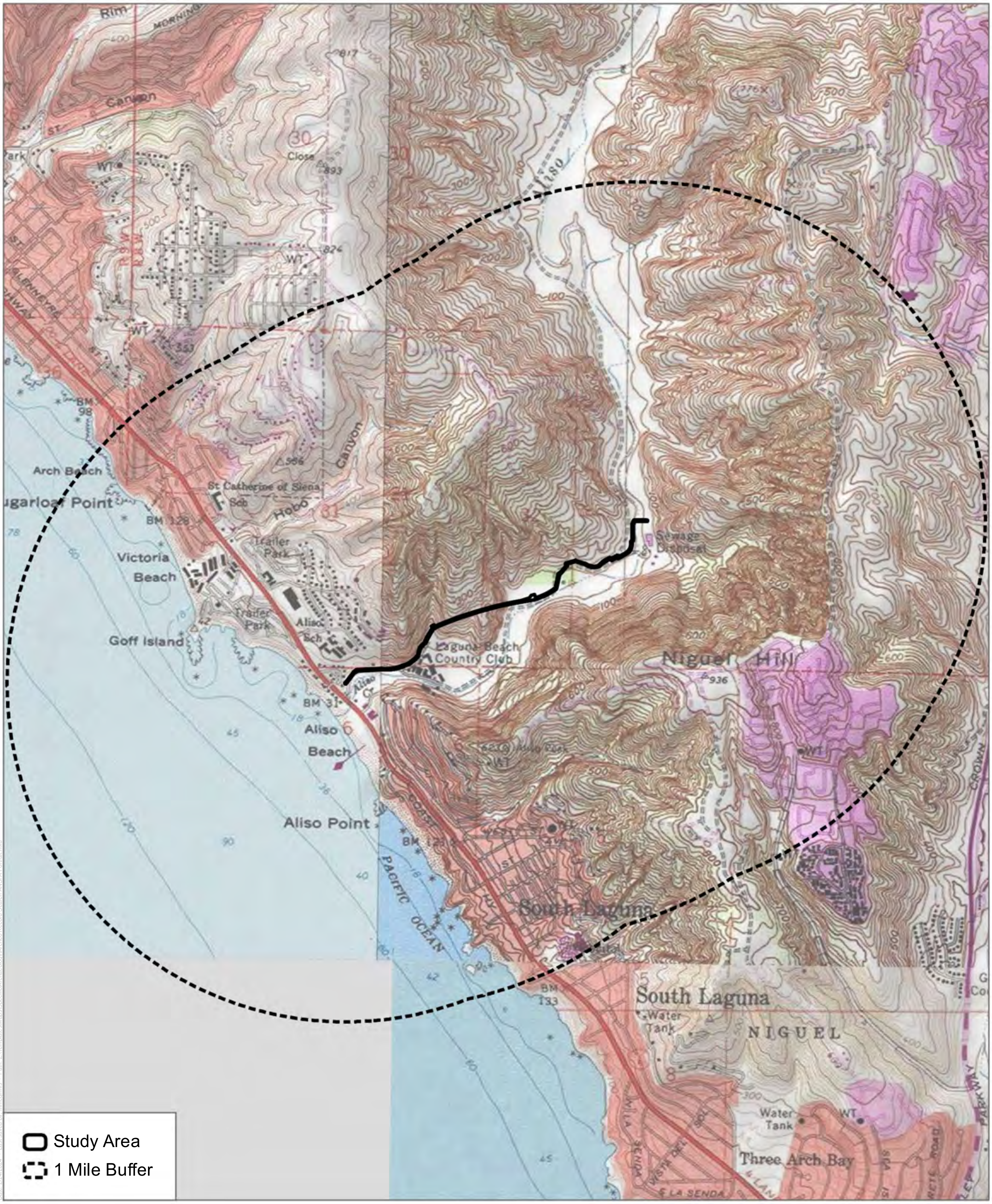
Phone: 760.479.4827

Fax: 760.632.0164

Email: rbakhtiary@dudek.com

Project Description:

The Project plans to completely replace the NCI Reach 5 with new dual parallel pipelines that provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater to the South Orange County Wastewater Authority (SOCWA) Coastal Treatment Plant (CTP).



SOURCE: USGS 7.5-Minute Series San Juan Capistrano, Laguna Beach, Dana Point Quadrangles
Township 7S, 8S; Range 8W, 9W; Sections 4, 5, 6, 28, 29, 30, 31, 32, 33, 36

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Records Search

NCI Reach 5

Date: 2/14/2024 - Last saved by: mmcginnis - Path: Z:\Templates\Maps\Specific\Archaeology\Archeo Record Search ANSI A Portrait.mxd

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From: Green, Andrew@NAHC <Andrew.Green@nahc.ca.gov>
Sent: Thursday, April 4, 2024 2:08 PM
To: Roshanne Bakhtiary
Cc: sonia.johnston@sbcglobal.net; kaamalam@gmail.com
Subject: North Coast Interceptor (NCI) Reach 5 Project
Attachments: SLF Yes North Coast Interceptor (NCI) Reach 5 Project 4.4.2024.pdf; North Coast Interceptor (NCI) Reach 5 Project 4.4.2024.xlsx

Follow Up Flag: Follow up
Flag Status: Flagged

Good Afternoon,

Attached is the response to the project referenced above. If you have any additional questions, please feel free to contact our office email at nahc@nahc.ca.gov.

In our ongoing effort to enhance your user experience and increase functionality, we have transitioned from distributing data in PDF Format to Excel Format. This change allows you to take full advantage of features such as searching, filtering, and mail-merging, making it easier for you to handle and utilize the data provided. If you encounter any technical difficulties, or if you have any questions regarding this new format, please do not hesitate to reach out to me directly.

Regards,

Andrew Green
Native American Heritage Commission
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Andrew.Green@nahc.ca.gov
Direct Line: (916) 573-1072
Office: (916) 373-3710

STATE OF CALIFORNIA Gavin Newsom, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION

April 4, 2024

Roshanne Bakhtiary
Dudek

Via Email to: rbakhtiary@dudek.com

Re: North Coast Interceptor (NCI) Reach 5 Project, Orange County

To Whom It May Concern:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information submitted for the above referenced project. The results were positive. Please contact the Juaneno Band of Mission Indians and the Juaneno Band of Mission Indians Acjachemen Nation - Belardes on the attached list for information. Please note that tribes do not always record their sacred sites in the SLF, nor are they required to do so. A SLF search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with a project's geographic area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites, such as the appropriate regional California Historical Research Information System (CHRIS) archaeological Information Center for the presence of recorded archaeological sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. Please contact all of those listed; if they cannot supply information, they may recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

Native American Heritage Commission
Native American Contact List
Orange County
4/4/2024

Tribe Name	F/N	Contact Person	Contact Address	Phone	Email Address	Cultural Affiliation	Counties
Gabrieleno Band of Mission Indians - Kizh Nation	N	Andrew Salas, Chairperson	P.O. Box 393 Covina, CA, 91723	(844) 390-0787	admin@gabrielenoindians.org	Gabrieleno	Los Angeles, Orange, Riverside, San Bernardino, Santa Barbara, Ventura
Gabrieleno Band of Mission Indians - Kizh Nation	N	Christina Swindall Martinez, Secretary	P.O. Box 393 Covina, CA, 91723	(844) 390-0787	admin@gabrielenoindians.org	Gabrieleno	Los Angeles, Orange, Riverside, San Bernardino, Santa Barbara, Ventura
Gabrieleno/Tongva San Gabriel Band of Mission Indians	N	Anthony Morales, Chairperson	P.O. Box 693 San Gabriel, CA, 91778	(626) 483-3564	GTTribalcouncil@aol.com	Gabrieleno	Los Angeles, Orange, Riverside, San Bernardino, Santa Barbara, Ventura
Gabrielino /Tongva Nation	N	Sandonne Goad, Chairperson	106 1/2 Judge John Aiso St., #231 Los Angeles, CA, 90012	(951) 807-0479	sgoad@gabrielino-tongva.com	Gabrielino	Los Angeles, Orange, Riverside, San Bernardino, Santa Barbara, Ventura
Gabrielino Tongva Indians of California Tribal Council	N	Christina Conley, Cultural Resource Administrator	P.O. Box 941078 Simi Valley, CA, 93094	(626) 407-8761	christina.marsden@alumni.usc.edu	Gabrielino	Los Angeles, Orange, Riverside, San Bernardino, Santa Barbara, Ventura
Gabrielino Tongva Indians of California Tribal Council	N	Robert Dorame, Chairperson	P.O. Box 490 Bellflower, CA, 90707	(562) 761-6417	gtongva@gmail.com	Gabrielino	Los Angeles, Orange ,Riverside, San Bernardino, Santa Barbara, Ventura
Gabrielino-Tongva Tribe	N	Charles Alvarez, Chairperson	23454 Vanowen Street West Hills, CA, 91307	(310) 403-6048	Chavez1956metro@gmail.com	Gabrielino	Los Angeles, Orange, Riverside, San Bernardino, Santa Barbara, Ventura
Gabrielino-Tongva Tribe	N	Sam Dunlap, Cultural Resource Director	P.O. Box 3919 Seal Beach, CA, 90740	(909) 262-9351	tongvatcr@gmail.com	Gabrielino	Los Angeles, Orange, Riverside, San Bernardino, Santa Barbara, Ventura
Juaneno Band of Mission Indians	N	Sonia Johnston, Chairperson	P.O. Box 25628 Santa Ana, CA, 92799		sonia.johnston@sbcglobal.net	Juaneno	Orange, Riverside, San Diego

Tribe Name	F/N	Contact Person	Contact Address	Phone	Email Address	Cultural Affiliation	Counties
Juaneno Band of Mission Indians Acjachemen Nation - Belardes	N	Joyce Perry, Cultural Resource Director	4955 Paseo Segovia Irvine, CA, 92603	(949) 293-8522	kaamalam@gmail.com	Juaneno	Los Angeles, Orange, Riverside, San Bernardino, San Diego
Juaneno Band of Mission Indians Acjachemen Nation 84A	N	Heidi Lucero, Chairperson, THPO	31411-A La Matanza Street San Juan Capistrano, CA, 92675	(562) 879-2884	jbmian.chairwoman@gmail.com	Juaneno	Los Angeles, Orange, Riverside, San Bernardino, San Diego
La Jolla Band of Luiseno Indians	F	Norma Contreras, Chairperson	22000 Highway 76 Pauma Valley, CA, 92061	(760) 742-3771		Luiseno	Orange, Riverside, San Diego
Pala Band of Mission Indians	F	Shasta Gaughen, Tribal Historic Preservation Officer	PMB 50, 35008 Pala Temecula Road Pala, CA, 92059	(760) 891-3515	sgaughen@palatribe.com	Cupeno Luiseno	Orange, Riverside, San Bernardino, San Diego
Pala Band of Mission Indians	F	Alexis Wallick, Assistant THPO	PMB 50, 35008 Pala Temecula Road Pala, CA, 92059	(760) 891-3537	awallick@palatribe.com	Cupeno Luiseno	Orange, Riverside, San Bernardino, San Diego
Pala Band of Mission Indians	F	Christopher Nejo, Legal Analyst/Researcher	PMB 50, 35008 Pala Temecula Road Pala, CA, 92059	(760) 891-3564	cnejo@palatribe.com	Cupeno Luiseno	Orange, Riverside, San Bernardino, San Diego
Pauma Band of Luiseno Indians	F	Temet Aguilar, Chairperson	P.O. Box 369 Pauma Valley, CA, 92061	(760) 742-1289	bennaecalac@aol.com	Luiseno	Orange, Riverside, San Diego
Santa Rosa Band of Cahuilla Indians	F	Lovina Redner, Tribal Chair	P.O. Box 391820 Anza, CA, 92539	(951) 659-2700	lsaul@santarosa-nsn.gov	Cahuilla	Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego
Soboba Band of Luiseno Indians	F	Joseph Ontiveros, Tribal Historic	P.O. Box 487 San Jacinto, CA, 92581	(951) 663-5279	jontiveros@soboba-nsn.gov	Cahuilla Luiseno	Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego

Tribe Name	F/N	Contact Person	Contact Address	Phone	Email Address	Cultural Affiliation	Counties
		Preservation Officer					
Soboba Band of Luiseno Indians	F	Jessica Valdez, Cultural Resource Specialist	P.O. Box 487 San Jacinto, CA, 92581	(951) 663-6261	jvaldez@soboba-nsn.gov	Cahuilla Luiseno	Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego
Soboba Band of Luiseno Indians	F	Isaiah Vivanco, Chairperson	P.O. Box 487 San Jacinto, CA, 92581	(951) 654-5544	ivivanco@soboba-nsn.com	Cahuilla Luiseno	Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed North Coast Interceptor (NCI) Reach 5 Project, Orange County.

Roshanne Bakhtiary

From: Joyce Perry <kaamalam@gmail.com>
Sent: Wednesday, June 26, 2024 1:29 PM
To: Roshanne Bakhtiary; sonia.johnston@sbcglobal.net
Subject: Re: North Coast Interceptor (NCI) Reach 5 Project

Follow Up Flag: Follow up
Flag Status: Completed

Good Afternoon,

We have received notice of positive sacredlands results for the North Coast Interceptor (NCI) Reach 5 Project, Orange County project. Can you please provide details of the undertaking?

Thank you

Joyce Stanfield Perry
Húu'uni 'óomaqati yáamaqati- Teach peace

PAYOMKAWICHUM
KAAMALAM
Payomkawichum Kaamalam - President
kaamalam.com

Juaneño Band of Mission Indians, Acjachemen Nation
Cultural Resource Director

On Thu, Apr 4, 2024 at 2:08 PM Green, Andrew@NAHC <Andrew.Green@nahc.ca.gov> wrote:

> Good Afternoon,
>
> Attached is the response to the project referenced above. If you have any additional questions, please feel free to contact our office email at nahc@nahc.ca.gov.
>
> In our ongoing effort to enhance your user experience and increase functionality, we have transitioned from distributing data in PDF Format to Excel Format. This change allows you to take full advantage of features such as searching, filtering, and mail-merging, making it easier for you to handle and utilize the data provided. If you encounter any technical difficulties, or if you have any questions regarding this new format, please do not hesitate to reach out to me directly.
>
> Regards,

Andrew Green

Native American Heritage Commission

1550 Harbor Blvd., Suite 100

West Sacramento, CA 95691

Andrew.Green@nahc.ca.gov

Direct Line: (916) 573-1072

Office: (916) 373-3710

Appendix C

Assembly Bill 52 Documentation

Native American Contact List for AB 52 Tribal Consultation

Consultation letters are sent by certified mail with a copy provided by email.

Gabrieleno Band of Mission Indians – Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393
Covina, CA 91723
admin@gabrielenoindians.org

Gabrieleno Band of Mission Indians – Kizh Nation
Christina Swindall Martinez, Secretary
P.O. Box 393
Covina, CA, 91723
admin@gabrielenoindians.org

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693
San Gabriel, CA 91778
GTTribalcouncil@aol.com

Gabrielino/Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231
Los Angeles, CA 90012
sgoad@gabrielino-tongva.com

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Chairperson
P.O. Box 490
Bellflower, CA 90707
gtongva@gmail.com

Gabrielino Tongva Indians of California Tribal Council
Christina Conley, Cultural Resource Director
P.O. Box 941078
Simi Valley, CA, 93094
christina.marsden@alumni.usc.edu

Gabrielino-Tongva Tribe
Charles Alvarez, Chairperson
23454 Vanowen Street
West Hills, CA 91307
Chavez1956metro@gmail.com

Gabrielino-Tongva Tribe
Sam Dunlap, Cultural Resource Director
P.O. Box 3919
Seal Beach, CA, 90740
tongvatcr@gmail.com

Juaneno Band of Mission Indians
Sonia Johnston, Chairperson
P.O. Box 25628
Santa Ana, CA 92799
sonia.johnston@sbcglobal.net

Juaneno Band of Mission Indians Acjachemen Nation – Belardes
Joyce Perry, Cultural Resource Director
4955 Paseo Segovia
Irvine, CA, 92603
kaamalam@gmail.com

Juaneno Band of Mission Indians Acjachemen Nation – Romero
Heidi Lucero, Chairperson, THPO
31411-A La Matanza Street
San Juan Capistrano, CA 92675
jbmian.chairwoman@gmail.com

Soboba Band of Luiseno Indians
Joseph Ontiveros, Tribal Historic Preservation Officer
P.O. Box 487
San Jacinto, CA 92581
jontiveros@soboba-nsn.gov

Soboba Band of Luiseno Indians
Jessica Valdez, Cultural Resource Specialist
P.O. Box 487
San Jacinto, CA, 92581
jvaldez@soboba-nsn.gov

CCRPA
P.O. Box 54132
Irvine, CA 92619-4132
p.martz@cox.net

Updated 1/3/24

April 1, 2024

Sandonne Goad
Chairperson
Gabrielino-Tongva Nation
106 1/2 Judge John Aiso St. #231
Los Angeles, CA 90012

Re: Formal Assembly Bill 52 Notification for the North Coast Interceptor Reach 5 Replacement Project, City of Laguna Beach, California

Dear Ms. Goad

Pursuant to California Assembly Bill (AB) 52, the City of Laguna Beach (City), as Lead Agency pursuant to the California Environmental Quality Act, is providing you with formal notification of the North Coast Interceptor (NCI) Reach 5 Replacement Project (proposed Project), located in the City of Laguna Beach, in Orange County, California. The City is reaching out to all groups that have formally requested in writing AB 52 notification from the City for eligible projects under their jurisdiction.

Project Description and Location

The proposed Project involves the replacement of the existing NCI Reach 5 through Aliso Creek Canyon by a combination of open trench, horizontal directional drill installation, and slip lining. The goal of the Project is to completely replace the NCI Reach 5 with new dual parallel pipelines that provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater to the South Orange County Wastewater Authority (SOCWA) Coastal Treatment Plant (CTP).

The proposed Project is located within Aliso Creek Canyon in the City of Laguna Beach, California. The Project will consist of the installation and rehabilitation of approximately 6,100 linear feet of dual 18-inch high density polyethylene pipelines, running from the intersection of Coast Highway at County Club Drive, to just west of the SOCWA CTP. The Project area is located within Section 6 of Township 8 South and Range 8 West; Sections 31 and 32 of Township 7 South and Range 8 West; and within Lot 39 of the Rancho Niguel Land Grant all within the San Juan Capistrano, Laguna Beach, and Dana Point U.S. Geological Survey 7.5-minute series quadrangle maps (Figure 1, Project Location).

Project Involves Ground Disturbance: Yes

Summary of Cultural Resources Identification Efforts

Cultural resources identification efforts undertaken for the proposed Project include a California Historical Resources Information System (CHRIS) records search conducted by Dudek on February 28, 2024, at the South Central Coastal Information Center, a review of historical topographic maps and aerial imagery, and a cultural resources field survey conducted by Dudek on March 12, 2024.

The CHRIS records search did not identify any cultural resources intersecting with the proposed Project. A review of historic topographic maps and aerial imagery indicate that the Project area has been subject to past ground disturbances associated with agricultural practices and the development of existing private and SOCWA infrastructure.

The results of the cultural resources field survey **positively identified** a Native American cultural resource abutting the proposed Project. This resource consists of a small rock shelter with an associated pre-contact shell midden deposit. Cultural resources documentation detailing the identification efforts in support of this Project can be provided upon request.

Consultation Request

If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in California Public Resources Code § 21074) in relation to the proposed Project, or would like to request any additional information, please contact the City at 505 FOREST AVE, LAGUNA BEACH, CA 92651or via email to Ulises Escalona at uescalona@lagunabeachcity.net. All requests for formal tribal consultation, pursuant to AB 52, must be received within **30 days** of receipt of this notice. Please include in any request the name of the designated lead contact person. If you have any questions, please don't hesitate to contact Ulises Escalona at uescalona@lagunabeachcity.net.

Sincerely,

Ulises Escalona

Ulises Escalona
Senior Project Manager
City of Laguna Beach
Attn: NCI Reach 5 Replacement Project
505 Forest Avenue
Laguna Beach, California 92651

Attachments: Figure 1, Project Location Map

SOURCE: USGS 7.5-Minute Series San Juan Capistrano, Laguna Beach, Dana Point Quadrangles
Township 7S, 8S; Range 8W, 9W; Sections 4, 5, 6, 28, 29, 30, 31, 32, 33, 36

DUDEK

0 285 570 Meters

0 1,000 2,000 Feet

Figure 1

Project Location

NCI Reach 5

April 1, 2024

Charles Alvarez
Chairperson
Gabrieleno-Tongva Tribe
23454 Vanowen St.
West Hills, CA 91307

Re: ***Formal Assembly Bill 52 Notification for the North Coast Interceptor Reach 5 Replacement Project, City of Laguna Beach, California***

Dear Mr. Alvarez

Pursuant to California Assembly Bill (AB) 52, the City of Laguna Beach (City), as Lead Agency pursuant to the California Environmental Quality Act, is providing you with formal notification of the North Coast Interceptor (NCI) Reach 5 Replacement Project (proposed Project), located in the City of Laguna Beach, in Orange County, California. The City is reaching out to all groups that have formally requested in writing AB 52 notification from the City for eligible projects under their jurisdiction.

Project Description and Location

The proposed Project involves the replacement of the existing NCI Reach 5 through Aliso Creek Canyon by a combination of open trench, horizontal directional drill installation, and slip lining. The goal of the Project is to completely replace the NCI Reach 5 with new dual parallel pipelines that provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater to the South Orange County Wastewater Authority (SOCWA) Coastal Treatment Plant (CTP).

The proposed Project is located within Aliso Creek Canyon in the City of Laguna Beach, California. The Project will consist of the installation and rehabilitation of approximately 6,100 linear feet of dual 18-inch high density polyethylene pipelines, running from the intersection of Coast Highway at County Club Drive, to just west of the SOCWA CTP. The Project area is located within Section 6 of Township 8 South and Range 8 West; Sections 31 and 32 of Township 7 South and Range 8 West; and within Lot 39 of the Rancho Niguel Land Grant all within the San Juan Capistrano, Laguna Beach, and Dana Point U.S. Geological Survey 7.5-minute series quadrangle maps (Figure 1, Project Location).

Project Involves Ground Disturbance: Yes

Summary of Cultural Resources Identification Efforts

Cultural resources identification efforts undertaken for the proposed Project include a California Historical Resources Information System (CHRIS) records search conducted by Dudek on February 28, 2024, at the South Central Coastal Information Center, a review of historical topographic maps and aerial imagery, and a cultural resources field survey conducted by Dudek on March 12, 2024.

The CHRIS records search did not identify any cultural resources intersecting with the proposed Project. A review of historic topographic maps and aerial imagery indicate that the Project area has been subject to past ground disturbances associated with agricultural practices and the development of existing private and SOCWA infrastructure.

The results of the cultural resources field survey **positively identified** a Native American cultural resource abutting the proposed Project. This resource consists of a small rock shelter with an associated pre-contact shell midden deposit. Cultural resources documentation detailing the identification efforts in support of this Project can be provided upon request.

Consultation Request

If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in California Public Resources Code § 21074) in relation to the proposed Project, or would like to request any additional information, please contact the City at 505 FOREST AVE, LAGUNA BEACH, CA 92651or via email to Ulises Escalona at uescalona@lagunabeachcity.net. All requests for formal tribal consultation, pursuant to AB 52, must be received within **30 days** of receipt of this notice. Please include in any request the name of the designated lead contact person. If you have any questions, please don't hesitate to contact Ulises Escalona at uescalona@lagunabeachcity.net.

Sincerely,

Ulises Escalona

Ulises Escalona
Senior Project Manager
City of Laguna Beach
Attn: NCI Reach 5 Replacement Project
505 Forest Avenue
Laguna Beach, California 92651

Attachments: Figure 1, Project Location Map

SOURCE: USGS 7.5-Minute Series San Juan Capistrano, Laguna Beach, Dana Point Quadrangles
Township 7S, 8S; Range 8W, 9W; Sections 4, 5, 6, 28, 29, 30, 31, 32, 33, 36

DUDEK

0 285 570 Meters

0 1,000 2,000 Feet

Figure 1

Project Location

NCI Reach 5

April 1, 2024

Heidi Lucero
Chairperson, THPO
Juaneno Band of Mission Indians Acjachemen Nation
31411-A La Matanza Street
San Juan Capistrano, CA 92675

Re: Formal Assembly Bill 52 Notification for the North Coast Interceptor Reach 5 Replacement Project, City of Laguna Beach, California

Dear Ms. Lucero

Pursuant to California Assembly Bill (AB) 52, the City of Laguna Beach (City), as Lead Agency pursuant to the California Environmental Quality Act, is providing you with formal notification of the North Coast Interceptor (NCI) Reach 5 Replacement Project (proposed Project), located in the City of Laguna Beach, in Orange County, California. The City is reaching out to all groups that have formally requested in writing AB 52 notification from the City for eligible projects under their jurisdiction.

Project Description and Location

The proposed Project involves the replacement of the existing NCI Reach 5 through Aliso Creek Canyon by a combination of open trench, horizontal directional drill installation, and slip lining. The goal of the Project is to completely replace the NCI Reach 5 with new dual parallel pipelines that provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater to the South Orange County Wastewater Authority (SOCWA) Coastal Treatment Plant (CTP).

The proposed Project is located within Aliso Creek Canyon in the City of Laguna Beach, California. The Project will consist of the installation and rehabilitation of approximately 6,100 linear feet of dual 18-inch high density polyethylene pipelines, running from the intersection of Coast Highway at County Club Drive, to just west of the SOCWA CTP. The Project area is located within Section 6 of Township 8 South and Range 8 West; Sections 31 and 32 of Township 7 South and Range 8 West; and within Lot 39 of the Rancho Niguel Land Grant all within the San Juan Capistrano, Laguna Beach, and Dana Point U.S. Geological Survey 7.5-minute series quadrangle maps (Figure 1, Project Location).

Project Involves Ground Disturbance: Yes

Summary of Cultural Resources Identification Efforts

Cultural resources identification efforts undertaken for the proposed Project include a California Historical Resources Information System (CHRIS) records search conducted by Dudek on February 28, 2024, at the South Central Coastal Information Center, a review of historical topographic maps and aerial imagery, and a cultural resources field survey conducted by Dudek on March 12, 2024.

The CHRIS records search did not identify any cultural resources intersecting with the proposed Project. A review of historic topographic maps and aerial imagery indicate that the Project area has been subject to past ground disturbances associated with agricultural practices and the development of existing private and SOCWA infrastructure.

The results of the cultural resources field survey **positively identified** a Native American cultural resource abutting the proposed Project. This resource consists of a small rock shelter with an associated pre-contact shell midden deposit. Cultural resources documentation detailing the identification efforts in support of this Project can be provided upon request.

Consultation Request

If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in California Public Resources Code § 21074) in relation to the proposed Project, or would like to request any additional information, please contact the City at 505 FOREST AVE, LAGUNA BEACH, CA 92651or via email to Ulises Escalona at uescalona@lagunabeachcity.net. All requests for formal tribal consultation, pursuant to AB 52, must be received within **30 days** of receipt of this notice. Please include in any request the name of the designated lead contact person. If you have any questions, please don't hesitate to contact Ulises Escalona at uescalona@lagunabeachcity.net.

Sincerely,

Ulises Escalona

Ulises Escalona
Senior Project Manager
City of Laguna Beach
Attn: NCI Reach 5 Replacement Project
505 Forest Avenue
Laguna Beach, California 92651

Attachments: Figure 1, Project Location Map

SOURCE: USGS 7.5-Minute Series San Juan Capistrano, Laguna Beach, Dana Point Quadrangles
Township 7S, 8S; Range 8W, 9W; Sections 4, 5, 6, 28, 29, 30, 31, 32, 33, 36

0 285 570 Meters
0 1,000 2,000 Feet

Figure 1
Project Location
NCI Reach 5

April 1, 2024

Joyce Perry
Cultural Resource Director
Juaneno Band of Mission Indians Acjachemen Nation
4955 Paseo Segovia
Irvine, CA 92603

Re: ***Formal Assembly Bill 52 Notification for the North Coast Interceptor Reach 5 Replacement Project, City of Laguna Beach, California***

Dear Ms. Perry

Pursuant to California Assembly Bill (AB) 52, the City of Laguna Beach (City), as Lead Agency pursuant to the California Environmental Quality Act, is providing you with formal notification of the North Coast Interceptor (NCI) Reach 5 Replacement Project (proposed Project), located in the City of Laguna Beach, in Orange County, California. The City is reaching out to all groups that have formally requested in writing AB 52 notification from the City for eligible projects under their jurisdiction.

Project Description and Location

The proposed Project involves the replacement of the existing NCI Reach 5 through Aliso Creek Canyon by a combination of open trench, horizontal directional drill installation, and slip lining. The goal of the Project is to completely replace the NCI Reach 5 with new dual parallel pipelines that provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater to the South Orange County Wastewater Authority (SOCWA) Coastal Treatment Plant (CTP).

The proposed Project is located within Aliso Creek Canyon in the City of Laguna Beach, California. The Project will consist of the installation and rehabilitation of approximately 6,100 linear feet of dual 18-inch high density polyethylene pipelines, running from the intersection of Coast Highway at County Club Drive, to just west of the SOCWA CTP. The Project area is located within Section 6 of Township 8 South and Range 8 West; Sections 31 and 32 of Township 7 South and Range 8 West; and within Lot 39 of the Rancho Niguel Land Grant all within the San Juan Capistrano, Laguna Beach, and Dana Point U.S. Geological Survey 7.5-minute series quadrangle maps (Figure 1, Project Location).

Project Involves Ground Disturbance: Yes

Summary of Cultural Resources Identification Efforts

Cultural resources identification efforts undertaken for the proposed Project include a California Historical Resources Information System (CHRIS) records search conducted by Dudek on February 28, 2024, at the South Central Coastal Information Center, a review of historical topographic maps and aerial imagery, and a cultural resources field survey conducted by Dudek on March 12, 2024.

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Consultation Request

If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in California Public Resources Code § 21074) in relation to the proposed Project, or would like to request any additional information, please contact the City at 505 FOREST AVE, LAGUNA BEACH, CA 92651or via email to Ulises Escalona at uescalona@lagunabeachcity.net. All requests for formal tribal consultation, pursuant to AB 52, must be received within **30 days** of receipt of this notice. Please include in any request the name of the designated lead contact person. If you have any questions, please don't hesitate to contact Ulises Escalona at uescalona@lagunabeachcity.net.

Sincerely,

Ulises Escalona

Ulises Escalona
Senior Project Manager
City of Laguna Beach
Attn: NCI Reach 5 Replacement Project
505 Forest Avenue
Laguna Beach, California 92651

Attachments: Figure 1, Project Location Map

SOURCE: USGS 7.5-Minute Series San Juan Capistrano, Laguna Beach, Dana Point Quadrangles
Township 7S, 8S; Range 8W, 9W; Sections 4, 5, 6, 28, 29, 30, 31, 32, 33, 36

DUDEK

0 285 570 Meters

0 1,000 2,000 Feet

Figure 1

Project Location

NCI Reach 5

April 1, 2024

CCRPA
P.O. Box 54132
Irvine, CA 92619-4132

Re: ***Formal Assembly Bill 52 Notification for the North Coast Interceptor Reach 5 Replacement Project, City of Laguna Beach, California***

Dear CCRPA,

Pursuant to California Assembly Bill (AB) 52, the City of Laguna Beach (City), as Lead Agency pursuant to the California Environmental Quality Act, is providing you with formal notification of the North Coast Interceptor (NCI) Reach 5 Replacement Project (proposed Project), located in the City of Laguna Beach, in Orange County, California. The City is reaching out to all groups that have formally requested in writing AB 52 notification from the City for eligible projects under their jurisdiction.

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Project Involves Ground Disturbance: Yes

Summary of Cultural Resources Identification Efforts

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Consultation Request

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Sincerely,

Ulises Escalona

Ulises Escalona
Senior Project Manager
City of Laguna Beach
Attn: NCI Reach 5 Replacement Project
505 Forest Avenue
Laguna Beach, California 92651

Attachments: Figure 1, Project Location Map

SOURCE: USGS 7.5-Minute Series San Juan Capistrano, Laguna Beach, Dana Point Quadrangles
Township 7S, 8S; Range 8W, 9W; Sections 4, 5, 6, 28, 29, 30, 31, 32, 33, 36

DUDEK

0 285 570 Meters
0 1,000 2,000 Feet

Figure 1
Project Location
NCI Reach 5

April 1, 2024

Sonia Johnston
Tribal Chairperson
Juaneno Band of Mission Indians
P.O. Box 25628
Santa Ana CA 92799

Re: ***Formal Assembly Bill 52 Notification for the North Coast Interceptor Reach 5 Replacement Project, City of Laguna Beach, California***

Dear Ms. Johnston

Pursuant to California Assembly Bill (AB) 52, the City of Laguna Beach (City), as Lead Agency pursuant to the California Environmental Quality Act, is providing you with formal notification of the North Coast Interceptor (NCI) Reach 5 Replacement Project (proposed Project), located in the City of Laguna Beach, in Orange County, California. The City is reaching out to all groups that have formally requested in writing AB 52 notification from the City for eligible projects under their jurisdiction.

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Project Involves Ground Disturbance: Yes

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Consultation Request

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Sincerely,

Ulises Escalona

Ulises Escalona
Senior Project Manager
City of Laguna Beach
Attn: NCI Reach 5 Replacement Project
505 Forest Avenue
Laguna Beach, California 92651

Attachments: Figure 1, Project Location Map

SOURCE: USGS 7.5-Minute Series San Juan Capistrano, Laguna Beach, Dana Point Quadrangles
Township 7S, 8S; Range 8W, 9W; Sections 4, 5, 6, 28, 29, 30, 31, 32, 33, 36

DUDEK

0 285 570 Meters

0 1,000 2,000 Feet

Figure 1

Project Location

NCI Reach 5

April 1, 2024

Andrew Salas
Chairperson
Gabrieleno Band of Mission Indians – Kizh Nation
P.O. Box 393
Covina, CA 91723

Re: ***Formal Assembly Bill 52 Notification for the North Coast Interceptor Reach 5 Replacement Project, City of Laguna Beach, California***

Dear Mr. Salas

Pursuant to California Assembly Bill (AB) 52, the City of Laguna Beach (City), as Lead Agency pursuant to the California Environmental Quality Act, is providing you with formal notification of the North Coast Interceptor (NCI) Reach 5 Replacement Project (proposed Project), located in the City of Laguna Beach, in Orange County, California. The City is reaching out to all groups that have formally requested in writing AB 52 notification from the City for eligible projects under their jurisdiction.

Project Description and Location

The proposed Project involves the replacement of the existing NCI Reach 5 through Aliso Creek Canyon by a combination of open trench, horizontal directional drill installation, and slip lining. The goal of the Project is to completely replace the NCI Reach 5 with new dual parallel pipelines that provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater to the South Orange County Wastewater Authority (SOCWA) Coastal Treatment Plant (CTP).

The proposed Project is located within Aliso Creek Canyon in the City of Laguna Beach, California. The Project will consist of the installation and rehabilitation of approximately 6,100 linear feet of dual 18-inch high density polyethylene pipelines, running from the intersection of Coast Highway at County Club Drive, to just west of the SOCWA CTP. The Project area is located within Section 6 of Township 8 South and Range 8 West; Sections 31 and 32 of Township 7 South and Range 8 West; and within Lot 39 of the Rancho Niguel Land Grant all within the San Juan Capistrano, Laguna Beach, and Dana Point U.S. Geological Survey 7.5-minute series quadrangle maps (Figure 1, Project Location).

Project Involves Ground Disturbance: Yes

Summary of Cultural Resources Identification Efforts

Cultural resources identification efforts undertaken for the proposed Project include a California Historical Resources Information System (CHRIS) records search conducted by Dudek on February 28, 2024, at the South Central Coastal Information Center, a review of historical topographic maps and aerial imagery, and a cultural resources field survey conducted by Dudek on March 12, 2024.

The CHRIS records search did not identify any cultural resources intersecting with the proposed Project. A review of historic topographic maps and aerial imagery indicate that the Project area has been subject to past ground disturbances associated with agricultural practices and the development of existing private and SOCWA infrastructure.

The results of the cultural resources field survey **positively identified** a Native American cultural resource abutting the proposed Project. This resource consists of a small rock shelter with an associated pre-contact shell midden deposit. Cultural resources documentation detailing the identification efforts in support of this Project can be provided upon request.

Consultation Request

If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in California Public Resources Code § 21074) in relation to the proposed Project, or would like to request any additional information, please contact the City at 505 FOREST AVE, LAGUNA BEACH, CA 92651or via email to Ulises Escalona at uescalona@lagunabeachcity.net. All requests for formal tribal consultation, pursuant to AB 52, must be received within **30 days** of receipt of this notice. Please include in any request the name of the designated lead contact person. If you have any questions, please don't hesitate to contact Ulises Escalona at uescalona@lagunabeachcity.net.

Sincerely,

Ulises Escalona

Ulises Escalona
Senior Project Manager
City of Laguna Beach
Attn: NCI Reach 5 Replacement Project
505 Forest Avenue
Laguna Beach, California 92651

Attachments: Figure 1, Project Location Map

SOURCE: USGS 7.5-Minute Series San Juan Capistrano, Laguna Beach, Dana Point Quadrangles
Township 7S, 8S; Range 8W, 9W; Sections 4, 5, 6, 28, 29, 30, 31, 32, 33, 36

DUDEK

0 285 570 Meters

0 1,000 2,000 Feet

Figure 1
Project Location
NCI Reach 5

April 1, 2024

Christina Swindall Martinez
Secretary
P.O. Box 393
Covina, CA 91723

Re: ***Formal Assembly Bill 52 Notification for the North Coast Interceptor Reach 5 Replacement Project, City of Laguna Beach, California***

Dear Ms. Martinez,

Pursuant to California Assembly Bill (AB) 52, the City of Laguna Beach (City), as Lead Agency pursuant to the California Environmental Quality Act, is providing you with formal notification of the North Coast Interceptor (NCI) Reach 5 Replacement Project (proposed Project), located in the City of Laguna Beach, in Orange County, California. The City is reaching out to all groups that have formally requested in writing AB 52 notification from the City for eligible projects under their jurisdiction.

Project Description and Location

The proposed Project involves the replacement of the existing NCI Reach 5 through Aliso Creek Canyon by a combination of open trench, horizontal directional drill installation, and slip lining. The goal of the Project is to completely replace the NCI Reach 5 with new dual parallel pipelines that provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater to the South Orange County Wastewater Authority (SOCWA) Coastal Treatment Plant (CTP).

The proposed Project is located within Aliso Creek Canyon in the City of Laguna Beach, California. The Project will consist of the installation and rehabilitation of approximately 6,100 linear feet of dual 18-inch high density polyethylene pipelines, running from the intersection of Coast Highway at County Club Drive, to just west of the SOCWA CTP. The Project area is located within Section 6 of Township 8 South and Range 8 West; Sections 31 and 32 of Township 7 South and Range 8 West; and within Lot 39 of the Rancho Niguel Land Grant all within the San Juan Capistrano, Laguna Beach, and Dana Point U.S. Geological Survey 7.5-minute series quadrangle maps (Figure 1, Project Location).

Project Involves Ground Disturbance: Yes

Summary of Cultural Resources Identification Efforts

Cultural resources identification efforts undertaken for the proposed Project include a California Historical Resources Information System (CHRIS) records search conducted by Dudek on February 28, 2024, at the South Central Coastal Information Center, a review of historical topographic maps and aerial imagery, and a cultural resources field survey conducted by Dudek on March 12, 2024.

The CHRIS records search did not identify any cultural resources intersecting with the proposed Project. A review of historic topographic maps and aerial imagery indicate that the Project area has been subject to past ground disturbances associated with agricultural practices and the development of existing private and SOCWA infrastructure.

The results of the cultural resources field survey **positively identified** a Native American cultural resource abutting the proposed Project. This resource consists of a small rock shelter with an associated pre-contact shell midden deposit. Cultural resources documentation detailing the identification efforts in support of this Project can be provided upon request.

Consultation Request

If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in California Public Resources Code § 21074) in relation to the proposed Project, or would like to request any additional information, please contact the City at 505 FOREST AVE, LAGUNA BEACH, CA 92651or via email to Ulises Escalona at uescalona@lagunabeachcity.net. All requests for formal tribal consultation, pursuant to AB 52, must be received within **30 days** of receipt of this notice. Please include in any request the name of the designated lead contact person. If you have any questions, please don't hesitate to contact Ulises Escalona at uescalona@lagunabeachcity.net.

Sincerely,

Ulises Escalona

Ulises Escalona
Senior Project Manager
City of Laguna Beach
Attn: NCI Reach 5 Replacement Project
505 Forest Avenue
Laguna Beach, California 92651

Attachments: Figure 1, Project Location Map

SOURCE: USGS 7.5-Minute Series San Juan Capistrano, Laguna Beach, Dana Point Quadrangles
Township 7S, 8S; Range 8W, 9W; Sections 4, 5, 6, 28, 29, 30, 31, 32, 33, 36

DUDEK

0 285 570 Meters

0 1,000 2,000 Feet

Figure 1
Project Location
NCI Reach 5

April 1, 2024

Joseph Ontiveros
Tribal Historic Preservation Officer
Soboba Band of Luiseno Indians
P.O. Box 487
San Jacinto, CA 92581

Re: ***Formal Assembly Bill 52 Notification for the North Coast Interceptor Reach 5 Replacement Project, City of Laguna Beach, California***

Dear Mr. Ontiveros

Pursuant to California Assembly Bill (AB) 52, the City of Laguna Beach (City), as Lead Agency pursuant to the California Environmental Quality Act, is providing you with formal notification of the North Coast Interceptor (NCI) Reach 5 Replacement Project (proposed Project), located in the City of Laguna Beach, in Orange County, California. The City is reaching out to all groups that have formally requested in writing AB 52 notification from the City for eligible projects under their jurisdiction.

Project Description and Location

The proposed Project involves the replacement of the existing NCI Reach 5 through Aliso Creek Canyon by a combination of open trench, horizontal directional drill installation, and slip lining. The goal of the Project is to completely replace the NCI Reach 5 with new dual parallel pipelines that provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater to the South Orange County Wastewater Authority (SOCWA) Coastal Treatment Plant (CTP).

The proposed Project is located within Aliso Creek Canyon in the City of Laguna Beach, California. The Project will consist of the installation and rehabilitation of approximately 6,100 linear feet of dual 18-inch high density polyethylene pipelines, running from the intersection of Coast Highway at County Club Drive, to just west of the SOCWA CTP. The Project area is located within Section 6 of Township 8 South and Range 8 West; Sections 31 and 32 of Township 7 South and Range 8 West; and within Lot 39 of the Rancho Niguel Land Grant all within the San Juan Capistrano, Laguna Beach, and Dana Point U.S. Geological Survey 7.5-minute series quadrangle maps (Figure 1, Project Location).

Project Involves Ground Disturbance: Yes

Summary of Cultural Resources Identification Efforts

Cultural resources identification efforts undertaken for the proposed Project include a California Historical Resources Information System (CHRIS) records search conducted by Dudek on February 28, 2024, at the South Central Coastal Information Center, a review of historical topographic maps and aerial imagery, and a cultural resources field survey conducted by Dudek on March 12, 2024.

The CHRIS records search did not identify any cultural resources intersecting with the proposed Project. A review of historic topographic maps and aerial imagery indicate that the Project area has been subject to past ground disturbances associated with agricultural practices and the development of existing private and SOCWA infrastructure.

The results of the cultural resources field survey **positively identified** a Native American cultural resource abutting the proposed Project. This resource consists of a small rock shelter with an associated pre-contact shell midden deposit. Cultural resources documentation detailing the identification efforts in support of this Project can be provided upon request.

Consultation Request

If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in California Public Resources Code § 21074) in relation to the proposed Project, or would like to request any additional information, please contact the City at 505 FOREST AVE, LAGUNA BEACH, CA 92651or via email to Ulises Escalona at uescalona@lagunabeachcity.net. All requests for formal tribal consultation, pursuant to AB 52, must be received within **30 days** of receipt of this notice. Please include in any request the name of the designated lead contact person. If you have any questions, please don't hesitate to contact Ulises Escalona at uescalona@lagunabeachcity.net.

Sincerely,

Ulises Escalona

Ulises Escalona
Senior Project Manager
City of Laguna Beach
Attn: NCI Reach 5 Replacement Project
505 Forest Avenue
Laguna Beach, California 92651

Attachments: Figure 1, Project Location Map

SOURCE: USGS 7.5-Minute Series San Juan Capistrano, Laguna Beach, Dana Point Quadrangles
Township 7S, 8S; Range 8W, 9W; Sections 4, 5, 6, 28, 29, 30, 31, 32, 33, 36

0 285 570 Meters

0 1,000 2,000 Feet

DUDEK

Figure 1

Project Location

NCI Reach 5

April 1, 2024

Jessica Valdez
Cultural Resource Specialist
Soboba Band of Luiseno Indians
P.O. Box 487
San Jacinto, CA, 92581

Re: Formal Assembly Bill 52 Notification for the North Coast Interceptor Reach 5 Replacement Project, City of Laguna Beach, California

Dear Ms. Valdez

Pursuant to California Assembly Bill (AB) 52, the City of Laguna Beach (City), as Lead Agency pursuant to the California Environmental Quality Act, is providing you with formal notification of the North Coast Interceptor (NCI) Reach 5 Replacement Project (proposed Project), located in the City of Laguna Beach, in Orange County, California. The City is reaching out to all groups that have formally requested in writing AB 52 notification from the City for eligible projects under their jurisdiction.

Project Description and Location

The proposed Project involves the replacement of the existing NCI Reach 5 through Aliso Creek Canyon by a combination of open trench, horizontal directional drill installation, and slip lining. The goal of the Project is to completely replace the NCI Reach 5 with new dual parallel pipelines that provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater to the South Orange County Wastewater Authority (SOCWA) Coastal Treatment Plant (CTP).

The proposed Project is located within Aliso Creek Canyon in the City of Laguna Beach, California. The Project will consist of the installation and rehabilitation of approximately 6,100 linear feet of dual 18-inch high density polyethylene pipelines, running from the intersection of Coast Highway at County Club Drive, to just west of the SOCWA CTP. The Project area is located within Section 6 of Township 8 South and Range 8 West; Sections 31 and 32 of Township 7 South and Range 8 West; and within Lot 39 of the Rancho Niguel Land Grant all within the San Juan Capistrano, Laguna Beach, and Dana Point U.S. Geological Survey 7.5-minute series quadrangle maps (Figure 1, Project Location).

Project Involves Ground Disturbance: Yes

Summary of Cultural Resources Identification Efforts

Cultural resources identification efforts undertaken for the proposed Project include a California Historical Resources Information System (CHRIS) records search conducted by Dudek on February 28, 2024, at the South Central Coastal Information Center, a review of historical topographic maps and aerial imagery, and a cultural resources field survey conducted by Dudek on March 12, 2024.

The CHRIS records search did not identify any cultural resources intersecting with the proposed Project. A review of historic topographic maps and aerial imagery indicate that the Project area has been subject to past ground disturbances associated with agricultural practices and the development of existing private and SOCWA infrastructure.

The results of the cultural resources field survey **positively identified** a Native American cultural resource abutting the proposed Project. This resource consists of a small rock shelter with an associated pre-contact shell midden deposit. Cultural resources documentation detailing the identification efforts in support of this Project can be provided upon request.

Consultation Request

If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in California Public Resources Code § 21074) in relation to the proposed Project, or would like to request any additional information, please contact the City at 505 FOREST AVE, LAGUNA BEACH, CA 92651or via email to Ulises Escalona at uescalona@lagunabeachcity.net. All requests for formal tribal consultation, pursuant to AB 52, must be received within **30 days** of receipt of this notice. Please include in any request the name of the designated lead contact person. If you have any questions, please don't hesitate to contact Ulises Escalona at uescalona@lagunabeachcity.net.

Sincerely,

Ulises Escalona

Ulises Escalona
Senior Project Manager
City of Laguna Beach
Attn: NCI Reach 5 Replacement Project
505 Forest Avenue
Laguna Beach, California 92651

Attachments: Figure 1, Project Location Map

SOURCE: USGS 7.5-Minute Series San Juan Capistrano, Laguna Beach, Dana Point Quadrangles
Township 7S, 8S; Range 8W, 9W; Sections 4, 5, 6, 28, 29, 30, 31, 32, 33, 36

DUDEK

0 285 570 Meters

0 1,000 2,000 Feet

Figure 1
Project Location
NCI Reach 5

April 1, 2024

Robert F. Dorame
Chairperson
Gabrielino Tongva Indians of California Tribal Council
P.O. Box 490
Bellflower CA 90707

Re: ***Formal Assembly Bill 52 Notification for the North Coast Interceptor Reach 5 Replacement Project, City of Laguna Beach, California***

Dear Mr. Dorame

Pursuant to California Assembly Bill (AB) 52, the City of Laguna Beach (City), as Lead Agency pursuant to the California Environmental Quality Act, is providing you with formal notification of the North Coast Interceptor (NCI) Reach 5 Replacement Project (proposed Project), located in the City of Laguna Beach, in Orange County, California. The City is reaching out to all groups that have formally requested in writing AB 52 notification from the City for eligible projects under their jurisdiction.

Project Description and Location

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The proposed Project is located within Aliso Creek Canyon in the City of Laguna Beach, California. The Project will consist of the installation and rehabilitation of approximately 6,100 linear feet of dual 18-inch high density polyethylene pipelines, running from the intersection of Coast Highway at County Club Drive, to just west of the SOCWA CTP. The Project area is located within Section 6 of Township 8 South and Range 8 West; Sections 31 and 32 of Township 7 South and Range 8 West; and within Lot 39 of the Rancho Niguel Land Grant all within the San Juan Capistrano, Laguna Beach, and Dana Point U.S. Geological Survey 7.5-minute series quadrangle maps (Figure 1, Project Location).

Project Involves Ground Disturbance: Yes

Summary of Cultural Resources Identification Efforts

Cultural resources identification efforts undertaken for the proposed Project include a California Historical Resources Information System (CHRIS) records search conducted by Dudek on February 28, 2024, at the South Central Coastal Information Center, a review of historical topographic maps and aerial imagery, and a cultural resources field survey conducted by Dudek on March 12, 2024.

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Consultation Request

If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in California Public Resources Code § 21074) in relation to the proposed Project, or would like to request any additional information, please contact the City at 505 FOREST AVE, LAGUNA BEACH, CA 92651or via email to Ulises Escalona at uescalona@lagunabeachcity.net. All requests for formal tribal consultation, pursuant to AB 52, must be received within **30 days** of receipt of this notice. Please include in any request the name of the designated lead contact person. If you have any questions, please don't hesitate to contact Ulises Escalona at uescalona@lagunabeachcity.net.

Sincerely,

Ulises Escalona

Ulises Escalona
Senior Project Manager
City of Laguna Beach
Attn: NCI Reach 5 Replacement Project
505 Forest Avenue
Laguna Beach, California 92651

Attachments: Figure 1, Project Location Map

SOURCE: USGS 7.5-Minute Series San Juan Capistrano, Laguna Beach, Dana Point Quadrangles
Township 7S, 8S; Range 8W, 9W; Sections 4, 5, 6, 28, 29, 30, 31, 32, 33, 36

DUDEK

0 285 570 Meters

0 1,000 2,000 Feet

Figure 1

Project Location

NCI Reach 5

April 1, 2024

Anthony Morales
Chairperson
Gabrieleno/Tongva San Gabriel Band of Mission Indians
P.O. Box 693
San Gabriel, CA 91778

Re: Formal Assembly Bill 52 Notification for the North Coast Interceptor Reach 5 Replacement Project, City of Laguna Beach, California

Dear Mr. Morales

Pursuant to California Assembly Bill (AB) 52, the City of Laguna Beach (City), as Lead Agency pursuant to the California Environmental Quality Act, is providing you with formal notification of the North Coast Interceptor (NCI) Reach 5 Replacement Project (proposed Project), located in the City of Laguna Beach, in Orange County, California. The City is reaching out to all groups that have formally requested in writing AB 52 notification from the City for eligible projects under their jurisdiction.

Project Description and Location

The proposed Project involves the replacement of the existing NCI Reach 5 through Aliso Creek Canyon by a combination of open trench, horizontal directional drill installation, and slip lining. The goal of the Project is to completely replace the NCI Reach 5 with new dual parallel pipelines that provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater to the South Orange County Wastewater Authority (SOCWA) Coastal Treatment Plant (CTP).

The proposed Project is located within Aliso Creek Canyon in the City of Laguna Beach, California. The Project will consist of the installation and rehabilitation of approximately 6,100 linear feet of dual 18-inch high density polyethylene pipelines, running from the intersection of Coast Highway at County Club Drive, to just west of the SOCWA CTP. The Project area is located within Section 6 of Township 8 South and Range 8 West; Sections 31 and 32 of Township 7 South and Range 8 West; and within Lot 39 of the Rancho Niguel Land Grant all within the San Juan Capistrano, Laguna Beach, and Dana Point U.S. Geological Survey 7.5-minute series quadrangle maps (Figure 1, Project Location).

Project Involves Ground Disturbance: Yes

Summary of Cultural Resources Identification Efforts

Cultural resources identification efforts undertaken for the proposed Project include a California Historical Resources Information System (CHRIS) records search conducted by Dudek on February 28, 2024, at the South Central Coastal Information Center, a review of historical topographic maps and aerial imagery, and a cultural resources field survey conducted by Dudek on March 12, 2024.

The CHRIS records search did not identify any cultural resources intersecting with the proposed Project. A review of historic topographic maps and aerial imagery indicate that the Project area has been subject to past ground disturbances associated with agricultural practices and the development of existing private and SOCWA infrastructure.

The results of the cultural resources field survey **positively identified** a Native American cultural resource abutting the proposed Project. This resource consists of a small rock shelter with an associated pre-contact shell midden deposit. Cultural resources documentation detailing the identification efforts in support of this Project can be provided upon request.

Consultation Request

If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in California Public Resources Code § 21074) in relation to the proposed Project, or would like to request any additional information, please contact the City at 505 FOREST AVE, LAGUNA BEACH, CA 92651or via email to Ulises Escalona at uescalona@lagunabeachcity.net. All requests for formal tribal consultation, pursuant to AB 52, must be received within **30 days** of receipt of this notice. Please include in any request the name of the designated lead contact person. If you have any questions, please don't hesitate to contact Ulises Escalona at uescalona@lagunabeachcity.net.

Sincerely,

Ulises Escalona

Ulises Escalona
Senior Project Manager
City of Laguna Beach
Attn: NCI Reach 5 Replacement Project
505 Forest Avenue
Laguna Beach, California 92651

Attachments: Figure 1, Project Location Map

SOURCE: USGS 7.5-Minute Series San Juan Capistrano, Laguna Beach, Dana Point Quadrangles
Township 7S, 8S; Range 8W, 9W; Sections 4, 5, 6, 28, 29, 30, 31, 32, 33, 36

DUDEK

0 285 570 Meters

0 1,000 2,000 Feet

Figure 1

Project Location

NCI Reach 5

April 1, 2024

Sam Dunlap
Cultural Resource Director
Gabrieleno-Tongva Nation
P.O. Box 3919
Seal Beach, CA 90740

Re: ***Formal Assembly Bill 52 Notification for the North Coast Interceptor Reach 5 Replacement Project, City of Laguna Beach, California***

Dear Mr. Dunlap

Pursuant to California Assembly Bill (AB) 52, the City of Laguna Beach (City), as Lead Agency pursuant to the California Environmental Quality Act, is providing you with formal notification of the North Coast Interceptor (NCI) Reach 5 Replacement Project (proposed Project), located in the City of Laguna Beach, in Orange County, California. The City is reaching out to all groups that have formally requested in writing AB 52 notification from the City for eligible projects under their jurisdiction.

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The proposed Project is located within Aliso Creek Canyon in the City of Laguna Beach, California. The Project will consist of the installation and rehabilitation of approximately 6,100 linear feet of dual 18-inch high density polyethylene pipelines, running from the intersection of Coast Highway at County Club Drive, to just west of the SOCWA CTP. The Project area is located within Section 6 of Township 8 South and Range 8 West; Sections 31 and 32 of Township 7 South and Range 8 West; and within Lot 39 of the Rancho Niguel Land Grant all within the San Juan Capistrano, Laguna Beach, and Dana Point U.S. Geological Survey 7.5-minute series quadrangle maps (Figure 1, Project Location).

Project Involves Ground Disturbance: Yes

Summary of Cultural Resources Identification Efforts

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The CHRIS records search did not identify any cultural resources intersecting with the proposed Project. A review of historic topographic maps and aerial imagery indicate that the Project area has been subject to past ground disturbances associated with agricultural practices and the development of existing private and SOCWA infrastructure.

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Consultation Request

If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in California Public Resources Code § 21074) in relation to the proposed Project, or would like to request any additional information, please contact the City at 505 FOREST AVE, LAGUNA BEACH, CA 92651or via email to Ulises Escalona at uescalona@lagunabeachcity.net. All requests for formal tribal consultation, pursuant to AB 52, must be received within **30 days** of receipt of this notice. Please include in any request the name of the designated lead contact person. If you have any questions, please don't hesitate to contact Ulises Escalona at uescalona@lagunabeachcity.net.

Sincerely,

Ulises Escalona

Ulises Escalona
Senior Project Manager
City of Laguna Beach
Attn: NCI Reach 5 Replacement Project
505 Forest Avenue
Laguna Beach, California 92651

Attachments: Figure 1, Project Location Map

SOURCE: USGS 7.5-Minute Series San Juan Capistrano, Laguna Beach, Dana Point Quadrangles
Township 7S, 8S; Range 8W, 9W; Sections 4, 5, 6, 28, 29, 30, 31, 32, 33, 36

0 285 570 Meters
0 1,000 2,000 Feet

Figure 1
Project Location
NCI Reach 5

April 1, 2024

Christina Conley
Cultural Resource Directory
Gabrielino Tongva Indians of California Tribal Council
P.O. Box 941078
Simi Valley, CA 93094

Re: ***Formal Assembly Bill 52 Notification for the North Coast Interceptor Reach 5 Replacement Project, City of Laguna Beach, California***

Dear Ms. Conley

Pursuant to California Assembly Bill (AB) 52, the City of Laguna Beach (City), as Lead Agency pursuant to the California Environmental Quality Act, is providing you with formal notification of the North Coast Interceptor (NCI) Reach 5 Replacement Project (proposed Project), located in the City of Laguna Beach, in Orange County, California. The City is reaching out to all groups that have formally requested in writing AB 52 notification from the City for eligible projects under their jurisdiction.

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The proposed Project is located within Aliso Creek Canyon in the City of Laguna Beach, California. The Project will consist of the installation and rehabilitation of approximately 6,100 linear feet of dual 18-inch high density polyethylene pipelines, running from the intersection of Coast Highway at County Club Drive, to just west of the SOCWA CTP. The Project area is located within Section 6 of Township 8 South and Range 8 West; Sections 31 and 32 of Township 7 South and Range 8 West; and within Lot 39 of the Rancho Niguel Land Grant all within the San Juan Capistrano, Laguna Beach, and Dana Point U.S. Geological Survey 7.5-minute series quadrangle maps (Figure 1, Project Location).

Project Involves Ground Disturbance: Yes

Summary of Cultural Resources Identification Efforts

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Consultation Request

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Sincerely,

Ulises Escalona

Ulises Escalona
Senior Project Manager
City of Laguna Beach
Attn: NCI Reach 5 Replacement Project
505 Forest Avenue
Laguna Beach, California 92651

Attachments: Figure 1, Project Location Map

SOURCE: USGS 7.5-Minute Series San Juan Capistrano, Laguna Beach, Dana Point Quadrangles
Township 7S, 8S; Range 8W, 9W; Sections 4, 5, 6, 28, 29, 30, 31, 32, 33, 36

DUDEK

0 285 570 Meters

0 1,000 2,000 Feet

Figure 1

Project Location

NCI Reach 5

GABRIELENO BAND OF MISSION INDIANS - KIZH NATION
Historically known as The Gabrielino Tribal Council - San Gabriel Band of Mission Indians
recognized by the State of California as the aboriginal tribe of the Los Angeles basin

April 16, 2024

Project Name: North Coast Interceptor Rach 5 Replacement Project, City of Laguna Beach, CA

Dear Ulises Escalona,

Thank you for your letter dated April 1,2024 regarding AB52 consultation. The above proposed project location is within our Ancestral Tribal Territory; therefore, our Tribal Government requests to schedule a consultation with you as the lead agency, to discuss the project and the surrounding location in further detail.

Please contact us at your earliest convenience. ***Please Note:AB 52, "consultation" shall have the same meaning as provided in SB 18 (Govt. Code Section 65352.4).***

Thank you for your time,

Andrew Salas, Chairman
Gabrieleno Band of Mission Indians – Kizh Nation
1(844)390-0787

C.C.R.P.A.
Preserving The Past For The Future

California Cultural Resource Preservation Alliance, Inc.
P.O. Box 54132
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An alliance of American Indian and scientific communities working for the preservation of archaeological sites and other cultural resources.

April 27, 2024

Ulises Escalona
Senior Project Manager
City of Laguna Beach

VIA email

Re: NCI Reach 5 Replacement Project

Dear Ulises Escalona:

Thank you for the opportunity to comment on the NCI Reach 5 Replacement Project. Aliso Creek Canyon was densely populated prior to European contact and numerous archaeological sites are present. Although the project area has been subject to past ground disturbance and archaeological resources were not located within the proposed project area, there is the potential for buried archaeological resources. Archaeological sites have been discovered beneath a freeway offramp as well as plowed agricultural fields. Therefore, it is recommended that a qualified archaeologist and culturally related Native American be present to monitor construction in areas where ground disturbance has not been extensive.

Sincerely,

Patricia Martz

Patricia Martz, Ph.D.
President

Confidential Appendix D

Cultural Resources Overview Map and Department of Parks and Recreation 523 Forms

Confidential Appendix E

Field Forms

Appendix D

Geotechnical Evaluation

Geotechnical Evaluation

North Coast Interceptor Reach 5 Replacement Project

Laguna Beach, California

Dudek
605 Third Street | Encinitas, California 92024

August 31, 2023 | Project No. 212121001

Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

Ninyo & Moore
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35+ YEARS

Geotechnical Evaluation

North Coast Interceptor Reach 5 Replacement Project

Laguna Beach, California

Mr. Russ Bergholz
Dudek
605 Third Street | Encinitas, California 92024

August 31, 2023 | Project No. 212121001

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1 INTRODUCTION

In accordance with your request and authorization, Ninyo & Moore has performed a geotechnical evaluation for the proposed City of Laguna Beach North Coast Interceptor (NCI) Reach 5 Replacement Project in Laguna Beach, California (Figure 1). Our services were performed in general accordance with our referenced proposal dated June 29, 2022. The purpose of our study was to evaluate the soil, geologic, and groundwater conditions at the site in order to provide geotechnical recommendations for the design and construction of the pipelines. The primary geotechnical considerations for this project included evaluating the depth to bedrock where the proposed horizontal directional drilling (HDD) alignment crosses through a former canyon that was infilled and to characterize the two different bedrock units that will be encountered during HDD.

An earlier draft of this report dated May 19, 2023, was sent to the design team for review and comment. After our draft report was issued, the length of the HDD portion of the alignment was reduced so that the western end of the HDD would begin in the parking lot at The Ranch Golf Resort instead of near the South Coast Water District (SCWD) Lift Station No. 2 (LS-2). The depth of the HDD alignment was also reduced. This report presents our geotechnical findings, conclusions, and recommendations regarding the project improvements.

2 SCOPE OF SERVICES

Our scope of services included the following:

- Project coordination, planning, and scheduling of the subsurface exploration.

- Review of readily available background material, including published geologic maps, fault and seismic hazards maps, groundwater data, topographic maps, stereoscopic aerial photographs, project-related plans, and in-house reports and boring logs.

- Permit acquisition from the County of Orange Department of Environmental Health for drilling into groundwater.

- Geologic reconnaissance and geologic mapping at the site by a registered State of California Certified Engineering Geologist. The geologic reconnaissance included a field evaluation of the slopes along the alignment, geologic mapping of visible and accessible geologic exposures, and evaluation of potential geotechnical issues at the site. During the field reconnaissance, we also marked the boring locations for utility clearance by Underground Service Alert.

- Subsurface exploration consisting of the drilling, sampling, and logging of two rock core borings to depths of approximately 120 feet below the ground surface. The borings were logged by representatives of our firm, and bulk and relatively undisturbed soil and bedrock samples were collected at selected intervals for laboratory testing.

- Laboratory testing on selected samples, including evaluation of in-situ moisture and dry density, gradation analysis, percentage of particles finer than the No. 200 sieve, soil corrosivity, and unconfined compression of bedrock samples.
- Compilation and geotechnical engineering analysis of data from our background review, subsurface exploration, and laboratory testing.
- Preparation of this report presenting our findings, conclusions, and recommendations pertaining to the geotechnical aspects of the design and construction of the proposed improvements.

3 SITE DESCRIPTION AND PROPOSED CONSTRUCTION

Based on our review of the request for proposal (RFP) for the project issued by the City, the NCI Reliability Assessment & Analysis, and on our discussions with you, we understand that the project will consist of replacing an approximately 1.15 mile-long segment of 24-inch asbestos cement pipe that is located within Aliso Canyon, from Pacific Coast Highway to the South Orange County Wastewater Authority's (SOCWA) Coastal Treatment Plant (CTP) (Figure 2). The existing pipeline will be replaced with two new 18- to 22-inch-diameter high-density polyethylene (HDPE) pipes that will be constructed parallel to each other. We anticipate that the distance between the pipelines will be approximately 20 feet. The new pipelines will be constructed using open trench construction and trenchless methods.

Open trench construction is planned for approximately 700 feet from Pacific Coast Highway up to the South Coast Water District (SCWD) Lift Station No. 2 (LS-2), which will be replaced with a new lift station in the near future. The area near LS-2 will be regraded and Country Club Drive will be realigned as part of the lift station replacement project. From LS-2, open trench construction is also planned for approximately 1,000 feet to the parking lot at The Ranch Resort Golf Course. The pipelines will then be constructed using HDD over a distance of approximately 1,400 feet to the northeast-end of The Ranch Resort Golf Course. From this point, open cut trenching is planned for the remaining approximately 2,100 feet along an existing access road adjacent to Aliso Creek. Microtunneling beneath Aliso Creek will then be utilized to construct the pipelines to the connection point at the SOCWA CTP.

Where trenchless methods are used, launching and receiving pits will be excavated below the invert depth in order to install the pipeline. Temporary shoring is anticipated for the trenches and the launching and receiving pits, and we anticipate that dewatering will be performed for excavations extending below the groundwater table. The project will also include the replacement of pavement after backfilling of the trenches and access pits.

Ground surface elevations along the alignment within the open trench zones range from approximately 20 feet above mean sea level (MSL) at the west end of the alignment near LS-2 to approximately 60 feet above MSL at the east end of the alignment near the SOCWA CTP (National Oceanic and Atmospheric Administration, 2022). The ground surface elevations within the trenchless zone are as high as approximately 230 feet above MSL. Based on plans provided by Dudek and our review of topographic maps, portions of the HDD alignment may be up to approximately 200 feet below the ground surface with an invert elevation as low as approximately 20 feet MSL. It should be noted that the elevations and depths discussed above are preliminary and subject to change. Excavations for the access pits and trenches are anticipated to be on the order of 20 feet deep. The proposed alignment is shown on Figure 2. A cross section showing the elevations of the trenchless zone is presented on Figure 7.

We also reviewed aerial photographs of the site vicinity dating back to 1938 (Historic Aerials, 2023). Aliso Creek previously ran through the southern section of the parking lot at The Ranch Resort Golf Course before development of the resort. Construction of the resort occurred in the early 1950’s and included excavating the adjacent slope to the northeast and filling a tributary canyon to create a relatively level area for the existing parking lot. This grading diverted Aliso Creek to its current location.

4 SUBSURFACE EVALUATION AND LABORATORY TESTING

Our subsurface exploration was performed on January 3 and 4, 2023, and February 2 and 3, 2023, and consisted of the drilling, logging, and sampling of two rock core borings using a truck-mounted drill rig. The borings were drilled to a depth of approximately 120 feet below the ground surface to capture the subsurface characteristics of the bedrock. The borings were initially drilled using 8-inch diameter hollow-stem augers with drilling mud and converted to a HQ3 wireline coring system (triple-barrel with HQ diamond cores [2½ inch diameter]) when bedrock was encountered. The approximate locations of the exploratory borings are shown on Figures 2 and 7.

Access for conventional truck-mounted rock core drill rigs over the majority of the HDD alignment was not possible due to the steep hillside terrain except for the area where the HDD alignment exits within the parking lot at the golf resort. Boring B-1 was drilled within this parking lot to characterize the thickness of fill/alluvium and the depth to the mapped San Onofre Breccia bedrock. Boring B-2 was originally planned near the green of Hole 9; however, the location was moved further to the south based on the results of our geologic mapping and review of regional geologic maps. Although boring B-2 was shifted away from the pipeline alignment, this location was selected to characterize the bedrock that comprises the hard, resistant ridge that extends in a southerly direction into Aliso Canyon. This hard, resistant ridge was anticipated to have harder bedrock conditions based on the bedrock outcrops. Furthermore, some of the regional geologic maps show northerly to northwesterly trending faults in this area. This boring location was considered to have the higher probability of capturing the harder more resistant bedrock of the Topanga Formation and potentially capture the highly fractured and sheared bedrock associated with the faulting.

The borings and rock cores were logged by a representative from our firm and bulk and relatively undisturbed soil samples were obtained at selected depths for laboratory testing. The rock cores were placed in core boxes for storage. The borings were backfilled with cement-bentonite grout. The logs of the exploratory borings are presented in Appendix A.

Our scope of work for the project also included reviewing existing geotechnical information along the project alignment. Ninyo & Moore previously performed geotechnical evaluations for the SCWD LS-2 Force Main Rehabilitation Project (Ninyo & Moore, 2018b) that follows the same general alignment as the existing NCI Reach 5 pipeline within the cut-and-cover segments and the SCWD LS-2 Replacement Project (Ninyo & Moore, 2020) located adjacent to where the launching pit for the trenchless construction is planned. Previous geotechnical evaluations for the SCWD force main have also been performed by others, including a Preliminary Design Report by Tetra Tech (2014). Subsurface exploration and boring logs performed by Leighton Consulting, Mactec, and Arroyo Geotechnical were included in Tetra Tech's 2014 report. The locations of the previous borings and cone penetration tests (CPT) are presented on Figures 2 and 3. Figure 3 presents a close-up view of the locations of the previous borings and CPTs next to LS-2. Copies of the previous boring logs and CPT soundings are included in Appendix B.

Laboratory testing of representative soil and bedrock samples was performed to evaluate in-situ moisture and dry density, gradation analysis, percentage of particles finer than the No. 200 sieve, soil corrosivity, and unconfined compression of bedrock samples. The results of our in-situ moisture content and dry density tests are presented on the boring logs in Appendix A. The remaining laboratory testing results are presented in Appendix C. Pertinent previous laboratory testing results are included Appendix D.

For the purpose of characterizing the auger cuttings prior to disposal off-site, composite samples of the drummed materials were collected in glass jars, placed into a chilled container, and submitted to SunStar Laboratories, a state-certified laboratory for analysis. The soil samples were analyzed for the presence of Total Petroleum Hydrocarbons, Title 22 Metals, and Volatile Organic Compounds in general accordance with United States Environmental Protection Agency Methods

8015B, 6010B/7471A, and 8260B, respectively. The samples were classified as non-hazardous waste and the drums were disposed of offsite.

5 GEOLOGIC AND SUBSURFACE CONDITIONS

5.1 Regional Geology

The project site is located in in the Peninsular Ranges Geomorphic Province of Southern California (Norris and Webb, 1990). The province is characterized by northwest to southeast trending mountain ranges and valleys and similarly trending strike-slip faults associated with the boundary between the North American and Pacific tectonic plates. In general, the mountain ranges are underlain by Jurassic-age metavolcanic and metasedimentary rocks and Cretaceous-age igneous rocks of the southern California batholith. The alignment is located in southern Orange County in the San Joaquin Hills. The San Joaquin Hills consist of a series of generally northwest trending hills bounded by the Los Angeles Basin on the north, the Pacific Ocean on the southwest, and the Santa Ana Mountains and San Juan Creek on the east and south. Aliso Creek meanders through a deep canyon with moderately to steeply-sloped hillsides. Alluvium derived from the surrounding highlands has filled the bottom of the canyon to variable depths and has been incised by Aliso Creek to form paired stream terraces adjacent to the active stream channel.

Based on our field reconnaissance and the referenced geologic maps of the area, the hillsides along the project alignment are generally underlain by bedrock consisting of Miocene-age San Onofre Breccia on the west and Miocene-age Topanga Formation on the east. The San Onofre Breccia generally consists of massive to well-bedded, well-indurated breccia with interbedded conglomerate, sandstone, siltstone, and mudstone (Morton and Miller, 2006). The Topanga Formation generally consists of marine sandstone, siltstone, and shale (Morton and Miller, 2006). The proposed cut-and-cover segments of the pipeline are mapped in Holocene-age alluvial deposits consisting of unconsolidated sand, silt, and clay (Morton and Miller, 2006). Multiple regional geologic maps have been prepared that cover the Aliso Canyon area. Therefore, we have included three maps of the regional geology at the site on Figure 4 (Morton and Miller, 2006), Figure 5 (Morton, Edgington, and Fife, 1974), and Figure 6 (Vedder, Yerkes, and Schoellhamer, 1957). The maps are generally consistent; however, there are slight variations in the geologic boundary between the San Onofre Breccia and the Topanga Formation near the parking lot at The Ranch Resort Golf Course, the location of the faults, and the location and size of the landslides.

Regional mapping of the bedrock structure based on the three geologic maps indicates that bedding of the San Onofre Breccia and Topanga Formation generally dips towards the south and southwest approximately 12 to 35 degrees in the vicinity of the alignment. However, our field mapping indicates that the bedding dips towards the southwest and west ranging from approximately 20 to 47 degrees. Outcrops of the San Onofre Breccia were observed on the natural slope to the west and north of the LS-2 site and outcrops of the Topanga Formation were observed on the natural slope near Holes 7 and 8 of the golf course. Locations of our field measurements of the strike and dip are presented on Figure 7. The bedrock outcrops were generally observed to be well-cemented and massive to thickly bedded.

Regional maps also show that materials that have washed and/or mass-wasted from the surface of the hills have collected at the base of the hills to form slope wash deposits. Several relatively large landslides have also been mapped along the Aliso Canyon. Based on the geologic map by Morton and Miller (2006), a relatively large landslide is located on a south facing slope near the east end of the main alignment (Figure 4). We observed another landslide during our field reconnaissance within the prior cut slope to the northeast of the parking lot at The Ranch Resort Golf Course (Figure 7).

5.2 Site Geology

Earth materials encountered during our subsurface exploration below the pavement consisted of undocumented fill, alluvium, and bedrock materials of the San Onofre Breccia and Topanga Formation. A general description of the subsurface materials that we encountered is provided below. Detailed descriptions of the subsurface materials are presented on the boring logs and CPT soundings in Appendices A and B, respectively. The soil/rock and groundwater conditions encountered in our borings are similar to the conditions described in the borings performed by others. Geologic maps of the site are presented on Figure 4 through 6 and a cross section depicting our interpretation of the subsurface conditions is presented on Figure 7.

5.2.1 Pavement Sections

Approximately 3 inches of asphalt concrete pavement was encountered in boring B-1. The pavement sections encountered in the prior borings in the project area consisted of approximately 3 to 8 inches of asphalt concrete underlain by approximately 1 to 18 inches of base material generally consisting of loose to medium dense, silty sand with gravel.

5.2.2 Undocumented Fill

Undocumented fill was encountered in borings B-1 and B-2 to depths of approximately 4 and 5 feet below the ground surface, respectively. Fill was encountered in the prior borings in the project area up to a depth of approximately 8 feet below the ground surface. The fill generally consisted of loose to medium dense silty sand and poorly graded sand, and firm lean clay with variable amounts of gravel. Asphalt, concrete, and brick fragments were also encountered in the fill. Deeper fill related to construction of The Ranch Resort Golf Course should be anticipated in some areas.

5.2.3 Alluvium (Qal)

Alluvium was encountered underlying the fill in borings B-1 and B-2 to depths of approximately 62½ and 16 feet, respectively. The alluvium generally consisted of moist to wet, loose to dense, silty sand, clayey sand, poorly graded sand with silt, poorly graded sand, and sandy silt, and firm to hard, lean clay. Variable amounts of gravel were encountered in the alluvium.

5.2.4 Slopewash (Qsw)

Slopewash was observed on the northerly ascending slopes along the alignment and drainage gullies above the site. The slopewash generally consisted of unconsolidated to moderately consolidated silty sand with gravel and scattered cobbles. The slopewash is anticipated to be interfingered with the alluvium at the base of slopes against the bedrock. The slopewash and alluvium is undifferentiated in our boring logs.

5.2.5 Landslide Deposits (Qls)

Landslide deposits consisting of displaced bedrock were encountered below the alluvium in the prior borings (boring B-6 [Ninyo & Moore, 2020] and borings LB-4, MB-5, and MB-6 [Leighton Consulting, 2014]) at depths ranging from approximately 10 to 25 feet below the ground surface. The landslide deposits extended to the total depths explored in borings B-6 and LB-4 of approximately 21½ to 31½ feet, respectively. Topanga Formation was encountered at a depth of approximately 45 feet in boring MB-5 and San Onofre Breccia was encountered at a depth of approximately 53 feet in boring MB-6. The landslide deposits generally consisted of slightly friable to moderately cemented sandstone with interbedded layers of conglomeratic sandstone and strongly cemented sandstone.

5.2.6 Bedrock – San Onofre Breccia (Tso)

Bedrock materials of the San Onofre Breccia were encountered underlying the alluvium at a depth of approximately 62½ feet in boring B-1 to the total depth explored of approximately 120 feet below the ground surface. The San Onofre Breccia was also encountered at depths ranging from approximately 23 to 40 feet below the ground surface within the footprint of the LS-2 site (Ninyo & Moore, 2020) and at a depth of approximately 53 feet below the ground surface in MB-6 (Leighton Consulting, 2014). The San Onofre Breccia generally consisted of bluish gray, moist to wet, very soft to extremely hard, weakly to strongly cemented, moderately fractured to unfractured, coarse-grained sandstone and sandstone with angular gravel (breccia). Interbedded claystone layers were encountered at a depth interval from 110 to 120 feet below the ground surface. The bedrock was observed to be intensely weathered near the contact with the overlying alluvium and became less weathered with depth. Hardness varied with depth depending on the degree of cementation.

5.2.7 Bedrock – Topanga Formation (Tt)

Bedrock materials of the Topanga Formation were encountered underlying the alluvium in boring B-2 at a depth of approximately 16 feet to the total depth explored of approximately 120 feet. The Topanga Formation was also encountered at a depth of approximately 46 feet below the ground surface in MB-5 (Leighton Consulting, 2014). The Topanga Formation generally consisted of light brown to gray, moist to wet, very soft to hard, weakly to strongly cemented, intensely fractured to moderately fractured, fine- to coarse-grained sandstone, and strongly indurated siltstone. The bedrock was observed to be intensely weathered near the contact with the overlying alluvium and became less weathered with depth. Hardness varied with depth depending on the degree of cementation.

5.3 Groundwater

Groundwater was observed at the time of drilling in boring B-2 at a depth of approximately 10 feet below the ground surface. Since drilling mud was utilized in boring B-1, we were not able to obtain a groundwater measurement. Groundwater was observed in the borings during the prior subsurface investigations at depths ranging from approximately 6 to 16 feet below the ground surface. However, groundwater was not encountered in some of the previous borings on the eastern side of the alignment (east of B-5 [Ninyo & Moore, 2018]). The groundwater depth observed at the time of drilling is not stabilized and conditions will vary. Regional maps indicate that the historic high groundwater level in the vicinity of the site is approximately 5 feet below the ground surface (California Department of Conservation, Division of Mines and Geology [CDMG], 1997 and 2001a). Fluctuations in groundwater levels will occur due to variations in ground surface topography, subsurface stratification, precipitation, irrigation, groundwater pumping, tidal cycles, and other factors which may not have been evident at the time of our field evaluation.

5.4 Geotechnical Engineering Characteristics

The geotechnical engineering characteristics of the subsurface materials were evaluated for the purpose of classifying the sedimentary rocks for tunnel performance and support based on the continuous coring. The tunneling is expected to extend through alluvial deposits, San Onofre Breccia, and Topanga Formation. The zone of tunneling is expected to range from the receiving/launching pits at the ground surface to a depth of approximately 200 feet. The following six parameters were used to develop a Rock Mass Rating (RMR) system (Bieniawski, 1989); 1) unconfined/uniaxial compressive strength of the rock material, 2) Rock Quality Designation (RQD), 3) spacing of discontinuities, 4) condition of discontinuities, 5) groundwater conditions and 6) orientation of discontinuities. The engineering characteristics are typically evaluated at the core locations at the depths of the proposed tunneling. However, based on the limited number of core borings as well as the complex geology related to moderately dipping bedding and faulting, the HDD contractor should consider all of the compressive strength values presented in Appendix C and the RQD designations included on the boring logs. A brief description of each of the parameters and their ratings are presented below.

5.4.1 Unconfined/Uniaxial Compressive Strength

Based on laboratory unconfined compression test results obtained from the rock cores, the unconfined compressive strength of the San Onofre Breccia is expected to range from approximately 60 to 3,530 pounds per square inch (psi) and the unconfined compressive strength of the Topanga Formation is expected to range from 310 to 3,990 psi. In general, weaker materials are expected near the surface. Some of the claystone layers encountered in boring B-1 at a depth ranging from approximately 110 to 115 feet have a lower unconfined compressive strength compared to the other layers. It should be noted that the San Onofre Breccia has cobble and boulder-size clasts of very hard quartzite, schist, and gabbro that may have significantly higher compressive strengths. In addition, considering that the location of boring B-1 that encountered the San Onofre Breccia at depth was located in an infilled canyon, the bedrock materials in this area may be more weathered from previous surface and subsurface water that can reduce the degree of cementation in the bedrock, as compared to the bedrock beyond the infilled canyon area. Some hard siliceous zones with compressive strengths greater than 15,000 psi may be encountered at depth along the proposed tunnel zone. For the purpose of characterizing the rock within the tunnel zone, our laboratory unconfined compression test results correspond to an RMR ranging from 0 to 4.

5.4.2 Rock Quality Designation (RQD)

Calculated values of RQD are contained on the logs of the continuous core borings. RQD values range from 1 to 100, which corresponds to an RMR between 5 to 20.

5.4.3 Spacing of Discontinuities

Based on the continuous logging of the core holes, the spacing of discontinuities, including bedding and fracturing, varied significantly from unfractured to intensely fractured. At the core locations, discontinuity spacing ranged between approximately 8 inches and 7 feet in the zone of tunneling shown on Figure 7. This corresponds to an RMR of 8 to 15.

5.4.4 Condition of Discontinuities

The condition of the discontinuities observed in the core holes consisted of smooth to slightly weathered surfaces and separations ranging from approximately 0.1 millimeter to greater than 5 millimeters wide. Some infilling was observed in the rock in boring B-2. This corresponds to an RMR of 18 to 22.

5.4.5 Groundwater Conditions

Groundwater was encountered in the borings during this subsurface investigation and prior subsurface investigations at depths ranging from approximately 6 to 16 feet below the ground surface. We anticipate dripping conditions for groundwater. Accordingly, the RMR for groundwater is expected to be 4.

5.4.6 Orientation of Discontinuities

Based on our observations, the orientation of the discontinuities is generally fair to unfavorable with regards to the direction of the drive of the tunnel (N18E to N50E) and the average dip direction and the angle of the discontinuities within the zone of tunneling. The strike of the bedding observed during our reconnaissance and presented on the geologic maps varied between approximately N14W to east-west with dips ranging from approximately 14 to 47 degrees to the south-southwest. In general, the direction of the bedding is perpendicular to the proposed tunnel axis to the west of Laguna Canyon fault and is closer to parallel to the proposed tunnel axis to the east of Laguna Canyon fault. This corresponds to an RMR of -5 to -10.

Based on the above information, the total RMR for the San Onofre Breccia and Topanga Formation within the zone of the proposed tunneling at the locations explored ranges from approximately 30 to 60.

6 FAULTING AND SEISMICITY

The site is located in a seismically active area, as is the majority of southern California, and the potential for strong ground motion in the project area is considered significant during the design life of the proposed project. Figure 8 shows the approximate site location relative to the major faults in the region. The site is not located within a State of California Earthquake Fault Zone (EFZ) (formerly known as an Alquist-Priolo Special Studies Zone) (Hart and Bryant, 2018). The nearest mapped active fault to the site is the Newport-Inglewood fault located approximately 2.2 miles southwest of the site (United States Geological Survey [USGS], 2023a). The Laguna Canyon Fault and one unnamed fault are mapped as crossing through the alignment (Figures 4 through 6); however, due to heavy vegetation in the area, we did not observe visible signs of the faults on the surface during our geologic reconnaissance. The faults are not considered to be active as defined by the California Geological Survey (CGS), which are faults that have ruptured within Holocene time, or within approximately the last 11,000 years.

In general, seismic hazards that could impact the project include fault rupture, strong ground motion, liquefaction, and landsliding. These potential hazards are discussed in the following sections.

6.1 Fault Rupture

Based on our review of the referenced literature, no active faults are known to cross the project site. Therefore, the probability of damage from surface and/or subsurface fault rupture is considered to be low. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

6.2 Ground Motion

Considering the proximity of the site to active faults capable of producing a maximum moment magnitude of 6.0 or more, the project area has a high potential for experiencing strong ground motion. The 2022 California Building Code (CBC) specifies that the risk-targeted maximum considered earthquake (MCE_R) ground motion response accelerations be used to evaluate seismic loads for design of buildings and other structures. Based on our review of CGS's shear wave velocity map, the average shear wave velocity in the upper 30 meters (100 feet) of the subsurface profile (V_{S30}) is estimated to be approximately 468 meters per second (1,535 feet per second) (CGS, 2015). In accordance with Chapter 20 of the American Society of Civil Engineers (ASCE) Publication 7-16 (2016) for the Minimum Design Loads and Associated Criteria for Buildings and Other Structures, the site classification is Site Class C.

In accordance with ASCE 7-16, the mapped MCE_R ground motion response accelerations were determined using the 2023 Applied Technology Council (ATC) seismic design tool (web-based). The MCE_R ground motion response accelerations are based on the spectral response accelerations for 5 percent damping in the direction of maximum horizontal response and incorporate a target risk for structural collapse equivalent to 1 percent in 50 years with deterministic limits. Spectral response acceleration parameters, consistent with the 2022 CBC, are provided in Section 8.3 for the evaluation of seismic loads on buildings and other structures.

6.3 Liquefaction

Liquefaction is the phenomenon in which loosely deposited granular soils with silt and clay contents of less than approximately 35 percent and non-plastic silts located below the water table undergo rapid loss of shear strength when subjected to strong earthquake-induced ground shaking. Ground shaking of sufficient duration results in the loss of grain-to-grain contact due to a rapid rise in pore water pressure, and causes the soil to behave as a fluid for a short period of time. Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet below the ground surface. Factors known to influence liquefaction potential include composition and thickness of soil layers, grain size, relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking.

According to the State of California Seismic Hazards Zones maps (CDMG, 1998 and 2001b), the alluvial areas of Aliso Canyon are mapped as potentially susceptible to seismically induced liquefaction (Figure 9). The portions of the pipeline underlain by bedrock will not be susceptible to liquefaction. The liquefaction-induced dynamic settlement was evaluated as part of our geotechnical evaluation for LS-2 and was estimated to be approximately 4½ inches at the ground surface. Differential settlement could occur near the contacts between the liquefiable alluvium and the non-liquefiable bedrock.

6.4 Landsliding

Landslides, slope failures, and debris flows of earth materials generally occur where slopes are steep and the earth materials are too weak to support themselves. Steep slopes are present along Alison Canyon so there is a potential of slope failure along the alignment. Landslides may be induced by strong vibratory motion produced by earthquakes. The process for zoning earthquake-induced landslides incorporates expected future earthquake shaking, existing landslide features, slope gradient, and strength of earth materials on the slope. Several relatively large landslides have been mapped along Aliso Canyon (Morton and Miller, 2006) and indications of landslides were observed during our geologic reconnaissance. A majority of the alignment is mapped in or is downslope from areas considered susceptible to seismically induced landslides (CDMG, 1998 and 2001b) (Figure 9). Landslides are not anticipated to be a design consideration in the HDD area based on the depth of the pipelines. Evaluation of the stability of the large mapped landslide near the east end of the alignment was beyond the scope of this study that was focused on characterizing the conditions for HDD.

7 CONCLUSIONS

Based on the results of our evaluation, it is our opinion that the NCI Reach 5 Replacement Project is feasible from a geotechnical perspective, provided the recommendations presented in this report are incorporated into the design and construction of the project. As described above, one of the primary geotechnical considerations for the project is the engineering characteristics of the bedrock materials that will be encountered during HDD. Due to the complex geology including moderately dipping bedding, faulting, highly variable bedrock cementation/hardness, highly variable fracture intensity, as well as very hard cobbles and boulder size rocks that comprise the conglomerate and breccia layers in the San Onofre breccia bedrock, frequent changes in tunneling conditions should be anticipated and planned for by the contractor.

In general, the cementation level and hardness of the samples from the San Onofre Breccia collected in boring B-1 were observed to be lower than the cementation level and hardness of the samples from the Topanga Formation collected in boring B-2. Similarly, the percentage of recovery and the RQD of the samples collected from boring B-1 were generally lower than the percentage of recovery and the RQD of the samples collected from boring B-2. However, based on the hard, resistant outcrops exposed along Country Club Drive and exposed on the hillside terrain, the reduced cementation, hardness, and lower RQD's encountered in boring B-1 may be the result of increased weathering from surface and subsurface water in the infilled tributary canyon where the boring was drilled.

Difficult tunneling operations should be anticipated in the very hard rock in both the San Onofre Breccia and the Topanga Formation, and transitions between hard and soft rock should be planned for. Furthermore, based on the outcrop exposures and our experience with the San Onofre Breccia, increased drilling effort should be anticipated where very hard cobble and boulder clasts within the conglomerate and breccia layers of the San Onofre Breccia bedrock.

Based on our review of geologic maps, the Laguna Canyon Fault and an unnamed fault cross through the project alignment. No visible signs of the faults were observed at the ground surface during our geologic reconnaissance due to heavy vegetation in the area. Even though the faults are not considered active, there has been historical movement of the subsurface materials within the fault zones. Boring B-2 was drilled near the mapped trace of the Laguna Canyon Fault in an effort to characterize the bedrock materials in the fault zone as well as to characterize the Topanga Formation bedrock that forms the hard, resistant ridge near the middle of the HDD alignment.

However, the boring did not encounter a clay fault gouge zone or intense fractures and shearing that would be expected in a fault zone. Although these materials/conditions were not encountered in boring B-2, sharp transitions between different geologic units and intensely fractured and bedrock should be anticipated where the HDD alignment crosses fault zones.

Our scope of work was limited to drilling two widely-spaced borings along the proposed HDD alignment in Aliso Canyon with restricted access issues. Due to the complex geology and depending on the development of various tunneling concepts, additional subsurface exploration should be appropriate to further evaluate the soil/bedrock and groundwater conditions along the alignment. In particular, additional subsurface exploration should be appropriate in the San Onofre Breccia bedrock in areas beyond the tributary canyon area since weathering may have reduced the cementation of the bedrock.

In summary, the primary geotechnical considerations for construction of the planned improvements include difficult tunneling conditions due to very hard bedrock, fractured bedrock, faults, rapid transitions between soft and hard earth materials, and shallow groundwater. In general, the following additional conclusions were made:

- The site is underlain by fill soils, alluvial deposits, slope wash, landslide deposits, San Onofre Breccia, and Topanga Formation. The soils along the alignment vary from loose to dense, silty sand, clayey sand, poorly graded sand with silt, poorly graded sand, and sandy silt, and firm to hard, lean clay. The soils have variable amounts of gravel and contain possible cobbles and boulders. The bedrock materials along the alignment generally consist of very soft to extremely hard, weakly to strongly cemented, intensely fractured to unfractured, sandstone with interbedded siltstone and claystone layers.

- Excavation of the on-site materials should be feasible with excavators, backhoes, or other earthmoving equipment in good working order. Excavating bedrock materials will involve additional effort where conglomerate and cemented sandstone are encountered. Difficult excavating conditions should be anticipated for the launching/receiving pits as well as the actual tunneling operations.

- Intensely fractured bedrock and shear zones may be encountered in the portions of the tunnel alignment crossing through the mapped faults. Highly fractured rock could lead to the loss of drilling fluids during tunneling.

- The Rock Mass Rating of the materials encountered within the zone of tunneling ranges from 30 to 60. This indicates a poor to fair rock quality condition. The rock can be characterized as soft to hard sandstone for the purpose of tunneling.

- Groundwater was encountered in the borings during this subsurface investigation and prior subsurface investigations at depths ranging from approximately 6 feet to 16 feet below the ground surface. However, groundwater was not encountered in some of the previous borings on the eastern side of the alignment (east of B-5 [Ninyo & Moore, 2018]). The groundwater depths observed at the time of drilling are not considered stabilized groundwater conditions and actual depths to groundwater will vary during construction. Historic high groundwater for the site is reported at approximately 5 feet below the ground surface. Shallow groundwater conditions and dewatering during construction should be anticipated.

- Temporary shoring for trenching should be designed by the contractor to support the excavation sidewalls and to reduce the potential for settlement of the adjacent roadway and existing utilities. Excavations and shoring should conform to the Occupational Safety and Health Administration (OSHA) standards for Type C soil.

- Existing utilities are present along the project alignment, including pipelines trending parallel with the subject alignment. Care should be taken to avoid damaging and/or undermining nearby utilities and other adjacent structures. Shoring design and installation procedures should be developed that reduce the potential for damage to existing improvements.

- The on-site excavated materials are generally suitable for re-use as access pit and trench backfill provided that they are free of oversized materials and the material is moisture-conditioned to near the optimum moisture contents. Drying back of wet soils should be anticipated.

- The site is not located within an EFZ with the potential for fault rupture as defined by the Alquist-Priolo Earthquake Fault Zoning Act (Hart and Bryant, 2018).

- Portions of the proposed pipeline alignment are located within areas mapped by the State of California (CDMG, 1998 and 2001b) as being susceptible to earthquake-induced liquefaction and landslides. Soil liquefaction and landsliding during a significant earthquake event could result in pipeline damage. Mitigation measures to reduce damage to pipelines from liquefaction and landsliding may include flexible pipeline material or flexible joints.

- Our laboratory corrosion testing indicates that the site soils can be classified as corrosive based on the California Department of Transportation (Caltrans, 2021) corrosion guidelines.

8 RECOMMENDATIONS

The following sections present our geotechnical recommendations for design and construction of the proposed improvements. These recommendations are based on our evaluation of the site geotechnical conditions and our understanding of the planned construction. The proposed site improvements should be constructed in accordance the following recommendations as well as other applicable governing agencies.

8.1 Earthwork

Based on our review of the conceptual alignment and our understanding of the project, earthwork at the site is anticipated to consist of site clearing, open cut trenching, excavation of launching and receiving pits, tunneling, and backfilling of trenches and access pits. Work within the public right-of-way for trenched excavations should comply with the requirements of the “Greenbook” Standard Specifications for Public Works Construction. Earthwork should be performed in accordance with the requirements of applicable governing agencies and the recommendations presented in the following sections.

8.1.1 Site Clearing

Prior to performing site excavations, the alignment should be cleared of surface obstructions, debris, abandoned utilities, and other deleterious materials. Existing utilities within the project limits should be re-routed or protected from damage by construction activities. Obstructions that extend below finish grade, if any, should be removed and the resulting holes filled with compacted soils. Materials generated from the clearing operations should be removed from the project site and disposed at a legal dumpsite.

8.1.2 Excavation Characteristics

Based on our subsurface exploration and experience, we anticipate that excavations within fill, alluvium, slope wash, landslide deposits, and bedrock at the site may be accomplished with heavy earthmoving equipment, including backhoes, excavators, or other trenching equipment in good condition. We anticipate that the soils along the alignment will vary from loose to dense, silty sand, clayey sand, poorly graded sand with silt, poorly graded sand, and sandy silt, and firm to hard, lean clay, with interbeds of gravel and cobble-size material. Displaced bedrock materials within the landslide deposits contained some beds that were cemented or contained conglomeratic layers. Bedrock materials may involve additional effort where conglomerate and cemented sandstone are encountered. Difficult excavating conditions should be anticipated for the launching/receiving pits as well as the actual tunneling operations.

8.1.3 Temporary Excavations and Shoring

We recommend that excavations be designed and constructed in accordance with OSHA regulations. The fill, alluvium, and weathered bedrock materials at the project site should be considered as OSHA Type C soil. Based upon the limited working area and the presence of shallow groundwater, temporary excavations are not expected to remain stable during construction. We anticipate that a slide rail (beam and plate) shoring system, trench shield, or sheet piles and bracings will be utilized for the project. Shoring will be required for the launching and receiving pits.

Braced and cantilevered shoring systems should be designed for the anticipated soil conditions using the lateral earth pressure values shown on Figures 10 and 11, respectively. The recommended design earth pressures are based on the assumption that the shoring system is constructed without raising the ground surface elevation behind the shored sidewalls of the excavation, that there are no surcharge loads, such as soil stockpiles and construction materials, and that no loads act above a 1:1 (horizontal to vertical) plane ascending from the base of the shoring system. For a shoring system subjected to the above-mentioned surcharge loads, the contractor should include the effect of these loads on the lateral earth pressures acting on the shored walls.

We anticipate that settlement of the ground surface will occur behind the shoring walls during excavation. The amount of settlement depends heavily on the type of shoring system, the contractor's workmanship, and soil conditions. Based on our experience, we anticipate that beam and/or sheet pile driving may cause settlement and possible impact to structures within distances of up to approximately 50 feet from the shoring operation. We recommend that either the access pits be located more than 50 feet away from existing structures, or if that is not feasible, structures/improvements in the vicinity of the planned shoring installation should be reviewed with regard to foundation support and tolerance to settlement.

To reduce the potential for distress to adjacent structures, we recommend that the shoring system be designed to limit the ground settlement behind the shoring system to ½ inch or less. Possible causes of settlement that should be addressed include settlement during installation of the shoring system, excavation for the access pits, construction vibrations, dewatering, and removal of the support system. The vibrations from the driving of beams and/or sheet piles may result in some dynamic settlement and may affect the adjacent structures. If access pits will be located within 50 feet of adjacent structures, consideration should be given to preparing a ground vibration and monitoring plan prior to construction. Structures are not present along the majority of the alignment. The locations where ground vibration monitoring at access pits may be appropriate include the existing pump station, near the intersection of Village Lane and the private road for The Ranch and at the SOCWA Coastal Treatment Plant. We recommend that shoring installation and the vibration monitoring plan, if needed, be evaluated carefully by the contractor prior to construction and that ground vibration and settlement monitoring be performed during construction, as appropriate.

The contractor should retain a qualified and experienced engineer to design the shoring system. The shoring parameters presented in this report are minimum requirements, and the contractor should evaluate the adequacy of these parameters and make the appropriate modifications for their design. We recommend that the contractor take appropriate measures to protect workers. OSHA requirements pertaining to worker safety should be observed.

8.1.4 Groundwater and Construction Dewatering

Regional maps indicate that the historic high groundwater levels along the alignment are as low as approximately 5 feet below the ground surface. Groundwater was encountered during this subsurface investigation and prior subsurface investigations at depths ranging from approximately 6 feet to 16 feet below the ground surface. However, groundwater was not encountered in some of the previous borings on the eastern side of the alignment (east of B-5 [Ninyo & Moore, 2018]). Fluctuations in the depth to groundwater will occur and shallower groundwater depths should be anticipated. Therefore, seepage and/or groundwater should be anticipated during construction.

Where groundwater is encountered during excavation, dewatering will be involved in order to perform work in a dry condition. The dewatering system design should be performed by a specialty dewatering contractor. The dewatering scheme may include pumping of groundwater from well points within or outside of the shoring. Drawing down of the water level within the excavation will affect the water level outside of the excavation. This will result in an increase in effective stresses and may induce settlement of the soils underlying adjacent improvements. In order to monitor the drawdown of the groundwater level outside the excavation, we recommend that monitoring wells be installed and monitored during construction. Additional monitoring wells should be considered at pit locations close to existing structures.

The fill and alluvial soils in the area of the access pits are comprised of interbedded sands, silty sands, and clayey sands that have relatively high permeability. Excavating around the existing pipe zones may involve especially high groundwater flow rates where drainage from sand or gravel bedding/backfill zones occurs. Special measures to seal these zones may be involved.

Depending on the permeability of soil between the bottom of the excavation and the bottom of shoring system, as well as the effectiveness of water tightening between shored panels, drawing down of the water level within the excavation defined by the “cofferdam” may affect the water level outside of the excavation. We recommend that the dewatering be performed from inside the shoring system and the groundwater level be lowered no more than 3 feet below the excavation. Monitoring wells should be installed outside the excavation to monitor groundwater levels. Depending on the type of shoring and dewatering systems, the contractor may consider pump testing or an independent evaluation of the potential for groundwater inflow and/or resulting settlement. Additional measures, such as grouting and groundwater recharging may be implemented in the design to reduce the potential for groundwater inflow and resulting settlement. Disposal of groundwater should be performed in accordance with guidelines of the Regional Water Quality Control Board.

8.1.5 Excavation Bottom Stability

Trench and access pit excavations that extend close to or below groundwater (before or after dewatering) are anticipated to encounter wet, loose, or soft ground conditions that will be unstable or unsuitable to support the tunneling equipment. In general, unstable bottom conditions may be mitigated by overexcavating the excavation bottom approximately 2 feet or more, and replacing the excavated soil with crushed aggregate base or gravel wrapped by filter fabric, such as Mirafi 140N, or equivalent. We anticipate that concrete may be placed on the excavation bottom to provide a stable working platform. If aggregate base is used, it should conform to the latest specifications in Section 200-2.2 for crushed aggregate base or Section 200-2.4 for crushed miscellaneous base of the Greenbook and should be compacted to a relative compaction of 95 percent in accordance with ASTM D 1557. Recommendations for stabilizing excavation bottoms should be based on an evaluation in the field by the geotechnical consultant at the time of construction.

8.1.6 Fill Material

In general, the on-site soils should be suitable for reuse as fill provided they are free of trash, debris, roots, vegetation, deleterious materials, and contamination. Excavations that extend near or below groundwater will involve wet soils. Wet soils should be allowed to dry to a moisture content near optimum prior to their placement as backfill. Fill should generally be free of rocks or lumps of material in excess of 4 inches in diameter. Rocks or hard lumps larger than approximately 4 inches in diameter should be broken into smaller pieces or should be removed from the site.

Imported materials, if used, should consist of clean, non-expansive, granular material, which conforms to the “Greenbook” for structure backfill. The imported materials should also meet the Caltrans (2021) criteria for non-corrosive soils (i.e., soils having a minimum resistivity greater than 1,500 ohm-cm, a chloride concentration less than 500 parts per million [ppm], a sulfate concentration of less than 0.15 percent (1,500 ppm), and a pH value greater than 5.5). Import materials for use as fill should be evaluated by the geotechnical consultant prior to importing. The contractor should be responsible for the uniformity of import material brought to the site.

8.1.7 Fill Placement and Compaction

Fill placed for support of the improvements and as trench backfill should be compacted in horizontal lifts to a relative compaction of 90 percent or more as evaluated by ASTM D 1557. Fill soils should be moisture-conditioned to near the optimum moisture content. The optimum lift thickness of fill will depend on the type of compaction equipment used but generally should not exceed 8 inches in loose thickness. Special care should be taken to avoid pipe damage when compacting trench backfill above pipes. Placement and compaction of the fill soils should be in general accordance with appropriate governing agency standards and good construction practice.

8.1.8 Pipe Bedding

We recommend that the pipelines within the open cut segment of the alignment be supported on 6 inches or more of granular bedding material. Bedding material should be placed around the pipe and 12 inches or more above the top of the pipe in accordance with the current “Greenbook” Standard Specifications for Public Works. The bedding material should be classified as sand, should be free of organic material, and have a sand equivalent of 30 or more. Special care should be taken not to allow voids beneath and around the pipe. Compaction of the bedding material and backfill should proceed along both sides of the pipe concurrently. Trench backfill, including bedding material, should be placed and compacted with mechanical equipment in accordance with the recommendations presented in the Earthwork section of this report.

8.1.9 Modulus of Soil Reaction

The modulus of soil reaction is used to characterize the stiffness of soil backfill placed along the sides of buried flexible pipelines for the purpose of evaluating deflection caused by the weight of the backfill above the pipe. We recommend that a modulus of soil reaction of 1,200 pounds per square inch be used for design, provided that granular bedding material or concrete slurry be placed adjacent to the pipe, as recommended in the previous section.

8.2 Tunnel Design and Considerations

Tunnel design and considerations are presented in the following sections for the proposed tunneling operations. Trenchless construction consisting of HDD will be utilized to install the pipeline between the parking lot at The Ranch Resort Golf Course and golf course Hole 6, and microtunneling will be utilized beneath Aliso Creek to construct the pipelines to the connection point at the SOCWA CTP. The tunneling will consist of two 18- to 22-inch HDPE pipes with grouted annular space. The pipeline is anticipated to have an invert depth up to approximately

200 feet below the ground surface. Details regarding the tunneling operations were unknown at the time of our evaluation. The tunneling method selected for the project should be designed for the anticipated soil and rock conditions.

8.2.1 Anticipated Ground Construction and Behavior

Based on the subsurface exploration by Ninyo & Moore and others, the zone of tunneling is generally within the San Onofre Breccia and Topanga Formation consisting of a variety of rock conditions. The rocks consist predominantly of very soft to extremely hard, weakly to strongly cemented, intensely fractured to unfractured, sandstones and conglomerates with interbedded siltstone and claystone layers. Based on RMR rating (Bieniawski, 1989), the proposed tunnel will be excavated through poor to fair rock. The beginning and end portions of the HDD and microtunneling will extend through soil.

Difficult drilling conditions were observed during our subsurface exploration where well-cemented rock layers were encountered. The tunneling contractor should be prepared for encountering very dense layers. Our laboratory testing indicated that the unconfined compressive strength of the bedrock materials ranged from approximately 60 to 3,990 psi. Therefore, relatively abrupt transitions between soft and hard rock should be anticipated.

Stratification of the bedrock materials vary with a predominant dip direction to the south and southwest. Depending on the direction of the drive of the tunnel relative to the stratification, individual strata may or may not provide resistance to excavation. Spalling of materials, however, is expected where intersecting strata and joints are present within the disturbed bedrock in the fault zones.

8.2.2 Ground Support Systems for Tunneling and Excavation Methods

Based on the subsurface exploration, tunneling below groundwater in the alluvium and weathered bedrock may be subject to piping or heave with potentially unstable soil conditions. Trenchless construction with a closed-face pressure-balance shield providing positive face pressure is recommended for parts of the alignment below the groundwater table. The contractor should evaluate the means and methods. The tunneling contractor should take appropriate precautions to avoid piping or loss of material into the tunnel excavation. The tunneling contractor should also consider the potential for fractured rock and adverse bedding conditions for other means and methods.

Ground surface settlement may occur from the tunneling, mainly as a result of loss of ground during drilling. The actual magnitudes of these losses are largely dependent on the type and strength of the ground, groundwater or seepage conditions, size and depth of the pipe, equipment capabilities, and the skill of the contractor. We anticipate that the tunnel excavation will advance with a carrier casing. After the carrier pipe is in place, the annular space between the pipe and tunnel should be grouted to reduce settlement. Due to the depth to the pipeline below the ground surface, it is our opinion that drilling induced ground settlement of negligible magnitude can be achieved by the contractor utilizing appropriate construction techniques for the anticipated subsurface conditions. However, the amount of induced settlement at the ground surface by the tunneling operations can be controlled by the means and methods implemented by the contractor. We recommend that an experienced specialty contractor be used for the tunneling operations.

8.2.3 Pressures for Thrust Blocks and Launching

Thrust restraint for buried pipelines and lateral pressures for launching may be achieved by transferring the thrust force to the soil outside the pipe through a thrust block. Based on our subsurface evaluation, we anticipate that the excavations for the launching and receiving pits will be in alluvium. Thrust blocks may be designed using the passive lateral earth pressures presented on Figure 12. Excavations for construction of thrust blocks should be backfilled with granular backfill material and compacted following the recommendations presented in this report.

8.2.4 Muck Disposal

Excavated soil and/or bedrock (muck) should generally be removed from the site to a suitable discharge facility. The materials can be re-used as fill materials in the access pits or in trench backfill provided the materials meet the recommendations previously discussed in Earthwork section of this report. Muck and slurry disposal are the responsibility of the contractor.

8.2.5 Pressure Grouting of Annular Space

Subsequent to the installation of the pipe, the annular space around the pipe should be pressure grouted under the observation of the geotechnical engineer. The volume of the grout should be checked during the placement. The portion of the launching pit below the invert elevation of the pipeline should be backfilled with structural concrete.

8.2.6 Cal-OSHA Gas Certification

Prior to the installation of the tunnel, the Division of Occupational Safety and Health, Mining and Tunneling Unit of the Department of Industrial Relations should review and classify the proposed tunnel ground conditions with respect to the presence of flammable gas or vapors. The classification should be included in the contract documents.

8.3 Seismic Design Considerations

Design of the proposed improvements should be performed in accordance with the requirements of the governing jurisdictions and applicable building codes. Table 1 presents the seismic design parameters for the site in accordance with the 2022 CBC guidelines.

Table 1 – 2022 California Building Code Seismic Design Criteria

Spectral Response Acceleration Parameters	Values
Site Classification	C
Mapped MCE_R Spectral Response Acceleration at Short Periods, S_s	1.325g
Mapped MCE_R Spectral Response Acceleration at 1.0-Second Period, S_1	0.471g
MCE_R Spectral Response Acceleration at Short Periods, Adjusted for Site Class, S_{MS}	1.590g
MCE_R Spectral Response Acceleration at 1.0-Second Period, Adjusted for Site Class, S_{M1}	0.706g
Design Spectral Response Acceleration at Short Periods, S_{DS}	1.060g
Design Spectral Response Acceleration at 1.0-Second Period, S_{D1}	0.471g
Maximum Considered Earthquake Geometric Mean (MCE_G) Peak Ground Acceleration, PGA_M	0.698g

8.4 Corrosivity

Laboratory testing was performed on representative near-surface soil samples to evaluate pH, electrical resistivity, water-soluble chloride content, and water-soluble sulfate content. The soil pH and electrical resistivity tests were performed in general accordance with California Test Method (CT) 643. Chloride content testing was performed in general accordance with CT 422. Sulfate content testing was performed in general accordance with CT 417. The laboratory test results are presented in Appendix C.

The pH of the samples tested was measured to range from 6.8 to 7.8 and the electrical resistivity was measured to range from 1,196 and 7,008 ohm-centimeters. The chloride content of the samples was measured to range from 0.0105 to 0.0245 percent by weight (i.e., 105 to 245 ppm). The sulfate content of the samples was measured to range from 0.001 to 0.007 percent by weight (i.e., 10 to 70 ppm). Based on the laboratory test results and Caltrans criteria (2021), the project site may be classified as a corrosive site, which is defined as having earth materials with more than 500 ppm chlorides, more than 0.15 percent sulfates (i.e., 1,500 ppm), a pH of 5.5 or less, or an electrical resistivity of less than 1,500 ohm-centimeters. If corrosion susceptible improvements are planned on site, we recommend that a corrosion engineer be consulted for further evaluation and recommendations.

8.5 Concrete Placement

Concrete in contact with soil, bedrock, or water that contains high concentrations of water-soluble sulfates can be subject to premature chemical and/or physical deterioration. Based on the CBC (2022), the potential for sulfate attack is negligible for water-soluble sulfate contents in soil ranging from 0.00 to 0.10 percent by weight, moderate for water-soluble sulfate contents ranging from 0.10 to 0.20 percent by weight, severe for water-soluble sulfate contents ranging from 0.20 to 2.00 percent by weight, and very severe for water-soluble sulfate contents over 2.00 percent by weight. The soil samples tested, using CT 417, indicate a water-soluble sulfate content ranging from approximately 0.001 to 0.007 percent by weight (i.e., 10 to 70 ppm). Accordingly, the on-site materials are considered to have a negligible potential for sulfate attack. However, due to the potential variability of the on-site materials, consideration should be given to using Type II/V cement for the project.

To reduce the potential for shrinkage cracks in the concrete during curing, we recommend that the concrete for the proposed improvements be placed with a slump of 4 inches based on ASTM C 143. The slump should be checked periodically at the site prior to concrete placement. We further recommend that concrete cover over reinforcing steel for foundations be provided in accordance with CBC.

8.6 Pavement Reconstruction

Excavation within the street right-of-way will result in the replacement of pavement for the project. In general, pavement repair should conform to the material and compaction requirements of the adjacent pavement sections. Aggregate base material should conform to the latest specifications in Section 200-2.2 for crushed aggregate base or Section 200-2.4 for crushed miscellaneous base of the Greenbook and should be compacted to a relative compaction of 95 percent in accordance with ASTM D 1557. Asphalt concrete should conform to Section 203-6 of the Greenbook and should be compacted to a relative compaction of 95 percent in accordance with ASTM D 1560 or CT 304. Actual pavement reconstruction should conform to the requirements of the appropriate governing agency.

9 CONSTRUCTION MONITORING PROGRAM

To reduce the potential for construction related claims, construction monitoring programs should be implemented to monitor ground vibrations, ground surface settlement, and lateral movement of shoring support systems. These monitoring programs should be in-place and conducted prior to the start of construction to reduce the potential for damage claims and to facilitate settlement of legitimate damage claims. The resulting data should be reviewed and evaluated during construction and distributed to appropriate parties during the course of construction.

Variations may exist and conditions not observed or described in this report may be encountered during construction. In order to evaluate the construction risk associated with the variations that may exist between the geotechnical data of this report and the field conditions encountered during construction as well as provide periodic observation for the purpose of conformance to the plans and specifications, we recommend that a tunneling consultant be retained to provide technical monitoring during the construction operations.

9.1 Documentation of Existing Conditions

We recommend that pre-construction condition surveys be performed on structures within approximately 50 feet of the proposed excavations prior to construction. This distance should be extended to 100 feet adjacent to proposed excavations if driven and/or vibratory sheet or soldier piles are installed. This survey should include locating existing cracks and measuring widths of cracks, in combination with video documentation of existing conditions. In addition, interviews should be conducted with utility owners so that existing knowledge about the age, type, and maintenance history of affected utilities is available prior to construction.

9.2 Construction Vibrations

People can perceive vibrations from construction activities at significantly lower levels than might cause cosmetic damage to structures. The Transportation and Construction Vibration Guidance Manual (Caltrans, 2020) indicates that transient vibrations, such as from pile installation or construction activities, may be noticeable at peak particle velocities as low as 0.035 inches per second (ips). The vibrations from the construction activities may be disturbing and result in complaints and/or damage claims at peak particle velocities as low as 0.2 to 0.4 ips. However, these vibration levels are well below the level considered to cause cosmetic damage to residential construction.

There is also the possibility of settlement of the soil during construction activities due to vibrations. This settlement may result in damage to structures and improvements. If the construction vibrations can be maintained below a peak particle velocity of 0.2 ips, the settlement can likely be limited to acceptable levels based on past projects in similar conditions.

For the above stated reasons, we recommend that seismographs be used in the early stages of construction to monitor the vibrations. Seismographs should be located near structures and improvements next to the construction activities. Additional seismographs should be located at various structures and improvements farther from the construction activities to monitor vibrations as a function of distance from the sites. Periodic vibration monitoring is recommended during other construction activities. After review of the data obtained, the number of seismographs may be reduced at the discretion of the client and the geotechnical consultant.

9.3 Groundwater Monitoring

As previously noted, settlement of the ground surface and adjacent structures may also be caused by drawdown of the water table. We recommend that the contractor monitor water levels outside of the excavations. To monitor the groundwater levels outside of the excavations, we recommend that groundwater monitoring wells be installed. The monitoring wells should be installed at locations that will be accessible during construction. The groundwater levels should be monitored daily during dewatering as appropriate.

9.4 Ground Surface Settlement

We recommend that arrays of ground surface settlement points be installed around the proposed excavations and above the tunnel zone within the parking lot at The Ranch Golf Course and near the microtunneling zone adjacent to the SOCWA CTP. The contractor should submit a monitoring plan showing the proposed locations of settlement points for review and approval by the project engineer. We recommend that the contractor be responsible for maintaining total settlement at any survey point to less than ½ inch. If the settlement reaches this limit, we recommend that a further review of construction methodologies be performed and appropriate changes be made. We recommend that ground surface settlement points be installed at appropriate intervals along the pipeline alignment and adjacent to excavations deeper than 20 feet.

9.5 Lateral Movement for Shoring Support System

In particularly sensitive areas, it may be appropriate to install inclinometers or establish survey points behind excavations located in areas where existing structures are located above a 1:1 (horizontal to vertical) plane projected from the bottom of the proposed excavations to the ground surface. The inclinometers or survey points should be monitored and evaluated daily during excavation activities to provide an advanced warning system of potential problems. As discussed previously, we recommend that the shoring system be designed to limit the ground settlement behind the shoring system to ½ inch or less to reduce the potential for distress to adjacent structures/improvements. If settlements reach ¼ inch, we recommend that a review of the contractor's methods be performed and appropriate changes be made, if needed.

10 CONSTRUCTION OBSERVATION

The recommendations provided in this report are based on our understanding of the proposed project and our evaluation of the data collected based on subsurface conditions disclosed by widely spaced exploratory borings. It is imperative that the geotechnical consultant checks the interpolated subsurface conditions during construction. We recommend that Ninyo & Moore review the project plans and specifications prior to construction. It should be noted that, upon review of these documents, some recommendations presented in this report may be revised or modified.

During construction we recommend that the duties of the geotechnical consultant include, but not be limited to:

- Observing site clearing and removals.
- Observing excavation bottoms and the placement and compaction of fill, including trench backfill.
- Evaluating imported materials, if any, prior to their use as fill.
- Performing field tests to evaluate fill compaction.
- Observe the installation of monitoring points and perform monitoring and/or evaluation of monitoring data collected by others.

The recommendations provided in this report assume that Ninyo & Moore will be retained as the geotechnical consultant during the construction phase of this project. If another geotechnical consultant is selected, we request that the selected consultant indicate to the owner and to our firm in writing that our recommendations are understood and that they are in full agreement with our recommendations.

11 LIMITATIONS

The field evaluation, laboratory testing, and geotechnical analysis presented in this geotechnical report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding the conclusions, recommendations, and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation will be performed upon request. Please also note that our evaluation was limited to assessment of the geotechnical aspects of the project, and did not include evaluation of environmental concerns or the presence of hazardous materials.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report is intended for conceptual design purposes only. The limited amount of subsurface exploration performed for this study may not provide sufficient data to prepare an accurate bid by the contractors.

Our conclusions, recommendations, and opinions are based on an analysis of the observed site conditions. If geotechnical conditions different from those described in this report are encountered, our office should be notified, and additional recommendations, if warranted, will be provided upon request. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

12 REFERENCES

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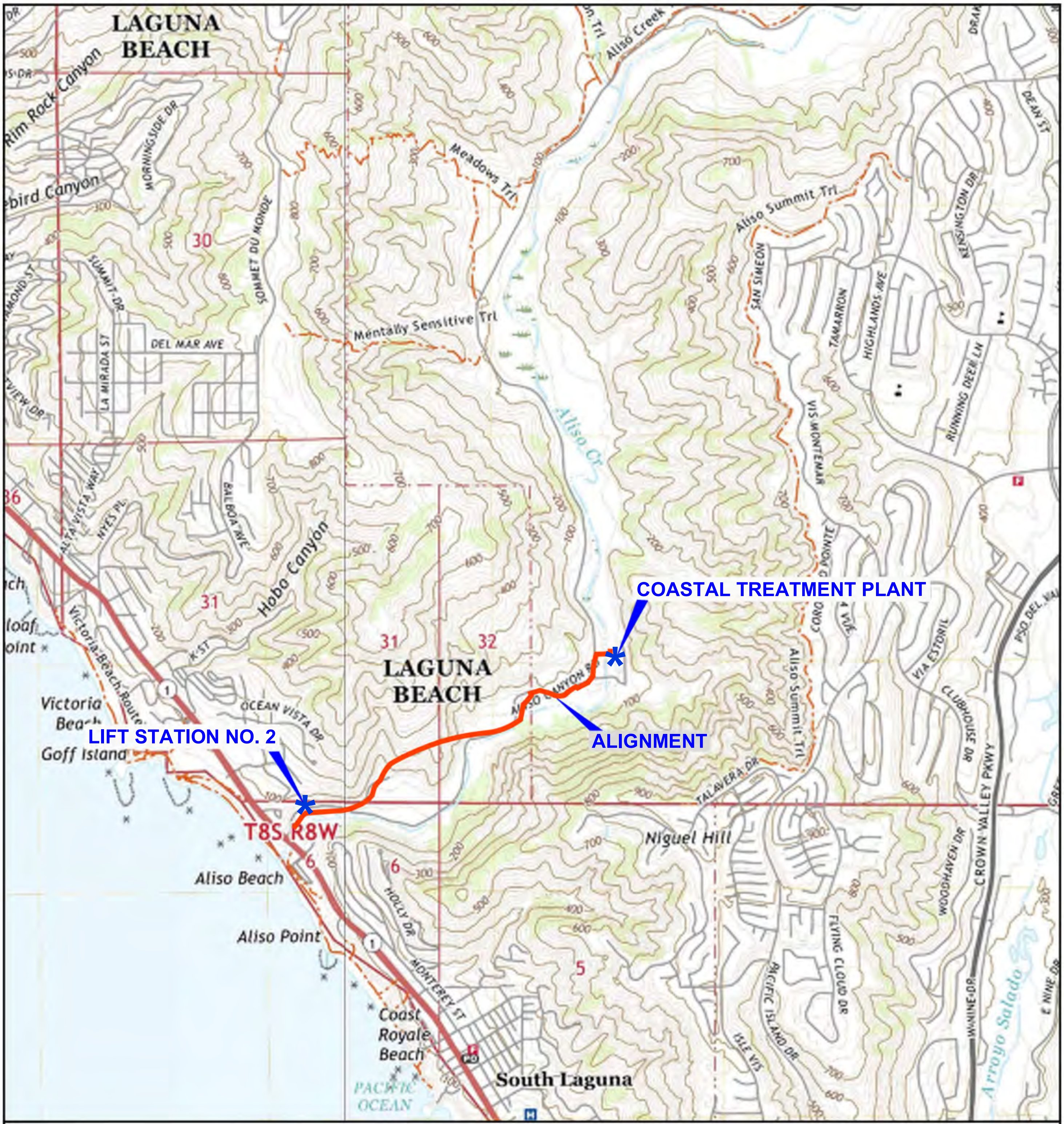
FIGURES
Appendix A

Photographic Documentation



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: USGS, 2022.

N

FEET
0 2,000 4,000

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FIGURE 1

SITE LOCATION

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

212121001 I 8/23

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Geotechnical & Environmental Sciences Consultants

LEGEND

B-2 TD=120.0 ○	BORING/ROCK CORE; TD=TOTAL DEPTH IN FEET
B-1 TD=51.5 ●	BORING (NINYO & MOORE, 2018a); TD=TOTAL DEPTH IN FEET
B-8 TD=16.5 ⊕	BORING (NINYO & MOORE, 2018b); TD=TOTAL DEPTH IN FEET
LB-4 TD=31.5 ⊕	LEIGHTON BORING (LEIGHTON CONSULTING, 2014); TD=TOTAL DEPTH IN FEET
MB-6 TD=151.2 ⊕	MACTEC BORING (2008) (LEIGHTON CONSULTING, 2014); TD=TOTAL DEPTH IN FEET
AB-1 TD=51.5 ⊕	ARROYO GEOTECHNICAL BORING (2004) (LEIGHTON CONSULTING, 2014); TD=TOTAL DEPTH IN FEET
🟨	CUT-AND-COVER SEGMENTS
🟧	TRENCHLESS SEGMENTS

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: GOOGLE EARTH, 2023.

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FIGURE 2

SITE AERIAL AND BORING LOCATIONS

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

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NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: GOOGLE EARTH, 2023.

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FIGURE 3

SITE AERIAL AND BORING LOCATIONS (LIFT STATION NO. 2)

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

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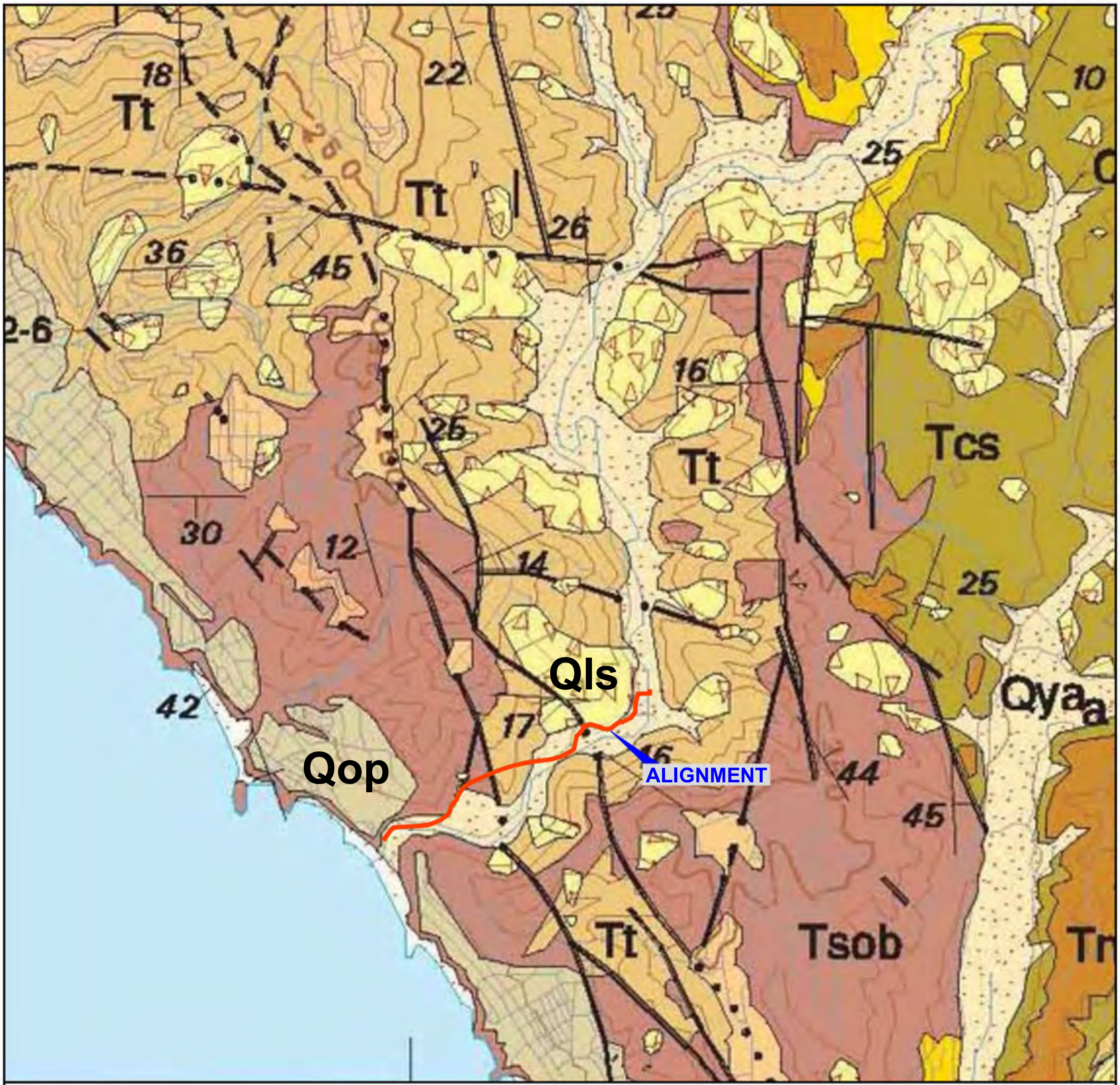

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: MORTON, D.M. AND MILLER, F.K., 2006.

LEGEND

Qls	LANDSLIDE DEPOSITS	Tt	TOPANGA FORMATION
Qya	YOUNGER ALLUVIUM	—	GEOLOGIC CONTACT
Qop	OLD PARALIC DEPOSITS	• • —	FAULT; DOTTED WHERE CONCEALED
Tsob	SAN ONOFRE BRECCIA	17	BEDDING ATTITUDE

N

FEET

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FIGURE 4

Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

REGIONAL GEOLOGY (MORTON AND MILLER, 2006)

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

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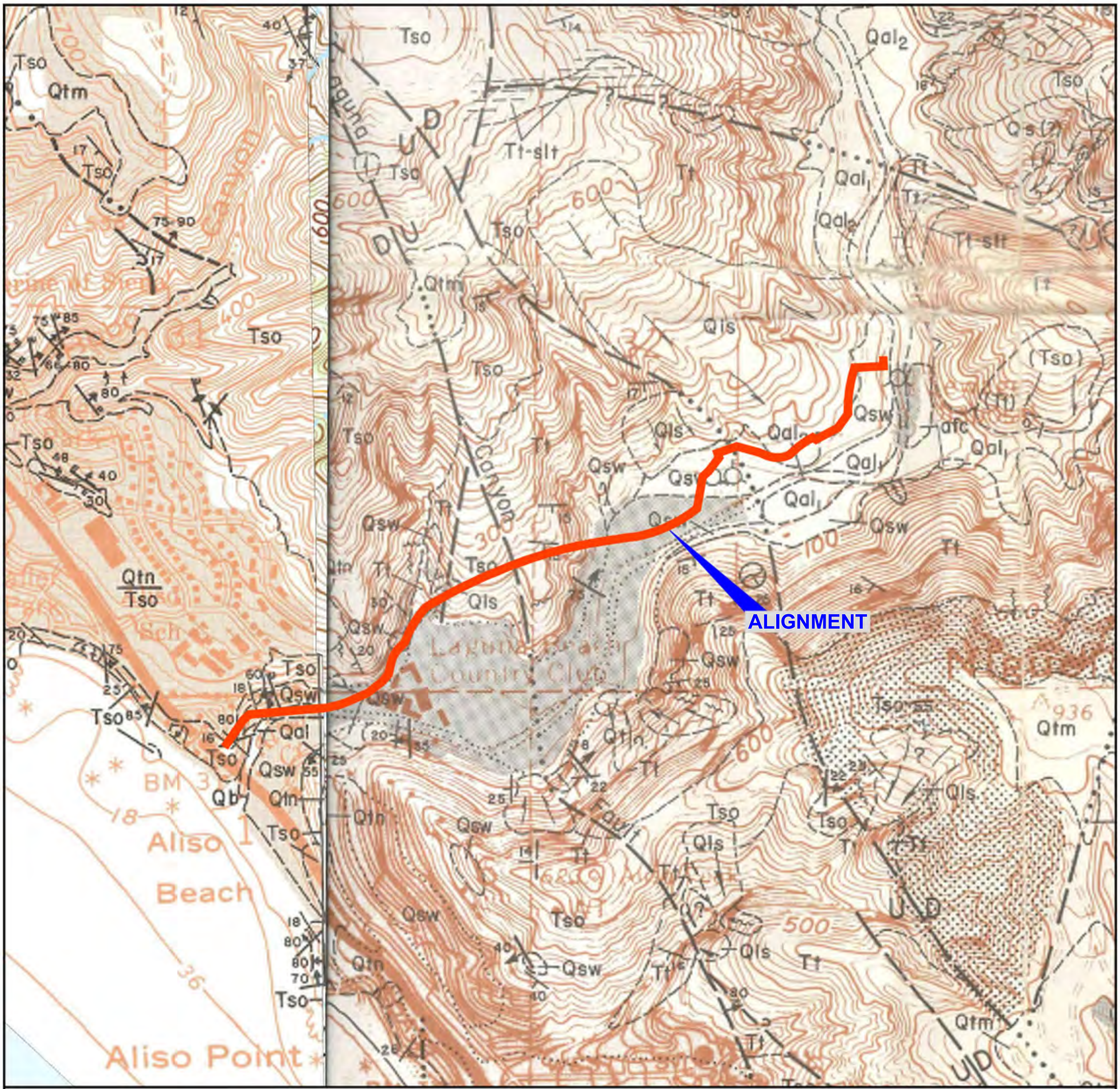

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: MORTON, EDINGTON, AND FIFE, 1974; TAN AND EDINGTON, 1976.

LEGEND

afc	ARTIFICIAL FILL
Qsw	WASH DEBRIS
Qb	BED SEDIMENTS
Qal	ALLUVIUM
Qls	LANDSLIDE DEBRIS
Qtn	NONMARINE TERRACE DEPOSITS
Qtm	MARINE TERRACE DEPOSITS
Tso	SAN ONOFRE BRECCIA
Tt	TOPANGA FORMATION
— — —	GEOLOGIC CONTACT
• • ▬	FAULT; DOTTED WHERE CONCEALED
17	BEDDING ATTITUDE
80	FAULT ATTITUDE

N

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FIGURE 5

REGIONAL GEOLOGY (MORTON, EDGINGTON, AND FIFE, 1974)

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

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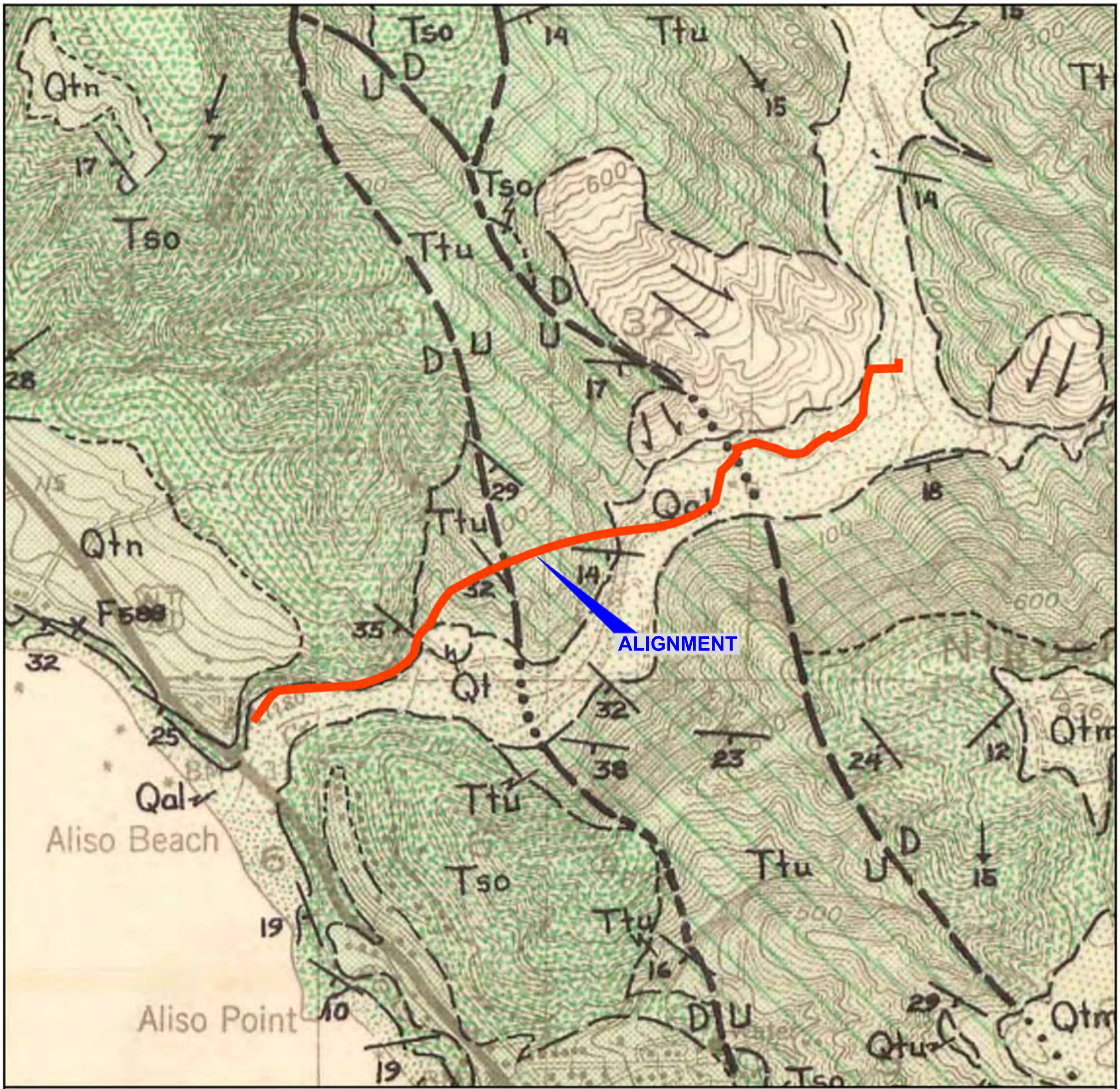

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: VEDDER, YERKES, AND SCHOELLHAMER, 1957.

LEGEND

Qal	ALLUVIUM
Qt	STREAM TERRACE DEPOSITS
Qtn	NON-MARINE TERRACE DEPOSITS
Qtm	MARINE TERRACE DEPOSITS WITH NONMARINE COVER
Tso	SAN ONOFRE BRECCIA
Ttu	TOPANGA FORMATION, UNDIFFERENTIATED
	GEOLOGIC CONTACT
	FAULT; DOTTED WHERE CONCEALED
17	BEDDING ATTITUDE
15	APPROXIMATE DIP OF BEDS, STRIKE UNDETERMINED

N

FEET

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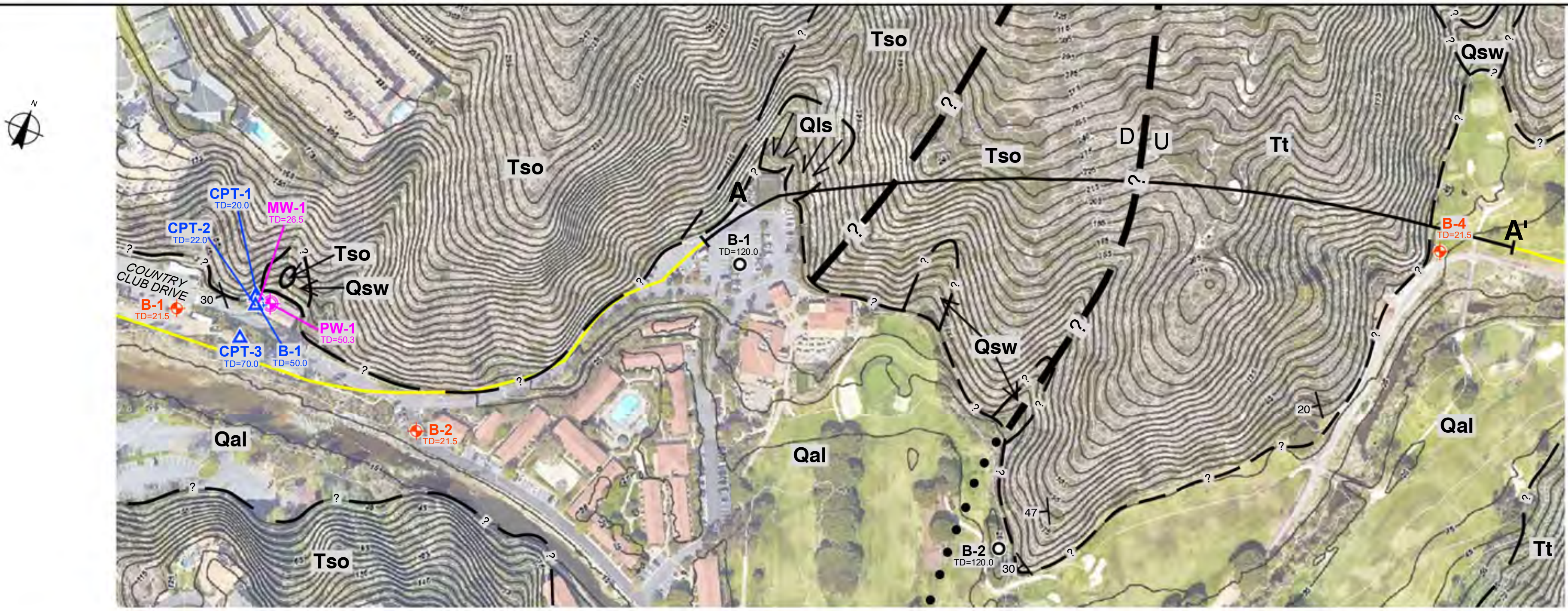
FIGURE 6

REGIONAL GEOLOGY (VEDDER, YERKES, AND SCHOELLHAMER, 1957)

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

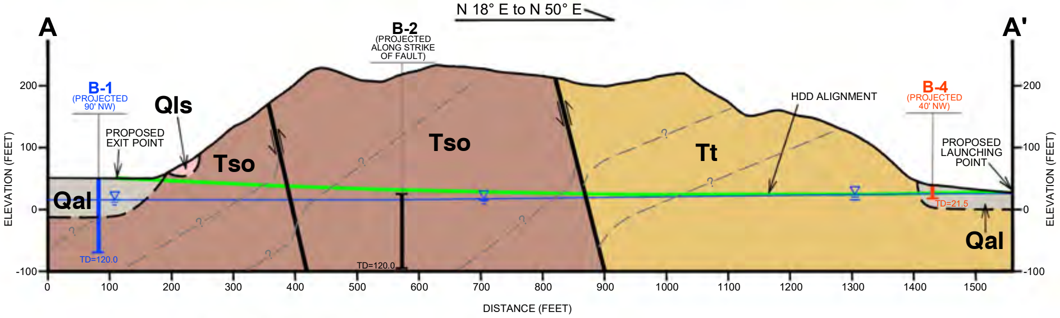
Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



LEGEND

B-2 TD=120.0 ○	BORING/ROCK CORE; TD=TOTAL DEPTH IN FEET
CPT-3 TD=70.0 △	CONE PENETRATION TEST (NINYO & MOORE, 2020); TD=TOTAL DEPTH IN FEET
MW-1 TD=26.5 ⊕	MONITORING WELL (NINYO & MOORE, 2020); TD=TOTAL DEPTH IN FEET
PW-1 TD=50.3 ⊕	PUMPING WELL (NINYO & MOORE, 2020); TD=TOTAL DEPTH IN FEET
B-4 TD=21.5 ⊕	BORING (NINYO & MOORE, 2018b); TD=TOTAL DEPTH IN FEET
B-1 TD=50.0 ⊕	BORING (NINYO & MOORE, 2016); TD=TOTAL DEPTH IN FEET

Qls	LANDSLIDE DEBRIS
Qsw	SLOPE WASH
Qal	ALLUVIUM
Tso	SAN ONOFRE BRECCIA;
Tt	TOPANGA FORMATION
U D	FAULT; DOTTED WHERE CONCEALED; QUERIED WHERE INFERRED; U = UPBLOCK RELATIVE TO DOWNBLOCK (D)
— — ?	GEOLOGIC CONTACT; QUERIED WHERE INFERRED
30	STRIKE AND DIP OF BEDDING
?	BEDDING
▽	GROUNDWATER



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NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I SOURCE: TOPOGRAPHIC CONTOURS - LIDAR: SOUTHERN WILDFIRES, NOAA, 2022; GOOGLE EARTH, 2022.

FIGURE 7

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SITE TOPOGRAPHY AND CROSS SECTION A-A'

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

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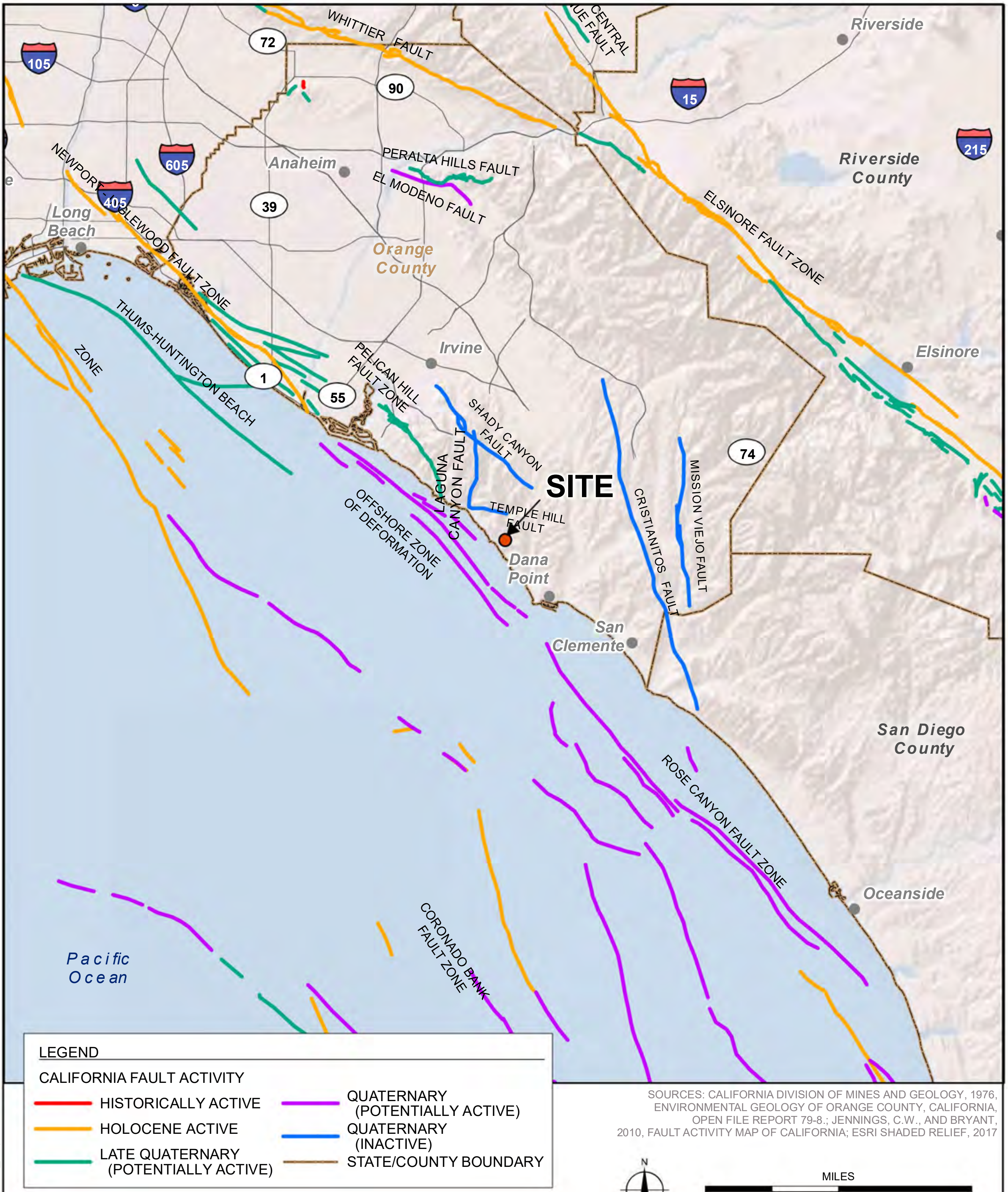

LEGEND

CALIFORNIA FAULT ACTIVITY

🟥 HISTORICALLY ACTIVE	🟪 QUATERNARY (POTENTIALLY ACTIVE)
🟧 HOLOCENE ACTIVE	🟦 QUATERNARY (INACTIVE)
🟩 LATE QUATERNARY (POTENTIALLY ACTIVE)	🟫 STATE/COUNTY BOUNDARY

SOURCES: CALIFORNIA DIVISION OF MINES AND GEOLOGY, 1976, ENVIRONMENTAL GEOLOGY OF ORANGE COUNTY, CALIFORNIA, OPEN FILE REPORT 79-8.; JENNINGS, C.W., AND BRYANT, 2010, FAULT ACTIVITY MAP OF CALIFORNIA; ESRI SHADED RELIEF, 2017

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

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FIGURE 8

FAULT LOCATIONS

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

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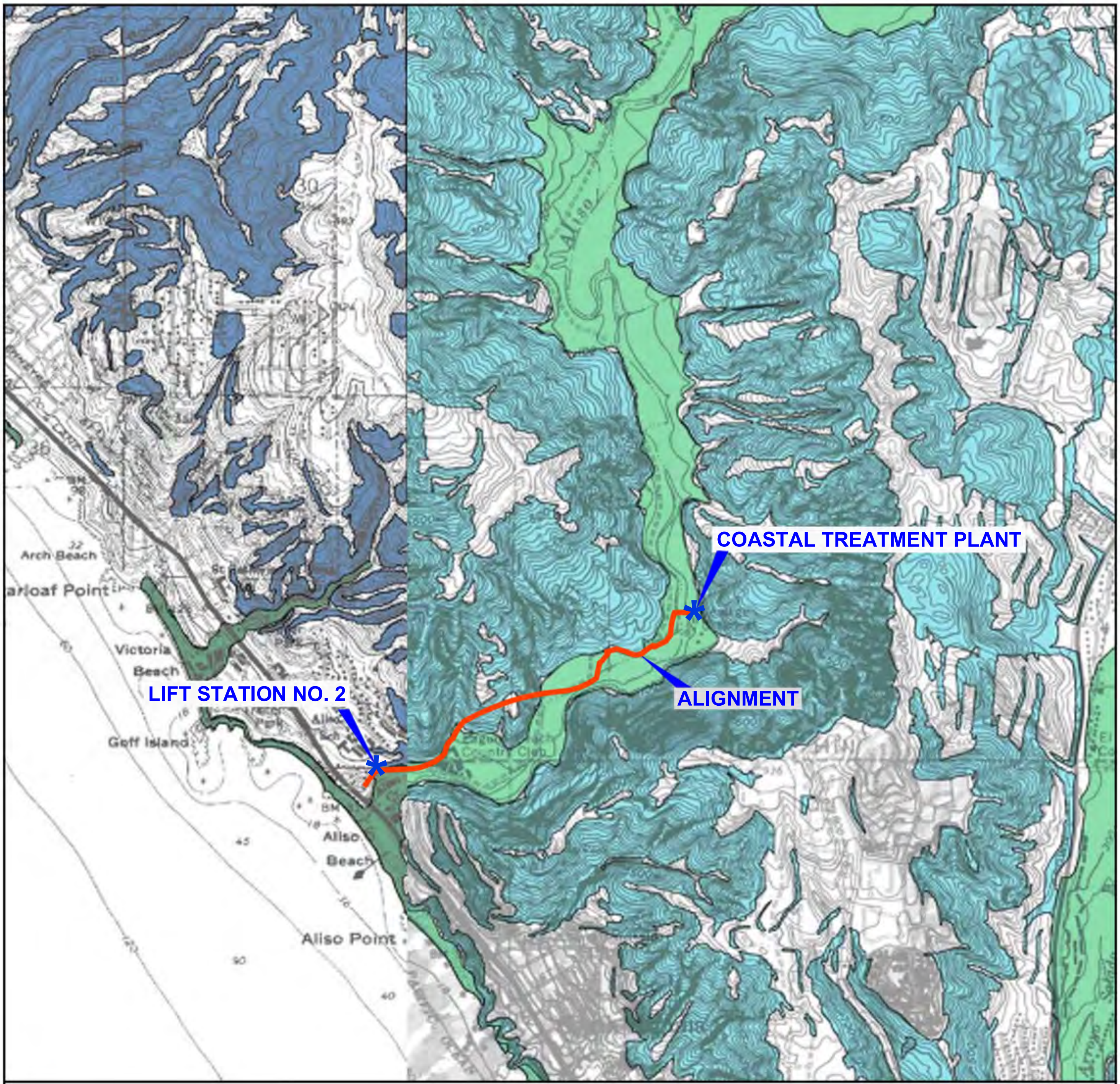

LEGEND

🟦 **EARTHQUAKE-INDUCED LANDSLIDES**
Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

🟩 **LIQUEFACTION**
Areas where historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

N

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NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: CDMG, 1998 & 2001b.

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FIGURE 9

SEISMIC HAZARD ZONES

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

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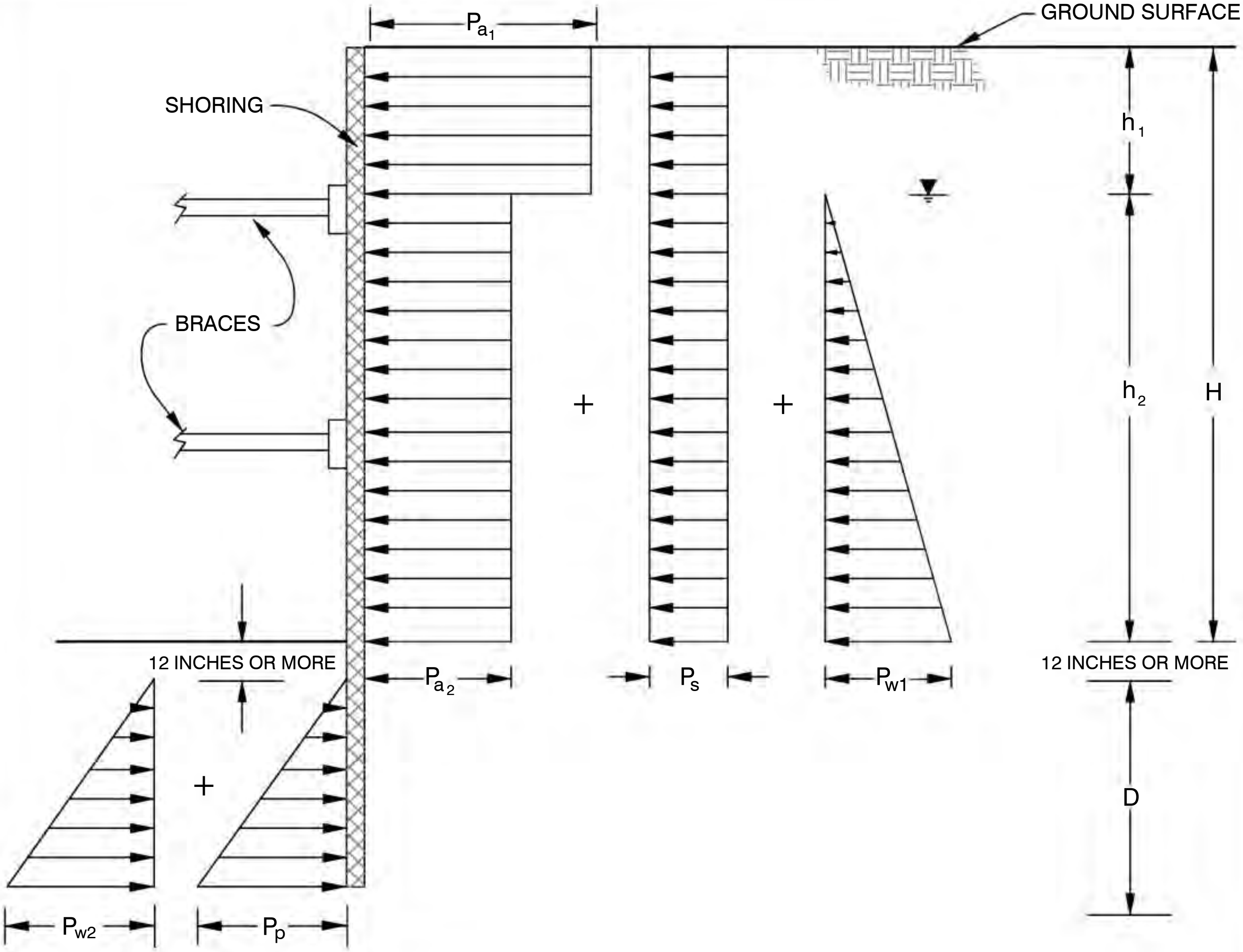
Geotechnical & Environmental Sciences Consultants



NOTES:

1. APPARENT LATERAL EARTH PRESSURES, P_{a1} AND P_{a2}
   $P_{a1} = 27 h_1$ psf
   $P_{a2} = 14 h_2$ psf
2. CONSTRUCTION TRAFFIC INDUCED SURCHARGE PRESSURE, P_s
   $P_s = 120$ psf
3. HYDROSTATIC PRESSURES, P_{w1} AND P_{w2}
   $P_{w1} = 62.4 h_2$ psf
   $P_{w2} = 62.4 D$ psf
4. PASSIVE PRESSURE, P_p
   $P_p = 187 D$ psf
5. SURCHARGES FROM EXCAVATED SOIL OR CONSTRUCTION MATERIALS ARE NOT INCLUDED
6. H, h_1, h_2 AND D ARE IN FEET
7. ⊻ GROUNDWATER TABLE

NOT TO SCALE

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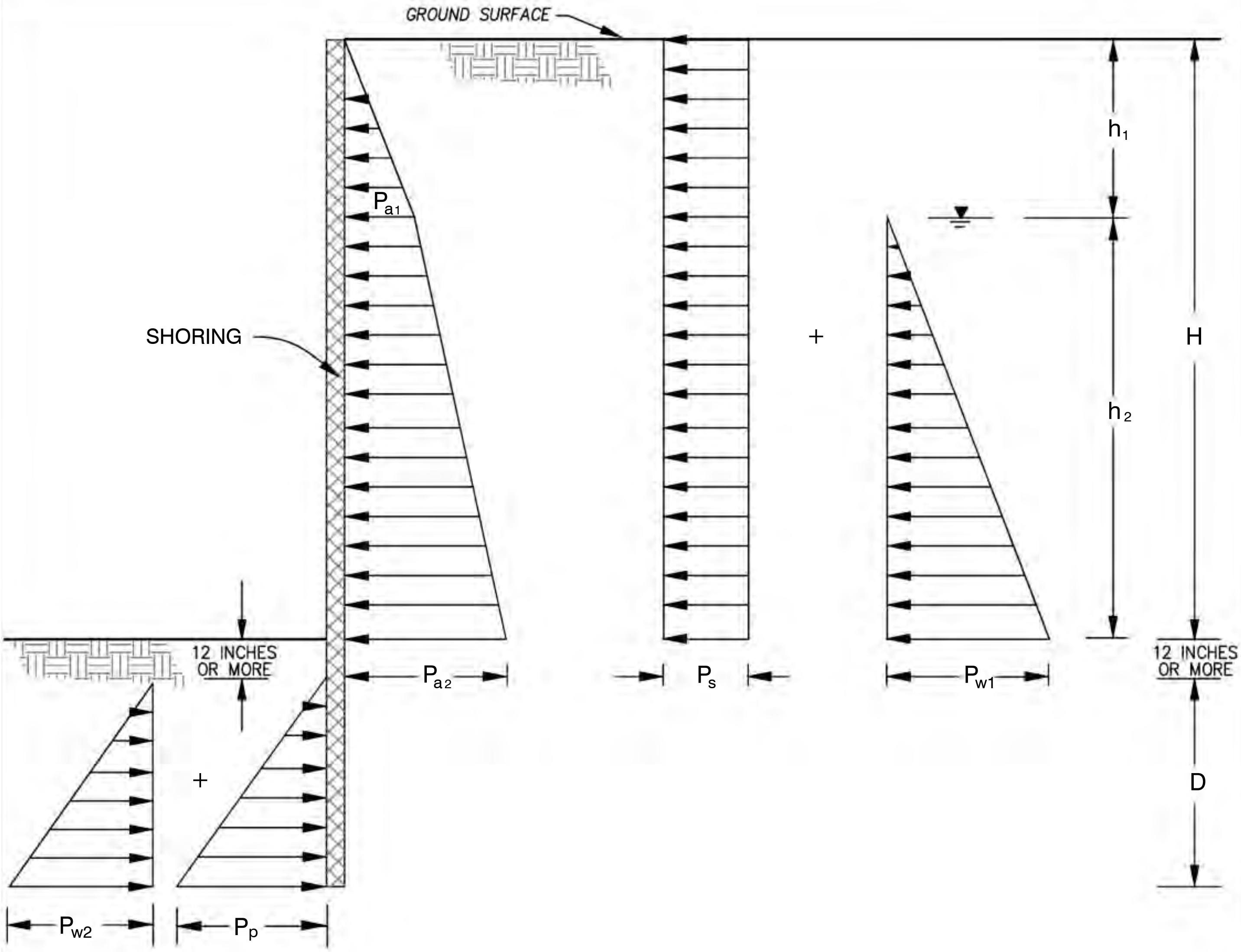
NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

FIGURE 10

LATERAL EARTH PRESSURES FOR BRACED EXCAVATION BELOW GROUNDWATER

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



NOTES:

1. ACTIVE LATERAL EARTH PRESSURE, P_a
   $P_{a1} = 42h_1$ psf; $P_{a2} = P_{a1} + 21\ h_2$ psf
2. CONSTRUCTION TRAFFIC INDUCED SURCHARGE PRESSURE, P_s
   $P_s = 120$ psf
3. HYDROSTATIC PRESSURES, P_{w1} AND P_{w2}
   $P_{w1} = 62.4\ h_2$ psf
   $P_{w2} = 62.4\ D$ psf
4. PASSIVE LATERAL EARTH PRESSURE, P_p
   $P_p = 187D$ psf
5. SURCHARGES FROM EXCAVATED SOIL OR CONSTRUCTION MATERIALS ARE NOT INCLUDED
6. H, h AND D ARE IN FEET
7. ▽ GROUNDWATER TABLE

NOT TO SCALE

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

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FIGURE 11

LATERAL EARTH PRESSURES FOR TEMPORARY CANTILEVERED SHORING BELOW GROUNDWATER

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

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Geotechnical & Environmental Sciences Consultants

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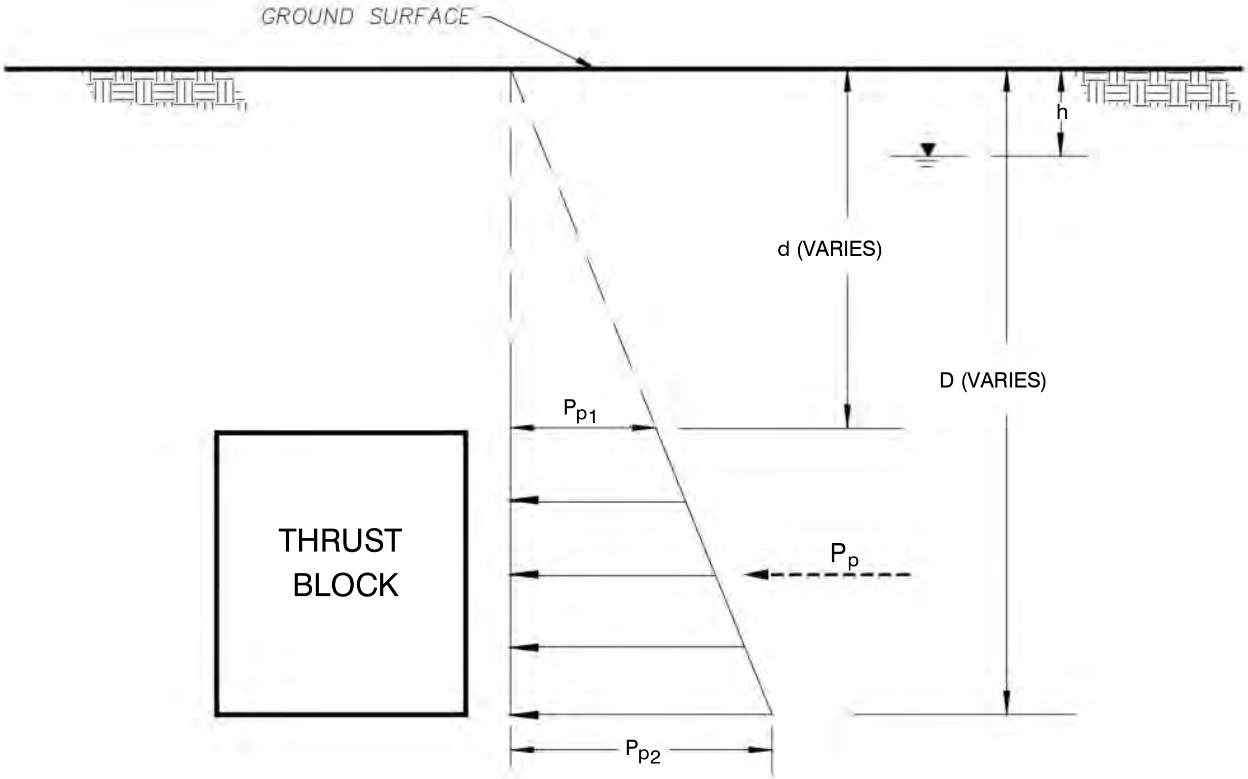

NOTES:

1. GROUNDWATER BELOW BLOCK
   $P_p = 187(D^2 - d^2)$ lb/ft
2. GROUNDWATER ABOVE BLOCK
   $P_p = 1.5 (D - d)[124.8h + 62.6 (D+d)]$ lb/ft
3. ASSUMES BACKFILL IS GRANULAR MATERIAL
4. ASSUMES THRUST BLOCK IS ADJACENT TO COMPETENT MATERIAL
5. D, d AND h ARE IN FEET
6. ▼ GROUNDWATER TABLE

NOT TO SCALE

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

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FIGURE 12

THRUST BLOCK LATERAL EARTH PRESSURES DIAGRAM

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NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

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APPENDIX A

Boring Logs

APPENDIX A

BORING LOGS

Field Procedure for the Collection of Disturbed Samples

Disturbed soil samples were obtained in the field using the following method.

Bulk Samples

Bulk samples of representative earth materials were obtained from the exploratory borings. The samples were bagged and transported to the laboratory for testing.

The Standard Penetration Test (SPT) Sampler

Disturbed drive samples of earth materials were obtained by means of a Standard Penetration Test sampler. The sampler is composed of a split barrel with an external diameter of 2 inches and an unlined internal diameter of 1-3/8 inches. The sampler was driven into the ground 18 inches with a 140-pound hammer falling freely from a height of 30 inches in general accordance with ASTM D 1586. The blow counts were recorded for every 6 inches of penetration; the blow counts reported on the logs are those for the last 12 inches of penetration. Soil samples were observed and removed from the sampler, bagged, sealed, and transported to the laboratory for testing.

Field Procedure for the Collection of Relatively Undisturbed Samples

Relatively undisturbed soil samples were obtained in the field using the following method.

The Modified Split-Barrel Drive Sampler

The sampler, with an external diameter of 3 inches, was lined with 1-inch-long, thin brass rings with inside diameters of approximately 2.4 inches. The sample barrel was driven into the ground with the weight of a hammer in general accordance with ASTM D 3550. The driving weight was permitted to fall freely. The approximate length of the fall, the weight of the hammer, and the number of blows per foot of driving are presented on the boring logs as an index to the relative resistance of the materials sampled. The samples were removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

HQ3 Wireline Diamond Core Barrel

The HQ core barrel consists of an approximately 5-foot-long, approximately 3.8-inch-outer-diameter (2.5 inch-inner-diameter) sampler lined with an inner split sleeve. The core barrel is lowered into an approximately 4½-inch-diameter drill casing and locked in-place with the tip of the lead casing, which is tipped with a diamond core bit. As the drill casing is drilled into the ground, soil/bedrock enters through the bottom of the casing and into the core barrel in up to approximately 5-foot lengths. The core barrels were retrieved from the casing using a wireline and retrieval tool. The sample cores were removed from the core barrel and inner sleeve, placed in a core box, logged, and transported to the laboratory for testing.

DATE DRILLED 1/3/23 and 1/4/23 CORE NO. B-1

GROUND ELEV. 52' ± (MSL) SHEET 1 OF 4

DRILLING METHOD 8" Hollow-Stem Auger/HQ3 DRILLER ABC Liovin

LOCATION Parking Lot

SAMPLED BY CMN/ECH LOGGED BY CMN/ECH REVIEWED BY MLP

DEPTH (feet)	AUGER DRILLING					ROCK CORING					USCS SYMBOL/LITHOLOGY	DESCRIPTION/INTERPRETATION
	Bulk	Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (pcf)	INTERVAL CORED (feet)	RECOVERY (%)	RQD (%)	FRACTURE DRAWING	FRACTURE DIP		
0												ASPHALT CONCRETE: Approximately 3 inches thick.
												FILL: Dark brown, moist, firm, lean CLAY (CL); trace gravel consisting of schist; trace asphalt debris.
												ALLUVIUM: Brown, moist, loose, silty SAND (SM); few gravel; trace gravel-size sandstone fragments.
10			17									Medium dense.
			19	7.4	122.0							Light brown; few to little gravel.
20			17									Light brown, moist, medium dense, poorly graded SAND with silt (SP-SM); few gravel.
												Light brown, moist, medium dense, well graded SAND with silt (SW-SM); trace gravel.
			19									
												Gray, moist, medium dense, clayey SAND (SC); trace gravel; oxidation staining.
30			15									
			31									Reddish gray.
40												

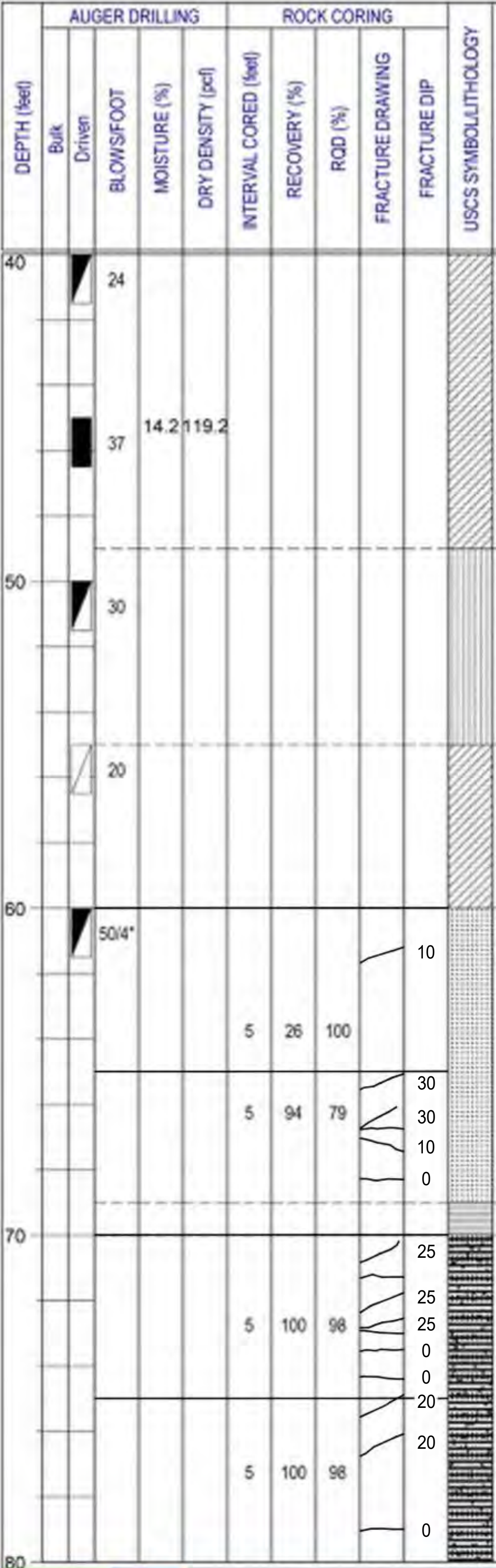
DATE DRILLED 1/3/23 and 1/4/23 CORE NO. B-1

GROUND ELEV. 52' ± (MSL) SHEET 2 OF 4

DRILLING METHOD 8" Hollow-Stem Auger/HQ3 DRILLER ABC Liovin

LOCATION Parking Lot

SAMPLED BY CMN/ECH LOGGED BY CMN/ECH REVIEWED BY MLP



DESCRIPTION/INTERPRETATION

ALLUVIUM: (Continued)
Yellowish brown, moist, dense, clayey SAND (SC).

Medium dense.

Light brown, moist, dense, silty SAND (SM); oxidation staining.

Light brown, moist, medium dense, clayey SAND (SC).

SAN ONOFRE BRECCIA:
Very pale brown, moist, moderately soft, weakly to moderately cemented, very slightly fractured, weathered, silty SANDSTONE; finely interbedded dark gray sand layers.

Hard; moderately fractured; well cemented; interbedded clay layers.
Very soft.
Dark gray, moist, hard, moderately indurated, unfractured, weathered, CLAYSTONE.
Gray, moist, extremely hard; strongly cemented, moderately fractured, fresh, SANDSTONE.

Very soft; weakly cemented.
Extremely hard; strongly cemented.
@ 75-80': Total Density = 152.8 pcf
Fractures infilled with clay.

Bluish gray.

DATE DRILLED 1/3/23 and 1/4/23 CORE NO. B-1
GROUND ELEV. 52' ± (MSL) SHEET 3 OF 4
DRILLING METHOD 8" Hollow-Stem Auger/HQ3 DRILLER ABC Liovin
LOCATION Parking Lot
SAMPLED BY CMN/ECH LOGGED BY CMN/ECH REVIEWED BY MLP

DEPTH (feet)	AUGER DRILLING					ROCK CORING					USCS SYMBOL/LITHOLOGY	DESCRIPTION/INTERPRETATION
	Bulk	Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (pcf)	INTERVAL CORED (feet)	RECOVERY (%)	RQD (%)	FRACTURE DRAWING	FRACTURE DIP		
80										30		SAN ONOFRE BRECCIA: (Continued) Bluish gray, moist, very hard, moderately cemented, slightly fractured, coarse SANDSTONE; trace gravel up to 3" in size; fractures infilled with clay.
						5	98	13				
										0		
						5	98	95				Fine sandstone. Increase in grain size; subrounded quartzite clast up to 1/4" in size.
										10		
										10		Extremely hard; increase in gravel.
90										25		Bluish gray, moist, very hard, moderately cemented, slightly fractured, fresh, BRECCIA; fractures infilled with clay. @ 90-95': Total Density = 157.0 pcf
						5	96	93				
										20		
										0 10 50		Bluish gray, moist, hard, well cemented, slightly fractured, fresh, coarse grained, SANDSTONE; fractures infilled with clay.
												Bluish gray, moist, very hard, well cemented, unfractured, fresh, BRECCIA.
												Bluish gray, moist, very hard, well cemented, unfractured, fresh, SANDSTONE.
												Bluish gray, moist, very hard, well cemented, unfractured, fresh, BRECCIA.
						5	65	100				
100												Bluish gray, moist, very hard, well cemented, unfractured, fresh, coarse grained, silty SANDSTONE.
						5	28	35				
										25		
										5		Extremely hard, strongly cemented. @ 105-110.0: Total Density = 153.6 pcf
						2.5	60	83		40		
												Coarse sandstone. Increase in silt content.
										80		
						2.5	92	94				
												Vertical fracture infilled with clay.
110												Dark gray, moist, moderately soft, moderately cemented, fresh, CLAYSTONE.
												Bluish gray, moist, moderately hard, moderately cemented, coarse SANDSTONE.
										0		
						5	90	92				
										2		Dark gray, moist, moderately soft to hard, moderately cemented, slightly fractured, fresh, CLAYSTONE; interbedded soft, coarse, sandstone layers.
										40		
										20 0 0 26 22 20		Gray, moist, moderately soft, moderately cemented, moderately fractured, fresh, coarse silty SANDSTONE.
						5	56	47		30		Dark gray, moist, moderately soft, moderately cemented, slightly fractured, fresh, CLAYSTONE; approximately 2 inches thick.
120												

FIGURE A- 3

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Geotechnical & Environmental Sciences Consultants

NCI REACH 5 REPLACMENT PROJECT
LAGUNA BEACH, CALIFORNIA
212121001 | 8/23

DEPTH (feet)	AUGER DRILLING Bulk	 Driven	 BLOWS/FOOT	 MOISTURE (%)	 DRY DENSITY (pcf)	ROCK CORING INTERVAL CORED (feet)	 RECOVERY (%)	 RQD (%)	 FRACTURE DRAWING	 FRACTURE DIP	USCS SYMBOL/LITHOLOGY
120											
130											
140											
150											
160											

DATE DRILLED 1/3/23 and 1/4/23 CORE NO. B-1

GROUND ELEV. 52' ± (MSL) SHEET 4 OF 4

DRILLING METHOD 8" Hollow-Stem Auger/HQ3 DRILLER ABC Liovin

LOCATION Parking Lot

SAMPLED BY CMN/ECH LOGGED BY CMN/ECH REVIEWED BY MLP

DESCRIPTION/INTERPRETATION

Total Depth = 120 feet.
Groundwater was not able to be measured during drilling since drilling mud was added to boring.
Backfilled with cement-bentonite grout on 1/4/23.

Note:
The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.

DATE DRILLED 2/2/23 and 2/3/23 CORE NO. B-2

GROUND ELEV. 25' ± (MSL) SHEET 1 OF 4

DRILLING METHOD 8" Hollow-Stem Auger/HQ3 DRILLER ABC Liovin

LOCATION Golf Course

SAMPLED BY ECH/RAF LOGGED BY ECH/RAF REVIEWED BY MLP

DEPTH (feet)	AUGER DRILLING					ROCK CORING					USCS SYMBOL/LITHOLOGY	DESCRIPTION/INTERPRETATION
	Bulk	Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (pcf)	INTERVAL CORED (feet)	RECOVERY (%)	RQD (%)	FRACTURE DRAWING	FRACTURE DIP		
0	■											FILL: Brown, moist, medium dense, silty SAND (SM); trace gravel and asphalt fragments.
		■	4	23.0	94.7							ALLUVIUM: Brown, moist, firm, lean CLAY (CL); pinhole porosity; trace roots.
10		■	5									@ 10': Groundwater encountered during drilling.
												Light brown, wet, loose, clayey SAND (SC); oxidation staining.
		■	52									
												TOPANGA FORMATION: Light brown to yellowish brown, wet, very soft, weakly cemented, clayey SANDSTONE; weathered; oxidation staining.
20						5	96	96		10 10 10 10		Light brown; moderately hard; strongly cemented; moderately fractured; rough fracture surfaces; increase grain size.
						5	100	87		0 7 7 11		@ 25-30': Total Density = 143.1 pcf
30						5	100	91		0 0 27 38 0		Alternating light brown and light gray; fracture surfaces lined with magnesium oxide.
						5	100	92		0		Light gray; increase in hardness.
40												

FIGURE A- 5

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NCI REACH 5 REPLACMENT PROJECT
LAGUNA BEACH, CALIFORNIA

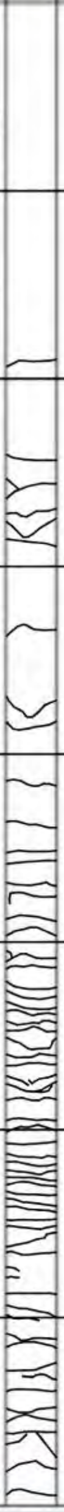
DATE DRILLED 2/2/23 and 2/3/23 CORE NO. B-2

GROUND ELEV. 25' ± (MSL) SHEET 2 OF 4

DRILLING METHOD 8" Hollow-Stem Auger/HQ3 DRILLER ABC Liovin

LOCATION Golf Course

SAMPLED BY ECH/RAF LOGGED BY ECH/RAF REVIEWED BY MLP



DEPTH (feet)	AUGER DRILLING: Bulk	Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ROCK CORING: INTERVAL CORED (feet)	RECOVERY (%)	RQD (%)	FRACTURE DIP	USCS SYMBOL/LITHOLOGY	DESCRIPTION/INTERPRETATION
40						5	100	100			TOPANGA FORMATION: (Continued) Light gray to dark gray, wet, moderately hard, fine grained, unfractured, clayey SANDSTONE; massive.
						5	100	96	0		Light gray, wet, hard, strongly indurated, slightly fractured, fresh, SILTSTONE. @ 45-50': Total Density = 149.7 pcf Fractures infilled with quartz; tight fractures.
50						5	100	86	0 13		Very slightly fractured. Light gray, wet, moderately hard, strongly cemented, slightly fractured, fresh, SANDSTONE.
						5	100	93	0		Moderately smooth and undulatory fracture surfaces.
60						5	100	97			Trace shell fossils. Light brown; moderately fractured; slightly weathered; trace gravel clasts; undulatory and moderately rough fracture surfaces; tight to slightly open.
						5	100	50	0		Moderately to intensely fractured; approximately 3/16" to 5/16" wide; infilled with silt and clay. Fracture surfaces lined with iron oxide staining. Light gray.
70						5	96	1	0		Moderately soft; moderately cemented; intensly fractured; open fractures.
						5	100	82			Alternating between light gray and light brown; moderately hard; strongly cemented; moderately fractured; medium to coarse-grained sandstone. Light gray granitic boulders and cobbles.
80											

FIGURE A- 6

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NCI REACH 5 REPLACMENT PROJECT
LAGUNA BEACH, CALIFORNIA
212121001 | 8/23

DATE DRILLED 2/2/23 and 2/3/23 CORE NO. B-2

GROUND ELEV. 25' ± (MSL) SHEET 3 OF 4

DRILLING METHOD 8" Hollow-Stem Auger/HQ3 DRILLER ABC Liovin

LOCATION Golf Course

SAMPLED BY ECH/RAF LOGGED BY ECH/RAF REVIEWED BY MLP

DEPTH (feet)	AUGER DRILLING: Bulk	AUGER DRILLING: Driven	AUGER DRILLING: BLOWS/FOOT	AUGER DRILLING: MOISTURE (%)	AUGER DRILLING: DRY DENSITY (pcf)	ROCK CORING: INTERVAL CORED (feet)	ROCK CORING: RECOVERY (%)	ROCK CORING: RQD (%)	ROCK CORING: FRACTURE DRAWING	ROCK CORING: FRACTURE DIP	USCS SYMBOL/LITHOLOGY	DESCRIPTION/INTERPRETATION
80						5	100	52		0		TOPANGA FORMATION: (Continued) Light gray, wet, moderately hard, moderately cemented, moderately fractured, SANDSTONE; fractures tight to open; no infilling/staining.
						5	100	82				@ 85-90': Total Density - 146.5 pcf Gray; wet; hard; strongly cemented; fine grained; tight hairline fractures; lined with magnesium staining.
90						5	100	74		0		Moderately hard; monderately cemented; moderately to intensely fractured; open to moderately wide fractures; coarse grained. Hard; strongly cemented; slightly fractured; decrease in grain size.
						5	100	93		7		Moderately hard; moderately cemented; fractures slightly open to open; increase grain size.
100						5	100	83				Intensely fractured. Moderately to slightly fractured. 2-inch chert clast in fracture.
						5	100	88		40 20		@ 105-110': Alternating layers of coarse and fine grained sandstone; trace magnesium staining. Fractures infilled with calcium carbonate.
110						5	98	98		42		Hard; strongly cemented; slightly fractured; rough fracture surfaces; no infilling/staining.
						5	100	98		0		Increase grain size.
120												

DATE DRILLED 2/2/23 and 2/3/23 CORE NO. B-2

GROUND ELEV. 25' ± (MSL) SHEET 4 OF 4

DRILLING METHOD 8" Hollow-Stem Auger/HQ3 DRILLER ABC Liovin

LOCATION Golf Course

SAMPLED BY ECH/RAF LOGGED BY ECH/RAF REVIEWED BY MLP

DEPTH (feet)	AUGER DRILLING					ROCK CORING					USCS SYMBOL/LITHOLOGY	DESCRIPTION/INTERPRETATION
	Bulk	Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (pcf)	INTERVAL CORED (feet)	RECOVERY (%)	RQD (%)	FRACTURE DRAWING	FRACTURE DIP		
120												Total Depth = 120 feet. Groundwater encountered at approximately 10 feet during drilling. Backfilled with cement-bentonite on 2/3/23. Notes: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
130												
140												
150												
160												

FIGURE A- 8

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Geotechnical & Environmental Sciences Consultants

NCI REACH 5 REPLACMENT PROJECT
LAGUNA BEACH, CALIFORNIA

APPENDIX B

Previous Boring Logs and Cone Penetration Test Soundings

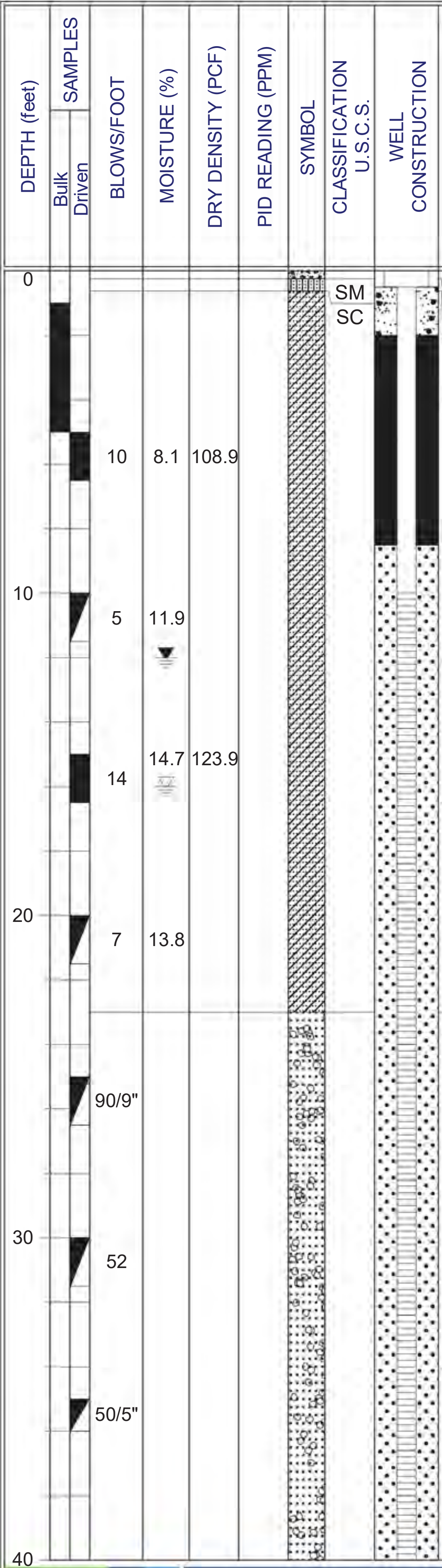
DATE DRILLED 2/10/20 BORING NO. PW-1

GROUND ELEVATION 20' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 12" Hollow-Stem Auger (ABC Liovin Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY MLP



DEPTH (feet)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	PID READING (PPM)	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0					SM	ASPHALT CONCRETE: Approximately 3 inches thick.
					SC	BASE: Gray, moist, loose to medium dense, silty SAND with gravel; approximately 4.5 inches thick.
						ALLUVIUM: Olive brown, moist, loose, clayey SAND with gravel; trace to few cobbles.
	10	8.1	108.9			
10	5	11.9				
		▼				@12': Groundwater measured after well installation approximately 1 day after drilling.
	14	14.7	123.9			
		▽				@16': Groundwater encountered during drilling; wet.
20	7	13.8				Olive brown.
						SAN ONOFRE BRECCIA: Olive brown to light blueish green, wet, moderately soft to moderately hard, BRECCIA; fine to coarse sand with angular gravel; intensely weathered.
	90/9"					
30	52					
	50/5"					Moderately weathered; moderately hard.
40						

FIGURE A- 3

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LIFT STATION NO. 2 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

DATE DRILLED 2/10/20 BORING NO. PW-1
GROUND ELEVATION 20' ± (MSL) SHEET 2 OF 2
METHOD OF DRILLING 12" Hollow-Stem Auger (ABC Liovin Drilling)
DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"
SAMPLED BY GM LOGGED BY GM REVIEWED BY MLP

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	PID READING (PPM)	SYMBOL	CLASSIFICATION U.S.C.S.	WELL CONSTRUCTION	DESCRIPTION/INTERPRETATION
40		◤	50/5"							SAN ONOFRE BRECCIA: (Continued) Light bluish gray, wet, moderately hard, BRECCIA; moderately weathered.
		◤	50/2"							Decrease in moisture content.
50		◤	50/3"							
60										
70										
80										

Total Depth = 50.3 feet.
Groundwater encountered during drilling at approximately 16 feet.
Groundwater measured at approximately 12 feet after well installation on 2/11/20.
Groundwater measured at approximately 13.2 feet prior to well development on 2/14/20.
Groundwater measured at approximately 11.4 feet prior to pump test on 3/19/20.
Well installed on 2/11/20.

Well Construction:
6-inch-diameter PVC casing from 0.5' - 10.0'.
6-inch-diameter PVC 0.020 slotted casing from 10.0' - 50.0'.
Traffic-rated vault cover and Portland cement concrete from 0' - 2.0'.
Cement-bentonite grout from 2.0' - 8.5'.
No. 2/12 sand from 8.5' - 50.3'.

Notes:
Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.

The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.

FIGURE A- 4

DATE DRILLED 2/11/20 BORING NO. MW-1

GROUND ELEVATION 20' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (ABC Liovin Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY MLP

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	PID READING (PPM)	SYMBOL	CLASSIFICATION U.S.C.S.	WELL CONSTRUCTION	DESCRIPTION/INTERPRETATION
0										ASPHALT CONCRETE: Approximately 3.5 inches thick.
	■							SM		BASE: Gray, moist, loose to medium dense, silty SAND with gravel; approximately 5 inches thick.
	■							SC		ALLUVIUM: Olive brown, moist, loose, clayey SAND with gravel; trace to few cobbles.
		◣	7							
10		■	16	8.0	117.7					Medium dense.
				▼						@ 12': Groundwater measured prior to tidal fluctuation survey on 3/18/20.
		◣	53							Very dense.
				▽						@16': Groundwater encountered during drilling; wet.
20		◣	8							Medium dense.
		◣	8							
										Total Depth = 26.5 feet. Groundwater encountered at approximately 16 feet during drilling. Groundwater measured at approximately 12.8 feet prior to well development on 2/14/20. Groundwater measured at approximately 12 feet prior to tidal fluctuation survey on 3/18/20. Well installed on 2/11/20.
30										Well Construction: 2-inch-diameter PVC casing from 0.5' - 5.0'. 2-inch-diameter PVC 0.020 slotted casing from 5.0' - 25.0'. Traffic-rated vault cover and Portland cement concrete from 0' - 2.0'. Cement-bentonite grout from 2.0' - 4.0'. No. 2/12 sand from 4.0' - 26.5'.
										Notes: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.
40										

FIGURE A- 5

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LIFT STATION NO. 2 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

DATE DRILLED 2/11/20 BORING NO. MW-1

GROUND ELEVATION 20' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (ABC Liovin Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY MLP

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	PID READING (PPM)	SYMBOL	CLASSIFICATION U.S.C.S.	WELL CONSTRUCTION	DESCRIPTION/INTERPRETATION
40										The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
50										
60										
70										
80										

FIGURE A- 6

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

LIFT STATION NO. 2 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

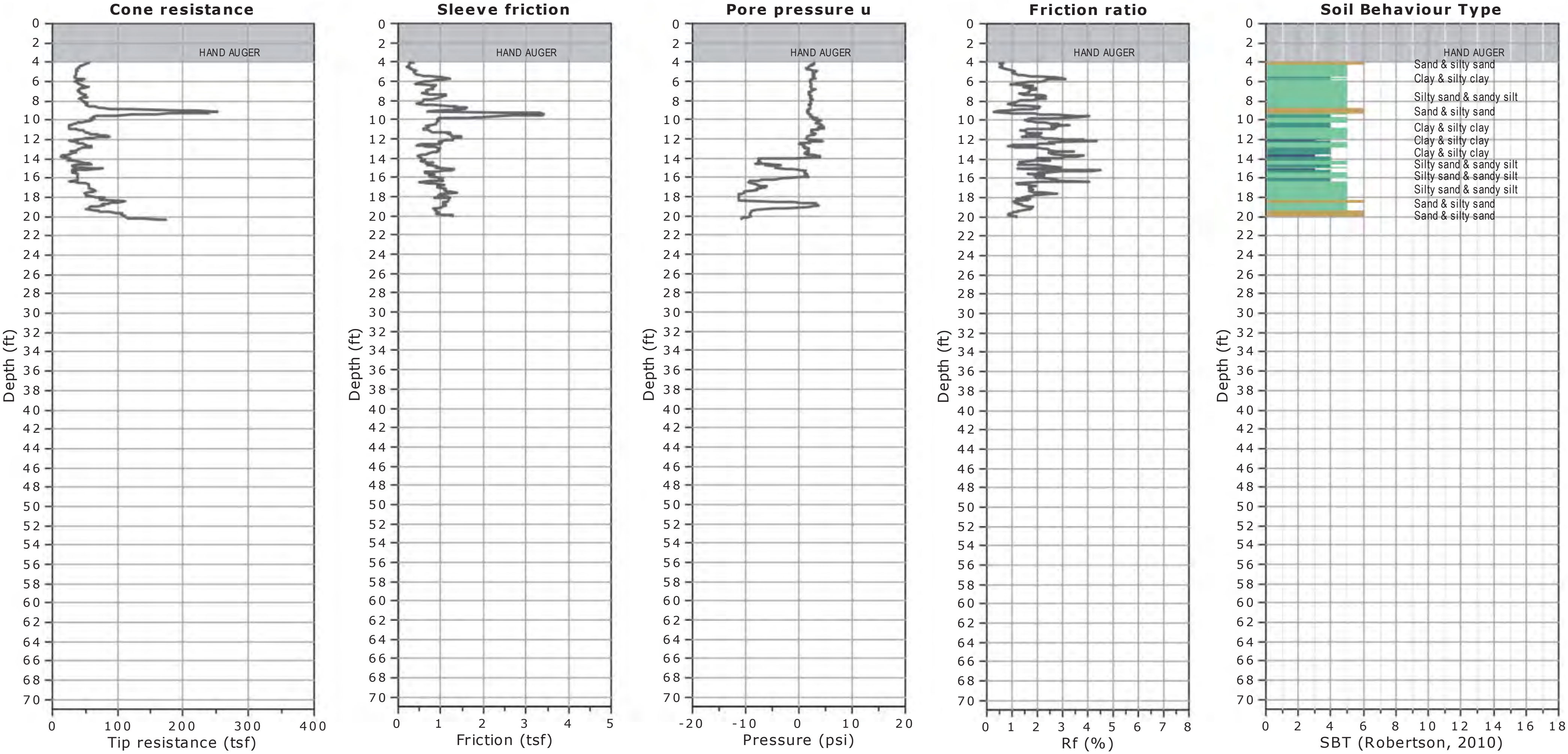
Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: Ninyo & Moore / Lift Station No. 2

Location: Laguna Beach, CA

CPT-1

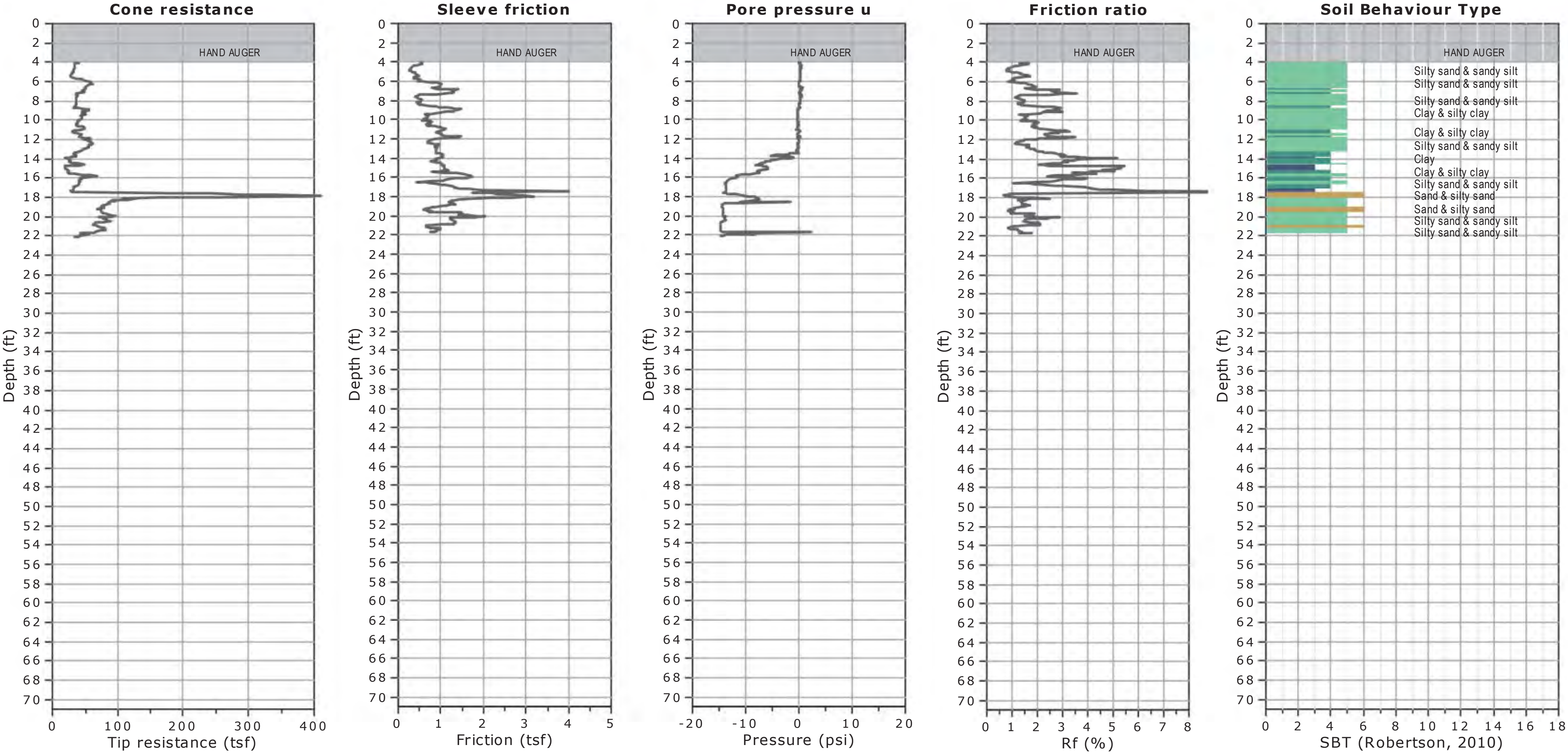
Total depth: 20.34 ft, Date: 2/6/2020



Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: Ninyo & Moore / Lift Station No. 2
Location: Laguna Beach, CA

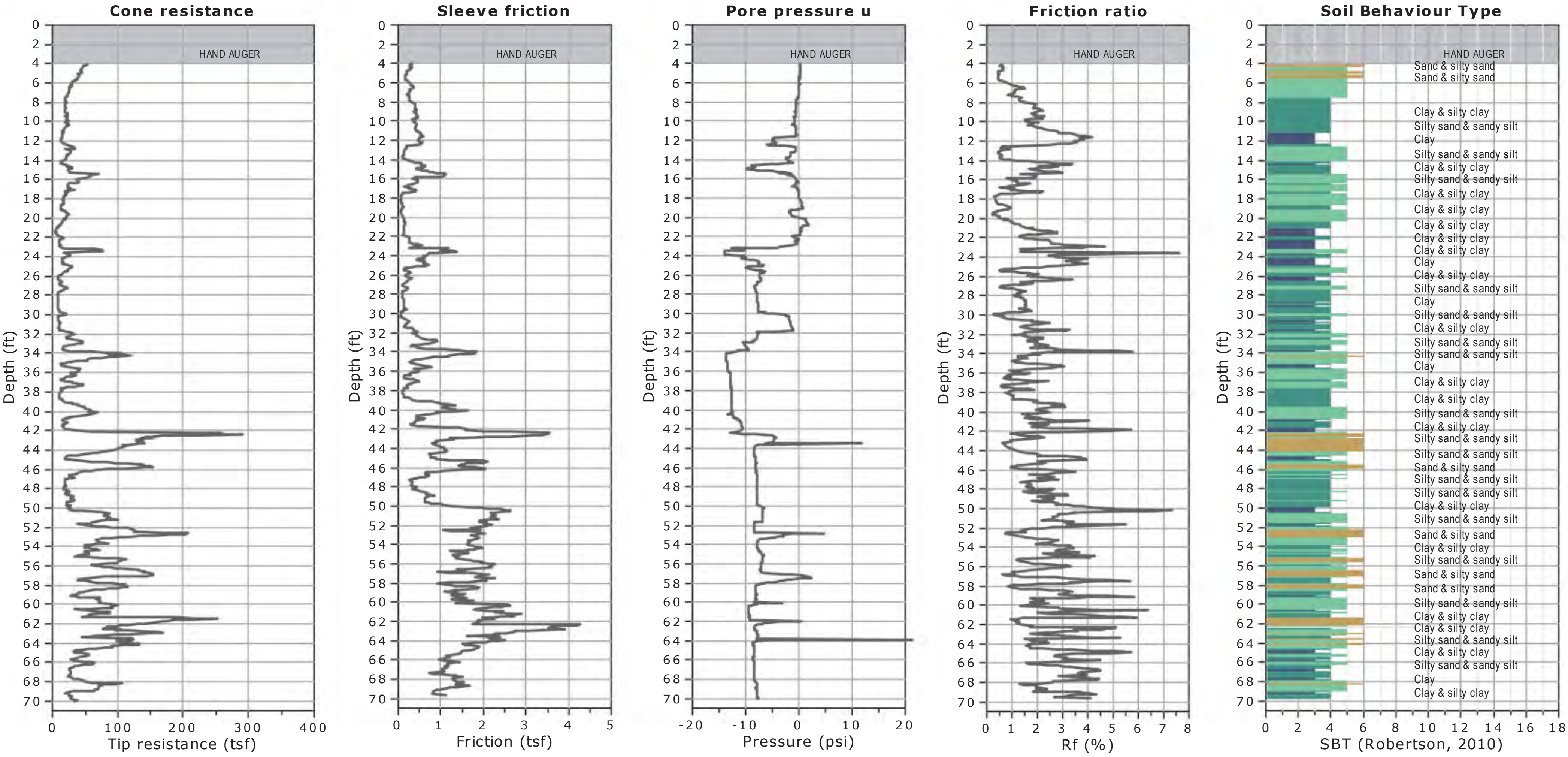
CPT-2
Total depth: 22.12 ft, Date: 2/6/2020



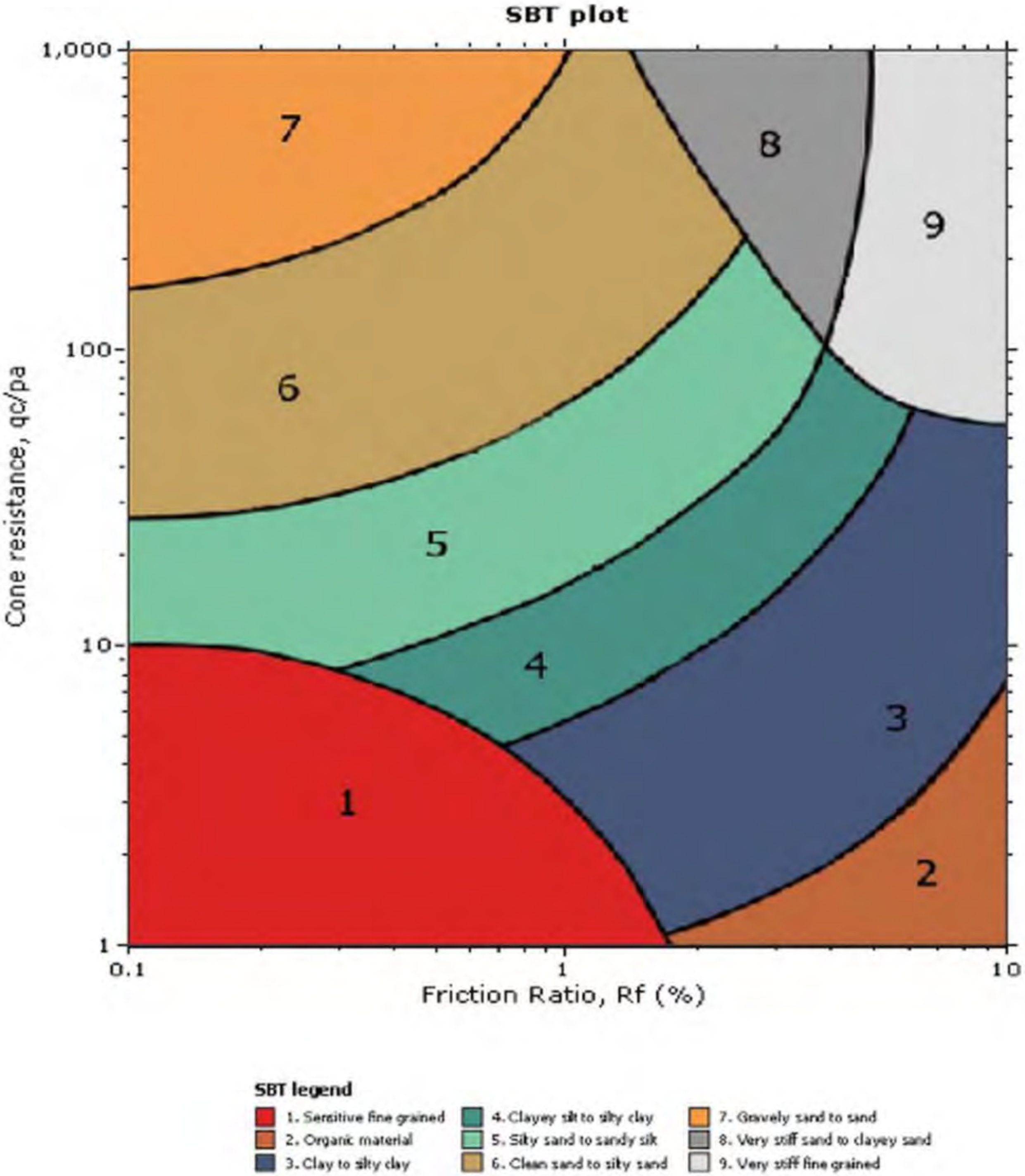
Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: **Ninyo & Moore / Lift Station No. 2**
Location: **Laguna Beach, CA**

CPT-3
Total depth: 70.10 ft, Date: 2/6/2020



Kehoe Testing & Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com



Ninyo & Moore
Lift Station No. 2
Laguna Beach, CA

CPT Shear Wave Measurements

Location	Tip Depth (ft)	Geophone Depth (ft)	Travel Distance (ft)	S-Wave Arrival (msec)	S-Wave Velocity from Surface (ft/sec)	Interval S-Wave Velocity (ft/sec)
CPT-3	10.04	9.04	9.26	11.66	794	
	20.01	19.01	19.11	31.25	612	503
	31.73	30.73	30.80	53.72	573	520
	40.55	39.55	39.60	65.96	600	719
	50.03	49.03	49.07	75.88	647	955
	60.04	59.04	59.07	84.24	701	1197
	70.11	69.11	69.14	94.52	731	979

Shear Wave Source Offset - 2 ft

S-Wave Velocity from Surface = Travel Distance/S-Wave Arrival
Interval S-Wave Velocity = (Travel Dist2-Travel Dist1)/(Time2-Time1)

DATE DRILLED 5/30/18 BORING NO. B-1

GROUND ELEVATION 22' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (Martini Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY JRS/MLP

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0	■					▦	SM	FILL: Reddish brown, moist, medium dense, silty SAND with gravel; trace gravel-sized concrete fragments.
		■	37	8.2	123.0	▦		
						▨	SC	ALLUVIUM: Grayish brown, moist, loose, clayey SAND; trace gravel.
10		■	8	15.5	113.2	▨		
						▦	SM	Brown, moist, loose, silty SAND; few gravel; trace cobbles.
				▽		▦		@15': Groundwater encountered during drilling; wet.
		■	10			▦		
						░	SP	Gray, wet, medium dense, poorly graded SAND.
20		■	33			░		
								Total Depth = 21.5 feet. Groundwater encountered during drilling at approximately 15 feet. Backfilled with cement-bentonite grout on 5/30/18. Notes: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
30								
40								

FIGURE A- 1

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

LIFT STATION NO. 2 FORCE MAIN REHABILITATION
ORANGE COUNTY, CALIFORNIA
210712001 | 7/18

DATE DRILLED 5/30/18 BORING NO. B-2
GROUND ELEVATION 17' ± (MSL) SHEET 1 OF 1
METHOD OF DRILLING 8" Hollow-Stem Auger (Martini Drilling)
DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"
SAMPLED BY GM LOGGED BY GM REVIEWED BY JRS/MLP

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0								ASPHALT CONCRETE: Approximately 5 inches thick.
	■						SM	BASE: Grayish brown, moist, medium dense, silty SAND with gravel; approximately 1 inch thick.
	■						SM	FILL: Yellowish brown, moist, loose, silty SAND; trace gravel; trace fine gravel-sized brick fragments.
		■	6	12.2	115.7		SM	ALLUVIUM: Grayish brown, moist, loose, silty SAND; thin interbeds of sandy silt.
	■							
10		■	8	▽ 18.7	105.9			@10': Groundwater encountered during drilling; wet. Thin interbeds of poorly graded sand.
		■	14				SP-SM	Gray, wet, loose, poorly graded SAND with silt.
20		■	7					Coarse sand.
								Total Depth = 21.5 feet. Groundwater encountered during drilling at approximately 10 feet. Backfilled with cement-bentonite grout and patched with rapid-set concrete on 5/30/18. Notes: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 2

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

LIFT STATION NO. 2 FORCE MAIN REHABILITATION
ORANGE COUNTY, CALIFORNIA

DATE DRILLED 5/30/18 BORING NO. B-3

GROUND ELEVATION 19' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (Martini Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY JRS/MLP

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							SM	ASPHALT CONCRETE: Approximately 3 inches thick.
	■			6.0			SM	BASE: Grayish brown, moist, medium dense, silty SAND with gravel; approximately 12 inches thick.
								FILL: Grayish brown, moist, medium dense, silty SAND; few gravel; trace clay pockets.
		■	20	▽			SC	ALLUVIUM: Yellowish brown, moist, medium dense, clayey SAND; trace gravel. @6': Groundwater encountered during drilling; wet.
10		■	16				SM	Yellowish brown, wet, medium dense, silty SAND.
		◣	8				SP-SM	Yellowish brown, wet, medium dense, poorly graded SAND with silt.
20		◣	18				SP	Grayish brown, wet, medium dense, poorly graded SAND; medium to coarse sand.
30								Total Depth = 21.5 feet. Groundwater encountered during drilling at approximately 6 feet. Backfilled with cement-bentonite grout and patched with rapid-set concrete on 5/30/18. Notes: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
40								

FIGURE A- 3

LIFT STATION NO. 2 FORCE MAIN REHABILITATION
ORANGE COUNTY, CALIFORNIA

DATE DRILLED 5/30/18 BORING NO. B-4

GROUND ELEVATION 29.5' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (Martini Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY JRS/MLP

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0	■					▥	SM	FILL: Yellowish brown, moist, loose, silty SAND.
		■	12	9.4	109.9	▥	SM	ALLUVIUM: Reddish brown, moist, loose, silty SAND; trace thin interbeded layers of sandy silt.
10		■	10	18.3	99.4	▥		Moist to wet.
				▽		▥		@14': Groundwater encountered during drilling; wet.
		■	18	16.6	114.3	▥		Medium dense.
						▨	SC	Brown, wet, medium dense, clayey SAND.
20		■	20			▨		
						░	SP	Grayish brown, wet, medium dense, poorly graded SAND; medium coarse sand.
30								
40								

Total Depth = 21.5 feet.
Groundwater encountered during drilling at approximately 14 feet.
Backfilled with cement-bentonite grout on 5/30/18.

Notes:
Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.

The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.

FIGURE A- 4

LIFT STATION NO. 2 FORCE MAIN REHABILITATION
ORANGE COUNTY, CALIFORNIA

DATE DRILLED 5/30/18 BORING NO. B-5

GROUND ELEVATION 28' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (Martini Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY JRS/MLP

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0	■					▥	SM	ALLUVIUM: Light grayish brown, moist, loose to medium dense, silty SAND; trace cobbles; trace gravel.
	■					▥		Dark grayish brown.
		■	8	14.4	104.3	▥		Yellowish brown mottling; loose.
						▒	SP	Grayish brown, moist, medium dense, poorly graded SAND with gravel; coarse sand.
10		■	16	▽ 14.5	115.0	▒		@10': Groundwater encountered during drilling; wet.
						▒	SP-SM	Grayish brown, wet, medium dense, poorly graded SAND with silt and gravel; coarse sand.
		■	31	10.2	123.6	▒		
20		■	7			▒		Loose.
						▥	ML	Gray, wet, loose, sandy SILT.
								Total Depth = 21.5 feet. Groundwater encountered during drilling at approximately 10 feet. Backfilled with cement-bentonite grout on 5/30/18.
30								
40								

Notes:

Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.

The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.

FIGURE A- 5

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

LIFT STATION NO. 2 FORCE MAIN REHABILITATION
ORANGE COUNTY, CALIFORNIA

210712001 | 7/18

DATE DRILLED 5/31/18 BORING NO. B-6

GROUND ELEVATION 46' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (Martini Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY JRS/MLP

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0								ASPHALT CONCRETE: Approximately 2.5 inches thick.
							SM	BASE: Grayish brown, moist, medium dense, silty SAND with gravel; approximately 1 inch thick.
	■						SP	FILL: Yellowish brown, moist, medium dense, poorly graded SAND; fine sand.
	■						SM	ALLUVIUM: Dark brown, moist, loose, silty SAND; few gravel; trace cobbles.
	■	■	13	7.5	111.8			
10		■	52					LANDSLIDE DEPOSITS: Reddish brown to yellowish brown, moist, soft to moderately hard, silty SANDSTONE; moderately cemented, interbedded layers of strongly cemented sandstone; slightly friable.
		■	82/11"	7.9	125.4			Interbedded layers of conglomeratic sandstone; moderately cemented.
								Increase in silt content.
20		■	52					Reddish brown; thin interbeds of fine gravelly sandstone.
								Total Depth = 21.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil and patched with rapid-set concrete on 5/31/18.
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Notes:

Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.

The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.

FIGURE A- 6

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

LIFT STATION NO. 2 FORCE MAIN REHABILITATION
ORANGE COUNTY, CALIFORNIA

DATE DRILLED 5/31/18 BORING NO. B-7

GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (Martini Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY JRS/MLP

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						■		ASPHALT CONCRETE: Approximately 8 inches thick.
	■					▨	SM	BASE: Grayish brown, moist, medium dense, silty SAND with gravel; approximately 18 inches thick.
	■					▨	SM	FILL: Brown, moist, medium dense, silty SAND; few gravel; trace clay pockets.
		■	15	7.2	118.2	▨	SM	ALLUVIUM: Reddish brown, moist, medium dense, silty SAND; medium sand; trace fine to coarse gravel.
	■					▨		Trace rootlets.
10	■	☒	97/11"			▨		Very dense; cobbles.
		☒	19			▨		Medium dense.
	■	■	30	5.5	128.0	▨		Few gravel.
								Total Depth = 16.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil and patched with rapid-set concrete on 5/31/18.
20								Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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40								

FIGURE A- 7

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Geotechnical & Environmental Sciences Consultants

LIFT STATION NO. 2 FORCE MAIN REHABILITATION
ORANGE COUNTY, CALIFORNIA

DATE DRILLED 5/31/18 BORING NO. B-8
GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1
METHOD OF DRILLING 8" Hollow-Stem Auger (Martini Drilling)
DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"
SAMPLED BY GM LOGGED BY GM REVIEWED BY JRS/MLP

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						■	SM	ASPHALT CONCRETE: Approximately 2.5 inches thick.
						▨	SM	BASE: Grayish brown, moist, medium dense, silty SAND with gravel; approximately 6 inches thick.
	■					▨		FILL: Brown, moist, loose to medium dense, silty SAND; trace fine gravel; trace clay pockets.
		■	10	9.0	102.3	▨		Loose.
						▨	SM	ALLUVIUM: Yellowish brown, moist, medium dense, silty SAND; fine sand.
10		■	17	7.7	112.7	▨		
		■	10	12.4	111.6	▨		Loose; increase in silt content.
20								Total Depth = 16.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil and patched with rapid-set concrete on 5/31/18.
30								
40								

Notes:

Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.

The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.

FIGURE A- 7

LIFT STATION NO. 2 FORCE MAIN REHABILITATION
ORANGE COUNTY, CALIFORNIA

DATE DRILLED 2/13/18 BORING NO. B-1

GROUND ELEVATION 55' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (California Pacific Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY AES LOGGED BY AES REVIEWED BY JRS/MLP

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						▨	SC	FILL: Reddish brown, moist, medium dense, clayey SAND; trace gravel-sized pieces of concrete.
	■							
		■	67	5.4	116.4			Light brown; dense; with gravel.
10	■	■	42	8.2	123.8			Dark brown; medium dense; increase in clay content; coarse sand; trace roots.
		■	28	9.4	119.1			Brown; trace coarse gravel.
20	■	■	23	10.2	118.1			
						▨	CL	ALLUVIUM: Yellowish brown, moist, stiff, sandy CLAY.
		■	13	14.6	114.9			
						▥	ML	Yellowish brown, wet, very loose, sandy SILT: micaceous; thin interbedded clay layers. @ 30': Groundwater encountered during drilling.
30		■	2	▽ 25.7	98.5			
		■	7					Loose; trace coarse sand.
40								

FIGURE A- 1

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

COASTAL TREATMENT PLANT FACILITY PLAN IMPROVEMENTS
LAGUNA NIGUEL, CALIFORNIA

DATE DRILLED 2/13/18 BORING NO. B-1

GROUND ELEVATION 55' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (California Pacific Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY AES LOGGED BY AES REVIEWED BY JRS/MLP

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		■	9			▥	ML	ALLUVIUM: (Continued) Yellowish brown, wet, medium dense, sandy SILT; micaceous; few to little coarse sand.
		■	9			▥		Thin interbedded sand layers.
50		■	18			▥		Medium dense.
								Total Depth = 51.5 Feet. Groundwater encountered at approximately 30 feet during drilling. Backfilled with bentonite-cement grout and capped with on-site soil on 2/13/18. Notes: Groundwater may rise to a level higher than that measured in borehole due to relatively slow rate of seepage in clay and several other factors as discussed in the report. Please refer to the report for groundwater monitoring recommendations. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
60								
70								
80								

FIGURE A- 2

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

COASTAL TREATMENT PLANT FACILITY PLAN IMPROVEMENTS
LAGUNA NIGUEL, CALIFORNIA

210406001 | 7/18

DATE DRILLED 4/19/16 BORING NO. B-1
GROUND ELEVATION 20' ± (MSL) SHEET 1 OF 2
METHOD OF DRILLING 6" Hollow-Stem Auger (Cal Pac Drilling)
DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"
SAMPLED BY SMR LOGGED BY SMR REVIEWED BY JRS

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0								ASPHALT CONCRETE: Approximately 3 inches thick.
							SM	AGGREGATE BASE: Gray, moist, loose to medium dense, silty SAND with gravel; approximately 6 inches thick.
								ASPHALT CONCRETE: Approximately 3 inches thick.
			18	8.3	105.7		SC	ALLUVIUM: Olive moist, loose to medium dense, clayey SAND with gravel; cobbles. Medium dense.
10			10	▽				@ 10': Groundwater encountered during drilling. Olive brown; saturated.
				▼				@ 12': Groundwater measured after drilling complete.
			11	13.9	106.0			
20			10					
			10					
								@ 28': Drill rig auger bouncing on possible cobbles.
							SP-SM	Gray, saturated, medium dense, poorly graded SAND with silt and gravel.
30			12				SC	Olive gray, saturated, medium dense, clayey SAND.
							SP	Olive gray, saturated, medium dense, poorly graded fine SAND.
			11				SC	Olive gray, saturated, medium dense, clayey SAND.
40								

Ninyo & Moore

BORING LOG

LIFT STATION NO. 2, SOUTH COAST WATER DISTRICT
LAGUNA BEACH, CALIFORNIA

PROJECT NO.	DATE	FIGURE
209638001	6/16	A-1

DATE DRILLED 4/19/16 BORING NO. B-1

GROUND ELEVATION 20' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 6" Hollow-Stem Auger (Cal Pac Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY SMR LOGGED BY SMR REVIEWED BY JRS

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		◩	50/4"			▨		SAN ONOFRE BRECCIA: (Continued) Light bluish green, saturated, moderately soft to moderately hard, SANDSTONE; fine- to coarse-grained, intensely weathered.
		◩	50/5"			▨		Bluish gray; moderately weathered; fine- to medium-grained.
50		◩	50/1"			▨		Light bluish gray.
								Total Depth = 50 feet. Groundwater encountered at approximately 10 feet during drilling and measured at approximately 12 feet after drilling complete. Backfilled with cement-bentonite grout and capped with rapid-set concrete on 4/19/16. Notes: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
60								
70								
80								

Ninyo & Moore

BORING LOG

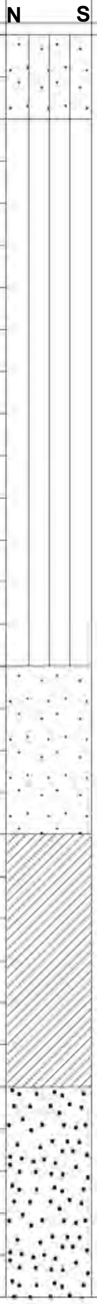
LIFT STATION NO. 2, SOUTH COAST WATER DISTRICT
LAGUNA BEACH, CALIFORNIA

PROJECT NO.	DATE	FIGURE
209638001	6/16	A-2

GEOTECHNICAL BORING LOG LB-4

Project No. 10617.001
Project SCWD - Lift Station 2 Force Main
Drilling Co. Martini Drilling Corporation
Drilling Method Hollow Stem Auger - 140lb - Autohammer - 30" Drop
Location See Plate 1 - *Geotechnical Exploration Map*

Date Drilled 8-4-14
Logged By CD
Hole Diameter 8"
Ground Elevation 53'
Sampled By CD



Elevation Feet	Depth Feet	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	**SOIL DESCRIPTION** *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.*	Type of Tests
	0		BB-1				SM	**Artificial Fill: (AF)** SILTY SAND with gravel, yellowish brown, moist, round to subangular gravel and cobbles at surface	
							ML	**Quaternary Terrace Deposits: (Qt)** @2ft: SANDY SILT, dark brown, medium stiff, moist, non plastic, fine grained with gravel, some clay	
50									
	5		R-1	3 3 4	103	14			
45									
	10		S-1	1 2 2				@10ft: becomes more moist, soft @11ft: CLAYEY SILT, olive brown, medium stiff, moist, low to medium plasticity	
40									
	15		R-2	3 5 3	109	12	SP	@15ft: SAND, light brown, very moist, loose, fine grained, iron staining along coarse sand laminations	
35									
							CL	@19ft: SANDY CLAY, dark reddish brown, very moist, medium stiff to stiff, coarse grained rounded sand, sharp contact with below	
	20		S-2	3 4 5				@20.5ft: olive brown to bluish gray and orange brown, very moist, fine grained, trace coarse sand, oxidized	
30									
	25		R-3	10 15 20	108	18		**Quaternary landslide - Topanga Sandstone (Qols)** Silty SANDSTONE, very moist, severely weathered, fine grained, heavily oxidized along randomly oriented parting surfaces	
25									
	30								

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	DS	DIRECT SHEAR	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	EI	EXPANSION INDEX	SE	SAND EQUIVALENT
CN	CONSOLIDATION	H	HYDROMETER	SG	SPECIFIC GRAVITY
CO	COLLAPSE	MD	MAXIMUM DENSITY	UC	UNCONFINED COMPRESSIVE STRENGTH
CR	CORROSION	PP	POCKET PENETROMETER		
CU	UNDRAINED TRIAXIAL	RV	R VALUE		

GEOTECHNICAL BORING LOG LB-4

Project No. 10617.001
Project SCWD - Lift Station 2 Force Main
Drilling Co. Martini Drilling Corporation
Drilling Method Hollow Stem Auger - 140lb - Autohammer - 30" Drop
Location See Plate 1 - *Geotechnical Exploration Map*

Date Drilled 8-4-14
Logged By CD
Hole Diameter 8"
Ground Elevation 53'
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** *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.*	Type of Tests
	30			S-3	9 6 12				@30ft: Sandy SILTSTONE, medium dense, moist, light yellow brown, very fine grained sand	
									Total depth of boring: 31.5 feet Groundwater not encountered during drilling Boring backfilled with soil cuttings upon completion of drilling	
20										
	35									
15										
	40									
10										
	45									
5										
	50									
0										
	55									
-5										
	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:

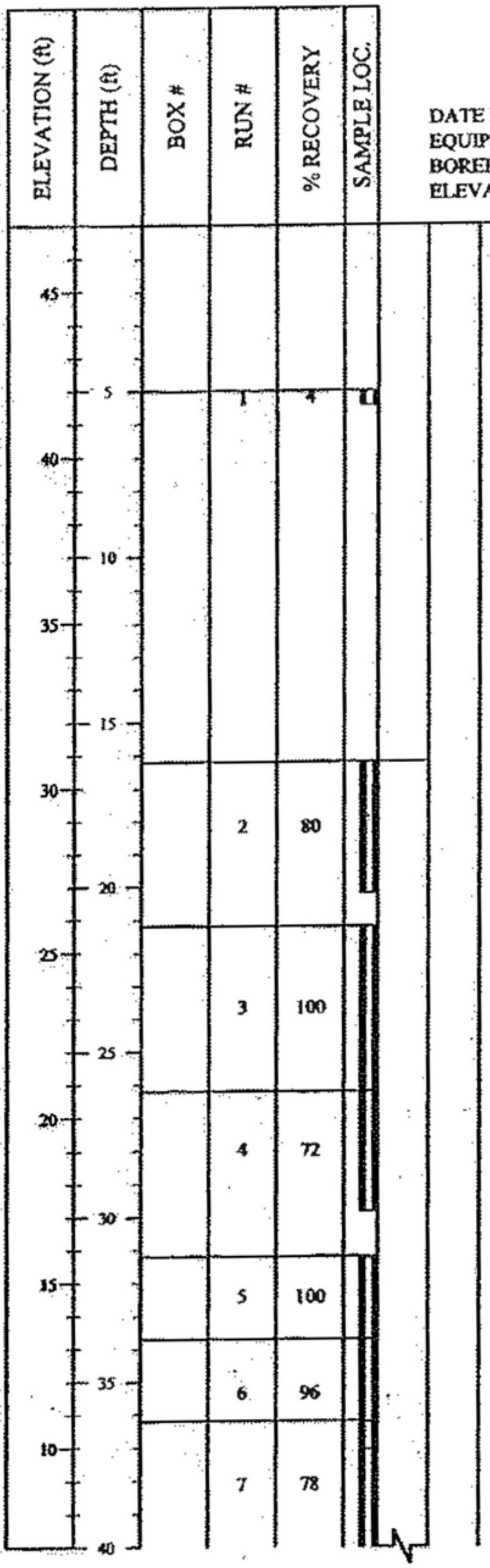
-200	% FINES PASSING
AL	ATTERBERG LIMITS
CN	CONSOLIDATION
CO	COLLAPSE
CR	CORROSION
CU	UNDRAINED TRIAXIAL
DS	DIRECT SHEAR
EI	EXPANSION INDEX
H	HYDROMETER
MD	MAXIMUM DENSITY
PP	POCKET PENETROMETER
RV	R VALUE
SA	SIEVE ANALYSIS
SE	SAND EQUIVALENT
SG	SPECIFIC GRAVITY
UC	UNCONFINED COMPRESSIVE STRENGTH

* * * This log is a part of a report by Leighton and should not be used as a stand-alone document. * * *

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING 5

DATE DRILLED: 2/12/2008
EQUIPMENT USED: Hollow Stem Auger (Rotary)
BOREHOLE SIZE (in.): 8
ELEVATION: 47.0 *



Alluvium
SANDY SILT - dark brown

medium brown, dry, occasional gravel

Landslide Material
@16.0' light brown Silty fine SANDSTONE

@16.2' yellowish brown SILTSTONE bed
@16.4' very fine Silty SANDSTONE
@ 17.0-20.2' Silty fine grained SANDSTONE - massive, greenish gray & orange brown, root
@18.7' medium to coarse grained SANDSTONE

@21.2' medium to coarse grained, grayish green, massive, with some laminations, some cross bedding, slightly oxidized

@25.2' laminate; 15° dip

@26.5' fine to medium grained, some coarse grained, light gray to orange brown, locally bedded and cross bedded, no obvious jointing

@31.2' fine to medium grained, light brown, Silty SANDSTONE, moderately cemented
@32.3' gray 1/8 to 1/4" Silt bed; 15-20°dip
@32.7' 1/16 to 1/8" Silt bed
@33.4' bedding in Sand
@33.7' fine to medium grained, some coarse
@33.8' Silty Sand bedding
@35.5' Sandy bedding

@36.6' discontinuous Silt bed
@37.2' fine to medium grained

@38.0' fine to coarse grained
@38.7' medium to coarse grained , with fine gravel

Geologist: RM/ME
Prepared By: PWK
Checked By: RK 7/18/08

(CONTINUED ON FOLLOWING FIGURE)

Aliso Creek Resort
Laguna Beach, California

MACTEC

LOG OF BORING

Project: 4953-06-1193 Figure: A-1.5a

BORING 5 (Continued)

DATE DRILLED: 2/12/2008
EQUIPMENT USED: Hollow Stem Auger (Rotary)
BOREHOLE SIZE (in.): 8
ELEVATION: 47.0 *

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	SAMPLE LOC.
5	45		8	88	
0	50		9	100	
-5	55		10	92	
-10	60		11	76	
-15	65		12	44	
-20	70		13	96	
-25	75		14	100	
-30	80		15	100	

@41.3' medium to coarse grained SANDSTONE grades to medium gray very cemented SANDSTONE
@41.7' bluish green cemented SILTSTONE
@42.4' grayish green SILTSTONE
@42.6-43.1' sheared Clayey SILTSTONE; ~15 to 20°dip
@43.1' Sandy SILTSTONE, greenish gray, laminated, some oxidized lenses
@44.0' highly polished surface in sheared zone , probably RUPTURE SURFACE; 15° dip

TOPANGA FORMATION

@44.8' oxidized bluish fine to medium grained SANDSTONE
@46.2' medium grained SANDSTONE to Sandy SILTSTONE
@46.4' grayish brown with minor orange/brown mottled, fine grained, Silty SANDSTONE, laminated
@48.4' light to medium gray, Silty fine grained SANDSTONE

@50.5' 1½" thick coarse grained Sand bed; 15°dip
@51.2' Silty fine grained SANDSTONE, crudely bedded; ~25 to 30°dip
@51.8' Silty fine to medium grained SANDSTONE

@53.6' grades into fine to coarse grained SANDSTONE

@55.1' fine to medium grained
@55.7' fine to coarse grained
@56.2' fine to medium grained, light to medium gray (salt & pepper)
@56.9-57.2' fine to coarse grained
@57.5-57.7' fine to coarse grained
@58.3' fine to coarse grained

@60.1' fine to coarse grained, with fine gravel, minor fault (Clay lined)
@60.6' fine to coarse grained
@61.2' light to medium gray, fine to coarse grained Sand with Gravel

@62.4' fine grained SANDSTONE, cemented

@63.3' fine grained Sandy SILTSTONE, slightly cemented, massive

@66.2' 1/4" thick Silt bed
@66.3' fine to medium grained SANDSTONE, cemented
@66.5' fine to coarse grained, with fine gravel, massive
@66.7' 1/4" thick Silt bed; ~25°dip

@71.2' fine to coarse grained, few fine gravels

@74.4' 1.5" thick fine to medium grained Sand, slightly laminated
@75.2' 1/4" thick Sandy Silt bed
@75.8' gray Silt bed
@76.2' 1/4" thick Clayey Silt bed, polished
@76.3' fine to coarse grained
@76.8-77.5' Silty laminations in fine and fine to medium grained SANDSTONE
@77.5' fine to medium grained
@78.5' fine to coarse grained
@79.4' few fine gravel

Geologist: RM/ME
Prepared By: PWK
Checked By: 7/18/08

(CONTINUED ON FOLLOWING FIGURE)

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Aliso Creek Resort
Laguna Beach, California

MACTEC

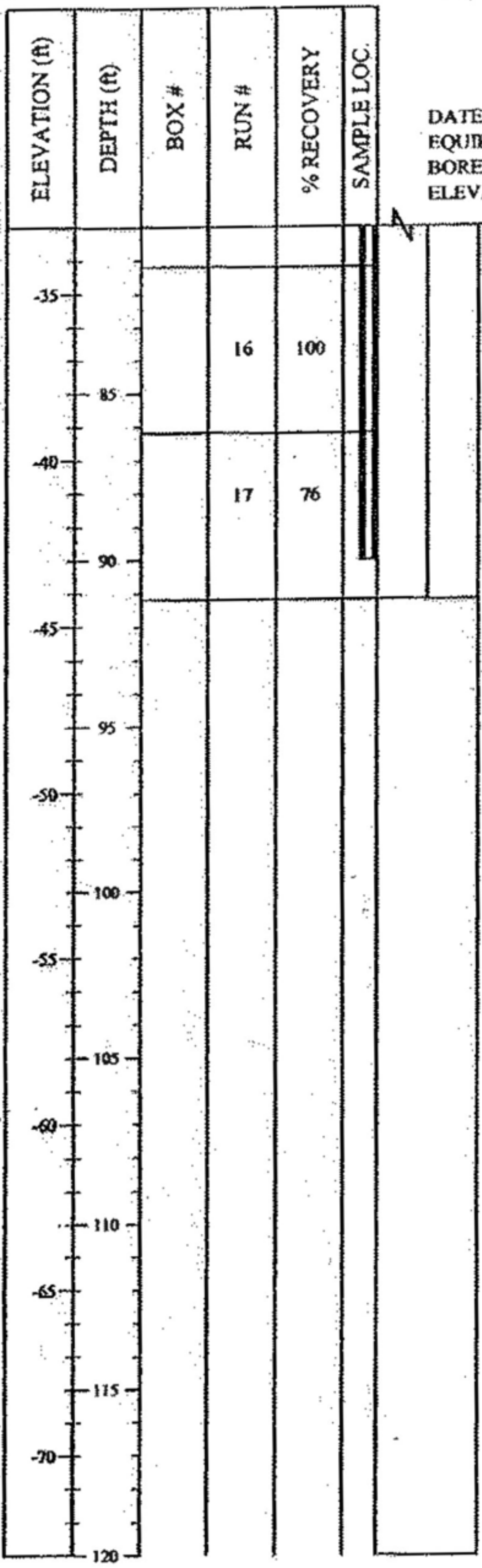
LOG OF BORING

Project: 4953-06-1193 Figure: A-1.5b

BORING 5 (Continued)

DATE DRILLED: 2/12/2008
EQUIPMENT USED: Hollow Stem Auger (Rotary)
BOREHOLE SIZE (in.): 8
ELEVATION: 47.0 *

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



@80' fine gravel in fine to coarse grained

@81.2' fine to coarse grained, with fine gravel, massive

@82.0' Silt, clast ~1/2" long
@82.1' fine to medium grained
@82.8' medium to coarse grained
@82.9 very fine Silty SAND-Sandy SILT; top dips 20-25°, cemented
@83.3' dark gray SILTSTONE, 1-2" thick, cemented; 20-25° dip
@83.5' dark gray sheared Clayey SILT to Silty CLAY, 1½" thick
@83.6' Silt bed, 2" thick, cemented
@83.8' 1/4" thick Clayey Silt bed, possibly sheared
@83.9-84.0' polished, paperthin, discontinuous clay films along bedding or laminations, irregular; 20° dip
@84.0' fine grained Silty SANDSTONE, cemented
@84.7' very fine Sandy SILTSTONE
@85.1' base of SILTSTONE, polished, 1/16" Silty CLAY/Clayey SILT; dips 25°, below fine to coarse grained, SANDSTONE with few fine gravel
@86.2' medium to coarse grained
@86.4-86.6' Silty fine grained, laminations/beds; 25°dip
@86.7' fine to medium grained
@87.4-87.5' fine grained, laminations/beds; 20° dip
@87.5' fine to coarse grained
@88.1-88.3' fine to coarse grained, medium gravel
@88.3' fine to medium grained
@88.7' fine to coarse grained, very few fine gravel

END OF BORING AT 91.2 FEET
NOTES:

1) Hand Augered to 5'.
2) Boring backfilled with grout.

* Elevation based on topographic map by Wilson Mikami Corporation.

Geologist: RM/ME
Prepared By: PWK
Checked By: Ch 7/18/08

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING 6

DATE DRILLED: 6/05/2008 - 6/06/2008
EQUIPMENT USED: Hollow Stem Auger (Rotary)
BOREHOLE SIZE (in.): 8
ELEVATION: 40.0 *

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	SAMPLE LOC.	
						Alluvium
35	5		1	15		@5.0' 3 mafic pebbles, 1 Sandstone pebble
			2	3		@6.7' Sandstone clast in shoe
30	10					
			3	10		@11.7' Sandstone and Conglomerate pebbles, rounded
25	15					
			4	10		@16.7' Sandstone pebbles, 1-3 " diameter
20	20					
			5	20		@21.7 Igneous, Quartz, Sandstone and Conglomerate pebbles, rounded 1/4-2" diameter
15	25					
			6	25		@26.7' 2 Conglomerate pebbles, 1 and 1 1/2" diameter
						Landslide Material
			7	50		@27.2' CONGLOMERATE, light orange brown, fine to coarse sand with rounded gravel to 1/2" diameter, becomes light gray with orange brown, cemented
10	30					
			8	77		@30.2 light gray brown with orange brown, clasts to 1 1/2", cemented, dip 30° on slightly Silty cemented bed, dark gray clast in shoe
			9	33		@33.2' CONGLOMERATE
5	35					
			10	46		@36.2' medium gray brown coarse CONGLOMERATE with dark gray schist clast @36.6 contact with light gray CONGLOMERATE dips 25° with coarse gravel at contact @38.1' light orange brown @38.6' 1/4-1/2" medium greenish gray CLAY, moderately plastic
	40					

Geologist: RM
Prepared By: AH
Checked By: Ru 7/18/08

(CONTINUED ON FOLLOWING FIGURE)

Aliso Creek Resort
Laguna Beach, California

MACTEC

LOG OF BORING

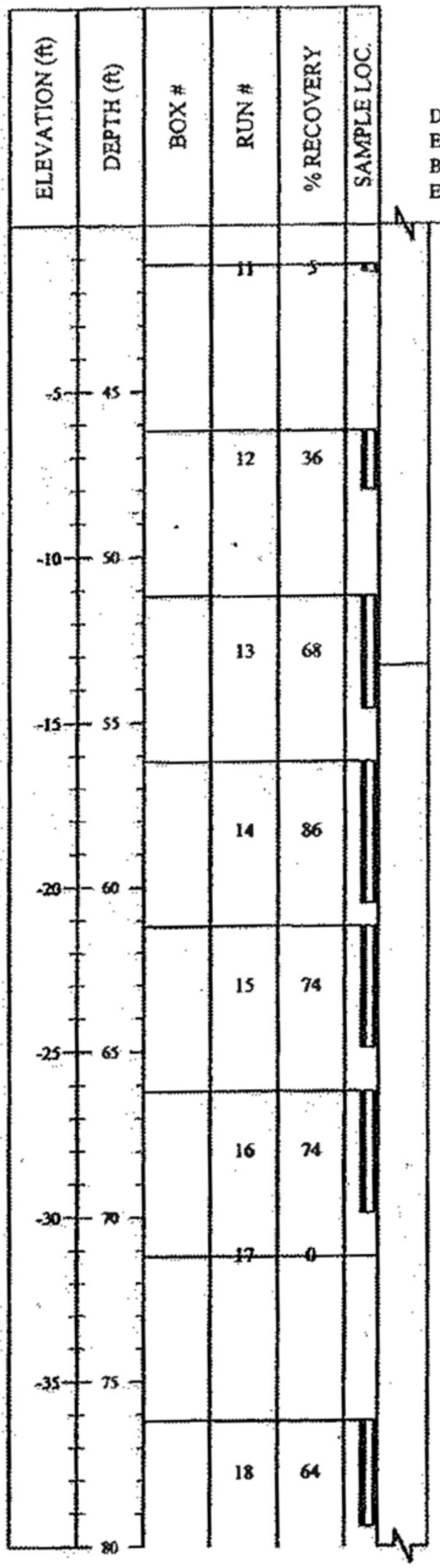
Project: 4953-06-1193 Figure: A-1.6a

B19SOIL MACTEC DWP2 VN 06-1193 GEOLOGY.GPJ LAW CRAN.GDT 7/18/08

BORING 6 (Continued)

DATE DRILLED: 6/05/2008 - 6/06/2008
EQUIPMENT USED: Hollow Stem Auger (Rotary)
BOREHOLE SIZE (in.): 8
ELEVATION: 40.0 *

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



@41.2' dark gray clast

@46.2' large gravel
@46.6' CLAYEY SILT - SILTY CLAY with gravel
@46.9' 1" horizontal greenish gray CLAY above orange brown fine to coarse SANDSTONE
@47.2' horizontal sheared green-gray CLAY with some gravel, 75° CONGLOMERATE contact against green-gray CLAY

@51.2' yellowish brown CLAYEY SILT with gravel, Sandy, above medium greenish gray SILTY CLAY
@51.7' sheared
@52.3' CLAYEY SILT
San Onofre Breccia
@53.3' fine Sandy SILTSTONE, thin bedded-laminated, dips 15°

@56.2' medium greenish gray fine SANDSTONE, thin bedded-laminated, bedding planes poorly developed

@57.8' massive, fine to medium grained

@61.2' medium to dark gray fine-medium SANDSTONE
@61.6' fine grained
@62.1' medium greenish gray to gray brown fine to coarse SANDSTONE

@64.2' medium to dark gray
@64.4' medium brownish gray

@66.2' medium greenish gray, fine to coarse SANDSTONE

@67.2' bedded hard SILTSTONE and fine to medium SANDSTONE, gray
@67.6' medium gray brown, fine to coarse SANDSTONE
@67.8' medium to dark gray

@71.2' no recovery

@76.2' medium bluish gray, medium to coarse SANDSTONE, poorly to moderately well cemented, some crude bedding dips 20°

Geologist: RM
Prepared By: AH
Checked By: RM 7/18/08

(CONTINUED ON FOLLOWING FIGURE)

Aliso Creek Resort
Laguna Beach, California

MACTEC

LOG OF BORING
Project: 4953-06-1193 Figure: A-1.6b

BORING 6 (Continued)

DATE DRILLED: 6/05/2008 - 6/06/2008
EQUIPMENT USED: Hollow Stem Auger (Rotary)
BOREHOLE SIZE (in.): 8
ELEVATION: 40.0 *

ELEVATION (ft)	DEPTH (ft)
-45	85
-50	90
-55	95
-60	100
-65	105
-70	110
-75	115
	120

BOX #	RUN #	% RECOVERY	SAMPLE LOC.
	19	74	
	20	100	
	21	94	
	22	96	
	23	100	
	24	74	
	25	98	
	26	64	

@81.2 medium bluish gray, medium to coarse SANDSTONE, poorly to moderately well cemented, minor crude bedding

@86.2' light to medium bluish gray, medium to coarse SANDSTONE
@86.5' fine to medium grained, some coarse

@88.2' medium to coarse grained

@91.2' light to medium bluish gray, medium grained SANDSTONE, well cemented

@92.5' fine to medium grained, fine black mica lamination dips 20°

@94.3' medium to coarse grained

@96.2' light to medium bluish gray, medium to coarse SANDSTONE, well cemented
@97.2' fine to edium grained
@97.8' medium to coarse grained, crudely bedded, dip 20-25°

@99.9' dark bluish gray SILTSTONE, hard
@100.2' Silty Clay bed, lightly sheared, 1/2" thick
@100.3' hard dark gray SILTSTONE and fine SANDSTONE, crudely bedded to laminated
@101.2' medium to dark bluish gray, fine to medium SANDSTONE, cemented
@102.4' medium to coarse grained, some crude bedding

@104.6' interbedded to laminated, fine and medium to coarse SANDSTONE

@105.8' medium to coarse grained , massive
@106.2' medium bluish gray, fine to medium SANDSTONE
@106.7' light to medium bluish gray, medium to coarse grained
@107.6' light to medium greenish gray, fine to coarse grained with minor gravel

@111.2' light to medium greenish gray, fine to medium SANDSTONE, cemented

@112.2' medium to coarse grained

@115' light to medium bluish gray
@115.7' fine to medium grained, some coarse
@116.2' light to medium bluish gray, medium to coarse SANDSTONE, lightly cemented
@116.6' light to medium greenish gray
@117.3' bluish gray, very well cemented
@117.9' some gravel

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Geologist: RM
Prepared By: AH
Checked By:

(CONTINUED ON FOLLOWING FIGURE)

BORING 6 (Continued)

DATE DRILLED: 6/05/2008 - 6/06/2008
EQUIPMENT USED: Hollow Stem Auger (Rotary)
BOREHOLE SIZE (in.): 8
ELEVATION: 40.0 *

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	SAMPLE LOC.
			27	90	
-85	125				
			28	100	
-90	130				
			29	92	
-95	135				
			30	100	
-100	140				
			31	100	
-105	145				
			32	100	
-110	150				
-115	155				
	160				

@121.2' light to medium bluish gray, medium to coarse SANDSTONE, poorly cemented becoming well cemented, some crude bedding and cross bedding

@124.4' medium to dark bluish gray, very fine Silty SANDSTONE, moderately to well cemented

@126.2' medium to dark bluish gray, very fine Silty SANDSTONE with thin Clay beds and laminations, polished @ 126.9' and 127.3', moderately to well cemented

@128' fine to medium grained SANDSTONE, moderately well cemented
@128.2' medium to coarse grained, with gravel to 1" diameter, moderately well cemented
@129.7' fine to coarse grained, moderately to well cemented

@130.7' very fine Silty SANDSTONE, moderately to well cemented
@131.2' medium bluish gray, fine SANDSTONE, well cemented, laminated to 132.2'

@133.5' laminated, micaceous, dip 20°

@135.7' medium gray, very fine Silty SANDSTONE
@136.2' medium gray, very fine Silty SANDSTONE, cemented, laminated and cross bedded dip 20°

@138' fracture

@139.1' and 139.7' polished bedding plane
@139.7' medium to coarse grained SANDSTONE, poorly cemented
@140.3' fine grained, well cemented
@140.7' fine to medium grained, poorly cemented
@141.2' medium bluish gray, fine to coarse SANDSTONE, moderately well cemented
@142.4' Silty very fine SANDSTONE to Sandy SILTSTONE, well cemented

@145.7' fine to medium SANDSTONE, well cemented
@146.2' medium to dark gray, fine to coarse SANDSTONE, well cemented

@149.2' light to medium gray, fine to medium SANDSTONE with coarse Sand, well cemented
@150.4' fracture

END OF BORING AT 151.2 FEET
NOTES:

1) Hand Augered to 5'.
2) Boring backfilled with grout.

* Elevation based on topographic map by Wilson Mikami Corporation.

Geologist: RM
Prepared By: AH
Checked By: AL 7/18/08

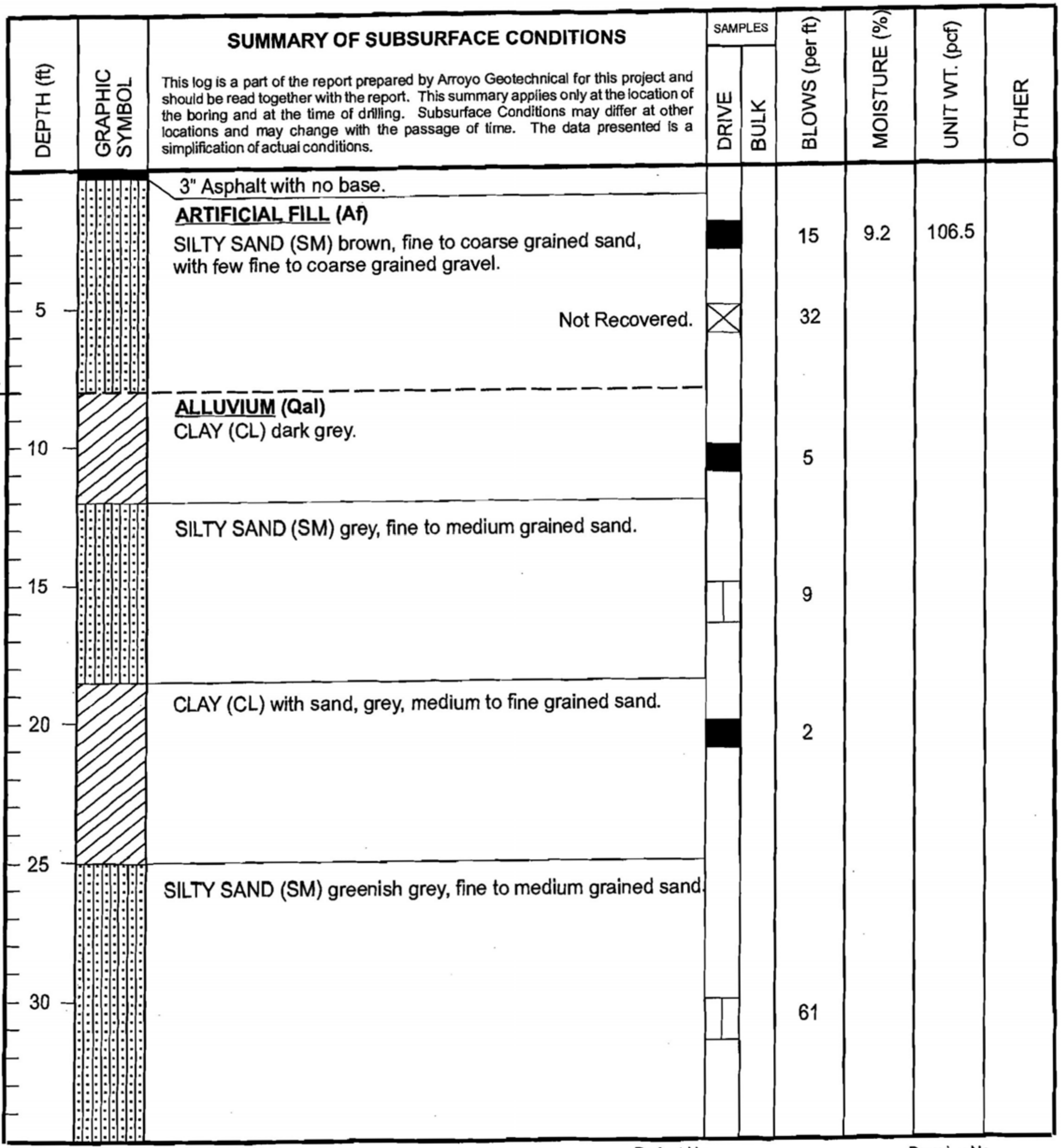
Aliso Creek Resort
Laguna Beach, California

MACTEC

LOG OF BORING
Project: 4953-06-1193 Figure: A-1.6d

Log of Boring No. B-1

Dates Drilled: 01-06-04
Logged By: JCW
Checked By: DMT
Equipment: 8" Hollow Stem Auger
Driving Weight and Drop: 140lbs, 30"
Ground Surface Elevation: 18.4
Depth to Water: 8 ft
Page 1 of 2



SUMMARY OF SUBSURFACE CONDITIONS

This log is a part of the report prepared by Arroyo Geotechnical for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface Conditions may differ at other locations and may change with the passage of time. The data presented is a simplification of actual conditions.

DEPTH (ft)	SUMMARY OF SUBSURFACE CONDITIONS	BLOWS (per ft)	MOISTURE (%)	UNIT WT. (pcf)	OTHER
	3" Asphalt with no base.				
	ARTIFICIAL FILL (Af) SILTY SAND (SM) brown, fine to coarse grained sand, with few fine to coarse grained gravel.	15	9.2	106.5	
5	Not Recovered.	32			
	ALLUVIUM (Qal) CLAY (CL) dark grey.				
10		5			
	SILTY SAND (SM) grey, fine to medium grained sand.				
15		9			
	CLAY (CL) with sand, grey, medium to fine grained sand.				
20		2			
25	SILTY SAND (SM) greenish grey, fine to medium grained sand.				
30		61			

ARROYO GEOTECHNICAL

Project No.
12142 - 3000

Drawing No.
A-1a

Log of Boring No. B-1

Dates Drilled: 01-06-04
Logged By: JCW
Checked By: DMT
Equipment: 8" Hollow Stem Auger
Driving Weight and Drop: 140lbs, 30"
Ground Surface Elevation: 18.4ft
Depth to Water: 8 feet
Page 2 of 2

DEPTH (ft)	GRAPHIC SYMBOL	**SUMMARY OF SUBSURFACE CONDITIONS** This log is a part of the report prepared by Arroyo Geotechnical for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface Conditions may differ at other locations and may change with the passage of time. The data presented is a simplification of actual conditions.	SAMPLES DRIVE	SAMPLES BULK	BLOWS (per ft)	MOISTURE (%)	UNIT WT. (pcf)	OTHER
	▨	**ALLUVIUM (Qal), cont'd.** CLAY (CL) grey.						
40	▨	CLAY (CL) grey, with fine grained sand.	■		15			
45	▥	CLAYEY SILT (ML) grey.						
50	▥		☐		8			
		Total Depth 51 ½ feet. Depth to groundwater 8 feet (may have been affected by seepage from perforated sewage line). Backfilled during sewage line repair 01-07-04.						
55								

APPENDIX C

Laboratory Testing

APPENDIX C

LABORATORY TESTING

Classification

Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488. Soil classifications are indicated on the logs of the exploratory borings in Appendix A.

In-Place Moisture and Density Tests

The moisture content and dry density of relatively undisturbed samples obtained from the exploratory borings were evaluated in general accordance with ASTM D 2937. The test results are presented on the logs of the exploratory borings in Appendix A.

Gradation Analysis

Gradation analysis tests were performed on selected representative samples in general accordance with ASTM D 422. The grain-size distribution curves are shown on Figures C-1 through C-7. The test results were utilized in evaluating the equivalent soil classifications in accordance with the USCS.

200 Wash

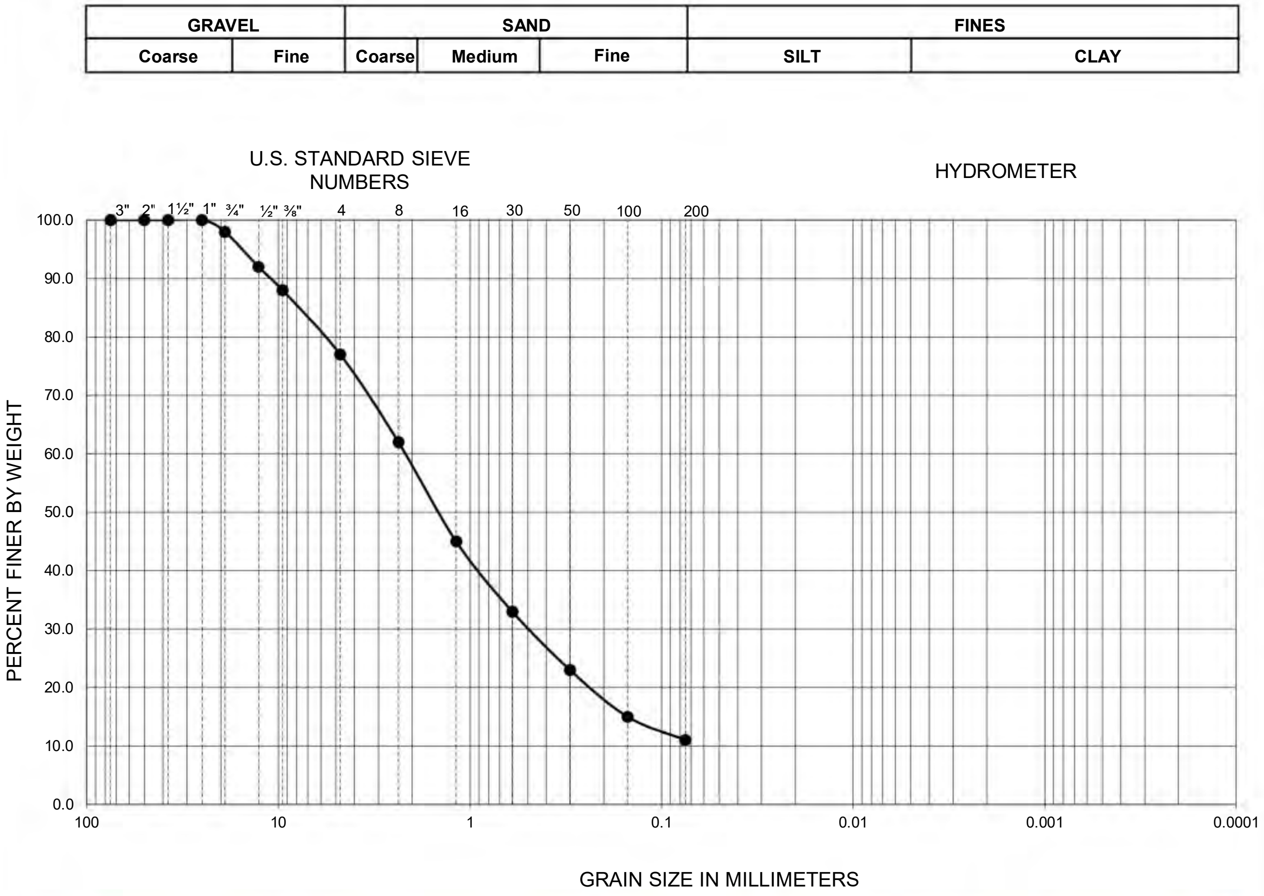
An evaluation of the percentage of particles finer than the No. 200 sieve in selected samples was performed in general accordance with ASTM D 1140. The results of the tests are presented on Figures C-8.

Soil Corrosivity Tests

Soil pH, and resistivity tests were performed on representative samples in general accordance with California Test (CT) 643. The soluble sulfate and chloride content of the selected samples were evaluated in general accordance with CT 417 and CT 422, respectively. The test results are presented on Figure C-9.

Unconfined Compression Tests

Unconfined compression tests were performed on relatively undisturbed samples in general accordance with ASTM D 2166. The test results are shown on Figures C-10 and C-11.



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	USCS
●	B-1	25.0-26.5	--	--	--	--	--	--	--	--	11	SW-SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 6913

FIGURE C-1

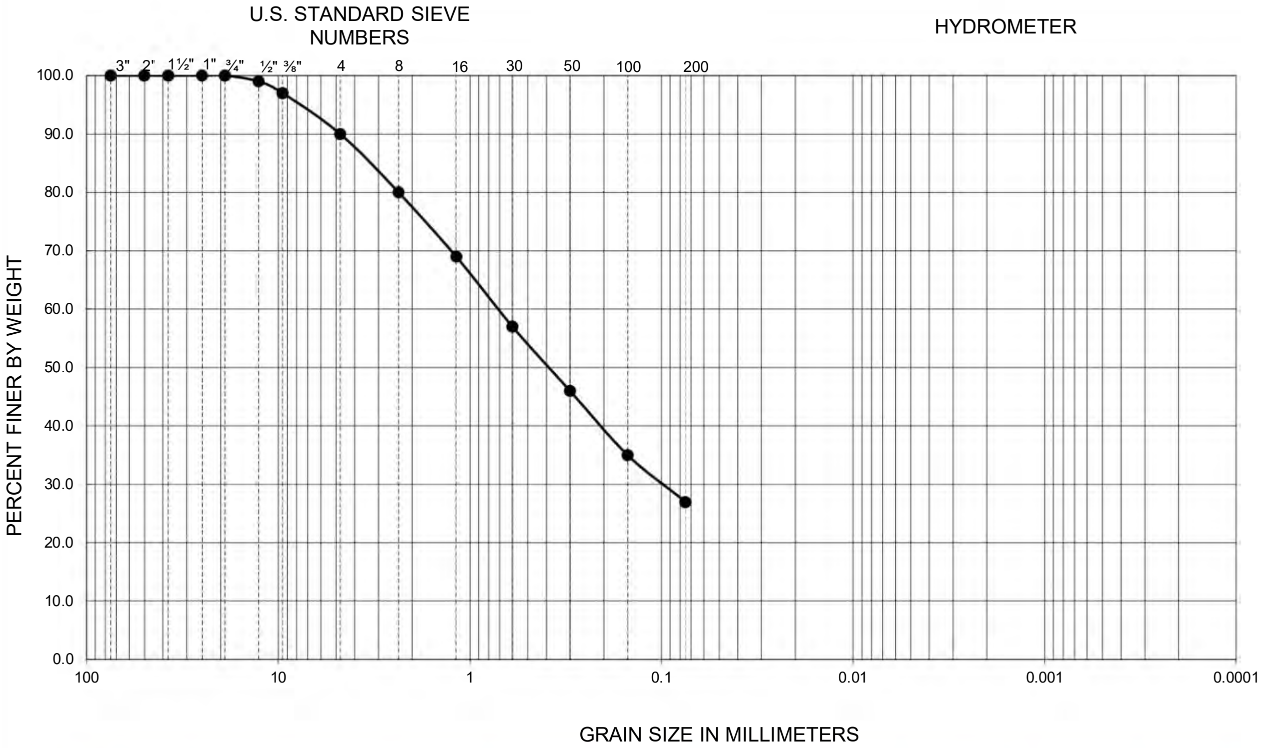
GRADATION TEST RESULTS

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

212121001 | 8/23

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	Equivalent USCS
●	B-1	90.0-95.0	--	--	--	--	--	--	--	--	27	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 6913

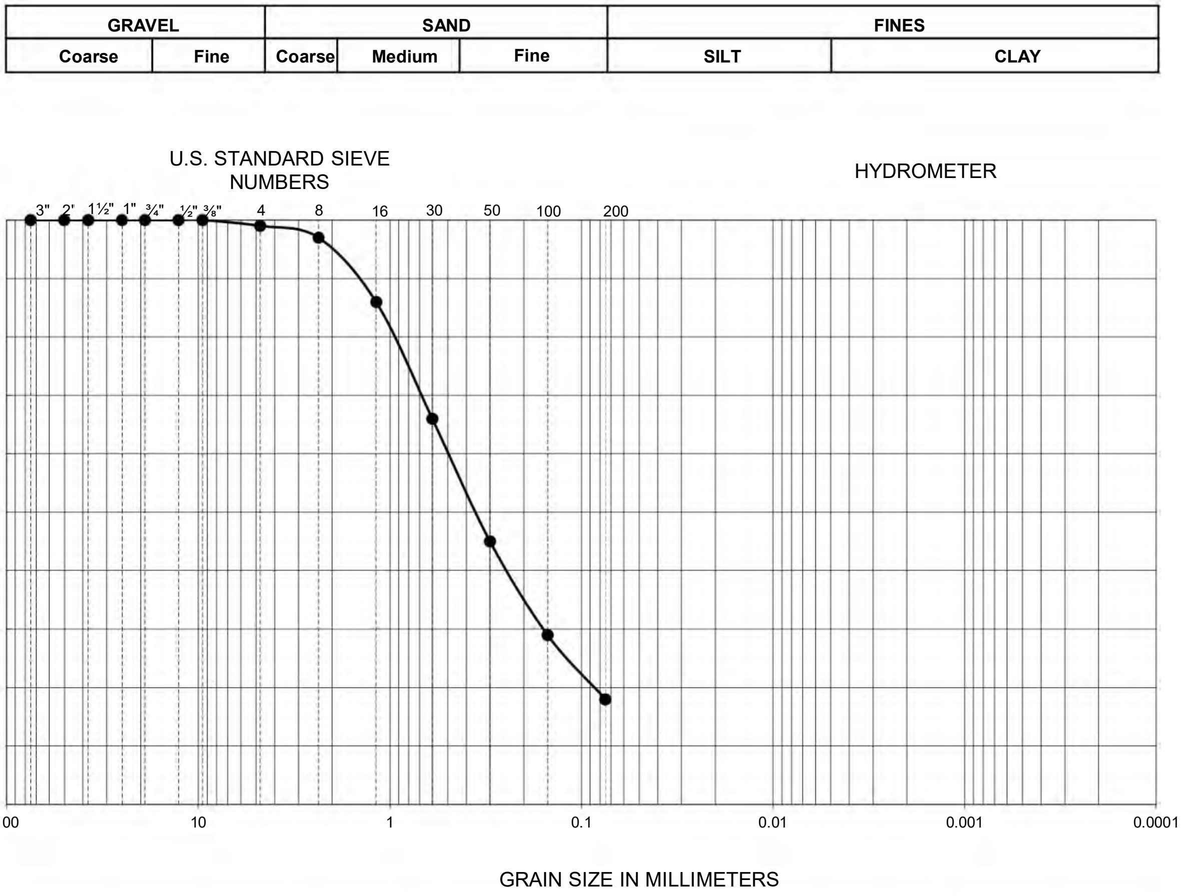
FIGURE C-2

GRADATION TEST RESULTS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

212121001 | 8/23



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	Equivalent USCS
●	B-1	100.0-105.0	--	--	--	--	--	--	--	--	18	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 6913

FIGURE C-3

GRADATION TEST RESULTS

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

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Geotechnical & Environmental Sciences Consultants

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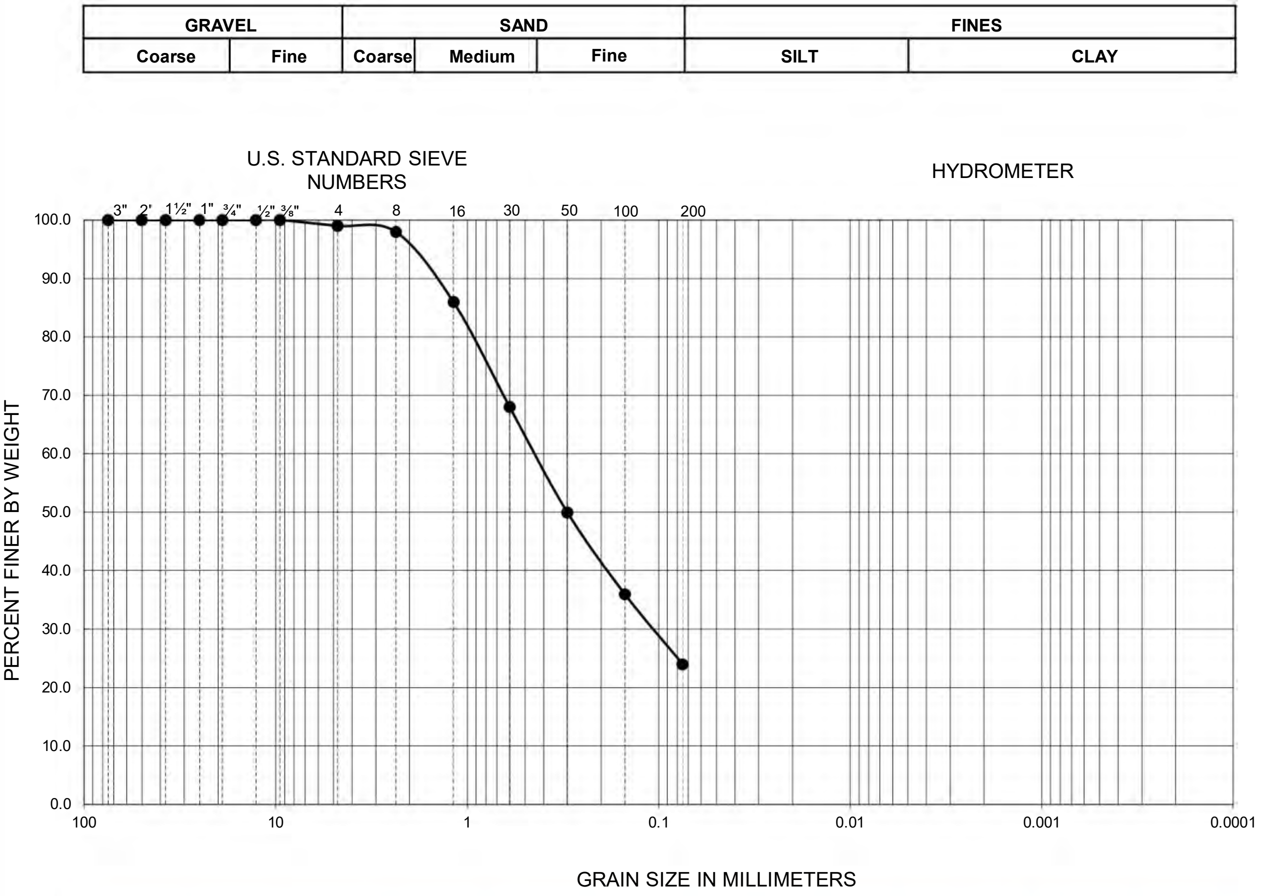

Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	Equivalent USCS
●	B-1	115.0-120.0	--	--	--	--	--	--	--	--	24	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 6913

FIGURE C-4

GRADATION TEST RESULTS

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

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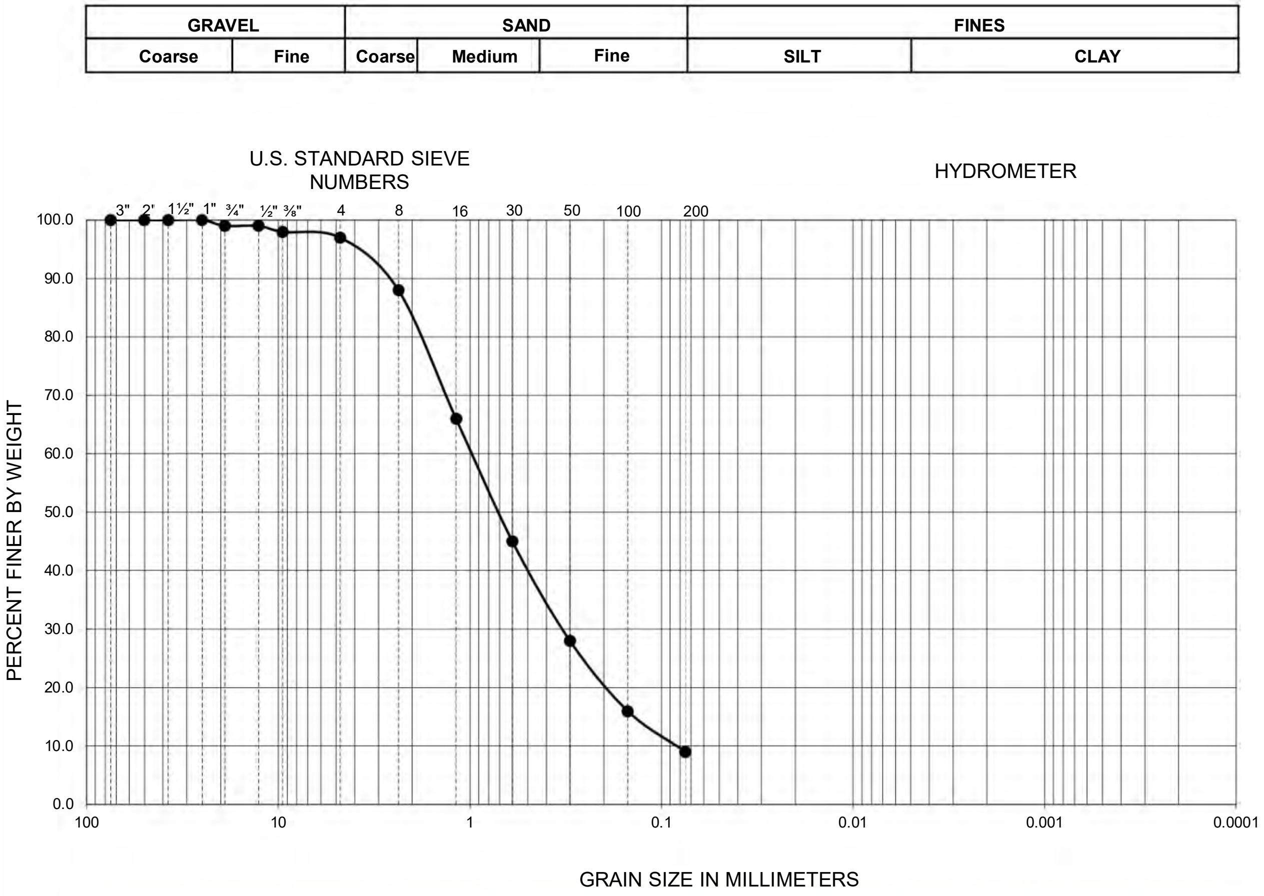

Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	Equivalent USCS
●	B-2	70.0-75.0	--	--	--	0.09	0.34	1.00	11.6	1.3	9	SW-SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 6913

FIGURE C-5

GRADATION TEST RESULTS

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

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Geotechnical & Environmental Sciences Consultants

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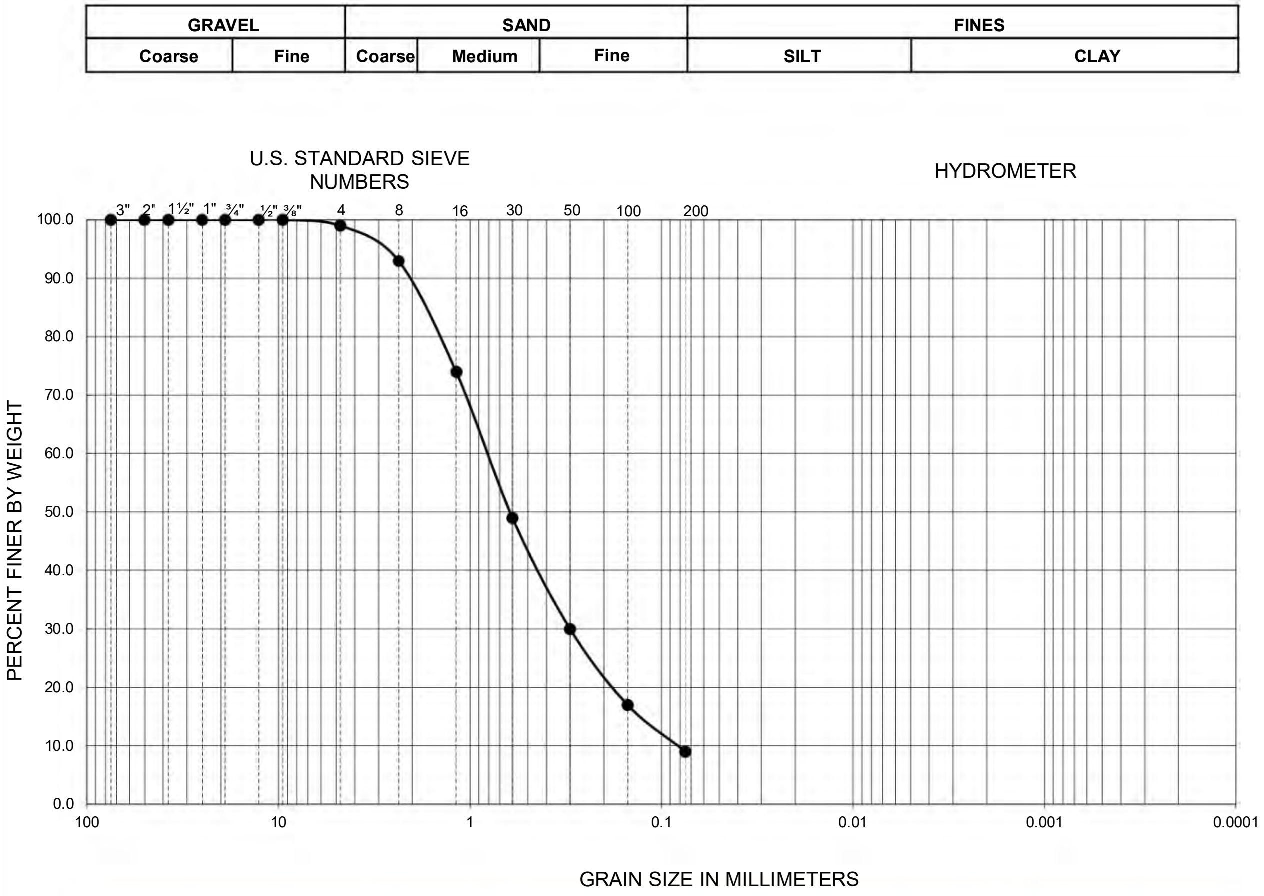

Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	USCS
●	B-2	80.0-85.0	--	--	--	0.08	0.30	0.80	9.5	1.3	9	SW-SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 6913

FIGURE C-6

GRADATION TEST RESULTS

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

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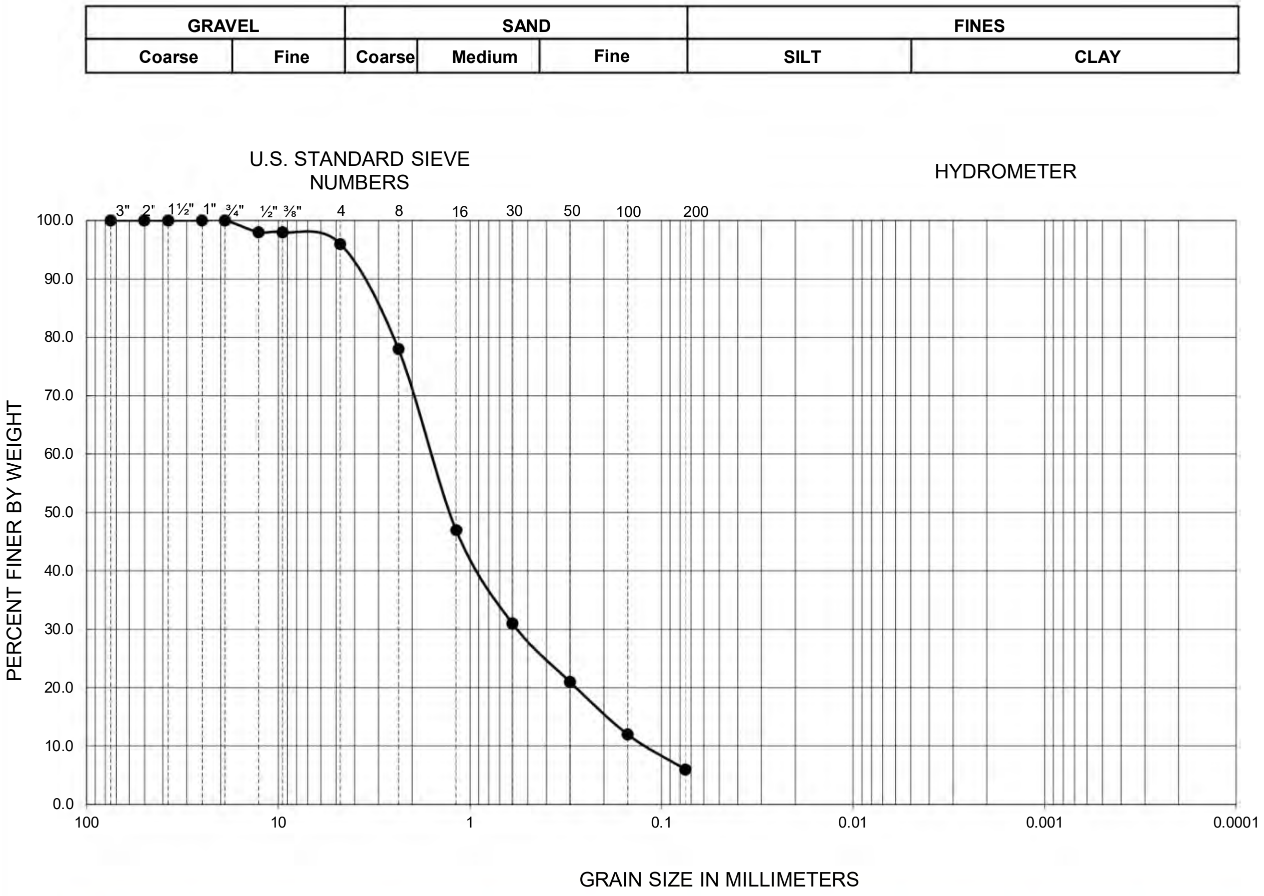

Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	Equivalent USCS
●	B-2	100.0-105.0	--	--	--	0.13	0.57	1.67	13.4	1.6	6	SW-SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 6913

FIGURE C-7

GRADATION TEST RESULTS

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

212121001 | 8/23

SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS (TOTAL SAMPLE)
B-1	40.0-41.5	CLAYEY SAND	99	42	SC
B-2	15.0-16.0	CLAYEY SAND	94	44	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140

FIGURE C-8

NO. 200 SIEVE ANALYSIS TEST RESULTS

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

212121001 | 8/23

Ninyo & Moore
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SAMPLE LOCATION	SAMPLE DEPTH (ft)	pH [1]	RESISTIVITY [1] (ohm-cm)	SULFATE CONTENT [2]		CHLORIDE CONTENT [3] (ppm)
				(ppm)	(%)	
B-1	105.0-110.0	7.8	1,196	10	0.001	105
B-2	85.0-90.0	6.8	7,008	70	0.007	245

[1] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643

[2] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417

[3] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422

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FIGURE C-9

CORROSIVITY TEST RESULTS

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

212121001 | 8/23

SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	UNCONFINED COMPRESSIVE STRENGTH (psi)
B-1	61.5-65.0	SANDSTONE	520
B-1	70.0-75.0	SANDSTONE	3,530
B-1	85.0-90.0	SANDSTONE	620
B-1	95.0-100.0	SANDSTONE/BRECCIA	640
B-1	110.0-115.0	SANDSTONE/CLAYSTONE	60
B-2	30.0-35.0	SANDSTONE	310
B-2	35.0-40.0	SANDSTONE	1,540
B-2	45.0-50.0	SANDSTONE	3,990

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2166

FIGURE C-10

UNCONFINED COMPRESSION TEST RESULTS

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

212121001 | 8/23

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	UNCONFINED COMPRESSIVE STRENGTH (psi)
B-2	55.0-60.0	SANDSTONE	2,460
B-2	75.0-80.0	SANDSTONE	3,090
B-2	95.0-100.0	SANDSTONE	2,030
B-2	105.0-110.0	SANDSTONE	1,090
B-2	115.0-120.0	SANDSTONE	1,340

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2166

FIGURE C-11

UNCONFINED COMPRESSION TEST RESULTS

NCI REACH 5 REPLACEMENT PROJECT
LAGUNA BEACH, CALIFORNIA

212121001 | 8/23

Ninyo & Moore
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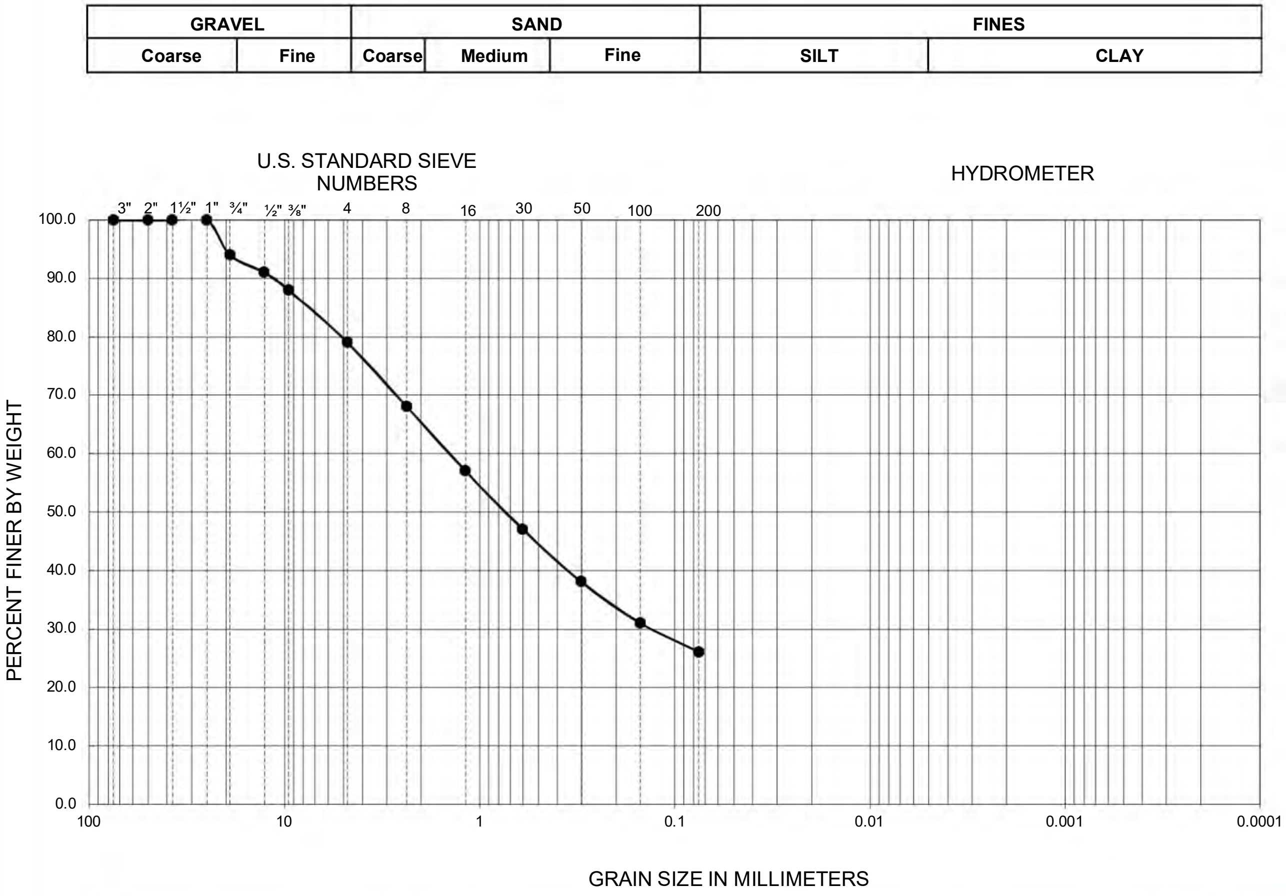
APPENDIX D

Previous Laboratory Testing



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	USCS
●	PW-1	20.0-21.5	--	--	--	--	--	--	--	--	26	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 6913

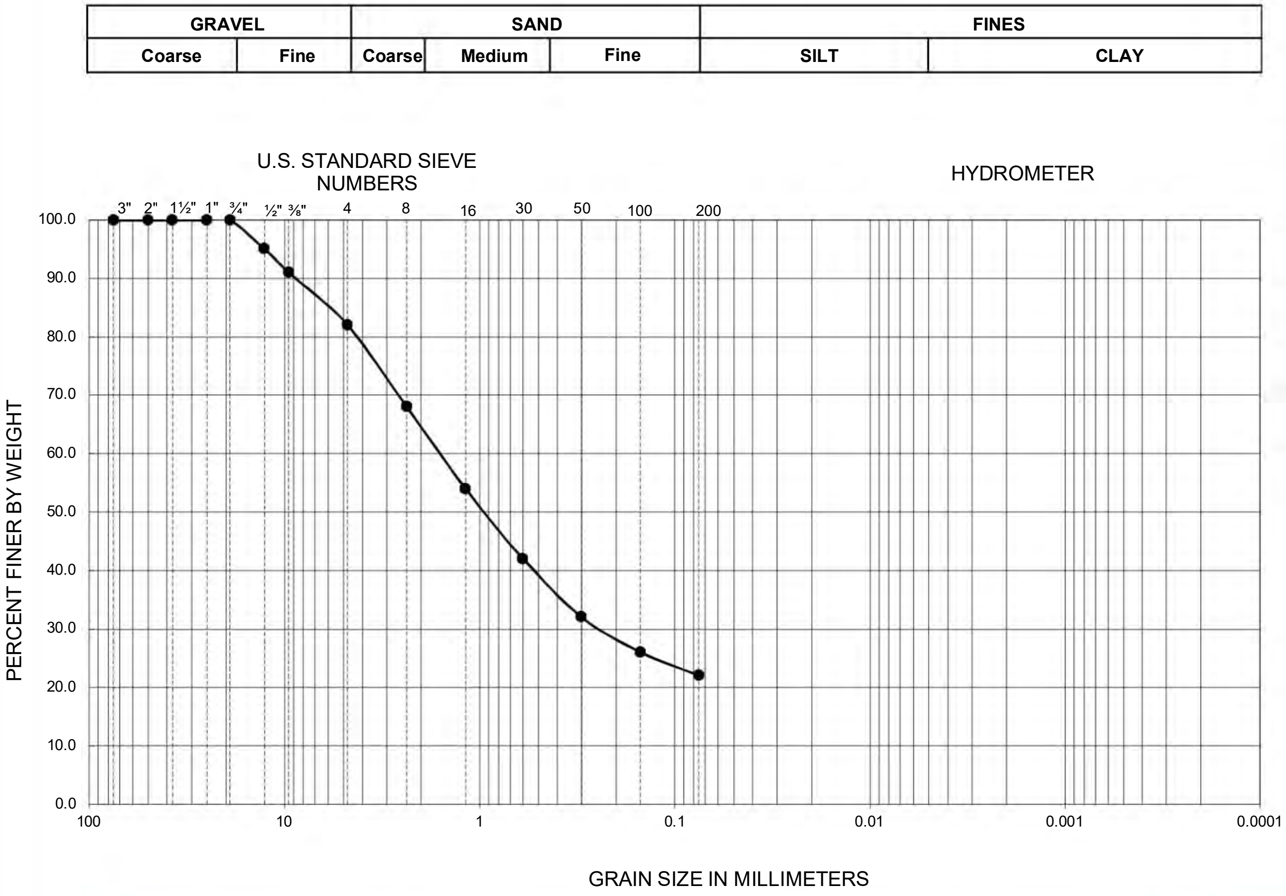
FIGURE C-3

GRADATION TEST RESULTS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

LIFT STATION NO. 2 REPLACEMENT PROJECT, SOUTH COAST WATER DISTRICT
LAGUNA BEACH, CALIFORNIA

209638002 | 6/20



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	USCS
●	MW-1	25.0-26.5	30	20	10	--	--	--	--	--	22	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 6913

FIGURE C-4

GRADATION TEST RESULTS

LIFT STATION NO. 2 REPLACEMENT PROJECT, SOUTH COAST WATER DISTRICT
LAGUNA BEACH, CALIFORNIA

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

209638002 | 6/20

SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS (TOTAL SAMPLE)
PW-1	5.0-6.5	CLAYEY SAND WITH GRAVEL	77	21	SC
MW-1	10.0-11.5	CLAYEY SAND WITH GRAVEL	57	18	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140

FIGURE C-5

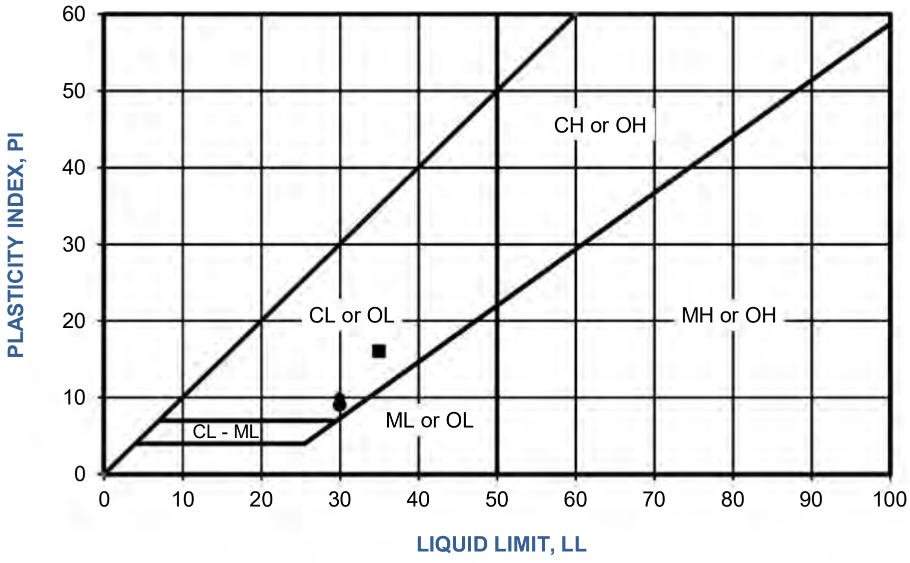
NO. 200 SIEVE ANALYSIS TEST RESULTS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

LIFT STATION NO. 2 REPLACEMENT PROJECT, SOUTH COAST WATER DISTRICT
LAGUNA BEACH, CALIFORNIA

209638002 | 6/20

SYMBOL	LOCATION	DEPTH (ft)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	USCS CLASSIFICATION (Fraction Finer Than No. 40 Sieve)	USCS
□	PW-1	5.0-6.5	35	19	16	CL	SC
◆	MW-1	25.0-26.5	30	20	10	CL	SC



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

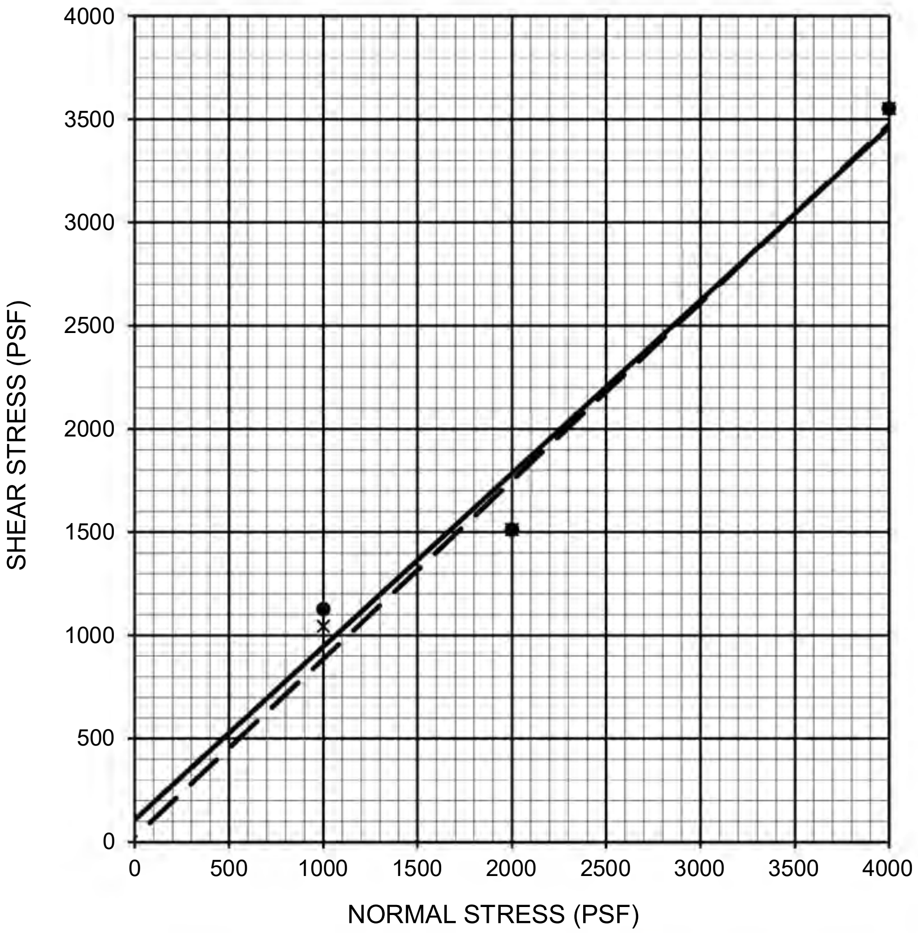
FIGURE C-6

ATTERBERG LIMITS TEST RESULTS

LIFT STATION NO. 2 REPLACEMENT PROJECT, SOUTH COAST WATER DISTRICT
LAGUNA BEACH, CALIFORNIA

209638002 | 6/20

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
CLAYEY SAND WITH GRAVEL	—●—	PW-1	5.0-6.5	Peak	108	40	SC
CLAYEY SAND WITH GRAVEL	– – X – –	PW-1	5.0-6.5	Ultimate	24	41	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

FIGURE C-8

DIRECT SHEAR TEST RESULTS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

LIFT STATION NO. 2 REPLACEMENT PROJECT, SOUTH COAST WATER DISTRICT
LAGUNA BEACH, CALIFORNIA

209638002 | 6/20

SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS (TOTAL SAMPLE)
B-1	5.0-6.5	SILTY SAND WITH GRAVEL	72	18	SM
B-1	10.0-11.5	CLAYEY SAND	93	43	SC
B-2	10.0-11.5	SILTY SAND	100	19	SM
B-2	15.0-16.5	POORLY GRADED SAND WITH SILT	99	7	SP-SM
B-3	15.0-16.5	POORLY GRADED SAND WITH SILT	99	7	SP-SM
B-4	15.0-16.5	SILTY SAND	99	15	SM
B-4	20.0-21.5	CLAYEY SAND	100	48	SC
B-5	10.0-11.5	POORLY GRADED SAND WITH GRAVEL	83	3	SP
B-5	15.0-16.5	POORLY GRADED SAND WITH SILT AND GRAVEL	77	6	SP-SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140

FIGURE B-1

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

NO. 200 SIEVE ANALYSIS TEST RESULTS

LIFT STATION NO. 2 FORCE MAIN REHABILITATION
ORANGE COUNTY, CALIFORNIA

210712001 | 7/18

SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS (TOTAL SAMPLE)
B-6	5.0-6.5	SILTY SAND	97	29	SM
B-7	5.0-6.5	SILTY SAND	92	18	SM
B-8	10.0-11.5	SILTY SAND	99	37	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140

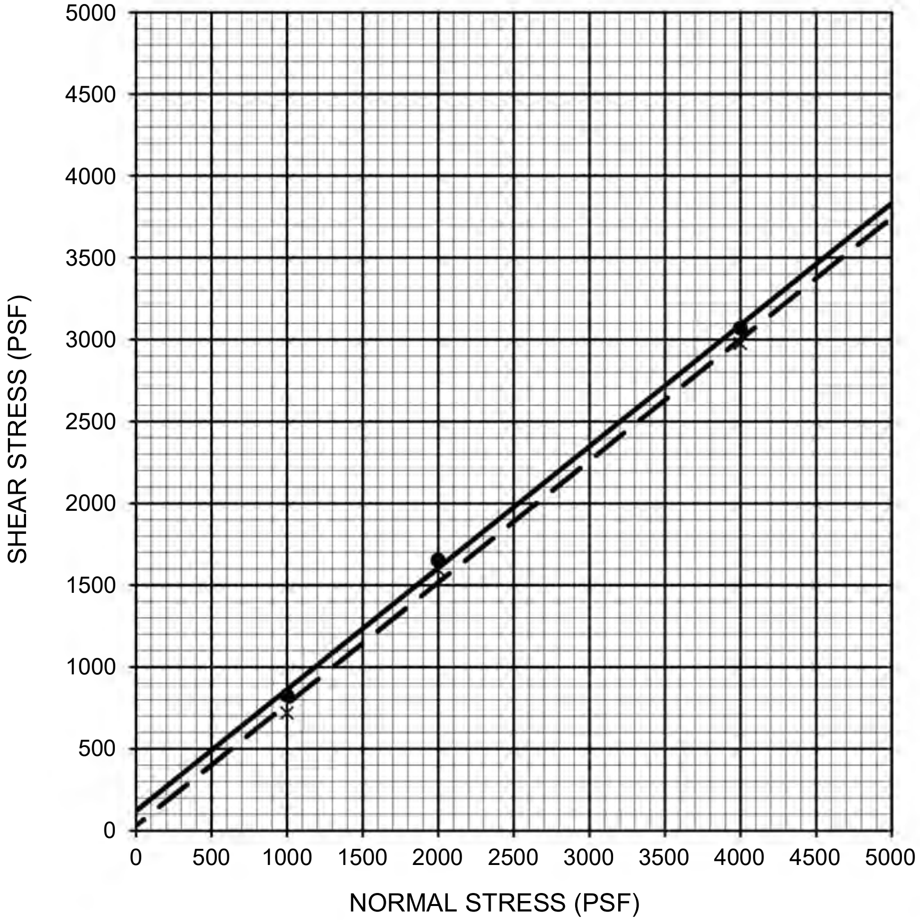
FIGURE B-2

NO. 200 SIEVE ANALYSIS TEST RESULTS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

LIFT STATION NO. 2 FORCE MAIN REHABILITATION
ORANGE COUNTY, CALIFORNIA

210712001 | 7/18



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
CLAYEY SAND	—●—	B-1	10.0-11.5	Peak	120	37	SC
CLAYEY SAND	– – X – –	B-1	10.0-11.5	Ultimate	30	37	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

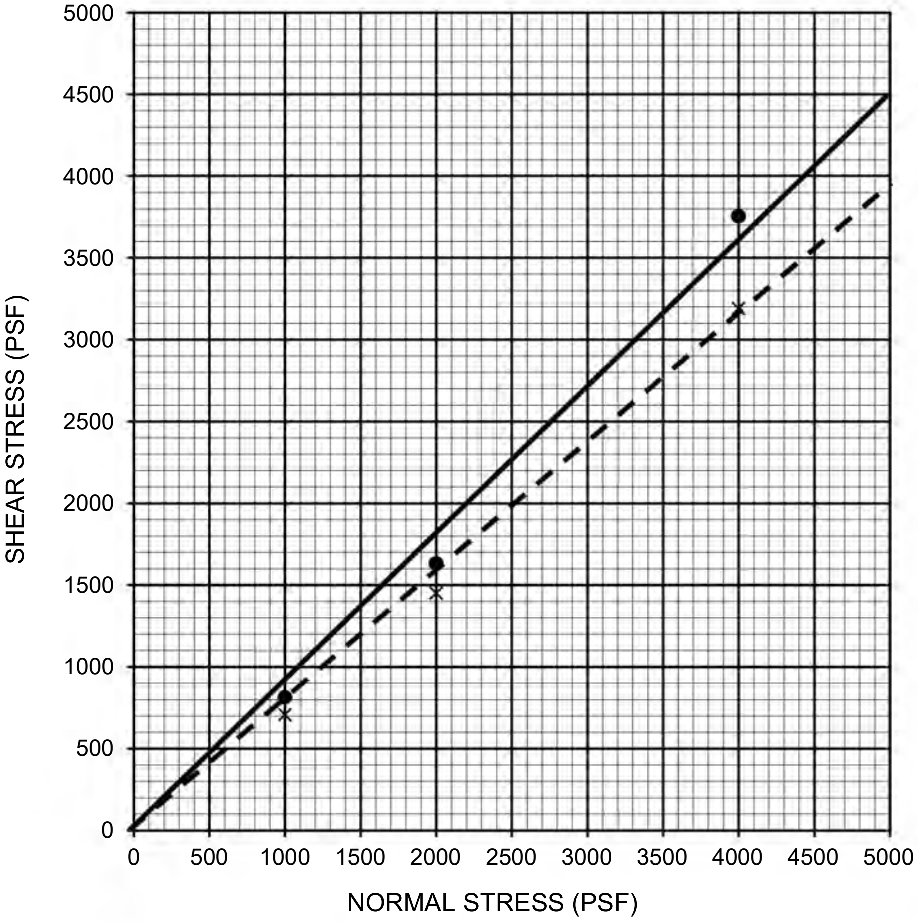
FIGURE B-3

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

DIRECT SHEAR TEST RESULTS

LIFT STATION NO. 2 FORCE MAIN REHABILITATION
ORANGE COUNTY, CALIFORNIA

210712001 | 7/18



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
SILTY SAND	—●—	B-2	10.0-11.5	Peak	0	45	SM
SILTY SAND	– – X – –	B-2	10.0-11.5	Ultimate	0	40	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

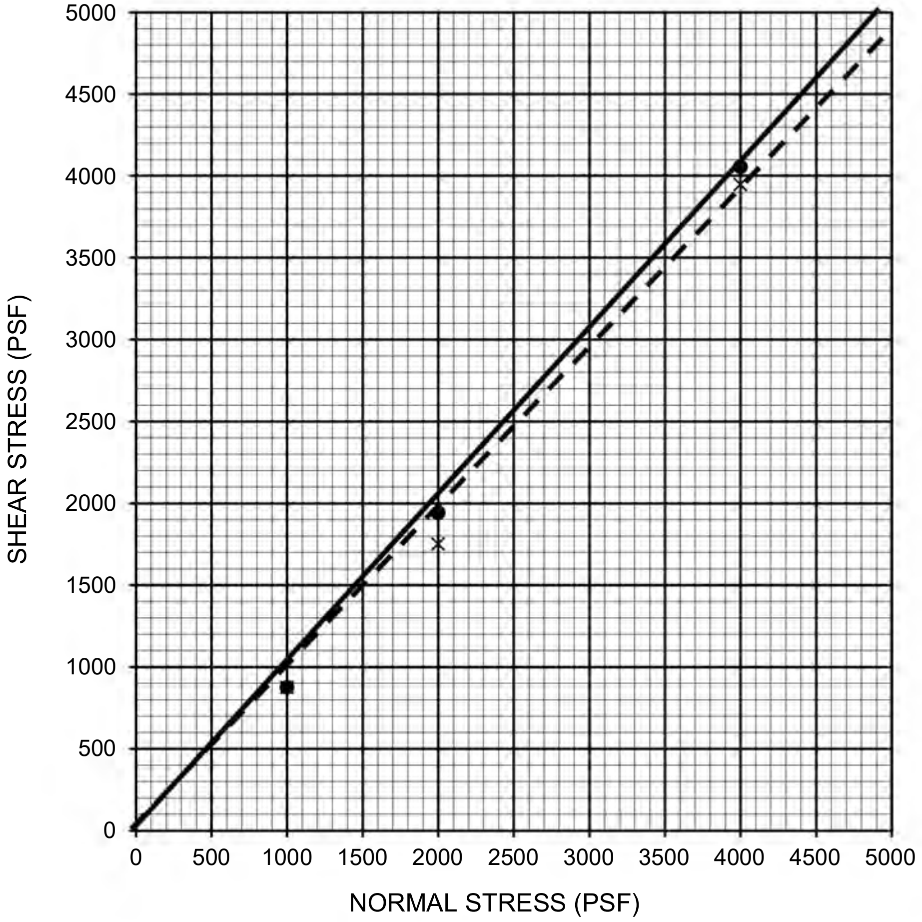
FIGURE B-4

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

DIRECT SHEAR TEST RESULTS

LIFT STATION NO. 2 FORCE MAIN REHABILITATION
ORANGE COUNTY, CALIFORNIA

210712001 | 7/18



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
POORLY GRADED SAND WITH SILT AND GRAVEL	—●—	B-5	15.0-16.5	Peak	0	47	SP-SM
POORLY GRADED SAND WITH SILT AND GRAVEL	– – X – –	B-5	15.0-16.5	Ultimate	0	46	SP-SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

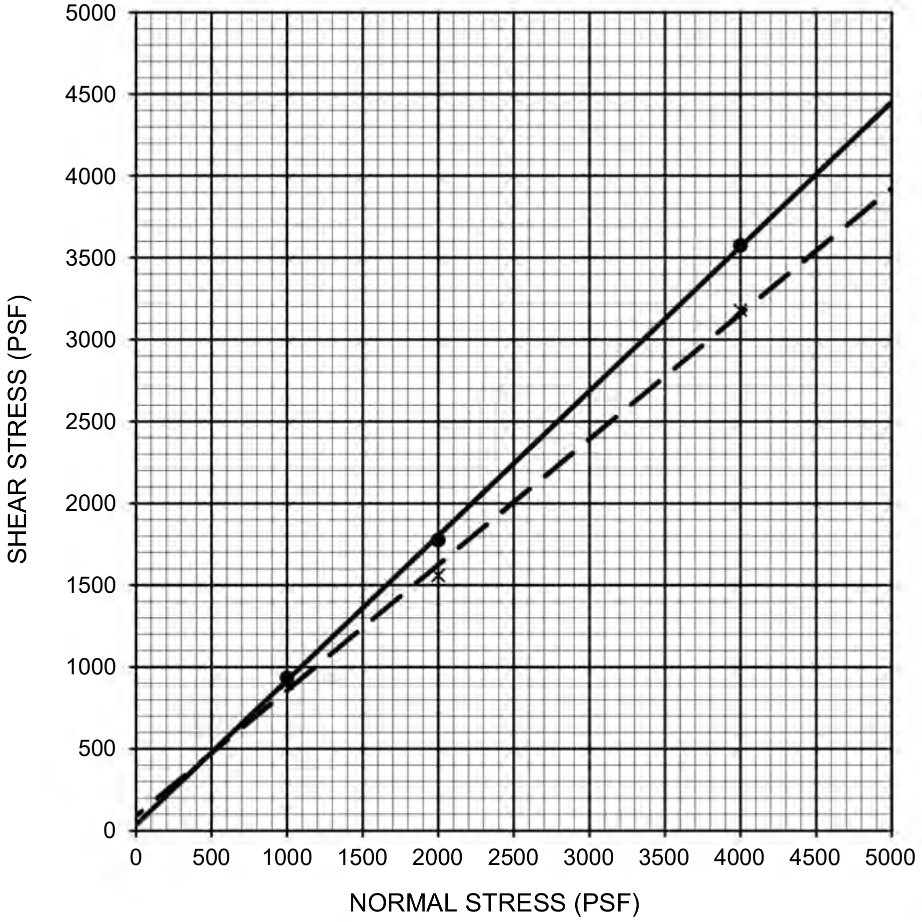
FIGURE B-5

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

DIRECT SHEAR TEST RESULTS

LIFT STATION NO. 2 FORCE MAIN REHABILITATION
ORANGE COUNTY, CALIFORNIA

210712001 | 7/18



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
SILTY SAND	—●—	B-7	5.0-6.5	Peak	36	41	SM
SILTY SAND	– – X – –	B-7	5.0-6.5	Ultimate	90	37	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

FIGURE B-6

DIRECT SHEAR TEST RESULTS

LIFT STATION NO. 2 FORCE MAIN REHABILITATION
ORANGE COUNTY, CALIFORNIA

210712001 | 7/18

Ninyo & Moore
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SAMPLE LOCATION	SAMPLE DEPTH (ft)	pH [1]	RESISTIVITY [1] (ohm-cm)	SULFATE CONTENT [2]		CHLORIDE CONTENT [3] (ppm)
				(ppm)	(%)	
B-2	7.0-10.0	7.4	700	370	0.037	240
B-8	1.0-5.0	7.4	1,065	190	0.019	160

[1] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643

[2] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417

[3] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422

FIGURE B-7

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

CORROSIVITY TEST RESULTS

LIFT STATION NO. 2 FORCE MAIN REHABILITATION
ORANGE COUNTY, CALIFORNIA

210712001 | 7/18

SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS (TOTAL SAMPLE)
B-1	5.0-6.5	CLAYEY SAND	94	32	SC
B-1	15.0-16.5	CLAYEY SAND	98	36	SC
B-1	30.0-31.5	SANDY SILT	100	55	ML
B-1	35.0-36.5	SANDY SILT	100	83	ML
B-1	40.0-41.5	SANDY SILT	100	56	ML
B-1	45.0-46.5	SANDY SILT	100	68	ML
B-1	50.0-51.5	SANDY SILT	100	74	ML
B-2	15.0-16.5	SILTY SAND	99	39	SM
B-3	15.0-16.5	SILTY SAND	100	38	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140

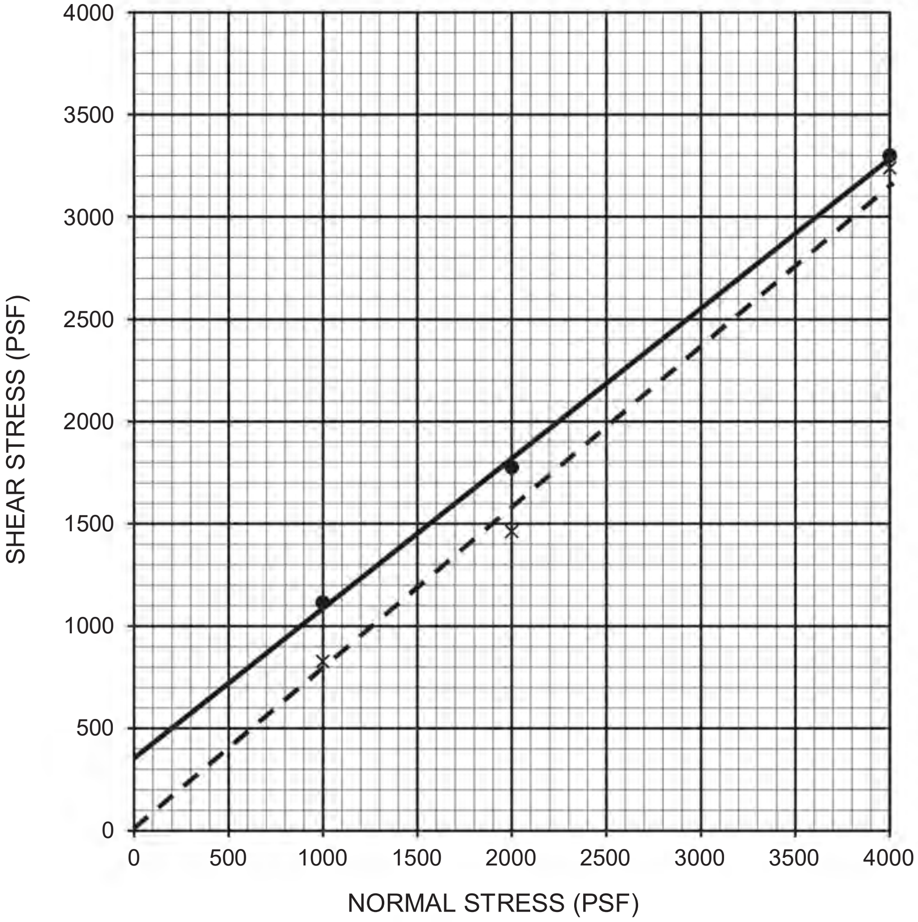
FIGURE B-1

NO. 200 SIEVE ANALYSIS TEST RESULTS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

COASTAL TREATMENT PLANT FACILITY PLAN IMPROVEMENTS
LAGUNA NIGUEL, CALIFORNIA

210406001 | 7/18



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
CLAYEY SAND	—●—	B-1	15.0-16.5	Peak	354	36	SC
CLAYEY SAND	– – X – –	B-1	15.0-16.5	Ultimate	0	39	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

FIGURE B-6

DIRECT SHEAR TEST RESULTS

COASTAL TREATMENT PLANT FACILITY PLAN IMPROVEMENTS
LAGUNA NIGUEL, CALIFORNIA

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

SAMPLE LOCATION	SAMPLE DEPTH (ft)	pH [1]	RESISTIVITY [1] (ohm-cm)	SULFATE CONTENT [2]		CHLORIDE CONTENT [3] (ppm)
				(ppm)	(%)	
B-1	10.0-15.0	7.8	2,625	110	0.011	90
B-2	1.0-4.0	7.7	4,695	60	0.006	40

[1] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643
[2] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417
[3] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422

FIGURE B-7

CORROSIVITY TEST RESULTS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

COASTAL TREATMENT PLANT FACILITY PLAN IMPROVEMENTS
LAGUNA NIGUEL, CALIFORNIA

210406001 | 7/18

SAMPLE LOCATION	SAMPLE DEPTH (FT)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS (TOTAL SAMPLE)
B-1	10.0-11.5	CLAYEY SAND WITH GRAVEL	76	18	SC
B-1	25.0-26.5	CLAYEY SAND WITH GRAVEL	77	17	SC
B-1	30.0-31.5	POORLY GRADED SAND WITH SILT AND GRAVEL	79	9	SP-SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140

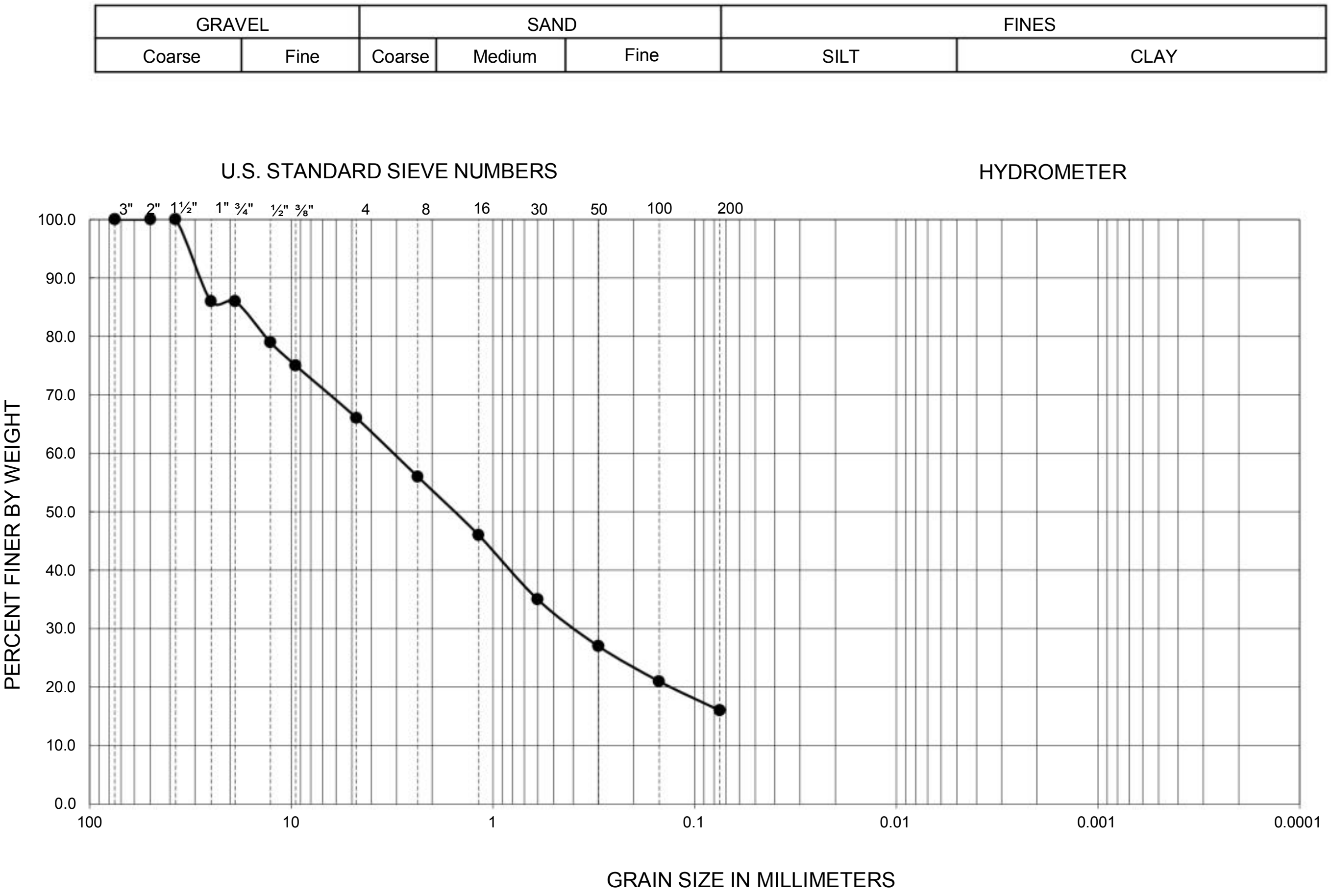
Ninyo & Moore

NO. 200 SIEVE ANALYSIS

PROJECT NO.	DATE
209638001	6/16

LIFT STATION NO. 2
SOUTH COAST WATER DISTRICT
LAGUNA BEACH, CALIFORNIA

FIGURE
B-1



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
●	B-1	15.0-16.5	30	21	9	--	--	--	--	--	16	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore

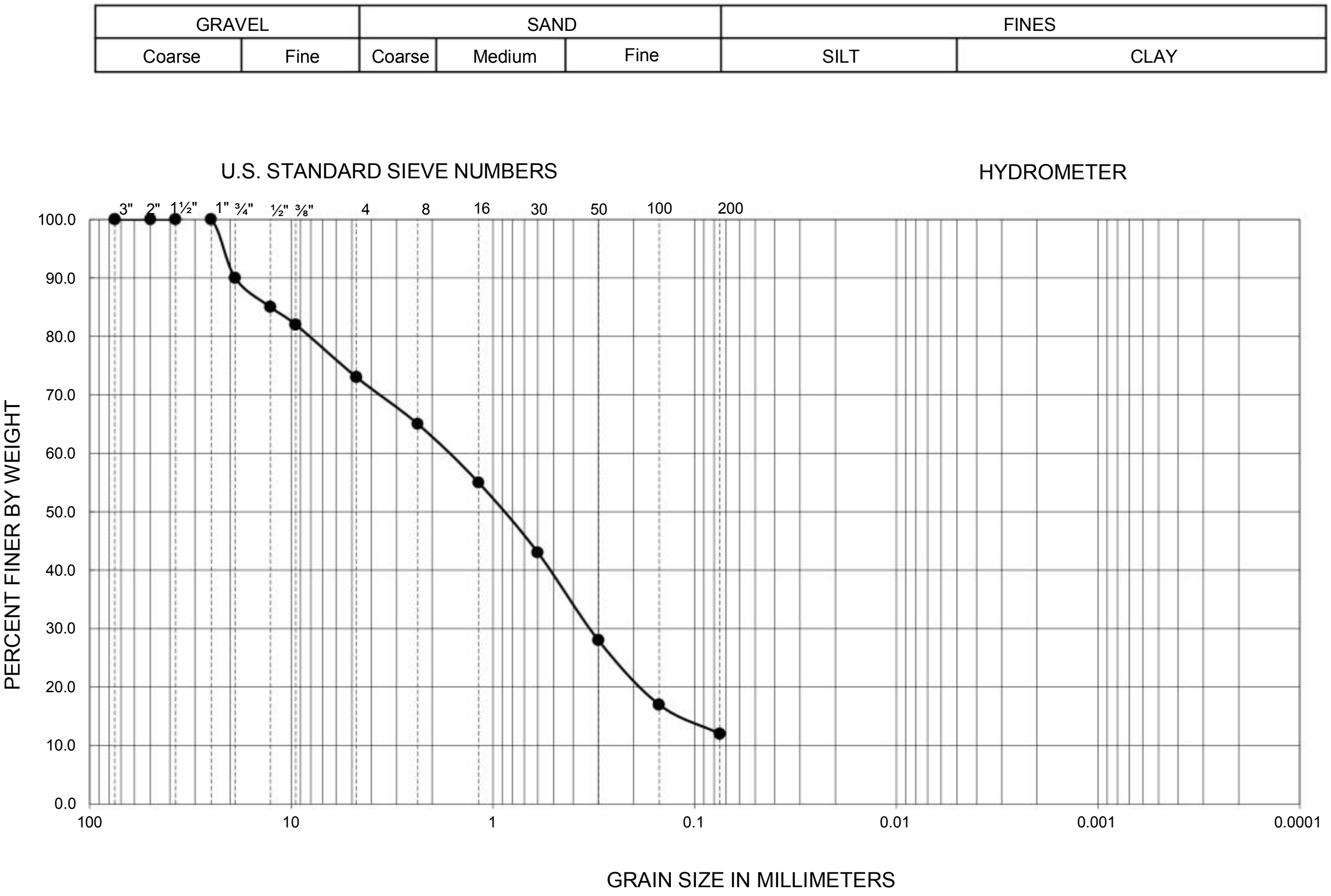
GRADATION TEST RESULTS

FIGURE

B-2

PROJECT NO.	DATE
209638001	6/16

LIFT STATION NO. 2
SOUTH COAST WATER DISTRICT
LAGUNA BEACH, CALIFORNIA



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
●	B-1	35.0-36.5	--	--	--	--	--	--	--	--	12	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore

GRADATION TEST RESULTS

PROJECT NO.	DATE
209638001	6/16

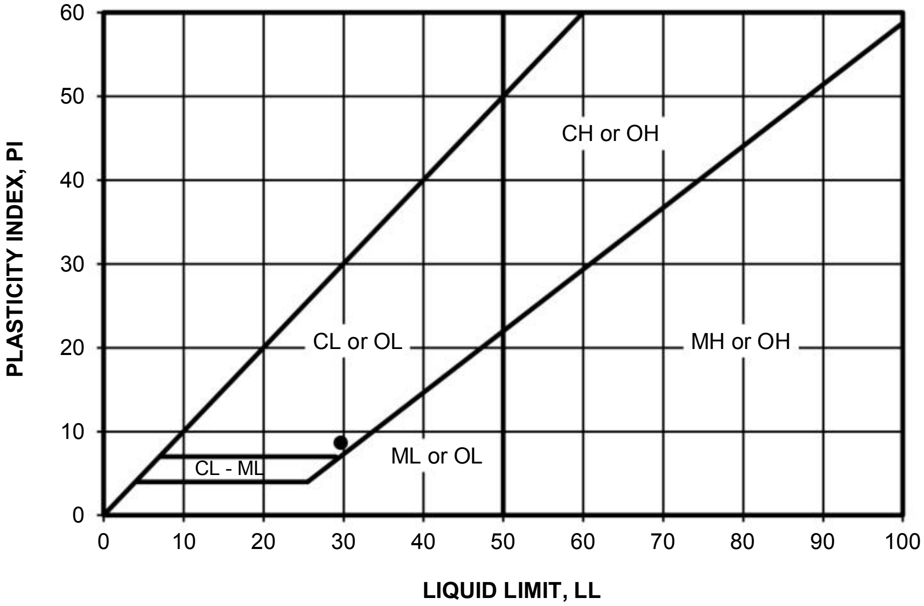
LIFT STATION NO. 2
SOUTH COAST WATER DISTRICT
LAGUNA BEACH, CALIFORNIA

FIGURE

B-3

SYMBOL	LOCATION	DEPTH (FT)	LIQUID LIMIT, LL	PLASTIC LIMIT, PL	PLASTICITY INDEX, PI	USCS CLASSIFICATION (Fraction Finer Than No. 40 Sieve)	USCS (Entire Sample)
●	B-1	15.0-16.5	30	21	9	CL	SC

NP - INDICATES NON-PLASTIC



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

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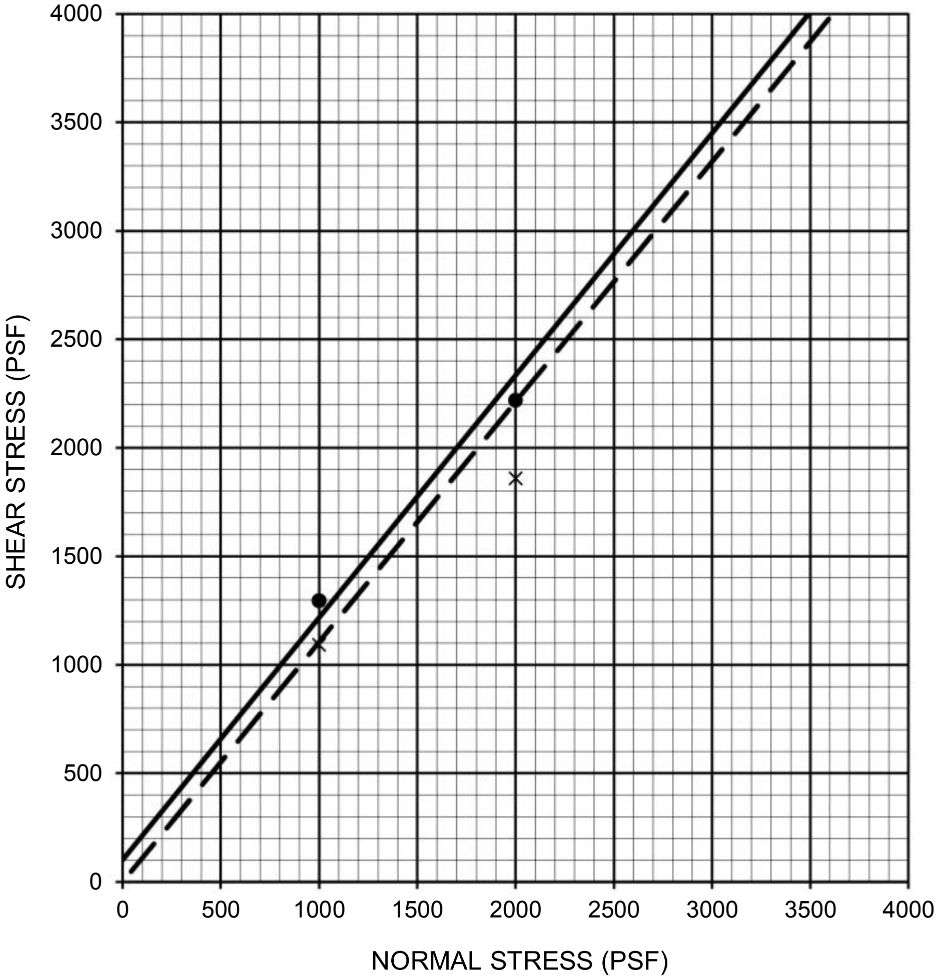
ATTERBERG LIMITS TEST RESULTS

PROJECT NO.	DATE
209638001	6/16

LIFT STATION NO. 2
SOUTH COAST WATER DISTRICT
LAGUNA BEACH, CALIFORNIA

FIGURE

B-4



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion, c (psf)	Friction Angle, ϕ (degrees)	Soil Type
CLAYEY SAND W/ GRAVEL	—●—	B-1	15.0-16.5	Peak	102	48	SC
CLAYEY SAND W/ GRAVEL	- - X - -	B-1	15.0-16.5	Ultimate	0	50	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

Ninyo & Moore

DIRECT SHEAR TEST RESULTS

FIGURE

B-5

PROJECT NO.	DATE
209638001	6/16

LIFT STATION NO. 2
SOUTH COAST WATER DISTRICT
LAGUNA BEACH, CALIFORNIA

SAMPLE LOCATION	SAMPLE DEPTH (FT)	pH [1]	RESISTIVITY [1] (Ohm-cm)	SULFATE CONTENT [2]		CHLORIDE CONTENT [3] (ppm)
				(ppm)	(%)	
B-1	0.0-3.0	8.2	2,460	70	0.007	50

[1] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643

[2] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417

[3] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422

Ninyo & Moore

CORROSIVITY TEST RESULTS

FIGURE

B-6

PROJECT NO.	DATE
209638001	6/16

LIFT STATION NO. 2
SOUTH COAST WATER DISTRICT
LAGUNA BEACH, CALIFORNIA

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Appendix E
Noise Data

Appendix E1

Field Measurements – Data and Photographs

FORMS DUDEK FIELD DATA REPORT

Field Noise Measurement Data

Record: 1854

Project Name	*Lmv NCI replacement*
Observer(s)	
Date	*2024-02-22*

Meteorological Conditions

Temp (F)	*61*
Humidity % (R.H.)	*75*
Wind	*Light*
Wind Speed (MPH)	*4*
Wind Direction	*East*
Sky	*Partly Cloudy*

Monitoring

Record #	*1*
Site ID	*ST3*
Site Location Lat/Long	*33.513863, -117.747259*
Begin (Time)	*11:11:00*
End (Time)	*11:26:00*
Leq	*63.1*
Lmax	*77.8*

Lmin	*37.8*
Other Lx?	*L90, L50, L10*
L90	*41.3*
L50	*53.4*
L10	*64.9*
Other Lx (Specify Metric)	*L*
Primary Noise Source	*Landscaping*
Other Noise Sources (Background)	*Birds, Distant Aircraft, Distant Conversations / Yelling, Distant Gardener / Landscape Noise, Distant Kids Playing*
Is the same instrument and calibrator being used as previously noted?	*Yes*
Are the meteorological conditions the same as previously noted?	*Yes*

Description / Photos

Site Photos

Photo	
Comments / Description	*Facing southwest*

Site Photos

Photo	
Comments / Description	*Facing north*

Site Photos

Photo	
Comments / Description	*Facing southeast*

Monitoring	
Record #	*3*
Site ID	*ST2*
Site Location Lat/Long	*33.513017, -117.748961*

Begin (Time)	*12:16:00*
End (Time)	*12:31:00*
Leq	*53*
Lmax	*72.4*
Lmin	*39.6*
Other Lx?	*L90, L50, L10*
L90	*42.2*
L50	*45.2*
L10	*57.5*
Other Lx (Specify Metric)	*L*
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Birds, Distant Aircraft, Rustling Leaves*
Is the same instrument and calibrator being used as previously noted?	*Yes*
Are the meteorological conditions the same as previously noted?	*Yes*

Description / Photos

Site Photos

Photo	
Comments / Description	*Facing north*

Site Photos

Photo	
Comments / Description	*Facing west*

Site Photos

Photo	
Comments / Description	*Facing east*

Monitoring

Record #	*2*
Site ID	*ST4*
Site Location Lat/Long	*33.515419, -117.743455*

Begin (Time)	*11:38:00*
End (Time)	*11:56:00*
Leq	*45.2*
Lmax	*77.7*
Lmin	*39.9*
Other Lx?	*L90, L50, L10*
L90	*41.3*
L50	*43.1*
L10	*46*
Other Lx (Specify Metric)	*L*
Primary Noise Source	*River*
Other Noise Sources (Background)	*Birds, Distant Aircraft, Distant Conversations / Yelling, Distant Gardener / Landscape Noise, Rustling Leaves*
Is the same instrument and calibrator being used as previously noted?	*Yes*
Are the meteorological conditions the same as previously noted?	*Yes*

Description / Photos

Site Photos

Photo	
Comments / Description	*Facing east*

Site Photos

Photo	
Comments / Description	*Facing north*

Site Photos

Photo	
Comments / Description	*Facing west*

Site Photos

Photo	
Comments / Description	*Facing south*

Monitoring

Record #	*4*
Site ID	*ST1*
Site Location Lat/Long	*33.512014, -117.752983*

Begin (Time)	*12:42:00*
End (Time)	*12:57:00*
Leq	*52.5*
Lmax	*92.3*
Lmin	*44.8*
Other Lx?	*L90, L50, L10*
L90	*49.1*
L50	*51.6*
L10	*54.4*
Other Lx (Specify Metric)	*L*
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Birds, Distant Aircraft, Distant Traffic, Rustling Leaves*
Is the same instrument and calibrator being used as previously noted?	*Yes*
Are the meteorological conditions the same as previously noted?	*Yes*

Description / Photos

Site Photos

Photo	
Comments / Description	*Facing south*

Site Photos

Photo	
Comments / Description	*Facing east*

Site Photos

Photo	
Comments / Description	*Facing northeast*

Monitoring	
Record #	*5*
Site ID	*ST5*
Site Location Lat/Long	*33.513579, -117.752132*

Begin (Time)	*13:03:00*
End (Time)	*13:18:00*
Leq	*47.6*
Lmax	*63.5*
Lmin	*39.7*
Other Lx?	*L90, L50, L10*
L90	*41.7*
L50	*44.5*
L10	*50.9*
Other Lx (Specify Metric)	*L*
Primary Noise Source	*Traffic*
Is the same instrument and calibrator being used as previously noted?	*Yes*
Are the meteorological conditions the same as previously noted?	*Yes*

Description / Photos

Site Photos

Photo	
Comments / Description	*Facing east*

Site Photos

Photo	
Comments / Description	*Facing southeast*

Site Photos

Photo	
Comments / Description	*Facing southwest*

Appendix E2

Roadway Construction Noise Model

To User: bordered cells are inputs, unbordered cells have formulae
enter "0" to turn off air or grnd absorption terms, "1" to turn on

air abs? 1
grnd abs? 1

magnitude of threshold (dBA) per FTA guidance = 80
allowable hours over which Leq is to be averaged = 8

Source, receptor, and barrier all share same reference grade elevation; unless otherwise noted)
🟨 = Barrier of input height inserted between source and receptor

Project Phase No.	Project Phase Description	Comparable FHWA RCNM Construction Equipment Type	Quantity	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Source to NSR Distance (ft.)	*Temporary Barrier Insertion Loss (dB)*	*Additional Noise Reduction*	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq	Source Elevation (ft)	Receiver Elevation (ft)	Barrier Height (ft)	Source to Barr. ("A") Horiz. (ft)	Rcvr. to Barr. ("B") Horiz. (ft)	Source to Rcvr. ("C") Horiz. (ft)	"A" (ft)	"B" (ft)	"C" (ft)	Path Length Diff. "P" (ft)	Abarr (dB)	Heff (with barrier)	Heff (wout barrier)	G (with barrier)	G (without barrier)	ILbarr (dB)	Notes
1	Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)	excavator	1	40	81	50	0		80.9	8	480	77	6.2	42	0	5	45	50	8.0	61.6	61.5	0.00	0.1	24.1	24.1	0.3	0.3	0.1	nearest receptor are residential homes on Aliso Circle
		backhoe	1	40	78	50	0		77.9	8	480	74	4.5	42	0	5	45	50	6.7	61.6	62.5	0.00	0.1	23.3	23.3	0.3	0.3	0.1	
		pumps	1	50	77	50	0		76.9	8	480	74	3.8	42	0	5	45	50	6.3	61.6	62.9	0.00	0.1	22.9	22.9	0.3	0.3	0.1	
		generator	1	50	72	50	0		71.9	8	480	69	4.5	42	0	5	45	50	6.7	61.6	62.5	0.00	0.1	23.3	23.3	0.3	0.3	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 1	**80**																	
2	SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)	excavator	1	40	81	175	0		69.9	8	480	66	6.2	76	0	5	170	175	8.0	186.2	188.4	0.00	0.1	41.1	41.1	0.0	0.0	0.1	nearest receptors are multi-family residences southeast of Laguna Beach United Methodist Church on Wesley Drive
		backhoe	1	40	78	175	0		66.9	8	480	63	4.5	76	0	5	170	175	6.7	186.2	189.0	0.00	0.1	40.3	40.3	0.0	0.0	0.1	
		pumps	1	50	77	175	0		65.9	8	480	63	3.8	76	0	5	170	175	6.3	186.2	189.3	0.00	0.1	39.9	39.9	0.0	0.0	0.1	
		generator	1	50	72	175	0		60.9	8	480	58	4.5	76	0	5	170	175	6.7	186.2	189.0	0.00	0.1	40.3	40.3	0.0	0.0	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 2	**69**																	
3	Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)	excavator	1	40	81	30	0		85.3	8	480	81	6.2	0	0	5	25	30	8.0	25.0	30.6	0.00	0.1	3.1	3.1	0.7	0.7	0.1	nearest sensitive receptors are Ranch at Laguna Beach bungalows near the Sta. 19+50 position
		backhoe	1	40	78	30	0		82.3	8	480	78	4.5	0	0	5	25	30	6.7	25.0	30.3	0.00	0.1	2.3	2.3	0.7	0.7	0.1	
		gradall	1	40	83	30	0		87.3	8	480	83	3.0	0	0	5	25	30	5.8	25.0	30.1	0.00	0.1	1.5	1.5	0.7	0.7	0.1	
		generator	1	50	72	30	0		76.3	8	480	73	4.5	0	0	5	25	30	6.7	25.0	30.3	0.00	0.1	2.3	2.3	0.7	0.7	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 3	**86**																	
4	HDD Receiving Area (Sta. 28+00)	excavator	1	40	81	310	0		58.8	8	480	55	6.2	-24	0	5	305	310	8.0	305.9	311.5	0.00	0.1	-8.9	-8.9	0.7	0.7	0.1	nearest sensitive receptors are Ranch at Laguna Beach bungalows south of the Ranch at Laguna Beach service building and Main Lobby
		gradall	1	40	83	310	0		60.6	8	480	57	3.0	-24	0	5	305	310	5.8	305.9	311.2	0.00	0.1	-10.5	-10.5	0.7	0.7	0.1	
		welder / torch	1	40	73	310	0		50.6	8	480	47	2.5	-24	0	5	305	310	5.6	305.9	311.1	0.00	0.1	-10.8	-10.8	0.7	0.7	0.1	
		pumps	1	50	77	310	0		54.7	8	480	52	3.8	-24	0	5	305	310	6.3	305.9	311.2	0.00	0.1	-10.1	-10.1	0.7	0.7	0.1	
		generator	1	50	72	310	0		49.7	8	480	47	4.5	-24	0	5	305	310	6.7	305.9	311.3	0.00	0.1	-9.8	-9.8	0.7	0.7	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 4	**60**																	
5	HDD Alignment (Sta. 28+00 to 43+50)	no major equipment along alignment	0	#N/A	#N/A	0	#DIV/0!		#N/A	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	#DIV/0!	#DIV/0!	0.0	0.0	0.7	0.7	#DIV/0!	
6	HDD Launching Area (Sta. 43+50)	horizontal boring hydr. jack	1	25	80	530	0		54.6	8	480	49	9.0	5	0	5	525	530	10.3	525.0	530.0	0.00	0.1	7.0	7.0	0.6	0.6	0.1	nearest receptor is commercial use: Halfway House at the Ranch (restaurant)
		gradall	1	40	83	530	0		57.4	8	480	53	3.0	5	0	5	525	530	5.8	525.0	530.0	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		pumps	1	50	77	530	0		51.4	8	480	48	3.8	5	0	5	525	530	6.3	525.0	530.0	0.00	0.1	4.4	4.4	0.7	0.7	0.1	
		generator	1	50	72	530	0		46.4	8	480	43	4.5	5	0	5	525	530	6.7	525.0	530.0	0.00	0.1	4.8	4.8	0.7	0.7	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 6	**56**																	
7	Open Trench through Scout Camp (Sta. 43+50 to 52+50)	excavator	1	40	81	65	0		78.6	8	480	75	6.2	5	0	5	60	65	8.0	60.2	65.0	0.00	0.1	5.6	5.6	0.7	0.7	0.1	nearest receptor is commercial use: Halfway House at the Ranch (restaurant)
		backhoe	1	40	78	65	0		75.5	8	480	72	4.5	5	0	5	60	65	6.7	60.2	65.0	0.00	0.1	4.8	4.8	0.7	0.7	0.1	
		gradall	1	40	83	65	0		79.7	8	480	76	3.0	5	0	5	60	65	5.8	60.2	65.0	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		generator	1	50	72	65	0		69.5	8	480	66	4.5	5	0	5	60	65	6.7	60.2	65.0	0.00	0.1	4.8	4.8	0.7	0.7	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 7	**79**																	
8	Open Trench along Access Road (Sta. 52+50 to 60+00)	excavator	1	40	81	215	0		65.2	8	480	61	6.2	13	0	5	210	215	8.0	210.4	215.1	0.00	0.1	9.6	9.6	0.6	0.6	0.1	nearest receptor is commercial use: Halfway House at the Ranch (restaurant)
		backhoe	1	40	78	215	0		62.0	8	480	58	4.5	13	0	5	210	215	6.7	210.4	215.2	0.00	0.1	8.8	8.8	0.6	0.6	0.1	
		gradall	1	40	83	215	0		66.9	8	480	63	3.0	13	0	5	210	215	5.8	210.4	215.2	0.00	0.1	8.0	8.0	0.6	0.6	0.1	
		generator	1	50	72	215	0		56.0	8	480	53	4.5	13	0	5	210	215	6.7	210.4	215.2	0.00	0.1	8.8	8.8	0.6	0.6	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 8	**66**																	
9	Isolation Valve Vault (Sta. 60+00 to 61+70)	excavator	1	40	81	775	0		51.5	8	480	48	6.2	-9	0	5	770	775	8.0	770.1	775.1	0.00	0.1	-1.4	-1.4	0.7	0.7	0.1	nearest receptor is commercial use: Halfway House at the Ranch (restaurant)
		backhoe	1	40	78	775	0		48.4	8	480	44	4.5	-9	0	5	770	775	6.7	770.1	775.1	0.00	0.1	-2.3	-2.3	0.7	0.7	0.1	
		gradall	1	40	83	775	0		53.4	8	480	49	3.0	-9	0	5	770	775	5.8	770.1	775.1	0.00	0.1	-3.0	-3.0	0.7	0.7	0.1	
		generator	1	50	72	775	0		42.4	8	480	39	4.5	-9	0	5	770	775	6.7	770.1	775.1	0.00	0.1	-2.3	-2.3	0.7	0.7	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 9	**53**																	
10	Slip Lining of Existing NCI (Sta. 61+70 to 70+56)	excavator	2	40	81	775	0		51.7	8	480	51	6.2	-1	0	5	770	775	8.0	770.0	775.0	0.00	0.1	2.6	2.6	0.7	0.7	0.1	nearest receptor is commercial use: Halfway House at the Ranch (restaurant)
		pumps	1	50	77	775	0		47.6	8	480	45	3.8	-1	0	5	770	775	6.3	770.0	775.0	0.00	0.1	1.4	1.4	0.7	0.7	0.1	
		backhoe	1	40	78	775	0		48.6	8	480	45	4.5	-1	0	5	770	775	6.7	770.0	775.0	0.00	0.1	1.8	1.8	0.7	0.7	0.1	
		gradall	1	40	83	775	0		53.6	8	480	50	3.0	-1	0	5	770	775	5.8	770.0	775.0	0.00	0.1	1.0	1.0	0.7	0.7	0.1	
		generator	1	50	72	775	0		42.6	8	480	40	4.5	-1	0	5	770	775	6.7	770.0	775.0	0.00	0.1	1.8	1.8	0.7	0.7	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 10	**54**																	
11	Abandonment of Existing NCI (Sta. 12+50 to 61+70)	pumps	2	50	77	175	0		65.9	8	480	66	3.8	67	0	5	170	175	6.3	182.7	186.1	0.00	0.1	35.4	35.4	0.1	0.1	0.1	nearest receptor is residence on Aliso Circle
		gradall	1	40	83	175	0		71.9	8	480	68	3.0	67	0	5	170	175	5.8	182.7	186.3	0.00	0.1	35.0	35.0	0.1	0.1	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 11	**70**																	

To User: bordered cells are inputs, unbordered cells have formulae
enter "0" to turn off air or grnd absorption terms, "1" to turn on

air abs? 1
grnd abs? 1

magnitude of threshold (dBA) per FTA guidance = 80
allowable hours over which Leq is to be averaged = 8

Source, receptor, and barrier all share same reference grade elevation; unless otherwise noted)
🟨 = Barrier of input height inserted between source and receptor

Project Phase No.	Project Phase Description	Comparable FHWA RCNM Construction Equipment Type	Quantity	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Source to NSR Distance (ft.)	*Temporary Barrier Insertion Loss (dB)*	*Additional Noise Reduction*	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq	Source Elevation (ft)	Receiver Elevation (ft)	Barrier Height (ft)	Source to Barr. ("A") Horiz. (ft)	Rcvr. to Barr. ("B") Horiz. (ft)	Source to Rcvr. ("C") Horiz. (ft)	"A" (ft)	"B" (ft)	"C" (ft)	Path Length Diff. "P" (ft)	Abarr (dB)	Heff (with barrier)	Heff (wout barrier)	G (with barrier)	G (without barrier)	ILbarr (dB)	Notes
1	Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)	excavator	1	40	81	50	0		80.9	8	480	77	6.2	42	0	5	45	50	8.0	61.6	61.5	0.00	0.1	24.1	24.1	0.3	0.3	0.1	nearest receptor are residential homes on Aliso Circle
		backhoe	1	40	78	50	0		77.9	8	480	74	4.5	42	0	5	45	50	6.7	61.6	62.5	0.00	0.1	23.3	23.3	0.3	0.3	0.1	
		pumps	1	50	77	50	0		76.9	8	480	74	3.8	42	0	5	45	50	6.3	61.6	62.9	0.00	0.1	22.9	22.9	0.3	0.3	0.1	
		generator	1	50	72	50	0		71.9	8	480	69	4.5	42	0	5	45	50	6.7	61.6	62.5	0.00	0.1	23.3	23.3	0.3	0.3	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 1	**80**																	
2	SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)	excavator	1	40	81	175	0		69.9	8	480	66	6.2	76	0	5	170	175	8.0	186.2	188.4	0.00	0.1	41.1	41.1	0.0	0.0	0.1	nearest receptors are multi-family residences southeast of Laguna Beach United Methodist Church on Wesley Drive
		backhoe	1	40	78	175	0		66.9	8	480	63	4.5	76	0	5	170	175	6.7	186.2	189.0	0.00	0.1	40.3	40.3	0.0	0.0	0.1	
		pumps	1	50	77	175	0		65.9	8	480	63	3.8	76	0	5	170	175	6.3	186.2	189.3	0.00	0.1	39.9	39.9	0.0	0.0	0.1	
		generator	1	50	72	175	0		60.9	8	480	58	4.5	76	0	5	170	175	6.7	186.2	189.0	0.00	0.1	40.3	40.3	0.0	0.0	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 2	**69**																	
3	Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)	excavator	0	40	81	30	0		85.3	8	480	0	6.2	0	0	5	25	30	8.0	25.0	30.6	0.00	0.1	3.1	3.1	0.7	0.7	0.1	nearest sensitive receptors are Ranch at Laguna Beach bungalows near the Sta. 19+50 position
		backhoe	0	40	78	30	0		82.3	8	480	0	4.5	0	0	5	25	30	6.7	25.0	30.3	0.00	0.1	2.3	2.3	0.7	0.7	0.1	
		gradall	0	40	83	30	0		87.3	8	480	0	3.0	0	0	5	25	30	5.8	25.0	30.1	0.00	0.1	1.5	1.5	0.7	0.7	0.1	
		generator	0	50	72	30	0		76.3	8	480	0	4.5	0	0	5	25	30	6.7	25.0	30.3	0.00	0.1	2.3	2.3	0.7	0.7	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 3	**0**																	
4	HDD Receiving Area (Sta. 28+00)	excavator	1	40	81	310	0		58.8	8	480	55	6.2	-24	0	5	305	310	8.0	305.9	311.5	0.00	0.1	-8.9	-8.9	0.7	0.7	0.1	nearest sensitive receptors are Ranch at Laguna Beach bungalows south of the Ranch at Laguna Beach service building and Main Lobby
		gradall	1	40	83	310	0		60.6	8	480	57	3.0	-24	0	5	305	310	5.8	305.9	311.2	0.00	0.1	-10.5	-10.5	0.7	0.7	0.1	
		welder / torch	1	40	73	310	0		50.6	8	480	47	2.5	-24	0	5	305	310	5.6	305.9	311.1	0.00	0.1	-10.8	-10.8	0.7	0.7	0.1	
		pumps	1	50	77	310	0		54.7	8	480	52	3.8	-24	0	5	305	310	6.3	305.9	311.2	0.00	0.1	-10.1	-10.1	0.7	0.7	0.1	
		generator	1	50	72	310	0		49.7	8	480	47	4.5	-24	0	5	305	310	6.7	305.9	311.3	0.00	0.1	-9.8	-9.8	0.7	0.7	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 4	**60**																	
5	HDD Alignment (Sta. 28+00 to 43+50)	no major equipment along alignment	0	#N/A	#N/A	0	#DIV/0!		#N/A	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	#DIV/0!	#DIV/0!	0.0	0.0	0.7	0.7	#DIV/0!	
6	HDD Launching Area (Sta. 43+50)	horizontal boring hydr. jack	1	25	80	530	0		54.6	8	480	49	9.0	5	0	5	525	530	10.3	525.0	530.0	0.00	0.1	7.0	7.0	0.6	0.6	0.1	nearest receptor is commercial use: Halfway House at the Ranch (restaurant)
		gradall	1	40	83	530	0		57.4	8	480	53	3.0	5	0	5	525	530	5.8	525.0	530.0	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		pumps	1	50	77	530	0		51.4	8	480	48	3.8	5	0	5	525	530	6.3	525.0	530.0	0.00	0.1	4.4	4.4	0.7	0.7	0.1	
		generator	1	50	72	530	0		46.4	8	480	43	4.5	5	0	5	525	530	6.7	525.0	530.0	0.00	0.1	4.8	4.8	0.7	0.7	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 6	**56**																	
7	Open Trench through Scout Camp (Sta. 43+50 to 52+50)	excavator	1	40	81	65	0		78.6	8	480	75	6.2	5	0	5	60	65	8.0	60.2	65.0	0.00	0.1	5.6	5.6	0.7	0.7	0.1	nearest receptor is commercial use: Halfway House at the Ranch (restaurant)
		backhoe	1	40	78	65	0		75.5	8	480	72	4.5	5	0	5	60	65	6.7	60.2	65.0	0.00	0.1	4.8	4.8	0.7	0.7	0.1	
		gradall	1	40	83	65	0		79.7	8	480	76	3.0	5	0	5	60	65	5.8	60.2	65.0	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		generator	1	50	72	65	0		69.5	8	480	66	4.5	5	0	5	60	65	6.7	60.2	65.0	0.00	0.1	4.8	4.8	0.7	0.7	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 7	**79**																	
8	Open Trench along Access Road (Sta. 52+50 to 60+00)	excavator	1	40	81	215	0		65.2	8	480	61	6.2	13	0	5	210	215	8.0	210.4	215.1	0.00	0.1	9.6	9.6	0.6	0.6	0.1	nearest receptor is commercial use: Halfway House at the Ranch (restaurant)
		backhoe	1	40	78	215	0		62.0	8	480	58	4.5	13	0	5	210	215	6.7	210.4	215.2	0.00	0.1	8.8	8.8	0.6	0.6	0.1	
		gradall	1	40	83	215	0		66.9	8	480	63	3.0	13	0	5	210	215	5.8	210.4	215.2	0.00	0.1	8.0	8.0	0.6	0.6	0.1	
		generator	1	50	72	215	0		56.0	8	480	53	4.5	13	0	5	210	215	6.7	210.4	215.2	0.00	0.1	8.8	8.8	0.6	0.6	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 8	**66**																	
9	Isolation Valve Vault (Sta. 60+00 to 61+70)	excavator	1	40	81	775	0		51.5	8	480	48	6.2	-9	0	5	770	775	8.0	770.1	775.1	0.00	0.1	-1.4	-1.4	0.7	0.7	0.1	nearest receptor is commercial use: Halfway House at the Ranch (restaurant)
		backhoe	1	40	78	775	0		48.4	8	480	44	4.5	-9	0	5	770	775	6.7	770.1	775.1	0.00	0.1	-2.3	-2.3	0.7	0.7	0.1	
		gradall	1	40	83	775	0		53.4	8	480	49	3.0	-9	0	5	770	775	5.8	770.1	775.1	0.00	0.1	-3.0	-3.0	0.7	0.7	0.1	
		generator	1	50	72	775	0		42.4	8	480	39	4.5	-9	0	5	770	775	6.7	770.1	775.1	0.00	0.1	-2.3	-2.3	0.7	0.7	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 9	**53**																	
10	Slip Lining of Existing NCI (Sta. 61+70 to 70+56)	excavator	2	40	81	775	0		51.7	8	480	51	6.2	-1	0	5	770	775	8.0	770.0	775.0	0.00	0.1	2.6	2.6	0.7	0.7	0.1	nearest receptor is commercial use: Halfway House at the Ranch (restaurant)
		pumps	1	50	77	775	0		47.6	8	480	45	3.8	-1	0	5	770	775	6.3	770.0	775.0	0.00	0.1	1.4	1.4	0.7	0.7	0.1	
		backhoe	1	40	78	775	0		48.6	8	480	45	4.5	-1	0	5	770	775	6.7	770.0	775.0	0.00	0.1	1.8	1.8	0.7	0.7	0.1	
		gradall	1	40	83	775	0		53.6	8	480	50	3.0	-1	0	5	770	775	5.8	770.0	775.0	0.00	0.1	1.0	1.0	0.7	0.7	0.1	
		generator	1	50	72	775	0		42.6	8	480	40	4.5	-1	0	5	770	775	6.7	770.0	775.0	0.00	0.1	1.8	1.8	0.7	0.7	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 10	**54**																	
11	Abandonment of Existing NCI (Sta. 12+50 to 61+70)	pumps	2	50	77	175	0		65.9	8	480	66	3.8	67	0	5	170	175	6.3	182.7	186.1	0.00	0.1	35.4	35.4	0.1	0.1	0.1	nearest receptor is residence on Aliso Circle
		gradall	1	40	83	175	0		71.9	8	480	68	3.0	67	0	5	170	175	5.8	182.7	186.3	0.00	0.1	35.0	35.0	0.1	0.1	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 11	**70**																	

To User: bordered cells are inputs, unbordered cells have formulae
enter "0" to turn off air or grnd absorption terms, "1" to turn on

air abs? 1
grnd abs? 1

magnitude of threshold (dBA) per FTA guidance = 80
allowable hours over which Leq is to be averaged = 8

Source, receptor, and barrier all share same reference grade elevation; unless otherwise noted)
🟧 = Barrier of input height inserted between source and receptor

Project Phase No.	Project Phase Description	Comparable FHWA RCNM Construction Equipment Type	Quantity	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Source to NSR Distance (ft.)	*Temporary Barrier Insertion Loss (dB)*	*Additional Noise Reduction*	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq	Source Elevation (ft)	Receiver Elevation (ft)	Barrier Height (ft)	Source to Barr. ("A") Horiz. (ft)	Rcvr. to Barr. ("B") Horiz. (ft)	Source to Rcvr. ("C") Horiz. (ft)	"A" (ft)	"B" (ft)	"C" (ft)	Path Length Diff. "P" (ft)	Abarr (dB)	Heff (with barrier)	Heff (wout barrier)	G (with barrier)	G (without barrier)	ILbarr (dB)	Notes
1	Pacific Coast Highway Connection Vault (Sta. 10+00 to 13+00)	excavator	0	40	81	50	0		80.9	8	480	0	6.2	42	0	5	45	50	8.0	61.6	61.5	0.00	0.1	24.1	24.1	0.3	0.3	0.1	nearest receptor are residential homes on Aliso Circle
		backhoe	0	40	78	50	0		77.9	8	480	0	4.5	42	0	5	45	50	6.7	61.6	62.5	0.00	0.1	23.3	23.3	0.3	0.3	0.1	
		pumps	0	50	77	50	0		76.9	8	480	0	3.8	42	0	5	45	50	6.3	61.6	62.9	0.00	0.1	22.9	22.9	0.3	0.3	0.1	
		generator	0	50	72	50	0		71.9	8	480	0	4.5	42	0	5	45	50	6.7	61.6	62.5	0.00	0.1	23.3	23.3	0.3	0.3	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 1	**0**																	
2	SCWD LS2 Intertie Vault and Emergency Interconnections (Sta. 13+00 to 19+50)	excavator	0	40	81	175	0		69.9	8	480	0	6.2	76	0	5	170	175	8.0	186.2	188.4	0.00	0.1	41.1	41.1	0.0	0.0	0.1	nearest receptors are multi-family residences southeast of Laguna Beach United Methodist Church on Wesley Drive
		backhoe	0	40	78	175	0		66.9	8	480	0	4.5	76	0	5	170	175	6.7	186.2	189.0	0.00	0.1	40.3	40.3	0.0	0.0	0.1	
		pumps	0	50	77	175	0		65.9	8	480	0	3.8	76	0	5	170	175	6.3	186.2	189.3	0.00	0.1	39.9	39.9	0.0	0.0	0.1	
		generator	0	50	72	175	0		60.9	8	480	0	4.5	76	0	5	170	175	6.7	186.2	189.0	0.00	0.1	40.3	40.3	0.0	0.0	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 2	**0**																	
3	Open Trench to HDD Receiving Area (Sta. 19+50 to 28+00)	excavator	1	40	81	30	15		70.1	6	360	65	6.2	0	10	5	25	30	6.3	26.9	30.6	2.57	15.0	13.1	3.1	0.5	0.7	15.3	nearest sensitive receptors are Ranch at Laguna Beach bungalows near the Sta. 19+50 position
		backhoe	1	40	78	30	15		67.1	6	360	62	4.5	0	10	5	25	30	7.4	26.9	30.3	4.02	15.0	12.3	2.3	0.5	0.7	15.3	
		gradall	1	40	83	30	15		72.2	6	360	67	3.0	0	10	5	25	30	8.6	26.9	30.1	5.38	15.0	11.5	1.5	0.5	0.7	15.3	
		generator	1	50	72	30	15		61.1	6	360	57	4.5	0	10	5	25	30	7.4	26.9	30.3	4.02	15.0	12.3	2.3	0.5	0.7	15.3	
											Aggregate Noise Exposure from Activities of Phase(s) 3	**70**																	
4	HDD Receiving Area (Sta. 28+00)	excavator	0	40	81	310	0		58.8	8	480	0	6.2	-24	0	5	305	310	8.0	305.9	311.5	0.00	0.1	-8.9	-8.9	0.7	0.7	0.1	nearest sensitive receptors are Ranch at Laguna Beach bungalows south of the Ranch at Laguna Beach service building and Main Lobby
		gradall	0	40	83	310	0		60.6	8	480	0	3.0	-24	0	5	305	310	5.8	305.9	311.2	0.00	0.1	-10.5	-10.5	0.7	0.7	0.1	
		welder / torch	0	40	73	310	0		50.6	8	480	0	2.5	-24	0	5	305	310	5.6	305.9	311.1	0.00	0.1	-10.8	-10.8	0.7	0.7	0.1	
		pumps	0	50	77	310	0		54.7	8	480	0	3.8	-24	0	5	305	310	6.3	305.9	311.2	0.00	0.1	-10.1	-10.1	0.7	0.7	0.1	
		generator	0	50	72	310	0		49.7	8	480	0	4.5	-24	0	5	305	310	6.7	305.9	311.3	0.00	0.1	-9.8	-9.8	0.7	0.7	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 4	**0**																	
5	HDD Alignment (Sta. 28+00 to 43+50)	no major equipment along alignment	0	#N/A	#N/A	0	#DIV/0!		#N/A	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	#DIV/0!	#DIV/0!	0.0	0.0	0.7	0.7	#DIV/0!	
6	HDD Launching Area (Sta. 43+50)	horizontal boring hydr. jack	0	25	80	530	0		54.6	8	480	0	9.0	5	0	5	525	530	10.3	525.0	530.0	0.00	0.1	7.0	7.0	0.6	0.6	0.1	nearest receptor is commercial use: Halfway House at the Ranch (restaurant)
		gradall	0	40	83	530	0		57.4	8	480	0	3.0	5	0	5	525	530	5.8	525.0	530.0	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		pumps	0	50	77	530	0		51.4	8	480	0	3.8	5	0	5	525	530	6.3	525.0	530.0	0.00	0.1	4.4	4.4	0.7	0.7	0.1	
		generator	0	50	72	530	0		46.4	8	480	0	4.5	5	0	5	525	530	6.7	525.0	530.0	0.00	0.1	4.8	4.8	0.7	0.7	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 6	**0**																	
7	Open Trench through Scout Camp (Sta. 43+50 to 52+50)	excavator	0	40	81	65	0		78.6	8	480	0	6.2	5	0	5	60	65	8.0	60.2	65.0	0.00	0.1	5.6	5.6	0.7	0.7	0.1	nearest receptor is commercial use: Halfway House at the Ranch (restaurant)
		backhoe	0	40	78	65	0		75.5	8	480	0	4.5	5	0	5	60	65	6.7	60.2	65.0	0.00	0.1	4.8	4.8	0.7	0.7	0.1	
		gradall	0	40	83	65	0		79.7	8	480	0	3.0	5	0	5	60	65	5.8	60.2	65.0	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		generator	0	50	72	65	0		69.5	8	480	0	4.5	5	0	5	60	65	6.7	60.2	65.0	0.00	0.1	4.8	4.8	0.7	0.7	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 7	**0**																	
8	Open Trench along Access Road (Sta. 52+50 to 60+00)	excavator	0	40	81	215	0		65.2	8	480	0	6.2	13	0	5	210	215	8.0	210.4	215.1	0.00	0.1	9.6	9.6	0.6	0.6	0.1	nearest receptor is commercial use: Halfway House at the Ranch (restaurant)
		backhoe	0	40	78	215	0		62.0	8	480	0	4.5	13	0	5	210	215	6.7	210.4	215.2	0.00	0.1	8.8	8.8	0.6	0.6	0.1	
		gradall	0	40	83	215	0		66.9	8	480	0	3.0	13	0	5	210	215	5.8	210.4	215.2	0.00	0.1	8.0	8.0	0.6	0.6	0.1	
		generator	0	50	72	215	0		56.0	8	480	0	4.5	13	0	5	210	215	6.7	210.4	215.2	0.00	0.1	8.8	8.8	0.6	0.6	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 8	**0**																	
9	Isolation Valve Vault (Sta. 60+00 to 61+70)	excavator	0	40	81	775	0		51.5	8	480	0	6.2	-9	0	5	770	775	8.0	770.1	775.1	0.00	0.1	-1.4	-1.4	0.7	0.7	0.1	nearest receptor is commercial use: Halfway House at the Ranch (restaurant)
		backhoe	0	40	78	775	0		48.4	8	480	0	4.5	-9	0	5	770	775	6.7	770.1	775.1	0.00	0.1	-2.3	-2.3	0.7	0.7	0.1	
		gradall	0	40	83	775	0		53.4	8	480	0	3.0	-9	0	5	770	775	5.8	770.1	775.1	0.00	0.1	-3.0	-3.0	0.7	0.7	0.1	
		generator	0	50	72	775	0		42.4	8	480	0	4.5	-9	0	5	770	775	6.7	770.1	775.1	0.00	0.1	-2.3	-2.3	0.7	0.7	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 9	**0**																	
10	Slip Lining of Existing NCI (Sta. 61+70 to 70+56)	excavator	0	40	81	775	0		51.7	8	480	0	6.2	-1	0	5	770	775	8.0	770.0	775.0	0.00	0.1	2.6	2.6	0.7	0.7	0.1	nearest receptor is commercial use: Halfway House at the Ranch (restaurant)
		pumps	0	50	77	775	0		47.6	8	480	0	3.8	-1	0	5	770	775	6.3	770.0	775.0	0.00	0.1	1.4	1.4	0.7	0.7	0.1	
		backhoe	0	40	78	775	0		48.6	8	480	0	4.5	-1	0	5	770	775	6.7	770.0	775.0	0.00	0.1	1.8	1.8	0.7	0.7	0.1	
		gradall	0	40	83	775	0		53.6	8	480	0	3.0	-1	0	5	770	775	5.8	770.0	775.0	0.00	0.1	1.0	1.0	0.7	0.7	0.1	
		generator	0	50	72	775	0		42.6	8	480	0	4.5	-1	0	5	770	775	6.7	770.0	775.0	0.00	0.1	1.8	1.8	0.7	0.7	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 10	**0**																	
11	Abandonment of Existing NCI (Sta. 12+50 to 61+70)	pumps	0	50	77	175	0		65.9	8	480	0	3.8	67	0	5	170	175	6.3	182.7	186.1	0.00	0.1	35.4	35.4	0.1	0.1	0.1	nearest receptor is residence on Aliso Circle
		gradall	0	40	83	175	0		71.9	8	480	0	3.0	67	0	5	170	175	5.8	182.7	186.3	0.00	0.1	35.0	35.0	0.1	0.1	0.1	
											Aggregate Noise Exposure from Activities of Phase(s) 11	**0**																	

Appendix E3

Night Work Letter

January 3, 2025

Re: NCI Reach 5 Replacement – Night work along Country Club Lane

The NCI Reach 5 Replacement project between South Coast Highway and the SOCWA Coastal Treatment Plant (CTP) will provide dual parallel pipelines that provide redundancy and the ability to maintain a reliable and safe conveyance of wastewater. The project includes:

- Installation of 5,200 LF of dual 18-inch high density polyethylene pipelines from South Coast Highway to just west of the SOCWA CTP.
- Slip lining rehabilitation using flexible fabric reinforced pipe for the remaining 900 LF of existing 24-inch NCI pipeline to the headworks of the SOCWA CTP.

A trenchless technology method, horizonal directional drilling, will be used between The Ranch Resort driving range and the back fairway of the golf course to reduce construction activities within The Ranch Resort. All remaining lengths of the project will be constructed using traditional open cut trenching method.

The open cut trenching work along County Club Lane toward The Ranch Resort driving range from STA 19+50 to STA 26+00 must occur during the nighttime (8:00 PM to 5:00 AM) because during the daytime this work would shut down the operation of The Ranch Resort. The night work has been discussed with The Ranch Resort ownership, and they have agreed that night work is the only feasible option for this portion of work. Therefore, the City of Laguna Beach approves night work for this portion of the project.

Sincerely,

Mark McAvoy, Director of Public Works and Utilities

505 FOREST AVE. • LAGUNA BEACH, CA 92651 • TEL (949) 497-3311 • FAX (949) 497-0771

Appendix F

Mitigation Monitoring and Reporting Program

Mitigation Monitoring and Reporting Program Table

Table 1. Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
Aesthetics			
MM-AES-1. Nighttime Construction. All mobile/temporary sources of lighting used during nighttime construction shall be hooded, fully shielded, and aimed downward to minimize the potential for light trespass onto surrounding properties, occurrences of skyglow, and excessive glare received on surrounding properties.	Prior to construction	City of Laguna Beach	
Biological Resources			
MM-BIO-1. Special-Status Plant Surveys. Prior to the start of project activities, a qualified botanist shall conduct a survey to map and flag the location of any Nuttall's scrub oaks, to verify previously identified locations and map any additional locations, if any. The mapped locations will be flagged for avoidance during construction, to the extent feasible. If project activities require trimming or removal of any scrub oaks, a biological monitor must be on site during construction to ensure that scrub oak trimming, removal, and/or construction over scrub oak root systems do not result in mortality of more than five scrub oaks. The loss of up to five scrub oak individuals would be less than significant, given that this would represent a de minimis portion (estimated at less than 1%) of the overall population. In the event construction is expected to result in removal/mortality of more than five individual scrub oaks, a Restoration Plan shall be prepared to salvage and relocate the Nuttall's scrub oaks to be impacted to the extent feasible. The Restoration Plan will describe the methods of salvage (if feasible) and proposed location for relocation and/or restoration with appropriate local nursery (genetic stock from Southern California) that will be conserved in perpetuity. The Restoration Plan will include success criteria that ensure that a minimum 2:1 ratio (restored to impacted) of scrub oak individuals be established and healthy without supplemental irrigation for at least 2 years.	Prior to and during construction	City of Laguna Beach	

Table 1. Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
MM-BIO-2. Coastal California Gnatcatcher and Least Bell's Vireo Avoidance. If project activities are delayed until the combined breeding season for these species (from February 15 through July 31, 2027), additional focused surveys for coastal California gnatcatcher and least Bell's vireo shall be conducted by a qualified biologist within the appropriate season to determine the presence/absence of either species prior to the start of construction. Because the project site occurs within the Orange County Central and Coastal Region Natural Community Conservation Plan/Habitat Conservation Plan and the City is in an enrollment agreement to this plan, potential project-related take of either species would be authorized, with conditions for least Bell's vireo as a conditionally covered species, such as clearing outside of the nesting season and minimizing excessive noise during the nesting season.	Prior to the start of construction, if starting during 2027 breeding season or later breeding season	City of Laguna Beach	
MM-BIO-3. Crotch's Bumble Bee Surveys. Nesting surveys shall occur if ground-disturbing activities are scheduled to occur during the queen flight season through the colony active period (February 1 through August 31). Potential nesting sites should be surveyed for active Crotch's bumble bee colonies either through observations of queens searching for nesting sites or by looking for concentrated Crotch's bumble bee activity entering and exiting a given area. Surveys may occur between 1 hour after sunrise and 2 hours before sunset. Surveys shall not be conducted during wet conditions (e.g., foggy, raining, or drizzling) and surveyors shall wait at least 1 hour following rain. Optimal surveys are conducted when there are sunny to partly sunny skies and temperatures between 65°F and 90°F, and winds less than 8 mph. Surveys may be conducted outside these weather parameters if other bees or butterflies are observed flying. Potential nesting sites investigated by colony founding queens should be GPS marked if the queen exhibits signs of interest in the potential site (e.g., she does not emerge from the site within a few minutes and then continue to nest search). Potential nesting sites identified during the queen nest searching phase shall be evaluated later during the colony active period to determine whether an active colony has been established, Potential nest sites on the project site will be observed for up to 5 minutes during the colony active period to monitor for Crotch's bumble bees entering or exiting. If a nest site is	Prior to the start of ground-disturbing activities, if occurring between February 1 and August 31	City of Laguna Beach	

Table 1. Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
confirmed to be occupied by Crotch's bumble bees, the location's GPS coordinates shall be recorded; however, no flagging or visual marking of the nest location will occur until just prior to and during construction. If Crotch's bumble bee is not detected during the pre-construction surveys, no further action or mitigation is required. If Crotch's bumble bee is detected, the City, in consultation with a qualified entomologist, will develop a Crotch's Bumble Bee Avoidance Plan to fully avoid direct and indirect impacts to this species. The avoidance plan will include nesting surveys, adaptive management, and success criteria. If take cannot be avoided, then an Incidental Take Permit from the California Department of Fish and Wildlife (CDFW) and subsequent mitigation would be required to reduce the impact to a less than significant level. If required, mitigation for direct impacts to Crotch's bumble bee shall be fulfilled through compensatory mitigation at a minimum 1:1 nesting habitat replacement of equal or better functions and values to those impacted by the project. Mitigation shall be accomplished either through off-site conservation or through a CDFW-approved mitigation bank. If mitigation is not purchased through a mitigation bank, and lands are conserved separately, a cost estimate shall be prepared to estimate the initial startup costs and ongoing annual costs of management activities for the management of the conservation easement area(s) in perpetuity. The funding source shall be in the form of an endowment to help the qualified natural lands management entity that is ultimately selected to hold the conservation easement(s). The endowment amount shall be established following the completion of a project-specific Property Analysis Record to calculate the costs of in-perpetuity land management. The Property Analysis Record shall take into account all management activities to fulfill the requirements of the conservation easement(s), which are currently in review and development.			
MM-BIO-4. Special-Status Wildlife Species Avoidance. Construction activities shall avoid the combined general bird nesting season and bat maternity roosting season (February through August) to reduce and minimize potential impacts to state-listed and federally listed special-status species. In the event	No more than 10 days prior to the start of construction, if occurring from February through July, and during construction	City of Laguna Beach	

Table 1. Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
the nesting and maternity season cannot be avoided, a pre-construction survey shall be conducted within 10 days prior to the start of project activities to determine the presence/absence of any special-status wildlife species within and immediately adjacent to the project site. If any special-status wildlife species are found during the survey, additional avoidance and minimization measures shall be required. Specifically, a qualified biological monitor, as determined by the City of Laguna Beach, shall be on site during construction activities to ensure that no impacts to special-status wildlife occur, either by moving wildlife out of harm's way, halting construction activities, or coordinating with the wildlife agencies for relocation, if needed. Any relocation activities would occur outside the nesting or maternity roosting season to reduce impacts to special-status wildlife.			
MM-BIO-5. Worker Environmental Awareness Program (WEAP) Training. Prior to the start of project activities, a pre-construction meeting shall be required that includes a training session for project personnel by a biological monitor. The training shall include (1) a description of the species of concern and their habitats; (2) the general provisions of the applicable regulations pertaining to biological resources, including the Endangered Species Act and the Clean Water Act; (3) the need to adhere to the provisions of the Endangered Species Act, the Clean Water Act, and other applicable regulations; (4) the penalties associated with violating the provisions of the Endangered Species Act, Clean Water Act, and other applicable regulations; (5) the general measures that are being implemented to conserve the species of concern as they relate to the project; and (6) the access routes to and from disturbance area boundaries within which the project activities must be accomplished. Additionally, the training shall include the measures and mitigation requirements for the applicable resources. Copies of the mitigation measures and any required permits from the resource agencies shall be made available to construction personnel. The training shall be provided in alternate languages, as needed. If any special-status species are observed, the biological monitor or on-site construction manager will be immediately notified to determine the appropriate avoidance and minimization measures for the species during construction activities,	Prior to the start of construction	City of Laguna Beach	

Table 1. Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
including moving the wildlife out of harm's way, halting construction activities, or coordinating with the wildlife agencies for relocation, if needed.			
MM-BIO-6. Nesting Bird Avoidance. To reduce any potential indirect impact to nesting birds, project construction should commence outside of the general avian nesting season (from February through August). If construction activities cannot avoid the nesting season, then a pre-construction survey shall be conducted by a trained biologist to determine the presence/absence of any nesting birds within the project site and 500-foot buffer around the site. If an active nest is found, a suitable buffer based on the species sensitivity and proximity to the area of disturbance shall be placed around the nest for the duration of the nesting period. Construction may continue within this buffer only at the discretion of a monitoring biologist. The buffer can be removed when the nest is no longer active due to natural causes, as determined by a trained biologist.	Prior to the start of construction, if occurring from February through July	City of Laguna Beach	
Cultural Resources			
MM-CUL-1. Worker's Environmental Awareness Training. Prior to the initiation of ground-disturbing work, construction crews shall be made aware of the potential to encounter cultural resources and the requirement for cultural monitors to be present during these activities. This may occur as part of a Worker Environmental Awareness Program. Topics addressed will include definitions and characteristics of cultural resources, regulatory requirements and penalties for intentionally disturbing cultural resources, and protocols to be taken in the event of an inadvertent discovery.	Prior to the start of construction	City of Laguna Beach	
MM-CUL-2. Cultural Resources Monitoring and Inadvertent Discovery Protocols. A monitoring plan shall be prepared by an archaeological principal investigator meeting the Secretary of the Interior's Standards and implemented upon approval by the City. An archaeological monitor shall be present during all initial ground-disturbing activities for the project. Archaeological monitoring may be adjusted (increase, decreased, or discontinued) at the recommendation of the archaeological principal investigator and based on inspection of exposed cultural material and the observed potential for soils to contain intact cultural deposits or otherwise significant archaeological material. The archaeological monitor shall be provided a copy of the project-specific cultural resources	Prior to the start of construction and during initial ground disturbance	City of Laguna Beach	

Table 1. Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
inventory report and its pertinent appendices (included as Appendix C to the project Initial Study/Mitigated Negative Declaration) to inform their monitoring efforts. The archaeological monitor shall have the authority to temporarily halt work to inspect areas for potential cultural material or deposits. In the event that unanticipated archaeological deposits or features are exposed during construction activities, all construction work occurring within 50 feet of the find shall immediately stop until the archaeological principal investigator is provided access to the project site and can assess the significance of the find and determine whether additional study is warranted. The work exclusion buffer may be adjusted as appropriate to allow work to feasibly continue at the recommendation of the archaeological principal investigator. Should it be required, temporary flagging shall be installed around the resource to avoid any disturbance from construction equipment. The potential for avoidance should be the primary consideration of this initial process. The significance of the find shall be assessed as outlined by the California Environmental Quality Act (CEQA) (14 CCR 15064.5[f]; California Public Resources Code Section 21082). If the archaeological principal investigator observes the discovery to be potentially significant under CEQA, additional efforts, such as the preparation of an archaeological treatment plan, testing, and/or data recovery, are warranted prior to allowing construction to proceed in this area. Daily monitoring logs shall be completed by the on-site archaeological monitor. Within 60 days following completion of construction, the archaeological principal investigator shall provide an archaeological monitoring report to the City. This report shall include the results of the cultural monitoring program (even if negative), including a summary of any findings or evaluation/data recovery efforts, and supporting documentation that demonstrates that all mitigation measures defined in the environmental document were appropriately met. Appendices shall include archaeological monitoring logs and documentation relating to any newly identified or updated cultural resources. This report shall be submitted to the South Central Coastal Information Center once considered final.			

Table 1. Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
MM-CUL-3. Treatment of Human Remains. In accordance with Section 7050.5 of the California Health and Safety Code, if potential human remains are found, the Orange County Coroner (County Coroner) shall be immediately notified of the discovery. The County Coroner shall provide a determination within 48 hours of notification. No further excavation or disturbance of the identified material, or any area reasonably suspected to overlie additional remains, shall occur until a determination has been made regarding if the find is human in origin. If the County Coroner determines that the remains are, or are believed to be, Native American, the Coroner shall notify the Native American Heritage Commission (NAHC) within 24 hours. In accordance with California Public Resources Code Section 5097.98, NAHC must immediately notify those persons it believes to be the most likely descendant of the deceased Native American. The most likely descendant shall then recommend to the lead agency their preferred treatment of the remains and associated grave goods.	Throughout soil excavation	City of Laguna Beach	
Geology and Soils			
MM-GEO-1. Ground Settlement Prevention. In accordance with recommendations of the project-specific geotechnical report (included as Appendix D to the project Initial Study/Mitigated Negative Declaration), the project shall be designed such that either the access pits are located more than 50 feet away from existing structures, or if that is not feasible, structures/improvements in the vicinity of the planned shoring installation shall be reviewed with regard to foundation support and tolerance to settlement. To reduce the potential for distress to adjacent structures, the shoring system shall be designed to limit the ground settlement behind the shoring system to 0.5 inches or less. Possible causes of settlement that shall be addressed include settlement during installation of the shoring system, excavation for the access pits, construction vibrations, dewatering, and removal of the support system. If access pits will be located within 50 feet of adjacent structures, based on site-specific conditions, a qualified and experienced engineer shall determine whether a ground vibration and monitoring plan shall be implemented prior to construction. Structures are not present along the majority of the proposed pipeline alignment. The locations where ground vibration monitoring at access pits may be appropriate include the existing	During design	City of Laguna Beach	

Table 1. Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
pump station, near the intersection of Village Lane and the private road for The Ranch at Laguna Beach, and at the South Orange County Wastewater Authority's Coastal Treatment Plant. Based on site-specific conditions, the shoring installation and vibration monitoring plan, if needed, shall be evaluated carefully by the contractor prior to construction. Ground vibration and settlement monitoring shall be performed during construction, as appropriate. The contractor shall retain a qualified and experienced engineer to design the shoring system and make modifications, as appropriate.			
MM-GEO-2. Paleontological Resources Impact Mitigation Program. Prior to commencement of any grading activity on site, the applicant shall retain a qualified paleontologist per the Society of Vertebrate Paleontology (SVP) 2010 Guidelines. The paleontologist shall prepare a Paleontological Resources Mitigation Program for the project. The Paleontological Resources Mitigation Program shall be consistent with the SVP 2010 Guidelines and should outline requirements for pre-construction meeting attendance and worker environmental awareness training; where monitoring is required within the project site based on construction plans and/or geotechnical reports; procedures for adequate paleontological monitoring and discoveries treatment; and paleontological methods (including sediment sampling for microvertebrate fossils), reporting, and collections management. The qualified paleontologist shall attend the pre-construction meeting and a qualified paleontological monitor shall be on site during all rough grading and other significant ground-disturbing activities (including augering) in previously undisturbed, fine-grained Pleistocene alluvial deposits or older deposits with high paleontological resource sensitivity or potential. In the event that paleontological resources (e.g., fossils) are unearthed during grading or other ground-disturbing activities, the paleontological monitor will temporarily halt and/or divert construction activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot-radius buffer. Once documentation and collection of the find is completed, the monitor will remove the rope and allow activities to recommence in the area of the find. Costs for laboratory work and curation at a local museum are the responsibility of the City.	Prior to ground disturbance and during significant ground-disturbing activities	City of Laguna Beach	

Table 1. Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
Hydrology and Water Quality			
MM-HYD-1. Frac-Out Contingency Plan. Prior to construction, a frac-out contingency plan shall be completed and include measures for training, monitoring, worst-case scenario evaluation, equipment and materials, agency notification and prevention, containment, cleanup, and disposal of released drilling muds. Preventive pre-construction measures shall include determining the most appropriate horizontal directional drilling (HDD) depth and mud mixture, based on the preliminary geotechnical investigation (included as Appendix D to the project Initial Study/Mitigated Negative Declaration). In addition, drilling pressures shall be closely monitored to avoid drilling pressures exceeding pressures required to penetrate the rock formation. Monitoring by a minimum of two monitors (located both upstream and downstream) shall occur throughout drilling operations to ensure swift response in the event of a frac-out, while containment shall be accomplished through construction of temporary berms/dikes and use of silt fences, straw bales, absorbent pads, straw wattles, and plastic sheeting. Cleanup shall be accomplished with plastic pails, shovels, portable pumps, and vacuum trucks. The frac-out contingency plan shall be submitted to the City of Laguna Beach for review and approval.	Prior to construction and during construction	City of Laguna Beach	
Noise			
MM-NOI-1. Construction Noise Reduction. The following mitigation shall be implemented during construction of the project: ▪ During construction, the construction contractor shall ensure that all internal combustion engines on construction equipment and trucks are fitted with properly maintained mufflers. ▪ During construction activities, the project contractors shall be responsible for requiring the proper maintenance and tuning of all construction equipment to minimize noise emissions. ▪ Stockpiling and vehicle staging areas shall be located as far away as possible from occupied residences and the resort hotel guest accommodations and shall be screened from these uses by a noise-attenuating barrier.	Throughout construction	City of Laguna Beach	

Table 1. Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
▪ All stationary construction equipment (e.g., air compressor, generators, impact wrenches) shall be operated as far away from residential uses as possible and, to the extent practical, shall be shielded with temporary sound-attenuating barriers, aprons, shrouds, or comparably performing means that do not impact equipment performance or access. ▪ To the extent feasible, haul routes for removing excavated materials or delivery of aggregate materials from the site shall be designed to avoid residential areas and areas occupied by noise-sensitive receptors (e.g., hospitals, schools, and convalescent homes). ▪ Idling equipment shall be turned off when not in use for periods longer than 5 minutes. ▪ If feasible, the following types of construction equipment shall be used: - Electrical equipment instead of diesel-powered equipment - Hydraulic tools instead of pneumatic tools - Electric welders powered by remote generators ▪ During construction for the Open Trench to HDD Receiving Area segment, which is to occur at night and per City allowance in a letter dated January 3, 2025, a temporary sound-attenuating barrier (e.g., suspended acoustical blanket) having the following characteristics shall be installed: - A minimum sound transmission class (STC) rating of 25 - A minimum height of 10 feet from bottom edge (at grade) to top height - Sufficient total length, comprising adjoining panels or sheets with no airgaps at points of fastening or contact, parallel with and extending a minimum of twice the project alignment segment to be worked on a particular night (e.g., if 60 feet of progress is expected, the barrier shall be 120 feet long, or 60 feet in each direction from the average activity midpoint along the alignment segment)			

Table 1. Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
▪ As work on this segment progresses, portions of the temporary barrier or the entire temporary barrier shall be relocated, as needed, to ensure that the direct sound path between this construction activity and the closest off-site noise-sensitive receptor(s) is blocked. To accommodate installation, relocation, and/or removal of these temporary barriers to facilitate this nighttime construction work and not impede daytime resort operations (e.g., usage of Country Club Lane), actual on-site construction activity is not expected to exceed 6 hours per night, which will enable the aggregate 8-hour L_{eq} noise level to comply with the Federal Transit Authority's 70 dBA guidance threshold. ▪ Residences within 300 feet of work sites shall be notified of the construction schedule in writing at least 72 hours prior to construction. The contractor shall designate a noise disturbance point of contact who shall be responsible for responding to complaints regarding construction noise. The point of contact shall determine the cause of the complaint and ensure that reasonable measures are implemented to correct the problem. A contact number for the noise disturbance point of contact shall be conspicuously placed on construction site fences and written into the construction notification schedule sent to nearby residences. ▪ The use of mobile heavy construction equipment with alternative backup beeper alarm systems, which continue to provide the necessary safety warnings but reduce the impacts of these sounds on the surrounding community, shall be considered. Examples of such systems include variable-loudness or ambient-adjusted backup beepers and white-noise reversing alarms.			
Transportation			
MM-TRA-1. Construction Traffic Control Plan. Prior to construction of the project, the contractor shall prepare, and the City Engineer shall approve, a detailed Construction Traffic Control Plan. The Construction Traffic Control Plan shall include, but not be limited to, the following: ▪ Advance, bilingual notification of adjacent property owners and occupants of upcoming construction activities, including durations and daily hours of operation	Prior to finalization of plans and specifications	City of Laguna Beach	

Table 1. Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
▪ Prohibition of construction worker or equipment parking on adjacent streets ▪ Prohibition of haul truck staging on any streets adjacent to the project, unless specifically approved as a condition of an approved haul route ▪ Containment of construction activity within the project site boundaries ▪ Implementation of safety precautions for pedestrians and bicyclists through such measures as alternate routing and protection barriers ▪ Scheduling of construction-related deliveries, haul trips, etc., to occur outside the commuter peak hours to the extent feasible ▪ Spacing of trucks so as to discourage a convoy effect ▪ Maintenance of a log, available on the job site at all times, documenting the dates of hauling and the number of trips (i.e., trucks) per day ▪ Identification of a construction manager and provision of a telephone number for any inquiries or complaints from residents regarding construction activities posted at the site readily visible to any interested party during site preparation, grading, and construction			
Tribal Cultural Resources			
MM-TCR-1. Retention of a Native American Monitor Prior to Ground-Disturbing Activities. The City of Laguna Beach (City) shall retain a Native American monitor from interested consulting tribes (Tribes) prior to the commencement of initial ground-disturbing activities for the project. Ground-disturbing activities shall include, but are not limited to, demolition, pavement removal, potholing, augering, grubbing, tree removal, boring, grading, excavation, drilling, and trenching. The Native American monitor will complete daily monitoring logs that will provide descriptions of the relevant ground-disturbing activities; the type of construction activities performed; locations of ground-disturbing activities; soil types; culturally related materials; and any other facts, conditions, and discovered tribal cultural resources (TCRs), including but not limited to Native American cultural and historical artifacts, remains, places of significance, etc., (collectively referred to as TCRs), as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs will be provided to the City upon written request to the Tribes.	During excavation	City of Laguna Beach	

Table 1. Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
MM-TCR-2. Unanticipated Discovery Protocol for Tribal Cultural Resource Objects (Non-Funerary/Non-Ceremonial). In the event that unanticipated tribal cultural resources (TCRs) are exposed during construction activities, all construction work occurring within 50 feet of the find shall immediately stop until the discovery has been fully assessed by the Native American monitor(s) from the consulting tribes (Tribes). The work exclusion buffer may be adjusted as appropriate to allow work to feasibly continue at the recommendation of the Native American monitor(s). Should it be required, temporary flagging shall be installed around the TCR in order to avoid any disturbances from construction equipment. The Tribes will recover and retain all discovered TCRs in the form and/or manner the Tribes deem appropriate, in the Tribes' sole discretion, and for any purpose including for educational, cultural, and/or historic purposes.	During excavation	City of Laguna Beach	
MM-TCR-3. Unanticipated Discovery Protocol for Human Remains and Associated Funerary or Ceremonial Objects. Native American human remains are defined in California Public Resources Code Section 5097.98(d)(1) as an inhumation or cremation, in any state of decomposition or skeletal completeness. Funerary objects, called "associated grave goods" in California Public Resources Code Section 5097.98, are also to be treated according to this statute. If Native American human remains and/or associated grave goods are discovered or recognized on the project site, California Public Resources Code Section 5097.9 and California Health and Safety Code Section 7050.5 shall be followed. Human remains and/or associated grave goods shall be treated alike per California Public Resources Code Sections 5097.98(d)(1) and 5097.98(d)(2). Preservation in place (i.e., avoidance) is the preferred manner of treatment for discovered human remains and/or associated grave goods. Any discovery of human remains and/or associated grave goods shall be kept confidential to prevent further disturbance.	During excavation	City of Laguna Beach	
Wildfire			
MM-FIRE 1. Construction Fire Prevention Plan. The City of Laguna Beach shall prepare and implement a Construction Fire Prevention Plan (Plan) to ensure the safety of workers and the public during construction of the proposed project.	During construction	City of Laguna Beach	

Table 1. Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
The applicant must submit the Plan to the Laguna Beach Fire Department for review and approval prior to construction. The Plan shall include, but not be limited to, the following elements: ▪ Procedures shall be provided for minimizing potential ignition, including vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, and hot work restrictions. ▪ Work restrictions shall be provided for implementation during Red Flag Warnings and High to Extreme Fire Danger days. ▪ All internal combustion engines used at the proposed project site shall be equipped with spark arrestors. Spark arrestors shall be in good working order. ▪ Fire rules shall be posted and visible all to employees at the contractor's field office and in other common areas. ▪ Equipment parking areas and small stationary engine sites shall be cleared of all flammable materials. ▪ Smoking shall be prohibited in all vegetated areas and within 50 feet of combustible materials storage and shall be limited to paved areas or areas cleared of all vegetation. ▪ During construction, fire extinguishers and fire-fighting equipment sufficient to extinguish small fires shall be available on site and all construction vehicles shall be equipped with a fire extinguisher. ▪ All construction workers visiting the project site shall receive training on fire prevention procedures, the proper use of fire-fighting equipment, and procedures to be followed in the event of a fire. ▪ Fires ignited on site shall be immediately reported to the Laguna Beach Fire Department. ▪ The engineering, procurement, and construction contract(s) for the proposed project shall provide reference to or clearly state the requirements of this mitigation measure.			